

Fernie Landfill

2021 Groundwater Monitoring Annual Report



PREPARED FOR: REGIONAL DISTRICT OF EAST KOOTENAY

PREPARED BY: SPERLING HANSEN ASSOCIATES

January, 2022

PRJ21063



- Landfill Engineering
- Solid Waste Planning
- Environmental Monitoring
- Landfill Fire Control

1. INTRODUCTION

Sperling Hansen Associates (SHA) was retained by the Regional District of East Kootenay (RDEK) in 2020 to develop an updated Groundwater Monitoring Program (GMP) for seven (7) Solid Waste Management facilities located within the RDEK. As part of this GMP update SHA, along with Subconsultant Bear Environmental Limited (BEAR), will conduct four (4) groundwater sampling events per year, and provide one interim report per event for each site. The goal of this program is to provide the RDEK with valuable information regarding the groundwater quality at disposal sites and to assist in developing appropriate monitoring and management measures until 2025.

In 2021, sampling events occurred in January, April, July, and November over a week period. Samples taken from each site are recorded below, and water quality analysis discussed in Section 3. This report details the sampling notes, lab analysis results, and trends observed at the wells throughout 2021. Section 5 presents recommendations for the next year of monitoring.

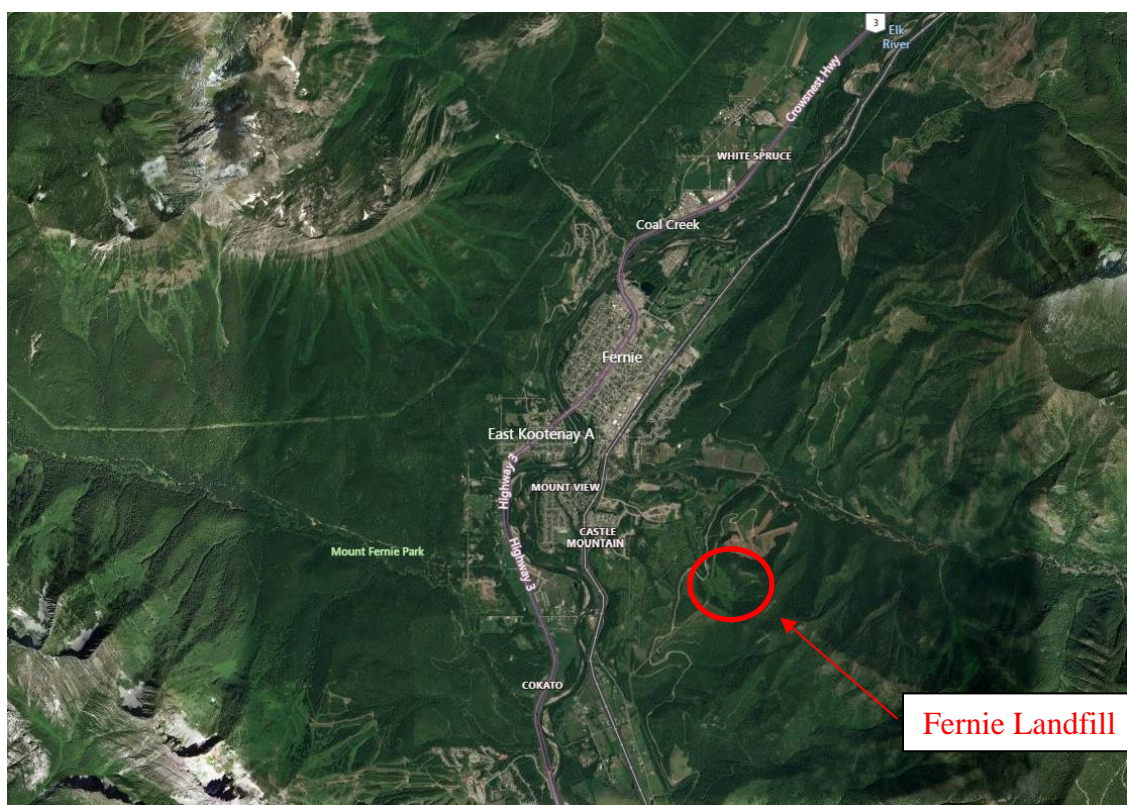


Photo 1-2. Fernie Landfill Site Location

1.1 Location and Setting

The closed Fernie Landfill is located in the sub-region of Elk Valley within the RDEK. The site is approximately 1 km east of Fernie on Coal Creek Road. The longitude and latitude are 115.044380° W and 49.498779° N respectively.



Photo 1-1. Aerial View of the Closed Fernie Landfill Site.

1.2 Site Operations

The landfill opened in the year 1970 and operated until 2000. Between 2000 and 2007 the site acted as a temporary Transfer Station. Final closure commenced in 2006 and was completed in 2008. The site is approximately 13 hectares in size and serviced a population of approximately 8,000 local residents, during its service life. The OC is attached here as Appendix A.

2. MONITORING PROGRAM

Due to the nature of waste when it comes into contact with water, landfill facilities are required to monitor wells on and off site to observe impacts to groundwater and surface water. In compliance with Landfill Criteria for Municipal Solid Waste, groundwater and surface water have been historically monitored at the Fernie Landfill.

Monitoring locations and sampling frequencies were identified in the post closure monitoring plan presented in the Design, Operations and Closure Plan (DOCP) that SHA developed for the site in 2004 (SHA 2004). The well locations are identified in Figure 1.

The monitoring program is summarized as follows:

- the groundwater monitoring program consists of quarterly sampling of six (6) wells and annual sampling of an additional three (3) wells;
- the surface water monitoring program consists of a total of five (5) surface water monitoring locations to be sampled on a quarterly basis, and an additional two (2) locations to be sampled on an annual basis.

2.1 Methodology

In 2021, the groundwater and surface water wells were sampled in accordance to the BC Field Sampling Manual. Samples were delivered to ALS Environmental in Calgary by courier. Certificates of Analysis (COA) are included in Appendix C. Based on internal laboratory QA/QC, the results are considered reliable.

Table 2-1 see below list the required monitoring parameters. Locations of the monitoring wells and surface water stations are presented in Figure 1.

Table 2-1. Groundwater Monitoring Parameters.

| Groundwater | |
|----------------------|--------------------------|
| Quarterly Parameters | Yearly Parameters |
| alkalinity | alkalinity |
| chloride | chloride |
| fluoride | fluoride |
| sulphate | sulphate |
| ammonia | ammonia |
| nitrate | nitrate |
| Nitrite (N) | Nitrite (N) |
| TOC | TOC |
| orthophosphorous | orthophosphorous |
| Dissolved Metals | Dissolved Metals |
| COD | COD |
| BOD | BOD |
| | PAH Annually from SHA-5s |
| | VOC Annually from SHA-5s |

2.2 Groundwater Flow

The Fernie site is a closed landfill and is located on glacial till and colluvium underlain by bedrock. The topography of the site slopes from north to southwest. The Elk River is located approximately 1.5km west of the Site. Coal Creek, a tributary to Elk River run east-west approximately 65m south of the Site. A tributary to Coal Creek appears to dissect the site from North the South. Based on regional topography,

groundwater is inferred to flow south west in the same direction as the Elk River. Locally, groundwater flow can be affected by building foundations, recharge areas, drainage and subsurface utilities. Depending on their depth, underground structures may significantly influence shallow groundwater flow in the vicinity of the Site. Well details are shown in Table 2-2 below.

Table 2-2. Well Details and Water Levels

| Well ID | Well Construction | Q1 Water Level (m) | Q2 Water Level (m) | Q3 Water Level (m) | Q4 Water Level (m) |
|---------|-------------------|--------------------|--------------------|--------------------|--------------------|
| E257239 | 2" PVC | 4.690 | 5.045 | 5.720 | 5.210 |
| E257242 | 2" PVC | 2.975 | 3.120 | 3.380 | 2.940 |
| E257235 | 2" PVC | 1.440 | 1.780 | 3.040 | 1.845 |
| E257237 | 2" PVC | 2.180 | 2.930 | Dry | 2.850 |
| E257244 | 2" PVC | 2.470 | 2.725 | 4.535 | 3.400 |
| E257236 | 2" PVC | 1.920 | 2.190 | | |
| E257238 | 2" PVC | 4.095 | 3.695 | 7.710 | |

2.3 Surface Water

The DOCP list a total of five (5) surface water monitoring locations to be sampled on a quarterly basis, and an additional two (2) locations to be sampled on an annual basis. Some of the streams listed are of ephemeral nature with only enough water for sampling periodically.

Table 2-3 presented below list the required monitoring parameters.

Table 2-3. Surface Water Monitoring Parameters

| Surface Water | |
|----------------------|-------------------|
| Quarterly Parameters | Yearly Parameters |
| alkalinity | alkalinity |
| chloride | chloride |
| fluoride | fluoride |
| sulphate | sulphate |
| ammonia | ammonia |
| nitrate | nitrate |
| Nitrite (N) | Nitrite (N) |
| TOC | TOC |
| orthophosphorous | orthophosphorous |
| Total Metals | Total Metals |
| COD | COD |
| BOD | BOD |
| TSS | TSS |

The main surface water body near the site is Coal Creek, a large creek and tributary to Elk River located downgradient and south of the site across from Coal Creek Road. Locations of the surface water monitoring locations are presented in Figure 1.

Several surface water locations could not be sampled due to insufficient recharge or lack of flow. In April, E257252 was noted to be dry, and SHA-5S had insufficient recharge. In July, E257245, E257250, and E257252 were reported to be dry. E257244 and SHA-5S had insufficient recharge. In November, E257252 was dry and SHA-5S again had insufficient recharge. In April and November E257239 was reported to have slow recharge.

2.4 Nomenclature

The reporting of monitoring wells at the RDEK sites has previously been a combination of Environmental Monitoring System Numbers (EMSN) and site number names that are the more common naming convention (MW-1). The majority of sites have both, but some wells only have the E number. To avoid confusion and the potential of double counting the wells, SHA has decided to use the E numbers when referring to them. This way reports and analyses can be consistent, and can be traced to the OC or Permit for the site. The site maps attached to these Annual Reports as Figure 1 have been updated to reflect this change and now have the EMSN numbers labelled.

2.5 Regulatory Criteria

Per the DOCP completed in 2004, ground and surface water quality should be assessed using the most recent Approved and Working Criteria for Water Quality prepared by the Water Management Division of the Ministry of Environment, Lands, and Parks at or beyond the landfill property boundary.

The BC Contaminated Sites Regulation (CSR) Protocol 21 indicates that Aquatic Life Standards (AW) generally apply to all groundwater located within 500 m of a surface water body containing aquatic life. The Site is located approximately 65m from Coal Creek and 150m east of Elk River, therefore the Aquatic Life for Freshwater (AW) standards will apply.

The CSR Protocol 21 indicates that Drinking Water (DW) Standards generally apply to groundwater and surface water where drinking water sources are within 500m of a site, or if a property is situated on an aquifer that could be used in the future for Drinking Water. A search for water wells revealed that there are no water wells within 500m of the Site. Information from the BC Water Atlas indicates that there are no mapped aquifers underlying the Site. Although current DW use appears to not apply to the site, without further investigation, future DW standards are assumed to apply. Note that future drinking water use applies where information is unavailable or inadequate to demonstrate an absence of drinking water aquifers below a site.

Recent standards and guidelines have been applied by SHA to include:

- The Schedule 3.2 of the BC CSR Standards with consideration to Aquatic Life (AW) and Drinking Water (DW) 2020 for groundwater quality;

- British Columbia Approved Water Quality Guidelines: Aquatic Life (AW) and Drinking Water (DW) for surface water.

These standards and guidelines are the most recent published by BC ENV used to assess groundwater at contaminated sites and the quality of drinking water. The CSR guidelines are used to assess groundwater quality, while the BC WQG are used for surface water.

3. RESULTS

Parameters tested during this event included:

- alkalinity, chloride, fluoride, sulphate, ammonia, nitrate, nitrite, TOC, orthophosphorus, dissolved metals, BOD, COD, and TSS.
- Annual parameters - benzene, toluene, ethylbenzene, and xylene (BTEX), volatile petroleum hydrocarbons, (VPH), and extractable petroleum hydrocarbons (EPH) were not tested in 2020.

In Appendix B, Table B-1 provide the water quality analysis alongside the applicable water standards.

3.1 Exceedances

Table 3-1 shows exceedances and the associated location by analyte.

Table 3-1. Exceedances Summary by Analyte

| | E257235 | E257236 | E257237 | E257238 | E257239 | E257242 | E257244 | E257240* | E257243* | E257245* | E257246* | E257247* | E257250* | E257252* |
|---|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|
| Lab Results | | | | | | | | | | | | | | |
| Dissolved Metals | | | | | | | | | | | | | | |
| Lithium (dissolved) (CSR DW) | | | | X | X | | X | | | | | | | |
| Manganese (dissolved) (CSR DW) | X | X | X | X | | X | | | | | | | | |
| | | | | | | | | | | | | | | |
| General and Inorganic Parameters | | | | | | | | | | | | | | |
| Total organic carbon (BC SDWQG) | | | | | | X | X | X | X | X | X | X | X | X |
| | | | | | | | | | | | | | | |
| Total Metals | | | | | | | | | | | | | | |
| Lithium (total) (CSR DW) | | | | | | | | | | | X | X | | |

3.1.1 Groundwater

All parameters tested in groundwater were below applicable BC CSR AW Standards.

Parameters above BC CSR DW standards in groundwater included:

- Lithium (dissolved)
- Manganese

Maximum concentrations are shown in the Table below:

Table 3-2. Maximum Concentrations in Groundwater

| Parameter | BC CSR DW Standard (µg/L) | Maximum Concentration (µg/L) | Well Name |
|--------------------------|---------------------------|------------------------------|-----------|
| Dissolved Lithium (Li) | 8 | 15.9 | E257244 |
| Dissolved Manganese (Mn) | 1,500 | 2,680 | E257235 |

3.1.2 Surface Water

The BC SDWQG Maximum Allowable Concentration (MAC) for total organic carbon (TOC) was exceeded at several surface water locations. Parameters above the CSR-DW guidelines included total lithium. Maximum concentrations are shown in the Table below:

Table 3-3. Maximum Concentrations in Surface Water

| Parameter | BC SDWQG MAC (mg/L) | Maximum Concentration (mg/L) | Well Name |
|----------------------|---------------------------|------------------------------|-----------|
| Total organic carbon | 4 | 11.1 | E257250 |
| Parameter | BC CSR DW Standard (µg/L) | Maximum Concentration (µg/L) | Well Name |
| Total Lithium (Li) | 8 | 12.1 | E257247 |

4. DISCUSSION

With the exception of dissolved and total lithium, dissolved manganese, and TOC, the parameters tested for in 2021 were below applicable water quality criteria.

Maximum concentrations in groundwater included the following:

- Lithium (dissolved) was found at E257244 at 15.9 µg/L versus the BC CSR DW standard of 8 µg/L.
- Manganese was found at E257235 at 2,680 µg/L versus the BC CSR DW standard of 1,500 µg/L.
- Lithium (total) was found at E257247 at 12.1 µg/L versus the BC CSR DW standard of 8 µg/L.

These maximums are calculated as 1.99, 1.79, and 1.51-times respective DW standards.

Note that SHA reviewed Site water use per Protocol 21 to determine suitable criteria to compare water quality. Although current drinking water use does not appear to apply to the Site, due to the lack of

information concerning the unmapped aquifer underlying the Site, future drinking water use may be applicable.

Based on this information, SHA considers the impacts from slightly elevated metals above DW standards and guidelines to be low. Note that elevated metals parameters were not accompanied by other typical elevated landfill leachate parameters such as sulphate, sodium, and nitrate.

4.1 Trend Analysis

To illustrate the trends observed in key parameters at the wells sampled, SHA has prepared figures that combine the 2020-2021 analytical results with the applicable criteria limits. These figures are attached to this report as Appendix D.

- Figure 2 – Dissolved Lithium concentrations
- Figure 3 – Total Lithium concentrations
- Figure 4 – Sulfate concentrations
- Figure 5 – Sodium concentrations
- Figure 6 – Chloride concentrations
- Figure 7 – Nitrate Concentrations
- Figure 8 – Specific Conductance (Conductivity)
- Figure 9 – Manganese concentrations

Lithium and manganese are the only parameters above the CSR DW limit; however, these are observed in some and sometimes all quarterly events and have not formed a consistently exceeding trend. Sulfate, sodium, chloride, nitrate, and conductivity are graphed because they are typical landfill indicators. As shown in the graphs, these parameters are below applicable standards and guidelines and show the landfill is not impacting groundwater chemistry beyond regulatory standards.

Please note that the graphs provided are for observing trends, and data less than or equal to the detection limit for a parameter appears on graphs as trace concentrations. If a well shows to have no data on the graph, please refer to the master data table for the exact parameter concentration.

5. CONCLUSIONS AND RECOMMENDATIONS

In 2021, sampling at the Site occurred closely in line with the Site's DOCP developed by SHA in 2004 (SHA 2004). All parameters generally associated with landfill leachate including, but not limited to, chloride, nitrate, and sulfate were below applicable standards and guidelines. However, some metals parameters, lithium and manganese in groundwater were detected slightly above applicable criteria.

In conducting analyses for seven different sites within the RDEK with similar exceedances, above the CSR DW limit, SHA believes there is evidence to support that the elevated concentrations are a region-wide occurrence caused by existing background concentrations rather than impacts caused by activities at the solid waste sites.

SHA reviewed Site and surrounding area water use, based on this information, SHA considers the impacts from slightly elevated metals above DW standards and guidelines to be low.

SHA recommends the following:

Parameter concentrations of dissolved metals slightly above applicable standards were detected in the Site groundwater monitoring wells. Based on surrounding land use, and relatively low impact to the immediate environment, SHA does not envision a change to the sampling method is warranted at this time. However, if exceeding parameters begin to form a consistently increasing trend, the RDEK may consider groundwater sampling methods using a low flow technique, where possible, to minimize the re-suspension of colloidal materials that can be caused during sampling with bailers and/or Waterra inertia pumps. If this sampling method is effective in providing a more accurate interpretation of groundwater data and able to show the groundwater exceedances are a result of suspended materials from bailer sampling, then SHA could make a recommendation to the Regional District to implement this sampling method for the monitoring going forward.

The next sampling event is scheduled for January, 2022, kicking off the third year of the monitoring contract.

6. STATEMENT OF LIMITATIONS

This report has been prepared by Sperling Hansen Associates. (SHA) on behalf of the Regional District of East Kootenay (RDEK) in accordance with generally accepted engineering practices to a level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions in British Columbia.

The report is based on site visits, project experience, and analysis by SHA staff of data compiled during the preparation of this report from a number of sources. Except where specifically stated to the contrary, the information on which this study is based has been obtained from external sources. This external information has not been independently verified or otherwise examined by SHA to determine its accuracy and completeness. SHA has relied in good faith on this information and does not accept responsibility of any deficiency, misstatements or inaccuracies contained in the reports as a result of omissions, misinterpretation and/or fraudulent acts of the persons interviewed or contacted, or errors or omissions in the reviewed documentation.

The report is intended solely for the use of the RDEK. Any use which other parties makes of this report, or any reliance on, or decisions to be made based on it, are the responsibilities of such other parties. SHA does not accept any responsibility for other uses of the material contained herein nor for damages, if any, suffered by any third party because of decisions made or actions based on this report. Copying of this intellectual property for other purposes is not permitted.

The findings and conclusions of this report are valid only as of the date of this report. The interpretations presented in this report and the conclusions and recommendations that are drawn are based on information that was made available to SHA during the course of this project. Should additional new data become available in the future, SHA should be requested to re-evaluate the findings of this report and modify the conclusions and recommendations drawn, as required.

Should you have any questions on this report or require further assistance or information, please feel free to contact the undersigned at 778-471-7088 or 604-986-7723.

Report prepared by:



Chloe Hetherington
Environmental Analyst Assistant

Report reviewed by:



Scott Garthwaite
Sr. Civil Technologist

7. REFERENCES

Eco/Logic Environmental, Fernie Landfill Post-Closure Groundwater Monitoring 2019, prepared for the Regional District of East Kootenay.

Environmental Management Act, BC Contaminated Sites Regulation Schedule 3.2, 2019.

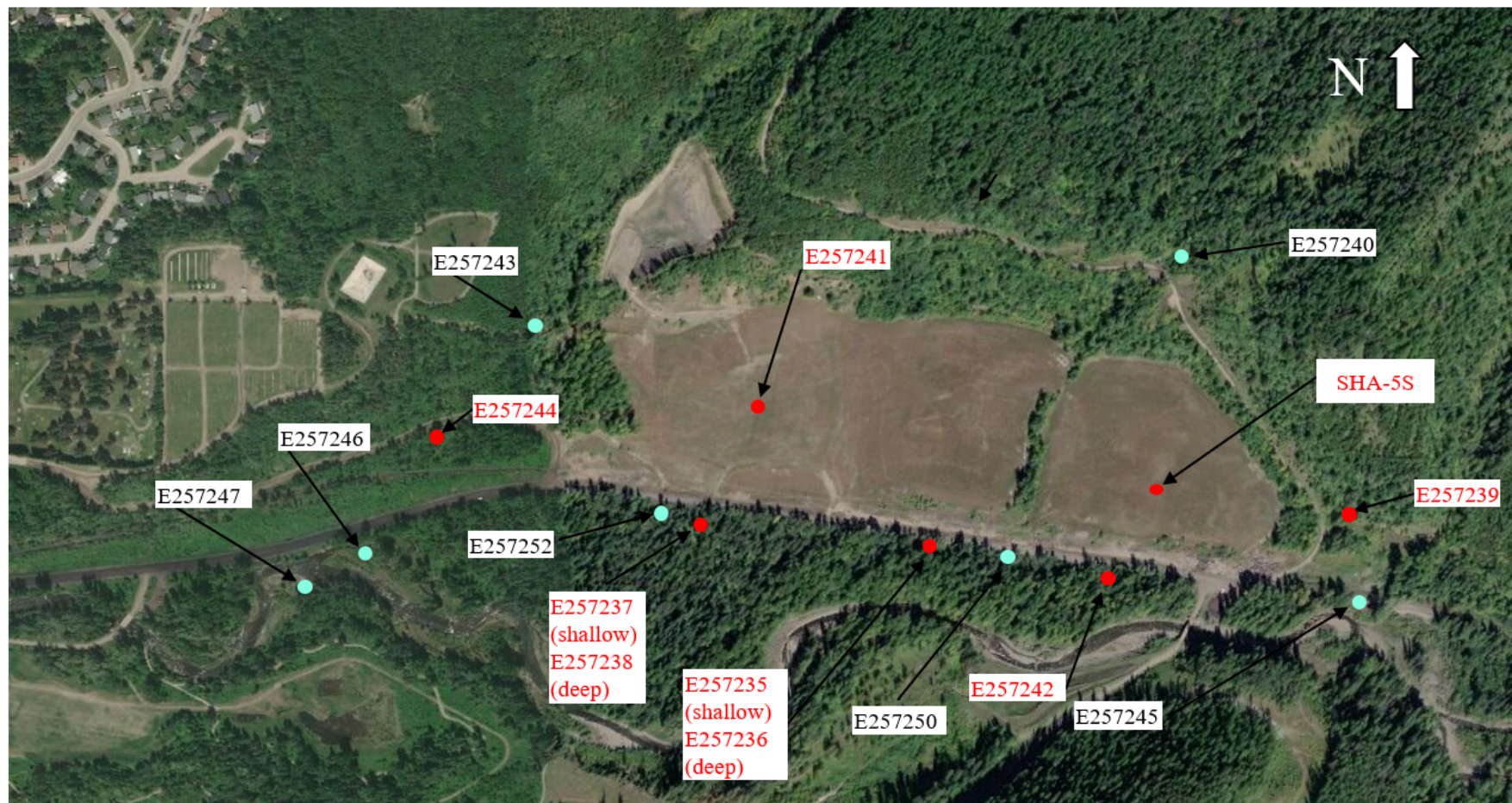
Ministry of Environment, BC Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture Summary Report, August 2019.



RDEK Public Web Map 2020, retrieved from <https://www.rdek.bc.ca/departments/mapping>

SHA 2004. Fernie Closure Plan. Sperling Hansen Associates PRJ04007. March 2004.

British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture, Summary Report. Water Protection & Sustainability Branch, Ministry of Environment & Climate Change Strategy, August 2019.

https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/waterquality/water-quality-guidelines/approved-wqgs/wqg_summary_aquaticlife_wildlife_agri.pdf



 GROUNDWATER MONITORING LOCATIONS
 SURFACE WATER MONITORING LOCATIONS



PROJECT:

**SOLID WASTE FACILITY
MONITORING
PROGRAM 2020-2025**

TITLE:

**FERNIE
LANDFILL
MONITORING LOCATIONS**

SCALE:
N/A

DATE:
2022/01/10
yy/mm/dd

PROJECT NO:
21063

DESIGNED

DRAWN

CHECKED

DRAWING NO:

Figure 1

APPENDICES

APPENDIX A
Permit



February 25, 2005

File: PR-01486

REGISTERED MAIL

City of Fernie
PO Box 190
Fernie, British Columbia V0B 1M0

Dear Permittee:

Re: Cancellation of Permit PR-01486 under the *Environmental Management Act*

Please be advised that Waste Management Permit PR-01486 issued in the name of The Corporation of the City of Fernie is hereby cancelled pursuant to Section 24 (10) of the *Environmental Management Act*.

Yours truly,

R. W. Baker, P.Eng.
for Director, *Environmental Management Act*
Kootenay and Okanagan Regions

cc: Environment Canada
R.D.E.K., 19-24th Avenue South, Cranbrook BC V1C 3H8



Province of
British Columbia

MINISTRY OF ENVIRONMENT, LANDS AND PARKS
AND MINISTER RESPONSIBLE FOR
MULTICULTURALISM AND HUMAN RIGHTS

BC
Environment

#401 - 333 Victoria Street
Nelson, British Columbia
V1L 4K3
Telephone: (604) 354-6333
Main Fax: (604) 354-6332
EP Fax: (604) 354-6367

APR 26 1995

File:PR-01486

REGISTERED MAIL

The Corporation of the City of Fernie
Post Office Box 190
Fernie, British Columbia
VOB 1M0

Dear Permittee:

NOTICE OF AN AMENDMENT TO PERMIT PR-01486
ISSUED UNDER THE PROVISIONS OF
THE WASTE MANAGEMENT ACT, S.B.C. 1982, c.41,
IN THE NAME OF THE CORPORATION OF THE CITY OF FERNIE

Take notice that the Assistant Regional Waste Manager has this day issued an amendment to Permit PR-01486. The amendment consists of an updated format of the permit and changes to Subsection 3.1 and will become effective immediately.

The amended permit is enclosed.

Dated at Nelson, British Columbia this

APR 26 1995

Barry Wood, P. Eng.
Assistant Regional Waste Manager

/sw

Attachment



**Province of
British Columbia**

MINISTRY OF ENVIRONMENT, LANDS AND PARKS
AND MINISTER RESPONSIBLE FOR
MULTICULTURALISM AND HUMAN RIGHTS

**BC
Environment**

#401 - 333 Victoria Street
Nelson, British Columbia
V1L 4K3
Telephone: (604) 354-6333
Main Fax: (604) 354-6332
EP Fax: (604) 354-6367

APR 26 1995

File: PR-01486

REGISTERED MAIL

The Corporation of the City of Fernie
Post Office Box 190
Fernie, British Columbia
V0B 1M0

Dear Permittee:

Enclosed is Amended Permit PR-01486 issued under the provisions of the Waste Management Act. Your attention is respectfully directed to the conditions outlined in the permit. An annual permit fee will be determined according to the Waste Management Permit Fees Regulation.

This permit does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the permittee. It is also the responsibility of the permittee to ensure that all activities conducted under this permit are carried out with due regard to the right of the third parties and comply with other applicable legislation that may be in force.

This permit may be appealed by persons who consider themselves aggrieved by this decision in accordance with Part 5 of the Waste Management Act. Written notice of intent to appeal must be received by the Regional Waste Manager within twenty-one (21) days of the date of this decision.

Administration of this permit will be carried out by staff from our Sub-Regional Office located at 205 Industrial Road G, Cranbrook, British Columbia, V1C 6H3, (telephone: (604) 489-8510). Plans, data and reports pertinent to the permit are to be submitted to the Regional Waste Manager at Nelson, British Columbia.

Yours truly,

Barry Wood, P. Eng.
Assistant Regional Waste Manager
Kootenay Region

/sw
ENCLOSURE



MINISTRY OF ENVIRONMENT,
LANDS AND PARKS

**PERMIT
PR-01486**

Under the Provisions of the Waste Management Act

**THE CORPORATION OF THE CITY OF FERNIE
POST OFFICE BOX 190
FERNIE, BRITISH COLUMBIA
V0B 1M0**

is authorized to discharge refuse to the ground and contaminants to the air from municipal sources located in and near the City of Fernie, British Columbia, subject to the conditions listed below. Contravention of any of these conditions is a violation of the Waste Management Act and may result in prosecution.

1. AUTHORIZED DISCHARGE

- 1.1. This subsection applies to the discharge of refuse from **MUNICIPAL SOURCES** located in and near the City of Fernie as shown on the attached Site Plan A. The site reference number for this discharge is E210156.
- 1.1.1. The maximum authorized rate of discharge is 5,528 tonnes per year excluding those items listed in Subsection 2.3 of this permit.
- 1.1.2. The characteristics of the discharge shall be typical municipal refuse, excluding special waste.
- 1.1.3. The authorized works are those associated with a landfill operation located approximately as shown on attached Site Plan A.
- 1.1.4. The location of the facilities from which the discharge originates is in and near the City of Fernie.
- 1.1.5. The location of the point of discharge is Part of Parcel 89 of District Lot Number 4589, Kootenay District.

APR 26 1995

A handwritten signature in black ink, appearing to read 'Barry Wood'.

Barry Wood, P. Eng.
Assistant Regional Waste Manager

2. GENERAL REQUIREMENTS

2.1. Landfill Operation

From April 2 to October 31 the permittee shall ensure that all exposed refuse is covered with a minimum of 0.15 metres of cover material of a type suitable to the Regional Waste Manager at the end of each day of public access. The permittee shall not allow uncovered refuse to accumulate overnight. The Regional Waste Manager may vary the April 2 and October 31 dates to meet specific weather and wildlife conditions.

From November 1 to April 1 the permittee shall ensure that all exposed refuse is covered with a minimum of 0.15 metres of cover material of a type suitable to the Regional Waste Manager once per seven days. The Regional Waste Manager may vary the November 1 and April 1 dates to meet specific weather and wildlife conditions. Within 90 days of issuance of this permit the permittee shall advise the Regional Waste Manager in writing of the precautions the permittee will take to ensure an adequate supply of frost free cover material is available during winter operation to meet the once per seven day covering requirement.

In the event of an emergency or condition beyond the control of the permittee which prevents operation of the landfill as specified, the permittee shall immediately notify the Regional Waste Manager.

The use of refuse containers at or near the landfill is prohibited unless approved by the Regional Waste Manager.

2.2. Site Preparation and Restoration

Provision of fencing, site access control, vehicle safety barriers, surface water diversionary works, firebreaks final cover and site restoration as required, shall be approved by the Regional Waste Manager.

2.3. Segregation of Wastes

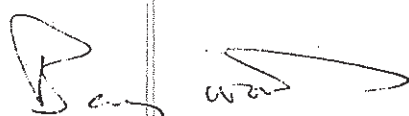
Segregate large metallic waste such as appliances and auto bodies, etc., for disposal in a separate area of the site. Used tires shall be segregated for disposal in a separate area of the site. Burning of tires by the permittee is prohibited.

Date Issued: December 4, 1972

Date Amended:
(most recent)

APR 26 1995

Page: 2 of 6


Barry Wood, P. Eng.
Assistant Regional Waste Manager

PERMIT PR-01486

2.4. Wildlife Nuisance

The subject discharge is one that is of concern because of the possibility of a nuisance or hazard being caused by bears or other animals attracted to the site. For this reason the permittee shall install electric fencing. On or before June 15, 1994 the permittee shall submit a report on electric fencing to the Regional Waste Manager for approval. The report shall contain the following;

- detailed plans and drawings of the proposed fence;
- specifications of fence components;
- estimated costs of installation, operation and maintenance; and,
- a fence construction schedule which shall contain a firm completion date of no later than July 29, 1994.

2.5. Annual Report

The permittee shall submit an annual report to the Regional Waste Manager for approval on or before January 31 each year. The report shall contain the following information;

- total volume and/or tonnage of waste discharged into the landfill for the previous calendar year;
- approved design volume;
- remaining site life and capacity;
- operational plan for the next 12 months;
- operation and maintenance expenditures;
- any leachate, water quality and landfill gas monitoring data and interpretation;
- where applicable, amounts of leachate collected, treated and disposed;
- any changes from approved reports, plans and specifications;
- an up to date contingency plan, noting any amendments made to the plan during the year;
- where applicable, amount of landfill gas collected and its disposition; and,
- a closure plan or review of the closure plan and associated costs.

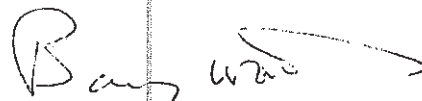
Date Issued: December 4, 1972

Date Amended:

(most recent)

Page: 3 of 6

APR 26 1995



Barry Wood, P. Eng.
Assistant Regional Waste Manager

PERMIT PR-01486

2.6. Leachate

Should leachate emanate from the refuse site and become detrimental to the environment, a means of mitigating the impact of the leachate will be implemented by the permittee.

2.7. Litter Control

Any litter emanating from the landfill site and scattered into neighbouring property, along roads, in drainage ditches, along litter control fences or elsewhere on the landfill site shall be removed to the satisfaction of the Regional Waste Manager and incorporated into the landfill twice per year, once in the Spring and once in the Fall. Written notification of clean up is to be submitted to the Regional Waste Manager within 7 days of completion. The Regional Waste Manager may specify additional requirements for the control and clean-up of litter pursuant to Section 11 of the Waste Management Act.

2.8. Designating Signs

Suitable signs shall be erected and maintained at designated locations of the site advising users of the specific disposal areas. The lettering on these signs shall be approved by the Regional Waste Manager.

2.9. Surface Water Diversion

Surface water shall be diverted away from the landfill site to minimize contact with wastes on the landfill site.

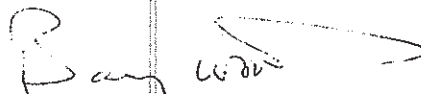
2.10. Operational Requirements For Regulated Open Burning

2.10.1. Area

The operation shall be restricted to an area on the site which is satisfactory to the Regional Waste Manager. If required, this area shall be fenced to restrict access to the burn area stockpile.

2.10.2. Quantity and Frequency

The maximum quantity of wastes to be treated is 150 m³ per burn at a frequency not to exceed once per week. Each burn shall comprise one continuous period necessary to reduce the stockpiled waste to ashes and shall not exceed one operating day.



Barry Wood, P. Eng.
Assistant Regional Waste Manager

2.10.3. Nature of Wastes

Generally, no waste shall be burned which is unacceptable to the Regional Waste Manager. Acceptable materials may include selected demolition refuse, stumps, trees and similar items, but excluding nuisance causing combustibles such as rubber, plastics, tars, insulation, etc. Animal carcasses are not to be burned. The approval of the Regional Waste Manager shall be obtained prior to open burning any waste not specified as acceptable above

2.10.4. Timing

Burning shall take place only when an attendant is on duty and when conditions promote rapid combustion and dispersion of combustion products. Materials shall be charged to the facility in a manner to promote best combustion and restrict the uplift of lighter constituents. No burning shall take place during periods of fire hazard nor when burning is prohibited by other government agencies.

2.10.5. Fire Control

Devices shall be on site for extinguishing fires to prevent them from spreading to surrounding areas. Such devices may include a pressurized water supply or chemical type fire extinguishers, or an earth stockpile. If an earth stock pile is contemplated for fire control earth moving equipment shall be available at the site. A fireguard shall be cleared and maintained free of combustible material.

2.10.6. Residue of Combustion

As soon as the residue of combustion has cooled to ambient temperature it shall be incorporated into the landfill.

2.11. Additional Requirements

- 2.11.1 In all sections of this permit requiring acceptance or approval by the Regional Waste Manager the permittee shall obtain that acceptance or approval from the Regional Waste Manager in writing.
- 2.11.2 Within 30 days of issuance of this permit the permittee shall submit a letter to the Regional Waste Manager outlining the relevant times of operations pursuant to Section 2, Subsection 2.1 in relation to the words "at the end of each day of public access".

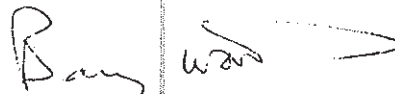
Date Issued: December 4, 1972

Date Amended:

(most recent)

Page: 5 of 6

APR 26 1995



Barry Wood, P. Eng.
Assistant Regional Waste Manager

PERMIT PR-01486

3. MONITORING AND REPORTING REQUIREMENTS

3.1. Monitoring/Reporting

On the basis of inspections and other information related to the effects of the discharges on the receiving environment, the Regional Waste Manager may require the permittee to implement a monitoring program and/or install additional pollution control works pursuant to Section 11 of the Waste Management Act. These additional requirements may include implementation of a leachate collection and treatment system.

The permittee shall maintain a visual record of the landfill operation by photographing the active area immediately after the covering operation is completed or immediately after landfill opening in the morning or as soon as lighting conditions allow a photograph to be taken. The photographs shall be maintained in an orderly manner and shall be available for inspection by an officer during normal business hours. In addition, the original photographs shall be submitted to the Regional Waste Manager upon request. After reviewing the original photographs the Regional Waste Manager will return them to the permittee.

4. DEFINITIONS

4.1. "Special Waste"

Special Waste will have the meaning as it is defined in Part One of the Special Waste Regulations enacted pursuant to the Waste Management Act.

4.2 "Refuse"

Refuse will have the meaning as it is defined in the Waste Management Act.

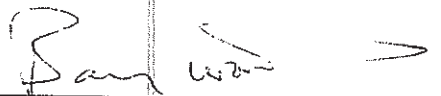
Date Issued: December 4, 1972

Date Amended:

(most recent)

Page: 6 of 6

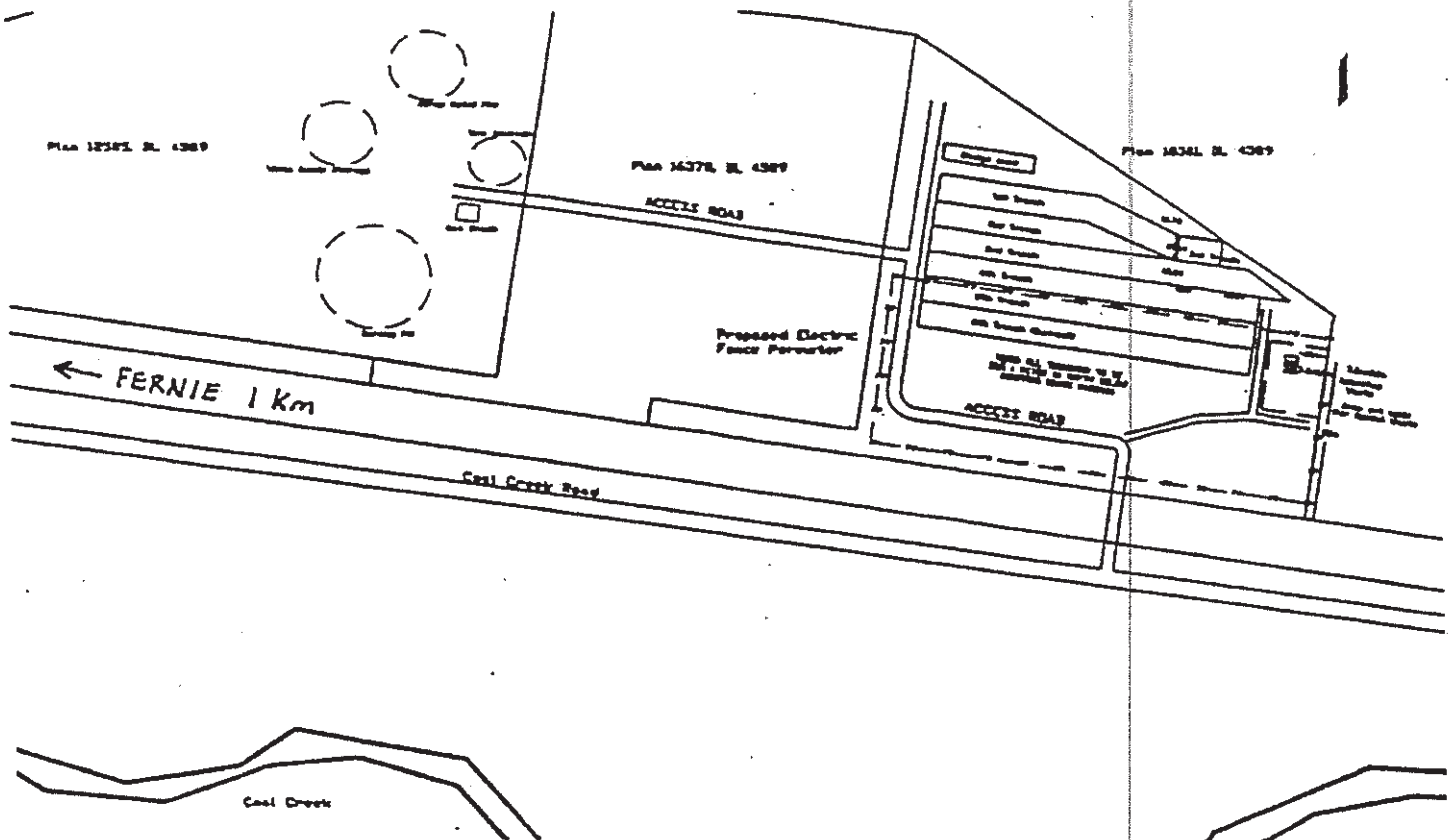
APR 26 1995



Barry Wood, P. Eng.
Assistant Regional Waste Manager

PERMIT PR-01486

Site Plan A



LEGAL DESCRIPTION: Part of Parcel 89 of District Lot 4589, Kootenay Land District

GENERAL DESCRIPTION

Permit: PR-01486

Date Issued: December 4, 1972

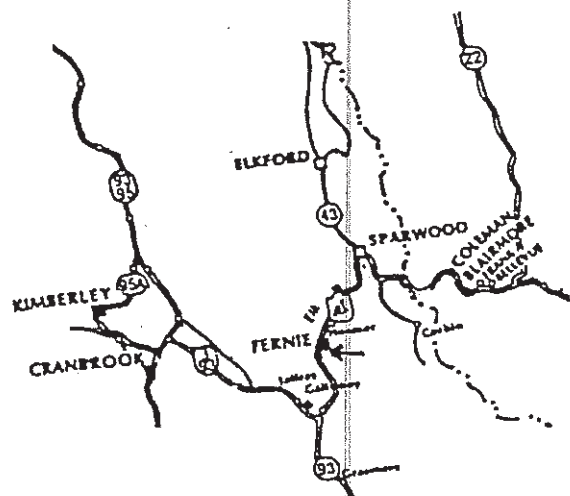
Date Amended: APR 26 1995

Assistant Regional Waste Manager:

Barry Wood
Barry Wood, P. Eng.

Name of Applicant:

The Corporation of the City of Fernie



APPENDIX B
Water Quality Results

APPENDIX C
Certificates of Analysis



Sperling Hansen Associates Inc.
ATTN: Scott Garthwaite
#8 - 1225 East Keith Road
North Vancouver BC V7J 1J3

Date Received: 19-JAN-21
Report Date: 27-JAN-21 14:57 (MT)
Version: FINAL

Client Phone: 604-986-7723

Certificate of Analysis

Lab Work Order #: L2549508
Project P.O. #: NOT SUBMITTED
Job Reference: 20050 FERNIE
C of C Numbers:
Legal Site Desc:

Patryk Wojciak, B.Sc., P.Chem.
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 2559 29 Street NE, Calgary, AB T1Y 7B5 Canada | Phone: +1 403 291 9897 | Fax: +1 403 291 0298
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2549508-1 Surface Water 13-JAN-21 12:00 E257246 | L2549508-2 Groundwater 14-JAN-21 12:00 E257244 | L2549508-3 Surface Water 13-JAN-21 12:00 E257247 | L2549508-4 Groundwater 14-JAN-21 12:00 E257237 | L2549508-5 Groundwater 13-JAN-21 12:00 E257235 |
|---|--|--|--|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | 98.1 ^{HTC} | 285 | 81.0 ^{HTC} | 353 | 283 |
| | Total Suspended Solids (mg/L) | 2.3 | 97.2 | 4.9 | 13.7 | 1280 |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 96.9 | 210 | 78.3 | 307 | 291 |
| | Ammonia as N (mg/L) | <0.0050 | 0.0072 | <0.0050 | 0.0113 | 0.426 |
| | Bicarbonate (HCO ₃) (mg/L) | 118 | 256 | 95.5 | 375 | 355 |
| | Carbonate (CO ₃) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Chloride (Cl) (mg/L) | 1.25 | 56.4 | 0.43 | 4.22 | 1.62 |
| | Conductivity (EC) (uS/cm) | 186 | 552 | 154 | 576 | 493 |
| | Fluoride (F) (mg/L) | 0.056 | 0.066 | 0.053 | 0.036 | 0.038 |
| | Hydroxide (OH) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Nitrate and Nitrite (as N) (mg/L) | 0.0484 | 0.0106 | 0.0552 | 1.90 | 0.0093 |
| | Nitrate (as N) (mg/L) | 0.0484 | 0.0106 | 0.0552 | 1.90 | 0.0093 |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| | pH (pH) | 8.19 | 8.11 | 8.17 | 8.12 | 8.07 |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0059 | <0.0010 | 0.0038 | 0.0069 | <0.0010 |
| | Sulfate (SO ₄) (mg/L) | 5.14 | 12.0 | 4.64 | 13.5 | 5.40 |
| | | | | | | |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 2.99 | 4.76 | 3.66 | 6.54 | 6.8 ^{DLM} |
| Total Metals | Aluminum (Al)-Total (mg/L) | 0.232 | | 0.354 | | |
| | Antimony (Sb)-Total (mg/L) | 0.00011 | | 0.00011 | | |
| | Arsenic (As)-Total (mg/L) | 0.00020 | | 0.00026 | | |
| | Barium (Ba)-Total (mg/L) | 0.238 | | 0.239 | | |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | | <0.000020 | | |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | | <0.000050 | | |
| | Boron (B)-Total (mg/L) | <0.010 | | <0.010 | | |
| | Cadmium (Cd)-Total (mg/L) | 0.0000437 | | 0.0000441 | | |
| | Calcium (Ca)-Total (mg/L) | 29.0 | | 23.2 | | |
| | Chromium (Cr)-Total (mg/L) | 0.00025 | | 0.00038 | | |
| | Cobalt (Co)-Total (mg/L) | <0.00010 | | <0.00010 | | |
| | Copper (Cu)-Total (mg/L) | 0.00051 | | 0.00064 | | |
| | Iron (Fe)-Total (mg/L) | 0.142 | | 0.264 | | |
| | Lead (Pb)-Total (mg/L) | 0.000086 | | 0.000152 | | |
| | Lithium (Li)-Total (mg/L) | 0.0090 | | 0.0102 | | |
| | Magnesium (Mg)-Total (mg/L) | 6.22 | | 5.59 | | |
| | Manganese (Mn)-Total (mg/L) | 0.00348 | | 0.00452 | | |
| | Mercury (Hg)-Total (mg/L) | <0.0000050 | | <0.0000050 | | |
| | Molybdenum (Mo)-Total (mg/L) | 0.000434 | | 0.000505 | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2549508-6 Surface Water 13-JAN-21 12:00 E257250 | L2549508-7 Groundwater 13-JAN-21 12:00 E257252 | L2549508-8 Groundwater 13-JAN-21 12:00 E257239 | L2549508-9 Surface Water 13-JAN-21 12:00 E257245 | L2549508-10 Groundwater 13-JAN-21 12:00 E257242 |
|---|--|--|--|--|--|---|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | 81.2 ^{HTC} | 63.3 ^{HTC} | 173 ^{DLHC} | 60.0 ^{HTC} | 341 |
| | Total Suspended Solids (mg/L) | 58.9 | 30.2 | 1800 | 22.3 | 155 |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 75.9 | 56.5 | 169 | 58.2 | 343 |
| | Ammonia as N (mg/L) | 0.0085 | <0.0050 | 0.0126 | <0.0050 | 0.0476 |
| | Bicarbonate (HCO ₃) (mg/L) | 92.6 | 68.9 | 206 | 71.0 | 418 |
| | Carbonate (CO ₃) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Chloride (Cl) (mg/L) | 0.54 | 0.34 | 0.43 | 0.20 | 1.98 |
| | Conductivity (EC) (uS/cm) | 142 | 113 | 303 | 109 | 570 |
| | Fluoride (F) (mg/L) | 0.041 | 0.041 | 0.048 | 0.040 | 0.036 |
| | Hydroxide (OH) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Nitrate and Nitrite (as N) (mg/L) | 0.0889 | 0.0364 | 0.111 | 0.0386 | 0.0110 |
| | Nitrate (as N) (mg/L) | 0.0873 | 0.0364 | 0.111 | 0.0386 | 0.0110 |
| | Nitrite (as N) (mg/L) | 0.0016 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| | pH (pH) | 8.08 | 7.94 | 7.79 | 7.96 | 8.02 |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0146 | 0.0086 | 0.0054 | 0.0185 | <0.0010 |
| | Sulfate (SO ₄) (mg/L) | 2.45 | 3.50 | 4.32 ^{DLM} | 2.37 | 3.59 |
| | Total Organic Carbon (mg/L) | 11.1 | 8.13 | 15.8 | 9.18 | 3.20 |
| Organic / Inorganic Carbon | | | | | | |
| Total Metals | Aluminum (Al)-Total (mg/L) | 2.77 | 1.93 | | 1.76 | |
| | Antimony (Sb)-Total (mg/L) | 0.00015 | 0.00012 | | 0.00011 | |
| | Arsenic (As)-Total (mg/L) | 0.00102 | 0.00071 | | 0.00064 | |
| | Barium (Ba)-Total (mg/L) | 0.161 | 0.0958 | | 0.127 | |
| | Beryllium (Be)-Total (mg/L) | 0.000153 | 0.000104 | | 0.000089 | |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | <0.000050 | | <0.000050 | |
| | Boron (B)-Total (mg/L) | <0.010 | <0.010 | | <0.010 | |
| | Cadmium (Cd)-Total (mg/L) | 0.000110 | 0.0000442 | | 0.0000379 | |
| | Calcium (Ca)-Total (mg/L) | 25.6 | 20.3 | | 19.7 | |
| | Chromium (Cr)-Total (mg/L) | 0.00216 | 0.00152 | | 0.00143 | |
| | Cobalt (Co)-Total (mg/L) | 0.00060 | 0.00040 | | 0.00034 | |
| | Copper (Cu)-Total (mg/L) | 0.00271 | 0.00194 | | 0.00141 | |
| | Iron (Fe)-Total (mg/L) | 2.29 | 1.44 | | 1.23 | |
| | Lead (Pb)-Total (mg/L) | 0.00137 | 0.000783 | | 0.000644 | |
| | Lithium (Li)-Total (mg/L) | 0.0045 | 0.0027 | | 0.0034 | |
| | Magnesium (Mg)-Total (mg/L) | 4.20 | 3.08 | | 2.63 | |
| | Manganese (Mn)-Total (mg/L) | 0.0660 | 0.0236 | | 0.0173 | |
| | Mercury (Hg)-Total (mg/L) | <0.0000050 | <0.0000050 | | <0.0000050 | |
| | Molybdenum (Mo)-Total (mg/L) | 0.00116 | 0.000365 | | 0.000348 | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| | | Sample ID Description Sampled Date Sampled Time Client ID | L2549508-11 Groundwater 13-JAN-21 12:00 E257236 | L2549508-12 Groundwater 14-JAN-21 12:00 E257238 | | |
|-----------------------------------|--|---|---|---|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | | 260 | 268 | | |
| | Total Suspended Solids (mg/L) | | 37.0 | 95.9 | | |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | | 259 | 271 | | |
| | Ammonia as N (mg/L) | | 0.291 | 0.127 | | |
| | Bicarbonate (HCO ₃) (mg/L) | | 316 | 331 | | |
| | Carbonate (CO ₃) (mg/L) | | <5.0 | <5.0 | | |
| | Chloride (Cl) (mg/L) | | 1.64 | 2.61 | | |
| | Conductivity (EC) (uS/cm) | | 459 | 472 | | |
| | Fluoride (F) (mg/L) | | 0.034 | 0.037 | | |
| | Hydroxide (OH) (mg/L) | | <5.0 | <5.0 | | |
| | Nitrate and Nitrite (as N) (mg/L) | | 0.0067 | 0.0286 | | |
| | Nitrate (as N) (mg/L) | | 0.0067 | 0.0286 | | |
| | Nitrite (as N) (mg/L) | | <0.0010 | <0.0010 | | |
| | pH (pH) | | 8.16 | 8.19 | | |
| | Orthophosphate-Dissolved (as P) (mg/L) | | <0.0010 | <0.0010 | | |
| | Sulfate (SO ₄) (mg/L) | | 5.41 | 8.14 | | |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | | 3.12 | 3.67 | | |
| | | | | | | |
| Total Metals | Aluminum (Al)-Total (mg/L) | | | | | |
| | Antimony (Sb)-Total (mg/L) | | | | | |
| | Arsenic (As)-Total (mg/L) | | | | | |
| | Barium (Ba)-Total (mg/L) | | | | | |
| | Beryllium (Be)-Total (mg/L) | | | | | |
| | Bismuth (Bi)-Total (mg/L) | | | | | |
| | Boron (B)-Total (mg/L) | | | | | |
| | Cadmium (Cd)-Total (mg/L) | | | | | |
| | Calcium (Ca)-Total (mg/L) | | | | | |
| | Chromium (Cr)-Total (mg/L) | | | | | |
| | Cobalt (Co)-Total (mg/L) | | | | | |
| | Copper (Cu)-Total (mg/L) | | | | | |
| | Iron (Fe)-Total (mg/L) | | | | | |
| | Lead (Pb)-Total (mg/L) | | | | | |
| | Lithium (Li)-Total (mg/L) | | | | | |
| | Magnesium (Mg)-Total (mg/L) | | | | | |
| | Manganese (Mn)-Total (mg/L) | | | | | |
| | Mercury (Hg)-Total (mg/L) | | | | | |
| | Molybdenum (Mo)-Total (mg/L) | | | | | |
| | | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| | | Sample ID | | | | |
|-------------------------|---------------------------------------|---------------|-------------|---------------|-------------|-------------|
| | | Description | | | | |
| | | Sampled Date | | | | |
| | | Sampled Time | | | | |
| | | Client ID | | | | |
| | | L2549508-1 | L2549508-2 | L2549508-3 | L2549508-4 | L2549508-5 |
| | | Surface Water | Groundwater | Surface Water | Groundwater | Groundwater |
| | | 13-JAN-21 | 14-JAN-21 | 13-JAN-21 | 14-JAN-21 | 13-JAN-21 |
| | | 12:00 | 12:00 | 12:00 | 12:00 | 12:00 |
| | | E257246 | E257244 | E257247 | E257237 | E257235 |
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Total Metals | Nickel (Ni)-Total (mg/L) | <0.00050 | | 0.00055 | | |
| | Phosphorus (P)-Total (mg/L) | <0.050 | | <0.050 | | |
| | Potassium (K)-Total (mg/L) | 0.56 | | 0.62 | | |
| | Selenium (Se)-Total (mg/L) | 0.000443 | | 0.000425 | | |
| | Silicon (Si)-Total (mg/L) | 2.22 | | 2.41 | | |
| | Silver (Ag)-Total (mg/L) | <0.000010 | | <0.000010 | | |
| | Sodium (Na)-Total (mg/L) | 2.39 | | 2.44 | | |
| | Strontium (Sr)-Total (mg/L) | 0.0984 | | 0.0883 | | |
| | Sulfur (S)-Total (mg/L) | 2.18 | | 2.04 | | |
| | Thallium (Tl)-Total (mg/L) | <0.000010 | | 0.000011 | | |
| | Tin (Sn)-Total (mg/L) | <0.00010 | | <0.00010 | | |
| | Titanium (Ti)-Total (mg/L) | 0.00465 | | 0.00488 | | |
| | Uranium (U)-Total (mg/L) | 0.000256 | | 0.000171 | | |
| | Vanadium (V)-Total (mg/L) | 0.00084 | | 0.00107 | | |
| | Zinc (Zn)-Total (mg/L) | <0.0030 | | <0.0030 | | |
| | Zirconium (Zr)-Total (mg/L) | <0.00030 | | <0.00030 | | |
| Dissolved Metals | Dissolved Mercury Filtration Location | | FIELD | | FIELD | FIELD |
| | Dissolved Metals Filtration Location | | FIELD | | FIELD | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | | 0.0011 | | 0.0024 | <0.0010 |
| | Antimony (Sb)-Dissolved (mg/L) | | 0.00011 | | 0.00023 | <0.00010 |
| | Arsenic (As)-Dissolved (mg/L) | | <0.00010 | | 0.00019 | 0.00408 |
| | Barium (Ba)-Dissolved (mg/L) | | 0.141 | | 0.238 | 0.776 |
| | Beryllium (Be)-Dissolved (mg/L) | | <0.000020 | | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | | <0.000050 | | <0.000050 | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | | 0.026 | | 0.083 | 0.033 |
| | Cadmium (Cd)-Dissolved (mg/L) | | 0.0000596 | | 0.000282 | 0.0000381 |
| | Calcium (Ca)-Dissolved (mg/L) | | 81.0 | | 116 | 92.1 |
| | Chromium (Cr)-Dissolved (mg/L) | | <0.00010 | | 0.00013 | <0.00010 |
| | Cobalt (Co)-Dissolved (mg/L) | | <0.00010 | | 0.00020 | 0.00274 |
| | Copper (Cu)-Dissolved (mg/L) | | 0.00046 | | 0.00181 | 0.00024 |
| | Iron (Fe)-Dissolved (mg/L) | | <0.010 | | <0.010 | 2.59 |
| | Lead (Pb)-Dissolved (mg/L) | | <0.000050 | | <0.000050 | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | | 0.0138 | | 0.0039 | 0.0062 |
| | Magnesium (Mg)-Dissolved (mg/L) | | 20.0 | | 15.5 | 12.8 |
| | Manganese (Mn)-Dissolved (mg/L) | | 0.00039 | | 0.0610 | 2.68 |
| | Mercury (Hg)-Dissolved (mg/L) | | <0.0000050 | | <0.0000050 | <0.0000050 |
| | Molybdenum (Mo)-Dissolved (mg/L) | | 0.000389 | | 0.000140 | 0.00102 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| | | Sample ID Description Sampled Date Sampled Time Client ID | L2549508-6 Surface Water 13-JAN-21 12:00 E257250 | L2549508-7 Groundwater 13-JAN-21 12:00 E257252 | L2549508-8 Groundwater 13-JAN-21 12:00 E257239 | L2549508-9 Surface Water 13-JAN-21 12:00 E257245 | L2549508-10 Groundwater 13-JAN-21 12:00 E257242 |
|-------------------------|---------------------------------------|---|--|--|--|--|---|
| Grouping | Analyte | | | | | | |
| WATER | | | | | | | |
| Total Metals | Nickel (Ni)-Total (mg/L) | 0.00283 | 0.00167 | | | 0.00139 | |
| | Phosphorus (P)-Total (mg/L) | 0.143 | 0.084 | | | 0.071 | |
| | Potassium (K)-Total (mg/L) | 1.33 | 1.15 | | | 0.96 | |
| | Selenium (Se)-Total (mg/L) | 0.000198 | 0.000146 | | | 0.000159 | |
| | Silicon (Si)-Total (mg/L) | 7.07 | 5.20 | | | 4.84 | |
| | Silver (Ag)-Total (mg/L) | 0.000038 | 0.000018 | | | 0.000025 | |
| | Sodium (Na)-Total (mg/L) | 1.31 | 0.853 | | | 1.36 | |
| | Strontium (Sr)-Total (mg/L) | 0.0999 | 0.0689 | | | 0.101 | |
| | Sulfur (S)-Total (mg/L) | 1.22 | 1.47 | | | 1.18 | |
| | Thallium (Tl)-Total (mg/L) | 0.000083 | 0.000046 | | | 0.000037 | |
| | Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | | | <0.00010 | |
| | Titanium (Ti)-Total (mg/L) | 0.0339 | 0.0264 | | | 0.0225 | |
| | Uranium (U)-Total (mg/L) | 0.000160 | 0.000152 | | | 0.000105 | |
| | Vanadium (V)-Total (mg/L) | 0.00514 | 0.00321 | | | 0.00326 | |
| | Zinc (Zn)-Total (mg/L) | 0.0148 | 0.0069 | | | 0.0059 | |
| | Zirconium (Zr)-Total (mg/L) | 0.00050 | 0.00052 | | | 0.00030 | |
| Dissolved Metals | Dissolved Mercury Filtration Location | | | | FIELD | | FIELD |
| | Dissolved Metals Filtration Location | | | | FIELD | | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | | | | 0.0024 | | 0.0024 |
| | Antimony (Sb)-Dissolved (mg/L) | | | | 0.00023 | | 0.00014 |
| | Arsenic (As)-Dissolved (mg/L) | | | | 0.00014 | | 0.00064 |
| | Barium (Ba)-Dissolved (mg/L) | | | | 0.190 | | 0.592 |
| | Beryllium (Be)-Dissolved (mg/L) | | | | <0.000020 | | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | | | | <0.000050 | | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | | | | 0.012 | | 0.043 |
| | Cadmium (Cd)-Dissolved (mg/L) | | | | 0.0000213 | | 0.00119 |
| | Calcium (Ca)-Dissolved (mg/L) | | | | 57.6 | | 113 |
| | Chromium (Cr)-Dissolved (mg/L) | | | | <0.00010 | | <0.00010 |
| | Cobalt (Co)-Dissolved (mg/L) | | | | <0.00010 | | 0.00446 |
| | Copper (Cu)-Dissolved (mg/L) | | | | 0.00284 | | 0.00056 |
| | Iron (Fe)-Dissolved (mg/L) | | | | <0.010 | | 0.304 |
| | Lead (Pb)-Dissolved (mg/L) | | | | <0.000050 | | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | | | | 0.0071 | | 0.0058 |
| | Magnesium (Mg)-Dissolved (mg/L) | | | | 7.11 | | 14.3 |
| | Manganese (Mn)-Dissolved (mg/L) | | | | 0.00086 | | 1.78 |
| | Mercury (Hg)-Dissolved (mg/L) | | | | <0.0000050 | | <0.0000050 |
| | Molybdenum (Mo)-Dissolved (mg/L) | | | | 0.000534 | | 0.000468 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| | | Sample ID Description Sampled Date Sampled Time Client ID | L2549508-11 Groundwater 13-JAN-21 12:00 E257236 | L2549508-12 Groundwater 14-JAN-21 12:00 E257238 | | | |
|-------------------------|---------------------------------------|---|---|---|--|--|--|
| Grouping | Analyte | | | | | | |
| WATER | | | | | | | |
| Total Metals | Nickel (Ni)-Total (mg/L) | | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | | |
| | Potassium (K)-Total (mg/L) | | | | | | |
| | Selenium (Se)-Total (mg/L) | | | | | | |
| | Silicon (Si)-Total (mg/L) | | | | | | |
| | Silver (Ag)-Total (mg/L) | | | | | | |
| | Sodium (Na)-Total (mg/L) | | | | | | |
| | Strontium (Sr)-Total (mg/L) | | | | | | |
| | Sulfur (S)-Total (mg/L) | | | | | | |
| | Thallium (Tl)-Total (mg/L) | | | | | | |
| | Tin (Sn)-Total (mg/L) | | | | | | |
| | Titanium (Ti)-Total (mg/L) | | | | | | |
| | Uranium (U)-Total (mg/L) | | | | | | |
| | Vanadium (V)-Total (mg/L) | | | | | | |
| | Zinc (Zn)-Total (mg/L) | | | | | | |
| | Zirconium (Zr)-Total (mg/L) | | | | | | |
| Dissolved Metals | Dissolved Mercury Filtration Location | FIELD | FIELD | | | | |
| | Dissolved Metals Filtration Location | FIELD | FIELD | | | | |
| | Aluminum (Al)-Dissolved (mg/L) | 0.0029 | 0.0018 | | | | |
| | Antimony (Sb)-Dissolved (mg/L) | <0.00010 | <0.00010 | | | | |
| | Arsenic (As)-Dissolved (mg/L) | 0.00333 | 0.00017 | | | | |
| | Barium (Ba)-Dissolved (mg/L) | 0.667 | 0.484 | | | | |
| | Beryllium (Be)-Dissolved (mg/L) | <0.000020 | <0.000020 | | | | |
| | Bismuth (Bi)-Dissolved (mg/L) | <0.000050 | <0.000050 | | | | |
| | Boron (B)-Dissolved (mg/L) | 0.028 | 0.022 | | | | |
| | Cadmium (Cd)-Dissolved (mg/L) | 0.000136 | 0.0000557 | | | | |
| | Calcium (Ca)-Dissolved (mg/L) | 84.1 | 83.4 | | | | |
| | Chromium (Cr)-Dissolved (mg/L) | <0.00010 | <0.00010 | | | | |
| | Cobalt (Co)-Dissolved (mg/L) | 0.00239 | 0.00038 | | | | |
| | Copper (Cu)-Dissolved (mg/L) | 0.00061 | 0.00086 | | | | |
| | Iron (Fe)-Dissolved (mg/L) | 2.00 | 0.061 | | | | |
| | Lead (Pb)-Dissolved (mg/L) | <0.000050 | <0.000050 | | | | |
| | Lithium (Li)-Dissolved (mg/L) | 0.0072 | 0.0062 | | | | |
| | Magnesium (Mg)-Dissolved (mg/L) | 12.0 | 14.5 | | | | |
| | Manganese (Mn)-Dissolved (mg/L) | 2.11 | 1.33 | | | | |
| | Mercury (Hg)-Dissolved (mg/L) | <0.0000050 | <0.0000050 | | | | |
| | Molybdenum (Mo)-Dissolved (mg/L) | 0.00100 | 0.000843 | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2549508-1 Surface Water 13-JAN-21 12:00 E257246 | L2549508-2 Groundwater 14-JAN-21 12:00 E257244 | L2549508-3 Surface Water 13-JAN-21 12:00 E257247 | L2549508-4 Groundwater 14-JAN-21 12:00 E257237 | L2549508-5 Groundwater 13-JAN-21 12:00 E257235 |
|---|----------------------------------|--|--|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Nickel (Ni)-Dissolved (mg/L) | | <0.00050 | | 0.00102 | 0.00413 |
| | Phosphorus (P)-Dissolved (mg/L) | | <0.050 | | <0.050 | <0.050 |
| | Potassium (K)-Dissolved (mg/L) | | 0.73 | | 6.58 | 1.89 |
| | Selenium (Se)-Dissolved (mg/L) | | 0.000507 | | 0.000403 | <0.000050 |
| | Silicon (Si)-Dissolved (mg/L) | | 3.31 | | 4.17 | 4.71 |
| | Silver (Ag)-Dissolved (mg/L) | | <0.000010 | | <0.000010 | <0.000010 |
| | Sodium (Na)-Dissolved (mg/L) | | 5.07 | | 5.65 | 4.22 |
| | Strontium (Sr)-Dissolved (mg/L) | | 0.427 | | 0.369 | 0.284 |
| | Sulfur (S)-Dissolved (mg/L) | | 4.53 | | 5.15 | 2.12 |
| | Thallium (Tl)-Dissolved (mg/L) | | <0.000010 | | 0.000024 | 0.000085 |
| | Tin (Sn)-Dissolved (mg/L) | | <0.00010 | | 0.00014 | <0.00010 |
| | Titanium (Ti)-Dissolved (mg/L) | | <0.00030 | | <0.00030 | <0.00030 |
| | Uranium (U)-Dissolved (mg/L) | | 0.000285 | | 0.00105 | 0.000492 |
| | Vanadium (V)-Dissolved (mg/L) | | <0.00050 | | <0.00050 | <0.00050 |
| | Zinc (Zn)-Dissolved (mg/L) | | 0.0018 | | 0.0047 | 0.0043 |
| | Zirconium (Zr)-Dissolved (mg/L) | | <0.00030 | | <0.00030 | <0.00030 |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | Chemical Oxygen Demand (mg/L) | <10 | 11 | <10 | 24 | 56 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2549508-6 Surface Water 13-JAN-21 12:00 E257250 | L2549508-7 Groundwater 13-JAN-21 12:00 E257252 | L2549508-8 Groundwater 13-JAN-21 12:00 E257239 | L2549508-9 Surface Water 13-JAN-21 12:00 E257245 | L2549508-10 Groundwater 13-JAN-21 12:00 E257242 |
|---|----------------------------------|--|--|--|--|---|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Nickel (Ni)-Dissolved (mg/L) | | | <0.00050 | | 0.00887 |
| | Phosphorus (P)-Dissolved (mg/L) | | | <0.050 | | <0.050 |
| | Potassium (K)-Dissolved (mg/L) | | | 0.69 | | 1.62 |
| | Selenium (Se)-Dissolved (mg/L) | | | 0.000520 | | 0.000062 |
| | Silicon (Si)-Dissolved (mg/L) | | | 3.57 | | 4.21 |
| | Silver (Ag)-Dissolved (mg/L) | | | <0.000010 | | <0.000010 |
| | Sodium (Na)-Dissolved (mg/L) | | | 3.45 | | 3.06 |
| | Strontium (Sr)-Dissolved (mg/L) | | | 0.358 | | 0.373 |
| | Sulfur (S)-Dissolved (mg/L) | | | 1.52 | | 1.48 |
| | Thallium (Tl)-Dissolved (mg/L) | | | <0.000010 | | 0.000065 |
| | Tin (Sn)-Dissolved (mg/L) | | | <0.00010 | | <0.00010 |
| | Titanium (Ti)-Dissolved (mg/L) | | | <0.00030 | | <0.00030 |
| | Uranium (U)-Dissolved (mg/L) | | | 0.000308 | | 0.00106 |
| | Vanadium (V)-Dissolved (mg/L) | | | <0.00050 | | <0.00050 |
| | Zinc (Zn)-Dissolved (mg/L) | | | 0.0014 | | 0.0093 |
| | Zirconium (Zr)-Dissolved (mg/L) | | | <0.00030 | | <0.00030 |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | Chemical Oxygen Demand (mg/L) | 26 | 21 | 150 | 19 | 22 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2549508-11 Groundwater 13-JAN-21 12:00 E257236 | L2549508-12 Groundwater 14-JAN-21 12:00 E257238 | | | |
|---|----------------------------------|---|---|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Nickel (Ni)-Dissolved (mg/L) | 0.00471 | 0.00280 | | | |
| | Phosphorus (P)-Dissolved (mg/L) | <0.050 | <0.050 | | | |
| | Potassium (K)-Dissolved (mg/L) | 1.59 | 1.32 | | | |
| | Selenium (Se)-Dissolved (mg/L) | <0.000050 | <0.000050 | | | |
| | Silicon (Si)-Dissolved (mg/L) | 4.27 | 4.04 | | | |
| | Silver (Ag)-Dissolved (mg/L) | <0.000010 | <0.000010 | | | |
| | Sodium (Na)-Dissolved (mg/L) | 3.88 | 4.11 | | | |
| | Strontium (Sr)-Dissolved (mg/L) | 0.268 | 0.247 | | | |
| | Sulfur (S)-Dissolved (mg/L) | 1.99 | 2.94 | | | |
| | Thallium (Tl)-Dissolved (mg/L) | 0.000092 | 0.000039 | | | |
| | Tin (Sn)-Dissolved (mg/L) | <0.00010 | <0.00010 | | | |
| | Titanium (Ti)-Dissolved (mg/L) | <0.00030 | <0.00030 | | | |
| | Uranium (U)-Dissolved (mg/L) | 0.000510 | 0.000669 | | | |
| | Vanadium (V)-Dissolved (mg/L) | <0.00050 | <0.00050 | | | |
| | Zinc (Zn)-Dissolved (mg/L) | 0.0033 | 0.0064 | | | |
| | Zirconium (Zr)-Dissolved (mg/L) | <0.00030 | <0.00030 | | | |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | <2.0 | | | |
| | Chemical Oxygen Demand (mg/L) | <10 | <10 | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Sample Submission Listed:

| Qualifier | Description |
|-----------|--|
| EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD, NO3/NO2, PO4 went past hold time prior to receipt at ALS |

QC Samples with Qualifiers & Comments:

| QC Type | Description | Parameter | Qualifier | Applies to Sample Number(s) |
|---------|-------------|-----------|-----------|-----------------------------|
|---------|-------------|-----------|-----------|-----------------------------|

Qualifiers for Individual Parameters Listed:

| Qualifier | Description |
|-----------|--|
| DLHC | Detection Limit Raised: Dilution required due to high concentration of test analyte(s). |
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |
| HTC | Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable). |

Test Method References:

| ALS Test Code | Matrix | Test Description | Method Reference** |
|--|--------|--|---------------------------------------|
| BE-D-L-CCMS-CL | Water | Diss. Be (low) in Water by CRC ICPMS | APHA 3030B/6020A (mod) |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS. | | | |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. | | | |
| BE-T-L-CCMS-CL | Water | Total Be (Low) in Water by CRC ICPMS | EPA 200.2/6020A (mod) |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS. | | | |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. | | | |
| BOD-BC-CL | Water | Biochemical Oxygen Demand (BOD) | APHA 5210 B-5 day Incub.-O2 electrode |
| This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation. | | | |
| C-TOT-ORG-LOW-CL | Water | Total Organic Carbon | APHA 5310 TOTAL ORGANIC CARBON (TOC) |
| This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide. | | | |
| The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC. | | | |
| TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved. | | | |
| CL-L-IC-N-CL | Water | Chloride in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| COD-T-COL-CL | Water | Chemical Oxygen Demand (COD) | APHA 5220 D Colorimetry |
| Samples are analyzed using the closed reflux colourimetric method | | | |
| F-L-IC-CL | Water | Fluoride | APHA 4110 B-Ion Chromatography |
| HARDNESS-CALC-CL | Water | Hardness | APHA 2340 B |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. | | | |
| HG-D-CVAA-CL | Water | Dissolved Mercury in Water by CVAAS | APHA 3030B/EPA 1631E (mod) |
| Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS. | | | |
| HG-T-CVAA-CL | Water | Total Mercury in Water by CVAAS | EPA 1631E (mod) |
| Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS. | | | |
| MET-D-CCMS-CL | Water | Dissolved Metals in Water by CRC ICPMS | APHA 3030B/6020A (mod) |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS. | | | |

Reference Information

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-CL Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

N2N3-CALC-CL Water Nitrate+Nitrite CALCULATION

NH3-L-F-CL Water Ammonia, Total (as N) J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Weston et al.

NO2-L-IC-N-CL Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-CL Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

PH/EC/ALK-CL Water pH, Conductivity and Total Alkalinity APHA 4500H,2510,2320

All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)

pH measurement is determined from the activity of the hydrogen ions using a hydrogen electrode and a reference electrode.

Alkalinity measurement is based on the sample's capacity to neutralize acid

Conductivity measurement is based on the sample's capacity to convey an electric current

PO4-DO-L-COL-CL Water Orthophosphate-Dissolved (as P) APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SO4-L-IC-N-CL Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TSS-L-CL Water Total Suspended Solids APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

| Laboratory Definition Code | Laboratory Location |
|----------------------------|---------------------|
|----------------------------|---------------------|

| | |
|----|--|
| CL | ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA |
|----|--|

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour 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.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 1 of 15

Client: Sperling Hansen Associates Inc.

#8 - 1225 East Keith Road

North Vancouver BC V7J 1J3

Contact: Scott Garthwaite

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-------------------------------|----------|-------------------|-----------|-----------|-------|-----|---------|-----------|
| BE-D-L-CCMS-CL Water | | | | | | | | |
| Batch | R5357483 | | | | | | | |
| WG3478433-2 LCS | | TMRM | | | | | | |
| Beryllium (Be)-Dissolved | | | 95.0 | | % | | 80-120 | 25-JAN-21 |
| WG3478433-6 LCS | | TMRM | | | | | | |
| Beryllium (Be)-Dissolved | | | 105.2 | | % | | 80-120 | 25-JAN-21 |
| WG3478433-1 MB | | | | | | | | |
| Beryllium (Be)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 25-JAN-21 |
| Beryllium (Be)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 25-JAN-21 |
| WG3478433-5 MB | | | | | | | | |
| Beryllium (Be)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 25-JAN-21 |
| BE-T-L-CCMS-CL Water | | | | | | | | |
| Batch | R5356216 | | | | | | | |
| WG3476527-2 LCS | | TMRM | | | | | | |
| Beryllium (Be)-Total | | | 100.2 | | % | | 80-120 | 21-JAN-21 |
| WG3476527-1 MB | | | | | | | | |
| Beryllium (Be)-Total | | | <0.000020 | | mg/L | | 0.00002 | 21-JAN-21 |
| BOD-BC-CL Water | | | | | | | | |
| Batch | R5357178 | | | | | | | |
| WG3477949-2 LCS | | | | | | | | |
| Biochemical Oxygen Demand | | | 92.6 | | % | | 85-115 | 19-JAN-21 |
| WG3477949-5 LCS | | | | | | | | |
| Biochemical Oxygen Demand | | | 97.9 | | % | | 85-115 | 19-JAN-21 |
| WG3477949-1 MB | | | | | | | | |
| Biochemical Oxygen Demand | | | <2.0 | | mg/L | | 2 | 19-JAN-21 |
| WG3477949-4 MB | | | | | | | | |
| Biochemical Oxygen Demand | | | <2.0 | | mg/L | | 2 | 19-JAN-21 |
| C-TOT-ORG-LOW-CL Water | | | | | | | | |
| Batch | R5358143 | | | | | | | |
| WG3479119-2 LCS | | | | | | | | |
| Total Organic Carbon | | | 108.6 | | % | | 80-120 | 26-JAN-21 |
| WG3479119-1 MB | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 26-JAN-21 |
| CL-L-IC-N-CL Water | | | | | | | | |
| Batch | R5356914 | | | | | | | |
| WG3477689-7 DUP | | L2549508-7 | | | | | | |
| Chloride (Cl) | | 0.34 | 0.35 | | mg/L | 2.9 | 20 | 19-JAN-21 |
| WG3477689-2 LCS | | | | | | | | |
| Chloride (Cl) | | | 105.8 | | % | | 85-115 | 19-JAN-21 |
| WG3477689-6 | | | | | | | | |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 2 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------|------------|-------------------|------------|-----------|-------|-----|----------|-----------|
| CL-L-IC-N-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5356914 | | | | | | | |
| WG3477689-6 | LCS | | | | | | | |
| Chloride (Cl) | | | 104.6 | | % | | 85-115 | 19-JAN-21 |
| WG3477689-1 | MB | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 19-JAN-21 |
| WG3477689-5 | MB | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 19-JAN-21 |
| WG3477689-8 | MS | L2549508-7 | | | | | | |
| Chloride (Cl) | | | 118.4 | | % | | 75-125 | 19-JAN-21 |
| COD-T-COL-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5355831 | | | | | | | |
| WG3476463-2 | LCS | | | | | | | |
| Chemical Oxygen Demand | | | 98.8 | | % | | 85-115 | 20-JAN-21 |
| WG3476463-1 | MB | | | | | | | |
| Chemical Oxygen Demand | | | <10 | | mg/L | | 10 | 20-JAN-21 |
| F-L-IC-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5356914 | | | | | | | |
| WG3477689-7 | DUP | L2549508-7 | | | | | | |
| Fluoride (F) | | 0.041 | 0.039 | | mg/L | 6.8 | 20 | 19-JAN-21 |
| WG3477689-2 | LCS | | | | | | | |
| Fluoride (F) | | | 104.9 | | % | | 85-115 | 19-JAN-21 |
| WG3477689-6 | LCS | | | | | | | |
| Fluoride (F) | | | 103.4 | | % | | 85-115 | 19-JAN-21 |
| WG3477689-1 | MB | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 19-JAN-21 |
| WG3477689-5 | MB | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 19-JAN-21 |
| WG3477689-8 | MS | L2549508-7 | | | | | | |
| Fluoride (F) | | | 114.4 | | % | | 75-125 | 19-JAN-21 |
| HG-D-CVAA-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5356211 | | | | | | | |
| WG3476786-2 | LCS | | | | | | | |
| Mercury (Hg)-Dissolved | | | 100.0 | | % | | 80-120 | 21-JAN-21 |
| WG3476786-6 | LCS | | | | | | | |
| Mercury (Hg)-Dissolved | | | 103.0 | | % | | 80-120 | 21-JAN-21 |
| WG3476786-1 | MB | | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 21-JAN-21 |
| WG3476786-5 | MB | | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 21-JAN-21 |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 3 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|-----------------|--------------------|------------|-----------|-------|-----|----------|-----------|
| HG-D-CVAA-CL | | Water | | | | | | |
| Batch | R5358111 | | | | | | | |
| WG3479000-3 DUP | | L2549508-12 | | | | | | |
| Mercury (Hg)-Dissolved | | <0.0000050 | <0.0000050 | RPD-NA | mg/L | N/A | 20 | 26-JAN-21 |
| WG3479000-2 LCS | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 102.0 | | % | | 80-120 | 26-JAN-21 |
| WG3479000-1 MB | | | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.0000050 | | mg/L | | 0.000005 | 26-JAN-21 |
| WG3479000-4 MS | | L2549508-12 | | | | | | |
| Mercury (Hg)-Dissolved | | | 92.4 | | % | | 70-130 | 26-JAN-21 |
| HG-T-CVAA-CL | | Water | | | | | | |
| Batch | R5356211 | | | | | | | |
| WG3476783-2 LCS | | | | | | | | |
| Mercury (Hg)-Total | | | 96.3 | | % | | 80-120 | 21-JAN-21 |
| WG3476783-1 MB | | | | | | | | |
| Mercury (Hg)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 21-JAN-21 |
| MET-D-CCMS-CL | | Water | | | | | | |
| Batch | R5357483 | | | | | | | |
| WG3478433-2 LCS | | TMRM | | | | | | |
| Aluminum (Al)-Dissolved | | | 102.1 | | % | | 80-120 | 25-JAN-21 |
| Antimony (Sb)-Dissolved | | | 107.8 | | % | | 80-120 | 25-JAN-21 |
| Arsenic (As)-Dissolved | | | 104.0 | | % | | 80-120 | 25-JAN-21 |
| Barium (Ba)-Dissolved | | | 106.1 | | % | | 80-120 | 25-JAN-21 |
| Bismuth (Bi)-Dissolved | | | 104.4 | | % | | 80-120 | 25-JAN-21 |
| Boron (B)-Dissolved | | | 101.6 | | % | | 80-120 | 25-JAN-21 |
| Cadmium (Cd)-Dissolved | | | 103.0 | | % | | 80-120 | 25-JAN-21 |
| Calcium (Ca)-Dissolved | | | 102.5 | | % | | 80-120 | 25-JAN-21 |
| Chromium (Cr)-Dissolved | | | 103.4 | | % | | 80-120 | 25-JAN-21 |
| Cobalt (Co)-Dissolved | | | 102.5 | | % | | 80-120 | 25-JAN-21 |
| Copper (Cu)-Dissolved | | | 103.5 | | % | | 80-120 | 25-JAN-21 |
| Iron (Fe)-Dissolved | | | 98.2 | | % | | 80-120 | 25-JAN-21 |
| Lead (Pb)-Dissolved | | | 104.3 | | % | | 80-120 | 25-JAN-21 |
| Lithium (Li)-Dissolved | | | 101.8 | | % | | 80-120 | 25-JAN-21 |
| Magnesium (Mg)-Dissolved | | | 111.8 | | % | | 80-120 | 25-JAN-21 |
| Manganese (Mn)-Dissolved | | | 106.7 | | % | | 80-120 | 25-JAN-21 |
| Molybdenum (Mo)-Dissolved | | | 103.5 | | % | | 80-120 | 25-JAN-21 |
| Nickel (Ni)-Dissolved | | | 100.6 | | % | | 80-120 | 25-JAN-21 |
| Phosphorus (P)-Dissolved | | | 103.0 | | % | | 70-130 | 25-JAN-21 |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 4 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|-----------------|-------------|--------|-----------|-------|-----|--------|-----------|
| MET-D-CCMS-CL | Water | | | | | | | |
| Batch | R5357483 | | | | | | | |
| WG3478433-2 | LCS | TMRM | | | | | | |
| Potassium (K)-Dissolved | | | 110.8 | | % | | 80-120 | 25-JAN-21 |
| Selenium (Se)-Dissolved | | | 99.4 | | % | | 80-120 | 25-JAN-21 |
| Silicon (Si)-Dissolved | | | 108.2 | | % | | 60-140 | 25-JAN-21 |
| Silver (Ag)-Dissolved | | | 100.9 | | % | | 80-120 | 25-JAN-21 |
| Sodium (Na)-Dissolved | | | 108.8 | | % | | 80-120 | 25-JAN-21 |
| Strontium (Sr)-Dissolved | | | 101.8 | | % | | 80-120 | 25-JAN-21 |
| Sulfur (S)-Dissolved | | | 108.5 | | % | | 80-120 | 25-JAN-21 |
| Thallium (Tl)-Dissolved | | | 108.8 | | % | | 80-120 | 25-JAN-21 |
| Tin (Sn)-Dissolved | | | 106.6 | | % | | 80-120 | 25-JAN-21 |
| Titanium (Ti)-Dissolved | | | 99.98 | | % | | 80-120 | 25-JAN-21 |
| Uranium (U)-Dissolved | | | 97.2 | | % | | 80-120 | 25-JAN-21 |
| Vanadium (V)-Dissolved | | | 105.3 | | % | | 80-120 | 25-JAN-21 |
| Zinc (Zn)-Dissolved | | | 102.7 | | % | | 80-120 | 25-JAN-21 |
| Zirconium (Zr)-Dissolved | | | 93.5 | | % | | 80-120 | 25-JAN-21 |
| WG3478433-6 | LCS | TMRM | | | | | | |
| Aluminum (Al)-Dissolved | | | 101.0 | | % | | 80-120 | 25-JAN-21 |
| Antimony (Sb)-Dissolved | | | 107.9 | | % | | 80-120 | 25-JAN-21 |
| Arsenic (As)-Dissolved | | | 103.1 | | % | | 80-120 | 25-JAN-21 |
| Barium (Ba)-Dissolved | | | 105.3 | | % | | 80-120 | 25-JAN-21 |
| Bismuth (Bi)-Dissolved | | | 109.9 | | % | | 80-120 | 25-JAN-21 |
| Boron (B)-Dissolved | | | 115.7 | | % | | 80-120 | 25-JAN-21 |
| Cadmium (Cd)-Dissolved | | | 94.6 | | % | | 80-120 | 25-JAN-21 |
| Calcium (Ca)-Dissolved | | | 100.4 | | % | | 80-120 | 25-JAN-21 |
| Chromium (Cr)-Dissolved | | | 101.8 | | % | | 80-120 | 25-JAN-21 |
| Cobalt (Co)-Dissolved | | | 102.2 | | % | | 80-120 | 25-JAN-21 |
| Copper (Cu)-Dissolved | | | 101.8 | | % | | 80-120 | 25-JAN-21 |
| Iron (Fe)-Dissolved | | | 89.6 | | % | | 80-120 | 25-JAN-21 |
| Lead (Pb)-Dissolved | | | 110.0 | | % | | 80-120 | 25-JAN-21 |
| Lithium (Li)-Dissolved | | | 99.5 | | % | | 80-120 | 25-JAN-21 |
| Magnesium (Mg)-Dissolved | | | 110.6 | | % | | 80-120 | 25-JAN-21 |
| Manganese (Mn)-Dissolved | | | 105.8 | | % | | 80-120 | 25-JAN-21 |
| Molybdenum (Mo)-Dissolved | | | 101.8 | | % | | 80-120 | 25-JAN-21 |
| Nickel (Ni)-Dissolved | | | 104.6 | | % | | 80-120 | 25-JAN-21 |
| Phosphorus (P)-Dissolved | | | 99.6 | | % | | 70-130 | 25-JAN-21 |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 5 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|--------------------------|-----------------|-------------|------------|-----------|-------|-----|----------|-----------|
| MET-D-CCMS-CL | Water | | | | | | | |
| Batch | R5357483 | | | | | | | |
| WG3478433-6 | LCS | TMRM | | | | | | |
| Potassium (K)-Dissolved | | | 103.4 | | % | | 80-120 | 25-JAN-21 |
| Selenium (Se)-Dissolved | | | 98.1 | | % | | 80-120 | 25-JAN-21 |
| Silicon (Si)-Dissolved | | | 108.1 | | % | | 60-140 | 25-JAN-21 |
| Silver (Ag)-Dissolved | | | 101.6 | | % | | 80-120 | 25-JAN-21 |
| Sodium (Na)-Dissolved | | | 108.1 | | % | | 80-120 | 25-JAN-21 |
| Strontium (Sr)-Dissolved | | | 114.8 | | % | | 80-120 | 25-JAN-21 |
| Sulfur (S)-Dissolved | | | 86.5 | | % | | 80-120 | 25-JAN-21 |
| Thallium (Tl)-Dissolved | | | 106.3 | | % | | 80-120 | 25-JAN-21 |
| Tin (Sn)-Dissolved | | | 105.7 | | % | | 80-120 | 25-JAN-21 |
| Titanium (Ti)-Dissolved | | | 105.7 | | % | | 80-120 | 25-JAN-21 |
| Uranium (U)-Dissolved | | | 104.6 | | % | | 80-120 | 25-JAN-21 |
| Vanadium (V)-Dissolved | | | 102.2 | | % | | 80-120 | 25-JAN-21 |
| Zinc (Zn)-Dissolved | | | 101.5 | | % | | 80-120 | 25-JAN-21 |
| Zirconium (Zr)-Dissolved | | | 94.3 | | % | | 80-120 | 25-JAN-21 |
| WG3478433-1 | MB | | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 25-JAN-21 |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 25-JAN-21 |
| Antimony (Sb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Antimony (Sb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Arsenic (As)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Arsenic (As)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Barium (Ba)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Barium (Ba)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Bismuth (Bi)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Bismuth (Bi)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Boron (B)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 25-JAN-21 |
| Boron (B)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 25-JAN-21 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 25-JAN-21 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 25-JAN-21 |
| Calcium (Ca)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Calcium (Ca)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Cobalt (Co)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 6 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|-----------------|-----------|-----------|-----------|-------|-----|---------|-----------|
| MET-D-CCMS-CL | Water | | | | | | | |
| Batch | R5357483 | | | | | | | |
| WG3478433-1 MB | | | | | | | | |
| Cobalt (Co)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Copper (Cu)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 25-JAN-21 |
| Copper (Cu)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 25-JAN-21 |
| Iron (Fe)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 25-JAN-21 |
| Iron (Fe)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 25-JAN-21 |
| Lead (Pb)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Lead (Pb)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Lithium (Li)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 25-JAN-21 |
| Lithium (Li)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 25-JAN-21 |
| Magnesium (Mg)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 25-JAN-21 |
| Magnesium (Mg)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 25-JAN-21 |
| Manganese (Mn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Manganese (Mn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Nickel (Ni)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 25-JAN-21 |
| Nickel (Ni)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 25-JAN-21 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Potassium (K)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Potassium (K)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Selenium (Se)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Selenium (Se)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Silver (Ag)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-JAN-21 |
| Silver (Ag)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-JAN-21 |
| Sodium (Na)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Sodium (Na)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Strontium (Sr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 25-JAN-21 |
| Strontium (Sr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 25-JAN-21 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 25-JAN-21 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 25-JAN-21 |
| Thallium (Tl)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-JAN-21 |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 7 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|-----------------|-----------|------------|-----------|-------|-----|----------|-----------|
| MET-D-CCMS-CL | Water | | | | | | | |
| Batch | R5357483 | | | | | | | |
| WG3478433-1 MB | | | | | | | | |
| Thallium (Tl)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-JAN-21 |
| Tin (Sn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Tin (Sn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Titanium (Ti)-Dissolved | | | <0.00030 | | mg/L | | 0.0003 | 25-JAN-21 |
| Titanium (Ti)-Dissolved | | | <0.00030 | | mg/L | | 0.0003 | 25-JAN-21 |
| Uranium (U)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-JAN-21 |
| Uranium (U)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-JAN-21 |
| Vanadium (V)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 25-JAN-21 |
| Vanadium (V)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 25-JAN-21 |
| Zinc (Zn)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 25-JAN-21 |
| Zinc (Zn)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 25-JAN-21 |
| Zirconium (Zr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 25-JAN-21 |
| Zirconium (Zr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 25-JAN-21 |
| WG3478433-5 MB | | | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 25-JAN-21 |
| Antimony (Sb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Arsenic (As)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Barium (Ba)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Bismuth (Bi)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Boron (B)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 25-JAN-21 |
| Cadmium (Cd)-Dissolved | | | <0.0000050 | | mg/L | | 0.000005 | 25-JAN-21 |
| Calcium (Ca)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Cobalt (Co)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Copper (Cu)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 25-JAN-21 |
| Iron (Fe)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 25-JAN-21 |
| Lead (Pb)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Lithium (Li)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 25-JAN-21 |
| Magnesium (Mg)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 25-JAN-21 |
| Manganese (Mn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Nickel (Ni)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 25-JAN-21 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Potassium (K)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 8 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|--------------------------|--------|--------------|-----------|-----------|-------|-----|---------|-----------|
| MET-D-CCMS-CL | | Water | | | | | | |
| Batch R5357483 | | | | | | | | |
| WG3478433-5 MB | | | | | | | | |
| Selenium (Se)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 25-JAN-21 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Silver (Ag)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-JAN-21 |
| Sodium (Na)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 25-JAN-21 |
| Strontium (Sr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 25-JAN-21 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 25-JAN-21 |
| Thallium (Tl)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-JAN-21 |
| Tin (Sn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 25-JAN-21 |
| Titanium (Ti)-Dissolved | | | <0.00030 | | mg/L | | 0.0003 | 25-JAN-21 |
| Uranium (U)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 25-JAN-21 |
| Vanadium (V)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 25-JAN-21 |
| Zinc (Zn)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 25-JAN-21 |
| Zirconium (Zr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 25-JAN-21 |
| MET-T-CCMS-CL | | Water | | | | | | |
| Batch R5356216 | | | | | | | | |
| WG3476527-2 LCS | | TMRM | | | | | | |
| Aluminum (Al)-Total | | | 108.0 | | % | | 80-120 | 21-JAN-21 |
| Antimony (Sb)-Total | | | 103.6 | | % | | 80-120 | 21-JAN-21 |
| Arsenic (As)-Total | | | 104.8 | | % | | 80-120 | 21-JAN-21 |
| Barium (Ba)-Total | | | 111.3 | | % | | 80-120 | 21-JAN-21 |
| Bismuth (Bi)-Total | | | 103.1 | | % | | 80-120 | 21-JAN-21 |
| Boron (B)-Total | | | 104.6 | | % | | 80-120 | 21-JAN-21 |
| Cadmium (Cd)-Total | | | 105.4 | | % | | 80-120 | 21-JAN-21 |
| Calcium (Ca)-Total | | | 101.8 | | % | | 80-120 | 21-JAN-21 |
| Chromium (Cr)-Total | | | 103.4 | | % | | 80-120 | 21-JAN-21 |
| Cobalt (Co)-Total | | | 104.9 | | % | | 80-120 | 21-JAN-21 |
| Copper (Cu)-Total | | | 103.9 | | % | | 80-120 | 21-JAN-21 |
| Iron (Fe)-Total | | | 97.0 | | % | | 80-120 | 21-JAN-21 |
| Lead (Pb)-Total | | | 105.3 | | % | | 80-120 | 21-JAN-21 |
| Lithium (Li)-Total | | | 101.7 | | % | | 80-120 | 21-JAN-21 |
| Magnesium (Mg)-Total | | | 113.9 | | % | | 80-120 | 21-JAN-21 |
| Manganese (Mn)-Total | | | 106.6 | | % | | 80-120 | 21-JAN-21 |
| Molybdenum (Mo)-Total | | | 103.5 | | % | | 80-120 | 21-JAN-21 |
| Nickel (Ni)-Total | | | 102.9 | | % | | 80-120 | 21-JAN-21 |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 9 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------|-----------------|-------------|------------|-----------|-------|-----|----------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5356216 | | | | | | | |
| WG3476527-2 LCS | | TMRM | | | | | | |
| Phosphorus (P)-Total | | | 109.9 | | % | | 70-130 | 21-JAN-21 |
| Potassium (K)-Total | | | 109.5 | | % | | 80-120 | 21-JAN-21 |
| Selenium (Se)-Total | | | 102.0 | | % | | 80-120 | 21-JAN-21 |
| Silicon (Si)-Total | | | 104.3 | | % | | 60-140 | 21-JAN-21 |
| Silver (Ag)-Total | | | 97.7 | | % | | 80-120 | 21-JAN-21 |
| Sodium (Na)-Total | | | 108.3 | | % | | 80-120 | 21-JAN-21 |
| Strontium (Sr)-Total | | | 105.9 | | % | | 80-120 | 21-JAN-21 |
| Sulfur (S)-Total | | | 106.2 | | % | | 80-120 | 21-JAN-21 |
| Thallium (Tl)-Total | | | 104.4 | | % | | 80-120 | 21-JAN-21 |
| Tin (Sn)-Total | | | 102.9 | | % | | 80-120 | 21-JAN-21 |
| Titanium (Ti)-Total | | | 106.1 | | % | | 80-120 | 21-JAN-21 |
| Uranium (U)-Total | | | 103.6 | | % | | 80-120 | 21-JAN-21 |
| Vanadium (V)-Total | | | 107.3 | | % | | 80-120 | 21-JAN-21 |
| Zinc (Zn)-Total | | | 102.3 | | % | | 80-120 | 21-JAN-21 |
| Zirconium (Zr)-Total | | | 102.7 | | % | | 80-120 | 21-JAN-21 |
| WG3476527-1 MB | | | | | | | | |
| Aluminum (Al)-Total | | | <0.0030 | | mg/L | | 0.003 | 21-JAN-21 |
| Antimony (Sb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 21-JAN-21 |
| Arsenic (As)-Total | | | <0.00010 | | mg/L | | 0.0001 | 21-JAN-21 |
| Barium (Ba)-Total | | | <0.00010 | | mg/L | | 0.0001 | 21-JAN-21 |
| Bismuth (Bi)-Total | | | <0.000050 | | mg/L | | 0.00005 | 21-JAN-21 |
| Boron (B)-Total | | | <0.010 | | mg/L | | 0.01 | 21-JAN-21 |
| Cadmium (Cd)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 21-JAN-21 |
| Calcium (Ca)-Total | | | <0.050 | | mg/L | | 0.05 | 21-JAN-21 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 21-JAN-21 |
| Cobalt (Co)-Total | | | <0.00010 | | mg/L | | 0.0001 | 21-JAN-21 |
| Copper (Cu)-Total | | | <0.00050 | | mg/L | | 0.0005 | 21-JAN-21 |
| Iron (Fe)-Total | | | <0.010 | | mg/L | | 0.01 | 21-JAN-21 |
| Lead (Pb)-Total | | | <0.000050 | | mg/L | | 0.00005 | 21-JAN-21 |
| Lithium (Li)-Total | | | <0.0010 | | mg/L | | 0.001 | 21-JAN-21 |
| Magnesium (Mg)-Total | | | <0.0050 | | mg/L | | 0.005 | 21-JAN-21 |
| Manganese (Mn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 21-JAN-21 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 21-JAN-21 |
| Nickel (Ni)-Total | | | <0.00050 | | mg/L | | 0.0005 | 21-JAN-21 |



Workorder: L2549508

Page 10 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed | |
|----------------------|----------|------------|-----------|-----------|--------|------|---------|-----------|-----------|
| MET-T-CCMS-CL | | Water | | | | | | | |
| Batch | R5356216 | | | | | | | | |
| WG3476527-1 | MB | | | | | | | | |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 21-JAN-21 | |
| Potassium (K)-Total | | | <0.050 | | mg/L | | 0.05 | 21-JAN-21 | |
| Selenium (Se)-Total | | | <0.000050 | | mg/L | | 0.00005 | 21-JAN-21 | |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 21-JAN-21 | |
| Silver (Ag)-Total | | | <0.000010 | | mg/L | | 0.00001 | 21-JAN-21 | |
| Sodium (Na)-Total | | | <0.050 | | mg/L | | 0.05 | 21-JAN-21 | |
| Strontium (Sr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 21-JAN-21 | |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 21-JAN-21 | |
| Thallium (Tl)-Total | | | <0.000010 | | mg/L | | 0.00001 | 21-JAN-21 | |
| Tin (Sn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 21-JAN-21 | |
| Titanium (Ti)-Total | | | <0.00030 | | mg/L | | 0.0003 | 21-JAN-21 | |
| Uranium (U)-Total | | | <0.000010 | | mg/L | | 0.00001 | 21-JAN-21 | |
| Vanadium (V)-Total | | | <0.00050 | | mg/L | | 0.0005 | 21-JAN-21 | |
| Zinc (Zn)-Total | | | <0.0030 | | mg/L | | 0.003 | 21-JAN-21 | |
| Zirconium (Zr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 21-JAN-21 | |
| NH3-L-F-CL | | Water | | | | | | | |
| Batch | R5356695 | | | | | | | | |
| WG3477416-2 | LCS | | | | | | | | |
| Ammonia as N | | | 93.9 | | % | | 85-115 | 22-JAN-21 | |
| WG3477416-1 | MB | | | | | | | | |
| Ammonia as N | | | <0.0050 | | mg/L | | 0.005 | 22-JAN-21 | |
| NO2-L-IC-N-CL | | Water | | | | | | | |
| Batch | R5356914 | | | | | | | | |
| WG3477689-7 | DUP | L2549508-7 | | | | | | | |
| Nitrite (as N) | | | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 19-JAN-21 |
| WG3477689-2 | LCS | | | | | | | | |
| Nitrite (as N) | | | 105.8 | | % | | 90-110 | 19-JAN-21 | |
| WG3477689-6 | LCS | | | | | | | | |
| Nitrite (as N) | | | 101.5 | | % | | 90-110 | 19-JAN-21 | |
| WG3477689-1 | MB | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 19-JAN-21 | |
| WG3477689-5 | MB | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 19-JAN-21 | |
| WG3477689-8 | MS | L2549508-7 | | | | | | | |
| Nitrite (as N) | | | 112.9 | | % | | 75-125 | 19-JAN-21 | |
| NO3-L-IC-N-CL | | Water | | | | | | | |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 11 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------------|-----------------|-------------------|---------|-----------|-------|------|--------|-----------|
| NO3-L-IC-N-CL | | Water | | | | | | |
| Batch | R5356914 | | | | | | | |
| WG3477689-7 | DUP | L2549508-7 | | | | | | |
| Nitrate (as N) | | 0.0364 | 0.0361 | | mg/L | 0.8 | 20 | 19-JAN-21 |
| WG3477689-2 | LCS | | | | | | | |
| Nitrate (as N) | | | 106.4 | | % | | 90-110 | 19-JAN-21 |
| WG3477689-6 | LCS | | | | | | | |
| Nitrate (as N) | | | 104.5 | | % | | 90-110 | 19-JAN-21 |
| WG3477689-1 | MB | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 19-JAN-21 |
| WG3477689-5 | MB | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 19-JAN-21 |
| WG3477689-8 | MS | L2549508-7 | | | | | | |
| Nitrate (as N) | | | 118.1 | | % | | 75-125 | 19-JAN-21 |
| PH/EC/ALK-CL | | Water | | | | | | |
| Batch | R5355666 | | | | | | | |
| WG3476222-18 | DUP | L2549508-6 | | | | | | |
| pH | | 8.08 | 8.08 | J | pH | 0.00 | 0.2 | 19-JAN-21 |
| Conductivity (EC) | | 142 | 142 | | uS/cm | 0.1 | 10 | 19-JAN-21 |
| Bicarbonate (HCO3) | | 92.6 | 90.6 | | mg/L | 2.1 | 20 | 19-JAN-21 |
| Carbonate (CO3) | | <5.0 | <5.0 | RPD-NA | mg/L | N/A | 20 | 19-JAN-21 |
| Hydroxide (OH) | | <5.0 | <5.0 | RPD-NA | mg/L | N/A | 20 | 19-JAN-21 |
| Alkalinity, Total (as CaCO3) | | 75.9 | 74.3 | | mg/L | 2.1 | 20 | 19-JAN-21 |
| WG3476222-14 | LCS | | | | | | | |
| Conductivity (EC) | | | 98.0 | | % | | 90-110 | 19-JAN-21 |
| Alkalinity, Total (as CaCO3) | | | 101.9 | | % | | 85-115 | 19-JAN-21 |
| WG3476222-17 | LCS | | | | | | | |
| Conductivity (EC) | | | 98.7 | | % | | 90-110 | 19-JAN-21 |
| Alkalinity, Total (as CaCO3) | | | 100.9 | | % | | 85-115 | 19-JAN-21 |
| WG3476222-13 | MB | | | | | | | |
| Conductivity (EC) | | | <2.0 | | uS/cm | | 2 | 19-JAN-21 |
| Bicarbonate (HCO3) | | | <5.0 | | mg/L | | 5 | 19-JAN-21 |
| Carbonate (CO3) | | | <5.0 | | mg/L | | 5 | 19-JAN-21 |
| Hydroxide (OH) | | | <5.0 | | mg/L | | 5 | 19-JAN-21 |
| Alkalinity, Total (as CaCO3) | | | <2.0 | | mg/L | | 2 | 19-JAN-21 |
| WG3476222-16 | MB | | | | | | | |
| Conductivity (EC) | | | <2.0 | | uS/cm | | 2 | 19-JAN-21 |
| Bicarbonate (HCO3) | | | <5.0 | | mg/L | | 5 | 19-JAN-21 |
| Carbonate (CO3) | | | <5.0 | | mg/L | | 5 | 19-JAN-21 |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 12 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------------|----------|------------|---------|-----------|-------|--------|-----------|-----------|
| PH/EC/ALK-CL | | Water | | | | | | |
| Batch | R5355666 | | | | | | | |
| WG3476222-16 MB | | | | | | | | |
| Hydroxide (OH) | | | <5.0 | | mg/L | | 5 | 19-JAN-21 |
| Alkalinity, Total (as CaCO3) | | | <2.0 | | mg/L | | 2 | 19-JAN-21 |
| PO4-DO-L-COL-CL | | Water | | | | | | |
| Batch | R5354317 | | | | | | | |
| WG3475411-10 LCS | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 96.3 | | % | | 80-120 | 19-JAN-21 |
| WG3475411-6 LCS | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 94.5 | | % | | 80-120 | 19-JAN-21 |
| WG3475411-5 MB | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | <0.0010 | | mg/L | | 0.001 | 19-JAN-21 |
| WG3475411-9 MB | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | <0.0010 | | mg/L | | 0.001 | 19-JAN-21 |
| SO4-L-IC-N-CL | | Water | | | | | | |
| Batch | R5356914 | | | | | | | |
| WG3477689-7 DUP | | L2549508-7 | | | | | | |
| Sulfate (SO4) | | | 3.50 | 3.52 | mg/L | 0.4 | 20 | 19-JAN-21 |
| WG3477689-2 LCS | | | | | | | | |
| Sulfate (SO4) | | | 106.0 | | % | | 85-115 | 19-JAN-21 |
| WG3477689-6 LCS | | | | | | | | |
| Sulfate (SO4) | | | 104.9 | | % | | 85-115 | 19-JAN-21 |
| WG3477689-1 MB | | | | | | | | |
| Sulfate (SO4) | | | <0.050 | | mg/L | | 0.05 | 19-JAN-21 |
| WG3477689-5 MB | | | | | | | | |
| Sulfate (SO4) | | | <0.050 | | mg/L | | 0.05 | 19-JAN-21 |
| WG3477689-8 MS | | L2549508-7 | | | | | | |
| Sulfate (SO4) | | | 119.0 | % | | 75-125 | 19-JAN-21 | |
| TSS-L-CL | | Water | | | | | | |
| Batch | R5354717 | | | | | | | |
| WG3475652-2 LCS | | | | | | | | |
| Total Suspended Solids | | | 90.4 | | % | | 85-115 | 19-JAN-21 |
| WG3475652-1 MB | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 19-JAN-21 |
| Batch | R5355961 | | | | | | | |
| WG3475471-8 LCS | | | | | | | | |
| Total Suspended Solids | | | 100.8 | | % | | 85-115 | 20-JAN-21 |
| WG3475471-7 MB | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 20-JAN-21 |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 13 of 15

Legend:

| | |
|-------|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

Sample Parameter Qualifier Definitions:

| Qualifier | Description |
|-----------|---|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 14 of 15

Hold Time Exceedances:

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|------------------------------------|-----------|-----------------|-----------------|---------|-----------|-------|-----------|
| Anions and Nutrients | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 2 | 14-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 5 | days | EHTR |
| | 3 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 4 | 14-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 5 | days | EHTR |
| | 5 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 6 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 7 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 8 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 9 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 10 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 11 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 12 | 14-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 5 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 2 | 14-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 5 | days | EHTR |
| | 3 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 4 | 14-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 5 | days | EHTR |
| | 5 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 6 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 7 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 8 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 9 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 10 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 11 | 13-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 6 | days | EHTR |
| | 12 | 14-JAN-21 12:00 | 19-JAN-21 10:00 | 3 | 5 | days | EHTR |
| Orthophosphate-Dissolved (as P) | | | | | | | |
| | 1 | 13-JAN-21 12:00 | 19-JAN-21 15:02 | 3 | 6 | days | EHTR |
| | 2 | 14-JAN-21 12:00 | 19-JAN-21 15:04 | 3 | 5 | days | EHTR |
| | 3 | 13-JAN-21 12:00 | 19-JAN-21 15:06 | 3 | 6 | days | EHTR |
| | 4 | 14-JAN-21 12:00 | 19-JAN-21 15:06 | 3 | 5 | days | EHTR |
| | 5 | 13-JAN-21 12:00 | 19-JAN-21 15:06 | 3 | 6 | days | EHTR |
| | 6 | 13-JAN-21 12:00 | 19-JAN-21 15:09 | 3 | 6 | days | EHTR |
| | 7 | 13-JAN-21 12:00 | 19-JAN-21 15:09 | 3 | 6 | days | EHTR |
| | 8 | 13-JAN-21 12:00 | 19-JAN-21 15:09 | 3 | 6 | days | EHTR |
| | 9 | 13-JAN-21 12:00 | 19-JAN-21 15:11 | 3 | 6 | days | EHTR |
| | 10 | 13-JAN-21 12:00 | 19-JAN-21 15:11 | 3 | 6 | days | EHTR |
| | 11 | 13-JAN-21 12:00 | 19-JAN-21 15:11 | 3 | 6 | days | EHTR |
| | 12 | 14-JAN-21 12:00 | 19-JAN-21 15:13 | 3 | 5 | days | EHTR |

Legend & Qualifier Definitions:

| | |
|----------|---|
| EHTR-FM: | Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. |
| EHTR: | Exceeded ALS recommended hold time prior to sample receipt. |
| EHTL: | Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. |
| EHT: | Exceeded ALS recommended hold time prior to analysis. |
| Rec. HT: | ALS recommended hold time (see units). |

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.

Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2549508 were received on 19-JAN-21 08:50.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

Quality Control Report

Workorder: L2549508

Report Date: 27-JAN-21

Page 15 of 15

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L2549508-COFC

| Report To Contact and company name below will appear on the final report Company: Sperling Hansen Associates Inc. Contact: Scott Garthwaite Phone: 778-471-7088 Company address below will appear on the final report Street: 1225 East Keith Road City/Province: North Vancouver, B.C. Postal Code: V7J 1J3 | | Reports / Recipients Select Report Format: <input type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) Merge QC/QCI Reports with COA <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: sgarthwaite@sperlinghansen.com Email 2: chetherington@sperlinghansen.com Email 3: | | Turnaround Time (TAT) Requested <input checked="" type="checkbox"/> Routine [R] if received by 3pm M-F - no surcharges apply <input type="checkbox"/> 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum <input type="checkbox"/> 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum <input type="checkbox"/> 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum <input type="checkbox"/> 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum <input type="checkbox"/> Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm For all tests with rush TATs requested, please contact your AM to confirm availability. | | AFFIX ALS BARCODE LABEL HERE (ALS use only) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|--|--|------------------|---|-----------------|----------------------|-----|---------|-----------------|---------------------------|------------------------------|---|---------|----------|--|-------------|-----------------|---------------------------|------------------------------|--------|------------------|-----|------------------------|------------------|---------|-------------|------------------|---------|----------|---|-------------|---|---------|----------|---|---------------|---|-----------------------------------|----------|---|-------------|---|---------|----------|---|-------------|---|---------|----------|---|---------------|----|---------|----------|--|-------------|----|---------|----------|---|-------------|----|---------|----------|---|-------------|---|---|--|--|--|---|---|---|---|---|---|---|---|---|---|---|--|--|--|---|---|---|---|---|---|---|---|---|---|---|--|--|--|---|---|---|---|---|---|---|---|---|---|---|--|--|--|---|---|---|---|---|---|---|---|---|---|---|--|--|--|---|---|---|---|---|---|---|---|---|---|---|--|--|--|---|---|---|---|---|---|---|---|---|---|---|--|--|--|----|---|---|---|---|---|---|---|---|---|---|--|--|--|----|---|---|---|---|---|---|---|---|---|---|--|--|--|----|---|---|---|---|---|---|---|---|---|---|--|
| Invoice To Same as Report To <input checked="" type="checkbox"/> YES <input checked="" type="checkbox"/> NO Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Company: Contact: | | Invoice Recipients Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: rhajafari@sperlinghansen.com Email 2: | | Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">NUMBER OF CONTAINERS</th> <th colspan="10"></th> <th rowspan="2">SAMPLES ON HOLD</th> <th rowspan="2">EXTENDED STORAGE REQUIRED</th> <th rowspan="2">SUSPECTED HAZARD (see notes)</th> </tr> <tr> <th>Anions</th> <th>Total Alkalinity</th> <th>TSS</th> <th>Dissolved Metals (F/P)</th> <th>Total Metals (P)</th> <th>Ammonia</th> <th>TOC</th> <th>orthophosphorous</th> <th>COD</th> <th>BOD</th> </tr> </thead> <tbody> <tr><td>1</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> <tr><td>3</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> <tr><td>5</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> <tr><td>6</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> <tr><td>7</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> <tr><td>8</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> <tr><td>9</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> <tr><td>10</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> <tr><td>11</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> <tr><td>12</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td></tr> </tbody> </table> | | | | NUMBER OF CONTAINERS | | | | | | | | | | | SAMPLES ON HOLD | EXTENDED STORAGE REQUIRED | SUSPECTED HAZARD (see notes) | Anions | Total Alkalinity | TSS | Dissolved Metals (F/P) | Total Metals (P) | Ammonia | TOC | orthophosphorous | COD | BOD | 1 | x | x | x | x | x | x | x | x | x | x | | | | 2 | x | x | x | x | x | x | x | x | x | x | | | | 3 | x | x | x | x | x | x | x | x | x | x | | | | 4 | x | x | x | x | x | x | x | x | x | x | | | | 5 | x | x | x | x | x | x | x | x | x | x | | | | 6 | x | x | x | x | x | x | x | x | x | x | | | | 7 | x | x | x | x | x | x | x | x | x | x | | | | 8 | x | x | x | x | x | x | x | x | x | x | | | | 9 | x | x | x | x | x | x | x | x | x | x | | | | 10 | x | x | x | x | x | x | x | x | x | x | | | | 11 | x | x | x | x | x | x | x | x | x | x | | | | 12 | x | x | x | x | x | x | x | x | x | x | |
| NUMBER OF CONTAINERS | | | | | | | | | | | SAMPLES ON HOLD | EXTENDED STORAGE REQUIRED | SUSPECTED HAZARD (see notes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Anions | Total Alkalinity | TSS | Dissolved Metals (F/P) | Total Metals (P) | Ammonia | TOC | orthophosphorous | COD | BOD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | x | x | x | x | x | x | x | x | x | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project Information ALS Account # / Quote #: AFE/Cost Center: PO# Job #: 20050 Fernie Major/Minor Code: Routing Code: PO / AFE: Requisitioner: LSD: Location: | | Oil and Gas Required Fields (client use) ALS Lab Work Order # (ALS use only): ALS Contact: Dean Watt Sampler: Tyler McBride | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>ALS Sample # (ALS use only)</th> <th>Sample Identification and/or Coordinates (This description will appear on the report)</th> <th>Date (dd-mmm-yy)</th> <th>Time (hh:mm)</th> <th>Sample Type</th> </tr> </thead> <tbody> <tr><td>1</td><td>E257246</td><td>13-01-21</td><td></td><td>Surface Water</td></tr> <tr><td>2</td><td>E257244</td><td>14-01-21</td><td></td><td>Groundwater</td></tr> <tr><td>3</td><td>E257247</td><td>13-01-21</td><td></td><td>Surface Water</td></tr> <tr><td>4</td><td>E257237</td><td>14-01-21</td><td></td><td>Groundwater</td></tr> <tr><td>5</td><td>E257235</td><td>13-01-21</td><td></td><td>Groundwater</td></tr> <tr><td>6</td><td>E257250</td><td>13-01-21</td><td></td><td>Surface Water</td></tr> <tr><td>7</td><td>E257241 BREACH E257252</td><td>13-01-21</td><td></td><td>Groundwater</td></tr> <tr><td>8</td><td>E257239</td><td>13-01-21</td><td></td><td>Groundwater</td></tr> <tr><td>9</td><td>E257245</td><td>13-01-21</td><td></td><td>Surface Water</td></tr> <tr><td>10</td><td>E257242</td><td>13-01-21</td><td></td><td>Groundwater</td></tr> <tr><td>11</td><td>E257236</td><td>13-01-21</td><td></td><td>Groundwater</td></tr> <tr><td>12</td><td>E257238</td><td>14-01-21</td><td></td><td>Groundwater</td></tr> </tbody> </table> | | ALS Sample # (ALS use only) | Sample Identification and/or Coordinates (This description will appear on the report) | | | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | 1 | E257246 | 13-01-21 | | Surface Water | 2 | E257244 | 14-01-21 | | Groundwater | 3 | E257247 | 13-01-21 | | Surface Water | 4 | E257237 | 14-01-21 | | Groundwater | 5 | E257235 | 13-01-21 | | Groundwater | 6 | E257250 | 13-01-21 | | Surface Water | 7 | E257241 BREACH E257252 | 13-01-21 | | Groundwater | 8 | E257239 | 13-01-21 | | Groundwater | 9 | E257245 | 13-01-21 | | Surface Water | 10 | E257242 | 13-01-21 | | Groundwater | 11 | E257236 | 13-01-21 | | Groundwater | 12 | E257238 | 14-01-21 | | Groundwater | Drinking Water (DW) Samples¹ (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALS Sample # (ALS use only) | Sample Identification and/or Coordinates (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | E257246 | 13-01-21 | | Surface Water | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | E257244 | 14-01-21 | | Groundwater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | E257247 | 13-01-21 | | Surface Water | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | E257237 | 14-01-21 | | Groundwater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | E257235 | 13-01-21 | | Groundwater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | E257250 | 13-01-21 | | Surface Water | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | E257241 BREACH E257252 | 13-01-21 | | Groundwater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | E257239 | 13-01-21 | | Groundwater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | E257245 | 13-01-21 | | Surface Water | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | E257242 | 13-01-21 | | Groundwater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | E257236 | 13-01-21 | | Groundwater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | E257238 | 14-01-21 | | Groundwater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only) British Columbia Contaminated Sites Regulation Stage 10 Amendment (NOV, 2017) British Columbia Approved and Working Water Quality Guidelines (MAY, 2015) | | SAMPLE RECEIPT DETAILS (ALS use only) Cooling Method: <input type="checkbox"/> NONE <input type="checkbox"/> ICE <input type="checkbox"/> ICE PACKS <input type="checkbox"/> FROZEN <input type="checkbox"/> COOLING INITIATED Submission Comments identified on Sample Receipt Notification: <input type="checkbox"/> YES <input type="checkbox"/> NO Cooler Custody Seals Intact: <input checked="" type="checkbox"/> YES <input type="checkbox"/> N/A Sample Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A INITIAL COOLER TEMPERATURES °C: 9 FINAL COOLER TEMPERATURES °C: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHIPMENT RELEASE (client use) Released by: Tyler McBride Date: 18/01/21 Time: | | INITIAL SHIPMENT RECEPTION (ALS use only) Received by: Date: 1/19 Time: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FINAL SHIPMENT RECEPTION (ALS use only) Received by: Date: Time: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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. 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Sperling Hansen Associates Inc.
ATTN: Scott Garthwaite
#8 - 1225 East Keith Road
North Vancouver BC V7J 1J3

Date Received: 04-MAY-21
Report Date: 14-MAY-21 16:34 (MT)
Version: FINAL

Client Phone: 604-986-7723

Certificate of Analysis

Lab Work Order #: L2583674
Project P.O. #: NOT SUBMITTED
Job Reference: 20050 FERNIE
C of C Numbers:
Legal Site Desc:

Patryk Wojciak, B.Sc., P.Chem.
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 2559 29 Street NE, Calgary, AB T1Y 7B5 Canada | Phone: +1 403 291 9897 | Fax: +1 403 291 0298
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2583674-1 SURFACE WATE 29-APR-21 08:00 E257246 | L2583674-2 GROUND WATE 29-APR-21 08:00 E257244 | L2583674-3 SURFACE WATE 29-APR-21 08:00 E257247 | L2583674-4 GROUND WATE 29-APR-21 08:00 E257237 | L2583674-5 GROUND WATE 29-APR-21 08:00 E257235 |
|---|--|---|--|---|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | 85.3 ^{HTC} | 190 | 50.9 ^{HTC} | 496 | 253 |
| | Temperature (Degree C) | 20.2 | 20.0 | 19.9 | 19.9 | 19.9 |
| | Total Suspended Solids (mg/L) | <1.0 | 371 | 9.7 | 12.4 | 429 |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 98.5 | 190 | 55.6 | 406 | 245 |
| | Ammonia as N (mg/L) | <0.0050 | 0.0086 | 0.0079 | 0.229 | 0.377 |
| | Bicarbonate (HCO ₃) (mg/L) | 120 | 222 | 67.8 | 496 | 299 |
| | Carbonate (CO ₃) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Chloride (Cl) (mg/L) | 0.52 | 8.33 | 0.25 | 7.44 | 2.29 |
| | Conductivity (EC) (uS/cm) | 192 | 375 | 114 | 725 | 449 |
| | Fluoride (F) (mg/L) | 0.049 | 0.067 | 0.047 | 0.040 | <0.020 |
| | Hydroxide (OH) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Nitrate and Nitrite (as N) (mg/L) | 0.0484 | 0.0087 | 0.0803 | 0.875 | 0.0051 |
| | Nitrate (as N) (mg/L) | 0.0484 | 0.0087 | 0.0803 | 0.871 | 0.0051 |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | 0.0043 | <0.0010 |
| | pH (pH) | 8.13 | 8.39 | 7.82 | 7.95 | 8.17 |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0066 | 0.0022 | 0.0066 | 0.0035 | <0.0010 |
| | Sulfate (SO ₄) (mg/L) | 3.82 | 11.4 | 2.79 | 17.3 | 4.48 |
| | | | | | | |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 4.39 | 9.5 | 7.31 | 6.09 | <5.0 |
| Total Metals | Aluminum (Al)-Total (mg/L) | 0.0896 | | 0.449 | | |
| | Antimony (Sb)-Total (mg/L) | 0.00012 | | 0.00014 | | |
| | Arsenic (As)-Total (mg/L) | 0.00023 | | 0.00036 | | |
| | Barium (Ba)-Total (mg/L) | 0.213 | | 0.155 | | |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | | 0.000031 | | |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | | <0.000050 | | |
| | Boron (B)-Total (mg/L) | <0.010 | | <0.010 | | |
| | Cadmium (Cd)-Total (mg/L) | 0.0000350 | | 0.0000720 | | |
| | Calcium (Ca)-Total (mg/L) | 26.2 | | 14.7 | | |
| | Chromium (Cr)-Total (mg/L) | 0.00020 | | 0.00065 | | |
| | Cobalt (Co)-Total (mg/L) | <0.00010 | | 0.00019 | | |
| | Copper (Cu)-Total (mg/L) | 0.00065 | | 0.00114 | | |
| | Iron (Fe)-Total (mg/L) | 0.067 | | 0.424 | | |
| | Lead (Pb)-Total (mg/L) | 0.000053 | | 0.000326 | | |
| | Lithium (Li)-Total (mg/L) | 0.0056 | | 0.0050 | | |
| | Magnesium (Mg)-Total (mg/L) | 4.80 | | 3.45 | | |
| | Manganese (Mn)-Total (mg/L) | 0.00118 | | 0.0109 | | |
| | Mercury (Hg)-Total (mg/L) | <0.0000050 | | <0.0000050 | | |
| | | | | | | |
| | | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2583674-6 SURFACE WATE 28-APR-21 08:00 E257250 | L2583674-7 GROUND WATE 28-APR-21 08:00 E257239 | L2583674-8 SURFACE WATE 28-APR-21 08:00 E257245 | L2583674-9 GROUND WATE 28-APR-21 08:00 E257242 | L2583674-10 SURFACE WATE 29-APR-21 08:00 E257243 |
|---|--|---|--|---|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | 97.6 ^{HTC} | 129 | 50.1 ^{HTC} | 306 | 63.1 |
| | Temperature (Degree C) | 19.9 | 19.9 | 20.0 | 20.3 | 20.5 |
| | Total Suspended Solids (mg/L) | 3.7 | 2150 | 28.5 | 52.6 | |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 110 | 136 | 53.3 | 297 | 66.6 |
| | Ammonia as N (mg/L) | 0.0055 | 0.0100 | 0.0073 | 0.0597 | 0.0084 |
| | Bicarbonate (HCO ₃) (mg/L) | 134 | 166 | 65.0 | 363 | 81.3 |
| | Carbonate (CO ₃) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Chloride (Cl) (mg/L) | 0.30 | 0.74 | 0.15 | 1.76 | 0.21 |
| | Conductivity (EC) (uS/cm) | 210 | 258 | 106 | 515 | 131 |
| | Fluoride (F) (mg/L) | 0.042 | 0.039 | 0.027 | 0.028 | 0.026 |
| | Hydroxide (OH) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Nitrate and Nitrite (as N) (mg/L) | 0.0066 | 0.0428 | 0.0670 | <0.0051 | <0.0051 |
| | Nitrate (as N) (mg/L) | 0.0066 | 0.0428 | 0.0670 | <0.0050 | <0.0050 |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| | pH (pH) | 8.22 | 8.29 | 7.75 | 8.09 | 7.96 |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0047 | 0.0044 | 0.0075 | <0.0010 | 0.0048 |
| | Sulfate (SO ₄) (mg/L) | 3.20 | 5.37 | 1.54 | 2.59 | 2.44 |
| | | | | | | |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 6.01 | 30.0 | 8.53 | 4.54 | 5.85 |
| Total Metals | Aluminum (Al)-Total (mg/L) | 0.303 | | 2.13 | | |
| | Antimony (Sb)-Total (mg/L) | <0.00010 | | 0.00013 | | |
| | Arsenic (As)-Total (mg/L) | 0.00031 | | 0.00092 | | |
| | Barium (Ba)-Total (mg/L) | 0.133 | | 0.122 | | |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | | 0.000130 | | |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | | <0.000050 | | |
| | Boron (B)-Total (mg/L) | <0.010 | | <0.010 | | |
| | Cadmium (Cd)-Total (mg/L) | 0.0000223 | | 0.0000393 | | |
| | Calcium (Ca)-Total (mg/L) | 31.2 | | 16.3 | | |
| | Chromium (Cr)-Total (mg/L) | 0.00042 | | 0.00212 | | |
| | Cobalt (Co)-Total (mg/L) | <0.00010 | | 0.00079 | | |
| | Copper (Cu)-Total (mg/L) | 0.00065 | | 0.00216 | | |
| | Iron (Fe)-Total (mg/L) | 0.245 | | 2.02 | | |
| | Lead (Pb)-Total (mg/L) | 0.000170 | | 0.00126 | | |
| | Lithium (Li)-Total (mg/L) | 0.0031 | | 0.0038 | | |
| | Magnesium (Mg)-Total (mg/L) | 4.74 | | 2.30 | | |
| | Manganese (Mn)-Total (mg/L) | 0.00942 | | 0.0286 | | |
| | Mercury (Hg)-Total (mg/L) | <0.0000050 | | <0.0000050 | | |
| | | | | | | |
| | | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2583674-11 SURFACE WATE 28-APR-21 08:00 E257240 | L2583674-12 GROUND WATE 29-APR-21 08:00 E257236 | L2583674-13 GROUND WATE 29-APR-21 08:00 E257238 | | |
|---|--|--|---|---|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | 94.5 ^{HTC} | 242 | 292 | | |
| | Temperature (Degree C) | 20.3 | 20.1 | 20.1 | | |
| | Total Suspended Solids (mg/L) | 3.1 | | | | |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 106 | 254 | 233 | | |
| | Ammonia as N (mg/L) | <0.0050 | 0.273 | 0.0664 | | |
| | Bicarbonate (HCO ₃) (mg/L) | 129 | 301 | 284 | | |
| | Carbonate (CO ₃) (mg/L) | <5.0 | <5.0 | <5.0 | | |
| | Chloride (Cl) (mg/L) | 0.29 | 1.98 | 7.56 | | |
| | Conductivity (EC) (uS/cm) | 207 | 460 | 473 | | |
| | Fluoride (F) (mg/L) | 0.036 | 0.033 | 0.039 | | |
| | Hydroxide (OH) (mg/L) | <5.0 | <5.0 | <5.0 | | |
| | Nitrate and Nitrite (as N) (mg/L) | 0.0108 | <0.0051 | <0.0051 | | |
| | Nitrate (as N) (mg/L) | 0.0108 | <0.0050 | <0.0050 | | |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | | |
| | pH (pH) | 8.21 | 8.35 | 7.98 | | |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0018 | <0.0010 | <0.0010 | | |
| | Sulfate (SO ₄) (mg/L) | 3.19 | 4.45 | 14.9 | | |
| | | | | | | |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 5.22 | 4.13 | 2.79 | | |
| Total Metals | Aluminum (Al)-Total (mg/L) | 0.260 | | | | |
| | Antimony (Sb)-Total (mg/L) | <0.00010 | | | | |
| | Arsenic (As)-Total (mg/L) | 0.00025 | | | | |
| | Barium (Ba)-Total (mg/L) | 0.123 | | | | |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | | | | |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | | | | |
| | Boron (B)-Total (mg/L) | <0.010 | | | | |
| | Cadmium (Cd)-Total (mg/L) | 0.0000186 | | | | |
| | Calcium (Ca)-Total (mg/L) | 30.1 | | | | |
| | Chromium (Cr)-Total (mg/L) | 0.00027 | | | | |
| | Cobalt (Co)-Total (mg/L) | <0.00010 | | | | |
| | Copper (Cu)-Total (mg/L) | 0.00053 | | | | |
| | Iron (Fe)-Total (mg/L) | 0.188 | | | | |
| | Lead (Pb)-Total (mg/L) | 0.000104 | | | | |
| | Lithium (Li)-Total (mg/L) | 0.0030 | | | | |
| | Magnesium (Mg)-Total (mg/L) | 4.70 | | | | |
| | Manganese (Mn)-Total (mg/L) | 0.00562 | | | | |
| | Mercury (Hg)-Total (mg/L) | <0.0000050 | | | | |
| | | | | | | |
| | | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2583674-1 SURFACE WATE 29-APR-21 08:00 E257246 | L2583674-2 GROUND WATE 29-APR-21 08:00 E257244 | L2583674-3 SURFACE WATE 29-APR-21 08:00 E257247 | L2583674-4 GROUND WATE 29-APR-21 08:00 E257237 | L2583674-5 GROUND WATE 29-APR-21 08:00 E257235 |
|---|---------------------------------------|---|--|---|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Total Metals | Molybdenum (Mo)-Total (mg/L) | 0.000429 | | 0.000401 | | |
| | Nickel (Ni)-Total (mg/L) | <0.00050 | | 0.00099 | | |
| | Phosphorus (P)-Total (mg/L) | <0.050 | | <0.050 | | |
| | Potassium (K)-Total (mg/L) | 0.61 | | 0.57 | | |
| | Selenium (Se)-Total (mg/L) | 0.000477 | | 0.000490 | | |
| | Silicon (Si)-Total (mg/L) | 2.15 | | 2.40 | | |
| | Silver (Ag)-Total (mg/L) | <0.000010 | | 0.000025 | | |
| | Sodium (Na)-Total (mg/L) | 1.58 | | 1.16 | | |
| | Strontium (Sr)-Total (mg/L) | 0.0966 | | 0.0654 | | |
| | Sulfur (S)-Total (mg/L) | 1.47 | | 1.11 | | |
| | Thallium (Tl)-Total (mg/L) | <0.000010 | | 0.000017 | | |
| | Tin (Sn)-Total (mg/L) | <0.00010 | | <0.00010 | | |
| | Titanium (Ti)-Total (mg/L) | 0.00131 | | 0.00491 | | |
| | Uranium (U)-Total (mg/L) | 0.000279 | | 0.000146 | | |
| | Vanadium (V)-Total (mg/L) | 0.00064 | | 0.00170 | | |
| | Zinc (Zn)-Total (mg/L) | <0.0030 | | 0.0039 | | |
| | Zirconium (Zr)-Total (mg/L) | <0.00030 | | <0.00030 | | |
| Dissolved Metals | Dissolved Mercury Filtration Location | | FIELD | | FIELD | FIELD |
| | Dissolved Metals Filtration Location | | FIELD | | FIELD | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | | 0.0016 | | 0.0022 | 0.0027 |
| | Antimony (Sb)-Dissolved (mg/L) | | <0.00010 | | 0.00021 | <0.00010 |
| | Arsenic (As)-Dissolved (mg/L) | | <0.00010 | | 0.00033 | 0.00404 |
| | Barium (Ba)-Dissolved (mg/L) | | 0.0982 | | 0.329 | 0.715 |
| | Beryllium (Be)-Dissolved (mg/L) | | <0.000020 | | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | | <0.000050 | | <0.000050 | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | | 0.023 | | 0.138 | 0.027 |
| | Cadmium (Cd)-Dissolved (mg/L) | | 0.0000387 | | 0.000209 | 0.000411 |
| | Calcium (Ca)-Dissolved (mg/L) | | 54.5 | | 162 | 83.0 |
| | Chromium (Cr)-Dissolved (mg/L) | | <0.00010 | | 0.00011 | <0.00010 |
| | Cobalt (Co)-Dissolved (mg/L) | | <0.00010 | | 0.00019 | 0.00269 |
| | Copper (Cu)-Dissolved (mg/L) | | 0.00038 | | 0.00255 | 0.00098 |
| | Iron (Fe)-Dissolved (mg/L) | | <0.010 | | 0.011 | 2.17 |
| | Lead (Pb)-Dissolved (mg/L) | | <0.000050 | | <0.000050 | 0.000131 |
| | Lithium (Li)-Dissolved (mg/L) | | 0.0125 | | 0.0047 | 0.0057 |
| | Magnesium (Mg)-Dissolved (mg/L) | | 13.1 | | 22.4 | 11.1 |
| | Manganese (Mn)-Dissolved (mg/L) | | 0.00047 | | 0.00271 | 2.35 |
| | Mercury (Hg)-Dissolved (mg/L) | | <0.000050 | | <0.000050 | <0.000050 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2583674-6 SURFACE WATE 28-APR-21 08:00 E257250 | L2583674-7 GROUND WATE 28-APR-21 08:00 E257239 | L2583674-8 SURFACE WATE 28-APR-21 08:00 E257245 | L2583674-9 GROUND WATE 28-APR-21 08:00 E257242 | L2583674-10 SURFACE WATE 29-APR-21 08:00 E257243 |
|---|---------------------------------------|---|--|---|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Total Metals | Molybdenum (Mo)-Total (mg/L) | 0.000632 | | 0.000238 | | |
| | Nickel (Ni)-Total (mg/L) | 0.00057 | | 0.00224 | | |
| | Phosphorus (P)-Total (mg/L) | <0.050 | | 0.089 | | |
| | Potassium (K)-Total (mg/L) | 0.78 | | 1.29 | | |
| | Selenium (Se)-Total (mg/L) | 0.000131 | | 0.000139 | | |
| | Silicon (Si)-Total (mg/L) | 3.66 | | 5.61 | | |
| | Silver (Ag)-Total (mg/L) | <0.000010 | | 0.000030 | | |
| | Sodium (Na)-Total (mg/L) | 1.50 | | 1.14 | | |
| | Strontium (Sr)-Total (mg/L) | 0.154 | | 0.0996 | | |
| | Sulfur (S)-Total (mg/L) | 1.16 | | 0.55 | | |
| | Thallium (Tl)-Total (mg/L) | 0.000011 | | 0.000051 | | |
| | Tin (Sn)-Total (mg/L) | <0.00010 | | <0.00010 | | |
| | Titanium (Ti)-Total (mg/L) | 0.00381 | | 0.0149 | | |
| | Uranium (U)-Total (mg/L) | 0.000133 | | 0.000095 | | |
| | Vanadium (V)-Total (mg/L) | 0.00091 | | 0.00453 | | |
| | Zinc (Zn)-Total (mg/L) | <0.0030 | | 0.0096 | | |
| | Zirconium (Zr)-Total (mg/L) | <0.00030 | | 0.00031 | | |
| Dissolved Metals | Dissolved Mercury Filtration Location | | FIELD | | FIELD | FIELD |
| | Dissolved Metals Filtration Location | | FIELD | | FIELD | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | | 0.0262 | | 0.0032 | 0.156 |
| | Antimony (Sb)-Dissolved (mg/L) | | 0.00011 | | <0.00010 | <0.00010 |
| | Arsenic (As)-Dissolved (mg/L) | | 0.00015 | | 0.00091 | 0.00017 |
| | Barium (Ba)-Dissolved (mg/L) | | 0.154 | | 0.562 | 0.100 |
| | Beryllium (Be)-Dissolved (mg/L) | | <0.000020 | | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | | <0.000050 | | <0.000050 | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | | 0.013 | | 0.038 | <0.010 |
| | Cadmium (Cd)-Dissolved (mg/L) | | 0.0000198 | | 0.00208 | 0.0000071 |
| | Calcium (Ca)-Dissolved (mg/L) | | 42.7 | | 101 | 20.8 |
| | Chromium (Cr)-Dissolved (mg/L) | | <0.00010 | | <0.00010 | <0.00010 |
| | Cobalt (Co)-Dissolved (mg/L) | | <0.00010 | | 0.00578 | <0.00010 |
| | Copper (Cu)-Dissolved (mg/L) | | 0.00279 | | 0.00064 | 0.00060 |
| | Iron (Fe)-Dissolved (mg/L) | | 0.022 | | 0.484 | 0.063 |
| | Lead (Pb)-Dissolved (mg/L) | | 0.000062 | | <0.000050 | 0.000098 |
| | Lithium (Li)-Dissolved (mg/L) | | 0.0074 | | 0.0051 | 0.0013 |
| | Magnesium (Mg)-Dissolved (mg/L) | | 5.56 | | 12.8 | 2.70 |
| | Manganese (Mn)-Dissolved (mg/L) | | 0.00123 | | 2.02 ^{RRV} | 0.00173 |
| | Mercury (Hg)-Dissolved (mg/L) | | <0.0000050 | | <0.0000050 | <0.0000050 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| | | Sample ID Description Sampled Date Sampled Time Client ID | L2583674-11 SURFACE WATE 28-APR-21 08:00 E257240 | L2583674-12 GROUND WATE 29-APR-21 08:00 E257236 | L2583674-13 GROUND WATE 29-APR-21 08:00 E257238 | | |
|-------------------------|---------------------------------------|---|--|---|---|--|--|
| Grouping | Analyte | | | | | | |
| WATER | | | | | | | |
| Total Metals | Molybdenum (Mo)-Total (mg/L) | 0.000637 | | | | | |
| | Nickel (Ni)-Total (mg/L) | <0.00050 | | | | | |
| | Phosphorus (P)-Total (mg/L) | <0.050 | | | | | |
| | Potassium (K)-Total (mg/L) | 0.75 | | | | | |
| | Selenium (Se)-Total (mg/L) | 0.000134 | | | | | |
| | Silicon (Si)-Total (mg/L) | 3.56 | | | | | |
| | Silver (Ag)-Total (mg/L) | <0.000010 | | | | | |
| | Sodium (Na)-Total (mg/L) | 1.51 | | | | | |
| | Strontium (Sr)-Total (mg/L) | 0.153 | | | | | |
| | Sulfur (S)-Total (mg/L) | 1.09 | | | | | |
| | Thallium (Tl)-Total (mg/L) | 0.000010 | | | | | |
| | Tin (Sn)-Total (mg/L) | <0.00010 | | | | | |
| | Titanium (Ti)-Total (mg/L) | 0.00328 | | | | | |
| | Uranium (U)-Total (mg/L) | 0.000125 | | | | | |
| | Vanadium (V)-Total (mg/L) | 0.00076 | | | | | |
| | Zinc (Zn)-Total (mg/L) | <0.0030 | | | | | |
| | Zirconium (Zr)-Total (mg/L) | <0.00030 | | | | | |
| Dissolved Metals | Dissolved Mercury Filtration Location | | | FIELD | FIELD | | |
| | Dissolved Metals Filtration Location | | | FIELD | FIELD | | |
| | Aluminum (Al)-Dissolved (mg/L) | | | 0.0125 | 0.0011 | | |
| | Antimony (Sb)-Dissolved (mg/L) | | | <0.00010 | <0.00010 | | |
| | Arsenic (As)-Dissolved (mg/L) | | | 0.00403 | 0.00011 | | |
| | Barium (Ba)-Dissolved (mg/L) | | | 0.654 | 0.350 | | |
| | Beryllium (Be)-Dissolved (mg/L) | | | <0.000020 | <0.000020 | | |
| | Bismuth (Bi)-Dissolved (mg/L) | | | <0.000050 | <0.000050 | | |
| | Boron (B)-Dissolved (mg/L) | | | 0.024 | 0.020 | | |
| | Cadmium (Cd)-Dissolved (mg/L) | | | 0.0000812 | 0.0000548 | | |
| | Calcium (Ca)-Dissolved (mg/L) | | | 78.5 | 84.7 | | |
| | Chromium (Cr)-Dissolved (mg/L) | | | <0.00010 | <0.00010 | | |
| | Cobalt (Co)-Dissolved (mg/L) | | | 0.00258 | 0.00013 | | |
| | Copper (Cu)-Dissolved (mg/L) | | | 0.00064 | <0.00020 | | |
| | Iron (Fe)-Dissolved (mg/L) | | | 2.15 | <0.010 | | |
| | Lead (Pb)-Dissolved (mg/L) | | | <0.000050 | <0.000050 | | |
| | Lithium (Li)-Dissolved (mg/L) | | | 0.0067 | 0.0095 | | |
| | Magnesium (Mg)-Dissolved (mg/L) | | | 11.2 | 19.4 | | |
| | Manganese (Mn)-Dissolved (mg/L) | | | 1.97 ^{RRV} | 1.13 ^{RRV} | | |
| | Mercury (Hg)-Dissolved (mg/L) | | | <0.0000050 | <0.0000050 | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2583674-1 SURFACE WATE 29-APR-21 08:00 E257246 | L2583674-2 GROUND WATE 29-APR-21 08:00 E257244 | L2583674-3 SURFACE WATE 29-APR-21 08:00 E257247 | L2583674-4 GROUND WATE 29-APR-21 08:00 E257237 | L2583674-5 GROUND WATE 29-APR-21 08:00 E257235 |
|---|----------------------------------|---|--|---|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Molybdenum (Mo)-Dissolved (mg/L) | | 0.000379 | | 0.000159 | 0.00104 |
| | Nickel (Ni)-Dissolved (mg/L) | | <0.00050 | | 0.00158 | 0.00414 |
| | Phosphorus (P)-Dissolved (mg/L) | | <0.050 | | <0.050 | <0.050 |
| | Potassium (K)-Dissolved (mg/L) | | 0.69 | | 9.19 | 1.70 |
| | Selenium (Se)-Dissolved (mg/L) | | 0.000412 | | 0.000209 | <0.000050 |
| | Silicon (Si)-Dissolved (mg/L) | | 3.42 | | 5.39 | 4.43 |
| | Silver (Ag)-Dissolved (mg/L) | | <0.000010 | | <0.000010 | <0.000010 |
| | Sodium (Na)-Dissolved (mg/L) | | 3.03 | | 9.64 | 4.06 |
| | Strontium (Sr)-Dissolved (mg/L) | | 0.339 | | 0.610 | 0.290 |
| | Sulfur (S)-Dissolved (mg/L) | | 4.40 | | 7.37 | 1.96 |
| | Thallium (Tl)-Dissolved (mg/L) | | <0.000010 | | 0.000034 | 0.000103 |
| | Tin (Sn)-Dissolved (mg/L) | | <0.00010 | | 0.00015 | <0.00010 |
| | Titanium (Ti)-Dissolved (mg/L) | | <0.00030 | | <0.00030 | <0.00030 |
| | Uranium (U)-Dissolved (mg/L) | | 0.000232 | | 0.00227 | 0.000537 |
| | Vanadium (V)-Dissolved (mg/L) | | <0.00050 | | <0.00050 | <0.00050 |
| | Zinc (Zn)-Dissolved (mg/L) | | <0.0010 | | 0.0031 | 0.0046 |
| | Zirconium (Zr)-Dissolved (mg/L) | | <0.00030 | | <0.00030 | <0.00030 |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | Chemical Oxygen Demand (mg/L) | 14 | 43 | 17 | 16 | 34 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2583674-6 SURFACE WATE 28-APR-21 08:00 E257250 | L2583674-7 GROUND WATE 28-APR-21 08:00 E257239 | L2583674-8 SURFACE WATE 28-APR-21 08:00 E257245 | L2583674-9 GROUND WATE 28-APR-21 08:00 E257242 | L2583674-10 SURFACE WATE 29-APR-21 08:00 E257243 |
|---|----------------------------------|---|--|---|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Molybdenum (Mo)-Dissolved (mg/L) | | 0.000634 | | 0.000440 | 0.000192 |
| | Nickel (Ni)-Dissolved (mg/L) | | <0.00050 | | 0.00992 | <0.00050 |
| | Phosphorus (P)-Dissolved (mg/L) | | <0.050 | | <0.050 | <0.050 |
| | Potassium (K)-Dissolved (mg/L) | | 0.64 | | 1.59 | 0.54 |
| | Selenium (Se)-Dissolved (mg/L) | | 0.000231 | | <0.000050 | 0.000083 |
| | Silicon (Si)-Dissolved (mg/L) | | 3.04 | | 4.08 | 3.29 |
| | Silver (Ag)-Dissolved (mg/L) | | <0.000010 | | <0.000010 | <0.000010 |
| | Sodium (Na)-Dissolved (mg/L) | | 2.82 | | 3.14 | 1.04 |
| | Strontium (Sr)-Dissolved (mg/L) | | 0.331 | | 0.384 | 0.0773 |
| | Sulfur (S)-Dissolved (mg/L) | | 2.12 | | 1.30 | 1.20 |
| | Thallium (Tl)-Dissolved (mg/L) | | <0.000010 | | 0.000068 | <0.000010 |
| | Tin (Sn)-Dissolved (mg/L) | | <0.00010 | | <0.00010 | <0.00010 |
| | Titanium (Ti)-Dissolved (mg/L) | | 0.00033 | | <0.00030 | 0.00197 |
| | Uranium (U)-Dissolved (mg/L) | | 0.000172 | | 0.00107 | 0.000065 |
| | Vanadium (V)-Dissolved (mg/L) | | <0.00050 | | <0.00050 | <0.00050 |
| | Zinc (Zn)-Dissolved (mg/L) | | 0.0013 | | 0.0087 | <0.0010 |
| | Zirconium (Zr)-Dissolved (mg/L) | | <0.00030 | | <0.00030 | 0.00056 |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | Chemical Oxygen Demand (mg/L) | 11 | 90 | 29 | 15 | 14 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2583674-11 SURFACE WATE 28-APR-21 08:00 E257240 | L2583674-12 GROUND WATE 29-APR-21 08:00 E257236 | L2583674-13 GROUND WATE 29-APR-21 08:00 E257238 | | |
|---|----------------------------------|--|---|---|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Molybdenum (Mo)-Dissolved (mg/L) | | 0.000862 | 0.00160 | | |
| | Nickel (Ni)-Dissolved (mg/L) | | 0.00534 | 0.00239 | | |
| | Phosphorus (P)-Dissolved (mg/L) | | <0.050 | <0.050 | | |
| | Potassium (K)-Dissolved (mg/L) | | 1.57 | 1.23 | | |
| | Selenium (Se)-Dissolved (mg/L) | | <0.000050 | <0.000050 | | |
| | Silicon (Si)-Dissolved (mg/L) | | 4.13 | 5.04 | | |
| | Silver (Ag)-Dissolved (mg/L) | | <0.000010 | <0.000010 | | |
| | Sodium (Na)-Dissolved (mg/L) | | 3.85 | 4.56 | | |
| | Strontium (Sr)-Dissolved (mg/L) | | 0.287 | 0.286 | | |
| | Sulfur (S)-Dissolved (mg/L) | | 1.84 | 5.53 | | |
| | Thallium (Tl)-Dissolved (mg/L) | | 0.000102 | 0.000045 | | |
| | Tin (Sn)-Dissolved (mg/L) | | <0.00010 | <0.00010 | | |
| | Titanium (Ti)-Dissolved (mg/L) | | <0.00030 | <0.00030 | | |
| | Uranium (U)-Dissolved (mg/L) | | 0.000662 | 0.00147 | | |
| | Vanadium (V)-Dissolved (mg/L) | | <0.00050 | <0.00050 | | |
| | Zinc (Zn)-Dissolved (mg/L) | | 0.0036 | <0.0010 | | |
| | Zirconium (Zr)-Dissolved (mg/L) | | <0.00030 | <0.00030 | | |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | 2.3 | <2.0 | | |
| | Chemical Oxygen Demand (mg/L) | 14 | 16 | <10 | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Sample Submission Listed:

| Qualifier | Description |
|-----------|---|
| EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - HOLD TIME FOR BOD, NO2,NO3,PO4 EXCEEDED UPON RECEIPT |

Qualifiers for Individual Samples Listed:

| Sample Number | Client Sample ID | Qualifier | Description |
|---------------|------------------|-----------|--|
| L2583674-1 | E257246 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-10 | E257243 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-11 | E257240 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-12 | E257236 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-13 | E257238 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-2 | E257244 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-3 | E257247 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-4 | E257237 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-5 | E257235 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-6 | E257250 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-7 | E257239 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-8 | E257245 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |
| L2583674-9 | E257242 | EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD went past hold time prior to receipt at ALS |

QC Samples with Qualifiers & Comments:

| QC Type Description | Parameter | Qualifier | Applies to Sample Number(s) |
|---------------------|--------------------------|-----------|---|
| Matrix Spike | Calcium (Ca)-Dissolved | MS-B | L2583674-10, -12, -13, -2, -4, -5, -7, -9 |
| Matrix Spike | Magnesium (Mg)-Dissolved | MS-B | L2583674-10, -12, -13, -2, -4, -5, -7, -9 |
| Matrix Spike | Manganese (Mn)-Dissolved | MS-B | L2583674-10, -12, -13, -2, -4, -5, -7, -9 |
| Matrix Spike | Sodium (Na)-Dissolved | MS-B | L2583674-10, -12, -13, -2, -4, -5, -7, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B | L2583674-10, -12, -13, -2, -4, -5, -7, -9 |

Qualifiers for Individual Parameters Listed:

| Qualifier | Description |
|-----------|--|
| HTC | Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable). |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RRV | Reported Result Verified By Repeat Analysis |

Test Method References:

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|--------|--------------------------------------|---------------------------------------|
| BE-D-L-CCMS-CL | Water | Diss. Be (low) in Water by CRC ICPMS | APHA 3030B/6020A (mod) |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS. | | | |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. | | | |
| BE-T-L-CCMS-CL | Water | Total Be (Low) in Water by CRC ICPMS | EPA 200.2/6020A (mod) |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS. | | | |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. | | | |
| BOD-BC-CL | Water | Biochemical Oxygen Demand (BOD) | APHA 5210 B-5 day Incub.-O2 electrode |
| This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a | | | |

Reference Information

dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

C-TOT-ORG-LOW-CL Water Total Organic Carbon APHA 5310 TOTAL ORGANIC CARBON (TOC)

This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide.

The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC.

TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved.

CL-L-IC-N-CL Water Chloride in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

COD-T-COL-CL Water Chemical Oxygen Demand (COD) APHA 5220 D Colorimetry

Samples are analyzed using the closed reflux colourimetric method

F-L-IC-CL Water Fluoride APHA 4110 B-Ion Chromatography

HARDNESS-CALC-CL Water Hardness APHA 2340 B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-CL Water Dissolved Mercury in Water by CVAAS APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

HG-T-CVAA-CL Water Total Mercury in Water by CVAAS EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

MET-D-CCMS-CL Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-CL Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

N2N3-CALC-CL Water Nitrate+Nitrite CALCULATION

NH3-L-F-CL Water Ammonia, Total (as N) J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-CL Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-CL Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

PH/EC/ALK-CL Water pH, Conductivity and Total Alkalinity APHA 4500H,2510,2320

All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)

pH measurement is determined from the activity of the hydrogen ions using a hydrogen electrode and a reference electrode.

Alkalinity measurement is based on the sample's capacity to neutralize acid

Conductivity measurement is based on the sample's capacity to convey an electric current

PO4-DO-L-COL-CL Water Orthophosphate-Dissolved (as P) APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SO4-L-IC-N-CL Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Reference Information

| | | | |
|----------|-------|------------------------|-------------------------|
| TEMP-CL | Water | Temperature | APHA 2550-Thermometer |
| TSS-L-CL | Water | Total Suspended Solids | APHA 2540 D-Gravimetric |

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

| Laboratory Definition Code | Laboratory Location |
|----------------------------|--|
| CL | ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA |

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour 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.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 1 of 15

Client: Sperling Hansen Associates Inc.

#8 - 1225 East Keith Road

North Vancouver BC V7J 1J3

Contact: Scott Garthwaite

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|----------|-------------|-----------|-----------|-------|-----|---------|-----------|
| BE-D-L-CCMS-CL | | Water | | | | | | |
| Batch | R5454857 | | | | | | | |
| WG3531421-10 | LCS | TMRM | 104.2 | | % | | 80-120 | 08-MAY-21 |
| Beryllium (Be)-Dissolved | | | | | | | | |
| WG3531421-9 | MB | | <0.000020 | | mg/L | | 0.00002 | 08-MAY-21 |
| Beryllium (Be)-Dissolved | | | | | | | | |
| BE-T-L-CCMS-CL | | Water | | | | | | |
| Batch | R5453343 | | | | | | | |
| WG3530285-3 | DUP | L2583674-11 | <0.000020 | RPD-NA | mg/L | N/A | 20 | 07-MAY-21 |
| Beryllium (Be)-Total | | | | | | | | |
| WG3530285-2 | LCS | TMRM | 95.9 | | % | | 80-120 | 06-MAY-21 |
| Beryllium (Be)-Total | | | | | | | | |
| WG3530285-1 | MB | | <0.000020 | | mg/L | | 0.00002 | 06-MAY-21 |
| Beryllium (Be)-Total | | | | | | | | |
| BOD-BC-CL | | Water | | | | | | |
| Batch | R5455217 | | | | | | | |
| WG3531795-5 | LCS | | 97.3 | | % | | 85-115 | 05-MAY-21 |
| Biochemical Oxygen Demand | | | | | | | | |
| WG3531795-4 | MB | | <2.0 | | mg/L | | 2 | 05-MAY-21 |
| Biochemical Oxygen Demand | | | | | | | | |
| C-TOT-ORG-LOW-CL | | Water | | | | | | |
| Batch | R5456314 | | | | | | | |
| WG3533268-3 | DUP | L2583674-13 | 2.79 | | mg/L | 0.2 | 20 | 10-MAY-21 |
| Total Organic Carbon | | | | | | | | |
| WG3533268-2 | LCS | | 106.3 | | % | | 80-120 | 10-MAY-21 |
| Total Organic Carbon | | | | | | | | |
| WG3533268-1 | MB | | <0.50 | | mg/L | | 0.5 | 10-MAY-21 |
| Total Organic Carbon | | | | | | | | |
| WG3533268-4 | MS | L2583674-13 | 97.1 | | % | | 70-130 | 10-MAY-21 |
| Total Organic Carbon | | | | | | | | |
| CL-L-IC-N-CL | | Water | | | | | | |
| Batch | R5455239 | | | | | | | |
| WG3531965-15 | DUP | L2583674-13 | 7.56 | | mg/L | 0.1 | 20 | 05-MAY-21 |
| Chloride (Cl) | | | | | | | | |
| WG3531965-11 | LCS | | 100.2 | | % | | 85-115 | 05-MAY-21 |
| Chloride (Cl) | | | | | | | | |
| WG3531965-14 | LCS | | 100.2 | | % | | 85-115 | 05-MAY-21 |
| Chloride (Cl) | | | | | | | | |
| WG3531965-2 | LCS | | | | | | | |

Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 2 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------|-----------------|--------------------|--------|-----------|-------|-----|--------|-----------|
| CL-L-IC-N-CL | | Water | | | | | | |
| Batch | R5455239 | | | | | | | |
| WG3531965-2 | LCS | | | | | | | |
| Chloride (Cl) | | | 102.8 | | % | | 85-115 | 05-MAY-21 |
| WG3531965-5 | LCS | | | | | | | |
| Chloride (Cl) | | | 100.6 | | % | | 85-115 | 05-MAY-21 |
| WG3531965-8 | LCS | | | | | | | |
| Chloride (Cl) | | | 101.0 | | % | | 85-115 | 05-MAY-21 |
| WG3531965-1 | MB | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 05-MAY-21 |
| WG3531965-10 | MB | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 05-MAY-21 |
| WG3531965-13 | MB | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 05-MAY-21 |
| WG3531965-4 | MB | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 05-MAY-21 |
| WG3531965-7 | MB | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 05-MAY-21 |
| COD-T-COL-CL | | Water | | | | | | |
| Batch | R5450898 | | | | | | | |
| WG3529634-2 | LCS | | | | | | | |
| Chemical Oxygen Demand | | | 98.9 | | % | | 85-115 | 05-MAY-21 |
| WG3529634-1 | MB | | | | | | | |
| Chemical Oxygen Demand | | | <10 | | mg/L | | 10 | 05-MAY-21 |
| F-L-IC-CL | | Water | | | | | | |
| Batch | R5455239 | | | | | | | |
| WG3531965-15 | DUP | L2583674-13 | | | | | | |
| Fluoride (F) | | 0.039 | 0.039 | | mg/L | 0.5 | 20 | 05-MAY-21 |
| WG3531965-11 | LCS | | | | | | | |
| Fluoride (F) | | | 94.3 | | % | | 85-115 | 05-MAY-21 |
| WG3531965-14 | LCS | | | | | | | |
| Fluoride (F) | | | 92.6 | | % | | 85-115 | 05-MAY-21 |
| WG3531965-2 | LCS | | | | | | | |
| Fluoride (F) | | | 93.4 | | % | | 85-115 | 05-MAY-21 |
| WG3531965-5 | LCS | | | | | | | |
| Fluoride (F) | | | 94.5 | | % | | 85-115 | 05-MAY-21 |
| WG3531965-8 | LCS | | | | | | | |
| Fluoride (F) | | | 94.7 | | % | | 85-115 | 05-MAY-21 |
| WG3531965-1 | MB | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 05-MAY-21 |

Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 3 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-------------------------|-----------------|-------------|------------|-----------|-------|-----|----------|-----------|
| F-L-IC-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5455239 | | | | | | | |
| WG3531965-10 MB | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 05-MAY-21 |
| WG3531965-13 MB | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 05-MAY-21 |
| WG3531965-4 MB | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 05-MAY-21 |
| WG3531965-7 MB | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 05-MAY-21 |
| HG-D-CVAA-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5455905 | | | | | | | |
| WG3532700-2 LCS | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 101.0 | | % | | 80-120 | 11-MAY-21 |
| WG3532700-1 MB | | | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 11-MAY-21 |
| HG-T-CVAA-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5455905 | | | | | | | |
| WG3532703-2 LCS | | | | | | | | |
| Mercury (Hg)-Total | | | 94.3 | | % | | 80-120 | 11-MAY-21 |
| WG3532703-1 MB | | | | | | | | |
| Mercury (Hg)-Total | | | <0.000005C | | mg/L | | 0.000005 | 11-MAY-21 |
| MET-D-CCMS-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5454857 | | | | | | | |
| WG3531421-10 LCS | | TMRM | | | | | | |
| Aluminum (Al)-Dissolved | | | 109.9 | | % | | 80-120 | 08-MAY-21 |
| Antimony (Sb)-Dissolved | | | 108.3 | | % | | 80-120 | 08-MAY-21 |
| Arsenic (As)-Dissolved | | | 103.7 | | % | | 80-120 | 08-MAY-21 |
| Barium (Ba)-Dissolved | | | 103.3 | | % | | 80-120 | 08-MAY-21 |
| Bismuth (Bi)-Dissolved | | | 101.0 | | % | | 80-120 | 08-MAY-21 |
| Boron (B)-Dissolved | | | 102.9 | | % | | 80-120 | 08-MAY-21 |
| Cadmium (Cd)-Dissolved | | | 103.3 | | % | | 80-120 | 08-MAY-21 |
| Calcium (Ca)-Dissolved | | | 101.6 | | % | | 80-120 | 08-MAY-21 |
| Chromium (Cr)-Dissolved | | | 104.7 | | % | | 80-120 | 08-MAY-21 |
| Cobalt (Co)-Dissolved | | | 106.7 | | % | | 80-120 | 08-MAY-21 |
| Copper (Cu)-Dissolved | | | 103.4 | | % | | 80-120 | 08-MAY-21 |
| Iron (Fe)-Dissolved | | | 105.9 | | % | | 80-120 | 08-MAY-21 |
| Lead (Pb)-Dissolved | | | 101.4 | | % | | 80-120 | 08-MAY-21 |

Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 4 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|-----------------|--------------|------------|-----------|-------|-----|----------|-----------|
| MET-D-CCMS-CL | | Water | | | | | | |
| Batch | R5454857 | | | | | | | |
| WG3531421-10 | LCS | TMRM | | | | | | |
| Lithium (Li)-Dissolved | | | 95.6 | | % | | 80-120 | 08-MAY-21 |
| Magnesium (Mg)-Dissolved | | | 106.3 | | % | | 80-120 | 08-MAY-21 |
| Manganese (Mn)-Dissolved | | | 105.4 | | % | | 80-120 | 08-MAY-21 |
| Molybdenum (Mo)-Dissolved | | | 106.2 | | % | | 80-120 | 08-MAY-21 |
| Nickel (Ni)-Dissolved | | | 104.1 | | % | | 80-120 | 08-MAY-21 |
| Phosphorus (P)-Dissolved | | | 113.8 | | % | | 70-130 | 08-MAY-21 |
| Potassium (K)-Dissolved | | | 104.8 | | % | | 80-120 | 08-MAY-21 |
| Selenium (Se)-Dissolved | | | 101.5 | | % | | 80-120 | 08-MAY-21 |
| Silicon (Si)-Dissolved | | | 106.7 | | % | | 60-140 | 08-MAY-21 |
| Silver (Ag)-Dissolved | | | 106.4 | | % | | 80-120 | 08-MAY-21 |
| Sodium (Na)-Dissolved | | | 103.5 | | % | | 80-120 | 08-MAY-21 |
| Strontium (Sr)-Dissolved | | | 106.0 | | % | | 80-120 | 08-MAY-21 |
| Sulfur (S)-Dissolved | | | 112.9 | | % | | 80-120 | 08-MAY-21 |
| Thallium (Tl)-Dissolved | | | 102.7 | | % | | 80-120 | 08-MAY-21 |
| Tin (Sn)-Dissolved | | | 106.6 | | % | | 80-120 | 08-MAY-21 |
| Titanium (Ti)-Dissolved | | | 88.3 | | % | | 80-120 | 08-MAY-21 |
| Uranium (U)-Dissolved | | | 104.6 | | % | | 80-120 | 08-MAY-21 |
| Vanadium (V)-Dissolved | | | 106.6 | | % | | 80-120 | 08-MAY-21 |
| Zinc (Zn)-Dissolved | | | 103.4 | | % | | 80-120 | 08-MAY-21 |
| Zirconium (Zr)-Dissolved | | | 107.0 | | % | | 80-120 | 08-MAY-21 |
| WG3531421-9 | MB | | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 08-MAY-21 |
| Antimony (Sb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 08-MAY-21 |
| Arsenic (As)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 08-MAY-21 |
| Barium (Ba)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 08-MAY-21 |
| Bismuth (Bi)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 08-MAY-21 |
| Boron (B)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 08-MAY-21 |
| Cadmium (Cd)-Dissolved | | | <0.0000050 | | mg/L | | 0.000005 | 08-MAY-21 |
| Calcium (Ca)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 08-MAY-21 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 08-MAY-21 |
| Cobalt (Co)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 08-MAY-21 |
| Copper (Cu)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 08-MAY-21 |
| Iron (Fe)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 08-MAY-21 |
| Lead (Pb)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 08-MAY-21 |

Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 5 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|--------|--------------------|-----------|-----------|-------|----------|---------|-----------|
| MET-D-CCMS-CL | | Water | | | | | | |
| Batch R5454857 | | | | | | | | |
| WG3531421-9 MB | | | | | | | | |
| Lithium (Li)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 08-MAY-21 |
| Magnesium (Mg)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 08-MAY-21 |
| Manganese (Mn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 08-MAY-21 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 08-MAY-21 |
| Nickel (Ni)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 08-MAY-21 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 08-MAY-21 |
| Potassium (K)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 08-MAY-21 |
| Selenium (Se)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 08-MAY-21 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 08-MAY-21 |
| Silver (Ag)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 08-MAY-21 |
| Sodium (Na)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 08-MAY-21 |
| Strontium (Sr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 08-MAY-21 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 08-MAY-21 |
| Thallium (Tl)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 08-MAY-21 |
| Tin (Sn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 08-MAY-21 |
| Titanium (Ti)-Dissolved | | | <0.00030 | | mg/L | | 0.0003 | 08-MAY-21 |
| Uranium (U)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 08-MAY-21 |
| Vanadium (V)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 08-MAY-21 |
| Zinc (Zn)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 08-MAY-21 |
| Zirconium (Zr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 08-MAY-21 |
| MET-T-CCMS-CL | | Water | | | | | | |
| Batch R5453343 | | | | | | | | |
| WG3530285-3 DUP | | L2583674-11 | | | | | | |
| Aluminum (Al)-Total | | 0.260 | 0.269 | | mg/L | 3.3 | 20 | 07-MAY-21 |
| Antimony (Sb)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 07-MAY-21 |
| Arsenic (As)-Total | | 0.00025 | 0.00026 | | mg/L | 4.3 | 20 | 07-MAY-21 |
| Barium (Ba)-Total | | 0.123 | 0.127 | | mg/L | 2.8 | 20 | 07-MAY-21 |
| Bismuth (Bi)-Total | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 07-MAY-21 |
| Boron (B)-Total | | <0.010 | <0.010 | RPD-NA | mg/L | N/A | 20 | 07-MAY-21 |
| Cadmium (Cd)-Total | | 0.0000186 | 0.0000151 | J | mg/L | 0.000003 | 0.00001 | 07-MAY-21 |
| Calcium (Ca)-Total | | 30.1 | 30.3 | | mg/L | 0.8 | 20 | 07-MAY-21 |
| Chromium (Cr)-Total | | 0.00027 | 0.00029 | | mg/L | 9.3 | 20 | 07-MAY-21 |
| Cobalt (Co)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 07-MAY-21 |
| Copper (Cu)-Total | | 0.00053 | 0.00058 | | mg/L | 8.6 | 20 | 07-MAY-21 |

Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 6 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-----------------------|-----------------|--------------------|-----------|-----------|-------|-----|--------|-----------|
| MET-T-CCMS-CL | | Water | | | | | | |
| Batch | R5453343 | | | | | | | |
| WG3530285-3 | DUP | L2583674-11 | | | | | | |
| Iron (Fe)-Total | | 0.188 | 0.183 | | mg/L | 2.8 | 20 | 07-MAY-21 |
| Lead (Pb)-Total | | 0.000104 | 0.000107 | | mg/L | 3.2 | 20 | 07-MAY-21 |
| Lithium (Li)-Total | | 0.0030 | 0.0031 | | mg/L | 2.5 | 20 | 07-MAY-21 |
| Magnesium (Mg)-Total | | 4.70 | 4.76 | | mg/L | 1.3 | 20 | 07-MAY-21 |
| Manganese (Mn)-Total | | 0.00562 | 0.00578 | | mg/L | 2.9 | 20 | 07-MAY-21 |
| Molybdenum (Mo)-Total | | 0.000637 | 0.000649 | | mg/L | 1.9 | 20 | 07-MAY-21 |
| Nickel (Ni)-Total | | <0.00050 | <0.00050 | RPD-NA | mg/L | N/A | 20 | 07-MAY-21 |
| Phosphorus (P)-Total | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 07-MAY-21 |
| Potassium (K)-Total | | 0.75 | 0.77 | | mg/L | 2.2 | 20 | 07-MAY-21 |
| Selenium (Se)-Total | | 0.000134 | 0.000149 | | mg/L | 11 | 20 | 07-MAY-21 |
| Silicon (Si)-Total | | 3.56 | 3.59 | | mg/L | 0.7 | 20 | 07-MAY-21 |
| Silver (Ag)-Total | | <0.000010 | <0.000010 | RPD-NA | mg/L | N/A | 20 | 07-MAY-21 |
| Sodium (Na)-Total | | 1.51 | 1.53 | | mg/L | 1.6 | 20 | 07-MAY-21 |
| Strontium (Sr)-Total | | 0.153 | 0.156 | | mg/L | 1.8 | 20 | 07-MAY-21 |
| Sulfur (S)-Total | | 1.09 | 1.10 | | mg/L | 0.6 | 20 | 07-MAY-21 |
| Thallium (Tl)-Total | | 0.000010 | 0.000010 | | mg/L | 1.2 | 20 | 07-MAY-21 |
| Tin (Sn)-Total | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 07-MAY-21 |
| Titanium (Ti)-Total | | 0.00328 | 0.00293 | | mg/L | 11 | 20 | 07-MAY-21 |
| Uranium (U)-Total | | 0.000125 | 0.000131 | | mg/L | 4.4 | 20 | 07-MAY-21 |
| Vanadium (V)-Total | | 0.00076 | 0.00082 | | mg/L | 7.5 | 20 | 07-MAY-21 |
| Zinc (Zn)-Total | | <0.0030 | <0.0030 | RPD-NA | mg/L | N/A | 20 | 07-MAY-21 |
| Zirconium (Zr)-Total | | <0.00030 | <0.00030 | RPD-NA | mg/L | N/A | 20 | 07-MAY-21 |
| WG3530285-2 | LCS | TMRM | | | | | | |
| Aluminum (Al)-Total | | | 99.4 | | % | | 80-120 | 06-MAY-21 |
| Antimony (Sb)-Total | | | 97.2 | | % | | 80-120 | 06-MAY-21 |
| Arsenic (As)-Total | | | 93.4 | | % | | 80-120 | 06-MAY-21 |
| Barium (Ba)-Total | | | 100.1 | | % | | 80-120 | 06-MAY-21 |
| Bismuth (Bi)-Total | | | 91.6 | | % | | 80-120 | 06-MAY-21 |
| Boron (B)-Total | | | 100.3 | | % | | 80-120 | 06-MAY-21 |
| Cadmium (Cd)-Total | | | 93.0 | | % | | 80-120 | 06-MAY-21 |
| Calcium (Ca)-Total | | | 109.3 | | % | | 80-120 | 06-MAY-21 |
| Chromium (Cr)-Total | | | 97.9 | | % | | 80-120 | 06-MAY-21 |
| Cobalt (Co)-Total | | | 98.1 | | % | | 80-120 | 06-MAY-21 |
| Copper (Cu)-Total | | | 96.6 | | % | | 80-120 | 06-MAY-21 |

Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 7 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-----------------------|-----------------|-------------|------------|-----------|-------|-----|----------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5453343 | | | | | | | |
| WG3530285-2 | LCS | TMRM | | | | | | |
| Iron (Fe)-Total | | | 94.0 | | % | | 80-120 | 06-MAY-21 |
| Lead (Pb)-Total | | | 91.6 | | % | | 80-120 | 06-MAY-21 |
| Lithium (Li)-Total | | | 106.4 | | % | | 80-120 | 06-MAY-21 |
| Magnesium (Mg)-Total | | | 107.0 | | % | | 80-120 | 06-MAY-21 |
| Manganese (Mn)-Total | | | 95.8 | | % | | 80-120 | 06-MAY-21 |
| Molybdenum (Mo)-Total | | | 94.2 | | % | | 80-120 | 06-MAY-21 |
| Nickel (Ni)-Total | | | 95.6 | | % | | 80-120 | 06-MAY-21 |
| Phosphorus (P)-Total | | | 96.2 | | % | | 70-130 | 06-MAY-21 |
| Potassium (K)-Total | | | 107.6 | | % | | 80-120 | 06-MAY-21 |
| Selenium (Se)-Total | | | 88.1 | | % | | 80-120 | 06-MAY-21 |
| Silicon (Si)-Total | | | 98.1 | | % | | 60-140 | 06-MAY-21 |
| Silver (Ag)-Total | | | 90.6 | | % | | 80-120 | 06-MAY-21 |
| Sodium (Na)-Total | | | 112.1 | | % | | 80-120 | 06-MAY-21 |
| Strontium (Sr)-Total | | | 90.8 | | % | | 80-120 | 06-MAY-21 |
| Sulfur (S)-Total | | | 86.2 | | % | | 80-120 | 06-MAY-21 |
| Thallium (Tl)-Total | | | 91.8 | | % | | 80-120 | 06-MAY-21 |
| Tin (Sn)-Total | | | 92.4 | | % | | 80-120 | 06-MAY-21 |
| Titanium (Ti)-Total | | | 92.7 | | % | | 80-120 | 06-MAY-21 |
| Uranium (U)-Total | | | 91.1 | | % | | 80-120 | 06-MAY-21 |
| Vanadium (V)-Total | | | 108.3 | | % | | 80-120 | 06-MAY-21 |
| Zinc (Zn)-Total | | | 101.5 | | % | | 80-120 | 06-MAY-21 |
| Zirconium (Zr)-Total | | | 92.3 | | % | | 80-120 | 06-MAY-21 |
| WG3530285-1 | MB | | | | | | | |
| Aluminum (Al)-Total | | | <0.0030 | | mg/L | | 0.003 | 06-MAY-21 |
| Antimony (Sb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 06-MAY-21 |
| Arsenic (As)-Total | | | <0.00010 | | mg/L | | 0.0001 | 06-MAY-21 |
| Barium (Ba)-Total | | | <0.00010 | | mg/L | | 0.0001 | 06-MAY-21 |
| Bismuth (Bi)-Total | | | <0.000050 | | mg/L | | 0.00005 | 06-MAY-21 |
| Boron (B)-Total | | | <0.010 | | mg/L | | 0.01 | 06-MAY-21 |
| Cadmium (Cd)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 06-MAY-21 |
| Calcium (Ca)-Total | | | <0.050 | | mg/L | | 0.05 | 06-MAY-21 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 06-MAY-21 |
| Cobalt (Co)-Total | | | <0.00010 | | mg/L | | 0.0001 | 06-MAY-21 |
| Copper (Cu)-Total | | | <0.00050 | | mg/L | | 0.0005 | 06-MAY-21 |



Workorder: L2583674

Page 9 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|----------------|----------|-------------|---------|-----------|-------|-----|--------|-----------|
| NO2-L-IC-N-CL | | Water | | | | | | |
| Batch | R5455239 | | | | | | | |
| WG3531965-14 | LCS | | | | | | | |
| Nitrite (as N) | | | 100.6 | | % | | 90-110 | 05-MAY-21 |
| WG3531965-2 | LCS | | | | | | | |
| Nitrite (as N) | | | 104.1 | | % | | 90-110 | 05-MAY-21 |
| WG3531965-5 | LCS | | | | | | | |
| Nitrite (as N) | | | 101.3 | | % | | 90-110 | 05-MAY-21 |
| WG3531965-8 | LCS | | | | | | | |
| Nitrite (as N) | | | 101.7 | | % | | 90-110 | 05-MAY-21 |
| WG3531965-1 | MB | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 05-MAY-21 |
| WG3531965-10 | MB | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 05-MAY-21 |
| WG3531965-13 | MB | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 05-MAY-21 |
| WG3531965-4 | MB | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 05-MAY-21 |
| WG3531965-7 | MB | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 05-MAY-21 |
| NO3-L-IC-N-CL | | Water | | | | | | |
| Batch | R5455239 | | | | | | | |
| WG3531965-15 | DUP | L2583674-13 | | | | | | |
| Nitrate (as N) | | <0.0050 | <0.0050 | RPD-NA | mg/L | N/A | 20 | 05-MAY-21 |
| WG3531965-11 | LCS | | | | | | | |
| Nitrate (as N) | | | 100.4 | | % | | 90-110 | 05-MAY-21 |
| WG3531965-14 | LCS | | | | | | | |
| Nitrate (as N) | | | 100.5 | | % | | 90-110 | 05-MAY-21 |
| WG3531965-2 | LCS | | | | | | | |
| Nitrate (as N) | | | 103.2 | | % | | 90-110 | 05-MAY-21 |
| WG3531965-5 | LCS | | | | | | | |
| Nitrate (as N) | | | 100.9 | | % | | 90-110 | 05-MAY-21 |
| WG3531965-8 | LCS | | | | | | | |
| Nitrate (as N) | | | 101.3 | | % | | 90-110 | 05-MAY-21 |
| WG3531965-1 | MB | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 05-MAY-21 |
| WG3531965-10 | MB | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 05-MAY-21 |
| WG3531965-13 | MB | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 05-MAY-21 |
| WG3531965-4 | MB | | | | | | | |

Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 10 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-------------------------------------|--------|--------------------|---------|-----------|-------|------|--------|-----------|
| NO3-L-IC-N-CL Water | | | | | | | | |
| Batch R5455239 | | | | | | | | |
| WG3531965-4 MB | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 05-MAY-21 |
| WG3531965-7 MB | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 05-MAY-21 |
| PH/EC/ALK-CL Water | | | | | | | | |
| Batch R5457043 | | | | | | | | |
| WG3534115-45 DUP | | L2583674-13 | | | | | | |
| pH | | 7.98 | 7.98 | J | pH | 0.00 | 0.2 | 12-MAY-21 |
| Conductivity (EC) | | 473 | 479 | | uS/cm | 1.3 | 10 | 12-MAY-21 |
| Bicarbonate (HCO3) | | 284 | 296 | | mg/L | 4.2 | 20 | 12-MAY-21 |
| Carbonate (CO3) | | <5.0 | <5.0 | RPD-NA | mg/L | N/A | 20 | 12-MAY-21 |
| Hydroxide (OH) | | <5.0 | <5.0 | RPD-NA | mg/L | N/A | 20 | 12-MAY-21 |
| Alkalinity, Total (as CaCO3) | | 233 | 243 | | mg/L | 4.2 | 20 | 12-MAY-21 |
| WG3534115-40 LCS | | | | | | | | |
| Conductivity (EC) | | | 104.6 | | % | | 90-110 | 12-MAY-21 |
| Alkalinity, Total (as CaCO3) | | | 100.7 | | % | | 85-115 | 12-MAY-21 |
| WG3534115-43 LCS | | | | | | | | |
| Conductivity (EC) | | | 103.2 | | % | | 90-110 | 12-MAY-21 |
| Alkalinity, Total (as CaCO3) | | | 97.7 | | % | | 85-115 | 12-MAY-21 |
| WG3534115-41 MB | | | | | | | | |
| Conductivity (EC) | | | <2.0 | | uS/cm | | 2 | 12-MAY-21 |
| Bicarbonate (HCO3) | | | <5.0 | | mg/L | | 5 | 12-MAY-21 |
| Carbonate (CO3) | | | <5.0 | | mg/L | | 5 | 12-MAY-21 |
| Hydroxide (OH) | | | <5.0 | | mg/L | | 5 | 12-MAY-21 |
| Alkalinity, Total (as CaCO3) | | | <2.0 | | mg/L | | 2 | 12-MAY-21 |
| WG3534115-44 MB | | | | | | | | |
| Conductivity (EC) | | | <2.0 | | uS/cm | | 2 | 12-MAY-21 |
| Bicarbonate (HCO3) | | | <5.0 | | mg/L | | 5 | 12-MAY-21 |
| Carbonate (CO3) | | | <5.0 | | mg/L | | 5 | 12-MAY-21 |
| Hydroxide (OH) | | | <5.0 | | mg/L | | 5 | 12-MAY-21 |
| Alkalinity, Total (as CaCO3) | | | <2.0 | | mg/L | | 2 | 12-MAY-21 |
| PO4-DO-L-COL-CL Water | | | | | | | | |
| Batch R5451376 | | | | | | | | |
| WG3529637-8 DUP | | L2583674-1 | | | | | | |
| Orthophosphate-Dissolved (as P) | | 0.0066 | 0.0074 | | mg/L | 12 | 20 | 05-MAY-21 |
| WG3529637-10 LCS | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 103.3 | | % | | 80-120 | 05-MAY-21 |



Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 12 of 15

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------|----------|-----------|--------|-----------|-------|-----|--------|-----------|
| TSS-L-CL | Water | | | | | | | |
| Batch | R5454366 | | | | | | | |
| WG3530339-2 | LCS | | | | | | | |
| Total Suspended Solids | | | 106.8 | | % | | 85-115 | 06-MAY-21 |
| WG3530339-1 | MB | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 06-MAY-21 |

Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 13 of 15

Legend:

| | |
|-------|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

Sample Parameter Qualifier Definitions:

| Qualifier | Description |
|-----------|---|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 14 of 15

Hold Time Exceedances:

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|------------------------------------|-----------|-----------------|-----------------|---------|-----------|-------|-----------|
| Physical Tests | | | | | | | |
| Total Suspended Solids | | | | | | | |
| | 6 | 28-APR-21 08:00 | 06-MAY-21 14:30 | 7 | 8 | days | EHTL |
| | 7 | 28-APR-21 08:00 | 06-MAY-21 14:30 | 7 | 8 | days | EHTL |
| | 8 | 28-APR-21 08:00 | 06-MAY-21 14:30 | 7 | 8 | days | EHTL |
| | 9 | 28-APR-21 08:00 | 06-MAY-21 14:30 | 7 | 8 | days | EHTL |
| | 11 | 28-APR-21 08:00 | 06-MAY-21 14:30 | 7 | 8 | days | EHTL |
| Anions and Nutrients | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 2 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 3 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 4 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 5 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 6 | 28-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 7 | days | EHTR |
| | 7 | 28-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 7 | days | EHTR |
| | 8 | 28-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 7 | days | EHTR |
| | 9 | 28-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 7 | days | EHTR |
| | 10 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 11 | 28-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 7 | days | EHTR |
| | 12 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 13 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 2 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 3 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 4 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 5 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 6 | 28-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 7 | days | EHTR |
| | 7 | 28-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 7 | days | EHTR |
| | 8 | 28-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 7 | days | EHTR |
| | 9 | 28-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 7 | days | EHTR |
| | 10 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 11 | 28-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 7 | days | EHTR |
| | 12 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| | 13 | 29-APR-21 08:00 | 05-MAY-21 13:10 | 3 | 6 | days | EHTR |
| Orthophosphate-Dissolved (as P) | | | | | | | |
| | 1 | 29-APR-21 08:00 | 05-MAY-21 15:55 | 3 | 6 | days | EHTR |
| | 2 | 29-APR-21 08:00 | 05-MAY-21 15:57 | 3 | 6 | days | EHTR |
| | 3 | 29-APR-21 08:00 | 05-MAY-21 15:57 | 3 | 6 | days | EHTR |
| | 4 | 29-APR-21 08:00 | 05-MAY-21 15:57 | 3 | 6 | days | EHTR |
| | 5 | 29-APR-21 08:00 | 05-MAY-21 16:00 | 3 | 6 | days | EHTR |
| | 6 | 28-APR-21 08:00 | 05-MAY-21 16:00 | 3 | 7 | days | EHTR |
| | 7 | 28-APR-21 08:00 | 05-MAY-21 16:00 | 3 | 7 | days | EHTR |
| | 8 | 28-APR-21 08:00 | 05-MAY-21 16:10 | 3 | 7 | days | EHTR |
| | 9 | 28-APR-21 08:00 | 05-MAY-21 16:13 | 3 | 7 | days | EHTR |
| | 10 | 29-APR-21 08:00 | 05-MAY-21 16:22 | 3 | 6 | days | EHTR |
| | 11 | 28-APR-21 08:00 | 05-MAY-21 16:15 | 3 | 7 | days | EHTR |
| | 12 | 29-APR-21 08:00 | 05-MAY-21 16:17 | 3 | 6 | days | EHTR |
| | 13 | 29-APR-21 08:00 | 05-MAY-21 16:17 | 3 | 6 | days | EHTR |

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
 EHTR: Exceeded ALS recommended hold time prior to sample receipt.
 EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
 EHT: Exceeded ALS recommended hold time prior to analysis.
 Rec. HT: ALS recommended hold time (see units).

Quality Control Report

Workorder: L2583674

Report Date: 14-MAY-21

Page 15 of 15

Notes*:

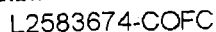
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.

Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2583674 were received on 04-MAY-21 09:10.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



COC Number: 20 -

800 668 9878

Page 1 of 7

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|---|--|-----------------|--|---------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Report To | | | | | | Contact and company name below will appear on the final report | | | | | | Reports / Recipients | | | | | | Turnaround Time (TAT) Requested | | | | | | AFFIX ALS BARCODE LABEL HERE (ALS use only) | | | | | |
| Company: | | | | | | Sperling Hansen Associates Inc. | | | | | | Select Report Format: <input type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) | | | | | | <input checked="" type="checkbox"/> Routine [R] if received by 3pm M-F - no surcharges apply | | | | | | | | | | | |
| Contact: | | | | | | Scott Garthwaite | | | | | | Merge QC/QCI Reports with COA <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A | | | | | | <input type="checkbox"/> 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum | | | | | | | | | | | |
| Phone: | | | | | | 778-471-7088 | | | | | | <input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked | | | | | | <input type="checkbox"/> 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum | | | | | | | | | | | |
| | | | | | | Company address below will appear on the final report | | | | | | Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX | | | | | | <input type="checkbox"/> 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum | | | | | | | | | | | |
| Street: | | | | | | 1225 East Keith Road | | | | | | Email 1 or Fax sgarthwaite@sperlinghansen.com | | | | | | <input type="checkbox"/> 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum | | | | | | | | | | | |
| City/Province: | | | | | | North Vancouver, B.C. | | | | | | Email 2 chetherington@sperlinghansen.com | | | | | | <input type="checkbox"/> Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests | | | | | | | | | | | |
| Postal Code: | | | | | | V7J 1J3 | | | | | | Email 3 | | | | | | Date and Time Required for all E&P TATs: dd-mm-yy hh:mm am/pm | | | | | | | | | | | |
| Invoice To | | | | | | Same as Report To <input checked="" type="checkbox"/> YES <input checked="" type="checkbox"/> NO | | | | | | Invoice Recipients | | | | | | For all tests with rush TATs requested, please contact your AM to confirm availability. | | | | | | | | | | | |
| | | | | | | Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO | | | | | | Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX | | | | | | Analysis Request | | | | | | | | | | | |
| Company: | | | | | | | | | | | | Email 1 or Fax chetherington@sperlinghansen.com | | | | | | NUMBER OF CONTAINERS Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below | | | | | | | | | | | |
| Contact: | | | | | | | | | | | | Email 2 | | | | | | | | | | | | | | | | | |
| Project Information | | | | | | Oil and Gas Required Fields (client use) | | | | | | | | | | | | | | | | | | | | | | | |
| ALS Account # / Quote #: | | | | | | AFE/Cost Center: PO# | | | | | | | | | | | | | | | | | | | | | | | |
| Job #: | | | | | | 20050 Fernie | | | | | | Major/Minor Code: Routing Code: | | | | | | SAMPLES ON HOLD EXTENDED STORAGE REQUIRED SUSPECTED HAZARD (see notes) | | | | | | | | | | | |
| PO / AFE: | | | | | | Requisitioner: | | | | | | | | | | | | | | | | | | | | | | | |
| LSD: | | | | | | Location: | | | | | | | | | | | | | | | | | | | | | | | |
| ALS Lab Work Order # (ALS use only): | | | | | | ALS Contact: Dean Watt Sampler: T. McBride | | | | | | | | | | | | | | | | | | | | | | | |
| ALS Sample # (ALS use only) | | Sample Identification and/or Coordinates (This description will appear on the report) | | | | Date (dd-mm-yy) | | Time (hh:mm) | | Sample Type | | | | | | | | | | | | | | | | | | | |
| 1 | | E257246 . | | | | 29-04-2021 | | --- | | Surface Water | | 5 R R R R R R R R R R R R R R R R R R | | | | | | | | | | | | | | | | | |
| 2 | | E257244 . | | | | 29-04-2021 | | --- | | Groundwater | | 5 R R R R R R R R R R R R R R R R R R | | | | | | | | | | | | | | | | | |
| 3 | | E257247 . | | | | 29-04-2021 | | --- | | Surface Water | | 5 R R R R R R R R R R R R R R R R R R | | | | | | | | | | | | | | | | | |
| 4 | | E257237 . | | | | 29-04-2021 | | --- | | Groundwater | | 5 R R R R R R R R R R R R R R R R R R | | | | | | | | | | | | | | | | | |
| 5 | | E257235 . | | | | 29-04-2021 | | --- | | Groundwater | | 5 R R R R R R R R R R R R R R R R R R | | | | | | | | | | | | | | | | | |
| 6 | | E257250 . | | | | 28-04-2021 | | --- | | Surface Water | | 5 R R R R R R R R R R R R R R R R R R | | | | | | | | | | | | | | | | | |
| 7 | | E257239 . | | | | 28-04-2021 | | --- | | Groundwater | | 5 R R R R R R R R R R R R R R R R R R | | | | | | | | | | | | | | | | | |
| 8 | | E257245 . | | | | 28-04-2021 | | --- | | Surface Water | | 5 R R R R R R R R R R R R R R R R R R | | | | | | | | | | | | | | | | | |
| 9 | | E257242 | | | | 28-04-2021 | | --- | | Groundwater | | 5 R R R R R R R R R R R R R R R R R R | | | | | | | | | | | | | | | | | |
| 10 | | E257252 . | | | | --- | | --- | | Surface Groundwater | | 0 R R R R R R R R R R R R R R R R R R | | | | | | | | | | | | | | | | | |
| 11 | | SHA-5-S | | | | --- | | --- | | Groundwater | | 0 R R R R R R R R R R R R R R R R R R | | | | | | | | | | | | | | | | | |
| Drinking Water (DW) Samples ¹ (client use) | | | | | | Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only) | | | | | | SAMPLE RECEIPT DETAILS (ALS use only) | | | | | | | | | | | | | | | | | |
| Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | | | | | | British Columbia Contaminated Sites Regulation Stage 10 Amendment (NOV, 2017) British Columbia Approved and Working Water Quality Guidelines (MAY, 2015) | | | | | | Cooling Method: <input type="checkbox"/> NONE <input type="checkbox"/> ICE <input type="checkbox"/> ICE PACKS <input type="checkbox"/> FROZEN <input type="checkbox"/> COOLING INITIATED | | | | | | | | | | | | | | | | | |
| Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | | | | | | Speed between 2 coolers | | | | | | Submission Comments identified on Sample Receipt Notification: <input type="checkbox"/> YES <input type="checkbox"/> NO | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | Cooler Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A Sample Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | INITIAL COOLER TEMPERATURES °C FINAL COOLER TEMPERATURES °C | | | | | | | | | | | | | | | | | |
| SHIPMENT RELEASE (client use) | | | | | | INITIAL SHIPMENT RECEPTION (ALS use only) | | | | | | FINAL SHIPMENT RECEPTION (ALS use only) | | | | | | | | | | | | | | | | | |
| Released by: T. McBride | | | | | | Date: Mar 3, 2021 Time: 1:00 PM | | | | | | Received by: [Signature] | | | | | | Date: [Signature] Time: [Signature] | | | | | | | | | | | |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED
DATE 02-20-2010 BY 60324 JES/STW

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**.



www



L2583674-COFC

In of Custody (COC) / Analytical Request Form

COC Number: 20 -

Canada Toll Free: 1 800 668 9878

Page 2 of 2

| Report To Contact and company name below will appear on the final report | | Reports / Recipients | | Turnaround Time (TAT) Requested | | AFFIX ALS BARCODE LABEL HERE (ALS use only) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|--------------------------|--|----------------------|---|-------------------|------------------|-----------------------------|-----|-----|-----------------|---------------------------|------------------------------|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|-----------------|---------------------------|------------------------------|---------------------------------------|------------------|-----|------------------------|------------------|---------|------------------|-----|------------------|-----------------------------|-----|-----|----|---------|------------|-----|---------------|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|----|---------|------------|-----|---------------|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|----|---------|-----|-----|---------------|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|------|---------|------------|-----|-------------|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|------|---------|------------|-----|-------------|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|
| Company: Sperling Hansen Associates Inc. | | Select Report Format: <input type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) | | <input checked="" type="checkbox"/> Routine [R] if received by 3pm M-F - no surcharges apply <input type="checkbox"/> 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum <input type="checkbox"/> 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum <input type="checkbox"/> 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum <input type="checkbox"/> 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum <input type="checkbox"/> Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contact: Scott Garthwaite | | Merge QC/QCI Reports with COA <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Phone: 778-471-7088 | | <input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Company address below will appear on the final report | | Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX | | Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Street: 1225 East Keith Road | | Email 1 or Fax: sgarthwaite@sperlinghansen.com | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| City/Province: North Vancouver, B.C. | | Email 2: chetherington@sperlinghansen.com | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Postal Code: V7J 1J3 | | Email 3: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Invoice To: Same as Report To <input checked="" type="checkbox"/> YES <input checked="" type="checkbox"/> NO | | Invoice Recipients | | For all tests with rush TATs requested, please contact your AM to confirm availability. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO | | Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Company: | | Email 1 or Fax: chetherington@sperlinghansen.com | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contact: | | Email 2: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project Information | | Oil and Gas Required Fields (client use) | | Analysis Request | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALS Account # / Quote #: | | AFE/Cost Center: PO# | | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Job #: 20050 Fernie | | Major/Minor Code: Routing Code: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PO / AFE: | | Requisitioner: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LSD: | | Location: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALS Lab Work Order # (ALS use only): | | ALS Contact: Dean Watt | | Sampler: T. McBride | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALS Sample # (ALS 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 | <table border="1"> <thead> <tr> <th colspan="12">Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below</th> <th rowspan="2">SAMPLES ON HOLD</th> <th rowspan="2">EXTENDED STORAGE REQUIRED</th> <th rowspan="2">SUSPECTED HAZARD (see notes)</th> </tr> <tr> <th>Anions, temperature, conductivity, pH</th> <th>Total Alkalinity</th> <th>TSS</th> <th>Dissolved Metals (F/P)</th> <th>Total Metals (P)</th> <th>Ammonia</th> <th>nitrate, nitrite</th> <th>TOC</th> <th>orthophosphorous</th> <th>fluoride, chloride, sulfate</th> <th>COD</th> <th>BOD</th> </tr> </thead> <tbody> <tr> <td>18</td> <td>E257243</td> <td>29-04-2021</td> <td>---</td> <td>Surface Water</td> <td>5</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td> </tr> <tr> <td>18</td> <td>E257240</td> <td>29-04-2021</td> <td>---</td> <td>Surface Water</td> <td>5</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td> </tr> <tr> <td>18</td> <td>E257241</td> <td>---</td> <td>---</td> <td>Surface Water</td> <td>0</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td> </tr> <tr> <td>1218</td> <td>E257238</td> <td>29-04-2021</td> <td>---</td> <td>Groundwater</td> <td>5</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td> </tr> <tr> <td>1308</td> <td>E257238</td> <td>29-04-2021</td> <td>---</td> <td>Groundwater</td> <td>5</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td> </tr> </tbody> </table> | | | | | | | | | | | | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below | | | | | | | | | | | | SAMPLES ON HOLD | EXTENDED STORAGE REQUIRED | SUSPECTED HAZARD (see notes) | Anions, temperature, conductivity, pH | Total Alkalinity | TSS | Dissolved Metals (F/P) | Total Metals (P) | Ammonia | nitrate, nitrite | TOC | orthophosphorous | fluoride, chloride, sulfate | COD | BOD | 18 | E257243 | 29-04-2021 | --- | Surface Water | 5 | R | R | R | R | R | R | R | R | R | R | R | | | | 18 | E257240 | 29-04-2021 | --- | Surface Water | 5 | R | R | R | R | R | R | R | R | R | R | R | | | | 18 | E257241 | --- | --- | Surface Water | 0 | R | R | R | R | R | R | R | R | R | R | R | | | | 1218 | E257238 | 29-04-2021 | --- | Groundwater | 5 | R | R | R | R | R | R | R | R | R | R | R | | | | 1308 | E257238 | 29-04-2021 | --- | Groundwater | 5 | R | R | R | R | R | R | R | R | R | R | R | | | |
| Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below | | | | | | | | | | | | SAMPLES ON HOLD | EXTENDED STORAGE REQUIRED | SUSPECTED HAZARD (see notes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Anions, temperature, conductivity, pH | Total Alkalinity | TSS | Dissolved Metals (F/P) | Total Metals (P) | Ammonia | nitrate, nitrite | TOC | orthophosphorous | fluoride, chloride, sulfate | COD | BOD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | E257243 | 29-04-2021 | --- | Surface Water | 5 | R | R | R | R | R | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | E257240 | 29-04-2021 | --- | Surface Water | 5 | R | R | R | R | R | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | E257241 | --- | --- | Surface Water | 0 | R | R | R | R | R | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1218 | E257238 | 29-04-2021 | --- | Groundwater | 5 | R | R | R | R | R | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1308 | E257238 | 29-04-2021 | --- | Groundwater | 5 | R | R | R | R | R | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drinking Water (DW) Samples¹ (client use) | | Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only) | | SAMPLE RECEIPT DETAILS (ALS use only) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | | British Columbia Contaminated Sites Regulation Stage 10 Amendment (NOV, 2017) | | Cooling Method: <input type="checkbox"/> NONE <input type="checkbox"/> ICE <input type="checkbox"/> ICE PACKS <input type="checkbox"/> FROZEN <input type="checkbox"/> COOLING INITIATED | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | | British Columbia Approved and Working Water Quality Guidelines (MAY, 2015) | | Submission Comments identified on Sample Receipt Notification: <input type="checkbox"/> YES <input type="checkbox"/> NO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Samples spread between 2 coolers | | Cooler Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A Sample Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | INITIAL COOLER TEMPERATURES °C | | FINAL COOLER TEMPERATURES °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHIPMENT RELEASE (client use) | | INITIAL SHIPMENT RECEPTION (ALS use only) | | FINAL SHIPMENT RECEPTION (ALS use only) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Released by: T. McBride | Date: May 3, 2021 | Time: 1:00 PM | Received by: [Signature] | Date: May 3, 2021 | Time: 1:00 PM | Received by: [Signature] | Date: May 3, 2021 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY / YELLOW - CLIENT COPY

AUG 2020 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.



Sperling Hansen Associates Inc.
ATTN: Scott Garthwaite
#8 - 1225 East Keith Road
North Vancouver BC V7J 1J3

Date Received: 30-JUL-21
Report Date: 10-AUG-21 16:23 (MT)
Version: FINAL

Client Phone: 604-986-7723

Certificate of Analysis

Lab Work Order #: L2621328
Project P.O. #: NOT SUBMITTED
Job Reference: 20050 FERNIE
C of C Numbers:
Legal Site Desc:

Patryk Wojciak, B.Sc., P.Chem.
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 2559 29 Street NE, Calgary, AB T1Y 7B5 Canada | Phone: +1 403 291 9897 | Fax: +1 403 291 0298
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2621328-1 Surface Water 27-JUL-21 12:00 E257246 | L2621328-2 Surface Water 27-JUL-21 12:00 E257247 | L2621328-3 Groundwater 27-JUL-21 12:00 E257238 | L2621328-4 Groundwater 27-JUL-21 12:00 E257235 | L2621328-5 Groundwater 27-JUL-21 12:00 E257239 |
|---|--|--|--|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | 124 ^{HTC} | 107 ^{HTC} | 291 | 246 | 148 |
| | Temperature (Degree C) | 20.4 | 20.5 | 20.5 | 20.5 | 20.5 |
| | Total Suspended Solids (mg/L) | 1.6 | 1.2 | | | |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 132 | 115 | 309 | 280 | 169 |
| | Ammonia as N (mg/L) | 0.0055 | <0.0050 | 0.0128 | 0.385 | 0.0309 |
| | Bicarbonate (HCO ₃) (mg/L) | 161 | 140 | 376 | 341 | 207 |
| | Carbonate (CO ₃) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Chloride (Cl) (mg/L) | 0.40 | 0.33 | 7.66 | 1.74 | 0.69 |
| | Conductivity (EC) (uS/cm) | 232 | 203 | 539 | 468 | 300 |
| | Fluoride (F) (mg/L) | 0.022 | 0.079 | <0.020 | <0.020 | 0.023 |
| | Hydroxide (OH) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Nitrate and Nitrite (as N) (mg/L) | <0.0051 | 0.0103 | 0.0540 | 0.0076 | 0.118 |
| | Nitrate (as N) (mg/L) | <0.0050 | 0.0103 | 0.0529 | 0.0076 | 0.117 |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | 0.0011 | <0.0010 | 0.0013 |
| | pH (pH) | 7.84 | 7.69 | 8.02 | 7.97 | 7.83 |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0061 | 0.0105 | 0.0017 | 0.0014 | 0.0087 |
| | Sulfate (SO ₄) (mg/L) | 3.26 | 3.52 | 13.0 | 1.97 | 7.63 |
| | | | | | | |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 1.41 | 1.29 | 1.07 | 8.32 | 84.9 |
| Total Metals | Aluminum (Al)-Total (mg/L) | 0.0056 | 0.0115 | | | |
| | Antimony (Sb)-Total (mg/L) | 0.00013 | 0.00013 | | | |
| | Arsenic (As)-Total (mg/L) | 0.00037 | 0.00038 | | | |
| | Barium (Ba)-Total (mg/L) | 0.292 | 0.308 | | | |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | <0.000020 | | | |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | <0.000050 | | | |
| | Boron (B)-Total (mg/L) | 0.013 | 0.013 | | | |
| | Cadmium (Cd)-Total (mg/L) | 0.0000419 | 0.0000416 | | | |
| | Calcium (Ca)-Total (mg/L) | 38.0 | 31.8 | | | |
| | Chromium (Cr)-Total (mg/L) | 0.00011 | 0.00011 | | | |
| | Cobalt (Co)-Total (mg/L) | <0.00010 | <0.00010 | | | |
| | Copper (Cu)-Total (mg/L) | <0.00050 | <0.00050 | | | |
| | Iron (Fe)-Total (mg/L) | 0.016 | <0.010 | | | |
| | Lead (Pb)-Total (mg/L) | <0.000050 | <0.000050 | | | |
| | Lithium (Li)-Total (mg/L) | 0.0099 | 0.0121 | | | |
| | Magnesium (Mg)-Total (mg/L) | 7.04 | 6.80 | | | |
| | Manganese (Mn)-Total (mg/L) | 0.00385 | 0.00043 | | | |
| | Mercury (Hg)-Total (mg/L) | <0.0000050 | <0.0000050 | | | |
| | | | | | | |
| | | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| | | Sample ID Description Sampled Date Sampled Time Client ID | | | | |
|-----------------------------------|--|---|--|--|--|--|
| | | L2621328-6 Groundwater 27-JUL-21 12:00 E257242 | | | | |
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO3) (mg/L) | 280 | | | | |
| | Temperature (Degree C) | 20.5 | | | | |
| | Total Suspended Solids (mg/L) | | | | | |
| Anions and Nutrients | Alkalinity, Total (as CaCO3) (mg/L) | 316 | | | | |
| | Ammonia as N (mg/L) | 0.0517 | | | | |
| | Bicarbonate (HCO3) (mg/L) | 385 | | | | |
| | Carbonate (CO3) (mg/L) | <5.0 | | | | |
| | Chloride (Cl) (mg/L) | 1.33 | | | | |
| | Conductivity (EC) (uS/cm) | 509 | | | | |
| | Fluoride (F) (mg/L) | <0.020 | | | | |
| | Hydroxide (OH) (mg/L) | <5.0 | | | | |
| | Nitrate and Nitrite (as N) (mg/L) | 0.0054 | | | | |
| | Nitrate (as N) (mg/L) | 0.0054 | | | | |
| | Nitrite (as N) (mg/L) | <0.0010 | | | | |
| | pH (pH) | 7.87 | | | | |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0015 | | | | |
| | Sulfate (SO4) (mg/L) | 2.21 | | | | |
| | | | | | | |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 5.45 | | | | |
| Total Metals | Aluminum (Al)-Total (mg/L) | | | | | |
| | Antimony (Sb)-Total (mg/L) | | | | | |
| | Arsenic (As)-Total (mg/L) | | | | | |
| | Barium (Ba)-Total (mg/L) | | | | | |
| | Beryllium (Be)-Total (mg/L) | | | | | |
| | Bismuth (Bi)-Total (mg/L) | | | | | |
| | Boron (B)-Total (mg/L) | | | | | |
| | Cadmium (Cd)-Total (mg/L) | | | | | |
| | Calcium (Ca)-Total (mg/L) | | | | | |
| | Chromium (Cr)-Total (mg/L) | | | | | |
| | Cobalt (Co)-Total (mg/L) | | | | | |
| | Copper (Cu)-Total (mg/L) | | | | | |
| | Iron (Fe)-Total (mg/L) | | | | | |
| | Lead (Pb)-Total (mg/L) | | | | | |
| | Lithium (Li)-Total (mg/L) | | | | | |
| | Magnesium (Mg)-Total (mg/L) | | | | | |
| | Manganese (Mn)-Total (mg/L) | | | | | |
| | Mercury (Hg)-Total (mg/L) | | | | | |
| | | | | | | |
| | | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2621328-1 Surface Water 27-JUL-21 12:00 E257246 | L2621328-2 Surface Water 27-JUL-21 12:00 E257247 | L2621328-3 Groundwater 27-JUL-21 12:00 E257238 | L2621328-4 Groundwater 27-JUL-21 12:00 E257235 | L2621328-5 Groundwater 27-JUL-21 12:00 E257239 |
|---|---------------------------------------|--|--|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Total Metals | Molybdenum (Mo)-Total (mg/L) | 0.000624 | 0.000711 | | | |
| | Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | | | |
| | Phosphorus (P)-Total (mg/L) | <0.050 | <0.050 | | | |
| | Potassium (K)-Total (mg/L) | 0.77 | 0.86 | | | |
| | Selenium (Se)-Total (mg/L) | 0.000204 | 0.000258 | | | |
| | Silicon (Si)-Total (mg/L) | 2.33 | 1.86 | | | |
| | Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | | | |
| | Sodium (Na)-Total (mg/L) | 2.55 | 2.93 | | | |
| | Strontium (Sr)-Total (mg/L) | 0.131 | 0.126 | | | |
| | Sulfur (S)-Total (mg/L) | 1.69 | 1.64 | | | |
| | Thallium (Tl)-Total (mg/L) | <0.000010 | <0.000010 | | | |
| | Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | | | |
| | Titanium (Ti)-Total (mg/L) | <0.00030 | <0.00030 | | | |
| | Uranium (U)-Total (mg/L) | 0.000278 | 0.000240 | | | |
| | Vanadium (V)-Total (mg/L) | 0.00050 | 0.00051 | | | |
| | Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | | | |
| | Zirconium (Zr)-Total (mg/L) | <0.00030 | <0.00030 | | | |
| Dissolved Metals | Dissolved Mercury Filtration Location | | | FIELD | FIELD | FIELD |
| | Dissolved Metals Filtration Location | | | FIELD | FIELD | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | | | <0.0010 | 0.0017 | 0.0247 |
| | Antimony (Sb)-Dissolved (mg/L) | | | <0.00010 | <0.00010 | 0.00015 |
| | Arsenic (As)-Dissolved (mg/L) | | | 0.00015 | 0.00451 | 0.00026 |
| | Barium (Ba)-Dissolved (mg/L) | | | 0.298 | 0.706 | 0.174 |
| | Beryllium (Be)-Dissolved (mg/L) | | | <0.000020 | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | | | <0.000050 | <0.000050 | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | | | 0.023 | 0.038 | 0.022 |
| | Cadmium (Cd)-Dissolved (mg/L) | | | 0.0000431 | 0.000299 | 0.0000247 |
| | Calcium (Ca)-Dissolved (mg/L) | | | 84.0 | 80.3 | 47.3 |
| | Chromium (Cr)-Dissolved (mg/L) | | | <0.00010 | <0.00010 | 0.00013 |
| | Cobalt (Co)-Dissolved (mg/L) | | | 0.00014 | 0.00224 | <0.00010 |
| | Copper (Cu)-Dissolved (mg/L) | | | 0.00051 | 0.00125 | 0.00421 |
| | Iron (Fe)-Dissolved (mg/L) | | | <0.010 | 1.67 | 0.024 |
| | Lead (Pb)-Dissolved (mg/L) | | | <0.000050 | <0.000050 | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | | | 0.0083 | 0.0055 | 0.0109 |
| | Magnesium (Mg)-Dissolved (mg/L) | | | 19.6 | 11.0 | 7.17 |
| | Manganese (Mn)-Dissolved (mg/L) | | | 0.205 | 2.11 | 0.00175 |
| | Mercury (Hg)-Dissolved (mg/L) | | | <0.0000050 | <0.0000050 | <0.0000050 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| | | Sample ID | | | | |
|-------------------------|---------------------------------------|--------------|--|--|--|--|
| | | Description | | | | |
| | | Sampled Date | | | | |
| | | Sampled Time | | | | |
| | | Client ID | | | | |
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Total Metals | Molybdenum (Mo)-Total (mg/L) | | | | | |
| | Nickel (Ni)-Total (mg/L) | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | |
| | Potassium (K)-Total (mg/L) | | | | | |
| | Selenium (Se)-Total (mg/L) | | | | | |
| | Silicon (Si)-Total (mg/L) | | | | | |
| | Silver (Ag)-Total (mg/L) | | | | | |
| | Sodium (Na)-Total (mg/L) | | | | | |
| | Strontium (Sr)-Total (mg/L) | | | | | |
| | Sulfur (S)-Total (mg/L) | | | | | |
| | Thallium (Tl)-Total (mg/L) | | | | | |
| | Tin (Sn)-Total (mg/L) | | | | | |
| | Titanium (Ti)-Total (mg/L) | | | | | |
| | Uranium (U)-Total (mg/L) | | | | | |
| | Vanadium (V)-Total (mg/L) | | | | | |
| | Zinc (Zn)-Total (mg/L) | | | | | |
| | Zirconium (Zr)-Total (mg/L) | | | | | |
| Dissolved Metals | Dissolved Mercury Filtration Location | FIELD | | | | |
| | Dissolved Metals Filtration Location | FIELD | | | | |
| | Aluminum (Al)-Dissolved (mg/L) | 0.0022 | | | | |
| | Antimony (Sb)-Dissolved (mg/L) | 0.00011 | | | | |
| | Arsenic (As)-Dissolved (mg/L) | 0.00075 | | | | |
| | Barium (Ba)-Dissolved (mg/L) | 0.520 | | | | |
| | Beryllium (Be)-Dissolved (mg/L) | <0.000020 | | | | |
| | Bismuth (Bi)-Dissolved (mg/L) | <0.000050 | | | | |
| | Boron (B)-Dissolved (mg/L) | 0.043 | | | | |
| | Cadmium (Cd)-Dissolved (mg/L) | 0.000785 | | | | |
| | Calcium (Ca)-Dissolved (mg/L) | 92.5 | | | | |
| | Chromium (Cr)-Dissolved (mg/L) | <0.00010 | | | | |
| | Cobalt (Co)-Dissolved (mg/L) | 0.00380 | | | | |
| | Copper (Cu)-Dissolved (mg/L) | 0.00098 | | | | |
| | Iron (Fe)-Dissolved (mg/L) | 0.257 | | | | |
| | Lead (Pb)-Dissolved (mg/L) | <0.000050 | | | | |
| | Lithium (Li)-Dissolved (mg/L) | 0.0049 | | | | |
| | Magnesium (Mg)-Dissolved (mg/L) | 11.8 | | | | |
| | Manganese (Mn)-Dissolved (mg/L) | 1.40 | | | | |
| | Mercury (Hg)-Dissolved (mg/L) | <0.000050 | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2621328-1 Surface Water 27-JUL-21 12:00 E257246 | L2621328-2 Surface Water 27-JUL-21 12:00 E257247 | L2621328-3 Groundwater 27-JUL-21 12:00 E257238 | L2621328-4 Groundwater 27-JUL-21 12:00 E257235 | L2621328-5 Groundwater 27-JUL-21 12:00 E257239 |
|---|----------------------------------|--|--|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Molybdenum (Mo)-Dissolved (mg/L) | | | 0.00117 | 0.00110 | 0.00101 |
| | Nickel (Ni)-Dissolved (mg/L) | | | 0.00113 | 0.00355 | 0.00112 |
| | Phosphorus (P)-Dissolved (mg/L) | | | <0.050 | <0.050 | <0.050 |
| | Potassium (K)-Dissolved (mg/L) | | | 1.36 | 1.89 | 1.03 |
| | Selenium (Se)-Dissolved (mg/L) | | | <0.000050 | 0.000108 | 0.000232 |
| | Silicon (Si)-Dissolved (mg/L) | | | 5.21 | 4.97 | 3.47 |
| | Silver (Ag)-Dissolved (mg/L) | | | <0.000010 | <0.000010 | <0.000010 |
| | Sodium (Na)-Dissolved (mg/L) | | | 4.67 | 3.97 | 5.34 |
| | Strontium (Sr)-Dissolved (mg/L) | | | 0.291 | 0.295 | 0.479 |
| | Sulfur (S)-Dissolved (mg/L) | | | 5.11 | 1.11 | 3.06 |
| | Thallium (Tl)-Dissolved (mg/L) | | | 0.000016 | 0.000112 | <0.000010 |
| | Tin (Sn)-Dissolved (mg/L) | | | <0.00010 | <0.00010 | <0.00010 |
| | Titanium (Ti)-Dissolved (mg/L) | | | <0.00030 | <0.00030 | <0.00030 |
| | Uranium (U)-Dissolved (mg/L) | | | 0.00141 | 0.000390 | 0.000228 |
| | Vanadium (V)-Dissolved (mg/L) | | | <0.00050 | <0.00050 | <0.00050 |
| | Zinc (Zn)-Dissolved (mg/L) | | | 0.0014 | 0.0038 | 0.0020 |
| | Zirconium (Zr)-Dissolved (mg/L) | | | <0.00030 | <0.00030 | <0.00030 |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | <2.0 ^{PHA} | <2.0 | 3.5 | <6.0 ^{DLM} |
| | Chemical Oxygen Demand (mg/L) | <10 | <10 | <10 | 40 | 377 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2621328-6 Groundwater 27-JUL-21 12:00 E257242 | | | | |
|---|----------------------------------|--|--|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Molybdenum (Mo)-Dissolved (mg/L) | 0.000454 | | | | |
| | Nickel (Ni)-Dissolved (mg/L) | 0.00758 | | | | |
| | Phosphorus (P)-Dissolved (mg/L) | <0.050 | | | | |
| | Potassium (K)-Dissolved (mg/L) | 1.67 | | | | |
| | Selenium (Se)-Dissolved (mg/L) | 0.000066 | | | | |
| | Silicon (Si)-Dissolved (mg/L) | 4.27 | | | | |
| | Silver (Ag)-Dissolved (mg/L) | <0.000010 | | | | |
| | Sodium (Na)-Dissolved (mg/L) | 2.85 | | | | |
| | Strontium (Sr)-Dissolved (mg/L) | 0.368 | | | | |
| | Sulfur (S)-Dissolved (mg/L) | 1.01 | | | | |
| | Thallium (Tl)-Dissolved (mg/L) | 0.000076 | | | | |
| | Tin (Sn)-Dissolved (mg/L) | <0.00010 | | | | |
| | Titanium (Ti)-Dissolved (mg/L) | <0.00030 | | | | |
| | Uranium (U)-Dissolved (mg/L) | 0.000770 | | | | |
| | Vanadium (V)-Dissolved (mg/L) | <0.00050 | | | | |
| | Zinc (Zn)-Dissolved (mg/L) | 0.0071 | | | | |
| | Zirconium (Zr)-Dissolved (mg/L) | <0.00030 | | | | |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | | | | |
| | Chemical Oxygen Demand (mg/L) | 21 | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Individual Parameters Listed:

| Qualifier | Description |
|-----------|--|
| DLM | Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity). |
| HTC | Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable). |
| PHA | pH Adjusted Before Analysis |

Test Method References:

| ALS Test Code | Matrix | Test Description | Method Reference** |
|--|--------|--|---|
| BE-D-L-CCMS-CL | Water | Diss. Be (low) in Water by CRC ICPMS | APHA 3030B/6020A (mod) |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS. | | | |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. | | | |
| BE-T-L-CCMS-CL | Water | Total Be (Low) in Water by CRC ICPMS | EPA 200.2/6020A (mod) |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS. | | | |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. | | | |
| BOD-BC-CL | Water | Biochemical Oxygen Demand (BOD) | APHA 5210 B-5 day Incub.-O2 electrode |
| This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation. | | | |
| C-TOT-ORG-LOW-CL | Water | Total Organic Carbon | APHA 5310 TOTAL ORGANIC CARBON (TOC) |
| This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide. | | | |
| The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC. | | | |
| TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved. | | | |
| CL-L-IC-N-CL | Water | Chloride in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| COD-T-COL-CL | Water | Chemical Oxygen Demand (COD) | APHA 5220 D Colorimetry |
| Samples are analyzed using the closed reflux colourimetric method | | | |
| F-L-IC-CL | Water | Fluoride | APHA 4110 B-Ion Chromatography |
| HARDNESS-CALC-CL | Water | Hardness | APHA 2340 B |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. | | | |
| HG-D-CVAA-CL | Water | Dissolved Mercury in Water by CVAAS | APHA 3030B/EPA 1631E (mod) |
| Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS. | | | |
| HG-T-CVAA-CL | Water | Total Mercury in Water by CVAAS | EPA 1631E (mod) |
| Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS. | | | |
| MET-D-CCMS-CL | Water | Dissolved Metals in Water by CRC ICPMS | APHA 3030B/6020A (mod) |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS. | | | |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. | | | |
| MET-T-CCMS-CL | Water | Total Metals in Water by CRC ICPMS | EPA 200.2/6020A (mod) |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS. | | | |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. | | | |
| N2N3-CALC-CL | Water | Nitrate+Nitrite | CALCULATION |
| NH3-L-F-CL | Water | Ammonia, Total (as N) | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |

Reference Information

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-CL Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-CL Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

PH/EC/ALK-CL Water pH, Conductivity and Total Alkalinity APHA 4500H,2510,2320

All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)

pH measurement is determined from the activity of the hydrogen ions using a hydrogen electrode and a reference electrode.

Alkalinity measurement is based on the sample's capacity to neutralize acid

Conductivity measurement is based on the sample's capacity to convey an electric current

PO4-DO-L-COL-CL Water Orthophosphate-Dissolved (as P) APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SO4-L-IC-N-CL Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TEMP-CL Water Temperature APHA 2550-Thermometer

TSS-L-CL Water Total Suspended Solids APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

| Laboratory Definition Code | Laboratory Location |
|----------------------------|---------------------|
|----------------------------|---------------------|

| | |
|----|--|
| CL | ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA |
|----|--|

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour 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.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg ww - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2621328

Report Date: 10-AUG-21

Page 1 of 10

Client: Sperling Hansen Associates Inc.

#8 - 1225 East Keith Road

North Vancouver BC V7J 1J3

Contact: Scott Garthwaite

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|-----------------|-------------------|-----------|-----------|-------|-----|---------|-----------|
| BE-D-L-CCMS-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5546923 | | | | | | | |
| WG3593345-2 | LCS | TMRM | | | | | | |
| Beryllium (Be)-Dissolved | | | 96.0 | | % | | 80-120 | 09-AUG-21 |
| WG3593345-1 | MB | | | | | | | |
| Beryllium (Be)-Dissolved | | | <0.000020 | | mg/L | | 0.00002 | 09-AUG-21 |
| BE-T-L-CCMS-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5546630 | | | | | | | |
| WG3591679-6 | LCS | TMRM | | | | | | |
| Beryllium (Be)-Total | | | 101.7 | | % | | 80-120 | 10-AUG-21 |
| WG3591679-5 | MB | | | | | | | |
| Beryllium (Be)-Total | | | <0.000020 | | mg/L | | 0.00002 | 09-AUG-21 |
| BOD-BC-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5544496 | | | | | | | |
| WG3590486-2 | LCS | | | | | | | |
| Biochemical Oxygen Demand | | | 97.9 | | % | | 85-115 | 31-JUL-21 |
| WG3590486-1 | MB | | | | | | | |
| Biochemical Oxygen Demand | | | <2.0 | | mg/L | | 2 | 31-JUL-21 |
| C-TOT-ORG-LOW-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5541516 | | | | | | | |
| WG3589411-8 | DUP | L2621328-1 | | | | | | |
| Total Organic Carbon | | 1.41 | 1.22 | | mg/L | 14 | 20 | 03-AUG-21 |
| WG3589411-2 | LCS | | | | | | | |
| Total Organic Carbon | | | 101.9 | | % | | 80-120 | 03-AUG-21 |
| WG3589411-6 | LCS | | | | | | | |
| Total Organic Carbon | | | 100.8 | | % | | 80-120 | 03-AUG-21 |
| WG3589411-1 | MB | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 03-AUG-21 |
| WG3589411-5 | MB | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 03-AUG-21 |
| WG3589411-7 | MS | L2621328-1 | | | | | | |
| Total Organic Carbon | | | 99.9 | | % | | 70-130 | 03-AUG-21 |
| CL-L-IC-N-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5544557 | | | | | | | |
| WG3590662-6 | LCS | | | | | | | |
| Chloride (Cl) | | | 99.3 | | % | | 85-115 | 31-JUL-21 |
| WG3590662-5 | MB | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 31-JUL-21 |
| COD-T-COL-CL | | | | | | | | |
| Water | | | | | | | | |

Quality Control Report

Workorder: L2621328

Report Date: 10-AUG-21

Page 2 of 10

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-----------------------------------|------------|-------------------|------------|-----------|-------|-----|----------|-----------|
| COD-T-COL-CL Water | | | | | | | | |
| Batch | R5545771 | | | | | | | |
| WG3591304-6 | LCS | | | | | | | |
| Chemical Oxygen Demand | | | 101.8 | | % | | 85-115 | 05-AUG-21 |
| WG3591304-5 | MB | | | | | | | |
| Chemical Oxygen Demand | | | <10 | | mg/L | | 10 | 05-AUG-21 |
| F-L-IC-CL Water | | | | | | | | |
| Batch | R5544557 | | | | | | | |
| WG3590662-6 | LCS | | | | | | | |
| Fluoride (F) | | | 91.8 | | % | | 85-115 | 31-JUL-21 |
| WG3590662-5 | MB | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 31-JUL-21 |
| HG-D-CVAA-CL Water | | | | | | | | |
| Batch | R5546057 | | | | | | | |
| WG3592354-7 | DUP | L2621328-6 | | | | | | |
| Mercury (Hg)-Dissolved | | <0.0000050 | <0.0000050 | RPD-NA | mg/L | N/A | 20 | 07-AUG-21 |
| WG3592354-6 | LCS | | | | | | | |
| Mercury (Hg)-Dissolved | | | 89.1 | | % | | 80-120 | 07-AUG-21 |
| WG3592354-5 | MB | | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.0000050 | | mg/L | | 0.000005 | 07-AUG-21 |
| WG3592354-8 | MS | L2621328-6 | | | | | | |
| Mercury (Hg)-Dissolved | | | 93.5 | | % | | 70-130 | 07-AUG-21 |
| HG-T-CVAA-CL Water | | | | | | | | |
| Batch | R5546057 | | | | | | | |
| WG3592358-6 | LCS | | | | | | | |
| Mercury (Hg)-Total | | | 107.0 | | % | | 80-120 | 07-AUG-21 |
| WG3592358-5 | MB | | | | | | | |
| Mercury (Hg)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 07-AUG-21 |
| MET-D-CCMS-CL Water | | | | | | | | |
| Batch | R5546923 | | | | | | | |
| WG3593345-2 | LCS | TMRM | | | | | | |
| Aluminum (Al)-Dissolved | | | 100.2 | | % | | 80-120 | 09-AUG-21 |
| Antimony (Sb)-Dissolved | | | 99.6 | | % | | 80-120 | 09-AUG-21 |
| Arsenic (As)-Dissolved | | | 99.4 | | % | | 80-120 | 09-AUG-21 |
| Barium (Ba)-Dissolved | | | 104.2 | | % | | 80-120 | 09-AUG-21 |
| Bismuth (Bi)-Dissolved | | | 100.6 | | % | | 80-120 | 09-AUG-21 |
| Boron (B)-Dissolved | | | 91.4 | | % | | 80-120 | 09-AUG-21 |
| Cadmium (Cd)-Dissolved | | | 97.1 | | % | | 80-120 | 09-AUG-21 |
| Calcium (Ca)-Dissolved | | | 97.5 | | % | | 80-120 | 09-AUG-21 |

Quality Control Report

Workorder: L2621328

Report Date: 10-AUG-21

Page 3 of 10

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|-----------------|--------------|------------|-----------|-------|-----|----------|-----------|
| MET-D-CCMS-CL | | Water | | | | | | |
| Batch | R5546923 | | | | | | | |
| WG3593345-2 | LCS | TMRM | | | | | | |
| Chromium (Cr)-Dissolved | | | 98.8 | | % | | 80-120 | 09-AUG-21 |
| Cobalt (Co)-Dissolved | | | 97.8 | | % | | 80-120 | 09-AUG-21 |
| Copper (Cu)-Dissolved | | | 95.4 | | % | | 80-120 | 09-AUG-21 |
| Iron (Fe)-Dissolved | | | 101.7 | | % | | 80-120 | 09-AUG-21 |
| Lead (Pb)-Dissolved | | | 99.4 | | % | | 80-120 | 09-AUG-21 |
| Lithium (Li)-Dissolved | | | 99.8 | | % | | 80-120 | 09-AUG-21 |
| Magnesium (Mg)-Dissolved | | | 99.1 | | % | | 80-120 | 09-AUG-21 |
| Manganese (Mn)-Dissolved | | | 98.6 | | % | | 80-120 | 09-AUG-21 |
| Molybdenum (Mo)-Dissolved | | | 103.8 | | % | | 80-120 | 09-AUG-21 |
| Nickel (Ni)-Dissolved | | | 96.7 | | % | | 80-120 | 09-AUG-21 |
| Phosphorus (P)-Dissolved | | | 102.6 | | % | | 70-130 | 09-AUG-21 |
| Potassium (K)-Dissolved | | | 98.2 | | % | | 80-120 | 09-AUG-21 |
| Selenium (Se)-Dissolved | | | 95.9 | | % | | 80-120 | 09-AUG-21 |
| Silicon (Si)-Dissolved | | | 102.1 | | % | | 60-140 | 09-AUG-21 |
| Silver (Ag)-Dissolved | | | 98.5 | | % | | 80-120 | 09-AUG-21 |
| Sodium (Na)-Dissolved | | | 97.9 | | % | | 80-120 | 09-AUG-21 |
| Strontium (Sr)-Dissolved | | | 106.8 | | % | | 80-120 | 09-AUG-21 |
| Sulfur (S)-Dissolved | | | 97.0 | | % | | 80-120 | 09-AUG-21 |
| Thallium (Tl)-Dissolved | | | 99.3 | | % | | 80-120 | 09-AUG-21 |
| Tin (Sn)-Dissolved | | | 100.8 | | % | | 80-120 | 09-AUG-21 |
| Titanium (Ti)-Dissolved | | | 95.8 | | % | | 80-120 | 09-AUG-21 |
| Uranium (U)-Dissolved | | | 95.8 | | % | | 80-120 | 09-AUG-21 |
| Vanadium (V)-Dissolved | | | 99.5 | | % | | 80-120 | 09-AUG-21 |
| Zinc (Zn)-Dissolved | | | 97.1 | | % | | 80-120 | 09-AUG-21 |
| Zirconium (Zr)-Dissolved | | | 104.9 | | % | | 80-120 | 09-AUG-21 |
| WG3593345-1 | MB | | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 09-AUG-21 |
| Antimony (Sb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 09-AUG-21 |
| Arsenic (As)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 09-AUG-21 |
| Barium (Ba)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 09-AUG-21 |
| Bismuth (Bi)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 09-AUG-21 |
| Boron (B)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 09-AUG-21 |
| Cadmium (Cd)-Dissolved | | | <0.0000050 | | mg/L | | 0.000005 | 09-AUG-21 |
| Calcium (Ca)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 09-AUG-21 |

Quality Control Report

Workorder: L2621328

Report Date: 10-AUG-21

Page 4 of 10

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|--------|--------------|-----------|-----------|-------|-----|---------|-----------|
| MET-D-CCMS-CL | | Water | | | | | | |
| Batch R5546923 | | | | | | | | |
| WG3593345-1 MB | | | | | | | | |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 09-AUG-21 |
| Cobalt (Co)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 09-AUG-21 |
| Copper (Cu)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 09-AUG-21 |
| Iron (Fe)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 09-AUG-21 |
| Lead (Pb)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 09-AUG-21 |
| Lithium (Li)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 09-AUG-21 |
| Magnesium (Mg)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 09-AUG-21 |
| Manganese (Mn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 09-AUG-21 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 09-AUG-21 |
| Nickel (Ni)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 09-AUG-21 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 09-AUG-21 |
| Potassium (K)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 09-AUG-21 |
| Selenium (Se)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 09-AUG-21 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 09-AUG-21 |
| Silver (Ag)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 09-AUG-21 |
| Sodium (Na)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 09-AUG-21 |
| Strontium (Sr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 09-AUG-21 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 09-AUG-21 |
| Thallium (Tl)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 09-AUG-21 |
| Tin (Sn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 09-AUG-21 |
| Titanium (Ti)-Dissolved | | | <0.00030 | | mg/L | | 0.0003 | 09-AUG-21 |
| Uranium (U)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 09-AUG-21 |
| Vanadium (V)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 09-AUG-21 |
| Zinc (Zn)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 09-AUG-21 |
| Zirconium (Zr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 09-AUG-21 |
| MET-T-CCMS-CL | | Water | | | | | | |
| Batch R5546630 | | | | | | | | |
| WG3591679-6 LCS | | TMRM | | | | | | |
| Aluminum (Al)-Total | | | 102.9 | | % | | 80-120 | 09-AUG-21 |
| Antimony (Sb)-Total | | | 100.9 | | % | | 80-120 | 09-AUG-21 |
| Arsenic (As)-Total | | | 105.4 | | % | | 80-120 | 09-AUG-21 |
| Barium (Ba)-Total | | | 110.2 | | % | | 80-120 | 09-AUG-21 |
| Bismuth (Bi)-Total | | | 98.8 | | % | | 80-120 | 09-AUG-21 |
| Boron (B)-Total | | | 95.3 | | % | | 80-120 | 09-AUG-21 |

Quality Control Report

Workorder: L2621328

Report Date: 10-AUG-21

Page 5 of 10

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-----------------------|-----------------|-------------|-----------|-----------|-------|-----|---------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5546630 | | | | | | | |
| WG3591679-6 | LCS | TMRM | | | | | | |
| Cadmium (Cd)-Total | | | 105.8 | | % | | 80-120 | 09-AUG-21 |
| Calcium (Ca)-Total | | | 103.1 | | % | | 80-120 | 09-AUG-21 |
| Chromium (Cr)-Total | | | 105.4 | | % | | 80-120 | 09-AUG-21 |
| Cobalt (Co)-Total | | | 104.4 | | % | | 80-120 | 09-AUG-21 |
| Copper (Cu)-Total | | | 102.4 | | % | | 80-120 | 09-AUG-21 |
| Iron (Fe)-Total | | | 108.5 | | % | | 80-120 | 09-AUG-21 |
| Lead (Pb)-Total | | | 100.5 | | % | | 80-120 | 09-AUG-21 |
| Lithium (Li)-Total | | | 102.0 | | % | | 80-120 | 09-AUG-21 |
| Magnesium (Mg)-Total | | | 101.3 | | % | | 80-120 | 09-AUG-21 |
| Manganese (Mn)-Total | | | 104.6 | | % | | 80-120 | 09-AUG-21 |
| Molybdenum (Mo)-Total | | | 99.9 | | % | | 80-120 | 09-AUG-21 |
| Nickel (Ni)-Total | | | 102.9 | | % | | 80-120 | 09-AUG-21 |
| Phosphorus (P)-Total | | | 105.4 | | % | | 70-130 | 09-AUG-21 |
| Potassium (K)-Total | | | 107.1 | | % | | 80-120 | 09-AUG-21 |
| Selenium (Se)-Total | | | 116.9 | | % | | 80-120 | 09-AUG-21 |
| Silicon (Si)-Total | | | 124.0 | | % | | 60-140 | 09-AUG-21 |
| Silver (Ag)-Total | | | 96.9 | | % | | 80-120 | 09-AUG-21 |
| Sodium (Na)-Total | | | 104.7 | | % | | 80-120 | 09-AUG-21 |
| Strontium (Sr)-Total | | | 103.0 | | % | | 80-120 | 09-AUG-21 |
| Sulfur (S)-Total | | | 102.7 | | % | | 80-120 | 09-AUG-21 |
| Thallium (Tl)-Total | | | 98.7 | | % | | 80-120 | 09-AUG-21 |
| Tin (Sn)-Total | | | 104.0 | | % | | 80-120 | 09-AUG-21 |
| Titanium (Ti)-Total | | | 104.3 | | % | | 80-120 | 09-AUG-21 |
| Uranium (U)-Total | | | 95.7 | | % | | 80-120 | 09-AUG-21 |
| Vanadium (V)-Total | | | 100.8 | | % | | 80-120 | 09-AUG-21 |
| Zinc (Zn)-Total | | | 102.3 | | % | | 80-120 | 09-AUG-21 |
| Zirconium (Zr)-Total | | | 99.5 | | % | | 80-120 | 09-AUG-21 |
| WG3591679-5 | MB | | | | | | | |
| Aluminum (Al)-Total | | | <0.0030 | | mg/L | | 0.003 | 09-AUG-21 |
| Antimony (Sb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 09-AUG-21 |
| Arsenic (As)-Total | | | <0.00010 | | mg/L | | 0.0001 | 09-AUG-21 |
| Barium (Ba)-Total | | | <0.00010 | | mg/L | | 0.0001 | 09-AUG-21 |
| Bismuth (Bi)-Total | | | <0.000050 | | mg/L | | 0.00005 | 09-AUG-21 |
| Boron (B)-Total | | | <0.010 | | mg/L | | 0.01 | 09-AUG-21 |



Workorder: L2621328

Page 6 of 10

NH3-L-F-CL

Water

Batch **R5543745**

WG3589917-6 LCS

Ammonia as N

108.7

%

85-115

03-AUG-21

WG3589917-5 MB

Ammonia as N

<0.0050

mg/L

0.005

03-AUG-21

NO2-L-IC-N-CL

Water

Quality Control Report

Workorder: L2621328

Report Date: 10-AUG-21

Page 7 of 10

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------------|----------|-------------------|---------|-----------|-------|------|--------|-----------|
| NO2-L-IC-N-CL Water | | | | | | | | |
| Batch | R5544557 | | | | | | | |
| WG3590662-6 LCS | | | | | | | | |
| Nitrite (as N) | | | 99.8 | | % | | 90-110 | 31-JUL-21 |
| WG3590662-5 MB | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 31-JUL-21 |
| NO3-L-IC-N-CL Water | | | | | | | | |
| Batch | R5544557 | | | | | | | |
| WG3590662-6 LCS | | | | | | | | |
| Nitrate (as N) | | | 99.4 | | % | | 90-110 | 31-JUL-21 |
| WG3590662-5 MB | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 31-JUL-21 |
| PH/EC/ALK-CL Water | | | | | | | | |
| Batch | R5546843 | | | | | | | |
| WG3593251-9 DUP | | L2621328-6 | | | | | | |
| pH | | 7.87 | 7.93 | J | pH | 0.06 | 0.2 | 07-AUG-21 |
| Conductivity (EC) | | 509 | 507 | | uS/cm | 0.4 | 10 | 07-AUG-21 |
| Bicarbonate (HCO3) | | 385 | 373 | | mg/L | 3.0 | 20 | 07-AUG-21 |
| Carbonate (CO3) | | <5.0 | <5.0 | RPD-NA | mg/L | N/A | 20 | 07-AUG-21 |
| Hydroxide (OH) | | <5.0 | <5.0 | RPD-NA | mg/L | N/A | 20 | 07-AUG-21 |
| Alkalinity, Total (as CaCO3) | | 316 | 306 | | mg/L | 3.0 | 20 | 07-AUG-21 |
| WG3593251-5 LCS | | | | | | | | |
| Conductivity (EC) | | | 102.2 | | % | | 90-110 | 07-AUG-21 |
| Alkalinity, Total (as CaCO3) | | | 103.6 | | % | | 85-115 | 07-AUG-21 |
| WG3593251-8 LCS | | | | | | | | |
| Conductivity (EC) | | | 103.4 | | % | | 90-110 | 07-AUG-21 |
| Alkalinity, Total (as CaCO3) | | | 107.0 | | % | | 85-115 | 07-AUG-21 |
| WG3593251-4 MB | | | | | | | | |
| Conductivity (EC) | | | <2.0 | | uS/cm | | 2 | 07-AUG-21 |
| Bicarbonate (HCO3) | | | <5.0 | | mg/L | | 5 | 07-AUG-21 |
| Carbonate (CO3) | | | <5.0 | | mg/L | | 5 | 07-AUG-21 |
| Hydroxide (OH) | | | <5.0 | | mg/L | | 5 | 07-AUG-21 |
| Alkalinity, Total (as CaCO3) | | | <2.0 | | mg/L | | 2 | 07-AUG-21 |
| WG3593251-7 MB | | | | | | | | |
| Conductivity (EC) | | | <2.0 | | uS/cm | | 2 | 07-AUG-21 |
| Bicarbonate (HCO3) | | | <5.0 | | mg/L | | 5 | 07-AUG-21 |
| Carbonate (CO3) | | | <5.0 | | mg/L | | 5 | 07-AUG-21 |
| Hydroxide (OH) | | | <5.0 | | mg/L | | 5 | 07-AUG-21 |
| Alkalinity, Total (as CaCO3) | | | <2.0 | | mg/L | | 2 | 07-AUG-21 |

Quality Control Report

Workorder: L2621328

Report Date: 10-AUG-21

Page 8 of 10

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------------|------------|-------------------|---------|-----------|----------|-----|--------|-----------|
| PO4-DO-L-COL-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5538359 | | | | | | | |
| WG3588434-3 | DUP | L2621328-1 | | | | | | |
| Orthophosphate-Dissolved (as P) | | 0.0061 | 0.0066 | | mg/L | 7.8 | 20 | 01-AUG-21 |
| WG3588434-2 | LCS | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 91.1 | | % | | 80-120 | 01-AUG-21 |
| WG3588434-1 | MB | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | <0.0010 | | mg/L | | 0.001 | 01-AUG-21 |
| WG3588434-4 | MS | L2621328-2 | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 102.7 | | % | | 70-130 | 01-AUG-21 |
| SO4-L-IC-N-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5544557 | | | | | | | |
| WG3590662-6 | LCS | | | | | | | |
| Sulfate (SO4) | | | 98.6 | | % | | 85-115 | 31-JUL-21 |
| WG3590662-5 | MB | | | | | | | |
| Sulfate (SO4) | | | <0.050 | | mg/L | | 0.05 | 31-JUL-21 |
| TEMP-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5546843 | | | | | | | |
| WG3593251-9 | DUP | L2621328-6 | | | | | | |
| Temperature | | 20.5 | 20.5 | | Degree C | 0.0 | 25 | 07-AUG-21 |
| TSS-L-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5544649 | | | | | | | |
| WG3588650-2 | LCS | | | | | | | |
| Total Suspended Solids | | | 97.2 | | % | | 85-115 | 03-AUG-21 |
| WG3588650-1 | MB | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 03-AUG-21 |

Quality Control Report

Workorder: L2621328

Report Date: 10-AUG-21

Page 9 of 10

Legend:

| | |
|-------|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

Sample Parameter Qualifier Definitions:

| Qualifier | Description |
|-----------|---|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

Quality Control Report

Workorder: L2621328

Report Date: 10-AUG-21

Page 10 of 10

Hold Time Exceedances:

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|------------------------------------|-----------|-----------------|-----------------|---------|-----------|-------|-----------|
| Anions and Nutrients | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| | 2 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| | 3 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| | 4 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| | 5 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| | 6 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| | 2 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| | 3 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| | 4 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| | 5 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| | 6 | 27-JUL-21 12:00 | 31-JUL-21 10:48 | 3 | 4 | days | EHTR |
| Orthophosphate-Dissolved (as P) | | | | | | | |
| | 1 | 27-JUL-21 12:00 | 01-AUG-21 08:00 | 3 | 5 | days | EHTR |
| | 2 | 27-JUL-21 12:00 | 01-AUG-21 08:00 | 3 | 5 | days | EHTR |
| | 3 | 27-JUL-21 12:00 | 01-AUG-21 08:00 | 3 | 5 | days | EHTR |
| | 4 | 27-JUL-21 12:00 | 01-AUG-21 08:00 | 3 | 5 | days | EHTR |
| | 5 | 27-JUL-21 12:00 | 01-AUG-21 08:00 | 3 | 5 | days | EHTR |
| | 6 | 27-JUL-21 12:00 | 01-AUG-21 08:00 | 3 | 5 | days | EHTR |

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
 EHTR: Exceeded ALS recommended hold time prior to sample receipt.
 EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
 EHT: Exceeded ALS recommended hold time prior to analysis.
 Rec. HT: ALS recommended hold time (see units).

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
 Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2621328 were received on 30-JUL-21 12:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



L2621328-COFC

0 668 9878

lytical Request Form

COC Number: 20 -

Page
of[illegible]



Sperling Hansen Associates Inc.
ATTN: Scott Garthwaite
#8 - 1225 East Keith Road
North Vancouver BC V7J 1J3

Date Received: 16-NOV-21
Report Date: 25-NOV-21 16:41 (MT)
Version: FINAL

Client Phone: 604-986-7723

Certificate of Analysis

Lab Work Order #: L2663287
Project P.O. #: NOT SUBMITTED
Job Reference: 20050 FERNIE
C of C Numbers:
Legal Site Desc:

Patryk Wojciak, B.Sc., P.Chem.
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 2559 29 Street NE, Calgary, AB T1Y 7B5 Canada | Phone: +1 403 291 9897 | Fax: +1 403 291 0298
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

25-NOV-21 16:41 (MT)

Version: FINAL

| Sample ID Description Sampled Date Sampled Time Client ID | | L2663287-1 Surface Water 11-NOV-21 12:00 E257246 | L2663287-2 Groundwater 11-NOV-21 12:00 E257244 | L2663287-3 Surface Water 11-NOV-21 12:00 E257247 | L2663287-4 Groundwater 11-NOV-21 12:00 E257237 | L2663287-5 Groundwater 11-NOV-21 12:00 E257235 |
|---|--|--|--|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | 76.4 ^{HTC} | 262 | 46.9 ^{HTC} | 356 | 225 |
| | Temperature (Degree C) | 20.7 | 20.7 | 20.9 | 21.0 | 21.3 |
| | Total Suspended Solids (mg/L) | <1.0 | | 1.8 | | |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 89.9 | 223 | 53.0 | 379 | 261 |
| | Ammonia as N (mg/L) | 0.0109 | 0.0261 | 0.0385 | 0.0233 | 0.352 |
| | Bicarbonate (HCO ₃) (mg/L) | 110 | 271 | 64.7 | 463 | 318 |
| | Carbonate (CO ₃) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Chloride (Cl) (mg/L) | 0.75 | 45.0 | 0.19 | 3.53 | 0.99 |
| | Conductivity (EC) (uS/cm) | 156 | 543 | 97.4 | 694 | 450 |
| | Fluoride (F) (mg/L) | 0.044 | 0.066 | 0.039 | 0.039 | 0.032 |
| | Hydroxide (OH) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Nitrate and Nitrite (as N) (mg/L) | 0.0195 | 0.0103 | 0.0439 | 3.58 | 0.0080 |
| | Nitrate (as N) (mg/L) | 0.0195 | 0.0103 | 0.0439 | 3.58 | 0.0070 |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | 0.0011 | 0.0010 |
| | pH (pH) | 7.67 | 7.34 | 7.70 | 7.23 | 7.50 |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0068 | 0.0058 | 0.0115 | 0.0108 | 0.0015 |
| | Sulfate (SO ₄) (mg/L) | 3.39 | 14.8 | 2.81 | 18.6 | 4.22 |
| | | | | | | |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 5.00 | 9.2 | 5.58 | 6.3 | 15.7 |
| Total Metals | Aluminum (Al)-Total (mg/L) | 0.0373 | | 0.157 | | |
| | Antimony (Sb)-Total (mg/L) | 0.00013 | | 0.00011 | | |
| | Arsenic (As)-Total (mg/L) | 0.00022 | | 0.00024 | | |
| | Barium (Ba)-Total (mg/L) | 0.146 | | 0.138 | | |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | | <0.000020 | | |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | | <0.000050 | | |
| | Boron (B)-Total (mg/L) | <0.010 | | <0.010 | | |
| | Cadmium (Cd)-Total (mg/L) | 0.0000274 | | 0.0000453 | | |
| | Calcium (Ca)-Total (mg/L) | 23.6 | | 13.5 | | |
| | Chromium (Cr)-Total (mg/L) | <0.00010 | | 0.00027 | | |
| | Cobalt (Co)-Total (mg/L) | <0.00010 | | <0.00010 | | |
| | Copper (Cu)-Total (mg/L) | 0.00098 | | 0.00077 | | |
| | Iron (Fe)-Total (mg/L) | 0.042 | | 0.143 | | |
| | Lead (Pb)-Total (mg/L) | <0.000050 | | 0.000103 | | |
| | Lithium (Li)-Total (mg/L) | 0.0049 | | 0.0050 | | |
| | Magnesium (Mg)-Total (mg/L) | 4.25 | | 3.23 | | |
| | Manganese (Mn)-Total (mg/L) | 0.00986 | | 0.00306 | | |
| | Mercury (Hg)-Total (mg/L) | <0.000050 | | <0.000050 | | |
| | | | | | | |
| | | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2663287-6 Surface Water 11-NOV-21 12:00 E257250 | L2663287-7 Groundwater 11-NOV-21 12:00 E257239 | L2663287-8 Surface Water 11-NOV-21 12:00 E257245 | L2663287-9 Groundwater 11-NOV-21 12:00 E257242 | |
|---|--|--|--|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | 104 ^{HTC} | 147 | 56.7 ^{HTC} | 326 | |
| | Temperature (Degree C) | 21.7 | 21.1 | 21.2 | 21.5 | |
| | Total Suspended Solids (mg/L) | 1.7 | | 1.4 | | |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 115 | 168 | 64.3 | 369 | |
| | Ammonia as N (mg/L) | 0.0059 | <0.0050 | 0.0064 | 0.0733 | |
| | Bicarbonate (HCO ₃) (mg/L) | 140 | 205 | 78.4 | 451 | |
| | Carbonate (CO ₃) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | |
| | Chloride (Cl) (mg/L) | 0.41 | 0.55 | 0.23 | 1.93 | |
| | Conductivity (EC) (uS/cm) | 205 | 299 | 119 | 622 | |
| | Fluoride (F) (mg/L) | 0.037 | 0.039 | 0.033 | 0.032 | |
| | Hydroxide (OH) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | |
| | Nitrate and Nitrite (as N) (mg/L) | 0.0216 | 0.105 | 0.0610 | 0.0123 | |
| | Nitrate (as N) (mg/L) | 0.0216 | 0.105 | 0.0610 | 0.0123 | |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0010 | |
| | pH (pH) | 8.12 | 7.54 | 7.83 | 7.41 | |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0149 | 0.0070 | 0.0123 | 0.0013 | |
| | Sulfate (SO ₄) (mg/L) | 3.12 | 5.91 | 2.71 | 3.42 | |
| | | | | | | |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 8.06 | 11.4 | 6.45 | 8.1 | |
| Total Metals | Aluminum (Al)-Total (mg/L) | 0.889 | | 0.419 | | |
| | Antimony (Sb)-Total (mg/L) | 0.00011 | | <0.00010 | | |
| | Arsenic (As)-Total (mg/L) | 0.00061 | | 0.00034 | | |
| | Barium (Ba)-Total (mg/L) | 0.136 | | 0.0976 | | |
| | Beryllium (Be)-Total (mg/L) | 0.000044 | | 0.000024 | | |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | | <0.000050 | | |
| | Boron (B)-Total (mg/L) | <0.010 | | <0.010 | | |
| | Cadmium (Cd)-Total (mg/L) | 0.0000314 | | 0.0000126 | | |
| | Calcium (Ca)-Total (mg/L) | 33.8 | | 19.0 | | |
| | Chromium (Cr)-Total (mg/L) | 0.00072 | | 0.00046 | | |
| | Cobalt (Co)-Total (mg/L) | 0.00017 | | 0.00011 | | |
| | Copper (Cu)-Total (mg/L) | 0.00120 | | 0.00218 | | |
| | Iron (Fe)-Total (mg/L) | 0.680 | | 0.299 | | |
| | Lead (Pb)-Total (mg/L) | 0.000371 | | 0.000210 | | |
| | Lithium (Li)-Total (mg/L) | 0.0032 | | 0.0027 | | |
| | Magnesium (Mg)-Total (mg/L) | 4.74 | | 2.24 | | |
| | Manganese (Mn)-Total (mg/L) | 0.0118 | | 0.00334 | | |
| | Mercury (Hg)-Total (mg/L) | <0.000050 | | <0.000050 | | |
| | | | | | | |
| | | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2663287-1 Surface Water 11-NOV-21 12:00 E257246 | L2663287-2 Groundwater 11-NOV-21 12:00 E257244 | L2663287-3 Surface Water 11-NOV-21 12:00 E257247 | L2663287-4 Groundwater 11-NOV-21 12:00 E257237 | L2663287-5 Groundwater 11-NOV-21 12:00 E257235 |
|---|---------------------------------------|--|--|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Total Metals | Molybdenum (Mo)-Total (mg/L) | 0.000423 | | 0.000343 | | |
| | Nickel (Ni)-Total (mg/L) | 0.00062 | | 0.00069 | | |
| | Phosphorus (P)-Total (mg/L) | <0.050 | | <0.050 | | |
| | Potassium (K)-Total (mg/L) | 0.51 | | 0.45 | | |
| | Selenium (Se)-Total (mg/L) | 0.000403 | | 0.000502 | | |
| | Silicon (Si)-Total (mg/L) | 1.91 | | 2.01 | | |
| | Silver (Ag)-Total (mg/L) | <0.000010 | | 0.000012 | | |
| | Sodium (Na)-Total (mg/L) | 1.35 | | 1.01 | | |
| | Strontium (Sr)-Total (mg/L) | 0.0794 | | 0.0559 | | |
| | Sulfur (S)-Total (mg/L) | 1.49 | | 1.21 | | |
| | Thallium (Tl)-Total (mg/L) | <0.000010 | | <0.000010 | | |
| | Tin (Sn)-Total (mg/L) | <0.00010 | | <0.00010 | | |
| | Titanium (Ti)-Total (mg/L) | 0.00036 | | 0.00156 | | |
| | Uranium (U)-Total (mg/L) | 0.000167 | | 0.000099 | | |
| | Vanadium (V)-Total (mg/L) | <0.00050 | | 0.00087 | | |
| | Zinc (Zn)-Total (mg/L) | <0.0030 | | <0.0030 | | |
| | Zirconium (Zr)-Total (mg/L) | <0.00030 | | <0.00030 | | |
| Dissolved Metals | Dissolved Mercury Filtration Location | | FIELD | | FIELD | FIELD |
| | Dissolved Metals Filtration Location | | FIELD | | FIELD | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | | 0.0011 | | 0.0013 | <0.0010 |
| | Antimony (Sb)-Dissolved (mg/L) | | <0.00010 | | 0.00023 | 0.00013 |
| | Arsenic (As)-Dissolved (mg/L) | | 0.00012 | | 0.00023 | 0.00406 |
| | Barium (Ba)-Dissolved (mg/L) | | 0.148 | | 0.226 | 0.650 |
| | Beryllium (Be)-Dissolved (mg/L) | | <0.000020 | | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | | <0.000050 | | <0.000050 | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | | 0.035 | | 0.132 | 0.036 |
| | Cadmium (Cd)-Dissolved (mg/L) | | 0.0000516 | | 0.0000807 | 0.000359 |
| | Calcium (Ca)-Dissolved (mg/L) | | 76.3 | | 117 | 74.4 |
| | Chromium (Cr)-Dissolved (mg/L) | | <0.00010 | | 0.00011 | <0.00010 |
| | Cobalt (Co)-Dissolved (mg/L) | | <0.00010 | | 0.00015 | 0.00194 |
| | Copper (Cu)-Dissolved (mg/L) | | 0.00052 | | 0.00154 | 0.00120 |
| | Iron (Fe)-Dissolved (mg/L) | | <0.010 | | <0.010 | 1.09 |
| | Lead (Pb)-Dissolved (mg/L) | | <0.000050 | | <0.000050 | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | | 0.0159 | | 0.0041 | 0.0055 |
| | Magnesium (Mg)-Dissolved (mg/L) | | 17.4 | | 15.7 | 9.47 |
| | Manganese (Mn)-Dissolved (mg/L) | | 0.00036 | | 0.00127 | 1.74 |
| | Mercury (Hg)-Dissolved (mg/L) | | <0.000050 | | <0.000050 | <0.000050 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| | | Sample ID Description Sampled Date Sampled Time Client ID | L2663287-6 Surface Water 11-NOV-21 12:00 E257250 | L2663287-7 Groundwater 11-NOV-21 12:00 E257239 | L2663287-8 Surface Water 11-NOV-21 12:00 E257245 | L2663287-9 Groundwater 11-NOV-21 12:00 E257242 | |
|-------------------------|---------------------------------------|---|--|--|--|--|--|
| Grouping | Analyte | | | | | | |
| WATER | | | | | | | |
| Total Metals | Molybdenum (Mo)-Total (mg/L) | 0.000609 | | | 0.000256 | | |
| | Nickel (Ni)-Total (mg/L) | 0.00132 | | | 0.00097 | | |
| | Phosphorus (P)-Total (mg/L) | 0.052 | | | <0.050 | | |
| | Potassium (K)-Total (mg/L) | 0.96 | | | 0.58 | | |
| | Selenium (Se)-Total (mg/L) | 0.000091 | | | 0.000173 | | |
| | Silicon (Si)-Total (mg/L) | 4.61 | | | 3.25 | | |
| | Silver (Ag)-Total (mg/L) | 0.000017 | | | <0.000010 | | |
| | Sodium (Na)-Total (mg/L) | 1.62 | | | 1.31 | | |
| | Strontium (Sr)-Total (mg/L) | 0.146 | | | 0.110 | | |
| | Sulfur (S)-Total (mg/L) | 1.34 | | | 1.21 | | |
| | Thallium (Tl)-Total (mg/L) | 0.000030 | | | <0.000010 | | |
| | Tin (Sn)-Total (mg/L) | <0.00010 | | | <0.00010 | | |
| | Titanium (Ti)-Total (mg/L) | 0.00812 | | | 0.00317 | | |
| | Uranium (U)-Total (mg/L) | 0.000135 | | | 0.000055 | | |
| | Vanadium (V)-Total (mg/L) | 0.00190 | | | 0.00108 | | |
| | Zinc (Zn)-Total (mg/L) | 0.0042 | | | <0.0030 | | |
| | Zirconium (Zr)-Total (mg/L) | 0.00032 | | | <0.00030 | | |
| Dissolved Metals | Dissolved Mercury Filtration Location | | | FIELD | | FIELD | |
| | Dissolved Metals Filtration Location | | | FIELD | | FIELD | |
| | Aluminum (Al)-Dissolved (mg/L) | | | 0.0067 | | 0.0024 | |
| | Antimony (Sb)-Dissolved (mg/L) | | | 0.00016 | | <0.00010 | |
| | Arsenic (As)-Dissolved (mg/L) | | | 0.00022 | | 0.00112 | |
| | Barium (Ba)-Dissolved (mg/L) | | | 0.148 | | 0.618 | |
| | Beryllium (Be)-Dissolved (mg/L) | | | <0.000020 | | <0.000020 | |
| | Bismuth (Bi)-Dissolved (mg/L) | | | <0.000050 | | <0.000050 | |
| | Boron (B)-Dissolved (mg/L) | | | 0.018 | | 0.048 | |
| | Cadmium (Cd)-Dissolved (mg/L) | | | 0.0000154 | | 0.00171 | |
| | Calcium (Ca)-Dissolved (mg/L) | | | 48.7 | | 109 | |
| | Chromium (Cr)-Dissolved (mg/L) | | | <0.00010 | | <0.00010 | |
| | Cobalt (Co)-Dissolved (mg/L) | | | <0.00010 | | 0.00477 | |
| | Copper (Cu)-Dissolved (mg/L) | | | 0.00221 | | 0.00057 | |
| | Iron (Fe)-Dissolved (mg/L) | | | <0.010 | | 0.486 | |
| | Lead (Pb)-Dissolved (mg/L) | | | <0.000050 | | <0.000050 | |
| | Lithium (Li)-Dissolved (mg/L) | | | 0.0085 | | 0.0060 | |
| | Magnesium (Mg)-Dissolved (mg/L) | | | 6.14 | | 13.1 | |
| | Manganese (Mn)-Dissolved (mg/L) | | | 0.00082 | | 1.81 | |
| | Mercury (Hg)-Dissolved (mg/L) | | | <0.000050 | | <0.000050 | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2663287-1 Surface Water 11-NOV-21 12:00 E257246 | L2663287-2 Groundwater 11-NOV-21 12:00 E257244 | L2663287-3 Surface Water 11-NOV-21 12:00 E257247 | L2663287-4 Groundwater 11-NOV-21 12:00 E257237 | L2663287-5 Groundwater 11-NOV-21 12:00 E257235 |
|---|----------------------------------|--|--|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Molybdenum (Mo)-Dissolved (mg/L) | | 0.000312 | | 0.000113 | 0.00120 |
| | Nickel (Ni)-Dissolved (mg/L) | | <0.00050 | | 0.00097 | 0.00311 |
| | Phosphorus (P)-Dissolved (mg/L) | | <0.050 | | <0.050 | <0.050 |
| | Potassium (K)-Dissolved (mg/L) | | 0.80 | | 7.32 | 1.77 |
| | Selenium (Se)-Dissolved (mg/L) | | 0.000590 | | 0.000300 | 0.000134 |
| | Silicon (Si)-Dissolved (mg/L) | | 4.05 | | 5.11 | 4.61 |
| | Silver (Ag)-Dissolved (mg/L) | | <0.000010 | | <0.000010 | <0.000010 |
| | Sodium (Na)-Dissolved (mg/L) | | 4.74 | | 6.33 | 3.54 |
| | Strontium (Sr)-Dissolved (mg/L) | | 0.487 | | 0.445 | 0.269 |
| | Sulfur (S)-Dissolved (mg/L) | | 5.47 | | 7.00 | 1.49 |
| | Thallium (Tl)-Dissolved (mg/L) | | <0.000010 | | <0.000010 | 0.000106 |
| | Tin (Sn)-Dissolved (mg/L) | | <0.00010 | | 0.00019 | <0.00010 |
| | Titanium (Ti)-Dissolved (mg/L) | | <0.00030 | | <0.00030 | <0.00030 |
| | Uranium (U)-Dissolved (mg/L) | | 0.000247 | | 0.00102 | 0.000425 |
| | Vanadium (V)-Dissolved (mg/L) | | <0.00050 | | <0.00050 | <0.00050 |
| | Zinc (Zn)-Dissolved (mg/L) | | <0.0010 | | 0.0012 | 0.0022 |
| | Zirconium (Zr)-Dissolved (mg/L) | | <0.00030 | | <0.00030 | <0.00030 |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| | Chemical Oxygen Demand (mg/L) | <10 | 28 | <10 | 19 | 50 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L2663287-6 Surface Water 11-NOV-21 12:00 E257250 | L2663287-7 Groundwater 11-NOV-21 12:00 E257239 | L2663287-8 Surface Water 11-NOV-21 12:00 E257245 | L2663287-9 Groundwater 11-NOV-21 12:00 E257242 | |
|---|----------------------------------|--|--|--|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Molybdenum (Mo)-Dissolved (mg/L) | | 0.000887 | | 0.000563 | |
| | Nickel (Ni)-Dissolved (mg/L) | | <0.00050 | | 0.00876 | |
| | Phosphorus (P)-Dissolved (mg/L) | | <0.050 | | <0.050 | |
| | Potassium (K)-Dissolved (mg/L) | | 0.74 | | 1.76 | |
| | Selenium (Se)-Dissolved (mg/L) | | 0.000310 | | 0.000055 | |
| | Silicon (Si)-Dissolved (mg/L) | | 3.33 | | 4.38 | |
| | Silver (Ag)-Dissolved (mg/L) | | <0.000010 | | <0.000010 | |
| | Sodium (Na)-Dissolved (mg/L) | | 3.51 | | 3.05 | |
| | Strontium (Sr)-Dissolved (mg/L) | | 0.423 | | 0.423 | |
| | Sulfur (S)-Dissolved (mg/L) | | 2.34 | | 1.28 | |
| | Thallium (Tl)-Dissolved (mg/L) | | <0.000010 | | 0.000089 | |
| | Tin (Sn)-Dissolved (mg/L) | | <0.00010 | | <0.00010 | |
| | Titanium (Ti)-Dissolved (mg/L) | | <0.00030 | | <0.00030 | |
| | Uranium (U)-Dissolved (mg/L) | | 0.000256 | | 0.00130 | |
| | Vanadium (V)-Dissolved (mg/L) | | <0.00050 | | <0.00050 | |
| | Zinc (Zn)-Dissolved (mg/L) | | <0.0010 | | 0.0061 | |
| | Zirconium (Zr)-Dissolved (mg/L) | | <0.00030 | | <0.00030 | |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | <2.0 | <2.0 | <2.0 | |
| | Chemical Oxygen Demand (mg/L) | 17 | 64 | 13 | 25 | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

| QC Type Description | Parameter | Qualifier | Applies to Sample Number(s) |
|---------------------|--------------------------|-----------|--|
| Matrix Spike | Chemical Oxygen Demand | MS-B | L2663287-1, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Calcium (Ca)-Dissolved | MS-B | L2663287-2, -4, -5, -7, -9 |
| Matrix Spike | Magnesium (Mg)-Dissolved | MS-B | L2663287-2, -4, -5, -7, -9 |
| Matrix Spike | Calcium (Ca)-Total | MS-B | L2663287-1, -3, -6, -8 |
| Matrix Spike | Magnesium (Mg)-Total | MS-B | L2663287-1, -3, -6, -8 |
| Matrix Spike | Strontium (Sr)-Total | MS-B | L2663287-1, -3, -6, -8 |

Qualifiers for Individual Parameters Listed:

| Qualifier | Description |
|-----------|--|
| HTC | Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable). |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |

Test Method References:

| ALS Test Code | Matrix | Test Description | Method Reference** |
|--|--------|--|---------------------------------------|
| BE-D-L-CCMS-CL | Water | Diss. Be (low) in Water by CRC ICPMS | APHA 3030B/6020A (mod) |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS. | | | |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. | | | |
| BE-T-L-CCMS-CL | Water | Total Be (Low) in Water by CRC ICPMS | EPA 200.2/6020A (mod) |
| Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS. | | | |
| Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method. | | | |
| BOD-BC-CL | Water | Biochemical Oxygen Demand (BOD) | APHA 5210 B-5 day Incub.-O2 electrode |
| This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation. | | | |
| C-TOT-ORG-LOW-CL | Water | Total Organic Carbon | APHA 5310 TOTAL ORGANIC CARBON (TOC) |
| This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide. | | | |
| The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC. | | | |
| TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved. | | | |
| CL-L-IC-N-CL | Water | Chloride in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| COD-T-COL-CL | Water | Chemical Oxygen Demand (COD) | APHA 5220 D Colorimetry |
| Samples are analyzed using the closed reflux colourimetric method | | | |
| F-L-IC-CL | Water | Fluoride | APHA 4110 B-Ion Chromatography |
| HARDNESS-CALC-CL | Water | Hardness | APHA 2340 B |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation. | | | |
| HG-D-CVAA-CL | Water | Dissolved Mercury in Water by CVAAS | APHA 3030B/EPA 1631E (mod) |
| Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS. | | | |
| HG-T-CVAA-CL | Water | Total Mercury in Water by CVAAS | EPA 1631E (mod) |
| Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS. | | | |
| MET-D-CCMS-CL | Water | Dissolved Metals in Water by CRC ICPMS | APHA 3030B/6020A (mod) |
| Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS. | | | |

Reference Information

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-CL Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

N2N3-CALC-CL Water Nitrate+Nitrite CALCULATION

NH3-L-F-CL Water Ammonia, Total (as N) J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-CL Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-CL Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

PH/EC/ALK-CL Water pH, Conductivity and Total Alkalinity APHA 4500H,2510,2320

All samples analyzed by this method for pH will have exceeded the 15 minute recommended hold time from time of sampling (field analysis is recommended for pH where highly accurate results are needed)

pH measurement is determined from the activity of the hydrogen ions using a hydrogen electrode and a reference electrode.

Alkalinity measurement is based on the sample's capacity to neutralize acid

Conductivity measurement is based on the sample's capacity to convey an electric current

PO4-DO-L-COL-CL Water Orthophosphate-Dissolved (as P) APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SO4-L-IC-N-CL Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TEMP-CL Water Temperature APHA 2550-Thermometer

TSS-L-CL Water Total Suspended Solids APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

| Laboratory Definition Code | Laboratory Location |
|----------------------------|---------------------|
|----------------------------|---------------------|

| | |
|----|--|
| CL | ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA |
|----|--|

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour 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.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2663287

Report Date: 25-NOV-21

Page 2 of 11

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-----------------------------------|--------|---------------------------------|------------|-----------|-------|-----|----------|-----------|
| COD-T-COL-CL Water | | | | | | | | |
| Batch R5653948 | | | | | | | | |
| WG3661190-2 LCS | | | | | | | | |
| Chemical Oxygen Demand | | | 103.5 | | % | | 85-115 | 18-NOV-21 |
| WG3661190-1 MB | | | | | | | | |
| Chemical Oxygen Demand | | | <10 | | mg/L | | 10 | 18-NOV-21 |
| F-L-IC-CL Water | | | | | | | | |
| Batch R5653519 | | | | | | | | |
| WG3660787-3 DUP | | | | | | | | |
| Fluoride (F) | | L2663287-1 0.044 | 0.042 | | mg/L | 4.4 | 20 | 17-NOV-21 |
| WG3660787-2 LCS | | | | | | | | |
| Fluoride (F) | | | 99.7 | | % | | 85-115 | 17-NOV-21 |
| WG3660787-1 MB | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 17-NOV-21 |
| WG3660787-4 MS | | | | | | | | |
| Fluoride (F) | | L2663287-1 | 112.8 | | % | | 75-125 | 17-NOV-21 |
| HG-D-CVAA-CL Water | | | | | | | | |
| Batch R5652633 | | | | | | | | |
| WG3660347-2 LCS | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 101.0 | | % | | 80-120 | 17-NOV-21 |
| WG3660347-1 MB | | | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 17-NOV-21 |
| HG-T-CVAA-CL Water | | | | | | | | |
| Batch R5652633 | | | | | | | | |
| WG3660354-3 DUP | | | | | | | | |
| Mercury (Hg)-Total | | L2663287-1 <0.0000050 | <0.000005C | RPD-NA | mg/L | N/A | 20 | 17-NOV-21 |
| WG3660354-2 LCS | | | | | | | | |
| Mercury (Hg)-Total | | | 98.5 | | % | | 80-120 | 17-NOV-21 |
| WG3660354-1 MB | | | | | | | | |
| Mercury (Hg)-Total | | | <0.000005C | | mg/L | | 0.000005 | 17-NOV-21 |
| WG3660354-4 MS | | | | | | | | |
| Mercury (Hg)-Total | | L2663287-1 | 101.0 | | % | | 70-130 | 17-NOV-21 |
| MET-D-CCMS-CL Water | | | | | | | | |
| Batch R5653911 | | | | | | | | |
| WG3661410-2 LCS | | | | | | | | |
| Aluminum (Al)-Dissolved | | | 94.5 | | % | | 80-120 | 18-NOV-21 |
| Antimony (Sb)-Dissolved | | | 105.3 | | % | | 80-120 | 18-NOV-21 |
| Arsenic (As)-Dissolved | | | 94.5 | | % | | 80-120 | 18-NOV-21 |
| Barium (Ba)-Dissolved | | | 96.4 | | % | | 80-120 | 18-NOV-21 |

Quality Control Report

Workorder: L2663287

Report Date: 25-NOV-21

Page 3 of 11

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|-----------------|-----------|----------|-----------|-------|-----|--------|-----------|
| MET-D-CCMS-CL | Water | | | | | | | |
| Batch | R5653911 | | | | | | | |
| WG3661410-2 | LCS | | | | | | | |
| Bismuth (Bi)-Dissolved | | | 97.9 | | % | | 80-120 | 18-NOV-21 |
| Boron (B)-Dissolved | | | 92.6 | | % | | 80-120 | 18-NOV-21 |
| Cadmium (Cd)-Dissolved | | | 95.5 | | % | | 80-120 | 18-NOV-21 |
| Calcium (Ca)-Dissolved | | | 95.2 | | % | | 80-120 | 18-NOV-21 |
| Chromium (Cr)-Dissolved | | | 96.3 | | % | | 80-120 | 18-NOV-21 |
| Cobalt (Co)-Dissolved | | | 96.9 | | % | | 80-120 | 18-NOV-21 |
| Copper (Cu)-Dissolved | | | 94.8 | | % | | 80-120 | 18-NOV-21 |
| Iron (Fe)-Dissolved | | | 94.4 | | % | | 80-120 | 18-NOV-21 |
| Lead (Pb)-Dissolved | | | 95.8 | | % | | 80-120 | 18-NOV-21 |
| Lithium (Li)-Dissolved | | | 94.3 | | % | | 80-120 | 18-NOV-21 |
| Magnesium (Mg)-Dissolved | | | 90.5 | | % | | 80-120 | 18-NOV-21 |
| Manganese (Mn)-Dissolved | | | 93.7 | | % | | 80-120 | 18-NOV-21 |
| Molybdenum (Mo)-Dissolved | | | 101.4 | | % | | 80-120 | 18-NOV-21 |
| Nickel (Ni)-Dissolved | | | 94.8 | | % | | 80-120 | 18-NOV-21 |
| Phosphorus (P)-Dissolved | | | 93.2 | | % | | 70-130 | 18-NOV-21 |
| Potassium (K)-Dissolved | | | 96.9 | | % | | 80-120 | 18-NOV-21 |
| Selenium (Se)-Dissolved | | | 92.5 | | % | | 80-120 | 18-NOV-21 |
| Silicon (Si)-Dissolved | | | 94.5 | | % | | 60-140 | 18-NOV-21 |
| Silver (Ag)-Dissolved | | | 99.6 | | % | | 80-120 | 18-NOV-21 |
| Sodium (Na)-Dissolved | | | 94.6 | | % | | 80-120 | 18-NOV-21 |
| Strontium (Sr)-Dissolved | | | 96.9 | | % | | 80-120 | 18-NOV-21 |
| Sulfur (S)-Dissolved | | | 95.9 | | % | | 80-120 | 18-NOV-21 |
| Thallium (Tl)-Dissolved | | | 98.1 | | % | | 80-120 | 18-NOV-21 |
| Tin (Sn)-Dissolved | | | 100.0 | | % | | 80-120 | 18-NOV-21 |
| Titanium (Ti)-Dissolved | | | 87.4 | | % | | 80-120 | 18-NOV-21 |
| Uranium (U)-Dissolved | | | 96.7 | | % | | 80-120 | 18-NOV-21 |
| Vanadium (V)-Dissolved | | | 97.8 | | % | | 80-120 | 18-NOV-21 |
| Zinc (Zn)-Dissolved | | | 88.6 | | % | | 80-120 | 18-NOV-21 |
| Zirconium (Zr)-Dissolved | | | 99.0 | | % | | 80-120 | 18-NOV-21 |
| WG3661410-1 | MB | | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 18-NOV-21 |
| Antimony (Sb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Arsenic (As)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Barium (Ba)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |

Quality Control Report

Workorder: L2663287

Report Date: 25-NOV-21

Page 4 of 11

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|-----------------|-------------|------------|-----------|-------|-----|----------|-----------|
| MET-D-CCMS-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5653911 | | | | | | | |
| WG3661410-1 | MB | | | | | | | |
| Bismuth (Bi)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 18-NOV-21 |
| Boron (B)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 18-NOV-21 |
| Cadmium (Cd)-Dissolved | | | <0.0000050 | | mg/L | | 0.000005 | 18-NOV-21 |
| Calcium (Ca)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 18-NOV-21 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Cobalt (Co)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Copper (Cu)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 18-NOV-21 |
| Iron (Fe)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 18-NOV-21 |
| Lead (Pb)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 18-NOV-21 |
| Lithium (Li)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 18-NOV-21 |
| Magnesium (Mg)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 18-NOV-21 |
| Manganese (Mn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 18-NOV-21 |
| Nickel (Ni)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 18-NOV-21 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 18-NOV-21 |
| Potassium (K)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 18-NOV-21 |
| Selenium (Se)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 18-NOV-21 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 18-NOV-21 |
| Silver (Ag)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 18-NOV-21 |
| Sodium (Na)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 18-NOV-21 |
| Strontium (Sr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 18-NOV-21 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 18-NOV-21 |
| Thallium (Tl)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 18-NOV-21 |
| Tin (Sn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Titanium (Ti)-Dissolved | | | <0.00030 | | mg/L | | 0.0003 | 18-NOV-21 |
| Uranium (U)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 18-NOV-21 |
| Vanadium (V)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 18-NOV-21 |
| Zinc (Zn)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 18-NOV-21 |
| Zirconium (Zr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 18-NOV-21 |
| MET-T-CCMS-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5653911 | | | | | | | |
| WG3660332-2 | LCS | TMRM | | | | | | |
| Aluminum (Al)-Total | | | 93.5 | | % | | 80-120 | 18-NOV-21 |
| Antimony (Sb)-Total | | | 107.3 | | % | | 80-120 | 18-NOV-21 |

Quality Control Report

Workorder: L2663287

Report Date: 25-NOV-21

Page 5 of 11

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-----------------------|-----------------|-------------|----------|-----------|-------|-----|--------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5653911 | | | | | | | |
| WG3660332-2 | LCS | TMRM | | | | | | |
| Arsenic (As)-Total | | | 93.7 | | % | | 80-120 | 18-NOV-21 |
| Barium (Ba)-Total | | | 93.5 | | % | | 80-120 | 18-NOV-21 |
| Bismuth (Bi)-Total | | | 95.7 | | % | | 80-120 | 18-NOV-21 |
| Boron (B)-Total | | | 88.5 | | % | | 80-120 | 18-NOV-21 |
| Cadmium (Cd)-Total | | | 91.7 | | % | | 80-120 | 18-NOV-21 |
| Calcium (Ca)-Total | | | 92.5 | | % | | 80-120 | 18-NOV-21 |
| Chromium (Cr)-Total | | | 97.6 | | % | | 80-120 | 18-NOV-21 |
| Cobalt (Co)-Total | | | 96.3 | | % | | 80-120 | 18-NOV-21 |
| Copper (Cu)-Total | | | 95.2 | | % | | 80-120 | 18-NOV-21 |
| Iron (Fe)-Total | | | 95.4 | | % | | 80-120 | 18-NOV-21 |
| Lead (Pb)-Total | | | 95.0 | | % | | 80-120 | 18-NOV-21 |
| Lithium (Li)-Total | | | 96.6 | | % | | 80-120 | 18-NOV-21 |
| Magnesium (Mg)-Total | | | 86.1 | | % | | 80-120 | 18-NOV-21 |
| Manganese (Mn)-Total | | | 93.4 | | % | | 80-120 | 18-NOV-21 |
| Molybdenum (Mo)-Total | | | 97.2 | | % | | 80-120 | 18-NOV-21 |
| Nickel (Ni)-Total | | | 92.4 | | % | | 80-120 | 18-NOV-21 |
| Phosphorus (P)-Total | | | 99.8 | | % | | 70-130 | 18-NOV-21 |
| Potassium (K)-Total | | | 97.1 | | % | | 80-120 | 18-NOV-21 |
| Selenium (Se)-Total | | | 97.0 | | % | | 80-120 | 18-NOV-21 |
| Silicon (Si)-Total | | | 93.5 | | % | | 60-140 | 18-NOV-21 |
| Silver (Ag)-Total | | | 96.9 | | % | | 80-120 | 18-NOV-21 |
| Sodium (Na)-Total | | | 94.7 | | % | | 80-120 | 18-NOV-21 |
| Strontium (Sr)-Total | | | 95.1 | | % | | 80-120 | 18-NOV-21 |
| Sulfur (S)-Total | | | 105.4 | | % | | 80-120 | 18-NOV-21 |
| Thallium (Tl)-Total | | | 95.5 | | % | | 80-120 | 18-NOV-21 |
| Tin (Sn)-Total | | | 96.8 | | % | | 80-120 | 18-NOV-21 |
| Titanium (Ti)-Total | | | 84.0 | | % | | 80-120 | 18-NOV-21 |
| Uranium (U)-Total | | | 93.8 | | % | | 80-120 | 18-NOV-21 |
| Vanadium (V)-Total | | | 98.3 | | % | | 80-120 | 18-NOV-21 |
| Zinc (Zn)-Total | | | 86.2 | | % | | 80-120 | 18-NOV-21 |
| Zirconium (Zr)-Total | | | 97.5 | | % | | 80-120 | 18-NOV-21 |
| WG3660332-1 | MB | | | | | | | |
| Aluminum (Al)-Total | | | <0.0030 | | mg/L | | 0.003 | 18-NOV-21 |
| Antimony (Sb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |

Quality Control Report

Workorder: L2663287

Report Date: 25-NOV-21

Page 6 of 11

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-----------------------|-----------------|-----------|------------|-----------|-------|-----|----------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5653911 | | | | | | | |
| WG3660332-1 MB | | | | | | | | |
| Arsenic (As)-Total | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Barium (Ba)-Total | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Bismuth (Bi)-Total | | | <0.000050 | | mg/L | | 0.00005 | 18-NOV-21 |
| Boron (B)-Total | | | <0.010 | | mg/L | | 0.01 | 18-NOV-21 |
| Cadmium (Cd)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 18-NOV-21 |
| Calcium (Ca)-Total | | | <0.050 | | mg/L | | 0.05 | 18-NOV-21 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Cobalt (Co)-Total | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Copper (Cu)-Total | | | <0.00050 | | mg/L | | 0.0005 | 18-NOV-21 |
| Iron (Fe)-Total | | | <0.010 | | mg/L | | 0.01 | 18-NOV-21 |
| Lead (Pb)-Total | | | <0.000050 | | mg/L | | 0.00005 | 18-NOV-21 |
| Lithium (Li)-Total | | | <0.0010 | | mg/L | | 0.001 | 18-NOV-21 |
| Magnesium (Mg)-Total | | | <0.0050 | | mg/L | | 0.005 | 18-NOV-21 |
| Manganese (Mn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 18-NOV-21 |
| Nickel (Ni)-Total | | | <0.00050 | | mg/L | | 0.0005 | 18-NOV-21 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 18-NOV-21 |
| Potassium (K)-Total | | | <0.050 | | mg/L | | 0.05 | 18-NOV-21 |
| Selenium (Se)-Total | | | <0.000050 | | mg/L | | 0.00005 | 18-NOV-21 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 18-NOV-21 |
| Silver (Ag)-Total | | | <0.000010 | | mg/L | | 0.00001 | 18-NOV-21 |
| Sodium (Na)-Total | | | <0.050 | | mg/L | | 0.05 | 18-NOV-21 |
| Strontium (Sr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 18-NOV-21 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 18-NOV-21 |
| Thallium (Tl)-Total | | | <0.000010 | | mg/L | | 0.00001 | 18-NOV-21 |
| Tin (Sn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 18-NOV-21 |
| Titanium (Ti)-Total | | | <0.00030 | | mg/L | | 0.0003 | 18-NOV-21 |
| Uranium (U)-Total | | | <0.000010 | | mg/L | | 0.00001 | 18-NOV-21 |
| Vanadium (V)-Total | | | <0.00050 | | mg/L | | 0.0005 | 18-NOV-21 |
| Zinc (Zn)-Total | | | <0.0030 | | mg/L | | 0.003 | 18-NOV-21 |
| Zirconium (Zr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 18-NOV-21 |

NH3-L-F-CL

Water



Workorder: L2663287

Page 8 of 11

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------------|----------|------------|---------|-----------|-------|-----|--------|-----------|
| PH/EC/ALK-CL | | Water | | | | | | |
| Batch | R5653667 | | | | | | | |
| WG3660920-8 | LCS | | | | | | | |
| Conductivity (EC) | | | 99.5 | | % | | 90-110 | 17-NOV-21 |
| Alkalinity, Total (as CaCO3) | | | 110.2 | | % | | 85-115 | 17-NOV-21 |
| WG3660920-4 | MB | | | | | | | |
| Conductivity (EC) | | | <2.0 | | uS/cm | | 2 | 17-NOV-21 |
| Bicarbonate (HCO3) | | | <5.0 | | mg/L | | 5 | 17-NOV-21 |
| Carbonate (CO3) | | | <5.0 | | mg/L | | 5 | 17-NOV-21 |
| Hydroxide (OH) | | | <5.0 | | mg/L | | 5 | 17-NOV-21 |
| Alkalinity, Total (as CaCO3) | | | <2.0 | | mg/L | | 2 | 17-NOV-21 |
| WG3660920-7 | MB | | | | | | | |
| Conductivity (EC) | | | <2.0 | | uS/cm | | 2 | 17-NOV-21 |
| Bicarbonate (HCO3) | | | <5.0 | | mg/L | | 5 | 17-NOV-21 |
| Carbonate (CO3) | | | <5.0 | | mg/L | | 5 | 17-NOV-21 |
| Hydroxide (OH) | | | <5.0 | | mg/L | | 5 | 17-NOV-21 |
| Alkalinity, Total (as CaCO3) | | | <2.0 | | mg/L | | 2 | 17-NOV-21 |
| PO4-DO-L-COL-CL | | Water | | | | | | |
| Batch | R5652559 | | | | | | | |
| WG3660336-3 | DUP | L2663287-1 | | | | | | |
| Orthophosphate-Dissolved (as P) | | 0.0068 | 0.0064 | | mg/L | 6.5 | 20 | 17-NOV-21 |
| WG3660336-2 | LCS | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 96.8 | | % | | 80-120 | 17-NOV-21 |
| WG3660336-1 | MB | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | <0.0010 | | mg/L | | 0.001 | 17-NOV-21 |
| WG3660336-4 | MS | L2663287-1 | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 98.9 | | % | | 70-130 | 17-NOV-21 |
| SO4-L-IC-N-CL | | Water | | | | | | |
| Batch | R5653519 | | | | | | | |
| WG3660787-3 | DUP | L2663287-1 | | | | | | |
| Sulfate (SO4) | | 3.39 | 3.32 | | mg/L | 2.1 | 20 | 17-NOV-21 |
| WG3660787-2 | LCS | | | | | | | |
| Sulfate (SO4) | | | 104.6 | | % | | 85-115 | 17-NOV-21 |
| WG3660787-1 | MB | | | | | | | |
| Sulfate (SO4) | | | <0.050 | | mg/L | | 0.05 | 17-NOV-21 |
| WG3660787-4 | MS | L2663287-1 | | | | | | |
| Sulfate (SO4) | | | 117.8 | | % | | 75-125 | 17-NOV-21 |
| TEMP-CL | | Water | | | | | | |



Quality Control Report

Workorder: L2663287

Report Date: 25-NOV-21

Page 9 of 11

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------|----------|------------|--------|-----------|----------|-----|--------|-----------|
| TEMP-CL | Water | | | | | | | |
| Batch | R5653667 | | | | | | | |
| WG3660920-9 | DUP | L2663287-8 | | | | | | |
| Temperature | | 21.2 | 21.3 | | Degree C | 0.5 | 25 | 17-NOV-21 |
| TSS-L-CL | Water | | | | | | | |
| Batch | R5653738 | | | | | | | |
| WG3659960-4 | LCS | | | | | | | |
| Total Suspended Solids | | | 90.2 | | % | | 85-115 | 17-NOV-21 |
| WG3659960-3 | MB | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 17-NOV-21 |

Quality Control Report

Workorder: L2663287

Report Date: 25-NOV-21

Page 10 of 11

Legend:

| | |
|-------|---|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP | Duplicate |
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |

Sample Parameter Qualifier Definitions:

| Qualifier | Description |
|-----------|---|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

Quality Control Report

Workorder: L2663287

Report Date: 25-NOV-21

Page 11 of 11

Hold Time Exceedances:

| ALS Product Description | Sample ID | Sampling Date | Date Processed | Rec. HT | Actual HT | Units | Qualifier |
|------------------------------------|-----------|-----------------|-----------------|---------|-----------|-------|-----------|
| Anions and Nutrients | | | | | | | |
| Nitrate in Water by IC (Low Level) | | | | | | | |
| | 1 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 2 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 3 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 4 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 5 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 6 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 7 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 8 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 9 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| | 1 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 2 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 3 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 4 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 5 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 6 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 7 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 8 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| | 9 | 11-NOV-21 12:00 | 17-NOV-21 09:51 | 3 | 6 | days | EHTR |
| Orthophosphate-Dissolved (as P) | | | | | | | |
| | 1 | 11-NOV-21 12:00 | 17-NOV-21 12:36 | 3 | 6 | days | EHTR |
| | 2 | 11-NOV-21 12:00 | 17-NOV-21 12:38 | 3 | 6 | days | EHTR |
| | 3 | 11-NOV-21 12:00 | 17-NOV-21 12:40 | 3 | 6 | days | EHTR |
| | 4 | 11-NOV-21 12:00 | 17-NOV-21 12:40 | 3 | 6 | days | EHTR |
| | 5 | 11-NOV-21 12:00 | 17-NOV-21 12:40 | 3 | 6 | days | EHTR |
| | 6 | 11-NOV-21 12:00 | 17-NOV-21 12:43 | 3 | 6 | days | EHTR |
| | 7 | 11-NOV-21 12:00 | 17-NOV-21 12:43 | 3 | 6 | days | EHTR |
| | 8 | 11-NOV-21 12:00 | 17-NOV-21 12:43 | 3 | 6 | days | EHTR |
| | 9 | 11-NOV-21 12:00 | 17-NOV-21 12:45 | 3 | 6 | days | EHTR |

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
 EHTR: Exceeded ALS recommended hold time prior to sample receipt.
 EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
 EHT: Exceeded ALS recommended hold time prior to analysis.
 Rec. HT: ALS recommended hold time (see units).

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
 Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2663287 were received on 16-NOV-21 08:50.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



L2663287-COFC

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

Canada Toll Free: 1 800 668 9878

Page of

| Report To Contact and company name below will appear on the final report | | Reports / Recipients | | Turnaround Time (TAT) Requested | | AFFIX ALS BARCODE LABEL HERE (ALS use only) | | | | | | | | | | | | | | | | | |
|--|--|---|-----------------|--|-------|--|-------|----------------------|---------------------------------------|------------------|-----|------------------------|------------------|---------|------------------|-----|------------------|-----------------------------|-----|-----|-----------------|---------------------------|------------------------------|
| Company: Sperling Hansen Associates Inc. | | Select Report Format: <input type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) | | <input checked="" type="checkbox"/> Routine [R] if received by 3pm M-F - no surcharges apply | | | | | | | | | | | | | | | | | | | |
| Contact: Scott Garthwaite | | Merge QC/QCI Reports with COA <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A | | <input type="checkbox"/> 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum | | | | | | | | | | | | | | | | | | | |
| Phone: 778-471-7088 | | <input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked | | <input type="checkbox"/> 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum | | | | | | | | | | | | | | | | | | | |
| Company address below will appear on the final report | | Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX | | <input type="checkbox"/> 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum | | | | | | | | | | | | | | | | | | | |
| Street: 1225 East Keith Road | | Email 1 or Fax: sgarthwaite@sperlinghansen.com | | <input type="checkbox"/> 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum | | | | | | | | | | | | | | | | | | | |
| City/Province: North Vancouver, B.C. | | Email 2: chetherington@sperlinghansen.com | | <input type="checkbox"/> Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests | | | | | | | | | | | | | | | | | | | |
| Postal Code: V7J 1J3 | | Email 3: | | Date and Time Required for all E&P TATs: dd-mm-yy hh:mm am/pm | | | | | | | | | | | | | | | | | | | |
| Invoice To | | Invoice Recipients | | For all tests with rush TATs requested, please contact your AM to confirm availability. | | | | | | | | | | | | | | | | | | | |
| Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO | | Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX | | Analysis Request | | | | | | | | | | | | | | | | | | | |
| Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO | | Email 1 or Fax: chetherington@sperlinghansen.com | | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below | | | | | | | | | | | | | | | | | | | |
| Contact: | | Email 2: | | | | | | | | | | | | | | | | | | | | | |
| Project Information | | Oil and Gas Required Fields (client use) | | <table border="1"> <tr> <th rowspan="2">NUMBER OF CONTAINERS</th> <th rowspan="2">Anions, temperature, conductivity, pH</th> <th rowspan="2">Total Alkalinity</th> <th rowspan="2">TSS</th> <th rowspan="2">Dissolved Metals (F/P)</th> <th rowspan="2">Total Metals (P)</th> <th rowspan="2">Ammonia</th> <th rowspan="2">nitrate, nitrite</th> <th rowspan="2">TOC</th> <th rowspan="2">orthophosphorous</th> <th rowspan="2">fluoride, chloride, sulfate</th> <th rowspan="2">COD</th> <th rowspan="2">BOD</th> <th rowspan="2">SAMPLES ON HOLD</th> <th rowspan="2">EXTENDED STORAGE REQUIRED</th> <th rowspan="2">SUSPECTED HAZARD (see notes)</th> </tr> <tr> </tr> </table> | | | | NUMBER OF CONTAINERS | Anions, temperature, conductivity, pH | Total Alkalinity | TSS | Dissolved Metals (F/P) | Total Metals (P) | Ammonia | nitrate, nitrite | TOC | orthophosphorous | fluoride, chloride, sulfate | COD | BOD | SAMPLES ON HOLD | EXTENDED STORAGE REQUIRED | SUSPECTED HAZARD (see notes) |
| NUMBER OF CONTAINERS | Anions, temperature, conductivity, pH | Total Alkalinity | TSS | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| ALS Account # / Quote #: Q80923 | | AFE/Cost Center: PO# | | | | | | | | | | | | | | | | | | | | | |
| Job #: 20050 Fernie | | Major/Minor Code: Routing Code: | | | | | | | | | | | | | | | | | | | | | |
| PO / AFE: | | Requisitioner: | | | | | | | | | | | | | | | | | | | | | |
| LSD: | | Location: | | | | | | | | | | | | | | | | | | | | | |
| ALS Lab Work Order # (ALS use only): | | ALS Contact: Dean Watt | | Sampler: TM | | | | | | | | | | | | | | | | | | | |
| ALS Sample # (ALS use only) | Sample Identification and/or Coordinates (This description will appear on the report) | Date (dd-mm-yy) | Time (hh:mm) | Sample Type | | | | | | | | | | | | | | | | | | | |
| 1 | E257246 ✓ | 09.11.21 | | Surface Water | 5 | R | R | R | | R | R | R | R | R | R | R | | | | | | | |
| 2 | E257244 ✓ | " | | Groundwater | 5 | R | R | | R | R | R | R | R | R | R | R | | | | | | | |
| 3 | E257247 ✓ | " | | Surface Water | 5 | R | R | R | | R | R | R | R | R | R | R | | | | | | | |
| 4 | E257237 ✓ | " | | Groundwater | 5 | R | R | | R | R | R | R | R | R | R | R | | | | | | | |
| 5 | E257235 ✓ | " | | Groundwater | 5 | R | R | | R | R | R | R | R | R | R | R | | | | | | | |
| 6 | E257250 ✓ | " | | Surface Water | 5 | R | R | R | | R | R | R | R | R | R | R | | | | | | | |
| 7 | E257239 ✓ | " | | Groundwater | 5 | R | R | | R | R | R | R | R | R | R | R | | | | | | | |
| 8 | E257245 ✓ | " | | Surface Water | 5 | R | R | R | | R | R | R | R | R | R | R | | | | | | | |
| 9 | E257242 ✓ | " | | Groundwater | 5 | R | R | | R | R | R | R | R | R | R | R | | | | | | | |
| | E257252 | | | Groundwater | | R | R | | R | R | R | R | R | R | R | R | | | | | | | |
| | | | | Groundwater | | R | R | | R | R | R | R | R | R | R | R | | | | | | | |
| | E257241 | | | Groundwater | | R | R | | R | R | R | R | R | R | R | R | | | | | | | |
| Drinking Water (DW) Samples¹ (client use) | | Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only) | | SAMPLE RECEIPT DETAILS (ALS use only) | | | | | | | | | | | | | | | | | | | |
| Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | | British Columbia Contaminated Sites Regulation Stage 10 Amendment (NOV, 2017) | | Cooling Method: <input type="checkbox"/> NONE <input checked="" type="checkbox"/> ICE <input type="checkbox"/> ICE PACKS <input type="checkbox"/> FROZEN <input type="checkbox"/> COOLING INITIATED | | | | | | | | | | | | | | | | | | | |
| Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | | British Columbia Approved and Working Water Quality Guidelines (MAY, 2015) | | Submission Comments identified on Sample Receipt Notification: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | | | | | | | | | | | | | | | | | | | |
| | | | | Cooler Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A Sample Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A | | | | | | | | | | | | | | | | | | | |
| | | | | INITIAL COOLER TEMPERATURES °C | | | | | | | | | | | | | | | | | | | |
| | | | | FINAL COOLER TEMPERATURES °C | | | | | | | | | | | | | | | | | | | |
| SHIPMENT RELEASE (client use) | | INITIAL SHIPMENT RECEPTION (ALS use only) | | FINAL SHIPMENT RECEPTION (ALS use only) | | | | | | | | | | | | | | | | | | | |
| Released by: | Date: | Time: | Received by: | Date: | Time: | Received by: | Date: | | | | | | | | | | | | | | | | |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY/COPY YELLOW - CLIENT COPY

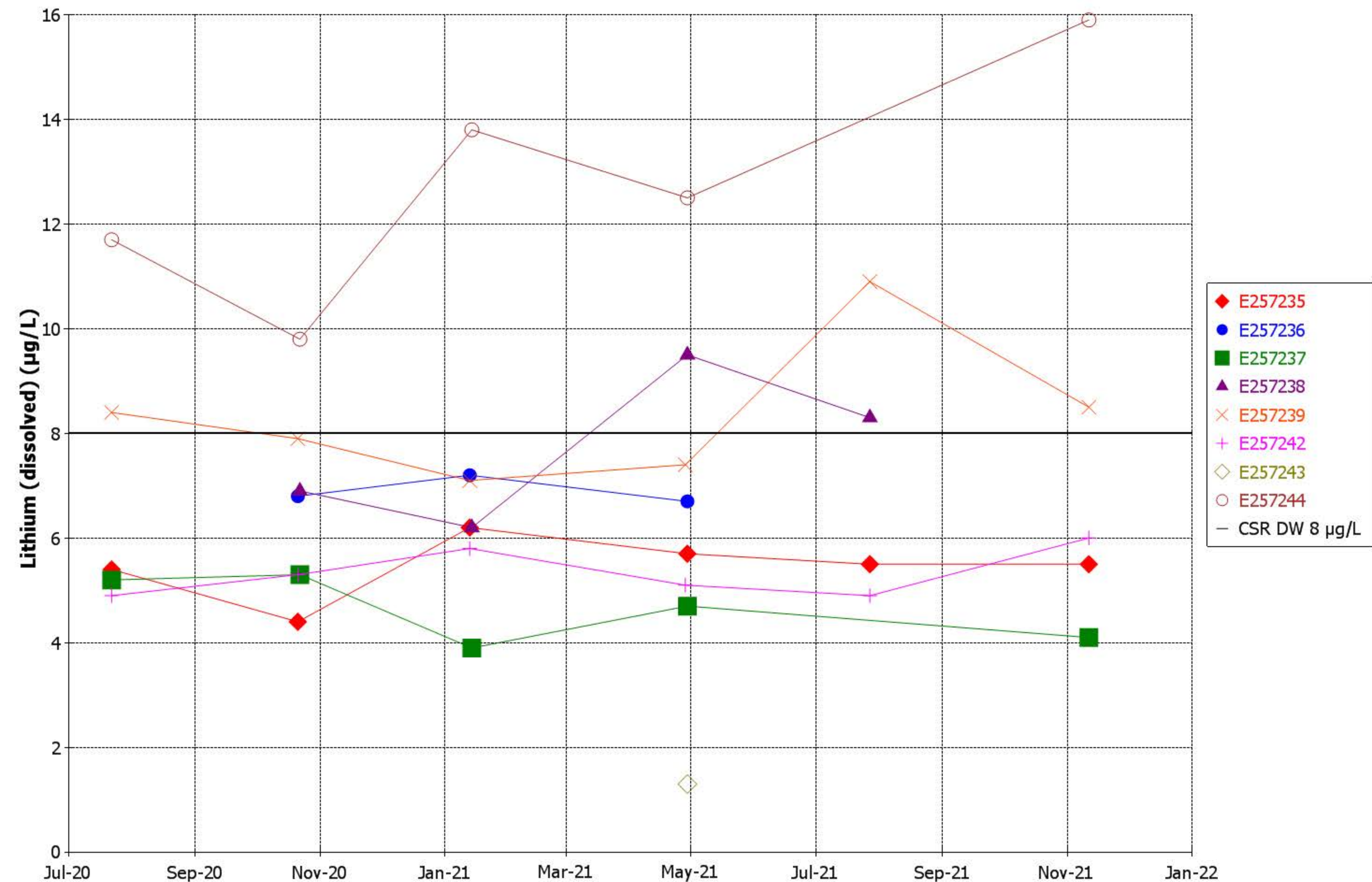
AUG 2020 FRONT

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.

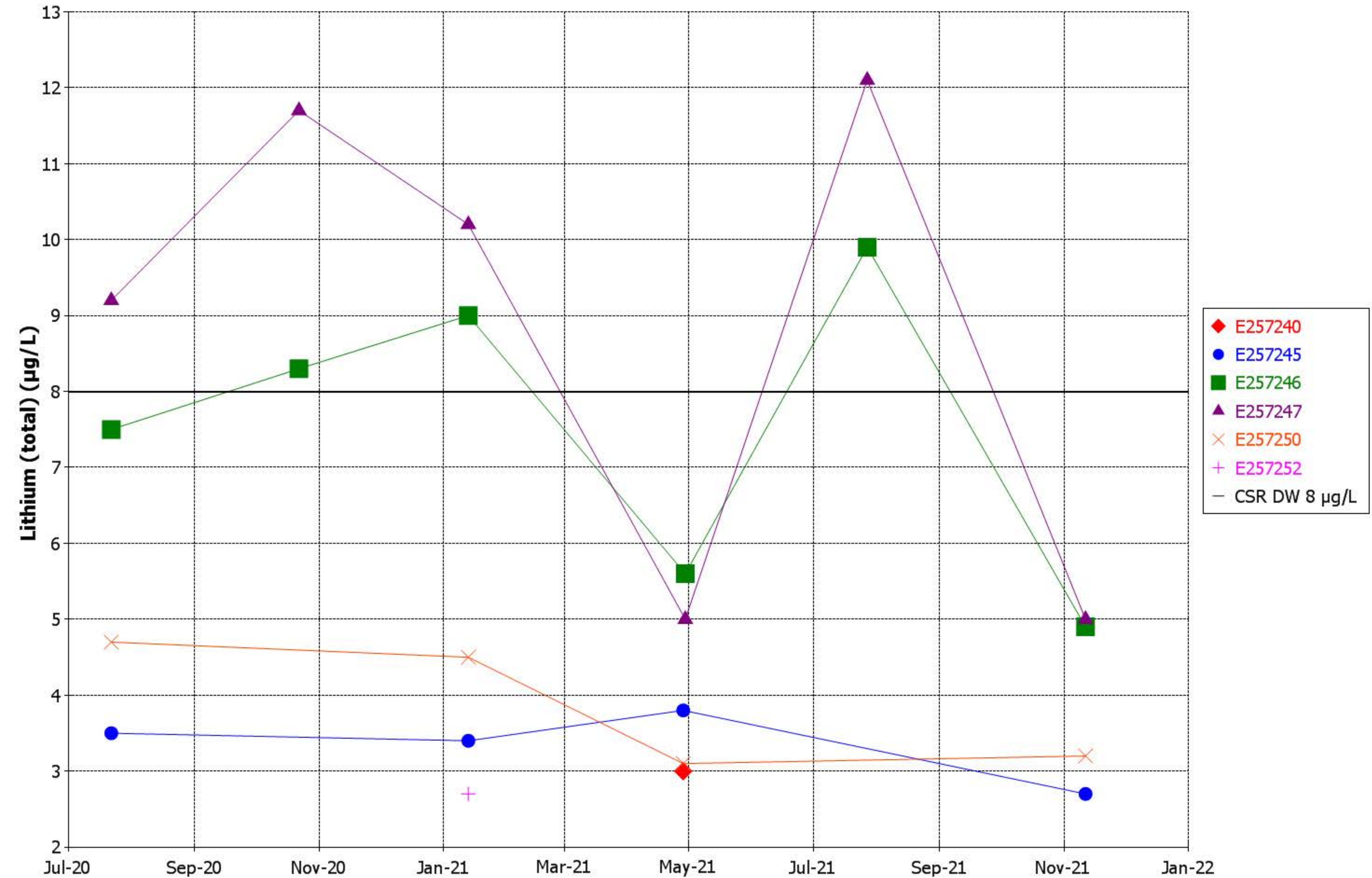
1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

APPENDIX D
Trending Figures

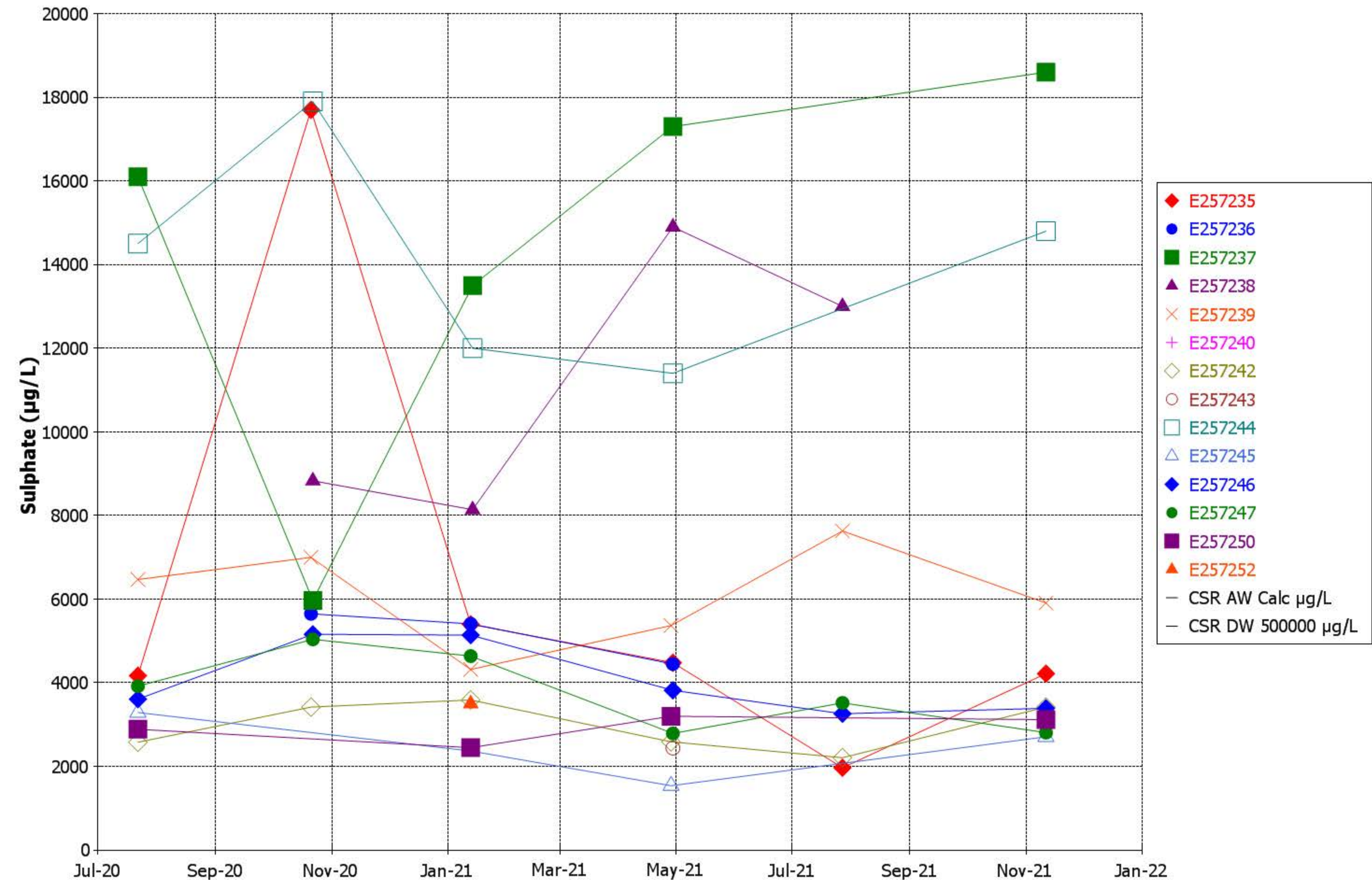
Time Series Plot For Lithium (dissolved) Fernie Landfill



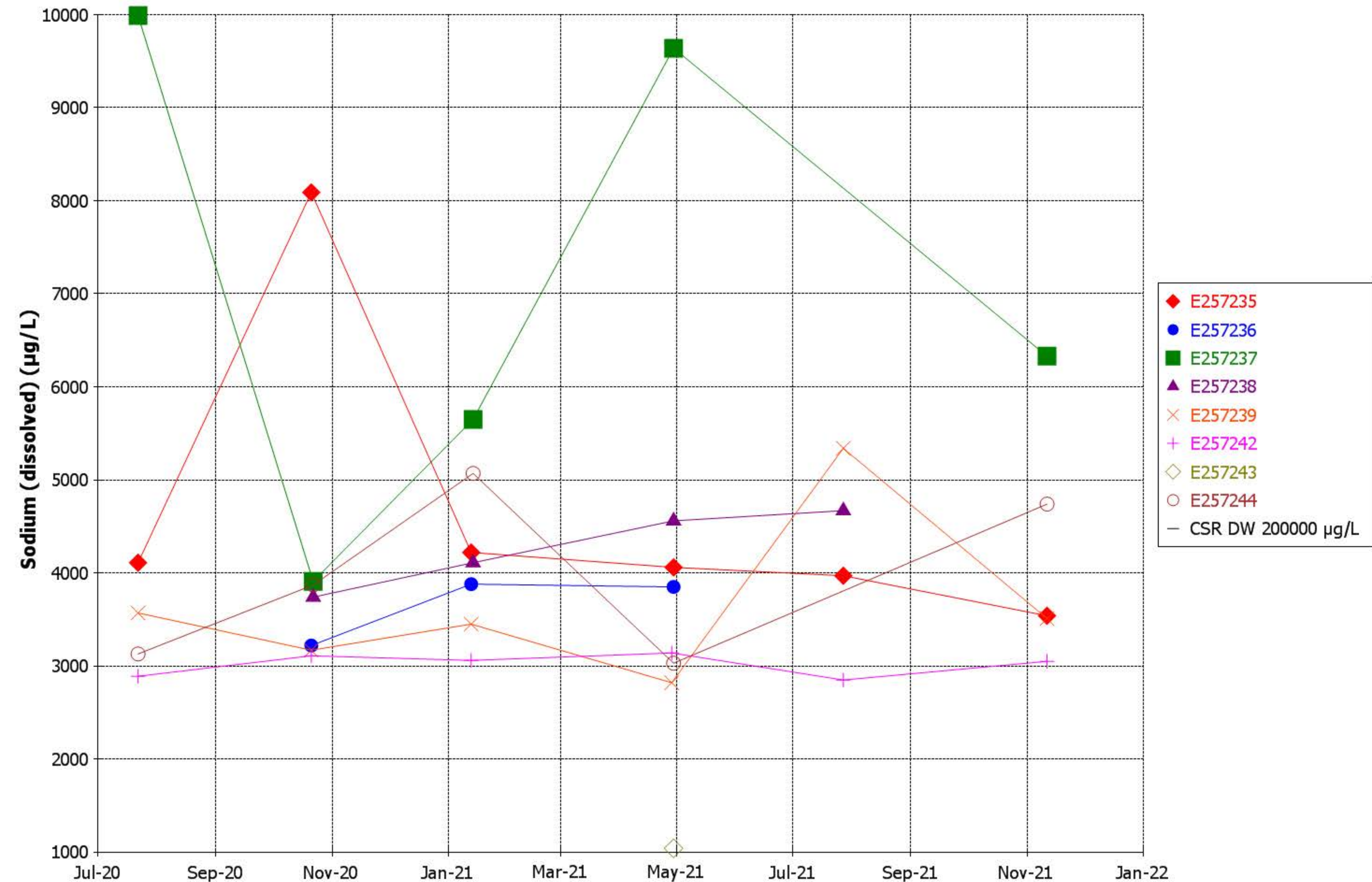
Time Series Plot For Lithium (total) Fernie Landfill



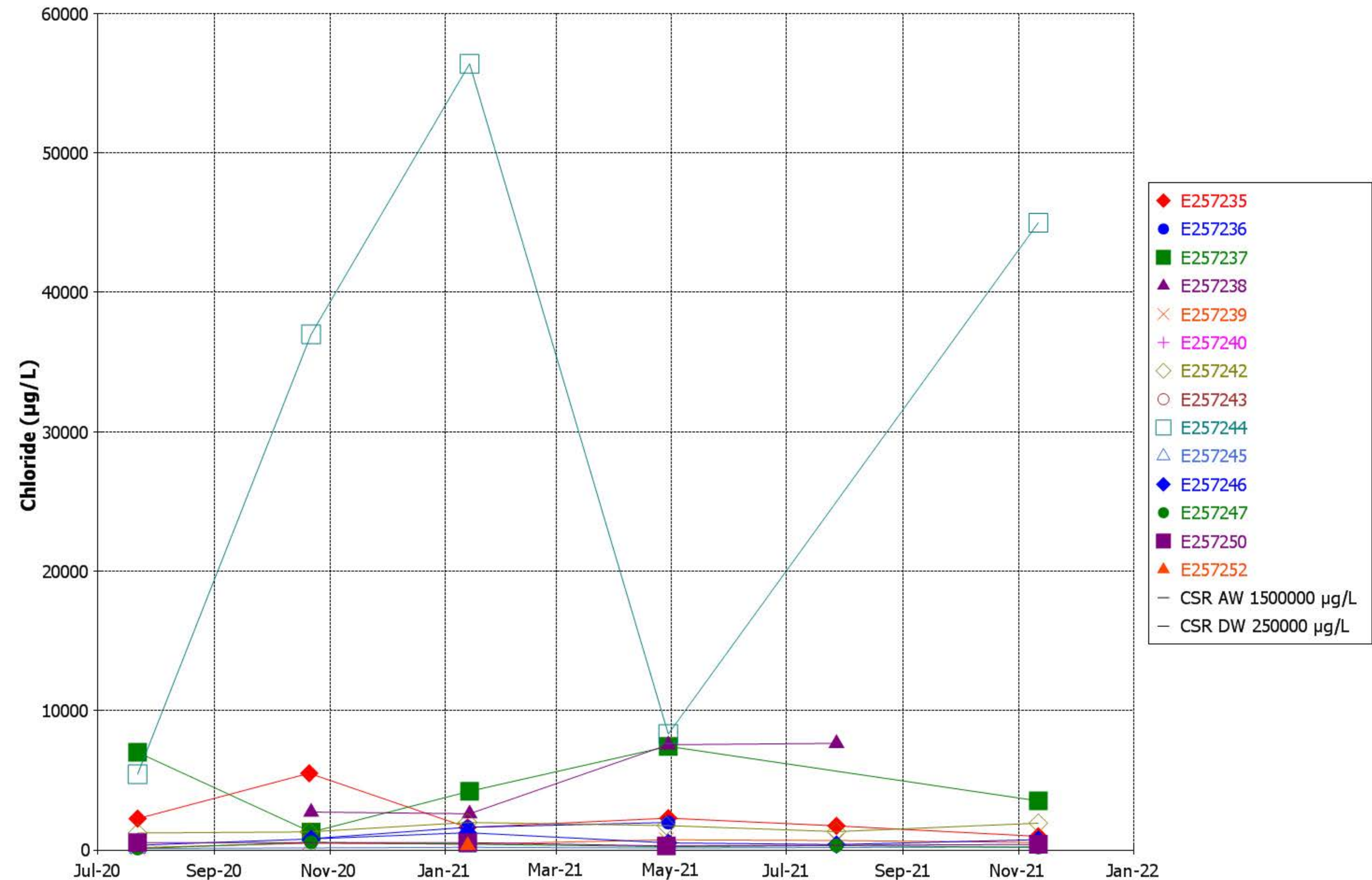
Time Series Plot For Sulphate Fernie Landfill



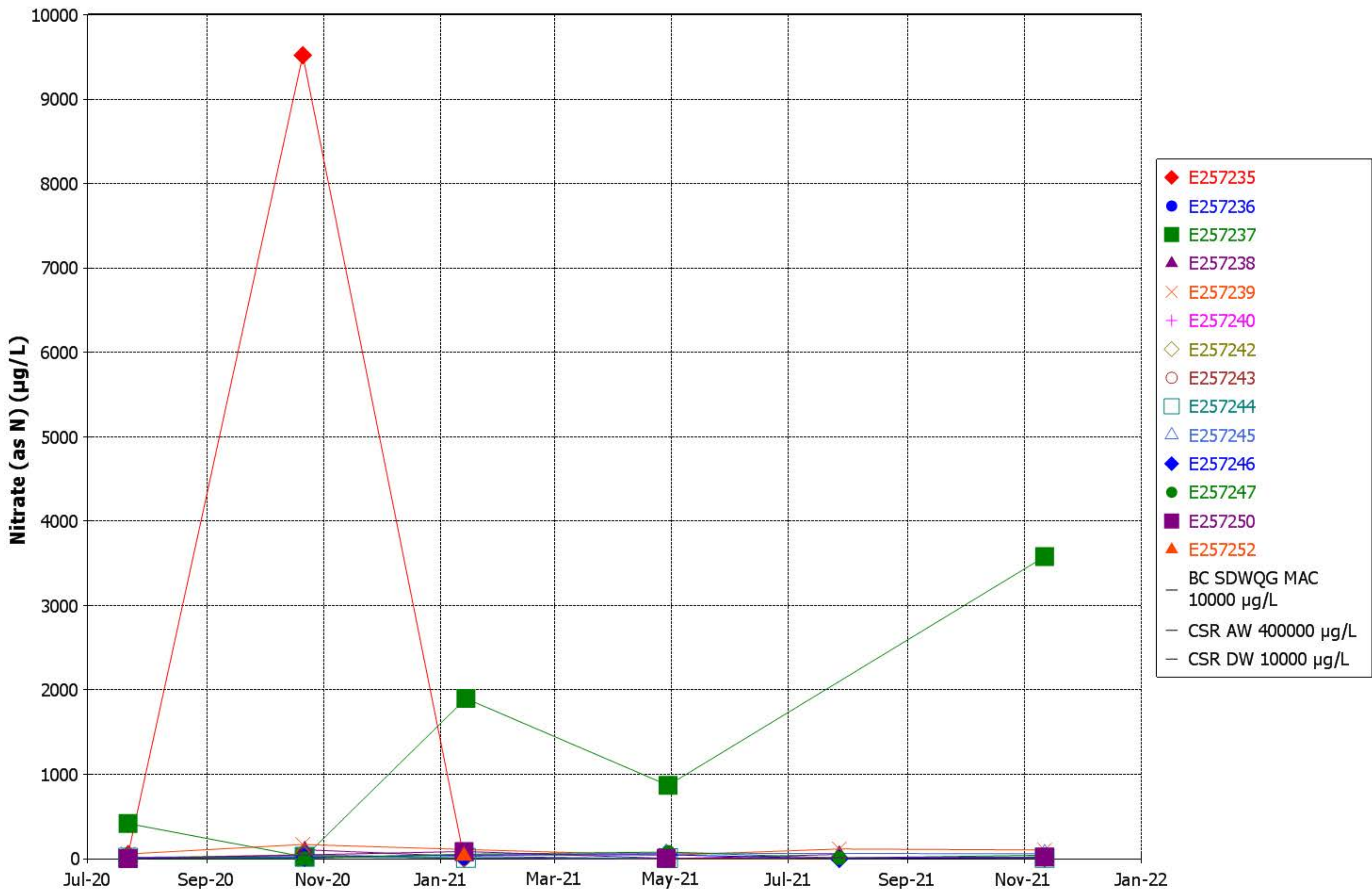
Time Series Plot For Sodium (dissolved) Fernie Landfill



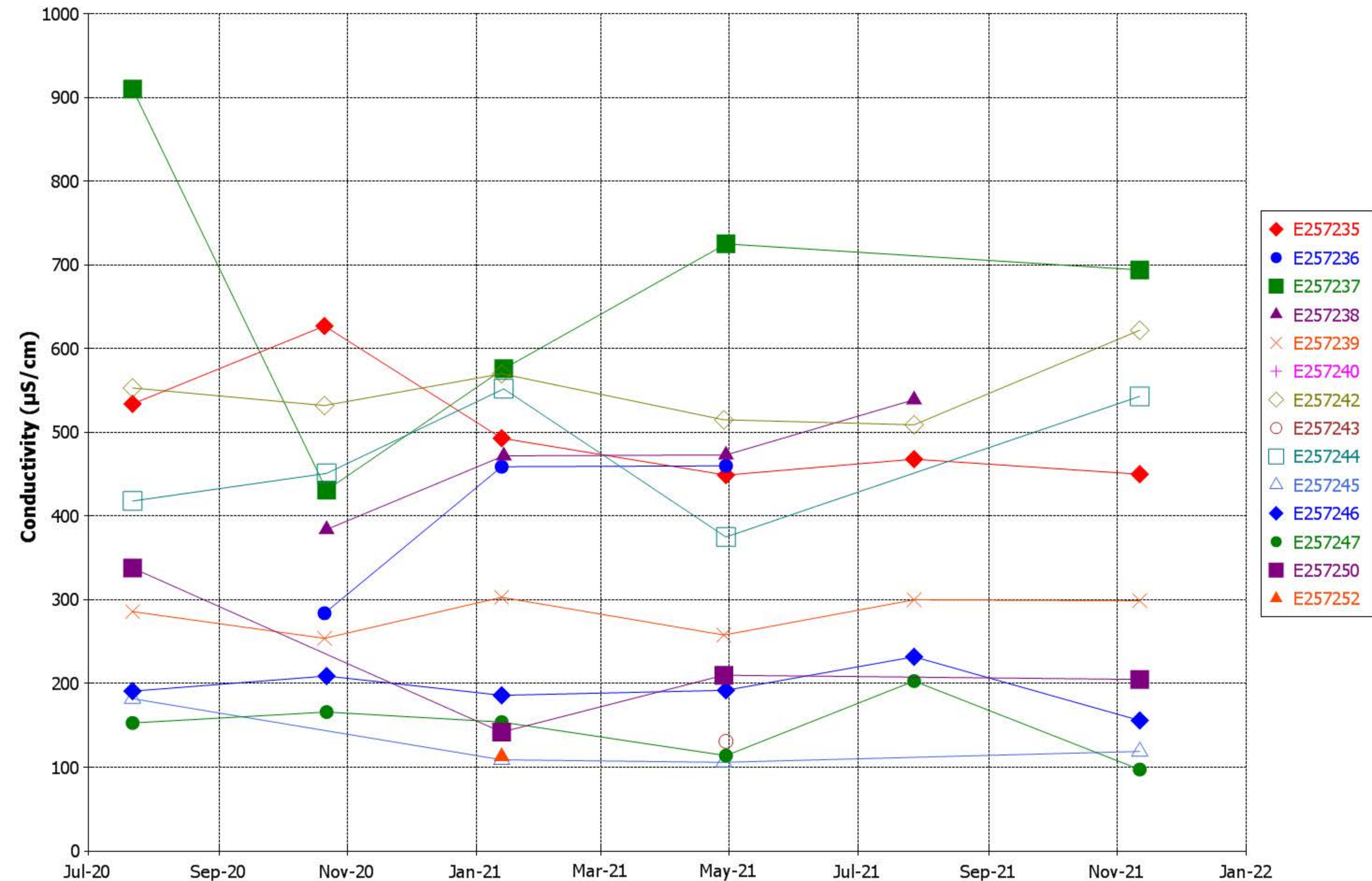
Time Series Plot For Chloride Fernie Landfill



Time Series Plot For Nitrate (as N) Fernie Landfill



Time Series Plot For Conductivity Fernie Landfill



Time Series Plot For Manganese (dissolved) Fernie Landfill

