

Fernie Landfill

2020 Groundwater Monitoring Annual Report



PREPARED FOR: REGIONAL DISTRICT OF EAST KOOTENAY

PREPARED BY: SPERLING HANSEN ASSOCIATES

February, 2021

PRJ20050



**SPERLING
HANSEN
ASSOCIATES**



- 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 for the next five years.

SHA was awarded this contract with the RDEK in April, 2020. The first two quarterly sampling events were completed by the previous consultant EcoLogic in January and April 2020. As SHA was brought on halfway through the year, the results of the first two sampling events were shared with SHA so that a complete data set for 2020 could be compiled, and that the complete data from all four events could be reviewed and included in this Annual report.

The final quarterly water sampling event for the year was completed in October, 2020 over a week period. Samples taken from each site are recorded below, and water quality analysis discussed in Section 4. This report details the sampling notes, lab analysis results, and trends observed at the wells throughout 2020. Section 5 presents recommendations for the next year of monitoring.

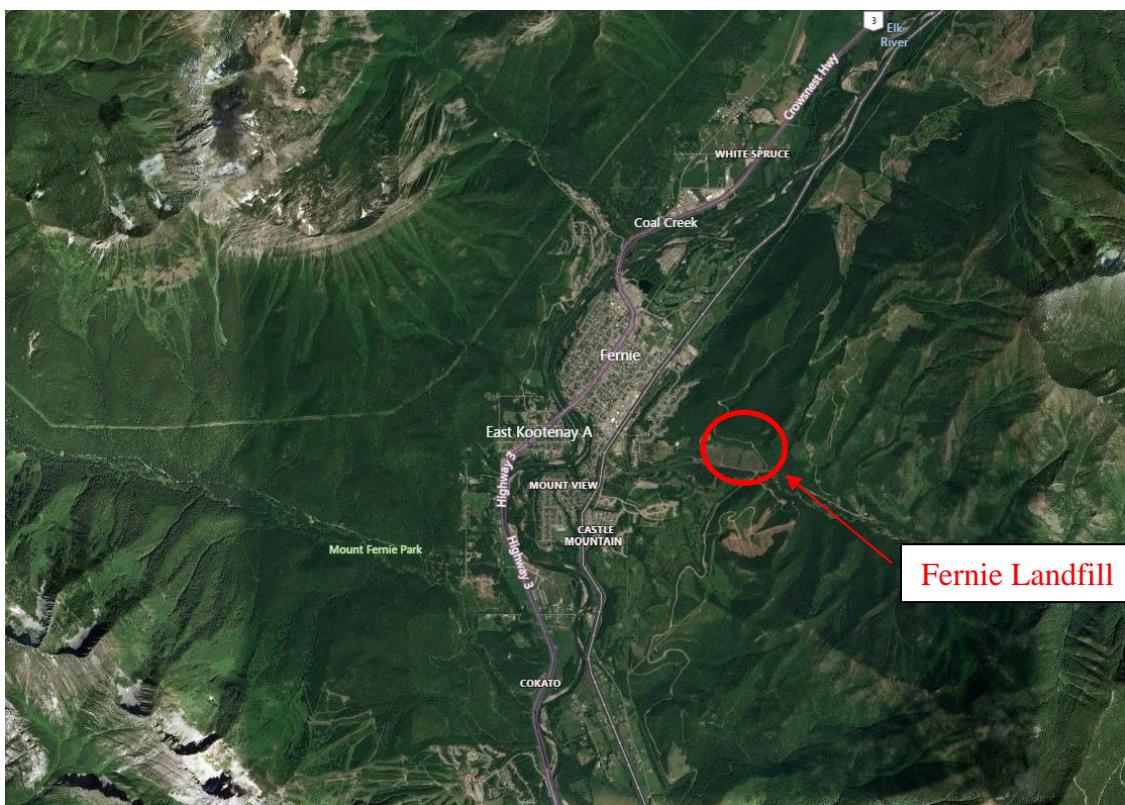


Photo 1-2. Fernie Landfill Site Location

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.

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). Site monitoring wells and surface water locations are shown on 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.

Note that due to changes in consultant's mid-year, the transfer of data to SHA was imprecise. As such, 7 groundwater wells and 4 surface water locations were sampled in 2020. Effort will be made by SHA to incorporate the monitoring program as documented in the Site's DOCP for future events and include recommendations to RDEK regarding locations and analysis.

2.1 Methodology

In this round of sampling, a total of seven (7) wells were sampled in accordance to the BC Field Sampling Manual. Four (4) surface water locations were sampled. Samples were delivered to ALS Environmental by subcontractor Bear. Certificates of Analysis (COA) are included in Appendix B. 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 |

Note that in 2020, during the Annual Sampling event in April, PAH and VOC sampling and analysis was not conducted at SHA-5s by the previous consultant.

These parameters will be sampled at SHA-5s in Spring 2021, during the next Annual Sampling completed by SHA.

Additionally, E257241 located near the old onsite transfer station, will be located, inspected and sampled in Spring 2021 as part of the sampling program as it has not been sampled in recent years.

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 to 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 (from EcoLogic Reports) | Q2 Water Level (from EcoLogic Reports) | Q3 Depth to Water BGS (m) | Q4 Depth to Water BGS (m) |
|---------|-------------------|-------------------------------------------|-------------------------------------------|---------------------------|---------------------------|
| E257239 | 2" PVC | 5.38 | 4.89 | 4.36 | 4.3 |
| E257242 | 2" PVC | 3.2 | 2.96 | 2.365 | 2.295 |
| E257235 | 2" PVC | 2.43 | 1.8 | 1.495 | 1.71 |
| E257237 | 2" PVC | 3.08 | 2.4 | 2.4 | 3.05 |
| E257244 | 2" PVC | 3.51 | 1.81 | 3.55 | 3.585 |
| E257236 | 2" PVC | - | - | - | 2.08 |
| E257238 | 2" PVC | - | - | - | 6.835 |

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.

It should be noted that during Q4 sampling, surface water sampling at E257245, E257250 and E257252 was not possible due to limited or no flow.

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 A, Tables A-1 (Groundwater) and A-2 (Surface Water) provide the water quality analysis alongside the applicable water standards.

As previously mentioned in Section 2.1 above, note that annual sampling data is not available for 2020, which should have included parameters for PAH and VOC's. This will be completed, as scheduled, in Spring 2021.

3.1 Exceedances

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:

- Cobalt
- Lithium
- Manganese

Maximum concentrations are shown in the Table below:

Table 3-1. Maximum Concentrations in Groundwater

| Parameter | BC CSR DW Standard (mg/L) | Maximum Concentration (mg/L) | Well Name |
|----------------|---------------------------|------------------------------|-----------|
| Cobalt (Co) | 0.001 | 0.00511 | E257242 |
| Lithium (Li) | 0.008 | 0.0118 | E257244 |
| Manganese (Mn) | 1.5 | 2.37 | E257235 |

3.1.2 Surface Water

All parameters tested in surface water were below applicable BCWQG-AW guidelines.

Parameters above BCWQG-DW guidelines in surface water included:

- Iron
- Manganese

Maximum concentrations are shown in the Table below:

Table 3-2. Maximum Concentrations in Surface Water

| Parameter | BCWQG-DW Guideline (mg/L) | Maximum Concentration (mg/L) | Surface Water Location |
|----------------|---------------------------|------------------------------|------------------------|
| Iron (Fe) | 0.3 AO | 0.799 | E257252 |
| Manganese (Mn) | 0.12 MAC, 0.02 AO | 0.023 | E257250 |

4. DISCUSSION

All parameters tested were below respective applicable BC CSR AW standards in groundwater BCWQG AW Guidelines in surface water.

Note that metals parameters were detected above respective BC CSR DW standards in groundwater and BCWQG_DW Guidelines in surface water and included the following:

- In groundwater: cobalt, lithium, manganese;
- In surface water: iron, manganese.

Maximum concentrations in groundwater included the following:

- Lithium was found at E257244 at 0.0118 mg/L versus the BC CSR DW standard of 0.008 mg/L.
- Cobalt was found at E2257242 at 0.00511 mg/L versus the BC CSR DW standard of 0.001 mg/L.
- Manganese was found at E257237 at 2.37 mg/L versus the BC CSR DW standard of 1.5 mg/L.

These maximums are calculated as 5.1, 1.5, and 1.6-times respective DW standards.

Surface water exceedances of iron and manganese were above BCWQG-DW aesthetic objectives only.

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 analytical results with the applicable criteria limits.

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

The red line on each figure represents the limit for that parameter according to the criteria, to show if wells are under or exceeding the maximum allowable concentration at the time of each quarterly sampling event.

Lithium, cobalt, and manganese are the only parameters above the CSR DW limit; however, these are mostly observed in Q3 and Q4 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 2020, 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, cobalt, and manganese in groundwater, and iron, manganese in surface water 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 some 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:

Slight metals parameter concentrations of lithium, cobalt, and manganese in groundwater above applicable standards were detected in the landfill wells, although, these were not accompanied with other elevated landfill contaminants such as chloride, sulfate, nitrate. SHA recommends that a future groundwater sampling event be conducted using a low flow method 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 bailed sampling, then SHA could make a recommendation to the RDEK to implement this sampling method for the monitoring going forward.

Some parameters such as BTEX which is required during the annual program were not sampled and reported in Q2, which is when the scheduled annual sampling should take place. SHA recommends following the annual sampling schedule as outlined in the Site's DOCP.

The next sampling event, scheduled in Q2 in April 2021, will also be the annual sampling and analysis event, where the two additional sampling parameters and wells will be included. SHA believes this makes the most sense as Spring is the most likely time of year that all wells are accessible and have adequate water flow for sampling.

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



Rahim Gaidhar
GIT, Project Geoscientist

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.

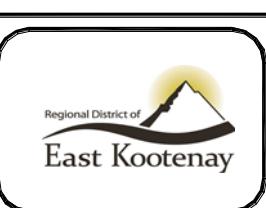
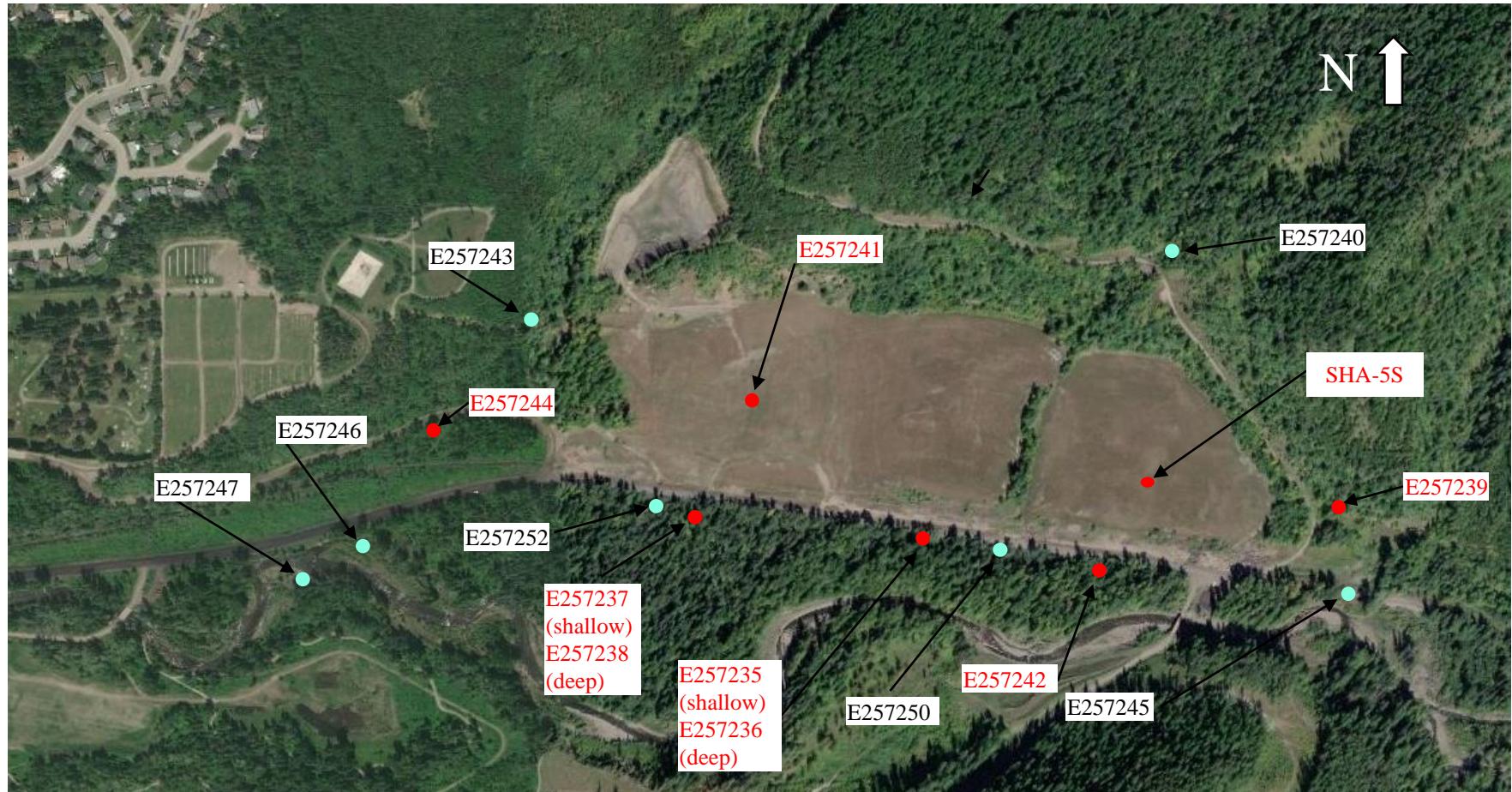
Ministry of Environment, BC Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture Summary Report, August 2019.

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.

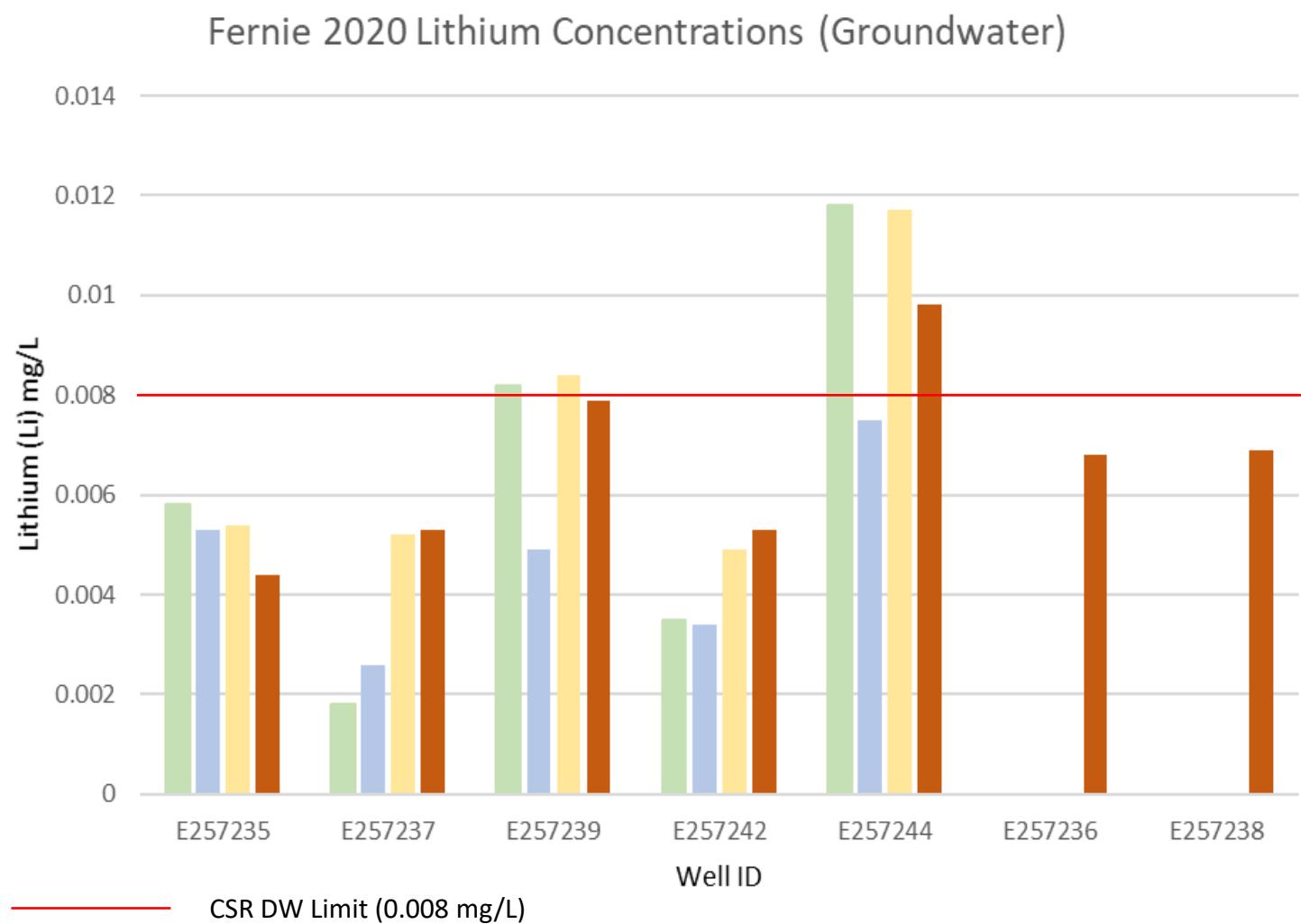
https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/waterquality/water-quality-guidelines/approved-wqgs/wqg_summary_aquaticlife_wildlife_agri.pdf



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

TITLE:
**FERNIE LANDFILL
MONITORING LOCATIONS**

| SCALE: | DATE: | PROJECT NO: |
|----------|--------------------------|--------------------------------|
| N/A | 2020/10/01 yyyy/mn/dd | 20050 |
| DESIGNED | DRAWN | DRAWING NO: Figure 1 |
| DRAWN | MG | |
| CHECKED | | |



SPERLING
HANSEN
ASSOCIATES



Regional District of
East Kootenay

PROJECT:

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

TITLE:

2020 Lithium Concentrations

SCALE:

N/A

DATE:

28/01/2021

yyyy/mm/dd

PROJECT NO:

20050

DESIGNED

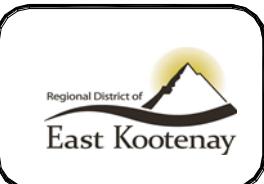
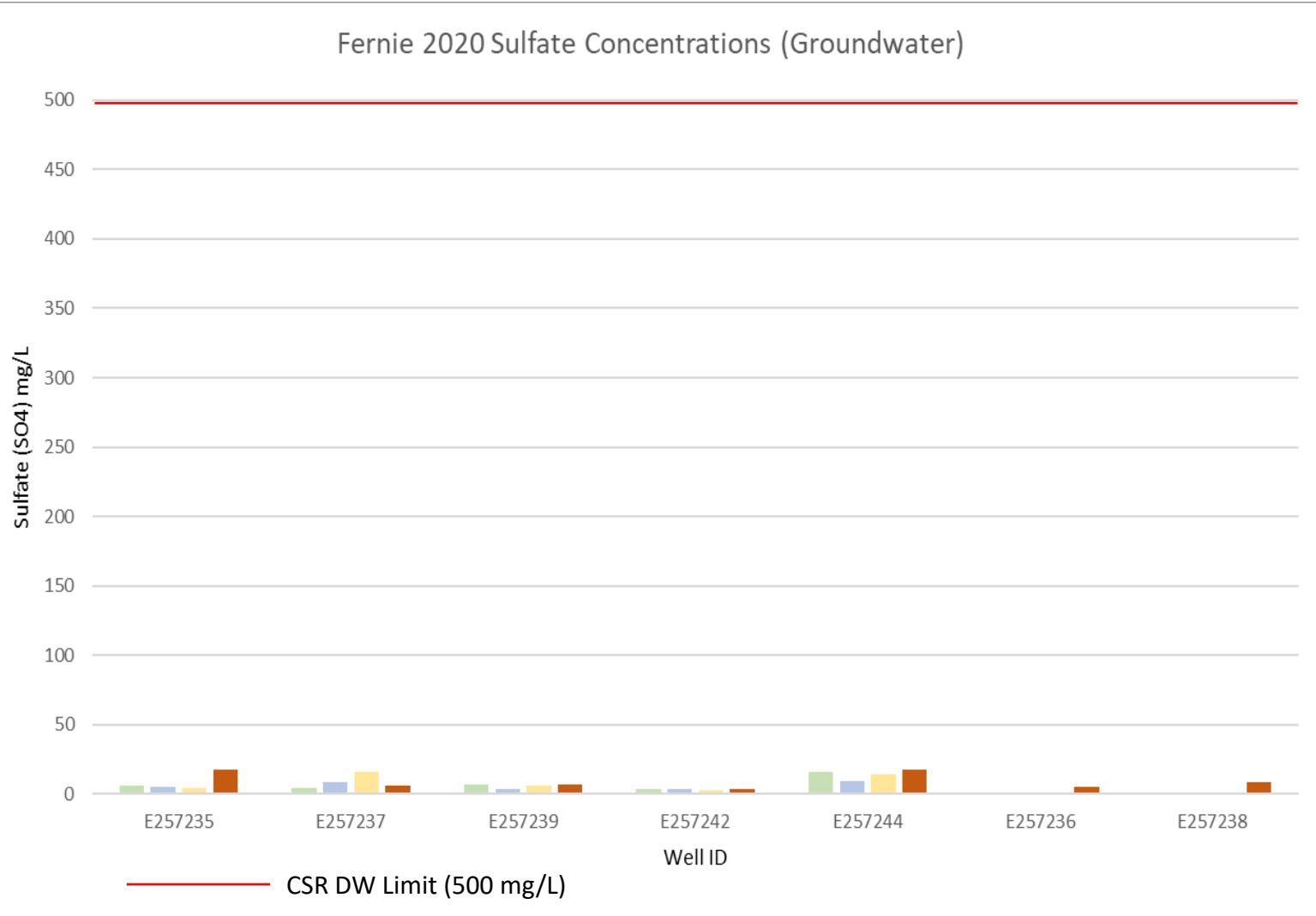
DRAWN

CH

CHECKED

SG

DRAWING NO:
Figure 2

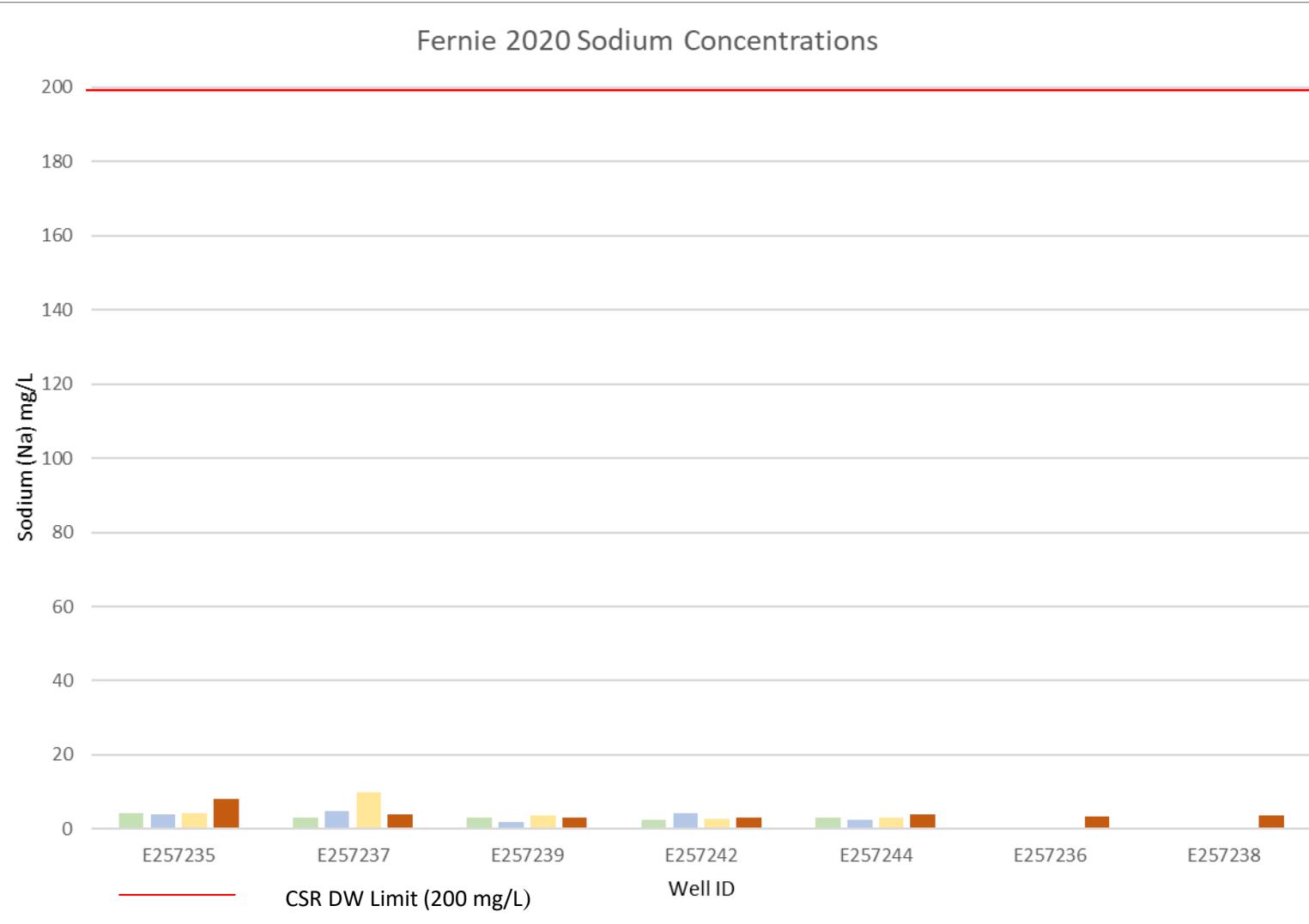


PROJECT:
**SOLID WASTE FACILITY
MONITORING
PROGRAM 2020-2025**

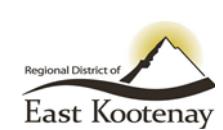
TITLE:
2020 Sulfate Concentrations

| | | |
|---------------|-----------------------------------|-----------------------------|
| SCALE: N/A | DATE: 28/01/2021 yyyy/mm/dd | PROJECT NO: 20050 |
| DESIGNED | | DRAWING NO: |
| DRAWN | CH | |
| CHECKED | SG | |

Figure 3



SPERLING
HANSEN
ASSOCIATES



Regional District of
East Kootenay

PROJECT:

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

TITLE:

2020 Sodium Concentrations

SCALE:

N/A

DATE:

28/01/2021
yyyy/mm/dd

PROJECT NO:

20050

DESIGNED

-

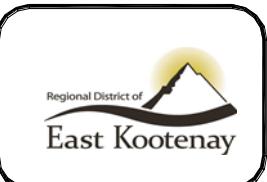
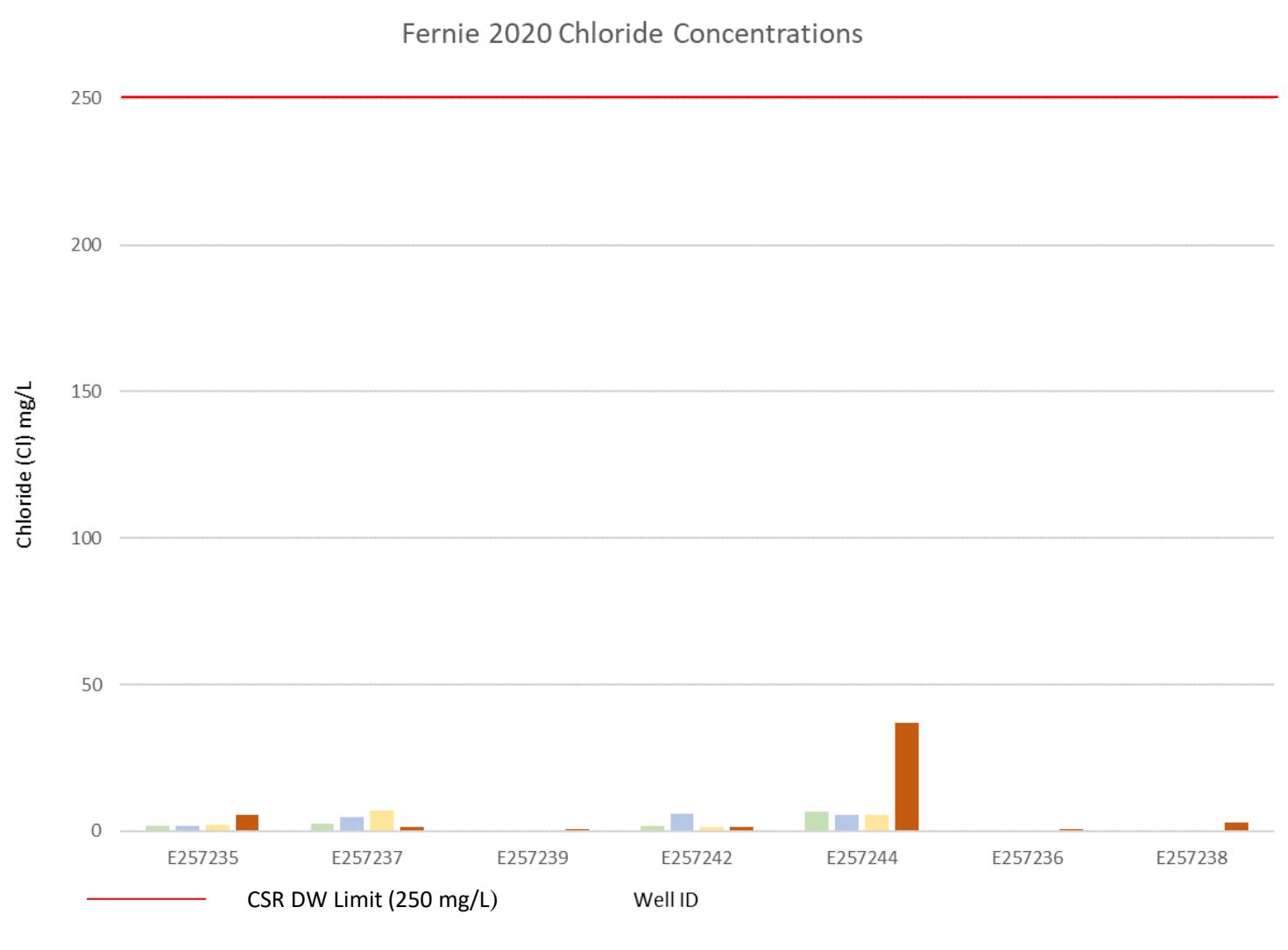
DRAWN

CH

CHECKED

CC

Figure 4

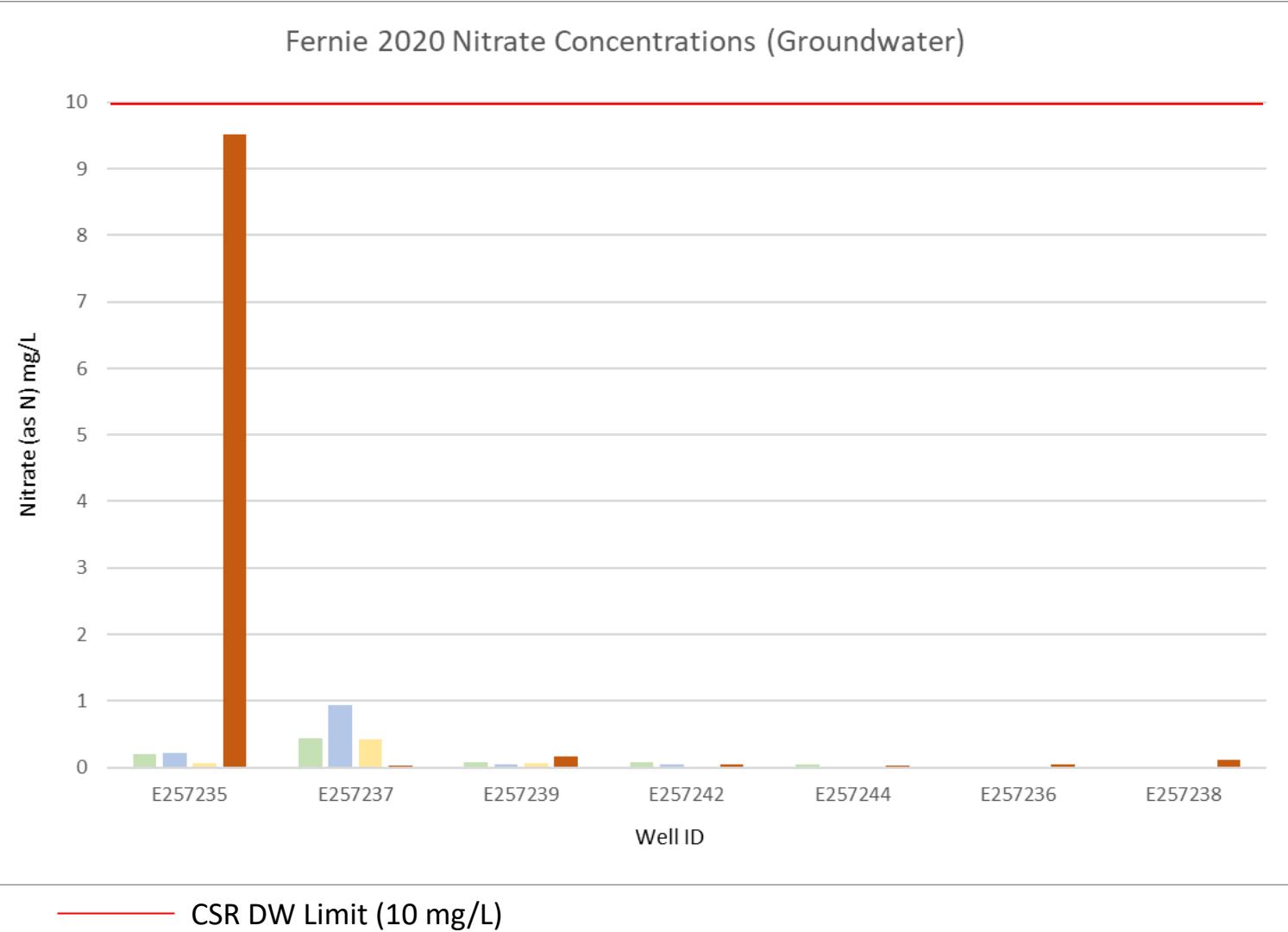


PROJECT:
**SOLID WASTE FACILITY
MONITORING
PROGRAM 2020-2025**

TITLE:
2020 Chloride Concentrations

| | | |
|---------------|-----------------------------------|-----------------------------|
| SCALE: N/A | DATE: 28/01/2021 yyyy/mm/dd | PROJECT NO: 20050 |
| DESIGNED | | DRAWING NO: |
| DRAWN | CH | |
| CHECKED | SG | |

Figure 5



SPERLING
HANSEN
ASSOCIATES



PROJECT:

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

TITLE:

2020 Nitrate Concentrations

SCALE:

N/A

DATE:

28/01/2021

yyyy/mm/dd

PROJECT NO:

20050

DESIGNED

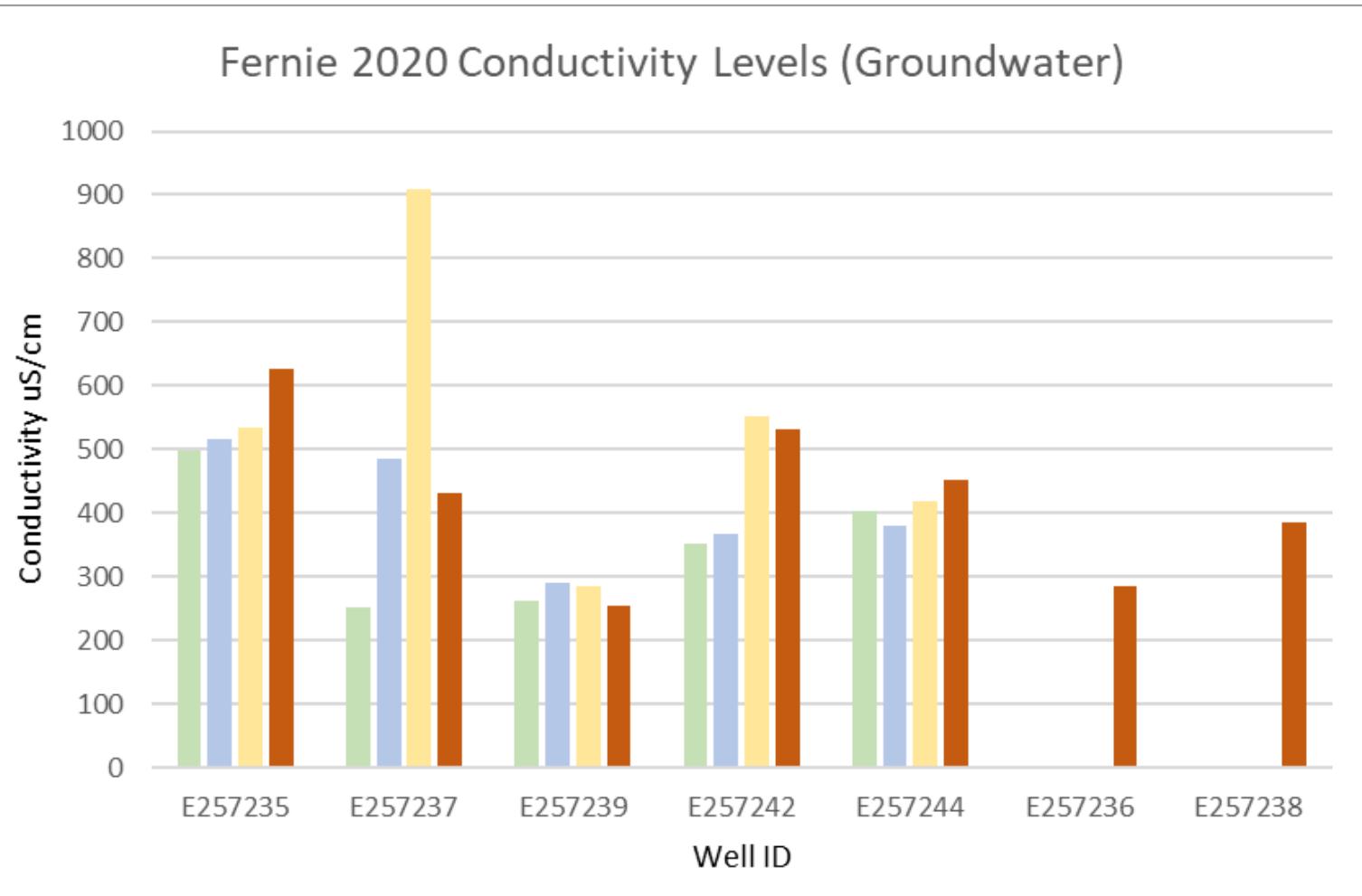
DRAWN

CH

CHECKED

SG

DRAWING NO:
Figure 6



SPERLING
HANSEN
ASSOCIATES



Regional District of
East Kootenay

PROJECT:

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

TITLE:

2020 Conductivity

SCALE:

N/A

DATE:

28/01/2021

yyyy/mm/dd

PROJECT NO:

20050

DESIGNED

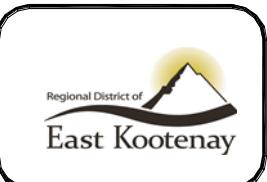
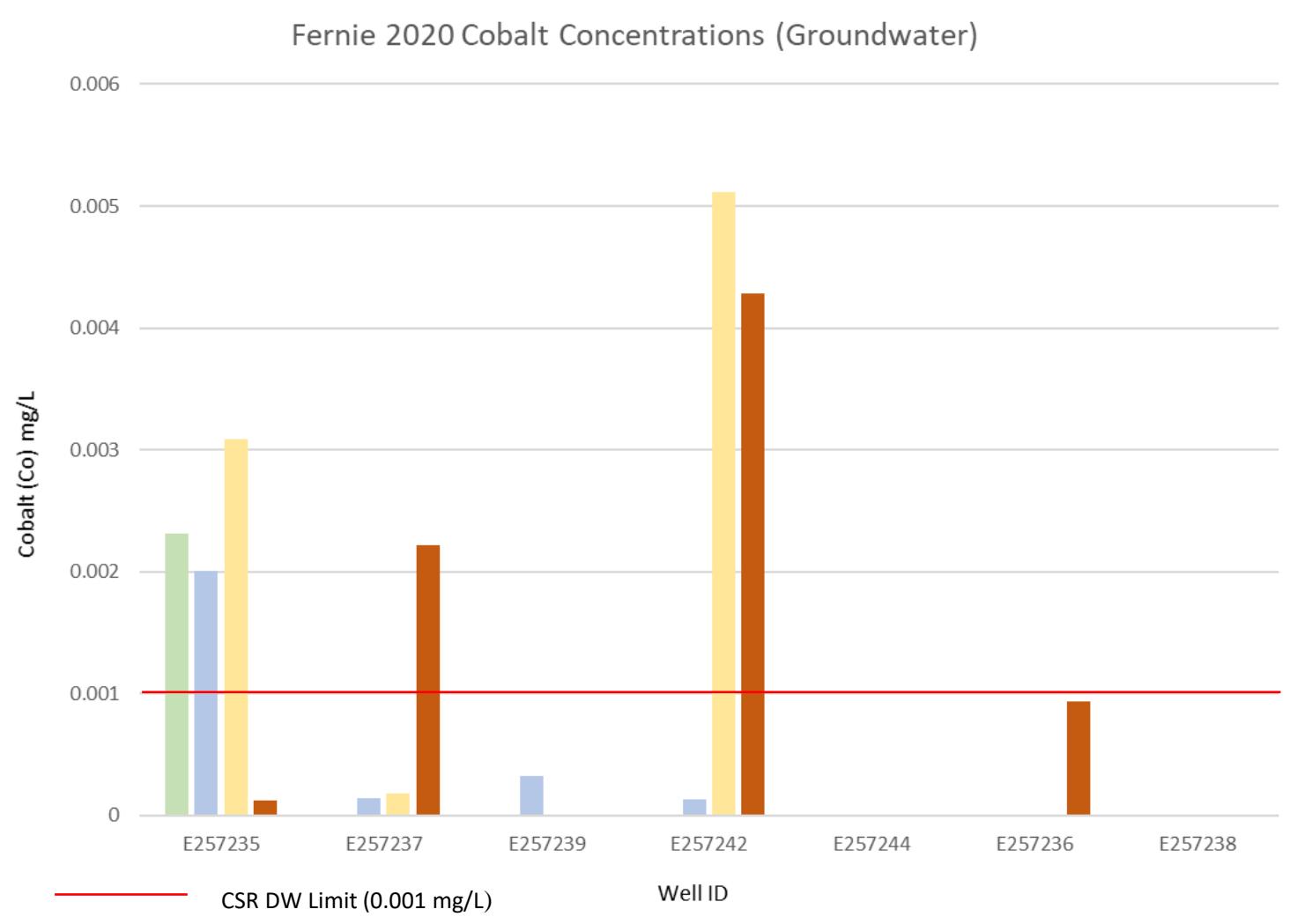
DRAWN

CH

CHECKED

SG

DRAWING NO:
Figure 7

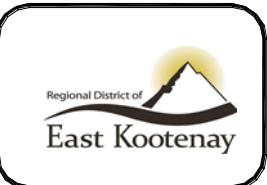
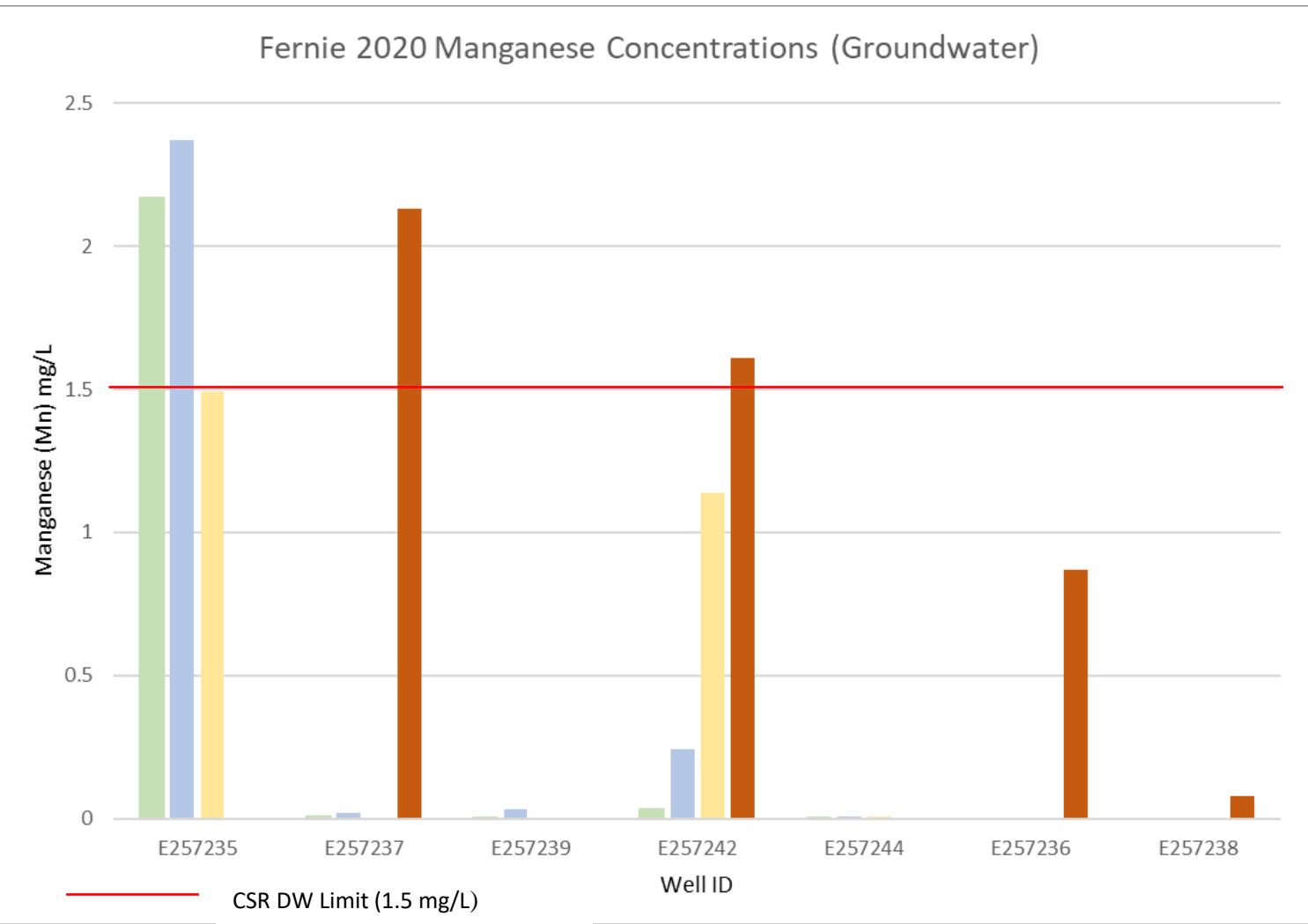


PROJECT:
**SOLID WASTE FACILITY
MONITORING
PROGRAM 2020-2025**

TITLE:
2020 Cobalt Concentration

| | | |
|---------------|-----------------------------------|-----------------------------|
| SCALE: N/A | DATE: 28/01/2021 yyyy/mm/dd | PROJECT NO: 20050 |
| DESIGNED | | DRAWING NO: |
| DRAWN | CH | |
| CHECKED | SG | |

Figure 8



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

TITLE:
2020 Manganese Concentration

| | | |
|---------------|-----------------------------------|-----------------------------|
| SCALE: N/A | DATE: 28/01/2021 yyyy/mm/dd | PROJECT NO: 20050 |
| DESIGNED | | DRAWING NO: |
| DRAWN | CH | |
| CHECKED | SG | |

Figure 9

| Table A-1. | | CSR-AW 2019 (2) | CSR-DW 2019 (2) | Q1 | | | | | | Q2 | | | | | | Q3 | | | | | | Q4 | | | | | | | | | |
|----------------------------------------------|---------------|--------------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---------|---------|-------|--|
| | | | | Jan-20 | | | Apr-20 | | | Jul-20 | | | Oct-20 | | | Jan-20 | | | Apr-20 | | | Jul-20 | | | Oct-20 | | | | | | |
| VA20A0156-001 | VA20A0156-002 | VA20A0156-003 | VA20A0156-004 | VA20A0156-005 | VA20A4306-001 | VA20A4306-002 | VA20A4306-003 | VA20A4306-004 | VA20A4306-005 | L2480410-1 | L2480410-2 | L2480410-3 | L2480410-4 | L2480410-5 | L2480410-6 | L2621316-5 | L2621316-6 | L2621316-7 | L2621316-8 | | | | |
| 05-Jan-20 | 05-Jan-20 | 05-Jan-20 | 05-Jan-20 | 05-Jan-20 | 05-Jan-20 | 05-Jan-20 | 05-Jan-20 | 05-Jan-20 | 1-Apr-20 | 1-Apr-20 | 1-Apr-20 | 1-Apr-20 | 1-Apr-20 | 1-Apr-20 | 7/22/2020 | 7/22/2020 | 7/22/2020 | 7/22/2020 | 7/22/2020 | 7/22/2020 | 7/22/2020 | 7/22/2020 | 7/22/2020 | 7/22/2020 | 7/22/2020 | 7/22/2020 | | | | | |
| Analyte | Units | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | Ferric | | | | |
| Site | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hardness (as CaCO ₃) | mg/L | - | - | 260 | 116 | 132 | 178 | 210 | - | 270 | 248 | 148 | 184 | 194 | - | 293 | 511 | 150 | 319 | 229 | - | 340 | 229 | 139 | 309 | 215 | 167 | 228 | | | |
| Total Suspended Solids | mg/L | - | - | 12.7 | 4.3 | 5.9 | <3.0 | - | - | 3.8 | 5.2 | 37.5 | <3.0 | 8 | - | - | 291 | 498 | 146 | 329 | 205 | - | 19.4 | 120 | 108 | 1120 | 67.2 | 98.2 | | | |
| Ammonia N (as N-a) | mg/L | - | - | 27 | 123 | 143 | 124 | 24 | - | 27 | 123 | 151 | 151 | 151 | - | 281 | 498 | 146 | 329 | 205 | - | 19.4 | 120 | 108 | 1120 | 67.2 | 98.2 | | | | |
| Bicarbonate (HCO ₃ ⁻) | mg/L | - | - | 0.284 | <0.0050 | 0.01 | <0.0050 | 0.0063 | - | - | 0.238 | 0.0309 | 0.0074 | 0.013 | <0.0050 | - | - | 0.489* | 0.499* | 0.095 | 0.101 | 0.092 | - | 0.010 | 0.380 | 0.0139 | 0.0225 | 0.147 | 0.0247 | | |
| Carbonate (CO ₃ ²⁻) | mg/L | - | - | 1.31-18.4 | - | - | - | - | - | - | - | - | - | - | - | - | 351 | 605 | 178 | 370 | 250 | - | 422 | 326 | 180 | 419 | 224 | 215 | 303 | | |
| Dissolve (F) | mg/L | - | - | 1.500 | 250 | 183 | 2.51 | <0.50 | 1.64 | 6.56 | - | 1.94 | 4.73 | <0.50 | 5.99 | <0.46 | - | 517 | 485 | 291 | 366 | 533 | - | 627 | 431 | 532 | 451 | 284 | 384 | | |
| Conductivity (EC) | uS/cm | - | - | 499 | 261 | 353 | 404 | - | - | - | - | - | - | - | - | - | 534 | 910 | 288 | 553 | 418 | - | - | - | - | - | - | - | - | | |
| Fluoride (F) | mg/L | 2.0-3.0 | 1.5 | 0.042 | 0.084 | 0.063 | 0.055 | 0.059 | - | - | 0.048 | 0.055 | 0.048 | 0.071 | - | - | 0.032 | 0.042 | 0.042 | 0.031 | 0.064 | - | 0.041 | 0.036 | 0.046 | 0.038 | 0.043 | 0.037 | | | |
| Hydroxide (OH ⁻) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Nitrate (as N) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Nitrite-Dissolved (as N) | mg/L | 400 | 10 | 0.191 | 0.448 | 0.0765 | 0.0748 | 0.0518 | - | - | - | 0.218 | 0.944 | 0.0433 | 0.039 | 0.0173 | - | - | 0.0549 | 0.418 | 0.0581 | 0.0161 | 0.0126 | - | 8.52 | 0.0238 | 0.170 | 0.0492 | 0.0241 | 0.108 | |
| Nitrite-N | mg/L | 0.2-2 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.0146 | 0.0109 | <0.0010 | 0.0010 | 0.0010 | - | 0.0107 | 0.0047 | <0.0010 | 0.0011 | 0.0011 | <0.0010 | | | |
| Orthophosphate-Dissolved (as P) | mg/L | - | - | 8.02 | 7.75 | 7.95 | 7.75 | 7.73 | - | - | 7.56 | 7.42 | 7.72 | 7.76 | - | - | 7.59 | 7.78 | 7.76 | 7.78 | 7.78 | - | 8.03 | 7.76 | 7.75 | 7.88 | 7.80 | 8.16 | | | |
| Phosphorus (P)-Total | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | |
| Sulfate (SO ₄) | mg/L | 1,280-4,290 | 500 | 6.14 | 4.89 | 7.26 | 1.92 | 16.3 | - | - | 5.4 | 3.29 | 3.37 | 3.32 | 3.16 | - | 4.17 | 16.1 | 6.47 | 2.58 | 14.5 | - | 17.7 | 5.7 | 7.00 | 3.42 | 17.9 | 5.65 | 8.83 | | |
| Total Organic Carbon | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.9 | 5.76 | 17.7 | 4.62 | 17.2* | - | 3.43 | 17.8 | 42 | 5.20 | 32 | 3.5 | 2.8 | | |
| Turbidity (NTU) | NTU | - | - | 44.5 | 33.3 | 10.2 | 10.2 | 5.7 | - | - | - | 1.97 | 5.7 | 1.78 | 1.73 | - | - | - | - | - | - | - | - | - | - | - | - | - | | | |
| Biochemical Oxygen Demand | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <20 | <20 | <20 | <20 | <20 | - | - | - | - | - | - | - | - | - | |
| Chemical Oxygen Demand | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2.2 | <2.0 | <2.0 | <2.0 | <2.0 | - | - | - | - | - | - | - | - | - | |
| MPN - Total | MPN/100mL | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 31 | 16 | 35 | 17 | 46 | - | - | <10 | 61 | 155 | 16 | 87 | 16 | 25 | |
| Coliform Bacteria - Fecal | CFU/100mL | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| MPN - Total Coliform | MPN/100mL | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| Dissolved Metals | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Antimony (Sb)-Dissolved | mg/L | - | 9.5 | <0.0010 | 0.046 | 0.0047 | 0.0012 | 0.0078 | - | - | 0.039 | 0.45 | 0.0197 | 0.0987 | - | - | 0.0047 | 0.0106 | 0.0023 | 0.0017 | 0.0010 | - | 0.0032 | 0.0066 | 0.0038 | 0.0046 | 0.0015 | 0.0054 | <0.0010 | | |
| Arsenic (As)-Dissolved | mg/L | 0.09 | 0.006 | <0.0010 | 0.00017 | 0.00028 | <0.0010 | 0.00015 | 0.00013 | - | 0.00010 | 0.00016 | 0.00015 | 0.00013 | <0.0010 | - | 0.00018 | 0.00013 | 0.00013 | 0.00013 | <0.0010 | - | 0.00018 | 0.00013 | 0.00013 | 0.00013 | <0.0010 | <0.0010 | <0.0010 | | |
| Barium (Ba)-Dissolved | mg/L | 0.05 | 0.01 | 0.0027 | 0.0002 | 0.00018 | 0.00011 | <0.0010 | - | - | 0.0044 | 0.00049 | 0.00025 | 0.00014 | - | - | 0.00518 | | | | | | | | | | | | | | |

Table A-2.

| Analyte | Units | BCWQG-AW 2019 (1) | | BCWQG-DW 2019 (1) | | Q1 | | Q2 | | BCWQG-AW | | BCWQG-AW | | BCWQG-AW | | Oct-20 | | Jul-20 | | | | | | |
|-------------------------------------------|-----------|---------------------------------------------------------|---------------------------------------------|----------------------|---------|---------------|---------------|---------------|---------------|---------------|------------|------------|------------|------------|----------------|------------|------------|----------------------------|------------|------------|------------|------------|------------|---|
| | | | | | | E257245 | E257245 | E257247 | E257250 | E257252 | E257245 | E257246 | E257247 | E257250 | E257245 | E257246 | E257247 | E257250 | BCWQG-AW | BCWQG-AW | BCWQG-AW | BCWQG-AW | | |
| | | | | | | VA20A0156-006 | VA20A4306-006 | VA20A4306-007 | VA20A4306-008 | VA20A4306-009 | L2480410-6 | L2480410-7 | L2480410-8 | L2480410-9 | L2521318-1 | L2521318-3 | L2521319-1 | L2521319-2 | E257245 | E257246 | E257247 | E257250 | | |
| | | | | | | 05-Jan-20 | 1-Apr-20 | 1-Apr-20 | 1-Apr-20 | 1-Apr-20 | 7/22/2020 | 7/22/2020 | 7/22/2020 | 7/22/2020 | 21/10/2020 | 21/10/2020 | 22/10/2020 | 23/10/2020 | 24/10/2020 | 21/10/2020 | 22/10/2020 | 23/10/2020 | 24/10/2020 | |
| Hardness (as CaCO ₃) | mg/L | - | <3.0 | <3.0 | <3.0 | 90 | 102 | 104 | 92 | 64.8 | 88.5 | 92.7 | 75.3 | 176 | No water flow. | 110 | 87.6 | No water flow, not sampled | - | <1.0 | 2.6 | - | - | |
| Total Suspended Solids | mg/L | 25 mg/L (backgr. 25-250 mg/L) (i) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Alkalinity, Total (as CaCO ₃) | mg/L | - | 93.9 | 104 | 109 | 95.1 | 65.6 | 92.4 | 96.5 | 77.4 | 187 | - | - | - | - | - | - | - | - | - | - | - | - | |
| Ammonia as N | mg/L | 1.3-18.4 (a) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | 0.0406 | 0.0216 | 0.0411 | 0.0242 | - | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | - | |
| Bicarbonate (HCO ₃) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Carbonate (CO ₃) | mg/L | - | - | - | - | - | - | - | - | - | <5.0 | <5.0 | 6.6 | - | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | - | |
| Chloride (Cl) | mg/L | 600 mg/L total Cl | 250mg/L | <0.50 | <0.50 | 0.56 | 0.63 | <0.50 | 0.11 | 0.35 | 0.12 | 0.54 | - | 0.80 | 0.56 | - | - | - | - | - | - | - | - | |
| Conductivity (EC) | µS/cm | - | 182 | 200 | 204 | 174 | 128 | 182 | 191 | 153 | 338 | - | 209 | 166 | - | - | - | - | - | - | - | - | - | |
| Fluoride (F) (d) | mg/L | 0.7-1.9 (d) | 1.5mg/L instant max, 1.0mg/L 30 day average | 0.075 | 0.075 | 0.072 | 0.041 | 0.039 | 0.033 | 0.043 | 0.045 | 0.039 | - | 0.051 | 0.055 | - | - | - | - | - | - | - | - | |
| Hydroxide (OH) | mg/L | - | - | - | - | - | - | - | - | <5.0 | <5.0 | <5.0 | - | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | - | |
| Nitrate and Nitrite (as N) | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Nitrite (as N) * | mg/L | 32.8 | 45mg/L | 0.0784 | 0.0242 | 0.0072 | 0.0085 | 0.006 | 0.0199 | 0.0108 | 0.0054 | <0.0050 | - | 0.0057 | 0.0066 | - | - | - | - | - | - | - | - | |
| pH | - | 0.06-0.6 (h) | 3mgL | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Orthophosphate-Dissolved (as P) | mg/L | 6.5-9.0 | 7-10.5 | 8.08 | 8.08 | 8.1 | 8.01 | 7.82 | 8.17 | 8.05 | 8.07 | 8.41 | - | 8.16 | 8.15 | - | - | - | - | - | - | - | - | |
| Phosphorus (P)-Total | mg/L | - | - | - | - | 0.0059 | 0.004 | 0.0149 | 0.0091 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Sulfate (SO ₄) | mg/L | 128-429 (d) | 500mgL | 6.4 | 8.48 | 8.06 | 2.38 | 3.39 | 3.29 | 3.61 | 3.92 | 2.89 | - | 5.16 | 5.04 | - | - | - | - | - | - | - | - | |
| Total Organic Carbon | mg/L | Total: Long-term median within 20% of background median | - | - | - | 2.47 | 2.51 | 8 | 5.95 | 3.12 | 2.91 | 2.79 | 5.17 | - | 1.58 | 2.38 | - | - | - | - | - | - | - | |
| Turbidity | NTU | - | 1 NTU | 0.58 | 4.51 | 3.44 | 37.6 | 22.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Biochemical Oxygen Demand | mg/L | - | - | - | - | - | - | - | - | - | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | - | |
| Chemical Oxygen Demand | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| MPN - E. Coli | MPN/100mL | - | No Detectable Amount | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Coliform Bacteria - Fecal | CFU/100mL | - | No Detectable Amount | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| MPN - Total Coliforms | MPN/100mL | - | No Detectable Amount | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Total Metals | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum (Al)-Total | mg/L | 0.1 dissolved | 9.5 | - | - | - | - | - | - | 0.0705 | 0.0208 | 0.0197 | 0.461 | - | 0.0065 | 0.0121 | - | - | - | - | - | - | - | - |
| Antimony (Sb)-Total | mg/L | 0.009 | 0.006 MAC | - | - | - | - | - | - | 0.00015 | 0.00018 | 0.00017 | - | 0.00010 | 0.00010 | - | - | - | - | - | - | - | - | - |
| Arsenic (As)-Total | mg/L | 0.005 | 0.01 MAC | - | - | - | - | - | - | 0.0002 | 0.0002 | 0.00021 | 0.00021 | - | 0.00022 | 0.00020 | - | - | - | - | - | - | - | - |
| Barium (Ba)-Total | mg/L | 1.0 | - | - | - | - | - | - | - | 0.136 | 0.14 | 0.124 | - | 0.05 | 0.047 | - | - | - | - | - | - | - | - | - |
| Beryllium (Be)-Total | mg/L | 0.00013 | - | - | - | - | - | - | - | <0.00020 | <0.00020 | <0.00020 | <0.00020 | - | <0.00020 | <0.00020 | - | - | - | - | - | - | - | |
| Bismuth (Bi)-Total | mg/L | - | - | - | - | - | - | - | - | 0.00050 | <0.00050 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | - | - | - | - | - | - | - | |
| Boron (B)-Total | mg/L | 1.2 | 5 MAC | - | - | - | - | - | - | <0.010 | <0.010 | 0.013 | - | <0.010 | <0.010 | - | - | - | - | - | - | - | - | |
| Cadmium (Cd)-Total | mg/L | 0.00003-0.0028 (c, d, f) dissolved | 0.005 MAC | - | - | - | - | - | - | 0.000123 | 0.000521 | 0.000421 | 0.000987 | - | 0.000384 | 0.000324 | - | - | - | - | - | - | - | - |
| Calcium (Ca)-Total | mg/L | - | - | - | - | - | - | - | - | 29.8 | 28.1 | 22 | 57.4 | - | 32.9 | 24.7 | - | - | - | - | - | - | - | - |
| Chromium (Cr)-Total | mg/L | 0.001 (e) | 0.05 MAC | - | - | - | - | - | - | <0.00010 | <0.00010 | <0.00053 | - | <0.00010 | | | | | | | | | | |

APPENDICES

APPENDIX A
Water Quality Analysis

Results Summary VA20A0156

Project

FERNIE

Report To

Ron Mickel, Eco/Logic Environmental

| Client Sample ID | | BCE STANDARDS | | E257235 | E257237 | E257239 | E257242 | E257244 | E257245 |
|---------------------------------------------|----------|---------------|-----------|---------------|---------------|---------------|---------------|---------------|---------------|
| Date Sampled | | DRINKING | AQUATIC | 05-Jan-20 | 05-Jan-20 | 05-Jan-20 | 05-Jan-20 | 05-Jan-20 | 05-Jan-20 |
| ALS Sample ID | | | | VA20A0156-001 | VA20A0156-002 | VA20A0156-003 | VA20A0156-004 | VA20A0156-005 | VA20A0156-006 |
| | Units | | | | | | | | |
| Physical Tests (Matrix: Water) | | | | | | | | | |
| alkalinity, total (as CaCO ₃) | mg/L | na | na | 275 | 129 | 143 | 214 | 218 | 93.9 |
| conductivity | µS/cm | 700 | na | 499 | 252 | 261 | 353 | 404 | 182 |
| hardness (as CaCO ₃), dissolved | mg/L | 500 | na | 260 | 116 | 132 | 178 | 210 | 90.0 |
| pH | pH units | 6.5-8.5 | 6.5-9 | 8.02 | 7.75 | 7.95 | 7.75 | 7.73 | 8.08 |
| solids, total suspended [TSS] | mg/L | na | na | 12.7 | 4.3 | 18.3 | 5.9 | <3.0 | <3.0 |
| turbidity | NTU | na | na | 44.5 | 33.3 | 10.2 | 10.2 | 57.7 | 0.58 |
| | | | | | | | | | |
| Anions and Nutrients (Matrix: Water) | | | | | | | | | |
| ammonia, total (as N) | mg/L | na | 0.75-27.7 | 0.284 | <0.0050 | 0.0100 | <0.0050 | 0.0063 | <0.0050 |
| chloride | mg/L | 250 | na | 1.83 | 2.51 | <0.50 | 1.64 | 6.56 | <0.50 |
| fluoride | mg/L | 1.5 | na | 0.042 | 0.084 | 0.063 | 0.055 | 0.099 | 0.075 |
| nitrate (as N) | mg/L | 10 | 200 | 0.191 | 0.446 | 0.0765 | 0.0748 | 0.0516 | 0.0784 |
| sulfate (as SO ₄) | mg/L | 500 | 100 | 6.14 | 4.89 | 7.26 | 3.92 | 16.3 | 6.40 |

| Dissolved Metals (Matrix: Water) | | DRINKING | AQUATIC | E257235 | E257237 | E257239 | E257242 | E257244 | E257245 |
|----------------------------------|------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|
| aluminum, dissolved | mg/L | 0.2 | 0.1 | <0.0010 | 0.0446 | 0.0047 | 0.0012 | 0.0078 | 0.0078 |
| antimony, dissolved | mg/L | 0.006 | na | <0.00010 | 0.00017 | <0.00010 | 0.00028 | <0.00010 | 0.00012 |
| arsenic, dissolved | mg/L | 0.025 | 0.005 | 0.00027 | 0.00020 | 0.00016 | 0.00011 | <0.00010 | 0.00013 |
| barium, dissolved | mg/L | 1 | na | 0.655 | 0.0613 | 0.138 | 0.273 | 0.0947 | 0.285 |
| beryllium, dissolved | mg/L | na | na | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 |
| bismuth, dissolved | mg/L | na | na | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| boron, dissolved | mg/L | 5 | 0.12 | 0.035 | 0.046 | 0.017 | 0.028 | 0.027 | <0.010 |
| cadmium, dissolved | mg/L | 0.005 | 0.2 | 0.0000541 | 0.0000396 | 0.0000170 | 0.000168 | 0.0000565 | 0.0000300 |
| calcium, dissolved | mg/L | na | na | 86.1 | 37.8 | 43.5 | 59.6 | 61.0 | 25.7 |
| cesium, dissolved | mg/L | na | na | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| chromium, dissolved | mg/L | na | 1 | <0.00010 | 0.00030 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| cobalt, dissolved | mg/L | na | na | 0.00231 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| copper, dissolved | mg/L | 5 | 0.09 | 0.00046 | 0.00157 | 0.00052 | 0.00065 | 0.00032 | 0.00047 |
| iron, dissolved | mg/L | 0.03 | na | <0.010 | 0.056 | <0.010 | <0.010 | <0.010 | <0.010 |
| lead, dissolved | mg/L | 0.01 | 3 | <0.000050 | 0.000103 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| lithium, dissolved | mg/L | na | na | 0.0058 | 0.0018 | 0.0082 | 0.0035 | 0.0118 | 0.0130 |
| magnesium, dissolved | mg/L | na | na | 11.0 | 5.30 | 5.57 | 7.06 | 13.9 | 6.28 |
| manganese, dissolved | mg/L | 0.05 | na | 2.17 | 0.00608 | 0.00039 | 0.0318 | 0.00057 | 0.00032 |

| | | | | | | | | | |
|-----------------------|------|-------|--------|------------|------------|------------|------------|------------|------------|
| mercury, dissolved | mg/L | 0.001 | 0.0006 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| molybdenum, dissolved | mg/L | 0.25 | 2 | 0.00115 | 0.000276 | 0.000647 | 0.000133 | 0.000277 | 0.000480 |
| nickel, dissolved | mg/L | 0.025 | na | 0.00395 | 0.00051 | <0.00050 | 0.00091 | <0.00050 | <0.00050 |
| phosphorus, dissolved | mg/L | na | na | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| potassium, dissolved | mg/L | na | na | 1.95 | 3.62 | 0.654 | 1.24 | 0.648 | 0.540 |
| rubidium, dissolved | mg/L | na | na | 0.00099 | 0.00057 | 0.00026 | 0.00042 | 0.00033 | 0.00025 |
| selenium, dissolved | mg/L | 0.01 | na | <0.000050 | 0.000221 | 0.000185 | 0.000062 | 0.000778 | 0.000695 |
| silicon, dissolved | mg/L | na | na | 4.81 | 2.30 | 3.18 | 3.22 | 3.57 | 1.90 |
| silver, dissolved | mg/L | na | na | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000015 |
| sodium, dissolved | mg/L | 200 | na | 4.17 | 3.10 | 3.17 | 2.59 | 3.10 | 2.85 |
| strontium, dissolved | mg/L | na | na | 0.279 | 0.126 | 0.341 | 0.207 | 0.346 | 0.0940 |
| sulfur, dissolved | mg/L | 500 | na | 1.98 | 1.63 | 2.49 | 1.23 | 5.52 | 2.21 |
| tellurium, dissolved | mg/L | na | na | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |
| thallium, dissolved | mg/L | na | na | 0.000070 | <0.000010 | <0.000010 | 0.000017 | <0.000010 | <0.000010 |
| thorium, dissolved | mg/L | na | na | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| tin, dissolved | mg/L | na | na | <0.00010 | <0.00010 | 0.00011 | <0.00010 | <0.00010 | <0.00010 |
| titanium, dissolved | mg/L | na | na | <0.00030 | 0.00577 | <0.00030 | <0.00030 | 0.00081 | <0.00030 |
| tungsten, dissolved | mg/L | na | na | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| uranium, dissolved | mg/L | 0.015 | na | 0.000522 | 0.000231 | 0.000139 | 0.000392 | 0.000251 | 0.000194 |
| vanadium, dissolved | mg/L | na | na | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| zinc, dissolved | mg/L | na | 0.03 | 0.0023 | 0.0017 | <0.0010 | 0.0018 | <0.0010 | <0.0010 |
| zirconium, dissolved | mg/L | na | na | <0.00020 | 0.00035 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |

Results Summary VA20A4306

Project FERNIE
Report To Eco/Logic Environmental
Date Received 02-Apr-2020 08:25

| Client Sample ID | | BCE STANDARDS | | E257235 | E257237 | E257239 | E257242 | E257244 | E257245 | E257247 | E257250 | E257252 |
|-------------------------------------------|----------|---------------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Date Sampled | | DRINKING | AQUATIC | 1-Apr-20 |
| Time Sampled | | | | 08:00 | 08:30 | 09:00 | 09:30 | 10:00 | 10:30 | 11:30 | 13:00 | 13:30 |
| Physical Tests | | | | | | | | | | | | |
| alkalinity, total (as CaCO3) | mg/L | na | na | 292 | 253 | 160 | 191 | 198 | 104 | 109 | 95.1 | 65.6 |
| conductivity | µS/cm | 700 | na | 517 | 485 | 291 | 366 | 380 | 200 | 204 | 174 | 128 |
| hardness (as CaCO3), dissolved | mg/L | 500 | na | 270 | 248 | 148 | 184 | 194 | 102 | 104 | 92.0 | 64.8 |
| pH | pH units | 6.5-8.5 | 6.5-9 | 7.56 | 7.42 | 7.72 | 7.59 | 7.76 | 8.08 | 8.10 | 8.01 | 7.82 |
| solids, total suspended [TSS] | mg/L | na | na | 3.8 | 5.2 | 37.8 | <3.0 | 8.0 | <3.0 | <3.0 | 18.6 | 3.0 |
| turbidity | NTU | na | na | 1.97 | 5.70 | 26.3 | 1.78 | 6.74 | 4.51 | 3.44 | 37.6 | 22.2 |
| Anions and Nutrients | | | | | | | | | | | | |
| ammonia, total (as N) | mg/L | na | 0.75-27.7 | 0.238 | 0.0309 | 0.0074 | 0.0130 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| chloride | mg/L | 250 | na | 1.94 | 4.73 | <0.50 | 5.99 | 5.46 | <0.50 | 0.56 | 0.63 | <0.50 |
| fluoride | mg/L | 1.5 | na | 0.048 | 0.055 | 0.048 | 0.048 | 0.071 | 0.075 | 0.072 | 0.041 | 0.039 |
| nitrate (as N) | mg/L | 10 | 200 | 0.218 | 0.944 | 0.0433 | 0.0390 | 0.0173 | 0.0242 | 0.0072 | 0.0085 | 0.0060 |
| phosphate, ortho-, dissolved (as P) | mg/L | na | na | <0.0010 | 0.0151 | 0.0072 | 0.0034 | 0.0100 | 0.0059 | 0.0040 | 0.0149 | 0.0091 |
| sulfate (as SO4) | mg/L | 500 | 100 | 5.40 | 8.29 | 3.37 | 3.32 | 9.16 | 8.48 | 8.06 | 2.38 | 3.39 |
| Organic / Inorganic Carbon | | | | | | | | | | | | |
| carbon, total organic [TOC] | mg/L | 4 | na | 1.65 | 2.77 | 2.26 | 1.49 | 1.56 | 2.47 | 2.51 | 8.00 | 5.95 |
| Aggregate Organics (Matrix: Water) | | | | | | | | | | | | |
| chemical oxygen demand [COD] | mg/L | na | na | <20 | <20 | <20 | <20 | <20 | <20 | <20 | 34 | 22 |

| Dissolved Metals | | DRINKING | AQUATIC | E257235 | E257237 | E257239 | E257242 | E257244 | E257245 | E257247 | E257250 | E257252 |
|----------------------|------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| aluminum, dissolved | mg/L | 0.2 | 0.1 | 0.0090 | 0.0939 | 0.450 | 0.0197 | 0.0997 | 0.152 | 0.139 | 0.772 | 2.14 |
| antimony, dissolved | mg/L | 0.006 | na | <0.00010 | 0.00016 | 0.00015 | 0.00013 | <0.00010 | 0.00011 | 0.00010 | <0.00010 | <0.00010 |
| arsenic, dissolved | mg/L | 0.025 | 0.005 | 0.00044 | 0.00016 | 0.00049 | 0.00022 | 0.00014 | 0.00020 | 0.00017 | 0.00039 | 0.00049 |
| barium, dissolved | mg/L | 1 | na | 0.745 | 0.135 | 0.257 | 0.300 | 0.0985 | 0.308 | 0.297 | 0.139 | 0.0944 |
| beryllium, dissolved | mg/L | na | na | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 | <0.000100 |
| bismuth, dissolved | mg/L | na | na | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| boron, dissolved | mg/L | 5 | 0.12 | 0.032 | 0.076 | 0.010 | 0.022 | 0.017 | 0.011 | 0.011 | <0.010 | <0.010 |
| cadmium, dissolved | mg/L | 0.005 | 0.2 | 0.000170 | 0.000119 | 0.000105 | 0.00115 | 0.0000979 | 0.0000421 | 0.0000416 | 0.0000546 | 0.0000170 |
| calcium, dissolved | mg/L | na | na | 88.6 | 81.0 | 49.4 | 61.5 | 56.4 | 28.6 | 29.9 | 30.0 | 21.1 |
| cesium, dissolved | mg/L | na | na | <0.000010 | 0.000019 | 0.000142 | <0.000010 | 0.000016 | 0.000024 | 0.000022 | 0.000084 | 0.000242 |

| | | | | | | | | | | | | |
|-----------------------|------|-------|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|
| chromium, dissolved | mg/L | na | 1 | <0.00010 | 0.00027 | 0.00056 | <0.00010 | 0.00014 | 0.00019 | 0.00017 | 0.00057 | 0.00182 |
| cobalt, dissolved | mg/L | na | na | 0.00201 | 0.00014 | 0.00032 | 0.00013 | <0.00010 | <0.00010 | <0.00010 | 0.00021 | 0.00020 |
| copper, dissolved | mg/L | 5 | 0.09 | 0.00089 | 0.00174 | 0.0188 | 0.00114 | 0.00093 | 0.00090 | 0.00045 | 0.00105 | 0.00109 |
| iron, dissolved | mg/L | 0.03 | na | 0.278 | 0.078 | 0.644 | 0.224 | 0.095 | 0.080 | 0.070 | 0.430 | 0.799 |
| lead, dissolved | mg/L | 0.01 | 3 | 0.000154 | 0.000290 | 0.000825 | 0.000110 | 0.000264 | 0.000107 | 0.000075 | 0.000505 | 0.000343 |
| lithium, dissolved | mg/L | na | na | 0.0053 | 0.0026 | 0.0049 | 0.0034 | 0.0075 | 0.0130 | 0.0122 | 0.0020 | 0.0024 |
| magnesium, dissolved | mg/L | na | na | 12.0 | 11.0 | 6.01 | 7.31 | 12.8 | 7.40 | 7.08 | 4.16 | 2.96 |
| manganese, dissolved | mg/L | 0.05 | na | 2.37 | 0.0200 | 0.0342 | 0.242 | 0.00675 | 0.00243 | 0.00249 | 0.0227 | 0.00894 |
| mercury, dissolved | mg/L | 0.001 | 0.0006 | <0.000050 | <0.000050 | 0.0000101 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000081 | 0.000072 |
| molybdenum, dissolved | mg/L | 0.25 | 2 | 0.000696 | 0.000136 | 0.000318 | 0.000132 | 0.000267 | 0.000541 | 0.000557 | 0.000348 | 0.000232 |
| nickel, dissolved | mg/L | 0.025 | na | 0.00435 | 0.00087 | 0.00087 | 0.00828 | <0.00050 | <0.00050 | <0.00050 | 0.00086 | 0.00093 |
| phosphorus, dissolved | mg/L | na | na | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| potassium, dissolved | mg/L | na | na | 1.97 | 5.47 | 0.670 | 1.19 | 0.658 | 0.650 | 0.644 | 0.934 | 1.16 |
| rubidium, dissolved | mg/L | na | na | 0.00096 | 0.00091 | 0.00094 | 0.00040 | 0.00038 | 0.00055 | 0.00050 | 0.00120 | 0.00374 |
| selenium, dissolved | mg/L | 0.01 | na | <0.000050 | 0.000175 | 0.000336 | 0.000051 | 0.000248 | 0.00101 | 0.000929 | 0.000101 | 0.000180 |
| silicon, dissolved | mg/L | na | na | 4.64 | 3.15 | 3.63 | 2.94 | 2.97 | 2.25 | 2.18 | 4.18 | 6.91 |
| silver, dissolved | mg/L | na | na | <0.000010 | 0.000010 | 0.000032 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000019 | 0.000017 |
| sodium, dissolved | mg/L | 200 | na | 4.02 | 4.95 | 1.93 | 4.27 | 2.54 | 2.50 | 2.37 | 1.23 | 0.968 |
| strontium, dissolved | mg/L | na | na | 0.306 | 0.285 | 0.297 | 0.225 | 0.273 | 0.110 | 0.116 | 0.118 | 0.0735 |
| sulfur, dissolved | mg/L | 500 | na | 2.21 | 3.33 | 1.50 | 1.48 | 3.45 | 3.13 | 2.88 | 1.10 | 1.36 |
| tellurium, dissolved | mg/L | na | na | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |
| thallium, dissolved | mg/L | na | na | 0.000052 | <0.000010 | 0.000011 | 0.000019 | <0.000010 | <0.000010 | <0.000010 | 0.000020 | 0.000035 |
| thorium, dissolved | mg/L | na | na | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00027 |
| tin, dissolved | mg/L | na | na | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| titanium, dissolved | mg/L | na | na | <0.00030 | 0.00200 | 0.00760 | <0.00030 | 0.00181 | 0.00365 | 0.00320 | 0.0145 | 0.0519 |
| tungsten, dissolved | mg/L | na | na | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| uranium, dissolved | mg/L | 0.015 | na | 0.000454 | 0.000711 | 0.000259 | 0.000372 | 0.000267 | 0.000232 | 0.000255 | 0.000138 | 0.000187 |
| vanadium, dissolved | mg/L | na | na | <0.00050 | <0.00050 | 0.00094 | <0.00050 | <0.00050 | 0.00057 | 0.00050 | 0.00139 | 0.00381 |
| zinc, dissolved | mg/L | na | 0.03 | 0.0044 | 0.0033 | 0.0040 | 0.0059 | 0.0024 | 0.0014 | <0.0010 | 0.0043 | 0.0038 |
| zirconium, dissolved | mg/L | na | na | <0.00020 | <0.00020 | 0.00023 | <0.00020 | <0.00020 | 0.00025 | 0.00020 | 0.00092 | 0.00323 |

Results Summary L2480410

Job Reference
 Report To
 Date Received
 Report Date
 Report Version

David Kvick, Sperling Hansen Associates Inc.
 28-Jul-2020 8:40
 6-Aug-2020 12:48
 1

| | | | | | | | | | | |
|------------------|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Client Sample ID | | E2572235 | E2572237 | E2572239 | E2572242 | E2572244 | E2572245 | E2572246 | E2572247 | E2572250 |
| Date Sampled | | 22-Jul-2020 |
| Time Sampled | | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |
| ALS Sample ID | | L2480410-1 | L2480410-2 | L2480410-3 | L2480410-4 | L2480410-5 | L2480410-6 | L2480410-7 | L2480410-8 | L2480410-9 |

| Parameter | Lowest Detection Limit | Units | Water |
|-----------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|-----------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|

Physical Tests (Water)

| | | | | | | | | | | | |
|----------------------------------|------|------|-----|-----|-----|-----|-----|------|------|------|-----|
| Hardness (as CaCO ₃) | 0.50 | mg/L | 293 | 511 | 150 | 319 | 229 | 88.5 | 92.7 | 75.3 | 176 |
|----------------------------------|------|------|-----|-----|-----|-----|-----|------|------|------|-----|

Anions and Nutrients (Water)

| | | | | | | | | | | | |
|-------------------------------------------|--------|-------|---------|--------|---------|---------|---------|---------|---------|---------|---------|
| Alkalinity, Total (as CaCO ₃) | 2.0 | mg/L | 287 | 496 | 146 | 303 | 205 | 92.4 | 96.5 | 77.4 | 187 |
| Ammonia as N | 0.0050 | mg/L | 0.469 | 0.499 | 0.0295 | 0.101 | 0.0262 | 0.0406 | 0.0216 | 0.0411 | 0.0242 |
| Bicarbonate (HCO ₃) | 5.0 | mg/L | 351 | 605 | <5.0 | 178 | 370 | 250 | 113 | 118 | 94.4 |
| Carbonate (CO ₃) | 5.0 | mg/L | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | 6.6 |
| Chloride (Cl) | 0.10 | mg/L | 2.26 | 7.01 | 0.18 | 1.23 | 5.45 | 0.11 | 0.35 | 0.12 | 0.54 |
| Conductivity (EC) | 2.0 | uS/cm | 534 | 910 | 286 | 553 | 418 | 182 | 191 | 153 | 338 |
| Fluoride (F) | 0.020 | mg/L | 0.032 | 0.042 | 0.042 | 0.031 | 0.064 | 0.033 | 0.043 | 0.045 | 0.039 |
| Hydroxide (OH) | 5.0 | mg/L | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| Nitrate (as N) | 0.0050 | mg/L | 0.0549 | 0.418 | 0.0581 | 0.0101 | 0.0126 | 0.0199 | 0.0108 | 0.0054 | <0.0050 |
| Nitrite (as N) | 0.0010 | mg/L | 0.0146 | 0.0109 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| pH | 0.10 | pH | 7.67 | 7.39 | 7.78 | 7.62 | 7.70 | 8.17 | 8.05 | 8.07 | 8.41 |
| Orthophosphate-Dissolved (as P) | 0.0010 | mg/L | <0.0010 | 0.0058 | 0.0080 | <0.0010 | 0.0089 | 0.0149 | 0.0097 | 0.0111 | 0.0176 |
| Sulfate (SO ₄) | 0.050 | mg/L | 4.17 | 16.1 | 6.47 | 2.58 | 14.5 | 3.29 | 3.61 | 3.92 | 2.89 |

Organic / Inorganic Carbon (Water)

| | | | | | | | | | | | |
|----------------------|------|------|-----|------|------|------|------|------|------|------|------|
| Total Organic Carbon | 0.50 | mg/L | 7.9 | 5.76 | 17.7 | 4.82 | 17.2 | 3.12 | 2.91 | 2.79 | 5.17 |
|----------------------|------|------|-----|------|------|------|------|------|------|------|------|

Total Metals (Water)

| | | | | | | | | | | | |
|-----------------------|-----------|------|--|--|--|--|--|-----------|-----------|-----------|-----------|
| Aluminum (Al)-Total | 0.0030 | mg/L | | | | | | 0.0705 | 0.0208 | 0.0197 | 0.461 |
| Antimony (Sb)-Total | 0.00010 | mg/L | | | | | | 0.00015 | 0.00018 | 0.00014 | 0.00017 |
| Arsenic (As)-Total | 0.00010 | mg/L | | | | | | 0.00020 | 0.00021 | 0.00020 | 0.00061 |
| Barium (Ba)-Total | 0.00010 | mg/L | | | | | | 0.136 | 0.216 | 0.201 | 0.214 |
| Beryllium (Be)-Total | 0.000020 | mg/L | | | | | | <0.000020 | <0.000020 | <0.000020 | 0.000039 |
| Bismuth (Bi)-Total | 0.000050 | mg/L | | | | | | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Boron (B)-Total | 0.010 | mg/L | | | | | | <0.010 | <0.010 | <0.010 | 0.013 |
| Cadmium (Cd)-Total | 0.0000050 | mg/L | | | | | | 0.0000123 | 0.0000521 | 0.0000421 | 0.0000870 |
| Calcium (Ca)-Total | 0.050 | mg/L | | | | | | 29.8 | 28.1 | 22.0 | 57.4 |
| Chromium (Cr)-Total | 0.00010 | mg/L | | | | | | <0.00010 | <0.00010 | <0.00010 | 0.00053 |
| Cobalt (Co)-Total | 0.00010 | mg/L | | | | | | <0.00010 | <0.00010 | <0.00010 | 0.00024 |
| Copper (Cu)-Total | 0.00050 | mg/L | | | | | | <0.00050 | 0.00062 | <0.00050 | 0.00229 |
| Iron (Fe)-Total | 0.010 | mg/L | | | | | | 0.054 | 0.032 | 0.014 | 0.599 |
| Lead (Pb)-Total | 0.000050 | mg/L | | | | | | 0.000057 | 0.000054 | <0.000050 | 0.000688 |
| Lithium (Li)-Total | 0.0010 | mg/L | | | | | | 0.035 | 0.075 | 0.0092 | 0.0047 |
| Magnesium (Mg)-Total | 0.0050 | mg/L | | | | | | 3.40 | 5.46 | 4.97 | 7.96 |
| Manganese (Mn)-Total | 0.00010 | mg/L | | | | | | 0.00164 | 0.00997 | 0.00124 | 0.0230 |
| Molybdenum (Mo)-Total | 0.000050 | mg/L | | | | | | 0.000272 | 0.000526 | 0.000493 | 0.00111 |
| Nickel (Ni)-Total | 0.00050 | mg/L | | | | | | <0.00050 | <0.00050 | <0.00050 | 0.00184 |
| Phosphorus (P)-Total | 0.050 | mg/L | | | | | | <0.050 | <0.050 | <0.050 | 0.067 |
| Potassium (K)-Total | 0.10 | mg/L | | | | | | 0.59 | 0.66 | 0.62 | 1.21 |
| Selenium (Se)-Total | 0.000050 | mg/L | | | | | | 0.000088 | 0.000240 | 0.000345 | 0.000121 |
| Silicon (Si)-Total | 0.050 | mg/L | | | | | | 3.18 | 2.21 | 2.06 | 5.16 |
| Silver (Ag)-Total | 0.000010 | mg/L | | | | | | <0.000010 | <0.000010 | <0.000010 | 0.000018 |
| Sodium (Na)-Total | 0.050 | mg/L | | | | | | 1.50 | 1.47 | 1.53 | 2.27 |
| Strontium (Sr)-Total | 0.00020 | mg/L | | | | | | 0.176 | 0.107 | 0.0900 | 0.260 |
| Sulfur (S)-Total | 0.50 | mg/L | | | | | | 2.76 | 3.21 | 3.36 | 3.01 |
| Thallium (Tl)-Total | 0.000010 | mg/L | | | | | | <0.000010 | <0.000010 | <0.000010 | 0.000018 |
| Tin (Sn)-Total | 0.00010 | mg/L | | | | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Titanium (Ti)-Total | 0.00030 | mg/L | | | | | | 0.00076 | <0.00030 | <0.00030 | 0.00557 |
| Uranium (U)-Total | 0.000010 | mg/L | | | | | | 0.000084 | 0.000229 | 0.000147 | 0.000287 |

Results Summary L2480410

Job Reference

Report To David Kvick, Sperling Hansen Associates Inc.
 Date Received 28-Jul-2020 8:40
 Report Date 6-Aug-2020 12:48
 Report Version 1

| | | | | | | | | | |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Client Sample ID | E2572235 | E2572237 | E2572239 | E2572242 | E2572244 | E2572245 | E2572246 | E2572247 | E2572250 |
| Date Sampled | 22-Jul-2020 |
| Time Sampled | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 | 0:00 |
| ALS Sample ID | L2480410-1 | L2480410-2 | L2480410-3 | L2480410-4 | L2480410-5 | L2480410-6 | L2480410-7 | L2480410-8 | L2480410-9 |

| Parameter | Lowest Detection Limit | Units | Water | Water | Water | Water | Water | Water | Water | Water |
|----------------------|------------------------|-------|-------|-------|-------|-------|----------|----------|----------|----------|
| Vanadium (V)-Total | 0.00050 | mg/L | | | | | <0.00050 | <0.00050 | <0.00050 | 0.00125 |
| Zinc (Zn)-Total | 0.0030 | mg/L | | | | | <0.0030 | <0.0030 | <0.0030 | 0.0114 |
| Zirconium (Zr)-Total | 0.00030 | mg/L | | | | | <0.00030 | <0.00030 | <0.00030 | <0.00030 |

Dissolved Metals (Water)

| Dissolved Metals Filtration Location | - | FIELD | FIELD | FIELD | FIELD | FIELD | FIELD | FIELD | FIELD | FIELD |
|--------------------------------------|-----------|-------|-----------|-----------|-----------|-----------|-----------|-------|-------|-------|
| Dissolved Metals Filtration Location | - | FIELD | FIELD | FIELD | FIELD | FIELD | FIELD | FIELD | FIELD | FIELD |
| Aluminum (Al)-Dissolved | 0.0010 | mg/L | 0.0047 | 0.0016 | 0.0023 | 0.0017 | 0.0016 | | | |
| Antimony (Sb)-Dissolved | 0.00010 | mg/L | <0.00010 | 0.00020 | 0.00010 | <0.00010 | <0.00010 | | | |
| Arsenic (As)-Dissolved | 0.00010 | mg/L | 0.00516 | 0.00025 | 0.00017 | 0.00071 | <0.00010 | | | |
| Barium (Ba)-Dissolved | 0.00010 | mg/L | 0.844 | 0.294 | 0.181 | 0.622 | 0.139 | | | |
| Beryllium (Be)-Dissolved | 0.000020 | mg/L | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | | | |
| Bismuth (Bi)-Dissolved | 0.000050 | mg/L | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | | |
| Boron (B)-Dissolved | 0.010 | mg/L | 0.028 | 0.154 | 0.018 | 0.044 | 0.025 | | | |
| Cadmium (Cd)-Dissolved | 0.0000050 | mg/L | 0.0000451 | 0.000126 | 0.0000264 | 0.000322 | 0.0000797 | | | |
| Calcium (Ca)-Dissolved | 0.050 | mg/L | 95.9 | 165 | 48.3 | 105 | 64.8 | | | |
| Chromium (Cr)-Dissolved | 0.00010 | mg/L | <0.00010 | 0.00010 | <0.00010 | <0.00010 | <0.00010 | | | |
| Cobalt (Co)-Dissolved | 0.00010 | mg/L | 0.00309 | 0.00018 | <0.00010 | 0.00511 | <0.00010 | | | |
| Copper (Cu)-Dissolved | 0.00020 | mg/L | 0.00072 | 0.00140 | 0.00106 | 0.00077 | 0.00051 | | | |
| Iron (Fe)-Dissolved | 0.010 | mg/L | 2.86 | <0.010 | <0.010 | 0.510 | <0.010 | | | |
| Lead (Pb)-Dissolved | 0.000050 | mg/L | 0.000056 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | | |
| Lithium (Li)-Dissolved | 0.0010 | mg/L | 0.0054 | 0.0052 | 0.0084 | 0.0049 | 0.0117 | | | |
| Magnesium (Mg)-Dissolved | 0.0050 | mg/L | 13.1 | 24.3 | 7.10 | 13.5 | 16.4 | | | |
| Manganese (Mn)-Dissolved | 0.00010 | mg/L | 1.49 | 0.00432 | 0.00021 | 1.14 | 0.00755 | | | |
| Molybdenum (Mo)-Dissolved | 0.000050 | mg/L | 0.00102 | 0.00097 | 0.000652 | 0.000444 | 0.000306 | | | |
| Nickel (Ni)-Dissolved | 0.00050 | mg/L | 0.00460 | 0.00148 | <0.00050 | 0.0111 | <0.00050 | | | |
| Phosphorus (P)-Dissolved | 0.050 | mg/L | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | | | |
| Potassium (K)-Dissolved | 0.10 | mg/L | 1.92 | 11.2 | 0.76 | 1.66 | 0.80 | | | |
| Selenium (Se)-Dissolved | 0.000050 | mg/L | <0.000050 | 0.000110 | 0.000210 | <0.000050 | 0.000502 | | | |
| Silicon (Si)-Dissolved | 0.050 | mg/L | 4.98 | 5.67 | 3.47 | 4.32 | 3.90 | | | |
| Silver (Ag)-Dissolved | 0.000010 | mg/L | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | | |
| Sodium (Na)-Dissolved | 0.050 | mg/L | 4.11 | 9.99 | 3.57 | 2.89 | 3.13 | | | |
| Strontium (Sr)-Dissolved | 0.00020 | mg/L | 0.325 | 0.595 | 0.391 | 0.385 | 0.398 | | | |
| Sulfur (S)-Dissolved | 0.50 | mg/L | 3.71 | 8.67 | 4.42 | 3.11 | 7.42 | | | |
| Thallium (Tl)-Dissolved | 0.000010 | mg/L | 0.000111 | 0.000029 | <0.000010 | 0.000090 | <0.000010 | | | |
| Tin (Sn)-Dissolved | 0.000010 | mg/L | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | | |
| Titanium (Ti)-Dissolved | 0.00030 | mg/L | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | | | |
| Uranium (U)-Dissolved | 0.000010 | mg/L | 0.000567 | 0.00196 | 0.000169 | 0.000835 | 0.000246 | | | |
| Vanadium (V)-Dissolved | 0.00050 | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | |
| Zinc (Zn)-Dissolved | 0.0010 | mg/L | 0.0047 | 0.0034 | 0.0016 | 0.0073 | 0.0015 | | | |
| Zirconium (Zr)-Dissolved | 0.00030 | mg/L | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | | | |

Aggregate Organics (Water)

| | | | | | | | | | | |
|---------------------------|-----|------|-----|------|------|------|------|------|------|------|
| Biochemical Oxygen Demand | 2.0 | mg/L | 2.2 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| Chemical Oxygen Demand | 10 | mg/L | 31 | 16 | 35 | 17 | 46 | <10 | <10 | <10 |

Qualifier Legend

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).

Results Summary L2521318

| | |
|----------------|--------------------------------------------------|
| Job Reference | 2005 FERNIE |
| Report To | Scott Garthwaite, Sperling Hansen Associates Inc |
| Date Received | 26-Oct-2020 8:30 |
| Report Date | 3-Nov-2020 14:44 |
| Report Version | 1 |

Physical Tests (Water)

| | | | | | | | | | | | |
|----------------------------------|------|------|------|------|------|------|------|------|-----|------|------|
| Hardness (as CaCO ₃) | 0.50 | - | | | | 340 | 139 | 309 | 167 | | |
| Hardness (as CaCO ₃) | 0.50 | mg/L | 110 | 215 | 87.6 | 229 | | | | 228 | |
| Total Suspended Solids | 1.0 | mg/L | <1.0 | 1120 | 2.6 | 1170 | 19.4 | 2320 | 108 | 67.2 | 98.2 |

Anions and Nutrients (Water)

| Alkalinity, Total (as CaCO ₃) | 2.0 | mgl ⁻¹ | 116 | 183 | 90.4 | 267 | 344 | 148 | 341 | 177 | 344 |
|---------------------------------------------|---------|-------------------|---------|---------|---------|--------|--------|--------|--------|---------|---------|
| Ammonium (NH ₄ ⁺) | 0.0050 | mgl ⁻¹ | <0.0050 | 0.0055 | <0.0050 | 0.380 | 0.0110 | 0.0139 | 0.0478 | 0.147 | 0.0247 |
| Arsenite (H ₃ AsO ₃) | 5.0 | mgl ⁻¹ | 141 | 224 | 110 | 422 | 141 | 417 | 215 | 303 | 110 |
| Carbonate (CO ₃) | 5.0 | mgl ⁻¹ | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| Chloride (Cl) | 0.10 | mgl ⁻¹ | 0.80 | 37.0 | 0.56 | 1.29 | 5.51 | 0.49 | 1.31 | 0.81 | 2.73 |
| Conductivity (EC) | 2.0 | µS/cm | 209 | 451 | 168 | 431 | 627 | 254 | 532 | 284 | 384 |
| Fluoride (F) | 0.020 | mgl ⁻¹ | 0.051 | 0.061 | 0.055 | 0.036 | 0.041 | 0.046 | 0.038 | 0.043 | 0.037 |
| Hydroxide (OH ⁻) | 5.0 | mgl ⁻¹ | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| Nitrate and Nitrite (as N) | 0.0051 | mgl ⁻¹ | 0.0157 | 0.0241 | 0.0066 | 0.0283 | 9.53 | 0.17 | 0.0503 | 0.0432 | 0.108 |
| Nitrate (as N) | 0.0050 | mgl ⁻¹ | 0.0150 | 0.0240 | 0.0065 | 0.0283 | 9.53 | 0.17 | 0.0492 | 0.0421 | 0.108 |
| Nitrite (as N) | 0.00010 | mgl ⁻¹ | <0.0010 | <0.0010 | <0.0010 | 0.0007 | 0.007 | 0.0011 | 0.0011 | <0.0010 | <0.0010 |
| pH | 8.0 | | 8.18 | 7.8 | 8.15 | 8.03 | 8.03 | 7.79 | 7.99 | 8.20 | 8.18 |
| Orthophosphate-Dissolved (as P) | 0.0010 | mgl ⁻¹ | 0.0082 | 0.0092 | 0.0094 | 0.0018 | 0.0106 | 0.0058 | 0.0028 | 0.0019 | 0.0017 |
| Sulfate (SO ₄ ²⁻) | 0.050 | mgl ⁻¹ | 5.16 | 17.9 | 5.04 | 5.97 | 17.7 | 7.00 | 3.42 | 5.65 | 8.83 |

Organic / Inorganic Carbon (Water)

Total Organic Carbon 0.50 mg/L 1.58 32 2.38 17.8 3.43 42 5.20 3.5 2.8

Total Metals (Water)

| | | | | |
|-----------------------|-----------|------|------------|------------|
| Antimony (Sb)-Total | 0.00010 | mg/L | 0.00010 | 0.00010 |
| Arsenic (As)-Total | 0.00010 | mg/L | 0.00022 | 0.00020 |
| Barium (Ba)-Total | 0.00010 | mg/L | 0.239 | 0.247 |
| Beryllium (Be)-Total | 0.000020 | mg/L | <0.000020 | <0.000020 |
| Bismuth (Bi)-Total | 0.000050 | mg/L | <0.000050 | <0.000050 |
| Boron (B)-Total | 0.010 | mg/L | <0.010 | <0.010 |
| Cadmium (Cd)-Total | 0.000050 | mg/L | 0.0000384 | 0.0000324 |
| Calcium (Ca)-Total | 0.680 | mg/L | 32.8 | 24.7 |
| Cerium (Ce)-Total | 0.00010 | mg/L | <0.00010 | <0.00010 |
| Cobalt (Co)-Total | 0.00010 | mg/L | <0.00010 | <0.00010 |
| Copper (Cu)-Total | 0.00050 | mg/L | <0.00050 | <0.00050 |
| Iron (Fe)-Total | 0.010 | mg/L | 0.040 | 0.012 |
| Lead (Pb)-Total | 0.000050 | mg/L | <0.000050 | <0.000050 |
| Lithium (Li)-Total | 0.0010 | mg/L | 0.0083 | 0.0117 |
| Magnesium (Mg)-Total | 0.0050 | mg/L | 6.78 | 6.28 |
| Manganese (Mn)-Total | 0.00010 | mg/L | 0.0144 | 0.00165 |
| Mercury (Hg)-Total | 0.0000050 | mg/L | <0.0000050 | <0.0000050 |
| Molybdenum (Mo)-Total | 0.000050 | mg/L | 0.000544 | 0.000568 |
| Nickel (Ni)-Total | 0.00050 | mg/L | <0.00050 | <0.00050 |
| Phosphorus (P)-Total | 0.050 | mg/L | <0.050 | <0.050 |
| Potassium (K)-Total | 0.10 | mg/L | 0.57 | 0.58 |
| Selenium (Se)-Total | 0.000050 | mg/L | 0.000256 | 0.000065 |
| Sodium (Na)-Total | 0.050 | mg/L | 1.98 | 1.84 |
| Silver (Ag)-Total | 0.000010 | mg/L | <0.000010 | <0.000010 |
| Sodium (Na)-Total | 0.050 | mg/L | 2.58 | 2.68 |
| Stronium (Sr)-Total | 0.00020 | mg/L | 0.117 | 0.102 |
| Sulfur (S)-Total | 0.50 | mg/L | 1.74 | 1.66 |
| Thallium (Tl)-Total | 0.000010 | mg/L | <0.000010 | <0.000010 |
| Tin (Sn)-Total | 0.00010 | mg/L | <0.00010 | <0.00010 |
| Titanium (Ti)-Total | 0.00030 | mg/L | <0.00030 | <0.00030 |
| Uranium (U)-Total | 0.000010 | mg/L | 0.000336 | 0.000208 |
| Vanadium (V)-Total | 0.00050 | mg/L | <0.00050 | 0.00051 |
| Zinc (Zn)-Total | 0.0030 | mg/L | <0.0030 | <0.0030 |
| Zirconium (Zr)-Total | 0.00030 | mg/L | <0.00030 | <0.00030 |

Dissolved Metals (Water)

| Dissolved Mercury Filtration Location | - | FIELD | FIELD | FIELD | FIELD | FIELD | FIELD | | |
|---------------------------------------|-----------|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Dissolved Metal Filtration Location | - | FIELD | FIELD | FIELD | FIELD | FIELD | FIELD | | |
| Dissolved Metals Filtration Location | - | FIELD | FIELD | FIELD | FIELD | FIELD | FIELD | | |
| Aluminum (Al)-Dissolved | 0.0010 | mg/L | 0.0016 | 0.0056 | 0.0032 | 0.0038 | 0.0046 | 0.0054 | <0.0010 |
| Antimony (Sb)-Dissolved | 0.00010 | mg/L | <0.00010 | 0.00013 | 0.00018 | 0.00013 | 0.00013 | <0.00010 | <0.0010 |
| Arsenic (As)-Dissolved | 0.00010 | mg/L | 0.00011 | 0.00488 | 0.00017 | 0.00019 | 0.00068 | 0.00255 | 0.00017 |
| Barium (Ba)-Dissolved | 0.00010 | mg/L | 0.150 | 0.715 | 0.172 | 0.169 | 0.573 | 0.395 | 0.375 |
| Beryllium (Be)-Dissolved | 0.00020 | mg/L | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 |
| Bismuth (Bi)-Dissolved | 0.000050 | mg/L | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Boron (B)-Dissolved | 0.010 | mg/L | 0.024 | 0.037 | 0.151 | 0.017 | 0.055 | 0.024 | 0.024 |
| Cadmium (Cd)-Dissolved | 0.0000050 | mg/L | 0.0000713 | 0.000124 | 0.0000578 | 0.000187 | 0.000877 | 0.000434 | 0.000241 |
| Calcium (Ca)-Dissolved | 0.060 | mg/L | 61.4 | 70.0 | 15.0 | 10.0 | 52.4 | 69.0 | 69.0 |
| Chloride (Cl)-Dissolved | 0.0010 | mg/L | <0.0010 | <0.0010 | 0.0016 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Chromium (Cr)-Dissolved | 0.00010 | mg/L | <0.0010 | 0.0022 | 0.0012 | <0.0010 | 0.00438 | 0.00094 | 0.00094 |
| Cobalt (Co)-Dissolved | 0.00010 | mg/L | <0.0010 | 0.000443 | 0.00104 | 0.00119 | 0.00067 | 0.00024 | 0.00043 |
| Copper (Cu)-Dissolved | 0.00020 | mg/L | 0.000443 | 0.00044 | 0.00104 | 0.00119 | 0.00067 | 0.00024 | 0.00043 |
| Iron (Fe)-Dissolved | 0.010 | mg/L | <0.010 | 1.89 | <0.010 | <0.010 | 0.266 | 0.805 | <0.010 |
| Lead (Pb)-Dissolved | 0.000050 | mg/L | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Lithium (Li)-Dissolved | 0.0010 | mg/L | 0.0098 | 0.0053 | 0.0044 | 0.0079 | 0.0053 | 0.0068 | 0.0069 |
| Magnesium (Mg)-Dissolved | 0.0050 | mg/L | 14.9 | 10.9 | 16.5 | 6.34 | 13.3 | 8.90 | 13.4 |
| Manganese (Mn)-Dissolved | 0.00010 | mg/L | 0.00037 | 2.13 | 0.00101 | 0.00027 | 1.61 | 0.870 | 0.0783 |
| Mercury (Hg)-Dissolved | 0.0000050 | mg/L | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Molybdenum (Mo)-Dissolved | 0.000050 | mg/L | 0.000317 | 0.0018 | 0.00254 | 0.00731 | 0.00588 | 0.00125 | 0.00646 |
| Nickel (Ni)-Dissolved | 0.00050 | mg/L | <0.0050 | 0.00348 | 0.0081 | <0.0050 | 0.00949 | 0.0087 | 0.00110 |
| Palladium (Pd)-Dissolved | 0.000050 | mg/L | <0.0050 | 0.00050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Potassium (K)-Dissolved | 0.10 | mg/L | 0.67 | 1.77 | 7.55 | 0.65 | 1.78 | 1.00 | 1.17 |
| Selenium (Se)-Dissolved | 0.000050 | mg/L | 0.000328 | <0.000050 | 0.000225 | 0.000224 | 0.000994 | <0.000050 | <0.000050 |
| Silicon (Si)-Dissolved | 0.050 | mg/L | 3.78 | 5.18 | 4.85 | 3.59 | 4.45 | 3.58 | 4.26 |
| Silver (Ag)-Dissolved | 0.000010 | mg/L | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Dissolved | 0.050 | mg/L | 3.87 | 3.91 | 8.09 | 3.17 | 3.11 | 3.22 | 3.74 |
| Strontrium (Sr)-Dissolved | 0.00020 | mg/L | 0.380 | 0.284 | 0.407 | 0.398 | 0.408 | 0.206 | 0.250 |
| Sulfur (S)-Dissolved | 0.50 | mg/L | 6.40 | 2.18 | 6.74 | 2.50 | 1.36 | 1.97 | 3.26 |
| Thallium (Tl)-Dissolved | 0.000010 | mg/L | <0.000010 | 0.000111 | <0.000010 | <0.000010 | 0.000884 | 0.00055 | 0.000011 |
| Tin (Sn)-Dissolved | 0.00010 | mg/L | <0.00010 | <0.00010 | 0.00014 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Titanium (Ti)-Dissolved | 0.00030 | mg/L | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 | <0.00030 |
| Uranium (U)-Dissolved | 0.00010 | mg/L | 0.000233 | 0.000462 | 0.000297 | 0.000165 | 0.00122 | 0.00324 | 0.00791 |
| Zinc (Zn)-Dissolved | 0.00050 | mg/L | 0.00050 | 0.00059 | 0.00089 | 0.00059 | 0.00089 | 0.00089 | 0.00089 |
| Zirconium (Zr)-Dissolved | 0.0010 | mg/L | 0.0011 | 0.0039 | 0.0047 | <0.0010 | 0.0108 | 0.0016 | 0.0016 |

Aggregate Organics (Water)

| | | | | | | | | | | | |
|---------------------------|-----|------|------|------|------|-----|------|------|------|-----|------|
| Biochemical Oxygen Demand | 2.0 | mg/L | <2.0 | <2.0 | <2.0 | 3.0 | <2.0 | <2.0 | <2.0 | 2.9 | <2.0 |
| Chemical Oxygen Demand | 10 | mg/L | <10 | 87 | <10 | 61 | <10 | 155 | 16 | 16 | 25 |

Qualifier Legend

Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).

Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

APPENDIX B
Certificate of Analysis



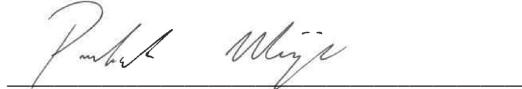
Sperling Hansen Associates Inc.
ATTN: David Kvick
#8 - 1225 East Keith Road
North Vancouver BC V7J 1J3

Date Received: 28-JUL-20
Report Date: 06-AUG-20 12:48 (MT)
Version: FINAL

Client Phone: 604-986-7723

Certificate of Analysis

Lab Work Order #: L2480410
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc: Fernie Landfill



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 | L2480410-1 Water 22-JUL-20 E2572235 | L2480410-2 Water 22-JUL-20 E2572237 | L2480410-3 Water 22-JUL-20 E2572239 | L2480410-4 Water 22-JUL-20 E2572242 | L2480410-5 Water 22-JUL-20 E2572244 | |
|-----------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|---------|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | 293 | 511 | 150 | 319 | 229 |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 287 | 496 | 146 | 303 | 205 |
| | Ammonia as N (mg/L) | 0.469 | 0.499 | 0.0295 | 0.101 | 0.0262 |
| | Bicarbonate (HCO ₃) (mg/L) | 351 | 605 | 178 | 370 | 250 |
| | Carbonate (CO ₃) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Chloride (Cl) (mg/L) | 2.26 | 7.01 | 0.18 | 1.23 | 5.45 |
| | Conductivity (EC) (uS/cm) | 534 | 910 | 286 | 553 | 418 |
| | Fluoride (F) (mg/L) | 0.032 | 0.042 | 0.042 | 0.031 | 0.064 |
| | Hydroxide (OH) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| | Nitrate (as N) (mg/L) | 0.0549 | 0.418 | 0.0581 | 0.0101 | 0.0126 |
| | Nitrite (as N) (mg/L) | 0.0146 | 0.0109 | <0.0010 | <0.0010 | <0.0010 |
| | pH (pH) | 7.67 | 7.39 | 7.78 | 7.62 | 7.70 |
| | Orthophosphate-Dissolved (as P) (mg/L) | <0.0010 | 0.0058 | 0.0080 | <0.0010 | 0.0089 |
| | Sulfate (SO ₄) (mg/L) | 4.17 | 16.1 | 6.47 | 2.58 | 14.5 |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 7.9 | 5.76 | 17.7 | 4.82 | 17.2 |
| 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) | | | | | |
| | Molybdenum (Mo)-Total (mg/L) | | | | | |
| | Nickel (Ni)-Total (mg/L) | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | |
| | Potassium (K)-Total (mg/L) | | | | | |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

L2480410 CONTD....
PAGE 3 of 12
06-AUG-20 12:48 (MT)
Version: FINAL

| | Sample ID | L2480410-6 | L2480410-7 | L2480410-8 | L2480410-9 | L2480410-10 | | | |
|-----------------------------------|--------------------------------------------------|------------|------------|------------|------------|-------------|-----|-----------|---------|
| | Description | Water | Water | Water | Water | Water | | | |
| | Sampled Date | 22-JUL-20 | 22-JUL-20 | 22-JUL-20 | 22-JUL-20 | 22-JUL-20 | | | |
| | Sampled Time | | | | | | | | |
| | Client ID | E2572245 | E2572246 | E2572247 | E2572250 | MW14-1 | | | |
| Grouping | Analyte | | | | | | | | |
| WATER | | | | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | 88.5 | HTC | 92.7 | HTC | 176 | HTC | 1000 | |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 92.4 | | 96.5 | | 77.4 | | 187 | 637 |
| | Ammonia as N (mg/L) | 0.0406 | | 0.0216 | | 0.0411 | | 0.0242 | 0.0365 |
| | Bicarbonate (HCO ₃) (mg/L) | 113 | | 118 | | 94.4 | | 214 | 777 |
| | Carbonate (CO ₃) (mg/L) | <5.0 | | <5.0 | | <5.0 | | 6.6 | <5.0 |
| | Chloride (Cl) (mg/L) | 0.11 | | 0.35 | | 0.12 | | 0.54 | 101 |
| | Conductivity (EC) (uS/cm) | 182 | | 191 | | 153 | | 338 | 1800 |
| | Fluoride (F) (mg/L) | 0.033 | | 0.043 | | 0.045 | | 0.039 | <0.10 |
| | Hydroxide (OH) (mg/L) | <5.0 | | <5.0 | | <5.0 | | <5.0 | <5.0 |
| | Nitrate (as N) (mg/L) | 0.0199 | | 0.0108 | | 0.0054 | | <0.0050 | 3.91 |
| | Nitrite (as N) (mg/L) | <0.0010 | | <0.0010 | | <0.0010 | | <0.0010 | <0.0050 |
| | pH (pH) | 8.17 | | 8.05 | | 8.07 | | 8.41 | 7.00 |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0149 | | 0.0097 | | 0.0111 | | 0.0176 | |
| | Sulfate (SO ₄) (mg/L) | 3.29 | | 3.61 | | 3.92 | | 2.89 | 336 |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 3.12 | | 2.91 | | 2.79 | | 5.17 | |
| Total Metals | Aluminum (Al)-Total (mg/L) | 0.0705 | | 0.0208 | | 0.0197 | | 0.461 | |
| | Antimony (Sb)-Total (mg/L) | 0.00015 | | 0.00018 | | 0.00014 | | 0.00017 | |
| | Arsenic (As)-Total (mg/L) | 0.00020 | | 0.00021 | | 0.00020 | | 0.00061 | |
| | Barium (Ba)-Total (mg/L) | 0.136 | | 0.216 | | 0.201 | | 0.214 | |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | | <0.000020 | | <0.000020 | | 0.000039 | |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | | <0.000050 | | <0.000050 | | <0.000050 | |
| | Boron (B)-Total (mg/L) | <0.010 | | <0.010 | | <0.010 | | 0.013 | |
| | Cadmium (Cd)-Total (mg/L) | 0.0000123 | | 0.0000521 | | 0.0000421 | | 0.0000870 | |
| | Calcium (Ca)-Total (mg/L) | 29.8 | | 28.1 | | 22.0 | | 57.4 | |
| | Chromium (Cr)-Total (mg/L) | <0.00010 | | <0.00010 | | <0.00010 | | 0.00053 | |
| | Cobalt (Co)-Total (mg/L) | <0.00010 | | <0.00010 | | <0.00010 | | 0.00024 | |
| | Copper (Cu)-Total (mg/L) | <0.00050 | | 0.00062 | | <0.00050 | | 0.00229 | |
| | Iron (Fe)-Total (mg/L) | 0.054 | | 0.032 | | 0.014 | | 0.599 | |
| | Lead (Pb)-Total (mg/L) | 0.000057 | | 0.000054 | | <0.000050 | | 0.000688 | |
| | Lithium (Li)-Total (mg/L) | 0.0035 | | 0.0075 | | 0.0092 | | 0.0047 | |
| | Magnesium (Mg)-Total (mg/L) | 3.40 | | 5.46 | | 4.97 | | 7.96 | |
| | Manganese (Mn)-Total (mg/L) | 0.00164 | | 0.00997 | | 0.00124 | | 0.0230 | |
| | Molybdenum (Mo)-Total (mg/L) | 0.000272 | | 0.000526 | | 0.000493 | | 0.00111 | |
| | Nickel (Ni)-Total (mg/L) | <0.00050 | | <0.00050 | | <0.00050 | | 0.00184 | |
| | Phosphorus (P)-Total (mg/L) | <0.050 | | <0.050 | | <0.050 | | 0.067 | |
| | Potassium (K)-Total (mg/L) | 0.59 | | 0.66 | | 0.62 | | 1.21 | |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

L2480410 CONTD....
PAGE 4 of 12
06-AUG-20 12:48 (MT)
Version: FINAL

| | | Sample ID Description Sampled Date Sampled Time Client ID | L2480410-11 Water 22-JUL-20 MW14-4 | L2480410-12 Water 22-JUL-20 MW15-2 | L2480410-13 Water 22-JUL-20 MW14-3 | | |
|-----------------------------------|--------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|------|--|
| Grouping | Analyte | | | | | | |
| WATER | | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | | 385 | 608 | 468 | | |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | | 327 | 518 | 432 | | |
| | Ammonia as N (mg/L) | | 0.0486 | 0.0355 | 0.0685 | | |
| | Bicarbonate (HCO ₃) (mg/L) | | 399 | 632 | 527 | | |
| | Carbonate (CO ₃) (mg/L) | | <5.0 | <5.0 | <5.0 | | |
| | Chloride (Cl) (mg/L) | | 3.67 | 42.5 | 43.3 | DLHC | |
| | Conductivity (EC) (uS/cm) | | 630 | 993 | 863 | DLHC | |
| | Fluoride (F) (mg/L) | | 0.116 | <0.10 | <0.10 | DLHC | |
| | Hydroxide (OH) (mg/L) | | <5.0 | <5.0 | <5.0 | DLHC | |
| | Nitrate (as N) (mg/L) | | <0.0050 | 0.029 | 0.028 | DLHC | |
| | Nitrite (as N) (mg/L) | | <0.0010 | <0.0050 | <0.0050 | DLHC | |
| | pH (pH) | | 7.59 | 7.20 | 7.44 | | |
| | Orthophosphate-Dissolved (as P) (mg/L) | | | | | | |
| | Sulfate (SO ₄) (mg/L) | | 21.4 | 37.3 | 37.7 | DLHC | |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | | | | | | |
| 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) | | | | | | |
| | Molybdenum (Mo)-Total (mg/L) | | | | | | |
| | Nickel (Ni)-Total (mg/L) | | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | | |
| | Potassium (K)-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 | L2480410-1 Water 22-JUL-20 E2572235 | L2480410-2 Water 22-JUL-20 E2572237 | L2480410-3 Water 22-JUL-20 E2572239 | L2480410-4 Water 22-JUL-20 E2572242 | L2480410-5 Water 22-JUL-20 E2572244 |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| Grouping | Analyte | | | | |
| WATER | | | | | |
| Total Metals | 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 Metals Filtration Location | FIELD | FIELD | FIELD | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | 0.0047 | 0.0016 | 0.0023 | 0.0017 |
| | Antimony (Sb)-Dissolved (mg/L) | <0.00010 | 0.00020 | 0.00010 | <0.00010 |
| | Arsenic (As)-Dissolved (mg/L) | 0.00516 | 0.00025 | 0.00017 | 0.00071 |
| | Barium (Ba)-Dissolved (mg/L) | 0.844 | 0.294 | 0.181 | 0.622 |
| | Beryllium (Be)-Dissolved (mg/L) | <0.000020 | <0.000020 | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | 0.028 | 0.154 | 0.018 | 0.044 |
| | Cadmium (Cd)-Dissolved (mg/L) | 0.0000451 | 0.000126 | 0.0000264 | 0.000322 |
| | Calcium (Ca)-Dissolved (mg/L) | 95.9 | 165 | 48.3 | 105 |
| | Chromium (Cr)-Dissolved (mg/L) | <0.00010 | 0.00010 | <0.00010 | <0.00010 |
| | Cobalt (Co)-Dissolved (mg/L) | 0.00309 | 0.00018 | <0.00010 | 0.00511 |
| | Copper (Cu)-Dissolved (mg/L) | 0.00072 | 0.00140 | 0.00106 | 0.00077 |
| | Iron (Fe)-Dissolved (mg/L) | 2.86 | <0.010 | <0.010 | 0.510 |
| | Lead (Pb)-Dissolved (mg/L) | 0.000056 | <0.000050 | <0.000050 | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | 0.0054 | 0.0052 | 0.0084 | 0.0049 |
| | Magnesium (Mg)-Dissolved (mg/L) | 13.1 | 24.3 | 7.10 | 13.5 |
| | Manganese (Mn)-Dissolved (mg/L) | 1.49 | 0.00432 | 0.00021 | 1.14 |
| | Molybdenum (Mo)-Dissolved (mg/L) | 0.00102 | 0.000097 | 0.000652 | 0.000444 |
| | Nickel (Ni)-Dissolved (mg/L) | 0.00460 | 0.00148 | <0.00050 | 0.0111 |
| | Phosphorus (P)-Dissolved (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 |
| | Potassium (K)-Dissolved (mg/L) | 1.92 | 11.2 | 0.76 | 1.66 |
| | Selenium (Se)-Dissolved (mg/L) | <0.000050 | 0.000110 | 0.000210 | <0.000050 |
| | Silicon (Si)-Dissolved (mg/L) | 4.98 | 5.67 | 3.47 | 4.32 |

* 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 | L2480410-6 Water 22-JUL-20 E2572245 | L2480410-7 Water 22-JUL-20 E2572246 | L2480410-8 Water 22-JUL-20 E2572247 | L2480410-9 Water 22-JUL-20 E2572250 | L2480410-10 Water 22-JUL-20 MW14-1 |
|-------------------------|-----------------------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|---------------------------------------------|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Total Metals | Selenium (Se)-Total (mg/L) | 0.000088 | 0.000240 | 0.000345 | 0.000121 | |
| | Silicon (Si)-Total (mg/L) | 3.18 | 2.21 | 2.06 | 5.16 | |
| | Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | 0.000018 | |
| | Sodium (Na)-Total (mg/L) | 1.50 | 1.47 | 1.53 | 2.27 | |
| | Strontium (Sr)-Total (mg/L) | 0.176 | 0.107 | 0.0900 | 0.260 | |
| | Sulfur (S)-Total (mg/L) | 2.76 | 3.21 | 3.36 | 3.01 | |
| | Thallium (Tl)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | 0.000018 | |
| | Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | |
| | Titanium (Ti)-Total (mg/L) | 0.00076 | <0.00030 | <0.00030 | 0.00557 | |
| | Uranium (U)-Total (mg/L) | 0.000084 | 0.000229 | 0.000147 | 0.000287 | |
| | Vanadium (V)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | 0.00125 | |
| | Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | 0.0114 | |
| | Zirconium (Zr)-Total (mg/L) | <0.00030 | <0.00030 | <0.00030 | <0.00030 | |
| Dissolved Metals | Dissolved Metals Filtration Location | | | | | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | | | | | 0.0013 |
| | Antimony (Sb)-Dissolved (mg/L) | | | | | <0.00010 |
| | Arsenic (As)-Dissolved (mg/L) | | | | | 0.00017 |
| | Barium (Ba)-Dissolved (mg/L) | | | | | 0.0431 |
| | Beryllium (Be)-Dissolved (mg/L) | | | | | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | | | | | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | | | | | 0.167 |
| | Cadmium (Cd)-Dissolved (mg/L) | | | | | 0.000148 |
| | Calcium (Ca)-Dissolved (mg/L) | | | | | 278 |
| | Chromium (Cr)-Dissolved (mg/L) | | | | | 0.00017 |
| | Cobalt (Co)-Dissolved (mg/L) | | | | | 0.00014 |
| | Copper (Cu)-Dissolved (mg/L) | | | | | 0.00115 |
| | Iron (Fe)-Dissolved (mg/L) | | | | | <0.010 |
| | Lead (Pb)-Dissolved (mg/L) | | | | | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | | | | | 0.0200 |
| | Magnesium (Mg)-Dissolved (mg/L) | | | | | 74.4 |
| | Manganese (Mn)-Dissolved (mg/L) | | | | | 0.0263 |
| | Molybdenum (Mo)-Dissolved (mg/L) | | | | | 0.000530 |
| | Nickel (Ni)-Dissolved (mg/L) | | | | | 0.00501 |
| | Phosphorus (P)-Dissolved (mg/L) | | | | | <0.050 |
| | Potassium (K)-Dissolved (mg/L) | | | | | 5.64 |
| | Selenium (Se)-Dissolved (mg/L) | | | | | 0.000200 |
| | Silicon (Si)-Dissolved (mg/L) | | | | | 8.45 |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

L2480410 CONTD....

PAGE 7 of 12

06-AUG-20 12:48 (MT)

Version: FINAL

| | Sample ID Description Sampled Date Sampled Time Client ID | L2480410-11 Water 22-JUL-20 MW14-4 | L2480410-12 Water 22-JUL-20 MW15-2 | L2480410-13 Water 22-JUL-20 MW14-3 | | |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Total Metals | 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 Metals Filtration Location | FIELD | FIELD | FIELD | | |
| | Aluminum (Al)-Dissolved (mg/L) | 0.0014 | <0.0010 | <0.0010 | | |
| | Antimony (Sb)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | | |
| | Arsenic (As)-Dissolved (mg/L) | 0.00023 | 0.00021 | 0.00026 | | |
| | Barium (Ba)-Dissolved (mg/L) | 0.145 | 0.289 | 0.138 | | |
| | 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 | 0.019 | 0.028 | | |
| | Cadmium (Cd)-Dissolved (mg/L) | 0.0000135 | 0.0000722 | 0.0000317 | | |
| | Calcium (Ca)-Dissolved (mg/L) | 112 | 165 | 121 | | |
| | Chromium (Cr)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | | |
| | Cobalt (Co)-Dissolved (mg/L) | 0.00013 | 0.00055 | 0.00042 | | |
| | Copper (Cu)-Dissolved (mg/L) | 0.00061 | 0.00034 | 0.00045 | | |
| | Iron (Fe)-Dissolved (mg/L) | 0.040 | 0.189 | 0.417 | | |
| | Lead (Pb)-Dissolved (mg/L) | <0.000050 | <0.000050 | <0.000050 | | |
| | Lithium (Li)-Dissolved (mg/L) | 0.0146 | 0.0187 | 0.0169 | | |
| | Magnesium (Mg)-Dissolved (mg/L) | 25.4 | 47.8 | 40.5 | | |
| | Manganese (Mn)-Dissolved (mg/L) | 0.0392 | 0.220 | 0.465 | | |
| | Molybdenum (Mo)-Dissolved (mg/L) | 0.000361 | 0.00154 | 0.00133 | | |
| | Nickel (Ni)-Dissolved (mg/L) | 0.00107 | 0.00644 | 0.00180 | | |
| | Phosphorus (P)-Dissolved (mg/L) | <0.050 | <0.050 | <0.050 | | |
| | Potassium (K)-Dissolved (mg/L) | 1.24 | 2.21 | 2.37 | | |
| | Selenium (Se)-Dissolved (mg/L) | <0.000050 | <0.000050 | 0.000063 | | |
| | Silicon (Si)-Dissolved (mg/L) | 5.08 | 6.53 | 6.25 | | |

* 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 | L2480410-1 Water 22-JUL-20 E2572235 | L2480410-2 Water 22-JUL-20 E2572237 | L2480410-3 Water 22-JUL-20 E2572239 | L2480410-4 Water 22-JUL-20 E2572242 | L2480410-5 Water 22-JUL-20 E2572244 |
|-----------------------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| Grouping | Analyte | | | | |
| WATER | | | | | |
| Dissolved Metals | Silver (Ag)-Dissolved (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| | Sodium (Na)-Dissolved (mg/L) | 4.11 | 9.99 | 3.57 | 2.89 |
| | Strontium (Sr)-Dissolved (mg/L) | 0.325 | 0.595 | 0.391 | 0.385 |
| | Sulfur (S)-Dissolved (mg/L) | 3.71 | 8.67 | 4.42 | 3.11 |
| | Thallium (Tl)-Dissolved (mg/L) | 0.000111 | 0.000029 | <0.000010 | 0.000090 |
| | Tin (Sn)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| | Titanium (Ti)-Dissolved (mg/L) | <0.00030 | <0.00030 | <0.00030 | <0.00030 |
| | Uranium (U)-Dissolved (mg/L) | 0.000567 | 0.00196 | 0.000169 | 0.000835 |
| | Vanadium (V)-Dissolved (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| | Zinc (Zn)-Dissolved (mg/L) | 0.0047 | 0.0034 | 0.0016 | 0.0073 |
| | Zirconium (Zr)-Dissolved (mg/L) | <0.00030 | <0.00030 | <0.00030 | <0.00030 |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | 2.2 | <2.0 | <2.0 | <2.0 |
| | Chemical Oxygen Demand (mg/L) | 31 | 16 | 35 | 17 |
| | | | | | 46 |

ALS ENVIRONMENTAL ANALYTICAL REPORT

L2480410 CONTD....

PAGE 9 of 12

06-AUG-20 12:48 (MT)

Version: FINAL

| | Sample ID Description Sampled Date Sampled Time Client ID | L2480410-6 Water 22-JUL-20 E2572245 | L2480410-7 Water 22-JUL-20 E2572246 | L2480410-8 Water 22-JUL-20 E2572247 | L2480410-9 Water 22-JUL-20 E2572250 | L2480410-10 Water 22-JUL-20 MW14-1 |
|---------------------------|-----------------------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|---------------------------------------------|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Silver (Ag)-Dissolved (mg/L) | | | | | <0.000010 |
| | Sodium (Na)-Dissolved (mg/L) | | | | | 65.5 |
| | Strontium (Sr)-Dissolved (mg/L) | | | | | 0.369 |
| | Sulfur (S)-Dissolved (mg/L) | | | | | 121 |
| | Thallium (Tl)-Dissolved (mg/L) | | | | | 0.000054 |
| | Tin (Sn)-Dissolved (mg/L) | | | | | 0.00013 |
| | Titanium (Ti)-Dissolved (mg/L) | | | | | <0.00030 |
| | Uranium (U)-Dissolved (mg/L) | | | | | 0.00137 |
| | Vanadium (V)-Dissolved (mg/L) | | | | | <0.00050 |
| | Zinc (Zn)-Dissolved (mg/L) | | | | | 0.0063 |
| | Zirconium (Zr)-Dissolved (mg/L) | | | | | <0.00030 |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | <2.0 | <2.0 | <2.0 | |
| | Chemical Oxygen Demand (mg/L) | <10 | <10 | <10 | 15 | |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

L2480410 CONTD....
PAGE 10 of 12
06-AUG-20 12:48 (MT)
Version: FINAL

| | Sample ID Description Sampled Date Sampled Time Client ID | L2480410-11 Water 22-JUL-20 MW14-4 | L2480410-12 Water 22-JUL-20 MW15-2 | L2480410-13 Water 22-JUL-20 MW14-3 | | |
|---------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Silver (Ag)-Dissolved (mg/L) | <0.000010 | <0.000010 | <0.000010 | | |
| | Sodium (Na)-Dissolved (mg/L) | 8.19 | 12.9 | 13.7 | | |
| | Strontium (Sr)-Dissolved (mg/L) | 0.328 | 0.311 | 0.492 | | |
| | Sulfur (S)-Dissolved (mg/L) | 10.6 | 16.1 | 14.6 | | |
| | Thallium (Tl)-Dissolved (mg/L) | 0.000022 | 0.000025 | 0.000036 | | |
| | Tin (Sn)-Dissolved (mg/L) | 0.00014 | <0.00010 | 0.00031 | | |
| | Titanium (Ti)-Dissolved (mg/L) | <0.00030 | <0.00030 | <0.00030 | | |
| | Uranium (U)-Dissolved (mg/L) | 0.000555 | 0.00242 | 0.00251 | | |
| | Vanadium (V)-Dissolved (mg/L) | <0.00050 | <0.00050 | <0.00050 | | |
| | Zinc (Zn)-Dissolved (mg/L) | 0.0034 | 0.0139 | 0.0046 | | |
| | Zirconium (Zr)-Dissolved (mg/L) | <0.00030 | <0.00030 | <0.00030 | | |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | | | | | |
| | Chemical Oxygen Demand (mg/L) | | | | | |

Reference Information

Qualifiers for Sample Submission Listed:

| Qualifier | Description |
|-----------|------------------------------------------------------------------------------------------------------------------------|
| EHR | Exceeded Recommended Holding Time prior to receipt at the lab. - BOD, NO2 AND NO3: HOLD TIME EXCEEDED PRIOR TO RECEIPT |

QC Samples with Qualifiers & Comments:

| QC Type Description | Parameter | Qualifier | Applies to Sample Number(s) |
|---------------------|---------------------------|-----------|----------------------------------------------------------------|
| Matrix Spike | Calcium (Ca)-Dissolved | MS-B | L2480410-1, -10, -11, -12, -13, -2, -3, -4, -5 |
| Matrix Spike | Magnesium (Mg)-Dissolved | MS-B | L2480410-1, -10, -11, -12, -13, -2, -3, -4, -5 |
| Matrix Spike | Manganese (Mn)-Dissolved | MS-B | L2480410-1, -10, -11, -12, -13, -2, -3, -4, -5 |
| Matrix Spike | Strontrium (Sr)-Dissolved | MS-B | L2480410-1, -10, -11, -12, -13, -2, -3, -4, -5 |
| Matrix Spike | Ammonia as N | MS-B | L2480410-1, -10, -11, -12, -13, -2, -3, -4, -5, -6, -7, -8, -9 |

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

Reference Information

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.

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.

** 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: L2480410

Report Date: 06-AUG-20

Page 1 of 12

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

Contact: David Kvick

Quality Control Report

Workorder: L2480410

Report Date: 06-AUG-20

Page 2 of 12

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-----------------------------------|-------------|-----------|-----------|-----------|-------|-----|--------|-----------|
| COD-T-COL-CL Water | | | | | | | | |
| Batch R5172139 | | | | | | | | |
| WG3373451-2 LCS | | | | | | | | |
| Chemical Oxygen Demand | | | 100.9 | | % | | 85-115 | 29-JUL-20 |
| WG3373451-1 MB | | | | | | | | |
| Chemical Oxygen Demand | | | <10 | | mg/L | | 10 | 29-JUL-20 |
| WG3373451-4 MS | | | | | | | | |
| Chemical Oxygen Demand | L2480410-6 | | 103.1 | | % | | 75-125 | 29-JUL-20 |
| F-L-IC-CL Water | | | | | | | | |
| Batch R5170778 | | | | | | | | |
| WG3372601-10 LCS | | | | | | | | |
| Fluoride (F) | | | 101.3 | | % | | 85-115 | 28-JUL-20 |
| WG3372601-9 MB | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 28-JUL-20 |
| MET-D-CCMS-CL Water | | | | | | | | |
| Batch R5174184 | | | | | | | | |
| WG3376114-3 DUP | | | | | | | | |
| Aluminum (Al)-Dissolved | L2480410-13 | <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 04-AUG-20 |
| Antimony (Sb)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 04-AUG-20 |
| Arsenic (As)-Dissolved | | 0.00026 | 0.00031 | | mg/L | 16 | 20 | 04-AUG-20 |
| Barium (Ba)-Dissolved | | 0.138 | 0.141 | | mg/L | 2.5 | 20 | 04-AUG-20 |
| Bismuth (Bi)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 04-AUG-20 |
| Boron (B)-Dissolved | | 0.028 | 0.028 | | mg/L | 0.6 | 20 | 04-AUG-20 |
| Cadmium (Cd)-Dissolved | | 0.0000317 | 0.0000283 | | mg/L | 11 | 20 | 04-AUG-20 |
| Calcium (Ca)-Dissolved | | 121 | 121 | | mg/L | 0.1 | 20 | 04-AUG-20 |
| Chromium (Cr)-Dissolved | | <0.00010 | <0.00010 | RPD-NA | mg/L | N/A | 20 | 04-AUG-20 |
| Cobalt (Co)-Dissolved | | 0.00042 | 0.00043 | | mg/L | 1.8 | 20 | 04-AUG-20 |
| Copper (Cu)-Dissolved | | 0.00045 | 0.00046 | | mg/L | 3.5 | 20 | 04-AUG-20 |
| Iron (Fe)-Dissolved | | 0.417 | 0.439 | | mg/L | 5.2 | 20 | 04-AUG-20 |
| Lead (Pb)-Dissolved | | <0.000050 | <0.000050 | RPD-NA | mg/L | N/A | 20 | 04-AUG-20 |
| Lithium (Li)-Dissolved | | 0.0169 | 0.0172 | | mg/L | 1.6 | 20 | 04-AUG-20 |
| Magnesium (Mg)-Dissolved | | 40.5 | 40.8 | | mg/L | 0.7 | 20 | 04-AUG-20 |
| Manganese (Mn)-Dissolved | | 0.465 | 0.460 | | mg/L | 1.2 | 20 | 04-AUG-20 |
| Molybdenum (Mo)-Dissolved | | 0.00133 | 0.00132 | | mg/L | 0.8 | 20 | 04-AUG-20 |
| Nickel (Ni)-Dissolved | | 0.00180 | 0.00180 | | mg/L | 0.2 | 20 | 04-AUG-20 |
| Phosphorus (P)-Dissolved | | <0.050 | <0.050 | RPD-NA | mg/L | N/A | 20 | 04-AUG-20 |
| Potassium (K)-Dissolved | | 2.37 | 2.36 | | mg/L | 0.7 | 20 | 04-AUG-20 |
| Selenium (Se)-Dissolved | | 0.000063 | 0.000059 | | mg/L | 7.2 | 20 | 04-AUG-20 |

Quality Control Report

Workorder: L2480410

Report Date: 06-AUG-20

Page 3 of 12

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|--------------|--------------------|--------|-----------|-------|--------|-----------|-----------|
| MET-D-CCMS-CL | Water | | | | | | | |
| Batch | R5174184 | | | | | | | |
| WG3376114-3 DUP | | L2480410-13 | | | | | | |
| Silicon (Si)-Dissolved | 6.25 | 6.38 | | | mg/L | 2.0 | 20 | 04-AUG-20 |
| Silver (Ag)-Dissolved | <0.000010 | <0.000010 | | RPD-NA | mg/L | N/A | 20 | 04-AUG-20 |
| Sodium (Na)-Dissolved | 13.7 | 13.8 | | | mg/L | 0.0 | 20 | 04-AUG-20 |
| Strontium (Sr)-Dissolved | 0.492 | 0.493 | | | mg/L | 0.1 | 20 | 04-AUG-20 |
| Sulfur (S)-Dissolved | 14.6 | 14.9 | | | mg/L | 1.9 | 20 | 04-AUG-20 |
| Thallium (Tl)-Dissolved | 0.000036 | 0.000041 | | | mg/L | 13 | 20 | 04-AUG-20 |
| Tin (Sn)-Dissolved | 0.00031 | 0.00030 | | | mg/L | 3.7 | 20 | 04-AUG-20 |
| Titanium (Ti)-Dissolved | <0.00030 | <0.00030 | | RPD-NA | mg/L | N/A | 20 | 04-AUG-20 |
| Uranium (U)-Dissolved | 0.00251 | 0.00245 | | | mg/L | 2.3 | 20 | 04-AUG-20 |
| Vanadium (V)-Dissolved | <0.00050 | <0.00050 | | RPD-NA | mg/L | N/A | 20 | 04-AUG-20 |
| Zinc (Zn)-Dissolved | 0.0046 | 0.0045 | | | mg/L | 2.6 | 20 | 04-AUG-20 |
| Zirconium (Zr)-Dissolved | <0.00030 | <0.00030 | | RPD-NA | mg/L | N/A | 20 | 04-AUG-20 |
| WG3376114-2 LCS | | TMRM | | | | | | |
| Aluminum (Al)-Dissolved | 113.5 | | | | % | 80-120 | 04-AUG-20 | |
| Antimony (Sb)-Dissolved | 109.0 | | | | % | 80-120 | 04-AUG-20 | |
| Arsenic (As)-Dissolved | 107.2 | | | | % | 80-120 | 04-AUG-20 | |
| Barium (Ba)-Dissolved | 115.3 | | | | % | 80-120 | 04-AUG-20 | |
| Bismuth (Bi)-Dissolved | 103.5 | | | | % | 80-120 | 04-AUG-20 | |
| Boron (B)-Dissolved | 93.4 | | | | % | 80-120 | 04-AUG-20 | |
| Cadmium (Cd)-Dissolved | 107.3 | | | | % | 80-120 | 04-AUG-20 | |
| Calcium (Ca)-Dissolved | 107.2 | | | | % | 80-120 | 04-AUG-20 | |
| Chromium (Cr)-Dissolved | 109.7 | | | | % | 80-120 | 04-AUG-20 | |
| Cobalt (Co)-Dissolved | 104.2 | | | | % | 80-120 | 04-AUG-20 | |
| Copper (Cu)-Dissolved | 106.9 | | | | % | 80-120 | 04-AUG-20 | |
| Iron (Fe)-Dissolved | 102.4 | | | | % | 80-120 | 04-AUG-20 | |
| Lead (Pb)-Dissolved | 101.5 | | | | % | 80-120 | 04-AUG-20 | |
| Lithium (Li)-Dissolved | 100.2 | | | | % | 80-120 | 04-AUG-20 | |
| Magnesium (Mg)-Dissolved | 114.4 | | | | % | 80-120 | 04-AUG-20 | |
| Manganese (Mn)-Dissolved | 102.6 | | | | % | 80-120 | 04-AUG-20 | |
| Molybdenum (Mo)-Dissolved | 103.4 | | | | % | 80-120 | 04-AUG-20 | |
| Nickel (Ni)-Dissolved | 103.5 | | | | % | 80-120 | 04-AUG-20 | |
| Phosphorus (P)-Dissolved | 111.5 | | | | % | 70-130 | 04-AUG-20 | |
| Potassium (K)-Dissolved | 114.3 | | | | % | 80-120 | 04-AUG-20 | |
| Selenium (Se)-Dissolved | 104.2 | | | | % | 80-120 | 04-AUG-20 | |

Quality Control Report

Workorder: L2480410

Report Date: 06-AUG-20

Page 4 of 12

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|-----------------|-------------|--------|-----------|-------|----------|-----------|----------|
| MET-D-CCMS-CL | Water | | | | | | | |
| Batch | R5174184 | | | | | | | |
| WG3376114-2 LCS | | TMRM | | | | | | |
| Silicon (Si)-Dissolved | | 108.3 | | % | | 60-140 | 04-AUG-20 | |
| Silver (Ag)-Dissolved | | 101.8 | | % | | 80-120 | 04-AUG-20 | |
| Sodium (Na)-Dissolved | | 107.8 | | % | | 80-120 | 04-AUG-20 | |
| Strontium (Sr)-Dissolved | | 107.2 | | % | | 80-120 | 04-AUG-20 | |
| Sulfur (S)-Dissolved | | 105.3 | | % | | 80-120 | 04-AUG-20 | |
| Thallium (Tl)-Dissolved | | 103.2 | | % | | 80-120 | 04-AUG-20 | |
| Tin (Sn)-Dissolved | | 103.8 | | % | | 80-120 | 04-AUG-20 | |
| Titanium (Ti)-Dissolved | | 104.2 | | % | | 80-120 | 04-AUG-20 | |
| Uranium (U)-Dissolved | | 98.8 | | % | | 80-120 | 04-AUG-20 | |
| Vanadium (V)-Dissolved | | 108.5 | | % | | 80-120 | 04-AUG-20 | |
| Zinc (Zn)-Dissolved | | 103.6 | | % | | 80-120 | 04-AUG-20 | |
| Zirconium (Zr)-Dissolved | | 97.8 | | % | | 80-120 | 04-AUG-20 | |
| WG3376114-1 MB | | | | | | | | |
| Aluminum (Al)-Dissolved | | <0.0010 | | mg/L | | 0.001 | 04-AUG-20 | |
| Antimony (Sb)-Dissolved | | <0.00010 | | mg/L | | 0.0001 | 04-AUG-20 | |
| Arsenic (As)-Dissolved | | <0.00010 | | mg/L | | 0.0001 | 04-AUG-20 | |
| Barium (Ba)-Dissolved | | <0.00010 | | mg/L | | 0.0001 | 04-AUG-20 | |
| Bismuth (Bi)-Dissolved | | <0.000050 | | mg/L | | 0.00005 | 04-AUG-20 | |
| Boron (B)-Dissolved | | <0.010 | | mg/L | | 0.01 | 04-AUG-20 | |
| Cadmium (Cd)-Dissolved | | <0.0000050 | | mg/L | | 0.000005 | 04-AUG-20 | |
| Calcium (Ca)-Dissolved | | <0.050 | | mg/L | | 0.05 | 04-AUG-20 | |
| Chromium (Cr)-Dissolved | | <0.00010 | | mg/L | | 0.0001 | 04-AUG-20 | |
| Cobalt (Co)-Dissolved | | <0.00010 | | mg/L | | 0.0001 | 04-AUG-20 | |
| Copper (Cu)-Dissolved | | <0.00020 | | mg/L | | 0.0002 | 04-AUG-20 | |
| Iron (Fe)-Dissolved | | <0.010 | | mg/L | | 0.01 | 04-AUG-20 | |
| Lead (Pb)-Dissolved | | <0.000050 | | mg/L | | 0.00005 | 04-AUG-20 | |
| Lithium (Li)-Dissolved | | <0.0010 | | mg/L | | 0.001 | 04-AUG-20 | |
| Magnesium (Mg)-Dissolved | | <0.0050 | | mg/L | | 0.005 | 04-AUG-20 | |
| Manganese (Mn)-Dissolved | | <0.00010 | | mg/L | | 0.0001 | 04-AUG-20 | |
| Molybdenum (Mo)-Dissolved | | <0.000050 | | mg/L | | 0.00005 | 04-AUG-20 | |
| Nickel (Ni)-Dissolved | | <0.00050 | | mg/L | | 0.0005 | 04-AUG-20 | |
| Phosphorus (P)-Dissolved | | <0.050 | | mg/L | | 0.05 | 04-AUG-20 | |
| Potassium (K)-Dissolved | | <0.050 | | mg/L | | 0.05 | 04-AUG-20 | |
| Selenium (Se)-Dissolved | | <0.000050 | | mg/L | | 0.00005 | 04-AUG-20 | |

Quality Control Report

Workorder: L2480410

Report Date: 06-AUG-20

Page 5 of 12

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|--------------------|-----------|-----------|-----------|-------|-----|---------|-----------|
| MET-D-CCMS-CL | Water | | | | | | | |
| Batch | R5174184 | | | | | | | |
| WG3376114-1 MB | | | | | | | | |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 04-AUG-20 |
| Silver (Ag)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-AUG-20 |
| Sodium (Na)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 04-AUG-20 |
| Strontium (Sr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 04-AUG-20 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 04-AUG-20 |
| Thallium (Tl)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-AUG-20 |
| Tin (Sn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 04-AUG-20 |
| Titanium (Ti)-Dissolved | | | <0.00030 | | mg/L | | 0.0003 | 04-AUG-20 |
| Uranium (U)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 04-AUG-20 |
| Vanadium (V)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 04-AUG-20 |
| Zinc (Zn)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 04-AUG-20 |
| Zirconium (Zr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 04-AUG-20 |
| WG3376114-4 MS | L2480410-13 | | | | | | | |
| Aluminum (Al)-Dissolved | | | 118.4 | | % | | 70-130 | 04-AUG-20 |
| Antimony (Sb)-Dissolved | | | 111.7 | | % | | 70-130 | 04-AUG-20 |
| Arsenic (As)-Dissolved | | | 118.2 | | % | | 70-130 | 04-AUG-20 |
| Barium (Ba)-Dissolved | | | 120.9 | | % | | 70-130 | 04-AUG-20 |
| Bismuth (Bi)-Dissolved | | | 109.1 | | % | | 70-130 | 04-AUG-20 |
| Boron (B)-Dissolved | | | 109.3 | | % | | 70-130 | 04-AUG-20 |
| Cadmium (Cd)-Dissolved | | | 117.3 | | % | | 70-130 | 04-AUG-20 |
| Calcium (Ca)-Dissolved | | N/A | MS-B | % | | - | | 04-AUG-20 |
| Chromium (Cr)-Dissolved | | | 117.0 | | % | | 70-130 | 04-AUG-20 |
| Cobalt (Co)-Dissolved | | | 114.9 | | % | | 70-130 | 04-AUG-20 |
| Copper (Cu)-Dissolved | | | 115.9 | | % | | 70-130 | 04-AUG-20 |
| Iron (Fe)-Dissolved | | | 114.7 | | % | | 70-130 | 04-AUG-20 |
| Lead (Pb)-Dissolved | | | 111.0 | | % | | 70-130 | 04-AUG-20 |
| Lithium (Li)-Dissolved | | | 116.7 | | % | | 70-130 | 04-AUG-20 |
| Magnesium (Mg)-Dissolved | | N/A | MS-B | % | | - | | 04-AUG-20 |
| Manganese (Mn)-Dissolved | | N/A | MS-B | % | | - | | 04-AUG-20 |
| Molybdenum (Mo)-Dissolved | | | 109.0 | | % | | 70-130 | 04-AUG-20 |
| Nickel (Ni)-Dissolved | | | 115.9 | | % | | 70-130 | 04-AUG-20 |
| Phosphorus (P)-Dissolved | | | 117.8 | | % | | 70-130 | 04-AUG-20 |
| Potassium (K)-Dissolved | | | 115.2 | | % | | 70-130 | 04-AUG-20 |
| Selenium (Se)-Dissolved | | | 120.6 | | % | | 70-130 | 04-AUG-20 |

Quality Control Report

Workorder: L2480410

Report Date: 06-AUG-20

Page 6 of 12

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|----------------------------|----------|-------------|--------|-----------|-------|-----|--------|-----------|
| MET-D-CCMS-CL Water | | | | | | | | |
| Batch | R5174184 | | | | | | | |
| WG3376114-4 MS | | L2480410-13 | | | | | | |
| Silicon (Si)-Dissolved | | | 106.5 | | % | | 70-130 | 04-AUG-20 |
| Silver (Ag)-Dissolved | | | 106.5 | | % | | 70-130 | 04-AUG-20 |
| Sodium (Na)-Dissolved | | | 121.5 | | % | | 70-130 | 04-AUG-20 |
| Strontium (Sr)-Dissolved | | | N/A | MS-B | % | | - | 04-AUG-20 |
| Thallium (Tl)-Dissolved | | | 110.1 | | % | | 70-130 | 04-AUG-20 |
| Tin (Sn)-Dissolved | | | 109.0 | | % | | 70-130 | 04-AUG-20 |
| Titanium (Ti)-Dissolved | | | 114.4 | | % | | 70-130 | 04-AUG-20 |
| Uranium (U)-Dissolved | | | 108.4 | | % | | 70-130 | 04-AUG-20 |
| Vanadium (V)-Dissolved | | | 116.5 | | % | | 70-130 | 04-AUG-20 |
| Zinc (Zn)-Dissolved | | | 117.0 | | % | | 70-130 | 04-AUG-20 |
| Zirconium (Zr)-Dissolved | | | 106.0 | | % | | 70-130 | 04-AUG-20 |
| MET-T-CCMS-CL Water | | | | | | | | |
| Batch | R5172318 | | | | | | | |
| WG3373753-2 LCS | | TMRM | | | | | | |
| Aluminum (Al)-Total | | | 93.1 | | % | | 80-120 | 30-JUL-20 |
| Antimony (Sb)-Total | | | 102.2 | | % | | 80-120 | 30-JUL-20 |
| Arsenic (As)-Total | | | 91.4 | | % | | 80-120 | 30-JUL-20 |
| Barium (Ba)-Total | | | 94.6 | | % | | 80-120 | 30-JUL-20 |
| Bismuth (Bi)-Total | | | 99.5 | | % | | 80-120 | 30-JUL-20 |
| Boron (B)-Total | | | 90.7 | | % | | 80-120 | 30-JUL-20 |
| Cadmium (Cd)-Total | | | 88.5 | | % | | 80-120 | 30-JUL-20 |
| Calcium (Ca)-Total | | | 100.9 | | % | | 80-120 | 30-JUL-20 |
| Chromium (Cr)-Total | | | 92.3 | | % | | 80-120 | 30-JUL-20 |
| Cobalt (Co)-Total | | | 90.8 | | % | | 80-120 | 30-JUL-20 |
| Copper (Cu)-Total | | | 93.2 | | % | | 80-120 | 30-JUL-20 |
| Iron (Fe)-Total | | | 97.6 | | % | | 80-120 | 30-JUL-20 |
| Lead (Pb)-Total | | | 99.7 | | % | | 80-120 | 30-JUL-20 |
| Lithium (Li)-Total | | | 93.8 | | % | | 80-120 | 30-JUL-20 |
| Magnesium (Mg)-Total | | | 90.5 | | % | | 80-120 | 30-JUL-20 |
| Manganese (Mn)-Total | | | 92.1 | | % | | 80-120 | 30-JUL-20 |
| Molybdenum (Mo)-Total | | | 98.1 | | % | | 80-120 | 30-JUL-20 |
| Nickel (Ni)-Total | | | 90.0 | | % | | 80-120 | 30-JUL-20 |
| Phosphorus (P)-Total | | | 93.6 | | % | | 70-130 | 30-JUL-20 |
| Potassium (K)-Total | | | 91.7 | | % | | 80-120 | 30-JUL-20 |

Quality Control Report

Workorder: L2480410

Report Date: 06-AUG-20

Page 7 of 12

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------|-----------------|-------------|------------|-----------|-------|-----|----------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5172318 | | | | | | | |
| WG3373753-2 LCS | | TMRM | | | | | | |
| Selenium (Se)-Total | | | 91.8 | | % | | 80-120 | 30-JUL-20 |
| Silicon (Si)-Total | | | 95.4 | | % | | 60-140 | 30-JUL-20 |
| Silver (Ag)-Total | | | 102.2 | | % | | 80-120 | 30-JUL-20 |
| Sodium (Na)-Total | | | 89.9 | | % | | 80-120 | 30-JUL-20 |
| Strontium (Sr)-Total | | | 103.2 | | % | | 80-120 | 30-JUL-20 |
| Sulfur (S)-Total | | | 90.2 | | % | | 80-120 | 30-JUL-20 |
| Thallium (Tl)-Total | | | 97.7 | | % | | 80-120 | 30-JUL-20 |
| Tin (Sn)-Total | | | 88.7 | | % | | 80-120 | 30-JUL-20 |
| Titanium (Ti)-Total | | | 87.2 | | % | | 80-120 | 30-JUL-20 |
| Uranium (U)-Total | | | 100.3 | | % | | 80-120 | 30-JUL-20 |
| Vanadium (V)-Total | | | 91.9 | | % | | 80-120 | 30-JUL-20 |
| Zinc (Zn)-Total | | | 89.5 | | % | | 80-120 | 30-JUL-20 |
| Zirconium (Zr)-Total | | | 101.9 | | % | | 80-120 | 30-JUL-20 |
| WG3373753-1 MB | | | | | | | | |
| Aluminum (Al)-Total | | | <0.0030 | | mg/L | | 0.003 | 30-JUL-20 |
| Antimony (Sb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-JUL-20 |
| Arsenic (As)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-JUL-20 |
| Barium (Ba)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-JUL-20 |
| Bismuth (Bi)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-JUL-20 |
| Boron (B)-Total | | | <0.010 | | mg/L | | 0.01 | 30-JUL-20 |
| Cadmium (Cd)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 30-JUL-20 |
| Calcium (Ca)-Total | | | <0.050 | | mg/L | | 0.05 | 30-JUL-20 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-JUL-20 |
| Cobalt (Co)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-JUL-20 |
| Copper (Cu)-Total | | | <0.00050 | | mg/L | | 0.0005 | 30-JUL-20 |
| Iron (Fe)-Total | | | <0.010 | | mg/L | | 0.01 | 30-JUL-20 |
| Lead (Pb)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-JUL-20 |
| Lithium (Li)-Total | | | <0.0010 | | mg/L | | 0.001 | 30-JUL-20 |
| Magnesium (Mg)-Total | | | <0.0050 | | mg/L | | 0.005 | 30-JUL-20 |
| Manganese (Mn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-JUL-20 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-JUL-20 |
| Nickel (Ni)-Total | | | <0.00050 | | mg/L | | 0.0005 | 30-JUL-20 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 30-JUL-20 |
| Potassium (K)-Total | | | <0.050 | | mg/L | | 0.05 | 30-JUL-20 |



Quality Control Report

Workorder: L2480410

Report Date: 06-AUG-20

Page 8 of 12

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-------------------------|-----------------|-------------------|-----------|-----------|-------|-----|---------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5172318 | | | | | | | |
| WG3373753-1 MB | | | | | | | | |
| Selenium (Se)-Total | | | <0.000050 | | mg/L | | 0.00005 | 30-JUL-20 |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 30-JUL-20 |
| Silver (Ag)-Total | | | <0.000010 | | mg/L | | 0.00001 | 30-JUL-20 |
| Sodium (Na)-Total | | | <0.050 | | mg/L | | 0.05 | 30-JUL-20 |
| Strontium (Sr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 30-JUL-20 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 30-JUL-20 |
| Thallium (Tl)-Total | | | <0.000010 | | mg/L | | 0.00001 | 30-JUL-20 |
| Tin (Sn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 30-JUL-20 |
| Titanium (Ti)-Total | | | <0.00030 | | mg/L | | 0.0003 | 30-JUL-20 |
| Uranium (U)-Total | | | <0.000010 | | mg/L | | 0.00001 | 30-JUL-20 |
| Vanadium (V)-Total | | | <0.00050 | | mg/L | | 0.0005 | 30-JUL-20 |
| Zinc (Zn)-Total | | | <0.0030 | | mg/L | | 0.003 | 30-JUL-20 |
| Zirconium (Zr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 30-JUL-20 |
| NH3-L-F-CL | Water | | | | | | | |
| Batch | R5175008 | | | | | | | |
| WG3376944-15 DUP | | L2480410-2 | | | | | | |
| Ammonia as N | | 0.499 | 0.511 | | mg/L | 2.4 | 20 | 05-AUG-20 |
| WG3376944-14 LCS | | | | | | | | |
| Ammonia as N | | | 103.0 | | % | | 85-115 | 05-AUG-20 |
| WG3376944-13 MB | | | | | | | | |
| Ammonia as N | | | <0.0050 | | mg/L | | 0.005 | 05-AUG-20 |
| WG3376944-16 MS | | L2480410-2 | | | | | | |
| Ammonia as N | | N/A | MS-B | % | | - | | 05-AUG-20 |
| NO2-L-IC-N-CL | Water | | | | | | | |
| Batch | R5170778 | | | | | | | |
| WG3372601-10 LCS | | | | | | | | |
| Nitrite (as N) | | | 102.1 | | % | | 90-110 | 28-JUL-20 |
| WG3372601-9 MB | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 28-JUL-20 |
| NO3-L-IC-N-CL | Water | | | | | | | |
| Batch | R5170778 | | | | | | | |
| WG3372601-10 LCS | | | | | | | | |
| Nitrate (as N) | | | 103.1 | | % | | 90-110 | 28-JUL-20 |
| WG3372601-9 MB | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 28-JUL-20 |

Quality Control Report

Workorder: L2480410

Report Date: 06-AUG-20

Page 9 of 12

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-------------------------------------------|--------|-----------|---------|-----------|-------|-----|--------|-----------|
| PH/EC/ALK-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch R5170378 | | | | | | | | |
| WG3372564-14 LCS | | | | | | | | |
| Conductivity (EC) | | | 101.2 | | % | | 90-110 | 28-JUL-20 |
| Alkalinity, Total (as CaCO ₃) | | | 99.5 | | % | | 85-115 | 28-JUL-20 |
| WG3372564-17 LCS | | | | | | | | |
| Conductivity (EC) | | | 101.0 | | % | | 90-110 | 28-JUL-20 |
| Alkalinity, Total (as CaCO ₃) | | | 98.7 | | % | | 85-115 | 28-JUL-20 |
| WG3372564-13 MB | | | | | | | | |
| Conductivity (EC) | | | <2.0 | | uS/cm | | 2 | 28-JUL-20 |
| Bicarbonate (HCO ₃) | | | <5.0 | | mg/L | | 5 | 28-JUL-20 |
| Carbonate (CO ₃) | | | <5.0 | | mg/L | | 5 | 28-JUL-20 |
| Hydroxide (OH) | | | <5.0 | | mg/L | | 5 | 28-JUL-20 |
| Alkalinity, Total (as CaCO ₃) | | | <2.0 | | mg/L | | 2 | 28-JUL-20 |
| WG3372564-16 MB | | | | | | | | |
| Conductivity (EC) | | | <2.0 | | uS/cm | | 2 | 28-JUL-20 |
| Bicarbonate (HCO ₃) | | | <5.0 | | mg/L | | 5 | 28-JUL-20 |
| Carbonate (CO ₃) | | | <5.0 | | mg/L | | 5 | 28-JUL-20 |
| Hydroxide (OH) | | | <5.0 | | mg/L | | 5 | 28-JUL-20 |
| Alkalinity, Total (as CaCO ₃) | | | <2.0 | | mg/L | | 2 | 28-JUL-20 |
| PO4-DO-L-COL-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch R5169890 | | | | | | | | |
| WG3371921-10 LCS | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 101.5 | | % | | 80-120 | 28-JUL-20 |
| WG3371921-6 LCS | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 106.0 | | % | | 80-120 | 28-JUL-20 |
| WG3371921-5 MB | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | <0.0010 | | mg/L | | 0.001 | 28-JUL-20 |
| WG3371921-9 MB | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | <0.0010 | | mg/L | | 0.001 | 28-JUL-20 |
| SO4-L-IC-N-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch R5170778 | | | | | | | | |
| WG3372601-10 LCS | | | | | | | | |
| Sulfate (SO ₄) | | | 102.2 | | % | | 85-115 | 28-JUL-20 |
| WG3372601-9 MB | | | | | | | | |
| Sulfate (SO ₄) | | | <0.050 | | mg/L | | 0.05 | 28-JUL-20 |

Quality Control Report

Workorder: L2480410

Report Date: 06-AUG-20

Page 10 of 12

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 |
|-----------|----------------------------------------------------------------------------------------------------|
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

Quality Control Report

Workorder: L2480410

Report Date: 06-AUG-20

Page 11 of 12

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 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 2 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 3 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 4 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 5 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 6 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 7 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 8 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 9 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 10 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 11 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 12 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 13 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| 1 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 2 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 3 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 4 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 5 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 6 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 7 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 8 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 9 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 10 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 11 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 12 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| 13 | 22-JUL-20 | 28-JUL-20 07:33 | 3 | 6 | days | EHTR | |
| Orthophosphate-Dissolved (as P) | | | | | | | |
| 1 | 22-JUL-20 | 28-JUL-20 14:59 | 3 | 6 | days | EHTR | |
| 2 | 22-JUL-20 | 28-JUL-20 15:02 | 3 | 6 | days | EHTR | |
| 3 | 22-JUL-20 | 28-JUL-20 15:02 | 3 | 6 | days | EHTR | |
| 4 | 22-JUL-20 | 28-JUL-20 15:02 | 3 | 6 | days | EHTR | |
| 5 | 22-JUL-20 | 28-JUL-20 15:04 | 3 | 6 | days | EHTR | |
| 6 | 22-JUL-20 | 28-JUL-20 15:06 | 3 | 6 | days | EHTR | |
| 7 | 22-JUL-20 | 28-JUL-20 15:06 | 3 | 6 | days | EHTR | |
| 8 | 22-JUL-20 | 28-JUL-20 15:06 | 3 | 6 | days | EHTR | |
| 9 | 22-JUL-20 | 28-JUL-20 15:09 | 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 L2480410 were received on 28-JUL-20 08:40.

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: L2480410

Report Date: 06-AUG-20

Page 12 of 12

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.



**Chain of Custody (COC) / Analytical
Request Form**

Canada Toll Free: 1 800 668 9878



L2480410-COFC

COC Number: 15 -

Page 1 of 2

www.alsglobal.com

| | | | | | | | |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Report To | | Contact and company name below will appear on the final report | | Report Format / Distribution | | Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply | |
| Company: | Sperling Hansen Associates Inc. | | | Select Report Format: <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) | Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply | | |
| Contact: | David Kvick | | | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> <input type="checkbox"/> NO | PRIORITY (Business Days) | 4 day [P4] <input type="checkbox"/> | 1 Business day [E1] <input type="checkbox"/> |
| Phone: | 604-813-8476 | | | <input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked | 3 day [P3] <input type="checkbox"/> | Same Day, Weekend or Statutory holiday [E0] <input type="checkbox"/> | |
| Company address below will appear on the final report | | | | Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX | 2 day [P2] <input type="checkbox"/> | EMERGENCY <input type="checkbox"/> | |
| Street: | 8-1225 East Keith Road | | | Email 1 or Fax | Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm | | |
| City/Province: | North Vancouver B.C. | | | Email 2 | For tests that can not be performed according to the service level selected, you will be contacted. | | |
| Postal Code: | V7J 1J3 | | | Email 3 | Analysis Request | | |
| Invoice To | Same as Report To <input checked="" type="checkbox"/> <input type="checkbox"/> NO | | | Invoice Distribution | | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below | |
| | Copy of Invoice with Report <input checked="" type="checkbox"/> <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 | | | |
| Contact: | | | | Email 2 | | | |
| Project Information | | | | Oil and Gas Required Fields (client use) | | | |
| ALS Account # / Quote #: | Q80923 | | | AFE/Cost Center: | PO# | | |
| Job #: | | | | Major/Minor Code: | Routing Code: | | |
| PO / AFE: | | | | Requisitioner: | | | |
| LSD: | | | | Location: <i>Fernie Landfill</i> | | | |
| ALS Lab Work Order # (lab use only) | | ALS Contact: | | Sampler: | | | |
| ALS Sample # (lab use only) | Sample Identification and/or Coordinates (This description will appear on the report) | | | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | <i>alkalinity</i> Anions ✓ ammonia ✓ TOC ✓ Orthophosphorous ✓ Metals (E/P) ✓ Metals (P) ✓ COD ✓ BOD ✓ |
| 1 | E257235 | | | 22/07/20 | | Baileys | |
| 2 | E257237 | | | " | " | | |
| 3 | E257239 | | | " | " | | |
| 4 | E257242 | | | " | " | | |
| 5 | E257244 | | | " | " | | |
| 6 | E257245 | | | " | " | | |
| 7 | E257246 | | | " | " | | |
| 8 | E257247 | | | " | " | | |
| 9 | E257250 | | | " | " | | |
| Drinking Water (DW) Samples ¹ (client use) | | Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only) | | | | | |
| Are samples taken from a Regulated DW System? | | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice Packs <input type="checkbox"/> Ice Cubes <input checked="" type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input type="checkbox"/> | | | | | |
| Are samples for human drinking water use? | | INITIAL COOLER TEMPERATURES °C FINAL COOLER TEMPERATURES °C <i>27</i> <i> </i> <i> </i> <i> </i> | | | | | |
| SHIPMENT RELEASE (client use) | | INITIAL SHIPMENT RECEPTION (lab use only) | | | | | |
| Released by: <i>J. Salman</i> | Date: <i>23/07/20</i> | Time: | Received by: <i>A.</i> | Date: <i>7/7/20</i> | Time: <i>8:41</i> | Received by: | Date: |
| FINAL SHIPMENT RECEPTION (lab use only) | | | | | | | |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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.

Number of Containers

OCTOBER 2015 FRONT



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



COC Number: 15 -

L2480410-COFC

Page 2 of 2

www.alsglobal.com

| | | | | | | | |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Report To | | Contact and company name below will appear on the final report | | Report Format / Distribution | | Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply | |
| Company: | Sperling Hansen Associates Inc. | | | Select Report Format: <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) | Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply | | |
| Contact: | David Kvick | | | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> <input type="checkbox"/> NO | 1 Business day [E1] <input type="checkbox"/> | | |
| Phone: | 604-813-8476 | | | <input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked | 3 day [P3] <input type="checkbox"/> <input type="checkbox"/> Same Day, Weekend or Statutory holiday [E0] <input type="checkbox"/> | | |
| Company address below will appear on the final report | | | | Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX | 2 day [P2] <input type="checkbox"/> | | |
| Street: | 8-1225 East Keith Road | | | Email 1 or Fax | Date and Time Required for all E&P TATs: dd-mm-yy hh:mm | | |
| City/Province: | North Vancouver B.C. | | | Email 2 | For tests that can not be performed according to the service level selected, you will be contacted. | | |
| Postal Code: | V7J 1J3 | | | Email 3 | Analysis Request | | |
| Invoice To | Same as Report To <input checked="" type="checkbox"/> <input type="checkbox"/> NO | | Invoice Distribution | | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below | | |
| | Copy of Invoice with Report <input checked="" type="checkbox"/> <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 | | | |
| Contact: | | | | Email 2 | | | |
| Project Information | | | | Oil and Gas Required Fields (client use) | | | |
| ALS Account # / Quote #: | Q80923 | | | AFE/Cost Center: | PO# | | |
| Job #: | | | | Major/Minor Code: | Routing Code: | | |
| PO / AFE: | | | | Requisitioner: | | | |
| LSD: | | | | Location: Sparwood Landfill | | | |
| ALS Lab Work Order # (lab use only) | | | ALS Contact: | Sampler: | | | |
| ALS Sample # (lab use only) | Sample Identification and/or Coordinates (This description will appear on the report) | | | Date (dd-mm-yy) | Time (hh:mm) | Sample Type | <i>S1F</i> Conductivity ✓ pH ✓ Anions ✓ NH ₃ ✓ Total Alkalinity Metals (F/P) |
| (0) | MW14-1 | | | 24/07/20 | | baileys | |
| (1) | MW14-4 | | | " | " | x x x x x x | |
| (2) | MW15-2 | | | " | " | x x x x x x | |
| (3) | MW14-3 | | | " | " | x x x x x x | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Drinking Water (DW) Samples¹ (client use) | | | | Special Instructions | | | |
| Are samples taken from a Regulated DW System? | | | | <input type="checkbox"/> NO <input checked="" type="checkbox"/> Yes | | | |
| Are samples for human drinking water use? | | | | <input type="checkbox"/> NO <input checked="" type="checkbox"/> Yes | | | |
| SHIPMENT RELEASE (client use) | | | | | | | |
| Released by: <i>J. Solman</i> | Date: 24/07/20 | | | | | | |
| 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. | | | | | | | |
| 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please list | | | | | | | |

| | | | | | | | |
|----------------------------------------------------|------------------------------------|----------------------------------------------|------------------------------|------------------------------|-----------------------------|--|--|
| SAMPLE CONDITION AS RECEIVED (lab use only) | | | | | | | |
| Frozen <input type="checkbox"/> | SIF Observations | | | Yes <input type="checkbox"/> | No <input type="checkbox"/> | | |
| Ice Packs <input type="checkbox"/> | Ice Cubes <input type="checkbox"/> | Custody seal intact <input type="checkbox"/> | Yes <input type="checkbox"/> | | No <input type="checkbox"/> | | |
| Cooling Initiated <input type="checkbox"/> | | | | | | | |
| INITIAL COOLER TEMPERATURES °C | | | | FINAL COOLER TEMPERATURES °C | | | |
| | | | | | | | |
| FINAL SHIPMENT RECEIPT (lab use only) | | | | | | | |
| Time: | Received by: | | | Date: | Time: | | |

YELLOW - CLIENT COPY

as specified on the back page of the white - report copy.

OCTOBER 2015 FRONT



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

Date Received: 26-OCT-20
Report Date: 03-NOV-20 14:44 (MT)
Version: FINAL

Client Phone: 604-986-7723

Certificate of Analysis

Lab Work Order #: L2521318
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

L2521318 CONTD....

PAGE 2 of 10

03-NOV-20 14:44 (MT)

Version: FINAL

| | Sample ID Description | L2521318-1 SURFACE WATE | L2521318-2 GROUNDWATER | L2521318-3 SURFACE WATE | L2521318-4 GROUNDWATER | L2521318-5 GROUNDWATER |
|-----------------------------------|--------------------------------------------------|----------------------------|---------------------------|----------------------------|---------------------------|---------------------------|
| | Sampled Date Sampled Time Client ID | 22-OCT-20 E257246 | 22-OCT-20 E257244 | 22-OCT-20 E257247 | 22-OCT-20 E257237 | 21-OCT-20 E257235 |
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | 110 | HTC | 215 | 87.6 | 229 |
| | Hardness (as CaCO ₃) | | | | | 340 |
| | Total Suspended Solids (mg/L) | <1.0 | | 1120 | 2.6 | 1170 |
| | | | DLHC | | | DLHC |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 116 | | 183 | 90.4 | 267 |
| | Ammonia as N (mg/L) | <0.0050 | | 0.0225 | <0.0050 | 0.380 |
| | Bicarbonate (HCO ₃) (mg/L) | 141 | | 224 | 110 | 326 |
| | Carbonate (CO ₃) (mg/L) | <5.0 | | <5.0 | <5.0 | <5.0 |
| | Chloride (Cl) (mg/L) | 0.80 | | 37.0 | 0.56 | 1.29 |
| | Conductivity (EC) (uS/cm) | 209 | | 451 | 166 | 431 |
| | Fluoride (F) (mg/L) | 0.051 | | 0.061 | 0.055 | 0.036 |
| | Hydroxide (OH) (mg/L) | <5.0 | | <5.0 | <5.0 | <5.0 |
| | Nitrate and Nitrite (as N) (mg/L) | 0.0157 | | 0.0241 | 0.0066 | 0.0283 |
| | Nitrate (as N) (mg/L) | 0.0157 | | 0.0241 | 0.0066 | 0.0236 |
| | Nitrite (as N) (mg/L) | <0.0010 | | <0.0010 | <0.0010 | 0.0047 |
| | pH (pH) | 8.18 | | 7.88 | 8.15 | 8.02 |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0082 | | 0.0092 | 0.0094 | 0.0018 |
| | Sulfate (SO ₄) (mg/L) | 5.16 | | 17.9 | 5.04 | 5.97 |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 1.58 | DLM | 32 | 2.38 | 17.8 |
| Total Metals | Aluminum (Al)-Total (mg/L) | 0.0065 | | | 0.0121 | |
| | Antimony (Sb)-Total (mg/L) | 0.00010 | | | 0.00010 | |
| | Arsenic (As)-Total (mg/L) | 0.00022 | | | 0.00020 | |
| | Barium (Ba)-Total (mg/L) | 0.239 | | | 0.247 | |
| | 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) | 0.0000384 | | | 0.0000324 | |
| | Calcium (Ca)-Total (mg/L) | 32.9 | | | 24.7 | |
| | Chromium (Cr)-Total (mg/L) | <0.00010 | | | <0.00010 | |
| | Cobalt (Co)-Total (mg/L) | <0.00010 | | | <0.00010 | |
| | Copper (Cu)-Total (mg/L) | <0.00050 | | | <0.00050 | |
| | Iron (Fe)-Total (mg/L) | 0.040 | | | 0.012 | |
| | Lead (Pb)-Total (mg/L) | <0.000050 | | | <0.000050 | |
| | Lithium (Li)-Total (mg/L) | 0.0083 | | | 0.0117 | |
| | Magnesium (Mg)-Total (mg/L) | 6.78 | | | 6.28 | |
| | Manganese (Mn)-Total (mg/L) | 0.0144 | | | 0.00165 | |
| | 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

L2521318 CONTD....
PAGE 3 of 10
03-NOV-20 14:44 (MT)
Version: FINAL

| | | Sample ID Description | L2521318-6 GROUNDWATER | L2521318-7 GROUNDWATER | L2521318-8 GROUNDWATER | L2521318-9 GROUNDWATER | |
|-----------------------------------|--------------------------------------------------|-------------------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--|
| | | Sampled Date Sampled Time Client ID | 21-OCT-20 E257239 | 21-OCT-20 E257242 | 21-OCT-20 E257236 | 22-OCT-20 E257238 | |
| Grouping | Analyte | | | | | | |
| WATER | | | | | | | |
| Physical Tests | Hardness (as CaCO ₃) (mg/L) | | | | | 228 | |
| | Hardness (as CaCO ₃) | 139 | 309 | 167 | | | |
| | Total Suspended Solids (mg/L) | 2320 | ^{DLHC} 108 | 67.2 | 98.2 | | |
| Anions and Nutrients | Alkalinity, Total (as CaCO ₃) (mg/L) | 148 | 344 | 177 | 248 | | |
| | Ammonia as N (mg/L) | 0.0139 | 0.0478 | 0.147 | 0.0247 | | |
| | Bicarbonate (HCO ₃) (mg/L) | 180 | 419 | 215 | 303 | | |
| | Carbonate (CO ₃) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | | |
| | Chloride (Cl) (mg/L) | 0.49 | 1.31 | 0.81 | 2.73 | | |
| | Conductivity (EC) (uS/cm) | 254 | 532 | 284 | 384 | | |
| | Fluoride (F) (mg/L) | 0.046 | 0.038 | 0.043 | 0.037 | | |
| | Hydroxide (OH) (mg/L) | <5.0 | <5.0 | <5.0 | <5.0 | | |
| | Nitrate and Nitrite (as N) (mg/L) | 0.170 | 0.0503 | 0.0432 | 0.108 | | |
| | Nitrate (as N) (mg/L) | 0.170 | 0.0492 | 0.0421 | 0.108 | | |
| | Nitrite (as N) (mg/L) | <0.0010 | 0.0011 | 0.0011 | <0.0010 | | |
| | pH (pH) | 7.79 | 7.95 | 8.20 | 8.18 | | |
| | Orthophosphate-Dissolved (as P) (mg/L) | 0.0095 | 0.0028 | 0.0019 | 0.0017 | | |
| | Sulfate (SO ₄) (mg/L) | 7.00 | ^{DLM} 3.42 | 5.65 | 8.83 | ^{DLM} 2.8 | |
| Organic / Inorganic Carbon | Total Organic Carbon (mg/L) | 42 | ^{DLM} 5.20 | 3.5 | | | |
| 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

L2521318 CONTD....
PAGE 4 of 10
03-NOV-20 14:44 (MT)
Version: FINAL

| | Sample ID Description | L2521318-1 SURFACE WATE | L2521318-2 GROUNDWATER | L2521318-3 SURFACE WATE | L2521318-4 GROUNDWATER | L2521318-5 GROUNDWATER | | | | |
|-------------------------|----------------------------------------|----------------------------------|--------------------------------|----------------------------|----------------------------------|--------------------------------|------------------|----------------------------------|--------------------------------|------------------|
| Grouping | Analyte | Sampled Date 22-OCT-20 | Sampled Time E257246 | Client ID | Sampled Date 22-OCT-20 | Sampled Time E257247 | Client ID | Sampled Date 22-OCT-20 | Sampled Time E257237 | Client ID |
| WATER | | | | | | | | | | |
| Total Metals | Molybdenum (Mo)-Total (mg/L) | 0.000544 | | | 0.000568 | | | | | |
| | Nickel (Ni)-Total (mg/L) | <0.000050 | | | <0.000050 | | | | | |
| | Phosphorus (P)-Total (mg/L) | <0.050 | | | <0.050 | | | | | |
| | Potassium (K)-Total (mg/L) | 0.57 | | | 0.58 | | | | | |
| | Selenium (Se)-Total (mg/L) | 0.000256 | | | 0.000325 | | | | | |
| | Silicon (Si)-Total (mg/L) | 1.96 | | | 1.84 | | | | | |
| | Silver (Ag)-Total (mg/L) | <0.000010 | | | <0.000010 | | | | | |
| | Sodium (Na)-Total (mg/L) | 2.58 | | | 2.68 | | | | | |
| | Strontium (Sr)-Total (mg/L) | 0.117 | | | 0.102 | | | | | |
| | Sulfur (S)-Total (mg/L) | 1.74 | | | 1.66 | | | | | |
| | 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) | 0.000336 | | | 0.000208 | | | | | |
| | 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 | | FIELD |
| | Dissolved Metals Filtration Location | | FIELD | | | FIELD | | FIELD | | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | 0.0015 | | | 0.0056 | | | 0.0032 | | |
| | Antimony (Sb)-Dissolved (mg/L) | <0.00010 | | | 0.00013 | | | 0.00018 | | |
| | Arsenic (As)-Dissolved (mg/L) | 0.00011 | | | 0.00486 | | | 0.00017 | | |
| | Barium (Ba)-Dissolved (mg/L) | 0.150 | | | 0.715 | | | 0.172 | | |
| | 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) | 0.024 | | | 0.037 | | | 0.151 | | |
| | Cadmium (Cd)-Dissolved (mg/L) | 0.0000713 | | | 0.000124 | | | 0.0000578 | | |
| | Calcium (Ca)-Dissolved (mg/L) | 61.4 | | | 73.7 | | | 109 | | |
| | Chromium (Cr)-Dissolved (mg/L) | <0.00010 | | | <0.00010 | | | 0.00016 | | |
| | Cobalt (Co)-Dissolved (mg/L) | <0.00010 | | | 0.00222 | | | 0.00012 | | |
| | Copper (Cu)-Dissolved (mg/L) | 0.00043 | | | 0.00044 | | | 0.00104 | | |
| | Iron (Fe)-Dissolved (mg/L) | <0.010 | | | 1.89 | | | <0.010 | | |
| | Lead (Pb)-Dissolved (mg/L) | <0.000050 | | | <0.000050 | | | <0.000050 | | |
| | Lithium (Li)-Dissolved (mg/L) | 0.0098 | | | 0.0053 | | | 0.0044 | | |
| | Magnesium (Mg)-Dissolved (mg/L) | 14.9 | | | 10.9 | | | 16.5 | | |
| | Manganese (Mn)-Dissolved (mg/L) | 0.00037 | | | 2.13 | | | 0.00101 | | |
| | 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 | L2521318-6 GROUNDWATER 21-OCT-20 E257239 | L2521318-7 GROUNDWATER 21-OCT-20 E257242 | L2521318-8 GROUNDWATER 21-OCT-20 E257236 | L2521318-9 GROUNDWATER 22-OCT-20 E257238 | |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 Dissolved Metals Filtration Location Aluminum (Al)-Dissolved (mg/L) Antimony (Sb)-Dissolved (mg/L) Arsenic (As)-Dissolved (mg/L) Barium (Ba)-Dissolved (mg/L) Beryllium (Be)-Dissolved (mg/L) Bismuth (Bi)-Dissolved (mg/L) Boron (B)-Dissolved (mg/L) Cadmium (Cd)-Dissolved (mg/L) Calcium (Ca)-Dissolved (mg/L) Chromium (Cr)-Dissolved (mg/L) Cobalt (Co)-Dissolved (mg/L) Copper (Cu)-Dissolved (mg/L) Iron (Fe)-Dissolved (mg/L) Lead (Pb)-Dissolved (mg/L) Lithium (Li)-Dissolved (mg/L) Magnesium (Mg)-Dissolved (mg/L) Manganese (Mn)-Dissolved (mg/L) Mercury (Hg)-Dissolved (mg/L) | FIELD FIELD 0.0038 0.00013 0.00019 0.169 <0.000020 <0.000050 0.017 0.0000187 45.0 <0.00010 <0.00010 0.00119 <0.010 <0.000050 0.0079 6.34 0.00027 <0.000050 | FIELD FIELD 0.0046 0.00013 0.00068 0.573 <0.000020 <0.000050 0.055 0.000877 102 <0.00010 0.00428 0.00067 0.266 <0.000050 0.0053 13.3 1.61 <0.000050 | FIELD FIELD 0.0054 <0.00010 0.00255 0.395 <0.000020 <0.000050 0.020 0.0000434 52.4 <0.00010 0.00094 0.00024 0.805 <0.000050 0.0068 8.90 0.870 <0.000050 | FIELD FIELD <0.0010 <0.00010 0.375 <0.000020 <0.000050 0.024 0.0000241 69.4 <0.00010 <0.00010 0.00043 <0.010 0.00043 <0.010 0.00043 0.0069 13.4 0.0783 <0.000050 |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

L2521318 CONTD....

PAGE 6 of 10

03-NOV-20 14:44 (MT)

Version: FINAL

| | Sample ID Description | L2521318-1 SURFACE WATE | L2521318-2 GROUNDWATER | L2521318-3 SURFACE WATE | L2521318-4 GROUNDWATER | L2521318-5 GROUNDWATER | | | | | |
|---------------------------|----------------------------------|----------------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------|---------------------------|-------------------------|---------------------------|-------------------------|
| Grouping | Analyte | Sampled Date 22-OCT-20 | Sampled Time E257246 | Sampled Date 22-OCT-20 | Sampled Time E257244 | Sampled Date 22-OCT-20 | Sampled Time E257247 | Sampled Date 22-OCT-20 | Sampled Time E257237 | Sampled Date 21-OCT-20 | Sampled Time E257235 |
| WATER | | | | | | | | | | | |
| Dissolved Metals | Molybdenum (Mo)-Dissolved (mg/L) | | | 0.000317 | | | | 0.00136 | | 0.000254 | |
| | Nickel (Ni)-Dissolved (mg/L) | | | <0.00050 | | | | 0.00348 | | 0.00081 | |
| | Phosphorus (P)-Dissolved (mg/L) | | | <0.050 | | | | <0.050 | | <0.050 | |
| | Potassium (K)-Dissolved (mg/L) | | | 0.67 | | | | 1.77 | | 7.25 | |
| | Selenium (Se)-Dissolved (mg/L) | | | 0.000328 | | | | <0.000050 | | 0.000225 | |
| | Silicon (Si)-Dissolved (mg/L) | | | 3.78 | | | | 5.18 | | 4.85 | |
| | Silver (Ag)-Dissolved (mg/L) | | | <0.000010 | | | | <0.000010 | | <0.000010 | |
| | Sodium (Na)-Dissolved (mg/L) | | | 3.87 | | | | 3.91 | | 8.09 | |
| | Strontium (Sr)-Dissolved (mg/L) | | | 0.380 | | | | 0.284 | | 0.407 | |
| | Sulfur (S)-Dissolved (mg/L) | | | 6.40 | | | | 2.18 | | 6.74 | |
| | Thallium (Tl)-Dissolved (mg/L) | | | <0.000010 | | | | 0.000111 | | <0.000010 | |
| | Tin (Sn)-Dissolved (mg/L) | | | <0.00010 | | | | <0.00010 | | 0.00014 | |
| | Titanium (Ti)-Dissolved (mg/L) | | | <0.00030 | | | | <0.00030 | | <0.00030 | |
| | Uranium (U)-Dissolved (mg/L) | | | 0.000233 | | | | 0.000492 | | 0.000979 | |
| | Vanadium (V)-Dissolved (mg/L) | | | <0.00050 | | | | <0.00050 | | <0.00050 | |
| | Zinc (Zn)-Dissolved (mg/L) | | | 0.0011 | | | | 0.0039 | | 0.0047 | |
| | Zirconium (Zr)-Dissolved (mg/L) | | | <0.00030 | | | | <0.00030 | | <0.00030 | |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | | <2.0 | | <2.0 | | 3.0 | | <2.0 | |
| | Chemical Oxygen Demand (mg/L) | <10 | | 87 | | <10 | | 61 | | <10 | |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

L2521318 CONTD....

PAGE 7 of 10

03-NOV-20 14:44 (MT)

Version: FINAL

| | Sample ID Description | L2521318-6 GROUNDWATER | L2521318-7 GROUNDWATER | L2521318-8 GROUNDWATER | L2521318-9 GROUNDWATER | |
|---------------------------|-------------------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--|
| | Sampled Date Sampled Time Client ID | 21-OCT-20 E257239 | 21-OCT-20 E257242 | 21-OCT-20 E257236 | 22-OCT-20 E257238 | |
| Grouping | Analyte | | | | | |
| | WATER | | | | | |
| Dissolved Metals | Molybdenum (Mo)-Dissolved (mg/L) | 0.000731 | 0.000586 | 0.00125 | 0.000640 | |
| | Nickel (Ni)-Dissolved (mg/L) | <0.00050 | 0.00949 | 0.00187 | 0.00110 | |
| | Phosphorus (P)-Dissolved (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 | |
| | Potassium (K)-Dissolved (mg/L) | 0.65 | 1.78 | 1.06 | 1.17 | |
| | Selenium (Se)-Dissolved (mg/L) | 0.000224 | 0.000094 | <0.000050 | <0.000050 | |
| | Silicon (Si)-Dissolved (mg/L) | 3.59 | 4.45 | 3.58 | 4.26 | |
| | Silver (Ag)-Dissolved (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | |
| | Sodium (Na)-Dissolved (mg/L) | 3.17 | 3.11 | 3.22 | 3.74 | |
| | Strontium (Sr)-Dissolved (mg/L) | 0.398 | 0.408 | 0.206 | 0.250 | |
| | Sulfur (S)-Dissolved (mg/L) | 2.50 | 1.36 | 1.97 | 3.26 | |
| | Thallium (Tl)-Dissolved (mg/L) | <0.000010 | 0.000084 | 0.000055 | 0.000011 | |
| | Tin (Sn)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | |
| | Titanium (Ti)-Dissolved (mg/L) | <0.00030 | <0.00030 | <0.00030 | <0.00030 | |
| | Uranium (U)-Dissolved (mg/L) | 0.000165 | 0.00122 | 0.000432 | 0.000791 | |
| | Vanadium (V)-Dissolved (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | |
| | Zinc (Zn)-Dissolved (mg/L) | <0.0010 | 0.0108 | 0.0016 | 0.0016 | |
| | Zirconium (Zr)-Dissolved (mg/L) | <0.00030 | <0.00030 | <0.00030 | <0.00030 | |
| Aggregate Organics | Biochemical Oxygen Demand (mg/L) | <2.0 | <2.0 | 2.9 | <2.0 | |
| | Chemical Oxygen Demand (mg/L) | 155 | 16 | 16 | 25 | |

* 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 EXCEEDED UPON ARRIVAL FOR BOD, NO2, NO3, PO4 |

QC Samples with Qualifiers & Comments:

| QC Type Description | Parameter | Qualifier | Applies to Sample Number(s) |
|---------------------|------------------------|-----------|--------------------------------------------|
| Matrix Spike | Chemical Oxygen Demand | MS-B | L2521318-1, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Calcium (Ca)-Total | MS-B | L2521318-1, -3 |
| Matrix Spike | Calcium (Ca)-Total | MS-B | L2521318-1, -3 |
| Matrix Spike | Magnesium (Mg)-Total | MS-B | L2521318-1, -3 |
| Matrix Spike | Magnesium (Mg)-Total | MS-B | L2521318-1, -3 |
| Matrix Spike | Sodium (Na)-Total | MS-B | L2521318-1, -3 |
| Matrix Spike | Sodium (Na)-Total | MS-B | L2521318-1, -3 |
| Matrix Spike | Sodium (Na)-Total | MS-B | L2521318-1, -3 |
| Matrix Spike | Sodium (Na)-Total | MS-B | L2521318-1, -3 |
| Matrix Spike | Strontium (Sr)-Total | MS-B | L2521318-1, -3 |
| Matrix Spike | Strontium (Sr)-Total | MS-B | L2521318-1, -3 |

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). |
| 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 | |

Reference Information

| | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------|-----------------------------------------|
| 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 CaCO ₃ 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. | | | |
| 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: |
|---------------------------|
|---------------------------|

Reference Information

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: L2521318

Report Date: 03-NOV-20

Page 1 of 18

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

Contact: Scott Garthwaite

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 2 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-------------------------|--------------|-------------------|--------|-----------|-------|-----|--------|-----------|
| C-TOT-ORG-LOW-CL | Water | | | | | | | |
| Batch R5271596 | | | | | | | | |
| WG3435581-6 LCS | | | | | | | | |
| Total Organic Carbon | | | 106.3 | | % | | 80-120 | 29-OCT-20 |
| WG3435581-5 MB | | | | | | | | |
| Total Organic Carbon | | | <0.50 | | mg/L | | 0.5 | 29-OCT-20 |
| CL-L-IC-N-CL | Water | | | | | | | |
| Batch R5269766 | | | | | | | | |
| WG3433469-3 DUP | | L2521318-3 | | | | | | |
| Chloride (Cl) | | 0.56 | 0.57 | | mg/L | 1.6 | 20 | 26-OCT-20 |
| WG3433469-2 LCS | | | | | | | | |
| Chloride (Cl) | | | 103.3 | | % | | 85-115 | 26-OCT-20 |
| WG3433469-1 MB | | | | | | | | |
| Chloride (Cl) | | | <0.10 | | mg/L | | 0.1 | 26-OCT-20 |
| WG3433469-4 MS | | L2521318-3 | | | | | | |
| Chloride (Cl) | | | 104.1 | | % | | 75-125 | 26-OCT-20 |
| COD-T-COL-CL | Water | | | | | | | |
| Batch R5270505 | | | | | | | | |
| WG3434336-7 DUP | | L2521318-6 | | | | | | |
| Chemical Oxygen Demand | | 155 | 152 | | mg/L | 1.9 | 20 | 28-OCT-20 |
| WG3434336-14 LCS | | | | | | | | |
| Chemical Oxygen Demand | | | 98.2 | | % | | 85-115 | 28-OCT-20 |
| WG3434336-6 LCS | | | | | | | | |
| Chemical Oxygen Demand | | | 98.6 | | % | | 85-115 | 28-OCT-20 |
| WG3434336-13 MB | | | | | | | | |
| Chemical Oxygen Demand | | | <10 | | mg/L | | 10 | 28-OCT-20 |
| WG3434336-5 MB | | | | | | | | |
| Chemical Oxygen Demand | | | <10 | | mg/L | | 10 | 28-OCT-20 |
| WG3434336-8 MS | | L2521318-6 | | | | | | |
| Chemical Oxygen Demand | | N/A | MS-B | % | | | - | 28-OCT-20 |
| F-L-IC-CL | Water | | | | | | | |
| Batch R5269766 | | | | | | | | |
| WG3433469-3 DUP | | L2521318-3 | | | | | | |
| Fluoride (F) | | 0.055 | 0.055 | | mg/L | 1.1 | 20 | 26-OCT-20 |
| WG3433469-2 LCS | | | | | | | | |
| Fluoride (F) | | | 96.0 | | % | | 85-115 | 26-OCT-20 |
| WG3433469-1 MB | | | | | | | | |
| Fluoride (F) | | | <0.020 | | mg/L | | 0.02 | 26-OCT-20 |
| WG3433469-4 MS | | L2521318-3 | | | | | | |
| Fluoride (F) | | | 100.7 | | % | | 75-125 | 26-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 3 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|--------------|-----------|------------|-----------|-------|-----|----------|-----------|
| HG-D-CVAA-CL | Water | | | | | | | |
| Batch R5271223 | | | | | | | | |
| WG3435128-10 LCS | | | | | | | | |
| Mercury (Hg)-Dissolved | | | 86.8 | | % | | 80-120 | 29-OCT-20 |
| WG3435128-9 MB | | | | | | | | |
| Mercury (Hg)-Dissolved | | | <0.0000050 | | mg/L | | 0.000005 | 29-OCT-20 |
| HG-T-CVAA-CL | Water | | | | | | | |
| Batch R5271223 | | | | | | | | |
| WG3435122-6 LCS | | | | | | | | |
| Mercury (Hg)-Total | | | 95.3 | | % | | 80-120 | 29-OCT-20 |
| WG3435122-5 MB | | | | | | | | |
| Mercury (Hg)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 29-OCT-20 |
| MET-D-CCMS-CL | Water | | | | | | | |
| Batch R5271224 | | | | | | | | |
| WG3435381-2 LCS | TMRM | | | | | | | |
| Aluminum (Al)-Dissolved | | | 105.0 | | % | | 80-120 | 20-OCT-29 |
| Antimony (Sb)-Dissolved | | | 99.7 | | % | | 80-120 | 20-OCT-29 |
| Arsenic (As)-Dissolved | | | 103.2 | | % | | 80-120 | 20-OCT-29 |
| Barium (Ba)-Dissolved | | | 106.3 | | % | | 80-120 | 20-OCT-29 |
| Bismuth (Bi)-Dissolved | | | 100.6 | | % | | 80-120 | 20-OCT-29 |
| Boron (B)-Dissolved | | | 98.6 | | % | | 80-120 | 20-OCT-29 |
| Cadmium (Cd)-Dissolved | | | 100.8 | | % | | 80-120 | 20-OCT-29 |
| Calcium (Ca)-Dissolved | | | 101.4 | | % | | 80-120 | 20-OCT-29 |
| Chromium (Cr)-Dissolved | | | 104.6 | | % | | 80-120 | 20-OCT-29 |
| Cobalt (Co)-Dissolved | | | 102.8 | | % | | 80-120 | 20-OCT-29 |
| Copper (Cu)-Dissolved | | | 102.2 | | % | | 80-120 | 20-OCT-29 |
| Iron (Fe)-Dissolved | | | 115.3 | | % | | 80-120 | 20-OCT-29 |
| Lead (Pb)-Dissolved | | | 100.7 | | % | | 80-120 | 20-OCT-29 |
| Lithium (Li)-Dissolved | | | 97.2 | | % | | 80-120 | 20-OCT-29 |
| Magnesium (Mg)-Dissolved | | | 103.0 | | % | | 80-120 | 20-OCT-29 |
| Manganese (Mn)-Dissolved | | | 102.8 | | % | | 80-120 | 20-OCT-29 |
| Molybdenum (Mo)-Dissolved | | | 104.0 | | % | | 80-120 | 20-OCT-29 |
| Nickel (Ni)-Dissolved | | | 102.4 | | % | | 80-120 | 20-OCT-29 |
| Phosphorus (P)-Dissolved | | | 103.9 | | % | | 70-130 | 20-OCT-29 |
| Potassium (K)-Dissolved | | | 103.2 | | % | | 80-120 | 20-OCT-29 |
| Selenium (Se)-Dissolved | | | 100.8 | | % | | 80-120 | 20-OCT-29 |
| Silicon (Si)-Dissolved | | | 104.0 | | % | | 60-140 | 20-OCT-29 |
| Silver (Ag)-Dissolved | | | 101.9 | | % | | 80-120 | 20-OCT-29 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 4 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------|-----------------|-------------|------------|-----------|-------|-----|----------|-----------|
| MET-D-CCMS-CL | Water | | | | | | | |
| Batch | R5271224 | | | | | | | |
| WG3435381-2 LCS | | TMRM | | | | | | |
| Sodium (Na)-Dissolved | | | 107.1 | | % | | 80-120 | 20-OCT-29 |
| Strontium (Sr)-Dissolved | | | 104.4 | | % | | 80-120 | 20-OCT-29 |
| Sulfur (S)-Dissolved | | | 103.8 | | % | | 80-120 | 20-OCT-29 |
| Thallium (Tl)-Dissolved | | | 97.9 | | % | | 80-120 | 20-OCT-29 |
| Tin (Sn)-Dissolved | | | 99.6 | | % | | 80-120 | 20-OCT-29 |
| Titanium (Ti)-Dissolved | | | 102.0 | | % | | 80-120 | 20-OCT-29 |
| Uranium (U)-Dissolved | | | 103.1 | | % | | 80-120 | 20-OCT-29 |
| Vanadium (V)-Dissolved | | | 107.1 | | % | | 80-120 | 20-OCT-29 |
| Zinc (Zn)-Dissolved | | | 100.9 | | % | | 80-120 | 20-OCT-29 |
| Zirconium (Zr)-Dissolved | | | 101.4 | | % | | 80-120 | 20-OCT-29 |
| WG3435381-1 MB | | | | | | | | |
| Aluminum (Al)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 20-OCT-29 |
| Antimony (Sb)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 20-OCT-29 |
| Arsenic (As)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 20-OCT-29 |
| Barium (Ba)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 20-OCT-29 |
| Bismuth (Bi)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 20-OCT-29 |
| Boron (B)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 20-OCT-29 |
| Cadmium (Cd)-Dissolved | | | <0.000005C | | mg/L | | 0.000005 | 20-OCT-29 |
| Calcium (Ca)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 20-OCT-29 |
| Chromium (Cr)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 20-OCT-29 |
| Cobalt (Co)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 20-OCT-29 |
| Copper (Cu)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 20-OCT-29 |
| Iron (Fe)-Dissolved | | | <0.010 | | mg/L | | 0.01 | 20-OCT-29 |
| Lead (Pb)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 20-OCT-29 |
| Lithium (Li)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 20-OCT-29 |
| Magnesium (Mg)-Dissolved | | | <0.0050 | | mg/L | | 0.005 | 20-OCT-29 |
| Manganese (Mn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 20-OCT-29 |
| Molybdenum (Mo)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 20-OCT-29 |
| Nickel (Ni)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 20-OCT-29 |
| Phosphorus (P)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 20-OCT-29 |
| Potassium (K)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 20-OCT-29 |
| Selenium (Se)-Dissolved | | | <0.000050 | | mg/L | | 0.00005 | 20-OCT-29 |
| Silicon (Si)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 20-OCT-29 |
| Silver (Ag)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 20-OCT-29 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 5 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|--------------------------|----------|-----------|-----------|-----------|-------|-----|---------|-----------|
| MET-D-CCMS-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5271224 | | | | | | | |
| WG3435381-1 | MB | | | | | | | |
| Sodium (Na)-Dissolved | | | <0.050 | | mg/L | | 0.05 | 20-OCT-29 |
| Strontium (Sr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 20-OCT-29 |
| Sulfur (S)-Dissolved | | | <0.50 | | mg/L | | 0.5 | 20-OCT-29 |
| Thallium (Tl)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 20-OCT-29 |
| Tin (Sn)-Dissolved | | | <0.00010 | | mg/L | | 0.0001 | 20-OCT-29 |
| Titanium (Ti)-Dissolved | | | <0.00030 | | mg/L | | 0.0003 | 20-OCT-29 |
| Uranium (U)-Dissolved | | | <0.000010 | | mg/L | | 0.00001 | 20-OCT-29 |
| Vanadium (V)-Dissolved | | | <0.00050 | | mg/L | | 0.0005 | 20-OCT-29 |
| Zinc (Zn)-Dissolved | | | <0.0010 | | mg/L | | 0.001 | 20-OCT-29 |
| Zirconium (Zr)-Dissolved | | | <0.00020 | | mg/L | | 0.0002 | 20-OCT-29 |
| MET-T-CCMS-CL | | | | | | | | |
| Water | | | | | | | | |
| Batch | R5270449 | | | | | | | |
| WG3433329-10 | LCS | TMRM | | | | | | |
| Aluminum (Al)-Total | | | 103.8 | | % | | 80-120 | 29-OCT-20 |
| Antimony (Sb)-Total | | | 102.4 | | % | | 80-120 | 29-OCT-20 |
| Arsenic (As)-Total | | | 103.6 | | % | | 80-120 | 29-OCT-20 |
| Barium (Ba)-Total | | | 106.7 | | % | | 80-120 | 29-OCT-20 |
| Bismuth (Bi)-Total | | | 98.7 | | % | | 80-120 | 29-OCT-20 |
| Boron (B)-Total | | | 97.8 | | % | | 80-120 | 29-OCT-20 |
| Cadmium (Cd)-Total | | | 102.5 | | % | | 80-120 | 29-OCT-20 |
| Calcium (Ca)-Total | | | 100.3 | | % | | 80-120 | 29-OCT-20 |
| Chromium (Cr)-Total | | | 106.6 | | % | | 80-120 | 29-OCT-20 |
| Cobalt (Co)-Total | | | 104.3 | | % | | 80-120 | 29-OCT-20 |
| Copper (Cu)-Total | | | 104.5 | | % | | 80-120 | 29-OCT-20 |
| Iron (Fe)-Total | | | 119.4 | | % | | 80-120 | 29-OCT-20 |
| Lead (Pb)-Total | | | 101.2 | | % | | 80-120 | 29-OCT-20 |
| Lithium (Li)-Total | | | 104.2 | | % | | 80-120 | 29-OCT-20 |
| Magnesium (Mg)-Total | | | 105.3 | | % | | 80-120 | 29-OCT-20 |
| Manganese (Mn)-Total | | | 105.3 | | % | | 80-120 | 29-OCT-20 |
| Molybdenum (Mo)-Total | | | 102.3 | | % | | 80-120 | 29-OCT-20 |
| Nickel (Ni)-Total | | | 108.3 | | % | | 80-120 | 29-OCT-20 |
| Phosphorus (P)-Total | | | 103.6 | | % | | 70-130 | 29-OCT-20 |
| Potassium (K)-Total | | | 104.6 | | % | | 80-120 | 29-OCT-20 |
| Selenium (Se)-Total | | | 100.4 | | % | | 80-120 | 29-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 6 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-------------------------|--------------|-------------|--------|-----------|-------|-----|--------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5270449 | | | | | | | |
| WG3433329-10 LCS | | TMRM | | | | | | |
| Silicon (Si)-Total | | | 103.2 | | % | | 60-140 | 29-OCT-20 |
| Silver (Ag)-Total | | | 102.9 | | % | | 80-120 | 29-OCT-20 |
| Sodium (Na)-Total | | | 100.9 | | % | | 80-120 | 29-OCT-20 |
| Strontium (Sr)-Total | | | 106.0 | | % | | 80-120 | 29-OCT-20 |
| Sulfur (S)-Total | | | 92.2 | | % | | 80-120 | 29-OCT-20 |
| Thallium (Tl)-Total | | | 102.5 | | % | | 80-120 | 29-OCT-20 |
| Tin (Sn)-Total | | | 100.7 | | % | | 80-120 | 29-OCT-20 |
| Titanium (Ti)-Total | | | 99.99 | | % | | 80-120 | 29-OCT-20 |
| Uranium (U)-Total | | | 104.8 | | % | | 80-120 | 29-OCT-20 |
| Vanadium (V)-Total | | | 106.3 | | % | | 80-120 | 29-OCT-20 |
| Zinc (Zn)-Total | | | 103.0 | | % | | 80-120 | 29-OCT-20 |
| Zirconium (Zr)-Total | | | 103.5 | | % | | 80-120 | 29-OCT-20 |
| WG3433329-14 LCS | | TMRM | | | | | | |
| Aluminum (Al)-Total | | | 103.4 | | % | | 80-120 | 29-OCT-20 |
| Antimony (Sb)-Total | | | 105.6 | | % | | 80-120 | 29-OCT-20 |
| Arsenic (As)-Total | | | 101.0 | | % | | 80-120 | 29-OCT-20 |
| Barium (Ba)-Total | | | 104.8 | | % | | 80-120 | 29-OCT-20 |
| Bismuth (Bi)-Total | | | 102.4 | | % | | 80-120 | 29-OCT-20 |
| Boron (B)-Total | | | 99.98 | | % | | 80-120 | 29-OCT-20 |
| Cadmium (Cd)-Total | | | 102.7 | | % | | 80-120 | 29-OCT-20 |
| Calcium (Ca)-Total | | | 103.0 | | % | | 80-120 | 29-OCT-20 |
| Chromium (Cr)-Total | | | 105.4 | | % | | 80-120 | 29-OCT-20 |
| Cobalt (Co)-Total | | | 102.4 | | % | | 80-120 | 29-OCT-20 |
| Copper (Cu)-Total | | | 102.8 | | % | | 80-120 | 29-OCT-20 |
| Iron (Fe)-Total | | | 117.8 | | % | | 80-120 | 29-OCT-20 |
| Lead (Pb)-Total | | | 101.9 | | % | | 80-120 | 29-OCT-20 |
| Lithium (Li)-Total | | | 107.3 | | % | | 80-120 | 29-OCT-20 |
| Magnesium (Mg)-Total | | | 103.7 | | % | | 80-120 | 29-OCT-20 |
| Manganese (Mn)-Total | | | 104.2 | | % | | 80-120 | 29-OCT-20 |
| Molybdenum (Mo)-Total | | | 103.6 | | % | | 80-120 | 29-OCT-20 |
| Nickel (Ni)-Total | | | 105.0 | | % | | 80-120 | 29-OCT-20 |
| Phosphorus (P)-Total | | | 102.7 | | % | | 70-130 | 29-OCT-20 |
| Potassium (K)-Total | | | 100.7 | | % | | 80-120 | 29-OCT-20 |
| Selenium (Se)-Total | | | 97.8 | | % | | 80-120 | 29-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 7 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-------------------------|--------------|-------------|--------|-----------|-------|-----|--------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5270449 | | | | | | | |
| WG3433329-14 LCS | | TMRM | | | | | | |
| Silicon (Si)-Total | | | 102.0 | | % | | 60-140 | 29-OCT-20 |
| Silver (Ag)-Total | | | 104.2 | | % | | 80-120 | 29-OCT-20 |
| Sodium (Na)-Total | | | 98.5 | | % | | 80-120 | 29-OCT-20 |
| Strontium (Sr)-Total | | | 107.7 | | % | | 80-120 | 29-OCT-20 |
| Sulfur (S)-Total | | | 95.8 | | % | | 80-120 | 29-OCT-20 |
| Thallium (Tl)-Total | | | 102.4 | | % | | 80-120 | 29-OCT-20 |
| Tin (Sn)-Total | | | 100.7 | | % | | 80-120 | 29-OCT-20 |
| Titanium (Ti)-Total | | | 97.6 | | % | | 80-120 | 29-OCT-20 |
| Uranium (U)-Total | | | 106.2 | | % | | 80-120 | 29-OCT-20 |
| Vanadium (V)-Total | | | 103.8 | | % | | 80-120 | 29-OCT-20 |
| Zinc (Zn)-Total | | | 101.0 | | % | | 80-120 | 29-OCT-20 |
| Zirconium (Zr)-Total | | | 105.3 | | % | | 80-120 | 29-OCT-20 |
| WG3433329-18 LCS | | TMRM | | | | | | |
| Aluminum (Al)-Total | | | 102.7 | | % | | 80-120 | 29-OCT-20 |
| Antimony (Sb)-Total | | | 102.4 | | % | | 80-120 | 29-OCT-20 |
| Arsenic (As)-Total | | | 101.6 | | % | | 80-120 | 29-OCT-20 |
| Barium (Ba)-Total | | | 105.2 | | % | | 80-120 | 29-OCT-20 |
| Bismuth (Bi)-Total | | | 99.7 | | % | | 80-120 | 29-OCT-20 |
| Boron (B)-Total | | | 103.7 | | % | | 80-120 | 29-OCT-20 |
| Cadmium (Cd)-Total | | | 100.8 | | % | | 80-120 | 29-OCT-20 |
| Calcium (Ca)-Total | | | 99.3 | | % | | 80-120 | 29-OCT-20 |
| Chromium (Cr)-Total | | | 104.1 | | % | | 80-120 | 29-OCT-20 |
| Cobalt (Co)-Total | | | 101.9 | | % | | 80-120 | 29-OCT-20 |
| Copper (Cu)-Total | | | 101.0 | | % | | 80-120 | 29-OCT-20 |
| Iron (Fe)-Total | | | 118.9 | | % | | 80-120 | 29-OCT-20 |
| Lead (Pb)-Total | | | 101.4 | | % | | 80-120 | 29-OCT-20 |
| Lithium (Li)-Total | | | 110.8 | | % | | 80-120 | 29-OCT-20 |
| Magnesium (Mg)-Total | | | 102.1 | | % | | 80-120 | 29-OCT-20 |
| Manganese (Mn)-Total | | | 103.2 | | % | | 80-120 | 29-OCT-20 |
| Molybdenum (Mo)-Total | | | 101.0 | | % | | 80-120 | 29-OCT-20 |
| Nickel (Ni)-Total | | | 108.3 | | % | | 80-120 | 29-OCT-20 |
| Phosphorus (P)-Total | | | 104.4 | | % | | 70-130 | 29-OCT-20 |
| Potassium (K)-Total | | | 102.0 | | % | | 80-120 | 29-OCT-20 |
| Selenium (Se)-Total | | | 100.2 | | % | | 80-120 | 29-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 8 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-----------------------|----------|-----------|--------|-----------|-------|-----|--------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5270449 | | | | | | | |
| WG3433329-18 LCS | | TMRM | | | | | | |
| Silicon (Si)-Total | | | 105.4 | | % | | 60-140 | 29-OCT-20 |
| Silver (Ag)-Total | | | 103.5 | | % | | 80-120 | 29-OCT-20 |
| Sodium (Na)-Total | | | 100.2 | | % | | 80-120 | 29-OCT-20 |
| Strontium (Sr)-Total | | | 104.1 | | % | | 80-120 | 29-OCT-20 |
| Sulfur (S)-Total | | | 100.9 | | % | | 80-120 | 29-OCT-20 |
| Thallium (Tl)-Total | | | 99.6 | | % | | 80-120 | 29-OCT-20 |
| Tin (Sn)-Total | | | 100.2 | | % | | 80-120 | 29-OCT-20 |
| Titanium (Ti)-Total | | | 100.3 | | % | | 80-120 | 29-OCT-20 |
| Uranium (U)-Total | | | 102.1 | | % | | 80-120 | 29-OCT-20 |
| Vanadium (V)-Total | | | 104.4 | | % | | 80-120 | 29-OCT-20 |
| Zinc (Zn)-Total | | | 100.3 | | % | | 80-120 | 29-OCT-20 |
| Zirconium (Zr)-Total | | | 101.8 | | % | | 80-120 | 29-OCT-20 |
| WG3433329-2 LCS | | TMRM | | | | | | |
| Aluminum (Al)-Total | | | 104.4 | | % | | 80-120 | 29-OCT-20 |
| Antimony (Sb)-Total | | | 100.7 | | % | | 80-120 | 29-OCT-20 |
| Arsenic (As)-Total | | | 102.8 | | % | | 80-120 | 29-OCT-20 |
| Barium (Ba)-Total | | | 107.5 | | % | | 80-120 | 29-OCT-20 |
| Bismuth (Bi)-Total | | | 98.6 | | % | | 80-120 | 29-OCT-20 |
| Boron (B)-Total | | | 98.9 | | % | | 80-120 | 29-OCT-20 |
| Cadmium (Cd)-Total | | | 101.4 | | % | | 80-120 | 29-OCT-20 |
| Calcium (Ca)-Total | | | 102.8 | | % | | 80-120 | 29-OCT-20 |
| Chromium (Cr)-Total | | | 106.6 | | % | | 80-120 | 29-OCT-20 |
| Cobalt (Co)-Total | | | 104.1 | | % | | 80-120 | 29-OCT-20 |
| Copper (Cu)-Total | | | 103.9 | | % | | 80-120 | 29-OCT-20 |
| Iron (Fe)-Total | | | 118.0 | | % | | 80-120 | 29-OCT-20 |
| Lead (Pb)-Total | | | 98.7 | | % | | 80-120 | 29-OCT-20 |
| Lithium (Li)-Total | | | 102.4 | | % | | 80-120 | 29-OCT-20 |
| Magnesium (Mg)-Total | | | 107.0 | | % | | 80-120 | 29-OCT-20 |
| Manganese (Mn)-Total | | | 106.0 | | % | | 80-120 | 29-OCT-20 |
| Molybdenum (Mo)-Total | | | 101.3 | | % | | 80-120 | 29-OCT-20 |
| Nickel (Ni)-Total | | | 106.7 | | % | | 80-120 | 29-OCT-20 |
| Phosphorus (P)-Total | | | 103.9 | | % | | 70-130 | 29-OCT-20 |
| Potassium (K)-Total | | | 103.4 | | % | | 80-120 | 29-OCT-20 |
| Selenium (Se)-Total | | | 97.2 | | % | | 80-120 | 29-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 9 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------|-----------------|-------------|------------|-----------|-------|-----|----------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5270449 | | | | | | | |
| WG3433329-2 LCS | | TMRM | | | | | | |
| Silicon (Si)-Total | | | 103.2 | | % | | 60-140 | 29-OCT-20 |
| Silver (Ag)-Total | | | 101.7 | | % | | 80-120 | 29-OCT-20 |
| Sodium (Na)-Total | | | 103.2 | | % | | 80-120 | 29-OCT-20 |
| Strontium (Sr)-Total | | | 103.8 | | % | | 80-120 | 29-OCT-20 |
| Sulfur (S)-Total | | | 95.9 | | % | | 80-120 | 29-OCT-20 |
| Thallium (Tl)-Total | | | 98.0 | | % | | 80-120 | 29-OCT-20 |
| Tin (Sn)-Total | | | 98.6 | | % | | 80-120 | 29-OCT-20 |
| Titanium (Ti)-Total | | | 102.8 | | % | | 80-120 | 29-OCT-20 |
| Uranium (U)-Total | | | 98.4 | | % | | 80-120 | 29-OCT-20 |
| Vanadium (V)-Total | | | 106.8 | | % | | 80-120 | 29-OCT-20 |
| Zinc (Zn)-Total | | | 105.3 | | % | | 80-120 | 29-OCT-20 |
| Zirconium (Zr)-Total | | | 101.7 | | % | | 80-120 | 29-OCT-20 |
| WG3433329-1 MB | | | | | | | | |
| Aluminum (Al)-Total | | | <0.0030 | | mg/L | | 0.003 | 29-OCT-20 |
| Antimony (Sb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Arsenic (As)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Barium (Ba)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Bismuth (Bi)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Boron (B)-Total | | | <0.010 | | mg/L | | 0.01 | 29-OCT-20 |
| Cadmium (Cd)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 29-OCT-20 |
| Calcium (Ca)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Cobalt (Co)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Copper (Cu)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Iron (Fe)-Total | | | <0.010 | | mg/L | | 0.01 | 29-OCT-20 |
| Lead (Pb)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Lithium (Li)-Total | | | <0.0010 | | mg/L | | 0.001 | 29-OCT-20 |
| Magnesium (Mg)-Total | | | <0.0050 | | mg/L | | 0.005 | 29-OCT-20 |
| Manganese (Mn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Nickel (Ni)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Potassium (K)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Selenium (Se)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 10 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------|--------|-----------|------------|-----------|-------|-----|----------|-----------|
| MET-T-CCMS-CL | | Water | | | | | | |
| Batch R5270449 | | | | | | | | |
| WG3433329-1 MB | | | | | | | | |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Silver (Ag)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Sodium (Na)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Strontium (Sr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 29-OCT-20 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 29-OCT-20 |
| Thallium (Tl)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Tin (Sn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Titanium (Ti)-Total | | | <0.00030 | | mg/L | | 0.0003 | 29-OCT-20 |
| Uranium (U)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Vanadium (V)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Zinc (Zn)-Total | | | <0.0030 | | mg/L | | 0.003 | 29-OCT-20 |
| Zirconium (Zr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 29-OCT-20 |
| WG3433329-13 MB | | | | | | | | |
| Aluminum (Al)-Total | | | <0.0030 | | mg/L | | 0.003 | 29-OCT-20 |
| Antimony (Sb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Arsenic (As)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Barium (Ba)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Bismuth (Bi)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Boron (B)-Total | | | <0.010 | | mg/L | | 0.01 | 29-OCT-20 |
| Cadmium (Cd)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 29-OCT-20 |
| Calcium (Ca)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Cobalt (Co)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Copper (Cu)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Iron (Fe)-Total | | | <0.010 | | mg/L | | 0.01 | 29-OCT-20 |
| Lead (Pb)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Lithium (Li)-Total | | | <0.0010 | | mg/L | | 0.001 | 29-OCT-20 |
| Magnesium (Mg)-Total | | | <0.0050 | | mg/L | | 0.005 | 29-OCT-20 |
| Manganese (Mn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Nickel (Ni)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Potassium (K)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Selenium (Se)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 11 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------|--------|-----------|------------|-----------|-------|-----|----------|-----------|
| MET-T-CCMS-CL | | Water | | | | | | |
| Batch R5270449 | | | | | | | | |
| WG3433329-13 MB | | | | | | | | |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Silver (Ag)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Sodium (Na)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Strontium (Sr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 29-OCT-20 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 29-OCT-20 |
| Thallium (Tl)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Tin (Sn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Titanium (Ti)-Total | | | <0.00030 | | mg/L | | 0.0003 | 29-OCT-20 |
| Uranium (U)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Vanadium (V)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Zinc (Zn)-Total | | | <0.0030 | | mg/L | | 0.003 | 29-OCT-20 |
| Zirconium (Zr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 29-OCT-20 |
| WG3433329-17 MB | | | | | | | | |
| Aluminum (Al)-Total | | | <0.0030 | | mg/L | | 0.003 | 29-OCT-20 |
| Antimony (Sb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Arsenic (As)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Barium (Ba)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Bismuth (Bi)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Boron (B)-Total | | | <0.010 | | mg/L | | 0.01 | 29-OCT-20 |
| Cadmium (Cd)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 29-OCT-20 |
| Calcium (Ca)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Cobalt (Co)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Copper (Cu)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Iron (Fe)-Total | | | <0.010 | | mg/L | | 0.01 | 29-OCT-20 |
| Lead (Pb)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Lithium (Li)-Total | | | <0.0010 | | mg/L | | 0.001 | 29-OCT-20 |
| Magnesium (Mg)-Total | | | <0.0050 | | mg/L | | 0.005 | 29-OCT-20 |
| Manganese (Mn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Nickel (Ni)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Potassium (K)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Selenium (Se)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 12 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-----------------------|--------|-----------|------------|-----------|-------|-----|----------|-----------|
| MET-T-CCMS-CL | | Water | | | | | | |
| Batch R5270449 | | | | | | | | |
| WG3433329-17 MB | | | | | | | | |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Silver (Ag)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Sodium (Na)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Strontium (Sr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 29-OCT-20 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 29-OCT-20 |
| Thallium (Tl)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Tin (Sn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Titanium (Ti)-Total | | | <0.00030 | | mg/L | | 0.0003 | 29-OCT-20 |
| Uranium (U)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Vanadium (V)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Zinc (Zn)-Total | | | <0.0030 | | mg/L | | 0.003 | 29-OCT-20 |
| Zirconium (Zr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 29-OCT-20 |
| WG3433329-5 MB | | | | | | | | |
| Aluminum (Al)-Total | | | <0.0030 | | mg/L | | 0.003 | 29-OCT-20 |
| Antimony (Sb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Arsenic (As)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Barium (Ba)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Bismuth (Bi)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Boron (B)-Total | | | <0.010 | | mg/L | | 0.01 | 29-OCT-20 |
| Cadmium (Cd)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 29-OCT-20 |
| Calcium (Ca)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Cobalt (Co)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Copper (Cu)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Iron (Fe)-Total | | | <0.010 | | mg/L | | 0.01 | 29-OCT-20 |
| Lead (Pb)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Lithium (Li)-Total | | | <0.0010 | | mg/L | | 0.001 | 29-OCT-20 |
| Magnesium (Mg)-Total | | | <0.0050 | | mg/L | | 0.005 | 29-OCT-20 |
| Manganese (Mn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Nickel (Ni)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Potassium (K)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Selenium (Se)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 13 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|-----------------------|--------|-----------|------------|-----------|-------|-----|----------|-----------|
| MET-T-CCMS-CL | | Water | | | | | | |
| Batch R5270449 | | | | | | | | |
| WG3433329-5 MB | | | | | | | | |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Silver (Ag)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Sodium (Na)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Strontium (Sr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 29-OCT-20 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 29-OCT-20 |
| Thallium (Tl)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Tin (Sn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Titanium (Ti)-Total | | | <0.00030 | | mg/L | | 0.0003 | 29-OCT-20 |
| Uranium (U)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Vanadium (V)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Zinc (Zn)-Total | | | <0.0030 | | mg/L | | 0.003 | 29-OCT-20 |
| Zirconium (Zr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 29-OCT-20 |
| WG3433329-9 MB | | | | | | | | |
| Aluminum (Al)-Total | | | <0.0030 | | mg/L | | 0.003 | 29-OCT-20 |
| Antimony (Sb)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Arsenic (As)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Barium (Ba)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Bismuth (Bi)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Boron (B)-Total | | | <0.010 | | mg/L | | 0.01 | 29-OCT-20 |
| Cadmium (Cd)-Total | | | <0.0000050 | | mg/L | | 0.000005 | 29-OCT-20 |
| Calcium (Ca)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Chromium (Cr)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Cobalt (Co)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Copper (Cu)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Iron (Fe)-Total | | | <0.010 | | mg/L | | 0.01 | 29-OCT-20 |
| Lead (Pb)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Lithium (Li)-Total | | | <0.0010 | | mg/L | | 0.001 | 29-OCT-20 |
| Magnesium (Mg)-Total | | | <0.0050 | | mg/L | | 0.005 | 29-OCT-20 |
| Manganese (Mn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Molybdenum (Mo)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |
| Nickel (Ni)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Phosphorus (P)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Potassium (K)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Selenium (Se)-Total | | | <0.000050 | | mg/L | | 0.00005 | 29-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 14 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|----------------------|--------------|------------|-----------|-----------|--------|------|---------|-----------|
| MET-T-CCMS-CL | Water | | | | | | | |
| Batch | R5270449 | | | | | | | |
| WG3433329-9 MB | | | | | | | | |
| Silicon (Si)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Silver (Ag)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Sodium (Na)-Total | | | <0.050 | | mg/L | | 0.05 | 29-OCT-20 |
| Strontium (Sr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 29-OCT-20 |
| Sulfur (S)-Total | | | <0.50 | | mg/L | | 0.5 | 29-OCT-20 |
| Thallium (Tl)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Tin (Sn)-Total | | | <0.00010 | | mg/L | | 0.0001 | 29-OCT-20 |
| Titanium (Ti)-Total | | | <0.00030 | | mg/L | | 0.0003 | 29-OCT-20 |
| Uranium (U)-Total | | | <0.000010 | | mg/L | | 0.00001 | 29-OCT-20 |
| Vanadium (V)-Total | | | <0.00050 | | mg/L | | 0.0005 | 29-OCT-20 |
| Zinc (Zn)-Total | | | <0.0030 | | mg/L | | 0.003 | 29-OCT-20 |
| Zirconium (Zr)-Total | | | <0.00020 | | mg/L | | 0.0002 | 29-OCT-20 |
| NH3-L-F-CL | Water | | | | | | | |
| Batch | R5271409 | | | | | | | |
| WG3435133-34 LCS | | | | | | | | |
| Ammonia as N | | | 100.7 | | % | | 85-115 | 29-OCT-20 |
| WG3435133-33 MB | | | | | | | | |
| Ammonia as N | | | <0.0050 | | mg/L | | 0.005 | 29-OCT-20 |
| NO2-L-IC-N-CL | Water | | | | | | | |
| Batch | R5269766 | | | | | | | |
| WG3433469-3 DUP | | L2521318-3 | | | | | | |
| Nitrite (as N) | | | <0.0010 | | RPD-NA | mg/L | N/A | 26-OCT-20 |
| WG3433469-2 LCS | | | | | | | | |
| Nitrite (as N) | | | 108.3 | | % | | 90-110 | 26-OCT-20 |
| WG3433469-1 MB | | | | | | | | |
| Nitrite (as N) | | | <0.0010 | | mg/L | | 0.001 | 26-OCT-20 |
| WG3433469-4 MS | | L2521318-3 | | | | | | |
| Nitrite (as N) | | | 107.7 | | % | | 75-125 | 26-OCT-20 |
| NO3-L-IC-N-CL | Water | | | | | | | |
| Batch | R5269766 | | | | | | | |
| WG3433469-3 DUP | | L2521318-3 | | | | | | |
| Nitrate (as N) | | | 0.0066 | | mg/L | | 5.9 | 26-OCT-20 |
| WG3433469-2 LCS | | | | | | | | |
| Nitrate (as N) | | | 103.7 | | % | | 90-110 | 26-OCT-20 |
| WG3433469-1 MB | | | | | | | | |
| Nitrate (as N) | | | <0.0050 | | mg/L | | 0.005 | 26-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 15 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|---------------------------------|--------------|-----------|---------|-----------|-------|-----|--------|-----------|
| NO3-L-IC-N-CL | Water | | | | | | | |
| Batch R5269766 | | | | | | | | |
| WG3433469-4 MS | L2521318-3 | | | | | | | |
| Nitrate (as N) | | | 104.2 | | % | | 75-125 | 26-OCT-20 |
| PH/EC/ALK-CL | Water | | | | | | | |
| Batch R5269935 | | | | | | | | |
| WG3433714-17 LCS | | | | | | | | |
| Conductivity (EC) | | | 92.2 | | % | | 90-110 | 27-OCT-20 |
| Alkalinity, Total (as CaCO3) | | | 100.6 | | % | | 85-115 | 27-OCT-20 |
| WG3433714-16 MB | | | | | | | | |
| Conductivity (EC) | | | <2.0 | | uS/cm | | 2 | 27-OCT-20 |
| Bicarbonate (HCO3) | | | <5.0 | | mg/L | | 5 | 27-OCT-20 |
| Carbonate (CO3) | | | <5.0 | | mg/L | | 5 | 27-OCT-20 |
| Hydroxide (OH) | | | <5.0 | | mg/L | | 5 | 27-OCT-20 |
| Alkalinity, Total (as CaCO3) | | | <2.0 | | mg/L | | 2 | 27-OCT-20 |
| PO4-DO-L-COL-CL | Water | | | | | | | |
| Batch R5269001 | | | | | | | | |
| WG3432465-3 DUP | L2521318-9 | | | | | | | |
| Orthophosphate-Dissolved (as P) | 0.0017 | | 0.0018 | | mg/L | 5.7 | 20 | 26-OCT-20 |
| WG3432465-2 LCS | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 98.0 | | % | | 80-120 | 26-OCT-20 |
| WG3432465-1 MB | | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | <0.0010 | | mg/L | | 0.001 | 26-OCT-20 |
| WG3432465-4 MS | L2521318-5 | | | | | | | |
| Orthophosphate-Dissolved (as P) | | | 113.8 | | % | | 70-130 | 26-OCT-20 |
| SO4-L-IC-N-CL | Water | | | | | | | |
| Batch R5269766 | | | | | | | | |
| WG3433469-3 DUP | L2521318-3 | | | | | | | |
| Sulfate (SO4) | 5.04 | | 5.10 | | mg/L | 1.1 | 20 | 26-OCT-20 |
| WG3433469-2 LCS | | | | | | | | |
| Sulfate (SO4) | | | 104.4 | | % | | 85-115 | 26-OCT-20 |
| WG3433469-1 MB | | | | | | | | |
| Sulfate (SO4) | | | <0.050 | | mg/L | | 0.05 | 26-OCT-20 |
| WG3433469-4 MS | L2521318-3 | | | | | | | |
| Sulfate (SO4) | | | 105.8 | | % | | 75-125 | 26-OCT-20 |
| TSS-L-CL | Water | | | | | | | |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 16 of 18

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|------------------------|--------|-----------|--------|-----------|-------|-----|--------|-----------|
| TSS-L-CL | Water | | | | | | | |
| Batch R5270296 | | | | | | | | |
| WG3432274-6 LCS | | | | | | | | |
| Total Suspended Solids | | | 101.2 | | % | | 85-115 | 27-OCT-20 |
| WG3432274-8 LCS | | | | | | | | |
| Total Suspended Solids | | | 106.3 | | % | | 85-115 | 27-OCT-20 |
| WG3432274-5 MB | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 27-OCT-20 |
| WG3432274-7 MB | | | | | | | | |
| Total Suspended Solids | | | <1.0 | | mg/L | | 1 | 27-OCT-20 |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 17 of 18

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. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

Quality Control Report

Workorder: L2521318

Report Date: 03-NOV-20

Page 18 of 18

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 | 22-OCT-20 | 26-OCT-20 09:00 | 3 | 4 | days | EHTR | |
| 2 | 22-OCT-20 | 26-OCT-20 09:00 | 3 | 4 | days | EHTR | |
| 3 | 22-OCT-20 | 26-OCT-20 09:00 | 3 | 4 | days | EHTR | |
| 4 | 22-OCT-20 | 26-OCT-20 09:00 | 3 | 4 | days | EHTR | |
| 5 | 21-OCT-20 | 26-OCT-20 09:00 | 3 | 5 | days | EHTR | |
| 6 | 21-OCT-20 | 26-OCT-20 09:00 | 3 | 5 | days | EHTR | |
| 7 | 21-OCT-20 | 26-OCT-20 09:00 | 3 | 5 | days | EHTR | |
| 8 | 21-OCT-20 | 26-OCT-20 09:00 | 3 | 5 | days | EHTR | |
| 9 | 22-OCT-20 | 26-OCT-20 09:00 | 3 | 4 | days | EHTR | |
| Nitrite in Water by IC (Low Level) | | | | | | | |
| 1 | 22-OCT-20 | 26-OCT-20 09:00 | 3 | 4 | days | EHTR | |
| 2 | 22-OCT-20 | 26-OCT-20 09:00 | 3 | 4 | days | EHTR | |
| 3 | 22-OCT-20 | 26-OCT-20 09:00 | 3 | 4 | days | EHTR | |
| 4 | 22-OCT-20 | 26-OCT-20 09:00 | 3 | 4 | days | EHTR | |
| 5 | 21-OCT-20 | 26-OCT-20 09:00 | 3 | 5 | days | EHTR | |
| 6 | 21-OCT-20 | 26-OCT-20 09:00 | 3 | 5 | days | EHTR | |
| 7 | 21-OCT-20 | 26-OCT-20 09:00 | 3 | 5 | days | EHTR | |
| 8 | 21-OCT-20 | 26-OCT-20 09:00 | 3 | 5 | days | EHTR | |
| 9 | 22-OCT-20 | 26-OCT-20 09:00 | 3 | 4 | days | EHTR | |
| Orthophosphate-Dissolved (as P) | | | | | | | |
| 1 | 22-OCT-20 | 26-OCT-20 19:00 | 3 | 4 | days | EHTR | |
| 2 | 22-OCT-20 | 26-OCT-20 19:00 | 3 | 4 | days | EHTR | |
| 3 | 22-OCT-20 | 26-OCT-20 19:00 | 3 | 4 | days | EHTR | |
| 4 | 22-OCT-20 | 26-OCT-20 19:00 | 3 | 4 | days | EHTR | |
| 5 | 21-OCT-20 | 26-OCT-20 19:00 | 3 | 5 | days | EHTR | |
| 6 | 21-OCT-20 | 26-OCT-20 19:00 | 3 | 5 | days | EHTR | |
| 7 | 21-OCT-20 | 26-OCT-20 19:00 | 3 | 5 | days | EHTR | |
| 8 | 21-OCT-20 | 26-OCT-20 19:00 | 3 | 5 | days | EHTR | |
| 9 | 22-OCT-20 | 26-OCT-20 19:00 | 3 | 4 | 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 L2521318 were received on 26-OCT-20 08:30.

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.



www.alsglobal.ca



L2521318-COFC

Cooler Was Samples
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 <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- | | | | | | | | | | | | | | | | | | |
| Contact: | Scott Garthwaite | | Merge QC/QCI Reports with COA | <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A | Compare Results to Criteria on Report - provide details below if box checked | | | | | | | | | | | | | | | | | | |
| Phone: | 778-471-7088 | | Select Distribution: | <input type="checkbox"/> EMAIL | <input type="checkbox"/> MAIL | <input type="checkbox"/> FAX | | | | | | | | | | | | | | | | | | | |
| Company address below will appear on the final report | | | | | | | | | | | | | | | | | | | | | | | | | |
| Street: | 1225 East Keith Road | | Email 1 or Fax | sgarthwaite@sperlinghansen.com | | Date and Time Required for all E&P TATs: | dd-mm-yy hh:mm am/pm | | | | | | | | | | | | | | | | | | |
| City/Province: | North Vancouver, B.C. | | Email 2 | chetherington@sperlinghansen.com | | For all tests with rush TATs requested, please contact your AM to confirm availability. | | | | | | | | | | | | | | | | | | | |
| Postal Code: | V7J 1J3 | | Email 3 | | | | | | | | | | | | | | | | | | | | | | |
| Invoice To | Same as Report To <input checked="" type="checkbox"/> <input type="checkbox"/> NO | | Invoice Recipients | | | | | | | | | | | | | | | | | | | | | | |
| | Copy of Invoice with Report <input checked="" type="checkbox"/> <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 | rhajjafari@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) | | | | | | | | | | | | | | | | | | | | | |
| ALS Account # / Quote #: | | | | AFE/Cost Center: | PO# | | | | | | | | | | | | | | | | | | | | |
| Job #: | | | | Major/Minor Code: | Routing Code: | | | | | | | | | | | | | | | | | | | | |
| PO / AFE: | | | | Requisitioner: | | | | | | | | | | | | | | | | | | | | | |
| LSD: | | | | Location: | | | | | | | | | | | | | | | | | | | | | |
| ALS Lab Work Order # (ALS use only): L2521318 | | | | ALS Contact: | Dean Watt | Sampler: <i>Tyler McBride</i> | | | | | | | | | | | | | | | | | | | |
| 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 | NUMBER OF CONTAINERS | Anions | Total Alkalinity | TSS | Dissolved Metals (F/P) | Total Metals (P) | Ammonia | TOC | orthophosphorous | COD | BOD | SAMPLES ON HOLD | EXTENDED STORAGE REQUIRED | SUSPECTED HAZARD (see notes) | | | | | |
| 1 | E257246 | | | 22-10-20 | | Surface Water | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | |
| 2 | E257244 | | | 22-10-20 | | Groundwater | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | |
| 3 | E257247 | | | 22-10-20 | | Surface Water | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | |
| 4 | E257237 | | | 22-10-20 | | Groundwater | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | |
| 5 | E257235 | | | 21-10-20 | | Groundwater | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | |
| 6 | E257250 | | | | | Surface Water | | | | | | | | | | | | | | | | | | | |
| 7 | E257241 | | | | | Groundwater | | | | | | | | | | | | | | | | | | | |
| 8 | E257239 | | | 21-10-20 | | Groundwater | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | |
| 9 | E2572450 | | | | | Surface Water | | | | | | | | | | | | | | | | | | | |
| 10 | E257242 | | | 21-10-20 | | Groundwater | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | |
| 11 | E257236 | | | 21-10-20 | | Groundwater | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | |
| 12 | E257238 | | | 22-10-20 | | Groundwater | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | |
| 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"/> <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"/> <input checked="" type="checkbox"/> NO | | | | | | | | | | | | | | | | 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 | | | | |
| | | | | | | | | | | | | | | | | 120 | | | | | | | | | |
| SHIPMENT RELEASE (client use) | | | | INITIAL SHIPMENT RECEIPTION (ALS use only) | | | | | | | | | | | | FINAL SHIPMENT RECEIPTION (ALS use only) | | | | | | | | | |
| Released by: <i>Tyler McBride</i> | Date: <i>Oct 23, 2020</i> | Time: | Received by: | Date: | Time: | Received by: | <i>2M</i> | Date: | <i>26/10</i> | Time: | <i>J. So</i> | | | | | | | | | | | | | | |

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.

END OF REPORT
