

Kami Mining Project

Champion Kami Partner Inc.

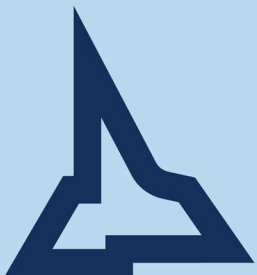
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TSD XII: Geochemical Characterization Report – Phase II Static Testing

Environmental Impact Statement

Document Number: CA00387135261-R-Rev0-TSD_XII_Geochemical Characterization Report – Phase II Static Testing

July 2025



Kami Geochemical Characterization Report – Phase II Static Testing

April 28, 2025



CHAMPION IRON 



Kami Geochemical Characterization Report – Phase II Static Testing

923-227-009

April 2025

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Rev. #	Status	Rev. Date	Author	Reviewer Sign-off	Major Changes
0	DRAFT	October 11, 2024	KC/KR	JR	Initial Version
1	DRAFT	April 2, 2025	KR	JR	Addition of NORM samples
1	FINAL	April 28, 2025	KR	JR	

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EXECUTIVE SUMMARY

Okane Consultants (Okane) was retained by Champion Iron Ltd. (Champion) to characterize metal leaching/acid rock drainage (ML/ARD) risk of units identified as mine rock during the mining operations of the Kamistatusset Iron Ore Mine Project (Kami Project). To meet updated best practice guidelines for this stage of the project, Okane (2023a) recommended additional samples be collected and analyzed for static and kinetic testing.

The Phase I (Okane 2024a) characterization program included statistical comparisons from acid base accounting (ABA) and four-acid elemental digest analysis between the latest geochemical characterization results by Okane and previous work completed by Stantec (2013). In this Phase II Report, additional static testing such as shake flask extraction (SFE) and mineralogy (X-ray diffraction (XRD) and scanning electron microscopy (SEM)), naturally occurring radioactive materials (NORM) tests, and tailings supernatant water chemistry received to date from both the Stantec (2013) and Okane datasets are provided. Additional samples have been submitted by Okane for humidity cell testing, however, these results will be provided in the Phase III geochemical characterization report.

Consistent with previous findings (Stantec 2013; WorleyParsons, 2014), overburden material is classified as Non-Potentially Acid Generating (NPAG), with high neutralization potential ratio (NPR) values (median of 13, and an NPR of 2 at the 5th percentile). Overburden is therefore not a concern for acidic drainage. Results from SFE leachate indicate multiple samples with concentrations of iron, selenium, ammonia above Chronic Freshwater Aquatic Canadian Council of Ministers of the Environment (CCME) water quality guidelines, with some instances of arsenic, cadmium, chromium, copper, nickel, uranium, and zinc also measured above CCME and Metal and Diamond Mining Effluent Regulations (MDMER) guidelines. Stantec (2013) noted that higher metals or Potentially Acid Generating (PAG) materials noted in some overburden samples are likely associated with overburden samples directly above the Menihek Formation. Although SFE results are compared to CCME and MDMER water quality guidelines to determine leachability of parameters of interest, these concentrations do not represent effluent quality expected in the field due to differences in liquid:solid ratios and the time duration of these tests (24 hours) compared to kinetic tests (several weeks to years).

Findings from ABA results for mine rock also support the idea that there is sufficient neutralization potential (NP) in the Mine Rock Stockpile to neutralize acid generation if the stockpile is well mixed, even considering removal of NPAG rock for the Tailings Management Facility (TMF) dam embankment construction (with median and average NPR values of 7.2 and 5.0, respectively). Results from XRD found that pyrite and pyrrhotite were the major sulfide minerals in the mine rock, though Stantec (2013) reported trace amounts of chalcopyrite, galena, and sphalerite from SEM. Geological cross sections are provided in this report to demonstrate spatial distribution of ABA results, which indicated some of the higher risk PAG rock (i.e., less carbonate and higher sulfide content) associated with the Menihek Formation may be located near the surface. Details for PAG management with the extraction schedule will be addressed in the waste management plan.

The Menihek Formation was generally identified as having the lowest paste pH and highest measured concentrations of metals from associated with sulfide oxidation from SFE leachate results. Though the graphitic schist lithology in the Menihek Formation had the highest sulfide contents and lowest NP measurements (indicating greater risk for acid generation), SFE results were comparable between graphitic schist and other lithologies in the Menihek Formation with respect to exceedances above water quality guidelines in parameters of concern.

Though the Menihek Formation has been identified previously as the highest risk material for metal leaching/acid rock drainage (ML/ARD) (Stantec, 2013), all formations except for the Denault had some parameters in SFE leachate measured above water quality guidelines in outlier samples. Leachate from SFE testing of mine rock contained concentrations of parameters that sometimes exceeded CCME and MDMER water quality guidelines, including cadmium, chromium, copper, fluorine, iron, nickel, ammonia, selenium, uranium, and zinc. These are generally consistent with what had been identified by Stantec (2013), except for fluorine and ammonia, which were not identified or measured previously (Stantec, 2013). For ammonia, elevated concentrations may suggest a natural source of nitrogen in the rock, as testing was conducted on drill core samples (i.e., present in the mine rock before blasting). It is possible that measured outliers in SFE leachate may be associated with samples collected close to boundaries of the Menihek Formation; however, due to the complex nature of the deposit, which is highly metamorphosed and folded, segregating rock with higher ML risk could be challenging.

Correlations of metal(loid)s measured from SFE leachate compared to paste pH showed that higher concentrations of some metals (cadmium, chromium, copper, nickel, and zinc) occur at lower pH, while concentrations of other possible parameters of concern (arsenic, selenium, fluorine, ammonia, and uranium) are still elevated under neutral pH conditions. Kinetic tests (such as humidity cell tests) are better indicators of metal leachability over time and their relationships to pH; kinetic results will be provided in the next phase of the geochemical characterization program.

Analysis of SFE results revealed a positive correlation between sulfate and uranium and a negative relationship between uranium and pH. Samples for NORM tests were selected to ensure at least one sample from each formation with high sulfide content (>75th percentile) was selected, based on sample availability. The median radionuclide measurements were then taken based on formation, as well as weighted mine rock for the planned Mine Rock Stockpile. Median and weighted values were compared to the unconditional derived release limits for diffuse NORM sources in the Canadian Guidelines for the Management of NORMs (Health Canada, 2013). For the individual radionuclides analyzed, only radium-226 was exceeded for the unconditional release limits in the graphitic schist lithology of the Menihek Formation. Median values from all other formations and the weighted Mine Rock Stockpile were below unconditional release limits for all individual radionuclides analyzed. However, the sum of ratios for the Menihek, Sokoman, and weighted Mine Rock Stockpile exceeded the unconditional release limit of 1. Due to the small number of samples tested and preference to select potentially high uranium containing samples, these results may be biased and overestimate the NORM risk potential from the mine rock.

All tailings streams and composites were characterized as NPAG, with average NPR values between 7.9 and 493. There is no risk of acid generation from the tailings, though SFE results indicated iron, chromium, and ammonia samples in exceedance of CCME water quality guidelines in some samples. These parameters will continue to be monitored during the humidity cell testing. Amines added to the tailings as part of processing in the mill may have contributed to the exceedance of N, though it is expected that N from blasting residue in the future may also contribute to N loads during Operations. Tailings, which are sometimes a risk for accumulation of radionuclides during processing, all measured below the unconditional release limits for both radionuclides and the sum of ratios and are therefore expected to have no NORM risk.

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1 INTRODUCTION

Okane Consultants (Okane) was retained by Champion Iron Ltd. (Champion) to complete a geochemical characterization program for the Kamistatuset Iron Ore Mine Project (Kami Project). To appropriately plan for closure and rehabilitation of the proposed developments at the Kami Project, a full understanding of the geochemical nature of anticipated mine rock, overburden, and tailings materials from the Rose Pit are required. Geochemical characterization studies were recommended (Okane, 2023a) to meet commitments from the 2014 ministerial release (Shea, J., 2014) to better inform the potential for metal leaching/acid rock drainage (ML/ARD) and environmental risks resulting from mined materials. These studies will inform operational waste management practices as well as mine closure strategies and landform designs in the future.

Champion requested this work to be released in a phased approach to support Champion's ongoing deliverables towards the Environmental Assessment and Feasibility Study stages and to receive updates as results are obtained from the acquired laboratory services. In the Phase I report, acid base accounting (ABA) and four-acid elemental digest were compared using statistical tests to ensure the Okane and Stantec (2013) datasets were geologically representative and can be interpreted together (Okane, 2024a). For statistical comparisons of the Okane and Stantec datasets, refer to the Phase I report, attached as Appendix C.

In this Phase II Report, additional static testing such as shake flask extraction (SFE) and mineralogy (X-ray diffraction (XRD) and scanning electron microscopy (SEM)), and tailings supernatant water chemistry received to date from both the Stantec (2013) and Okane datasets are provided to inform on ML/ARD risk. Kinetic tests recommended by Okane (2023a) will be included in the Phase III report.

Additionally, as part of the Environmental Impact Statement (EIS) Guidelines issued to Kami Mine, "waste rock or quarry materials proposed for use during construction should be characterized for potential Acid Rock Drainage and Metal Leaching (ARD/ML), as well as Naturally Occurring Radioactive Materials (NORM) risks" (Government of Newfoundland and Labrador, 2024). Though not included in the previous geochemical characterization studies completed to date, this report includes results of radioactive elements analysis for NORM testing and comparison to guidelines for NORM standards provided by Health Canada (2013).

1.1 Project Objectives and Scope

An overarching objective of this project is to complete a geochemical characterization program that will address conditions from the 2014 release which may be used to inform on waste management strategies. The current geochemical characterization program (Okane, 2023a) includes sample recommendations to build upon previous characterization work, using existing core samples for geochemical analysis of representative samples for mine rock and tailings materials.

The purpose of this Phase II report includes:

- 1) Summarize static test results received to date including ABA, four-acid elemental digest, XRD, SEM, and SFE.
- 2) Confirm previous ARD classifications.
 - a. Confirmation of ARD characterization will support parallel work conducted by Okane to develop the source terms for the water quality water balance model being developed by Lorax Environmental Inc. (Okane, 2024b).
- 3) Use mineralogical and elemental digest data to confirm the ML/ARD potential of the tailings and mine rock.
- 4) Use SFE results to identify metals that may be leached from materials.
- 5) Report on NORM results as per EIS Guidelines issued to Kami Mine (Government of Newfoundland and Labrador, 2024).

2 BACKGROUND

Previous ML/ARD characterization of the mine rock, overburden, ore, and tailings materials were conducted in three phases by Stantec Consulting Ltd. (Stantec) (2012; 2013) and WorleyParsons Ltd. (WorleyParsons) (2014). Phase III (WorleyParsons, 2014) involved reclassification of ABA and interpretation of the analyses and sampling program completed in Phases I and II by Stantec (2012, 2013). Okane completed review of this work in the Geochemical Characterization Program Memorandum (Okane, 2023a) to support the geochemical sampling and analysis recommendations.

2.1 Site Description

The Kami Project is a high-grade iron ore project located in the Labrador Trough geological belt in southwestern Newfoundland along the Québec border, near the town of Fermont. The deposit is currently planned to be mined over a 26-year period. Mine rock excavated from the Rose Pit is planned to be blasted and crushed using an in-pit crusher, then moved via a conveyor towards the Mine Rock Stockpile to be deposited (Figure 2.1). Overburden will be transported by conventional truck and shovel operations and taken to the Overburden Stockpile.

2.2 Geology

The Project is situated in the metamorphosed and deformed metasedimentary sequence of the Grenville Province, Gagnon Terrane of the Labrador Trough. The Kami Project focuses on the extraction of iron oxide ore from the Rose Deposit, which is divided into the Rose North and Rose Central zones. Metamorphism is responsible for recrystallization of both iron oxides and silica in primary iron formation, producing coarse-grained sugary quartz, magnetite, and specular hematite schist or gneiss (Stantec, 2012). The geology is highly folded and metamorphized. There are five major formations identified in the planned Rose Pit to be mined over the proposed Kami Project:

- 1) The Denault Formation consists of dolomitic marble with interlocking grains and generally is a competent unit. Bands of quartzite are common.
- 2) The Katsao Formation is represented by coarse leuco- and melanocratic banded gneiss with potassium and plagioclase feldspars, various micas, and quartz.
- 3) The Menihek Formation consists of fine mica schist (variable muscovite and biotite with low quartz) and graphitic mica schist with traces of pyrrhotite (sulfide) mostly developed as irregular lenses in the basal 50 m. The formation often contains amphibole-biotite-garnet gneiss. The Menihek Formation, which has been identified as a risk of long-term acidity generating and previously classified as Potentially Acid Generating (PAG), demonstrates complex geology and includes banded lithologies; previous core logging work has identified interbedding of Sokoman and Menihek Formations (WorleyParsons, 2014).

- a. The graphitic mica schist lithology is identified with the greatest sulfide content and creates the greatest risk in terms of ML/ARD potential (Stantec, 2013). This lithology is estimated to make up approximately 4.5% of the total anticipated mine rock.
- 4) The Sokoman Iron Formation consists of metataconite (ore) and associated ankeritic marble-quartz-Fe-silicate gneiss. Mineral grains are generally medium- to coarse-grained and interlocking, making the rock coherent. Sokoman footwall in the Rose Central Pit between the Wishart formation and the ore zone consists of mostly quartz and Fe-silicates. Sokoman non-ore formation in contact with the Menihek formation contains an undefined mix of silicates and carbonates.
- 5) The Wishart Formation is represented by granular quartzite and mica-quartz schist with disseminated calcite near the top.

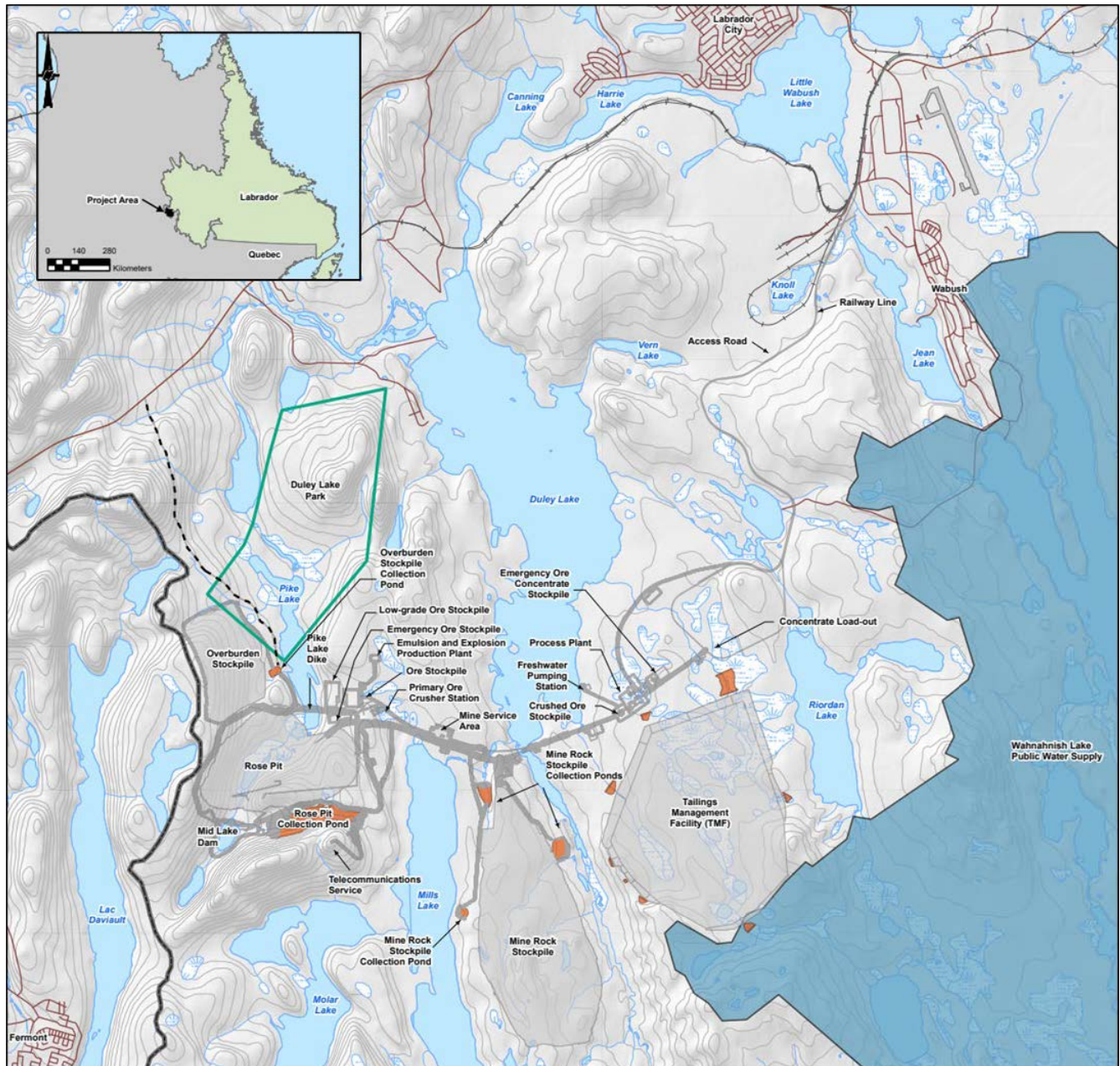


Figure 2.1: Layout and footprints of major mine material storage facilities for the Kami Project.

Modified site plan from WSP, 2025.

2.3 Material Tonnages

Champion advised Okane to use previous tonnages reported in Stantec (2013) to estimate the expected distribution of each formation, which was applied to more recent tonnages of expected mine rock removal from the pit (Table 2.1). 82.5 Mt of crushed Non-Potentially Acid Generating (NPAG) material will be used to construct the Tailings Management Facility (TMF) Dam Embankment (A. Ghirian, personal communication, November 29, 2023), which is assumed to be equally divided between

Sokoman and Wishart Formation mine rock. The remaining 853.4 Mt of mine rock will be crushed using an in-pit crusher and placed by conveyor in the Mine Rock Stockpile, ensuring blending of the different rock types. The Overburden Stockpile will be constructed of 105.6 Mt of overburden material.

Table 2.1: Tonnages of mine rock placed in storage facilities by formation.

Formation	Mine Rock Stockpile	TMF Dam Embankment (Mine Rock)	Overburden Stockpile	Percentage of Mine Rock Stockpile	Percentage of Total Material from Rose Pit
Denault	21,969,349			3%	2%
Katsao	53,903,758			6%	5%
Menihek	288,509,265			34%	28%
Overburden			105,600,000	0%	10%
Sokoman	264,367,614	41,234,712		31%	29%
Wishart	224,714,039	41,234,712		26%	26%
Total	853,428,428	82,469,424	105,600,000		100%

2.4 Previous Geochemical Characterization Work

Okane (2023a) completed a background review of previous geochemical characterization performed on the Kami Project. A phased approach was taken by Stantec and intended to screen materials produced during the project for ML/ARD risk (Stantec, 2012; 2013). Following this, WorleyParsons (2014) completed an ABA assessment of mine rock lithologies, which included some reassessment of ABA classification. Conclusions from the previous geochemical characterization work (Stantec, 2013; WorleyParsons, 2014) are summarized below:

- Ore, concentrate, and tailings are considered NPAG, with low metal-leaching potential based on static tests.
- Overburden contains 8.1% of PAG materials with some SFE samples exceeding Metal and Diamond Mining Effluent Regulation (MDMER) guidelines for copper, nickel, and zinc.
- Most formations extracted from the Rose South Pit will contain some amount of PAG, the stockpile overall will have a positive Net Neutralization Potential (NNP). This suggests that if mine rock is well-mixed, the stockpile will not generate significant downstream acidic seepage.
 - NPAG units include the Sokoman, Wishart, and Denault Formations.
 - The Katsao Formation was classified as uncertain acid generating potential.

- The Menihek Formation was classified as higher risk for acid generation potential, though this risk was generally associated with the graphitic mica schists. Non-graphitic mica schist was classified as uncertain in acid generating potential. Previous kinetic studies showed that acidity can be generated immediately or delayed up to an estimated 19 years in shallow graphitic mica schist samples. Current geochemical characterization aims to increase certainty around ML/ARD risk from the Menihek formation and total volumes of PAG material.
- Estimates of total PAG mine rock ranged from 76 Mt to 316 Mt; however, WorleyParsons (2014) noted ongoing kinetic testing and rock cuttings sampling for ABA in the first year of mining will allow updated classification of mine rock and narrowing of PAG rock tonnage estimates.
- WorleyParsons (2014) highlighted several potential metals of concern from mine rock leaching including silver, aluminum, arsenic, cadmium, chromium, cobalt, copper, iron, mercury, molybdenum, nickel, selenium, and uranium.

2.5 Naturally Occurring Radioactive Materials

Radioactive elements found in the environment (i.e., NORMs) include uranium, thorium, and potassium, and any of their radioactive decay products like radium and radon. Though found naturally in the environment, processing of raw materials may increase the concentration of radioactive substances. Guidelines for NORM standards are provided by Health Canada (2013) to provide radiation exposure criteria for workers and the public exposed to new sources of radiation from activities involving NORMs. These criteria apply where NORMs are naturally occurring or where its concentration may be increased by processing (Health Canada, 2013). Mine rock, overburden, and tailings were tested for NORMs as directed in the EIS Guidelines (Government of Newfoundland and Labrador 2024) for the Kami Project.

3 METHODS

The process for sample selection and geochemical analysis methods are provided below. Additional details on the methods applied to Stantec (2013) and Okane samples are provided in Appendix A.

3.1 Sample Selection

3.1.1 Mine Rock and Overburden

Drill core samples for the most recent testing (Okane, 2023b) from overburden and mine rock were selected from the same core samples used in the previous geochemical characterization program (Stantec 2012, 2013). Okane was informed by Champion that drill cores were stored where they have been protected against the elements and undergone minimal weathering. Numbers of samples collected by formation are provided below (Table 3.1).

Using the block model provided by Champion, mine rock samples (excluding ore) were randomly selected by Okane for each formation relative to anticipated tonnages. Samples by borehole ID, depth, and formation were provided on a sample collection sheet to geologists on-site for sample collection, with additional “backup” samples suggested for each formation type. Three hundred and nineteen (319) additional static tests were recommended based on an anticipated 913.9 Mt of mine rock in and 105.6 Mt of overburden (Price, 1997). However, it was noted that many of the samples provided from the list were not available, therefore only 263 new samples were collected.

Table 3.1: Total number of samples for analysis by formation.

Formation	Stantec	Okane	Total
Denault	8	4	12
Katsao	37	14	51
Overburden	62	9	71
Menihek	128	83	211
Sokoman	118	90	208
Wishart	86	63	149
Total	439	263	702

Champion provided Okane with a Leapfrog file which contained the pit shell and major formation types in order to support the sample selection process for the geochemical characterization program (Okane, 2023a). The updated block model used for identifying samples by formation for Okane samples was a different block model than what was used by Stantec (2013). Champion noted that there were some uncertainties related to the lithology types carried over into the new block model. However, as Stantec (2013) noted that the highest risk PAG material comes from the graphitic schist (associated with the

Menihek formation), an attempt was made to connect lithology codes to the formations to determine if there was an obvious trend for some higher risk lithology types (particularly, the graphitic schist). When linking lithology types to the newer block model for Okane samples, some of the Sokoman Formation samples were identified as graphitic schist. Both Champion and WorleyParsons (2014) highlighted the complex interbedding associated with the Menihek and Sokoman formations. This will be considered in the interpretation of results below when comparing the Okane and Stantec datasets but is also noted here as a possible source of discrepancy and complexity associated with the geology of this deposit.

3.1.2 Tailings

A tailings testing program was conducted in 2023 by Soutex Inc. (Soutex). Champion, Okane, and Soutex coordinated during this test program to analyze nine solid samples for static testing (including ABA, four-acid elemental digest, SFE, and XRD), three samples for supernatant composition generated from the gravity flotation tailings streams, and two kinetic tests (one unsaturated HCT and one saturated kinetic column). Tailings generated by ore processing will be subdivided into four streams (Bombard I. (Soutex), *personal communication*, November 17, 2023):

- 1) Cobber tails which are planned to make up 77% of the total tailings;
- 2) Finisher tails which are planned to make up 17% of the total tailings;
- 3) Gravity flotation tails which are planned to make up 6% of the total tailings; and
- 4) Magnetic flotation tails which are planned to make up less than 1% of the total tailings.

Samples were only collected from the cobber, finisher, and gravity flotation tails, since the magnetic flotation tails are <1% of the total tailings streams. Tests were completed on three different composite samples (Table 3.2):

- 1) High Rose North (RN) Blend – a tailings composite mixture of ore processed predominantly from the Rose North ore body;
- 2) High Rose Central (RC) Blend – a tailings composite mixture of ore processed predominantly from the Rose North ore body; and
- 3) Year 1 to 5 – which represents a blend of ore from Rose North and Rose Central anticipated to represent tailings production in the first five years of mine life.

Table 3.2: Tailings blended compositions tested and proportion of samples.

Ore	Total		Year 01-05		High RC		High RN	
	Mass (kg)	Percent	Mass (kg)	Percent	Mass (kg)	Percent	Mass (kg)	Percent
RC1	392	7%	87	5%	305	16%	0	0%
RC2	1,490	27%	358	19%	1132	58%	0	0%
RC3	711	13%	212	11%	499	26%	0	0%
RN1	1275	23%	588	32%	0	0%	687	40%
RN2	916	17%	408	22%	0	0%	508	29%
RN3	732	13%	197	11%	0	0%	535	31%
Total	5,516	100%	1,850	100%	1,936	100%	1,730	100%

Champion, 2023.

In generating source terms for a parallel project, it was noted that the gravity flotation stream used previously to generate supernatant source terms may have unusually high N from flocculant added which may contain amines, overestimating the total N anticipated in the tailings supernatant since the gravity flotation stream represents a relatively small portion of the overall tailings. In 2024, one additional sample thought to represent supernatant from the blend of cobber, finisher, and gravity flotation tailings streams for the High RN sample was made from the proportions outlined by Soutex planned at the end of mine life noted above. This High RN supernatant sample was made by weighing out dried samples composited by Okane at the Saskatoon laboratory in the representative proportions and mixing the tailings materials with lake water collected from Long Lake in June 2024 until a well mixed muddy water was generated. This water/supernatant was analyzed for the same parameters as the three previous supernatant samples.

3.2 Geochemical Analysis Methods

Samples were analyzed following the geochemical characterization program recommendations (Okane, 2023a). A summary of methods used are listed below, where the number of samples analyzed for each method are summarized in Table 3.3.

- When considering neutralization potential (NP) of these materials, presence of graphite, siderite, and ankerite previously identified through mineralogical analyses were considered in measurements by using the modified Sobek analysis method (where Carbonate NP was determined using HClO_4 digestion and CO_2 coulometer, and tests were performed at ambient temperature over 24 hours).
 - Materials were classified using ABA analysis as NPAG if the neutralization potential ratio (NPR) > 2 , "uncertain" where $2 > \text{NPR} > 1$, or PAG where $\text{NPR} < 1$ (Price, 2009).

- Metal(loid)s from solid samples for 48 elements were analyzed using four-acid digests with Inductively Coupled Plasma Mass Spectrometry (ICP-MS) in both rounds of sample analysis. Analyzed metals include:
 - Silver, aluminum, arsenic, barium, beryllium, bismuth, calcium, cadmium, cerium, cobalt, chromium, cesium, copper, iron, gallium, germanium, hafnium, indium, potassium, lanthanum, lithium, magnesium, manganese, molybdenum, sodium, niobium, nickel, phosphorus, lead, rubidium, rhenium, sulfur, antimony, scandium, selenium, tin, strontium, tantalum, tellurium, thorium, titanium, thallium, uranium, vanadium, tungsten, yttrium, zinc, and zirconium.
- Shake flask extractions were performed at a 3:1 water ratio with metals analyzed by ICP-MS and Hg by cold vapor atomic absorption spectroscopy (CVAAS). Analyzed metals include:
 - Aluminium, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, molybdenum, nickel, phosphorus, potassium, selenium, silver, sodium, strontium, sulfur, tantalum, tin, titanium, uranium, vanadium, zinc, and mercury.
- Leachable anions and nutrients from SFE tests were also analyzed and include:
 - Total alkalinity, ammonia, bromine, phosphorus, chlorine, fluorine, nitrate, nitrite, and sulfate.
- Samples were ground with ethanol to the optimum grain size (<10 µm) for quantitative XRD analysis.
- Naturally Occurring Radioactive Materials risks were measured and reviewed by Saskatchewan Research Council (SRC). Gamma spectroscopy (Rad-300) was used to measure potassium-40, radium-226, and thorium-230 radionuclides, while radium-228 and thorium-228 were inferred from actinium-228 and lead-212. Uranium and thorium were measured using ICP-MS, which was then used to calculate thorium-232, uranium-234, uranium-235, and uranium-238 concentrations based on natural abundance.

Some difference exists between the analytical methods used by Stantec (2013) and the methods used in the current dataset. A comparison of analytical methods used in both studies is provided in Appendix A. Statistical comparisons of the Okane and Stantec datasets are provided in Appendix C. Additional details for the results provided may be included in the Certificates of Analysis provided by the laboratories in Appendix D.

Table 3.3: Number of samples analyzed by formation.

Formation	ABA	Elemental Abundance	SFE	XRD	NORM
Denault	12	9	7	2	2
Katsao	51	30	25	5	5
Overburden	71	36	46	4	3
Menihek	212	162	123	12	6
Sokoman	210	162	120	6	4
Wishart	149	100	69	7	4
Tailings	9	9	9	2	3

4 RESULTS

4.1 Mine Rock and Overburden Laboratory Test Results

4.1.1 Mineralogy

As noted in Section 2.2, the geology of the Kami Project is characterized by highly folded and metamorphized materials. Iron oxides were recrystallized during these metamorphic events, and the rock types surrounding the Rose Deposit are typically gneisses and schists, containing quartz, aluminosilicates, and iron oxides. Previous mineralogical testing of Kami mine rock using XRD and SEM were completed by Stantec (2013). A summary of these findings is provided here.

Major sulfide minerals identified included pyrite (FeS_2) and pyrrhotite ($\text{Fe}_{(1-x)}\text{S}$) by XRD, while SEM results identified trace amounts of chalcopyrite (CuFeS_2) in samples from the Katsao, Menihek, and Sokoman Formations, and trace amounts of galena (PbS) and sphalerite (ZnS) in the Menihek Formation. Carbonate minerals calcite (CaCO_3), dolomite ($\text{CaMg}(\text{CO}_3)_2$), siderite (FeCO_3), and ankerite ($\text{CaFe}(\text{CO}_3)_2$) were identified in mine rock, while rhodochrosite (MnCO_3) was identified in overburden. Fluorapatite ($\text{Ca}_5(\text{PO}_4)_3\text{F}$) was found in multiple samples from the Katsao Formation and Menihek Formation. Rare earth elements (REEs) (not specified), monazite (a phosphate mineral containing rare earth and thorium), and Pb-U were also listed in the SEM results for Katsao, Menihek, and Wishart samples. As noted, silicate minerals, quartz, and iron oxide minerals were common in all samples, as well as rutile and garnet minerals were noted.

4.1.1.1 X-ray Diffraction

The reported mineralogical weight percentages presented in this section represent the relative amounts of crystalline phases normalized to 100%. XRD data from the samples were refined with Rietveld program Topas 4.2 (Bruker AXS). Thirty-seven samples were sent for XRD analyses by Okane (Table 4.1). Samples were split between the Wishart, Menihek, Sokoman, Katsao and Denault Formations, as well as two overburden samples. Quartz was present in all samples, ranging from 9.1% and as high as 96.7%. Other common minerals throughout all the formations were plagioclase, K-feldspar, ankerite-dolomite, muscovite, and biotite, as common for granitic mineral compositions. The two overburden samples were primarily composed of quartz and plagioclase, with minor amounts of k-feldspar, ankerite-dolomite, calcite, and biotite.

A summary of minerals of interest is provided in Table 4.1, with graphical representations of mineralogical distributions from XRD analysis found in Figure 4.1. Full results of XRD are found in certificates of analysis in Appendix D. XRD analysis of the sulfide minerals identified in ABA analysis were reported in XRD as pyrite, pyrrhotite, and sphalerite; however, it is noted that trace amounts of chalcopyrite and sphalerite were also detected from SEM by Stantec (2013) and are likely the source of copper and zinc identified previously as parameters of interest. Galena is a Pb sulfide and may be the source of this metal, though

Pb was not previously identified as a parameter of interest. Pyrrhotite often oxidizes more rapidly than pyrite and may be associated with faster sulfide oxidation and metal release than pyrite. Impurities associated with both pyrite and pyrrhotite are known to result in faster sulfide mineral oxidation and may often be the source of metals of concern.

Several carbonate minerals were detected in these samples, including calcite, ankerite-dolomite, rhodochrosite, and siderite. Typically, calcite, dolomite, and ankerite are the most effective minerals at neutralizing acid. Siderite and rhodochrosite only provide net acid neutralization under anerobic conditions due to release of equivalent acidity in aerobic conditions (Price, 2009). Graphite was also found in every formation, which will contribute to total inorganic C measured in ABA.

Table 4.1: Relative mineral composition based on Rietveld XRD analysis with crystalline phases normalized to 100% for minerals of interest.

Formation	Sample ID	Sulfides				Carbonates				Other Minerals of Interest		
		Pyrite	Pyrrhotite	Sphalerite	Ankerite - Dolomite	Calcite	Kutnohorite	Rhodochrosite	Siderite	Graphite	Jarosite	Gypsum
Denault	K-10-61-34				82.53							
	K-11-166-251.1				97.51							
Katsao	K-11-108-118.2	3.69								4.55		
	K-11-108-228.3								1.16	1.64		
	K-11-112A-71.4	0.56							0.35	2.03		
	K-11-112A-102.8					0.28				1.06		
	K-11-116-78											
Menihek	K-10-26-253		12.39							7.92		
	K-10-48-205.7	0.36	1.54							7.07		
	K-10-61-266.85		0.74		39.03	1.21			5.57			
	K-10-61-323.5	0.31										
	K-08-17-135.8							3.62	4.18			
	K-11-152-68	8.57		0.34							2.41	0.56
	K-11-158-57.6											
	K-11-161-181.5	14.25				2.39						0.66
	K-11-163-41.4	3.11							3.80			0.33
	K-11-166-117.5	3.23	4.22			12.36						
	K-11-166-54.8		1.83		0.76							
	K-12-194-214.1	0.73										
Sokoman	K-12-196A-115.5				13.05				9.64			
	K-12-206-97.5		0.29		24.43				1.91			
	K-10-40-210.18				10.22			2.46		0.52		
	K-10-61-306.5				41.29	4.19						

Formation	Sample ID	Sulfides			Ankerite - Dolomite	Carbonates			Other Minerals of Interest			
		Pyrite	Pyrrhotite	Sphalerite		Calcite	Kutnohorite	Rhodochrosite	Siderite	Graphite	Jarosite	Gypsum
Wishart	K-10-70-74.46				4.25		2.08		2.12			
	K-10-93-46		17.28	0.46	8.76	5.56			0.32	13.19		
	K-08-08-122				17.22	6.00						
	K-08-11-21.4				2.72				0.42			
	K-08-11-28				15.07		4.53		2.77			
	K-08-18-325.18	2.28	4.11		0.86					6.80		
	K-11-100B- 116.25											
	K-12-186-413.5											
	K-12-193-287.5											
	K-10-32-13.7				0.53	0.32						
Overburden	K-12-185-59.1					1.08						
	K-12-185-62.2				17.29				1.19			
	K-12-185-66.3	1.27	1.40		1.27				0.97			0.72

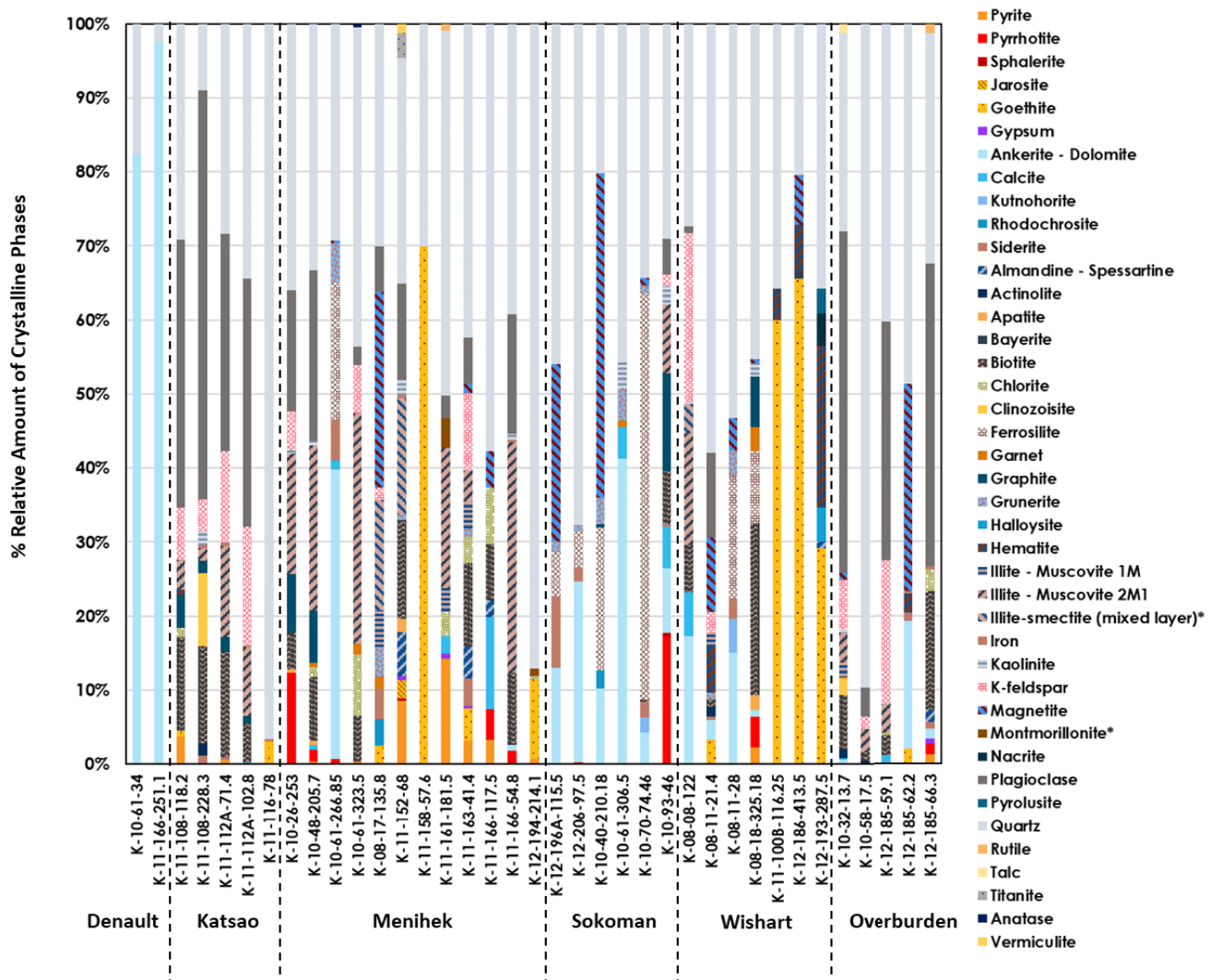


Figure 4.1: Relative amounts of X-ray powdered diffraction crystalline phases normalized to 100%.

4.1.2 Acid Base Accounting

A summary of ABA parameter statistics by mine rock unit for the Okane dataset and all samples (Okane and Stantec) are provided below (Table 4.2 and Table 4.3, respectively). Results for Stantec's data only are provided in Stantec (2013). All results of ABA analyses can be found in Appendix B. In addition to the results by formation, graphitic schist lithology ABA statistics are included below (Table 4.2 and Table 4.3). As mentioned, graphitic schist was previously identified as the highest risk rock types, which is consistent with Okane samples. However, it was noted that five of the Okane samples classified as graphitic schist in the borehole model were labeled as part of the Sokoman Formation; this may be an error in linking classifications between using the old and new block models used to select samples in 2023 (Table 3.1).

Average total sulfur content was highest in the Menihek Formation samples (1.6 wt.%), specifically the graphitic schist lithology (2.3 wt.%). Several samples from the Sokoman and Wishart Formations also had elevated total sulfur content relative to the other mine rock units. Acid potential (AP) (calculated using total S) was generally highest in the Menihek Formation – especially related to the graphitic schist lithology type – ranging from the limit of detection to 219 kg CaCO₃/t. The Denault Formation had AP and total sulfur below detection limit for all samples. Sulfate-sulfur was generally low in all mine rock units, suggesting most of total sulfur is associated with sulfide minerals and minimal sulfide oxidation had occurred during sample collection, transport, and processing.

Neutralization potential was measured by Stantec (2013) using modified Sobek NP or carbonate NP (calculated from total inorganic carbon (TIC) analysis), while interpretation from the Phase III report by WorleyParsons (2014) used the lowest NP of the two (except for in the Menihek Formation, which contained graphite, where modified Sobek NP was used exclusively). In the Okane dataset, only modified Sobek NP is used. Additional details of the methods are summarized in Appendix A, with statistical comparisons between the NP and other ABA measured parameters in the Phase I report (Okane, 2023a).

The highest NP is reported in Denault Formation (characterized as marble) and generally lowest in the Katsao Formation rock types. Several samples with low NP (<10 kg CaCO₃/tonne) were observed in all units, except the Denault. Average NNP was >20 kg CaCO₃/tonne in all mine rock units excluding the Katsao and the Menihek Formations. WorleyParsons (2014) noted revised ABA classification based on NP made from the original Stantec (2013) report (details for ABA analysis in Appendix A). Figure 4.2 shows the NP measured from carbonate NP from versus Sobek NP from Stantec (2013) samples. Values plotted above the 1:1 slope line indicate modified Sobek NP is less than the carbonate NP. This implies that inorganic carbon that does not contribute to measurable NP through Sobek methods are present (such as siderite, rhodochrosite, and graphite, measured in the mineralogy). Stantec (2013) noted that carbonate NP could not distinguish between carbonate NP and graphitic carbon. Most significantly this is observed in the Menihek samples, though samples from most formations appear to deviate from the 1:1 slope. It is noted in Price (2009) that acid soluble analysis of carbonate-carbon should be used to calculate the NP when materials contain significant sources of non-carbonate carbon (such as graphite). For this reason, the modified Sobek test was used to calculate NP in all the Okane samples, which performs similar to the Sobek test but with longer times (which is assumed to account at least largely for the acidity produced from the reaction of ferrous iron to ferric iron from siderite dissolution) and at lower temperatures closer to ambient conditions.

Figures showing distribution of ABA results from all 702 mine rock samples grouped by formation are also given below (Figure 4.3 to Figure 4.5). In general, the findings from ABA results were consistent with previous studies in that the majority of rock samples classified as PAG are associated with the Menihek and Katsao Formations (Stantec, 2013). However, samples from all formations (except the Denault Formation) had samples classified as PAG or Uncertain (Figure 4.3). Paste pH values were mostly neutral to slightly basic (Table 4.3, Figure 4.4, and Figure 4.5), though several samples with paste pH below 5 (in

the Menihek and overburden) and relatively high sulfate-S may indicate weathering and generated stored acidity due to the oxidation of sulfides. When analyzing the data for trends, it was difficult to discern any notable trends in sulfide or total sulfur content and ABA-risk parameters (such as NPR, NNP, paste pH). While it is not recommended to use solely NNP to classify ABA risk, the visual distribution of NNP in all samples (Figure 4.5) highlights the high NP content previously noted by Stantec (2013) in excess available for neutralizing the acidity produced assuming mine rock is well blended.

Table 4.2: Summary of ABA parameter statistics grouped by Formation for Okane samples.

Mine Rock Unit	Analyte	AP (kg CaCO ₃ /t)	NP (kg CaCO ₃ /t)	NNP (kg CaCO ₃ /t)	NPR (-)	Paste pH (-)	Total S (wt. %)	Sulfide-S (wt. %)	S as SO ₄ (wt. %)	TIC (as CO ₃) (wt. %)
Denault (n=4)	Min	0.3*	840	840	5,376	9.2	0.01*	0.01*	0.01*	51
	P05	0.3*	849	849	5,432	9.2	0.01*	0.01*	0.01*	52
	P50	0.3*	908	908	5,808	9.4	0.01*	0.01*	0.01*	60
	Average	0.3*	919	919	5,880	9.4	0.01*	0.01*	0.01*	58
	P75	0.3*	943	943	6,034	9.4	0.01*	0.01*	0.01*	62
	P95	0.3*	1,005	1,005	6,429	9.4	0.01*	0.01*	0.01*	62
	Max	0.3*	1,020	1,020	6,528	9.4	0.01*	0.01*	0.01*	62
Katsao (n=14)	Min	0.3*	1.0	-54.0	0.1	6.0	0.01*	0.01*	0.01*	0.25*
	P05	0.3*	2.3	-20.9	0.48	6.3	0.01*	0.01*	0.01*	0.25*
	P50	3.8	7.0	1.5	2.7	8.6	0.12	0.09	0.01*	0.25*
	Average	8.3	7.0	-1.2	3.5	8.5	0.27	0.25	0.018	0.26
	P75	8.4	8.8	5.0	4.6	9.5	0.27	0.27	0.018	0.25*
	P95	28	12	8.7	11	9.7	0.9	0.88	0.054	0.3
	Max	60	13	10	13	9.7	1.9	1.9	0.06	0.3
Menihek (n=83)	Min	0.3*	0	-199.0	0	4.0	0.01*	0.01*	0.01*	0.25*
	P05	0.9	2.0	-123.7	0.04	4.7	0.03	0.011	0.01*	0.25*
	P50	20	13	-1.0	0.88	8.2	0.65	0.65	0.01*	1.3
	Average	36	47	11	18	7.7	1.2	1.1	0.035	3.9
	P75	44	56	40	6.1	8.6	1.4	1.3	0.02	6.1
	P95	131	162	161	125	9.1	4.2	4.2	0.14	13
	Max	219	424	397	293	9.5	7.0	6.7	0.61	31
Overburden	Min	0.3*	2.0	-21.0	0.45	7.2	0.01*	0.01*	0.010*	0.25*

Mine Rock Unit	Analyte	AP (kg CaCO ₃ /t)	NP (kg CaCO ₃ /t)	NNP (kg CaCO ₃ /t)	NPR (-)	Paste pH (-)	Total S (wt. %)	Sulfide-S (wt. %)	S as SO ₄ (wt. %)	TIC (as CO ₃) (wt. %)
(n=9)	P05	0.3*	2.8	-11.8	2.0	7.3	0.01*	0.01*	0.010*	0.25*
	P50	0.9	13	6.0	13	8.4	0.03	0.01*	0.010*	0.25*
	Average	5.0	30	25	30	8.4	0.16	0.15	0.017	2.3
	P75	1.9	17	13	42	9.2	0.06	0.06	0.010*	0.7
	P95	23	111	110	96	9.6	0.75	0.71	0.044	9.3
	Max	38	138	137	110	9.6	1.2	1.1	0.060	10
	Min	0.3*	0	-116.0	0	6.2	0.01	0.01	0.010*	0.25*
Sokoman (n=90)	P05	0.3*	1.0	-57.5	0.11	6.4	0.01	0.01	0.010*	0.25*
	P50	1.6	39	28	8.5	8.4	0.05	0.04	0.010*	5.2
	Average	15	87	72	125	8.1	0.48	0.47	0.017	7.8
	P75	9.1	141	140	113	8.7	0.29	0.28	0.020	13
	P95	104	270	268	722	8.9	3.3	3.3	0.040	25
	Max	175	650	641	1,158	9.3	5.6	5.6	0.140	39
	Min	0.3*	0	-61.0	0	5.2	0.01*	0.01*	0.010*	0.25*
Wishart (n=63)	P05	0.3*	1.0	-12.6	0.27	6.5	0.01*	0.01*	0.010*	0.25*
	P50	0.3*	3.0	2.0	6.4	7.9	0.01*	0.01*	0.010*	0.25*
	Average	8.3	31	23	69	7.8	0.27	0.26	0.014	2.8
	P75	3.8	38	21	11	8.6	0.12	0.11	0.010*	2.9
	P95	39	160	151	500	9.4	1.2	1.2	0.030	13
	Max	122	215	215	1,030	9.6	3.9	3.9	0.060	22
	Min	2.5	2.0	-199	0.03	4.7	0.08	0.07	0.01*	0.25*
Graphitic Schist Lithology (n=27)	P05	4.5	4.0	-133.8	0.053	6.8	0.14	0.088	0.01*	0.25*
	P50	66	10	-52	0.23	8.2	2.1	2.1	0.01*	0.66
	Average	73	23	-50	0.9	8.0	2.3	2.3	0.03	2.1

Mine Rock Unit	Analyte	AP (kg CaCO ₃ /t)	NP (kg CaCO ₃ /t)	NNP (kg CaCO ₃ /t)	NPR (-)	Paste pH (-)	Total S (wt. %)	Sulfide-S (wt. %)	S as SO ₄ (wt. %)	TIC (as CO ₃) (wt. %)
	P75	126	18	-8.0	0.62	8.6	4.0	4.0	0.02	1.9
	P95	168	97	44	4.9	8.8	5.4	5.4	0.11	8.8
	Max	219	147	121	7.0	9.1	7.0	6.7	0.28	12

* Value reported at detection limit.

Table 4.3: Summary of ABA parameter statistics grouped by Formation for Okane and Stantec samples.

Mine Rock Unit	Analyte	AP (kg CaCO ₃ /t)	NP (kg CaCO ₃ /t)	NNP (kg CaCO ₃ /t)	NPR (-)	Paste pH (-)	Total S (wt. %)	Sulfide-S (wt. %)	S as SO ₄ (wt. %)	TIC (as CO ₃) (wt. %)
Denault (n=12)	Min	0.16*	483	483	2,240	9.2	0.0025*	0.005*	0.005*	29
	P05	0.16*	484	484	2,723	9.3	0.0025*	0.005*	0.005*	29
	P50	0.16*	802	802	5,150	9.4	0.0025*	0.005*	0.005*	48
	Average	0.22*	763	763	4,717	9.4	0.005*	0.0071*	0.0067*	47
	P75	0.3*	907	907	5,838	9.5	0.01*	0.01*	0.01*	57
	P95	0.31	984	984	6,326	9.6	0.01*	0.01*	0.01*	62
	Max	0.31	1,020	1,020	6,528	9.6	0.01*	0.01*	0.01*	62
Katsao (n=51)	Min	0.16*	0	-54.0	0	6.0	0.0025*	0.005*	0.005*	0.0025
	P05	0.16*	0.15	-8.4	0	7.1	0.0085	0.005*	0.005*	0.0063
	P50	2.5	1.6	0.2	1.4	9.3	0.08	0.07	0.02	0.11*
	Average	4.4	3.5	-0.9	3.6	9.0	0.18	0.14	0.04	0.2*
	P75	5.5	6.3	1.9	4.2	9.7	0.24	0.18	0.045	0.25*
	P95	11	12	7.2	14	10.0	0.48	0.35	0.13	0.62
	Max	60	14	10	42	10	1.9	1.9	0.28	2.2
Menihek (n=211)	Min	0.16*	0	-199.0	0	4.0	0.01*	0.005*	0.005*	0.03*
	P05	0.62	3.0	-119.6	0.07	4.9	0.03	0.01*	0.01*	0.25*
	P50	19	11	-3.6	0.8	8.4	0.78	0.62	0.07	6.6
	Average	33	40	6.7	18	8.1	1.3	1.1	0.22	12
	P75	38	33	18	3.1	9.1	1.6	1.2	0.25	13
	P95	130	175	164	95	9.7	4.5	4.2	0.87	40
	Max	219	462	451	1,265	10	8.5	6.7	5.8	106
Overburden	Min	0.16*	-16.0	-31.6	-1.3	3.9	0.0025*	0.005*	0.005*	0.04*

Mine Rock Unit	Analyte	AP (kg CaCO ₃ /t)	NP (kg CaCO ₃ /t)	NNP (kg CaCO ₃ /t)	NPR (-)	Paste pH (-)	Total S (wt. %)	Sulfide-S (wt. %)	S as SO ₄ (wt. %)	TIC (as CO ₃) (wt. %)
(n=71)	P05	0.16*	1.0	-11.5	0.43	5.3	0.0055	0.005*	0.005*	0.066*
	P50	0.31	6.8	5.3	13	9.0	0.024	0.01*	0.02	0.39
	Average	2.5	11	8.1	21	8.5	0.1	0.08	0.025	1.2
	P75	0.77	9.7	8.6	27	9.4	0.041	0.02	0.02	0.64
	P95	17	40	38	53	9.7	0.65	0.55	0.065	8.6
	Max	39	138	137	110	10	1.5	1.3	0.24	11
	Min	0.16*	0	-191.9	0	5.2	0.0025*	0.005*	0.005*	0.019
Sokoman (n=208)	P05	0.16*	1.0	-29.0	0.21	7.0	0.009*	0.005*	0.005*	0.2*
	P50	1.3	71	67	34	8.5	0.054	0.03	0.02	7.3
	Average	11	111	100	246	8.3	0.43	0.35	0.075	9.5
	P75	6.6	162	161	247	8.8	0.29	0.2	0.04	14
	P95	52	373	360	1,148	9.2	1.7	1.6	0.39	28
	Max	196	650	641	3,265	10.0	8.1	6.3	2.2	43
	Min	0.16*	0	-61.0	0	5.2	0.0025*	0.005*	0.005*	0.025*
Wishart (n=149)	P05	0.16*	0.8	-10.0	0.39	6.6	0.0025*	0.005*	0.005*	0.05*
	P50	0.3*	6.0	3.4	8.0	8.6	0.011*	0.01*	0.01*	0.32
	Average	5.0	38	33	139	8.4	0.19	0.16	0.035	2.8
	P75	1.3	36	27	47	9.2	0.067	0.03	0.02	3.0
	P95	29	167	165	884	9.6	0.96	1.2	0.16	13
	Max	122	360	360	2,323	9.8	3.9	3.9	0.98	22
	Min	0.31	2.0	-199	0.0	4.5	0.08	0.01*	0.005*	0.25*
Graphitic Schist Lithology (n=65)	P05	2.3	4.0	-173	0.052	5.1	0.037	0.07	0.01*	0.25*
	P50	37	9.1	-30	0.2	8.3	0.11	1.2	0.09	14
	Average	64	22	-42	4.1	7.9	1.9	2.0	0.34	94

Mine Rock Unit	Analyte	AP (kg CaCO ₃ /t)	NP (kg CaCO ₃ /t)	NNP (kg CaCO ₃ /t)	NPR (-)	Paste pH (-)	Total S (wt. %)	Sulfide-S (wt. %)	S as SO ₄ (wt. %)	TIC (as CO ₃) (wt. %)
	P75	87	15	-8.5	0.59	8.7	2.4	2.8	0.28	162
	P95	184	61	23	6.9	9.5	3.3	5.9	1.5	383
	Max	219	328	326	150	10.0	6.7	6.7	5.8	539

* Value reported at or below detection limit. Detection limits from both Okane and Stantec datasets were merged; Stantec may have used only half the detection limit in their reporting in some instances.

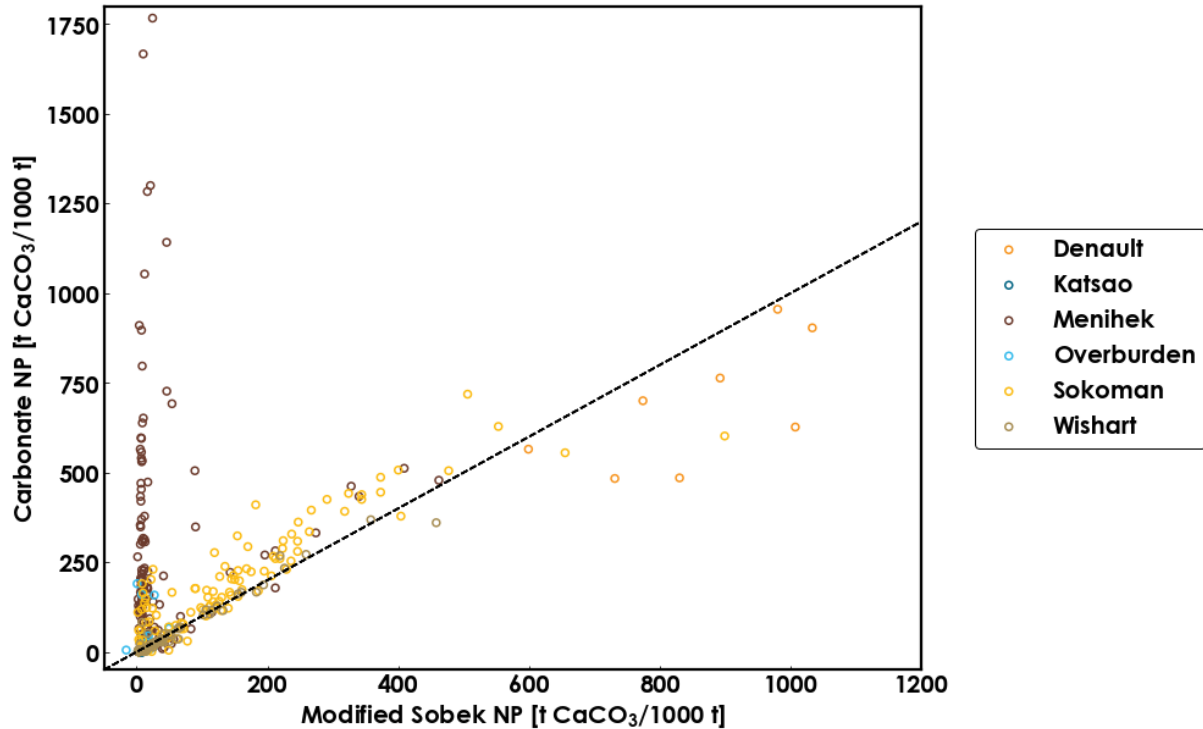


Figure 4.2: Carbonate NP compared to modified Sobek NP samples from Stantec (2013) with dashed line representing the 1:1 slope.

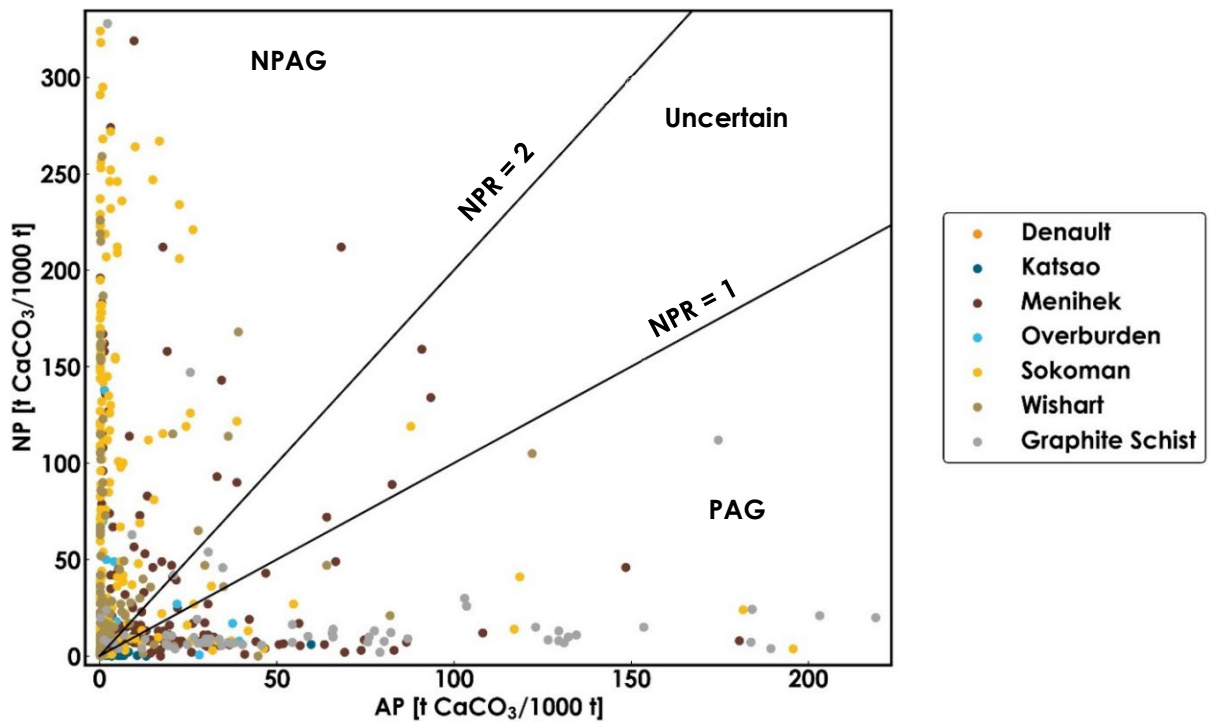


Figure 4.3: Distribution of NPR in Kami mine rock units for Okane and Stantec samples.

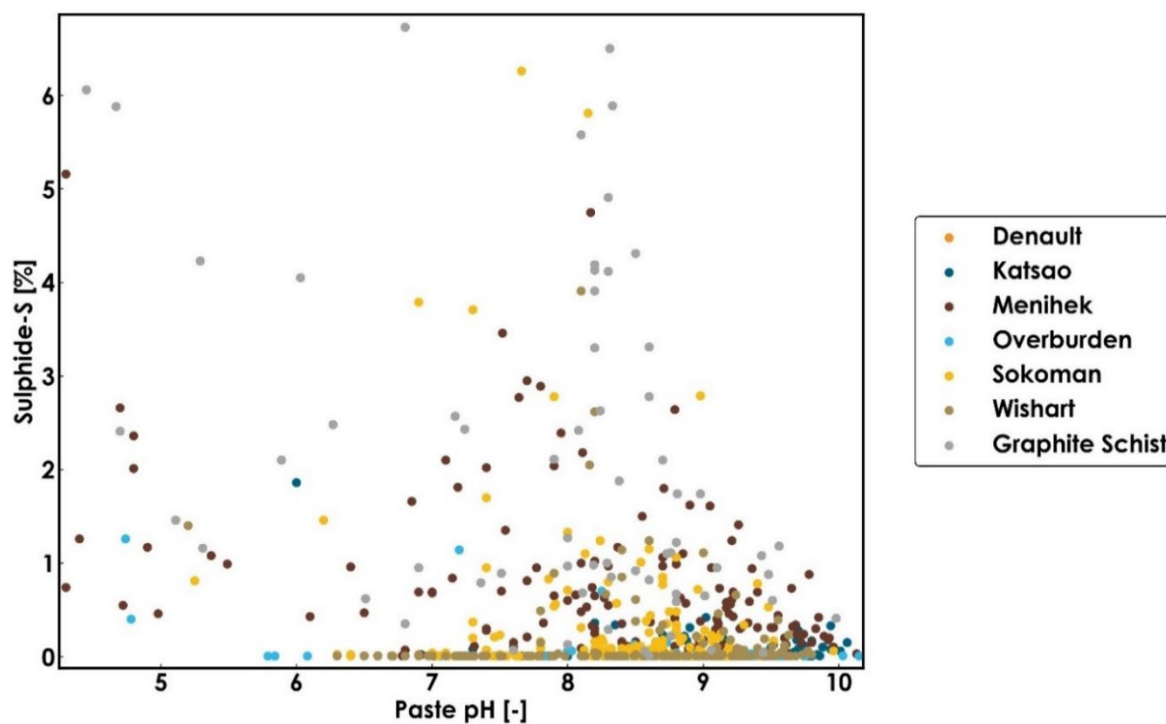


Figure 4.4: Paste pH and sulfide-S in Kami mine rock units for Okane and Stantec samples.

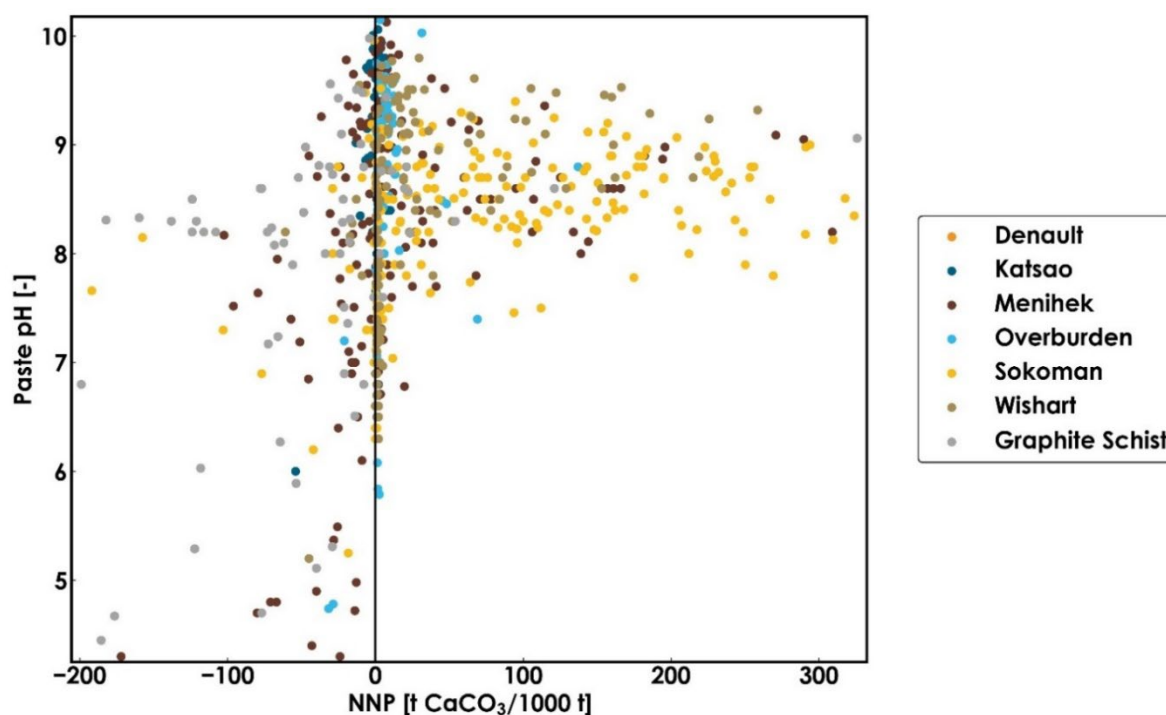


Figure 4.5: Net neutralization potential and paste pH in Kami mine rock units for Okane and Stantec samples.

4.1.2.1 Spatial Distribution of NPR in the Planned Kami Pit

Selected cross sections showing sample locations and their respective NPR were developed to illustrate the special distribution of NPR in the various Kami mine rock units. Previous pit geology map with boreholes sampled for ML/ARD by Stantec (2013) were used to develop cross sections for comparison (Appendix C). Samples were classified into one of three categories based on NPR:

- Red for PAG if $\text{NPR} \leq 1$
- Yellow for Uncertain if $1 < \text{NPR} \leq 2$
- Green for NPAG if $\text{NPR} > 2$

Additional cross sections with NPR distributions throughout the pit shell are found in Appendix C.

In general, samples with the lowest NPRs were observed to be concentrated in the Menihek Formation and its margins. An important observation is the concentration of low NPR samples at a relatively shallow depth above the ore body (Figure 4.6). Several samples with low NPR (≤ 1) were also observed in the Katsao and Sokoman formations (Figure 4.7).

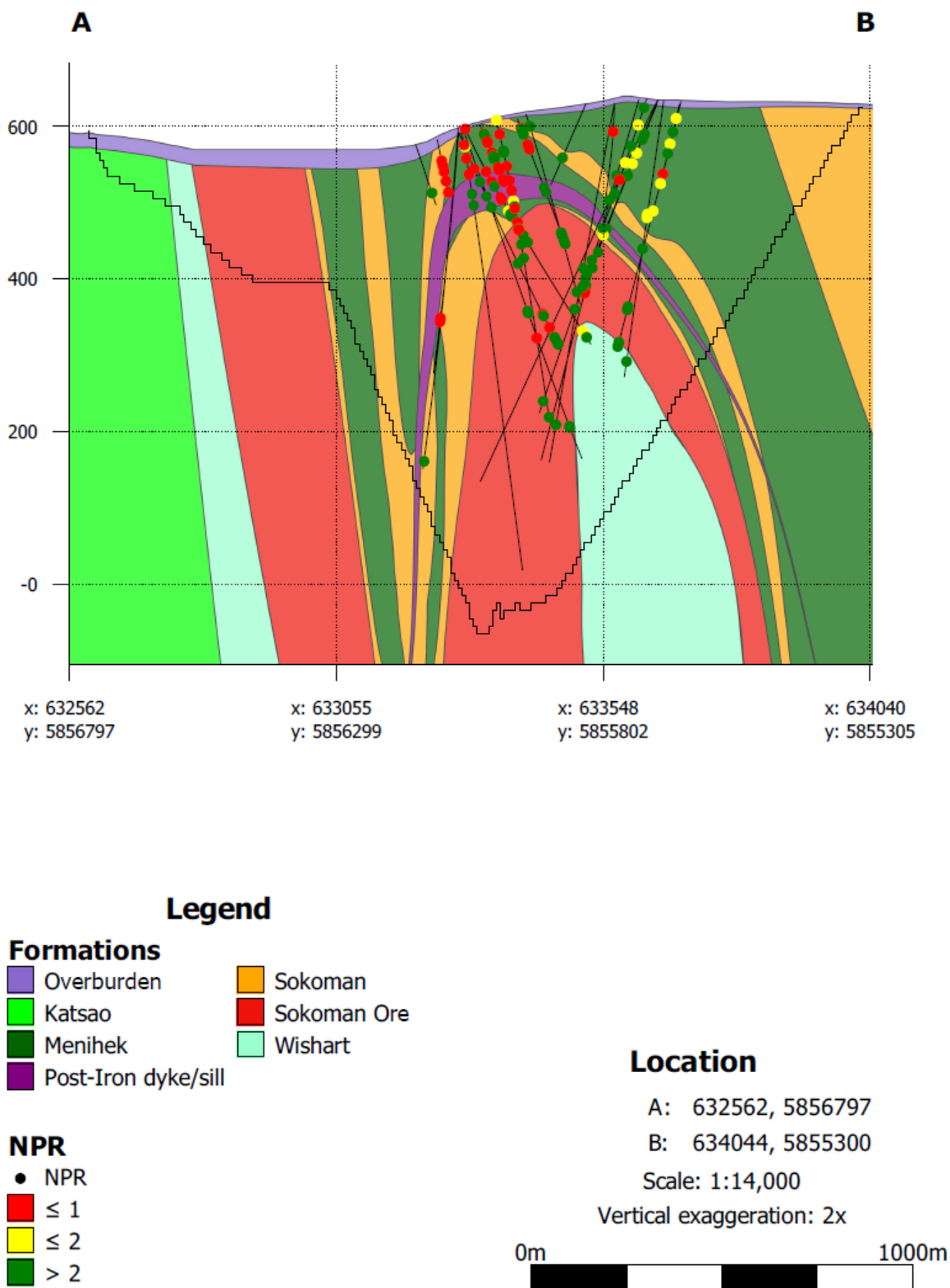


Figure 4.6: L18 cross section showing spatial distribution of NPR in Kami pit shell.

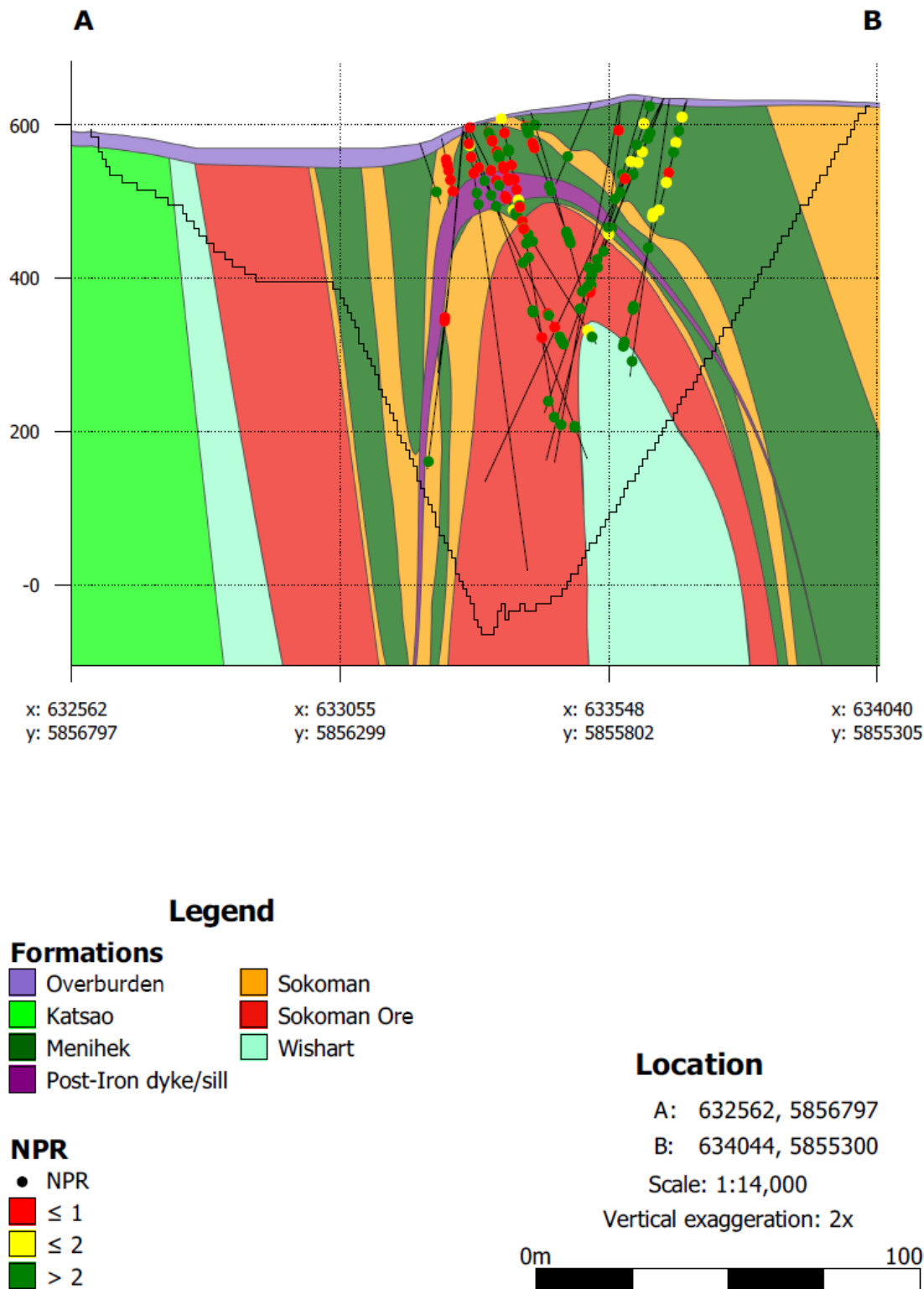


Figure 4.7: L12 cross section showing spatial distribution of NPR in Kami pit shell.

4.1.3 Four-Acid Elemental Digest Analysis

Four-acid elemental digest analysis data can be used to provide a preliminary understanding of potential contaminants of concern from mine rock by identifying elements that are elevated relative to crustal abundances. However, elevated crustal abundance does not necessarily indicate these metals will be mobilized. Interpretations of potential contaminants using elemental digest analysis should be verified using SFE tests and kinetic studies. Results of 48 elemental digest analysis on all individual samples are found in Appendix B.

Forty-eight metal(loid) concentrations obtained via four-acid digest were compared relative to global crustal abundances as a preliminary assessment of potential environmental risks (Price, 1997). Parameters which are elevated relative to 5x crustal abundance and may be potential environmental concerns are highlighted in Table 4.4.

Key contaminants of concern (arsenic, copper, nickel, and zinc) previously identified by Stantec (2013) were all below the 5x crustal abundance threshold in Kami Project mine rock solids. However, this does not eliminate the possibility of potential associated water quality issues. Findings should be further assessed with SFE and kinetic study data. In general, the highest concentrations of metals were associated with the Menihek Formation followed by the Sokoman Formation.

Table 4.4: Average four-acid elemental digest analysis results by rock unit for elements that exceeded x5 the crustal abundance in average formation values.

Parameter (unit)	Unit	5x Crustal Abundance	Denault	Katsao	Menihek	Overburden	Sokoman	Wishart
Ag	ppm	0.38	0.01*	0.2	0.48	0.05	0.2	0.10
Bi	ppm	0.041	0.02	0.09	0.3	0.02	0.08	0.05
Cd	ppm	0.8	0.1	0.07	1.3	0.05	0.8	0.2
S	%	0.17	0.01*	0.4	1.3	0.02	0.5	0.2
Se	ppm	0.25	1.0*	1.6	2.8	1.0*	1.3	1.0*
Te	ppm	0.025	0.05*	0.05*	0.1	0.05*	0.1	0.1
U	ppm	11.5	0.2	9.6	11.6	9.9	3.0	1.6

* Indicated detection limit for four-acid digest. Crustal Abundance after Price, 1997. Highlighted parameters are elevated relative to the 5x crustal abundance values.

4.1.4 Shake Flask Extractions

Shake flask extraction tests are used to help determine solubility of metals as a static test (i.e., one point in time). The solubility of minerals in leach tests such as SFE can range depending on several factors such as the mineral composition, the leaching solution used, contact time with the solution, and other environmental conditions. From the Okane and Stantec datasets, 390 mine rock and overburden

samples were submitted for SFE. While SFE results may not provide exact predictions of water quality from a material, they can provide an indication of potential solubility of constituents of concern. Though measured concentrations are not representative of water quality necessarily, it may be useful to compare SFE results to water quality guidelines to provide a relative comparison of leachability. All results from SFE tests compared to Chronic Freshwater Aquatic Canadian Council of Ministers of the Environment (CCME) and the MDMER guidelines are provided in Appendix B. A summary of the number of samples which exceeded CCME or MDMER guidelines are provided in Table 4.5 for both the Stantec (2013) and Okane datasets. Additional water quality guidelines, such as the Federal Environmental Quality Guidelines or other water quality guidelines may be applicable to this site, however it will be addressed in the water quality water balance model.

Of the key contaminants of concern (arsenic, copper, nickel, and zinc) previously identified by Stantec (2013), both copper and nickel leached in the Katsao, Menihek, and Sokoman formations. Additionally, there were some instances of cadmium, chromium, fluorine, iron, selenium, and uranium elevated concentrations above water quality guidelines in Katsao, Menihek, Sokoman, and Wishart Formations. No samples were exceeded for the Denault Formation, with the exception of one instance of cadmium. All formations (except for Denault) had exceedances of ammonia over CCME guidelines; since SFE tests were completed on drilled borehole core (rather than blasted), this may suggest natural sources of nitrogen are present in the rock that may be leached in addition to residual nitrogen from explosives.

Overburden material showed exceedances of iron and selenium mainly, but some instances of arsenic, cadmium, chromium, copper, ammonia, nickel, uranium, and zinc (Table 4.5). These findings are consistent with the assessment from Stantec (2013), where it was noted that higher metal leaching in overburden was often associated with samples found directly over the Menihek Formation, which may indicate a risk due to association with Menihek Formation rock rather than overburden.

The distribution of SFE concentrations relative to water quality guidelines is shown in boxplots for all formations and also the graphitic schist lithology in the Menihek Formation (Figure 4.8). The boxplot distributions demonstrate that for most of the constituents of concern (with the exception of fluorine, ammonia, and selenium), exceedances are almost entirely statistical outliers. Although it was noted in the ABA results that the graphitic schist has a higher ABA risk, when separating out the graphitic schist samples in the Menihek SFE results, outliers of high metal concentrations seem to exist in both non-graphitic schist and graphitic schist lithologies in the Menihek Formation. However, selenium may have higher concentrations associated with the graphitic schist lithology compared to all other lithologies (Figure 4.8).

To determine the effect of pH on metal release, concentrations were compared to paste pH measurements from SFE results (Figure 4.9). The highest outliers are typically associated with the lowest pH measurements, indicating a high sulfide content and low carbonate minerals to buffer the generated acidity and mitigate metal release. Metals like cadmium, chromium, copper, nickel, and zinc visually appear correlated somewhat with lower measured paste pH measurements, whereas arsenic, selenium,

fluorine, ammonia, and uranium do not. However, even for metals which appear correlated to pH, some of the time higher concentrations occur at neutral to higher pH values, indicating that even under neutral conditions, metal mobilization may occur. These may represent samples with high sulfide content but high carbonate minerals to buffer them.

Table 4.5: Number of SFE samples exceeding CCME or MDMER water quality guidelines by formation.

Parameter	Denault	Katsao	Menihek	Overburden	Sokoman	Wishart
Ammonia, total (as N)	0	2	31	2	18	23
Fluoride	0	1	17	0	3	3
Arsenic	0	0	5	1	3	0
Cadmium	1	3	22	2	8	0
Chromium	0	2	3	1	0	0
Copper	0	1	8	2	1	0
Iron	0	17	37	29	11	16
Lead	0	0	1	0	0	0
Molybdenum	0	0	0	0	2	0
Nickel	0	2	23	2	4	0
Selenium	0	3	76	8	14	6
Silver	0	0	3	0	1	1
Uranium	0	4	17	3	3	0
Zinc	0	0	15	1	3	0
Total Samples	7	25	123	46	120	69

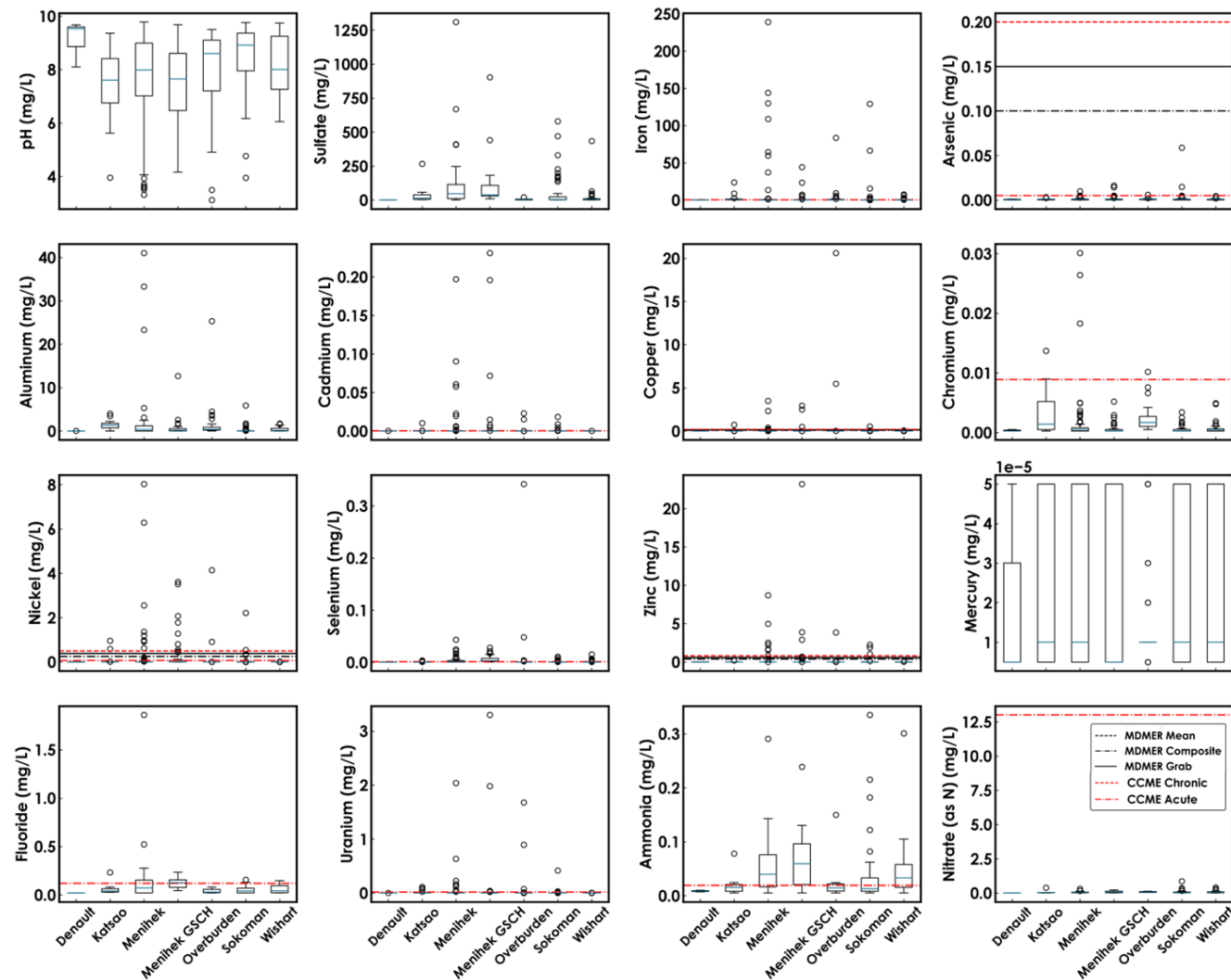


Figure 4.8: Shake flask extraction concentrations distribution grouped by formation and graphitic schist lithology.

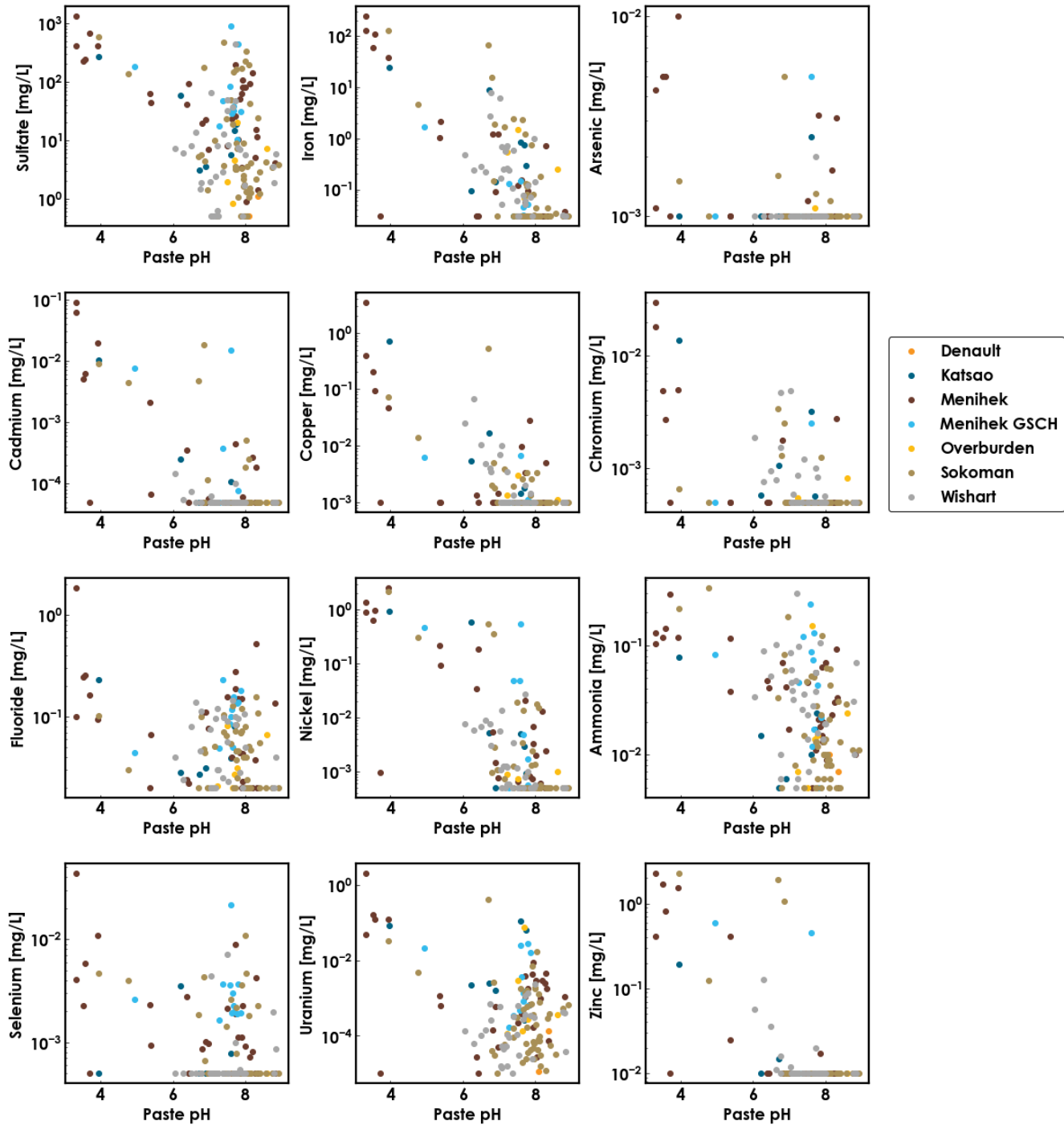


Figure 4.9: Metal concentrations compared to paste pH in SFE results.

4.1.5 Naturally Occurring Radioactive Materials

Though radioactivity is not typically suspected from iron ore mines, some rare earth elements (REE) and uranium minerals were identified in the mineralogical analysis by scanning electron microscopy (SEM) in the Katsao, Menihek, and Wishart Formations. Additionally, during analysis of SFE results, a positive

correlation between sulfate and uranium and a negative relationship between uranium and pH were visually observed. For this reason, at least one sample from each formation where total sulfur content was high (i.e., >75th percentile) was prioritized in the sample selection for NORM tests. Given the small sample selection, selection of at least one high sulfur content sample from each formation may provide a conservative representation of the NORM risk of these materials. Relationships between NORM test results and total sulfur from ABA tests are provided below (Figure 4.10), where the highest radionuclide measurements in the Sokoman and Menihek Formations are associated with the highest total sulfur.

Median results (or average, for Denault) of samples are summarized by formation in Table 4.6. Additionally, formation weighted Mine Rock Stockpile values are provided, where the median results are weighted based on the contribution of each formation to the planned Mine Rock Stockpile (Table 2.). Individual sample results are provided in Appendix B. For the Menihek Formation, results were split between the graphitic schist lithology (three samples) and other lithologies (three samples) (i.e., hornblende gneiss and biotite mica schist) due to the higher uranium, sulfate, and lower pH associated with the graphitic schist, as well as its smaller percentage. Results were compared to Table 5.1 – Unconditional Derived Release Limits – Diffuse NORM Sources from the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (Health Canada, 2013).

Only the graphitic schist lithology from the Menihek Formation has exceedances of the unconditional release limits for an individual radionuclide (i.e., radium-226) (Table 4.6). While some individual samples had exceedances (Appendix B), overall, there no exceedances for the individual radionuclides in formations other than the Menihek graphitic schist lithology, or the weighted Mine Rock Stockpile as a whole. Though individual radionuclide measurements may not exceed unconditional release limits, the sum of ratios is also calculated for each sample and weighted by formation (Table 4.6) as per the guidelines from Health Canada (2013):

“Where more than one long-lived radionuclide is present in a sample, the appropriate sum of the ratios of the activity of each long-lived radionuclide and its corresponding Release limit, must not exceed 1”.

The sum of ratios exceeds the unconditional release limits for the Menihek and Sokoman Formations, with values resulting in an exceedance for the sum of ratios in the weighted Mine Rock Stockpile (where the weighted median value is 1.1, marginally above the unconditional release limit value of 1) (Table 4.6).

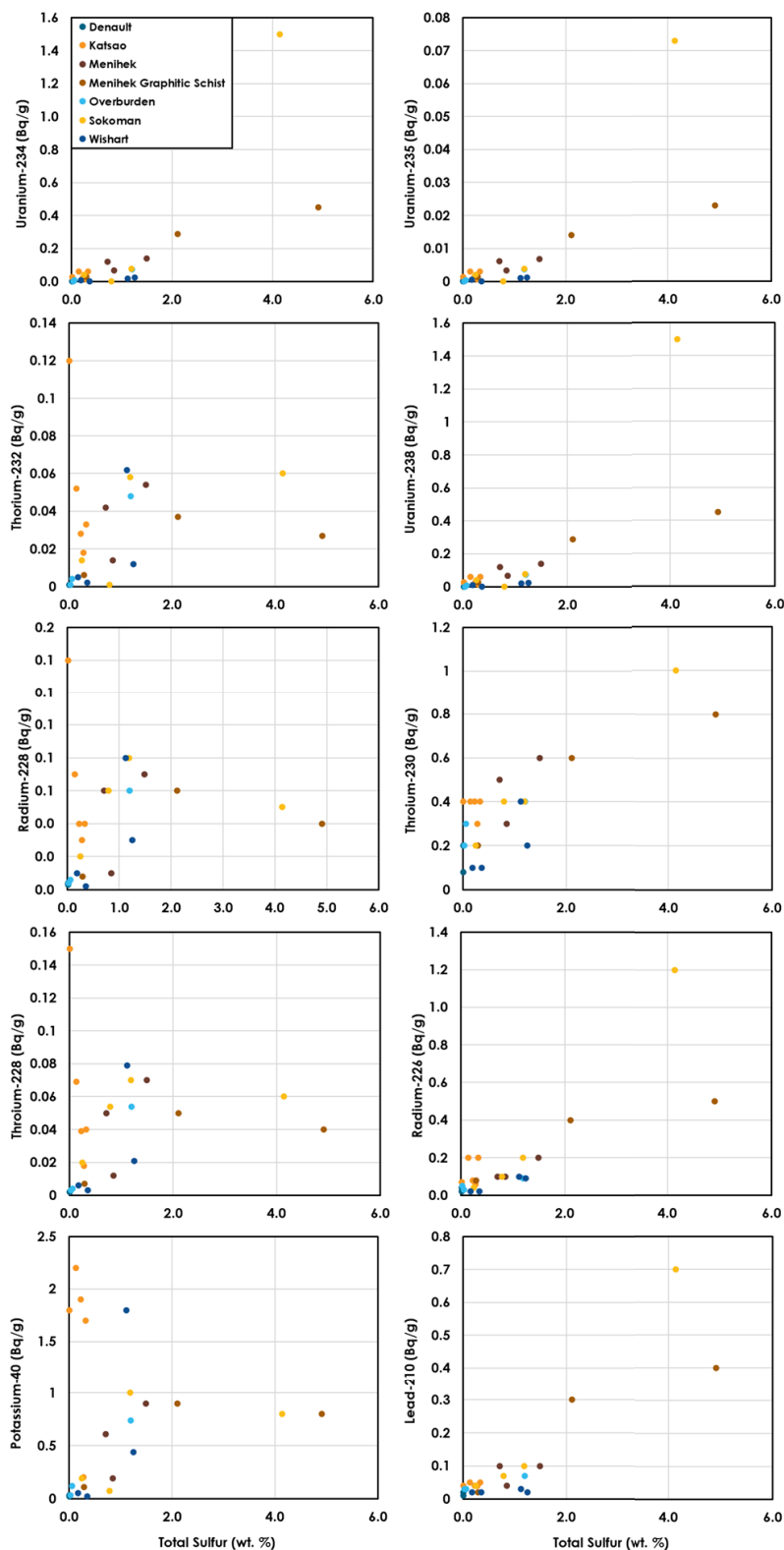


Figure 4.10: Results of NORM tests compared to total sulfur from ABA testing.

Table 4.6: Median NORM testing results for mine rock and overburden by formation.

Formation	Number of Samples	Ra-228	Th-228	Th-230	Ra-226	Pb-210	K-40	Th-232*	U-234*	U-235*	U-238*	Sum of Ratios
Units		Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g
Unconditional Release Limit		0.3	0.3	10	0.3	0.3	17	10	-	-	10	1
Mine Rock Stockpile												
Denault*	2	0.0035	0.002	0.14	0.03	0.015	0.025	0.001	0.0025	0.00014	0.0025	0.18
Katsao	5	0.04	0.04	0.4	0.08	0.04	1.8	0.033	0.028	0.001	0.028	0.82
Menihek (other)	3	0.06	0.05	0.5	0.1	0.1	0.61	0.042	0.12	0.006	0.12	1.1
Menihek (graphitic schist)	3	0.04	0.04	0.6	0.4	0.3	0.8	0.027	0.29	0.014	0.29	2.7
Sokoman	4	0.055	0.057	0.4	0.15	0.085	0.495	0.036	0.059	0.003	0.059	1.2
Wishart	4	0.02	0.014	0.15	0.055	0.02	0.245	0.009	0.015	0.001	0.015	0.22
Formation Weighted Mine Rock Stockpile	-	0.046	0.043	0.39	0.12	0.079	0.72	0.031	0.071	0.004	0.071	1.1
Overburden Stockpile												
Overburden		0.006	0.004	0.3	0.05	0.03	0.12	0.004	0.007	0.0004	0.007	0.34

* Calculated. ** Average taken for Denault formation. Highlighted values indicate exceedances in unconditional release limits.

4.2 Tailings Laboratory Test Results

4.2.1 Mineralogy

No mineralogy was previously done on the tailings themselves, though mineralogy was completed on the ore samples (Stantec, 2013). Mineral abundances were performed on nine head samples through Mineral Liberation Analyzer (MLA) and were reported by Champion (2023) (Table 4.7). These samples represent ore before processing through the mill, where iron oxides (namely hematite and magnetite) will be processed as the main economic minerals.

Table 4.7: Mineral abundances for ore samples from MLA.

Mineral	RC1	RC2	RC3	RN1	RN2	RN3
Hematite	34.3	7.6	2.4	34.9	9.6	4.1
Magnetite	9.5	26.3	35.2	7.9	29.2	26
Iron oxides	43.7	33.9	37.6	42.7	38.7	30.1
Goethite	0.2	1.2	1.4	7.2	4.3	5.4
Quartz	34.1	42.4	39.1	47.3	42.2	42.3
Ca Amphiboles	4.0	2.9	1.7	0.1	0.6	0.8
Fe-Mg Amphiboles	4.1	7.4	5.6	0.6	5.0	7.1
Micas	0.6	0.6	0.5	-	0.3	0.3
Other Silicates	4.3	0.1	0.3	-	0.1	0.3
Ankerite Low Fe	5.3	5.7	7.5	-	3.6	4.4
Ankerite Mid Fe	2.4	2.6	3.7	-	1.7	6.4
Ankerite High Fe	0.3	2.4	1.5	-	2.3	2.1
Siderite	0.2	0.2	0.4	0.3	0.3	0.3
Ca Carbonates	0.2	0.1	0.2	-	-	-
Mn Oxides	0.4	0.2	0.2	1.4	0.6	0.2
Ti Minerals	-	0.1	-	0.1	0.1	-
Sulfides	0.1	0.1	0.3	0	0.2	0.1
Others	0.1	0.1	-	-	-	-

Champion, 2023.

4.2.1.1 X-ray Diffraction

The percentage amounts below (Table 4.8) represent the relative amounts of crystalline phases normalized to 100% from XRD analysis. The two samples sent for XRD had very different compositions. The High RN – Gravity Flotation tailings have 36% quartz, 30.7% magnetite, and 22.2 % hematite as the main mineral constituents. The remaining 11.1% are goethite, siderite, esseneite, ferrosilite, cummingtonite,

plagioclase, and pyrite. The High RC – Cobber tailings are 66.6% quartz and 17.1% ankerite-dolomite. The remaining 16.3% is ferrosilite, cummingtonite, siderite, hematite, plagioclase, pargasite, calcite, talc, and pyrite. Iron minerals were common in both samples, as expected from iron ore.

Gravity flotation tailings are finer grained tailings representing about 6% of the overall tailings, while the cobber tails represent 77% of the final tailings to be deposited in the TMF. Fe-oxide liberation curves suggest that the percentage of Fe liberated decreases largely in the smaller fractions, which is demonstrated by the XRD results provided below. It was also noted by that RN units are generally less liberated for Fe-oxides than RC units (Champion, 2023). Small amounts of sulfides (measured as pyrite by XRD) are noted and similar composition to what is reported by MLA.

Table 4.8: Relative amounts of X-ray powdered diffraction crystalline phases normalized to 100%.

Mineral	Ideal Formula	#6: High RN – Gravity Flotation Tails	#7: High RC - Cobber Tails
Ankerite – Dolomite	$\text{Ca}(\text{Fe}^{2+}, \text{Mg}, \text{Mn})(\text{CO}_3)_2 - \text{CaMg}(\text{CO}_3)_2$	0.9	17.1
Biotite	$\text{K}(\text{Mg}, \text{Fe})_3(\text{AlSi}_3\text{O}_{10})(\text{OH})_2$		1.0
Calcite, magnesian	$(\text{Ca}, \text{Mg})\text{CO}_3$		0.8
Cummingtonite	$(\text{Mg}, \text{Fe})_7\text{Si}_8\text{O}_{22}(\text{OH})_2$	1.0	2.2
Esseneite	$\text{CaFe}^{3+}(\text{AlSiO}_6)$		1.3
Ferrosilite	FeSiO_3	1.6	3.5
Goethite	$\alpha\text{-Fe}^{3+}\text{O}(\text{OH})$	3.7	
Hematite	$\alpha\text{-Fe}_2\text{O}_3$	22.2	1.6
Kutnohorite	$\text{Ca}(\text{Mn}, \text{Mg}, \text{Fe})(\text{CO}_3)_2$		0.5
Magnetite	$\text{Fe}^{2+}\text{Fe}^{3+}_2\text{O}_4$	30.7	
Pargasite	$\text{NaCa}_2(\text{Mg}_4\text{Al})\text{Si}_6\text{Al}_2\text{O}_{22}(\text{OH})_2$		1.1
Plagioclase (andesine)	$\text{NaAlSi}_3\text{O}_8 - \text{CaAl}_2\text{Si}_2\text{O}_8$	1.0	1.7
Pyrite	FeS_2	0.4	0.3
Quartz	SiO_2	36.0	66.6
Siderite	$\text{Fe}^{2+}\text{CO}_3$	2.5	1.6
Talc	$\text{Mg}_3\text{Si}_4\text{O}_{10}(\text{OH})_2$		0.7
Total		100.0	100.0

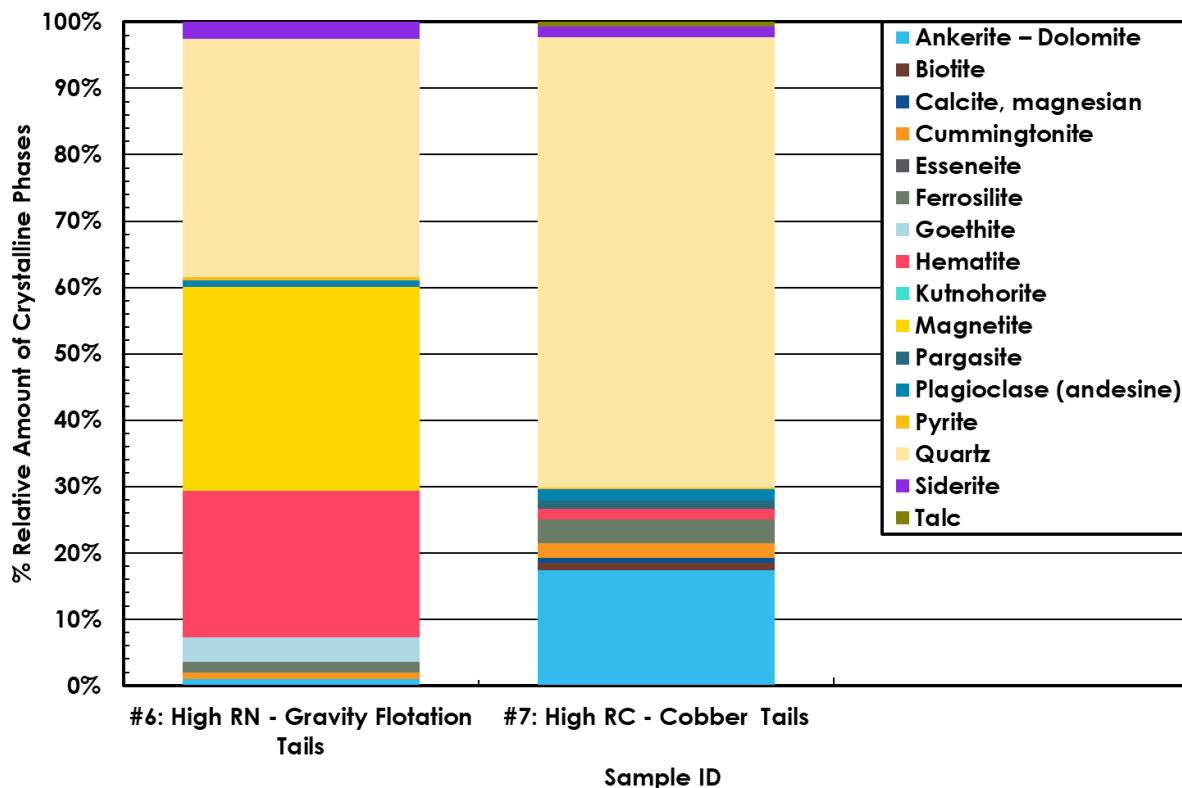


Figure 4.11: Relative amounts of X-ray powdered diffraction crystalline phases normalized to 100%.

4.2.2 Acid Base Accounting

Thirty-one ore samples and six tailings samples underwent static testing by Stantec (2013); results indicated low risk for acidic drainage as samples were classified as NPAG and low risk for metal leaching from ore, concentrate, and tailings. Results of metal leaching for tailings samples were not found in the background review completed by Okane (2023); only ABA results were provided to characterize materials based on six tailings samples. Since ore samples underwent SFE testing, this low metal risk assessment by Stantec (2013) was thought to come from leachability tests completed on ore samples. Additional details for the Stantec samples can be found in Stantec (2013); only results from the Okane sample set will be discussed in this report.

The ABA parameters for the three different tailing streams tested for the Okane dataset are provided below (Figure 4.12). The total sulfur content was highest in the gravity flotation tailings (0.5 to 0.12 wt.%), specifically in the High RC tailings (0.12 wt.%). The other two tailing streams were below detection limit for total sulfur. Acid potential (calculated using total S) was also highest in the gravity flotation tailings (3.75 kg CaCO₃/t) and below detection limit in both the cobber and finisher tailing streams. Sulfate-sulfur was generally low in all tailing streams, suggesting most total sulfur measured is associated with sulfide minerals and minimal sulfide oxidation had occurred during sample collection, transport, and processing. Sobek NP was highest in the cobber tailing stream, specifically the High RC Tailings (134 kg

CaCO₃/t) and lowest in the gravity flotation tailings (Under 25 kg CaCO₃/t). NNP and NP had similar results with most samples having less than 80 kg CaCO₃/t, except for the High RC – cobber tailing stream (134 kg CaCO₃/t).

Figures showing ABA results from all three tailing streams are shown below (Figure 4.12 and Table 4.9). Paste pH values were mostly neutral to slightly basic, a median pH of 8.5 across all tailing streams. Consistent with the ABA classification, sulfide was only measured in the gravity flotation tailing stream. ABA testing showed the acid generation potential is very low with high NPR values (between 12 to 134) due to low to below detection sulfur content and high carbonate content.

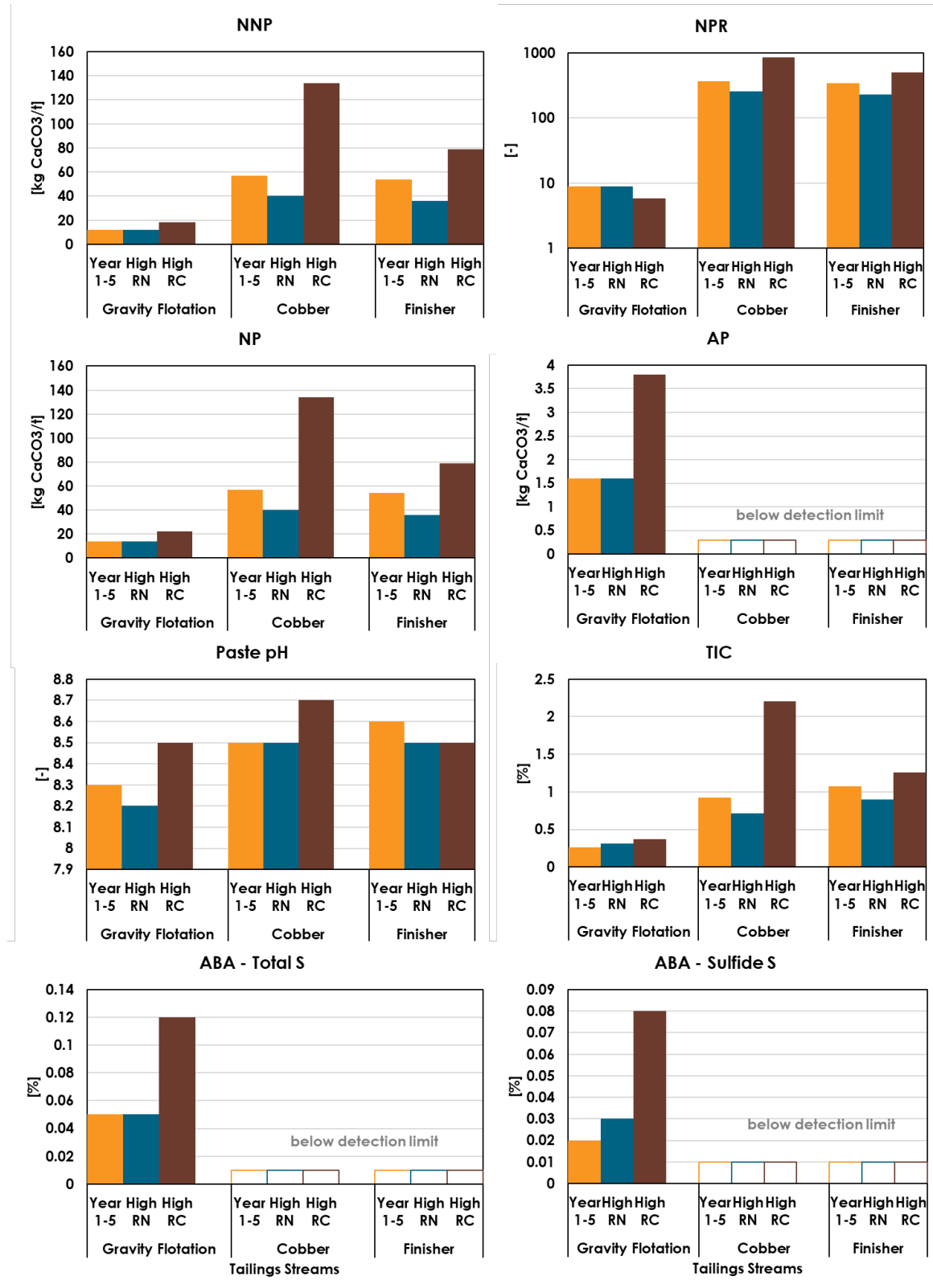


Figure 4.12 Comparison of the acid base accounting parameters for three tailing streams.

Table 4.9: ABA for the tailings laboratory test results.

Stream	Sample Description	Fizz Rating	AP (kg CaCO ₃ /t)	NNP (kg CaCO ₃ /t)	NP (kg CaCO ₃ /t)	NPR (-)	pH	Total S (wt.%)	Sulfide-S (wt.%)	TIC (wt.%)
Gravity Flotation	Year 1.5	1	1.6	12	14	8.96	8.3	0.05	0.02	0.26
	High RN	1	1.6	12	14	8.96	8.2	0.05	0.03	0.31
	High RC	1	3.8	18	22	5.87	8.5	0.12	0.08	0.37
Cobber	Year 1.5	2	<0.3	57	57	364.8	8.5	<0.01	<0.01	0.92
	High RN	2	<0.3	40	40	256	8.5	<0.01	<0.01	0.71
	High RC	3	<0.3	134	134	857.6	8.7	<0.01	<0.01	2.2
Finisher	Year 1.5	2	<0.3	54	54	345.6	8.6	<0.01	<0.01	1.07
	High RN	2	<0.3	36	36	230.4	8.5	<0.01	<0.01	0.9
	High RC	2	<0.3	79	79	505.6	8.5	<0.01	<0.01	1.26

4.2.3 *Four-acid Elemental Digest Analysis*

Forty-eight metal(loid) concentrations obtained via four-acid digest were compared relative to global crustal abundances as a preliminary assessment of potential environmental risk (Price, 1997). Parameters which are elevated relative to 5x crustal abundance and may be potential environmental concerns are highlighted in Table 4.10. All elemental digest analyses on the tailings samples are included in Appendix B. As noted for mine rock, four-acid elemental digest analysis data can be used to provide a preliminary understanding of potential contaminants of concern from mine rock by identifying elements that are elevated relative to crustal abundance. Elevated levels do not necessarily indicate these metals will be mobilized.

Key contaminants of concern that were previously identified by Stantec (2013) and Okane in Kami Project mine rock solids were arsenic, copper, nickel, and zinc. Copper, nickel, and zinc were all below the 5x crustal abundance threshold in all three tailings streams. All the gravity flotation tailings and the High RC – Cobber tailings were above the 5x crustal abundance threshold for arsenic. Other elements that exceeded the 5x crustal abundance threshold were selenium (measured at detection limit of 1 ppm) and manganese (on average 8,776 ppm) from all composite samples. Iron in the gravity flotation tailings (43%), and bismuth for High RC – Cobber (0.05 ppm) and finisher tailings (0.07 ppm) also exceeded the 5x crustal abundance threshold.

Table 4.10: Crustal abundance for four-acid elemental digest geochemistry.

Parameter (unit)	Unit	5x Crustal Abundance	Gravity Flotation			Cobber			Finisher Tailings		
			Year 1-5	High RN	High RC	Year 1-5	High RN	High RC	Year 1-5	High RN	High RC
As	ppm	9	23.5	31	47.1	4.4	4.2	11.2	3.6	3.3	3.9
Bi	ppm	0.041	0.02	0.03	0.04	0.02	0.02	0.05	0.02	0.02	0.07
Fe	%	31.1	45.4	38.2	45.2	7.64	8.13	6.32	7.55	6.93	6.58
Mn	ppm	5300	9210	6960	12750	9840	5810	19850	7940	5250	10600
Se	ppm	0.25	<1	1	1	1	1	1	1	1	1
Te	ppm	0.025	<0.05	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Crustal abundance after Price (1997).

4.2.4 Supernatant Samples

Supernatant samples were analyzed for water chemistry and compared to water quality guidelines. Supernatant is thought to represent water from processing at the mill and will be in circulation through the TMF and deposited in saturated tailings. One unique and one duplicate sample were tested to represent a composite of tailings streams as per the current mine plan (labeled High RN Blend and High RN Blend Dup), representing a mix of fine and coarse tailings. Differences in the total metals were noted between the duplicate and original sample, likely due to inconsistencies in the mixing methods (see Section 3.1.2), though results for dissolved metals were comparable which was used for comparison to CCME and MDMER water quality guidelines. The High RN Blend samples exceeded F and NH₃ CCME Freshwater Chronic Guidelines. Result concentrations for these constituents for supernatant samples are given below (Table 4.11).

Three supernatant samples representing different tailings compositions (i.e., Year 1 to 5, High RN, and High RC) from the gravity flotation stream were collected in 2023 representing fine grained tailings. The gravity flotation tailings also showed exceedances in F and NH₃. In the mill, this tailing stream is treated with NaOH, the collector Tomamine M100-7, and depressant WW82 (Okane, 2024b). These additives as well as the finer grained tailings resulted in higher nitrogen (which appears in high total nitrogen values) due to the presence of amines. The full suite of water quality parameters measured including these supernatant samples is attached in Appendix B.

Table 4.11: Supernatant concentrations for constituents with exceedance of CCME guidelines.

Sample ID	F (mg/L)	NH ₃ (mg/L)
High RN Blend	0.272	0.0523
High RN Blend-Dup	0.275	0.049
Long Lake Water	<0.020	<0.005
Year 01-05 Gravity Flotation	0.143	0.112
High RN Gravity Flotation	0.051	0.0642
High RC Gravity Flotation	0.050	0.0542
Quebec City Water	0.044	0.0071

Highlighted values indicate concentrations in exceedance of CCME chronic water quality guidelines.

4.2.5 Shake Flask Extractions

Nine samples were sent for analyses and only six were in exceedance of the CCME Chronic Freshwater Aquatic guidelines, summarised below (Table 4.12). Metals Cr and Fe were found to be in exceedance in the finisher tails only. Ammonia was also found to exceed the guidelines in all of the gravity flotation tails and in one of three cobber tails samples.

Table 4.12: Summary of samples with elements in exceedance of the CCME guidelines.

Sample IDs	Elements in Exceedance
Year 1-5 – Cobber Tails	NH ₃
Year 1-5 – Gravity Flotation Tails	NH ₃
High RN – Gravity Flotation Tails	NH ₃
High RC – Gravity Flotation Tails	NH ₃
Year 1-5 - Finisher Tails	Cr, Fe
High RN - Finisher Tails	Cr, Fe
High RC - Finisher Tails	Fe

4.2.6 Naturally Occurring Radioactive Materials

One concern with NORM risks is that processing of raw materials (such as tailings, which are crushed and treated with additives to concentrate and separate ore) may increase the concentration of radioactive substances naturally found in the environment. Results of all three NORM tests performed on the Year 1 to 5 blend of tailings on the Cobber, Finisher, and Gravity Flotation streams, are provided in Table 4.13. Most of these test results are below detection limit, and the sum of ratios are below the unconditional release limit. Therefore, the processing of Kami tailings does not increase the concentration significantly, and/or there are very little radioactive substances associated with the iron ore.

Table 4.13: NORM testing results for tailings.

Formation	Ra-228	Th-228	Th-230	Ra-226	Pb-210	K-40	Th-232*	U-234*	U-235*	U-238*	Sum of Ratios
Units	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g
Unconditional Release Limit	0.3	0.3	10	0.3	0.3	17	10	-	-	10	1
Year 1-5 – Cobber Tails	<0.007	<0.003	<0.2	<0.06	<0.02	<0.04	0.001	0.003	0.0002	0.003	0.32
Year 1-5 – Finisher Tails	<0.006	<0.003	<0.2	<0.03	<0.03	<0.01	0.001	0.001	<0.00006	0.001	0.25
Year 1-5 – Gravity Flotation Tails	0.006	0.002	<0.1	<0.02	<0.02	<0.1	0.001	0.002	0.0001	0.002	0.18

* Calculated.

5 CONCLUSIONS

5.1 Classification and Interpretation of Mine Rock and Overburden Results

Consistent with previous findings (Stantec 2013; WorleyParsons, 2014), overburden material is classified as NPAG, with average and median NPR values of 30 and 13, respectively. At the 5th percentile, NPR was 2. It can be concluded that the Overburden Stockpile as planned is not a concern for acidic drainage. Some parameters such as iron, selenium, and ammonia were measured in multiple overburden samples at concentrations that exceeded water quality guidelines in SFE results, with some instances of arsenic, cadmium, chromium, copper, nickel, uranium, and zinc also measured. Stantec (2013) noted that higher metals in the overburden and some instances of PAG are likely associated with overburden samples directly above the Menihek Formation, and not representative of the overburden itself.

Findings from ABA results for mine rock also indicate there is sufficient NP in the Mine Rock Stockpile to neutralize acid generation if the stockpile is well mixed, even considering removal of NPAG rock for the TMF dam embankment construction. Previous work (Stantec, 2013; WorleyParsons, 2014) emphasized the risk from graphitic mica schist lithology associated with the Menihek Formation. While additional samples in this report support the ARD risk associated with graphitic schist (i.e., 80% of the graphitic schist lithology classified as PAG), previous estimates by tonnage are that the graphitic schist accounts for 4.5% of the total mine rock. As the total PAG content of the deposit is estimated to be between 22 to 27%, it is important to consider other rock types or formations that may contain PAG rock. However, even after removing an estimated 82.4 Mt of NPAG mine rock required for the TMF dam embankment, the average and median NPR values were 5.0 and 7.2, respectively, for the remaining rock in the Mine Rock Stockpile, indicating that there is sufficient NP available to neutralize potential acidity generated from sulfide oxidation through strategic mine rock management (Okane, 2024a). Results from XRD found that pyrite and pyrrhotite were the major sulfide minerals in the mine rock, though Stantec (2013) reported trace amounts of chalcopyrite, galena, and sphalerite from SEM.

When analyzing the spatial distribution of NPR in the Rose Pit from cross sections, most PAG samples (i.e., $\text{NPR} < 1$) are related to the Menihek unit and its margins. However, some samples of PAG classified rock are present in the Katsao, Wishart, and Sokoman Formations. Cross sections (Appendix C) showed that PAG samples are observed at relatively shallow depths within the pit shell. Okane understands that Champion will construct the Mine Rock Stockpile using an in-pit crusher and conveyor, which will allow for even distribution of higher NP materials to mitigate the risk of generating acidity through blending. Consideration for the distribution of PAG and NPAG materials to achieve sufficient blending will need to be considered in the waste management plan.

Results from the four-acid elemental digest analysis identified several metals over the 5x global crustal abundance, including silver, bismuth, cadmium, sulfur, selenium, tellurium, and uranium; however, these

were different than some of the metals highlighted as a concern in previous works (i.e., arsenic, copper, nickel, zinc). Elemental digest results can identify potential constituents that may become a potential water quality risk when their abundances are beyond the Canadian Interim Sediment Quality Guidelines (ISQG), but this static data cannot be used to provide evidence for the evolution of these contaminants in seepage from mine rock during weathering.

While SFE results should not be directly compared to water quality guidelines to forecast water quality from full-scale operations, comparison to guidelines provides a frame of reference for potential parameters of concern with respect to leachability. Parameters from SFE results that exceeded CCME or MDMER water quality guidelines include cadmium, chromium, copper, fluorine, iron, nickel, ammonia, selenium, uranium, and zinc. These are generally consistent with what had been identified by Stantec (2013), except for fluorine and ammonia, which were not measured in the previous geochemical characterization reports (Stantec, 2013). Particularly for ammonia, as species were found in drilled core samples (i.e., present in the mine rock before blasting), this may suggest a natural source of nitrogen in the rock and overburden, which may be leachable from mine materials that are not blasted or treated with nitrogen-containing compounds (such as the Overburden Stockpile).

The Menihek Formation was generally identified as having the lowest paste pH and highest measured concentrations of metals associated with sulfide oxidation in parameters of interest (apart from Katsao, which seemed to have higher chromium than other samples) (Figure 4.8). Though the graphitic schist lithology in the Menihek Formation had the greatest ABA risk, SFE results showed comparable concentrations between graphitic schist and other lithologies in the Menihek Formation with respect to exceedances above CCME or MDMER water quality guidelines in parameters of concern. However, all formations (except for the Denault) had some parameters measured above CCME or MDMER water quality guidelines in outlier samples. It is possible that the spread of these outliers may be associated with samples collected close to boundaries between formations; however, due to the complex nature of the deposit that is highly metamorphosed and folded, this would make it extremely challenging to segregate high risk sources of metals.

The current mine plan states that blending of mine rock will be completed using an in-pit crusher conveyor to distribute and mix crushed rock as it is deposited into the Mine Rock Stockpile. Blending mine rock would allow excess NP present in mine rock to neutralize acidity generated from PAG materials. To determine the association between leachability of metals and pH, concentrations of metals in SFE results were compared to paste pH (Figure 4.9). While it appears that some metals are more leachable under lower pH conditions (e.g., cadmium, chromium, copper, nickel, and zinc), other possible parameters of concern (e.g., arsenic, selenium, fluorine, ammonia, and uranium) may still be leached under neutral pH conditions. Kinetic tests (such as humidity cell tests) are better indicators of pH relationships with metal leachability over time, and results will be provided in the next phase of the geochemical report. At full scale, additional considerations such as metal attenuation through secondary mineral precipitation and sorption may decrease concentrations of metals in mine rock effluent, which may be determined through larger-scale kinetic columns.

On-going kinetic testing is expected to provide additional insight once data becomes available for review. The additional test results as part of the geochemical characterization program will provide insight into the potential risks associated of metal leaching in Phase III.

From NORM test results analyzed, the only lithology with exceedance of the unconditional release limits for individual radionuclides (specifically, radium-226) is the graphitic schist lithology from the Menihék Formation. However, the sum of ratios is exceeded in all lithologies from the Menihék Formation and in the Sokoman Formation, resulting in the weighted median sum of ratios for the Mine Rock Stockpiles to be 1.1 (exceeding the unconditional release limit of 1) (Health Canada, 2013). Due to the small number of samples collected for initial screening and sample selection to capture potential high risk samples (i.e., prioritizing at least one sample from each formation where sulfide was greater than the 75th percentile from ABA results), results presented here may overestimate the NORM risk potential from the mine rock on a whole.

5.2 Classification and Interpretation of Tailings Results

All tailings streams and composite samples were classified as NPAG. The gravity flotation tailings for all three composites had an NPR that was on average 7.9. This was the lowest ratio out of the three tailings streams, but still provides excess NP. The cobber tailings had an average NPR of 493, and the finisher tailings had an average NPR of 361. All the tailings had low sulfur and sulfide (at or near detection limit), therefore there is no risk of acid generation from the tailings.

The four-acid elemental digest analysis and SFE suggest that there may be some potential for metal(loid)s to leach from the tailings. Elements higher than 5X the crustal abundance included arsenic, bismuth, iron, manganese, selenium, and tellurium. Shake flask extractions only showed iron, chromium, and ammonia in exceedance of the CCME water quality guidelines. Supernatant samples had exceedances in fluorine and ammonia, which is thought to represent process water in circulation through the mill and TMF during operations until it is flushed in closure. Amines added to the tailings as part of processing in the mill may result in the nitrogen concentrations observed in the tailings. Iron not extracted during the mill may generate a risk for red water, as noted previously by Alderon (2012). These elements should continue to be monitored during the humidity cell testing.

There is low NORM risk associated with the Kami tailings and iron ore. Results from these tests indicated most analytes were below detection limit, with no individual radionuclides above the unconditional release limit. Additionally, the sum of ratios values for all samples were well below the unconditional release limit.

6 RECOMMENDATIONS

Based on the discussion section, the following recommendations are summarized below.

- Internal discussions between Champion and Okane have highlighted the need to identify a system for constraining the highest risk material (with respect to ML/ARD potential) and identify when in the mine life it is expected to be stockpiled. Identifying the timing of mining highest risk material will be important to the underlying assumption that sufficient NP is available to neutralize acidity within the Mine Rock Stockpile over the 26 years of mine life. Previous work has delineated PAG classified rock based on formation, which is available in the current block model. However, as more PAG rock may be located towards the surface and there is PAG rock in all formations (except for Denault), it is important to define total volumes and an extraction and stockpiling schedule for PAG and NPAG rock to avoid construction of the Mine Rock Stockpile or TMF dam embankments with zones of PAG materials.
 - It is recommended to update the block model for the Kami Project in terms of the ML/ARD risk. Updating the block model will aid in confirming if there is a high ratio of PAG rock extracted early in the mine life relative to NPAG rock, and whether there is sufficient NP available to neutralize potential acidity in the Mine Rock Stockpile and TMF dam embankments. The updated block model should be coupled with the extraction schedule and deposition plan to determine bulk NPR values of different storage facilities across the site (i.e. the Mine Rock Stockpile, Overburden Stockpile, and TMF dam embankments).
 - Additionally, assumptions on acid generation and neutralization using static testing methods should be confirmed by completing mixed lithology kinetic testing currently ongoing.
- Due to the presence of graphite measured in mineralogy of other formations besides the Menihek, it is recommended that all future ABA testing use modified Sobek NP rather than carbonate NP.
- Due to the excess of NP over AP in some mine rock and the complex lithology of the Kami Project, blending of mine rock in stockpiles is an effective option to prevent acid generation, which is known to increase the mobility and release of some metals of concern. However, maintaining neutral conditions does not ensure release of metals will not be a future water quality issue. Metals leaching in SFE results at neutral conditions may indicate a potential risk of neutral mine drainage. Neutral mine drainage risk will be assessed in more detail in Phase III of the geochemical characterization report and through other ongoing work such as the water quality modelling work being conducted by Lorax and Okane (2024b).

- The risk associated with PAG materials assumes that sulfide minerals are allowed to oxidize. Crushing rock before deposition may reduce air permeability within the Mine Rock Stockpile; however, crushing rock may also increase weathering rates due to the exposure of additional surface area of sulfide minerals in the short term if left exposed to oxygen. While acidity may not be a risk long-term, SFE results suggest that samples may leach metals even under neutral conditions if sulfide oxidation is allowed to occur. It is recommended that oxygen ingress modelling and exposure time of materials be considered when investigating ABA risk with the extraction schedule and block model updates.
- Currently, a single blended HCT is undergoing testing for blended mine rock in the proportions anticipated at end of mine life (Okane, 2023a). Using the ABA block model and the extraction schedule, additional blended HCTs that are composed of blended lithologies anticipated at different mine phases would be beneficial for understanding the drainage chemistry as the Mine Rock Stockpile is constructed over time. These additional blended columns could be used to support the concept that stockpile has sufficient NP available through all mine phases to maintain neutral conditions. Different blends could be designed to support different potential extraction schedules.
- Current available kinetic data from HCTs were conducted under conditions that are much different from the mine site. Therefore, field characteristics such as temperature, precipitation, and particle size distribution would not be sufficiently captured to estimate in-situ drainage chemistry. Although HCT results provide initial insights into primary weathering reactions, field-based testing is recommended to capture secondary reactions and provide more realistic insight into actual drainage chemistry and potential neutral mine drainage concerns when sufficient blasted rock becomes available for these.
 - Additional testing methodologies could include using larger column testing to approximate conditions at the Kami Project site with proportions of blended mine rocks representative of the Mine Rock Stockpile at different mine phases would be beneficial in supporting understanding for potential metal release risk from blended mine rock.
- Additional studies may be considered to investigate correction factors for siderite and graphite (including potential differences due to blast fractionation) to implement blending and PAG management with sufficient NP during active mining for quality assurance/quality control.
- Results from NORM analysis indicate potential risk from the Mine Rock Stockpile based on the weighted median sum of ratios. This risk should further be assessed within a Human Health and Environment Risk Assessment. Additional samples for NORM tests may be required following the assessment.
- Samples were initially selected to focus on high sulfur samples for NORM analysis to increase the chance of detection. As a result, current samples presented are likely biased on the higher side

of potential risk. It is recommended to complete NORMs analysis on a wider distribution of sulfur concentrations to get a better sense of the potential risks.

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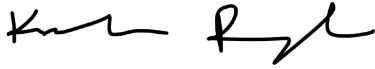
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8 CLOSURE

We trust information provided is satisfactory for your requirements. Please do not hesitate to contact the undersigned at 437-684-4071 for further information or questions.

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Appendix A

Summary of Stantec and Okane Static Methods

Stantec Methods

ABA tests were undertaken in the previous work completed for Alderon using the following methods:

- AP in Phase III of previous material characterization (WorleyParsons, 2014) of all materials was calculated from the total sulfur content, where:
 - Total sulfur (wt. %) was determined by LECO furnace;
 - Sulfate sulfur (wt. %), determined by colourimetry following dilute hydrochloric acid digestion); and
 - Sulfide sulfur (wt. %) was determined by difference between total sulfur and sulfate sulfur.
- Carbonate NP was calculated from the carbonate content of the samples (determined by pyrolysis followed by quantification by LECO furnace) (i.e., carbonate NP = (total inorganic carbon – graphite carbon) x 83.3).
- Sobek NP was calculated analytical determination of the modified Sobek NP.
- In previous ABA characterization work, neutralization potential ratio (NP/AP = NPR) was calculated using both carbonate NP and Sobek NP, where the lowest NPR of the two values were used for all formations except for Menihek (which only used Sobek NP due to the presence of graphite).

Okane Methods

ABA tests were undertaken in this work using the following methods:

- AP of all materials was calculated from the total Sulfur content, where:
 - Total sulfur (wt. %) was determined by LECO furnace and IR spectroscopy;
 - Sulfate sulfur (wt. %) determined as barium sulfate precipitation and gravimetric finish following dilute (15%) hydrochloric acid digestion; and
 - Sulfide sulfur (wt. %) was calculated as the difference between total sulfur and sulfate sulfur.
- Sobek NP was calculated analytical determination of the modified Sobek NP.
- Neutralization potential ratio was calculated using the modified Sobek NP and AP.

Appendix B

Geochemistry Lab Results

Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-10-55 80.6-81.6	K-10-55	80.6	81.6	Stantec	Denault	Mine Rock		9.63	0.0025	0.005	0.005	7.55	33.9	---	599	565	0.16	565	3645.2	NAG
K-10-55 99-100	K-10-55	99	100	Stantec	Denault	Mine Rock		9.45	0.0025	0.005	0.005	8.63	29	---	731	483.3	0.16	483	3118.3	NAG
K-10-61-34	K-10-61	34	34.5	Okane	Denault	Mine Rock	4	9.2	<0.01	<0.01	<0.01		10.2	---	840		<0.3	840	5376	NAG
K-11-166 259.5-260	K-11-166	259.5	260	Stantec	Denault	Mine Rock		9.46	0.0025	0.005	0.005	10.6	45.8	---	892	763.3	0.16	763	4924.7	NAG
K-11-166 281-281.5	K-11-166	281	281.5	Stantec	Denault	Mine Rock		9.52	0.0025	0.005	0.005	11.4	54.2	---	1033	903.3	0.16	903	5828	NAG
K-11-166 299.3-299.5	K-11-166	299.3	299.5	Stantec	Denault	Mine Rock		9.34	0.0025	0.005	0.005	10.9	37.6	---	1007	626.7	0.16	627	4043	NAG
K-11-166-251.1	K-11-166	251.1	251.6	Okane	Denault	Mine Rock	4	9.4	<0.01	0.01	<0.01		12.45	---	1020		<0.3	1020	6528	NAG
K-11-166-271	K-11-166	271	271.5	Okane	Denault	Mine Rock	4	9.4	<0.01	0.01	<0.01		12.45	---	917		<0.3	917	5868.8	NAG
K-12-174-175.9	K-12-174	175.9	176.4	Okane	Denault	Mine Rock	4	9.4	<0.01	0.01	<0.01		11.45	---	898		<0.3	898	5747.2	NAG
NL12951	K-11-166	250	251	Stantec	Denault	Mine Rock		9.4	0.0025	0.005	0.005	12.1	57.3	---	980	955	0.16	955	6161.3	NAG
NL12952	K-11-166	275	276	Stantec	Denault	Mine Rock		9.56	0.0025	0.005	0.005	10.1	29.1	---	830	485	0.16	485	3129	NAG
NL12953	K-11-166	301	302	Stantec	Denault	Mine Rock		9.47	0.0025	0.005	0.01	9.42	42	---	774	700	0.31	700	2240	NAG
K-11-106 160-163	K-11-106	160	163	Stantec	Katsao	Mine Rock		7.66	0.013	0.01	0.005	0.024	0.02	---	3.9	0.3	0.16	0.14	2.2	NAG
K-11-108 108.5-109	K-11-108	108.5	109	Stantec	Katsao	Mine Rock		9.61	0.01	0.01	0.005	0.012	0.02	---	2.9	0.3	0.16	0.14	2.2	NAG
K-11-108 120.3-120.7	K-11-108	120.3	120.7	Stantec	Katsao	Mine Rock		9.86	0.035	0.02	0.01	0.012	0.0025	---	5.1	0.1	0.31	-0.21	0.3	PAG
K-11-108 140.2-140.7	K-11-108	140.2	140.7	Stantec	Katsao	Mine Rock		10.01	0.156	0.1	0.06	0.016	0.015	---	7.9	0.3	1.88	-1.58	0.1	PAG
K-11-108 151-151.5	K-11-108	151	151.5	Stantec	Katsao	Mine Rock		10.24	0.022	0.01	0.01	0.04	0.105	---	4	1.8	0.31	1.5	5.6	NAG
K-11-108 160-160.5	K-11-108	160	160.5	Stantec	Katsao	Mine Rock		9.33	0.032	0.01	0.02	0.06	0.035	---	6.3	0.6	0.63	-0.03	0.9	PAG
K-11-108 170-170.5	K-11-108	170	170.5	Stantec	Katsao	Mine Rock		9.71	0.354	0.09	0.26	0.05	0.13	---	8.6	2.2	8.13	-5.93	0.3	PAG
K-11-108 176.5-177	K-11-108	176.5	177	Stantec	Katsao	Mine Rock		8.88	0.242	0.07	0.17	0.018	0.01	---	5.5	0.2	5.31	-5.11	0	PAG
K-11-108 190.1-190.7	K-11-108	190.1	190.7	Stantec	Katsao	Mine Rock		9.77	0.0025	0.005	0.005	0.013	0.025	---	3.4	0.4	0.16	0.24	2.7	NAG
K-11-108 204-204.5	K-11-108	204	204.5	Stantec	Katsao	Mine Rock		9.69	0.179	0.005	0.18	0.038	0.035	---	8.4	0.6	5.63	-5.03	0.1	PAG
K-11-108 214-214.5	K-11-108	214	214.5	Stantec	Katsao	Mine Rock		9.02	0.434	0.01	0.42	0.084	0.0025	---	7.5	0	13.13	-13.13	0	PAG
K-11-108 225-225.5	K-11-108	225	225.5	Stantec	Katsao	Mine Rock		8.86	0.296	0.08	0.22	0.026	0.025	---	9.7	0.4	6.88	-6.48	0.1	PAG
K-11-108 88.3-88.8	K-11-108	88.3	88.8	Stantec	Katsao	Mine Rock		9.5	0.0025	0.005	0.005	0.019	0.065	---	4	1.1	0.16	0.94	7	NAG
K-11-108 99.3-99.7	K-11-108	99.3	99.7	Stantec	Katsao	Mine Rock		9.75	0.22	0.11	0.11	0.008	0.0025	---	8.9	0	3.44	-3.44	0	PAG
K-11-108-103.5	K-11-108	103.5	104	Okane	Katsao	Mine Rock	1	9.7	0.28	<0.01	0.28		<0.05	---	8		8.8	-1	0.91	PAG
K-11-108-118.2	K-11-108	118.2	118.7	Okane	Katsao	Mine Rock	1	6	1.91	0.05	1.86		<0.05	---	6		59.7	-54	0.1	PAG
K-11-108-180.3	K-11-108	180.3	180.8	Okane	Katsao	Mine Rock	1	9.6	0.01	0.01	<0.01		<0.05	---	4		0.3	4	12.8	NAG
K-11-108-218	K-11-108	218	218.5	Okane	Katsao	Mine Rock	1	8.9	0.33	0.02	0.31		<0.05	---	7		10.3	-3	0.68	PAG
K-11-108-228.3	K-11-108	228.3	228.8	Okane	Katsao	Mine Rock	1	8.4	0.08	0.01	0.07		0.05	---	12		2.5	10	4.8	NAG
K-11-108-89	K-11-108	89	89.5	Okane	Katsao	Mine Rock	1	8.4	0.15	<0.01	0.15		0.06	---	13		4.7	8	2.77	NAG
K-11-108-93.2	K-11-108	93.2	93.2	Okane	Katsao	Mine Rock	1	9.7	0.08	<0.01	0.08		<0.05	---	10		2.5	8	4	NAG
K-11-112A 120-120.	K-11-112A	120	120.5	Stantec	Katsao	Mine Rock		8.9	0.147	0.05	0.1	0.009	0.015	---	7.7	0.3	3.13	-2.83	0.1	PAG
K-11-112A 150.5-15	K-11-112A	150.5	151	Stantec	Katsao	Mine Rock		9.84	0.051	0.03	0.02	0.053	0.165	---	7.5	2.8	0.63	2.2	4.4	NAG
K-11-112A 170.5-17	K-11-112A	170.5	171	Stantec	Katsao	Mine Rock		8.54	0.007	0.005	0.005	0.016	0.02	---	3.4	0.3	0.16	0.14	2.2	NAG
K-11-112A 201-201.	K-11-112A	201	201.5	Stantec	Katsao	Mine Rock		7.47	0.013	0.01	0.005	0.053	0.135	---	3.9	2.3	0.16	2.1	14.5	NAG
K-11-112A 60-60.5	K-11-112A	60	60.5	Stantec	Katsao	Mine Rock		9.44	0.053	0.02	0.03	0.014	0.02	---	7.9	0.3	0.94	-0.64	0.4	PAG
K-11-112A 85.5-90	K-11-112A	85.5	90	Stantec	Katsao	Mine Rock		9.94	0.524	0.19	0.33	0.268	0.859	---	26	14.3	10.31	4.0	1.4	Uncertain
K-11-112A-102.8	K-11-112A	102.8	103.3	Okane	Katsao	Mine Rock	1	9.5	0.1	<0.01	0.1		<0.05	---	8		3.1	5	2.56	NAG

Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-11-112A-113.8	K-11-112A	113.8	114.3	Okane	Katsao	Mine Rock	1	8.7	0.23	<0.01	0.23		<0.05		7		7.2	0	0.97	PAG
K-11-112A-147.3	K-11-112A	147.3	147.8	Okane	Katsao	Mine Rock	1	8.5	0.02	0.02	<0.01		<0.05		3		0.6	2	4.8	NAG
K-11-112A-166.8	K-11-112A	166.8	167.3	Okane	Katsao	Mine Rock	1	7.3	0.14	0.06	0.08		<0.05		4		4.4	0	0.91	PAG
K-11-112A-43.1	K-11-112A	43.1	43.6	Okane	Katsao	Mine Rock	1	9.3	0.02	0.01	0.01		0.06		6		0.6	5	9.6	NAG
K-11-112A-71.4	K-11-112A	71.4	71.9	Okane	Katsao	Mine Rock	1	8.2	0.36	<0.01	0.36		<0.05		9		11.3	-2	0.8	PAG
K-11-113 102-103	K-11-113	102	103	Stantec	Katsao	Mine Rock		7.88	0.026	0.03	0.005	0.026	0.02	---	6.7	0.3	0.16	0.14	2.2	NAG
K-11-113 114-115	K-11-113	114	115	Stantec	Katsao	Mine Rock		7.01	0.02	0.02	0.005	0.046	0.04	---	3.4	0.7	0.16	0.54	4.3	NAG
K-11-113 60-61	K-11-113	60	61	Stantec	Katsao	Mine Rock		8.35	0.381	0.04	0.34	0.125	0.025	---	9.1	0.4	10.63	-10.23	0	PAG
K-11-113 75-75.5	K-11-113	75	75.5	Stantec	Katsao	Mine Rock		9.8	0.012	0.01	0.005	0.086	0.39	---	9.9	6.5	0.16	6.3	41.9	NAG
K-11-116 42-42.5	K-11-116	42	42.5	Stantec	Katsao	Mine Rock		7.86	0.01	0.01	0.005	0.062	0.05	---	6.5	0.8	0.16	0.64	5.4	NAG
K-11-116 48.2-51	K-11-116	48.2	51	Stantec	Katsao	Mine Rock		8	0.025	0.02	0.005	0.055	0.07	---	6.4	1.2	0.16	1.0	7.5	NAG
K-11-116 69-72	K-11-116	69	72	Stantec	Katsao	Mine Rock		7.24	0.013	0.01	0.005	0.289	0.16	---	5.3	2.7	0.16	2.5	17.2	NAG
K-11-116-78	K-11-116	78	78.5	Okane	Katsao	Mine Rock	1	6.5	0.01	0.01	<0.01		<0.05		1		0.3	1	3.2	NAG
NL12954	K-11-113	63	64	Stantec	Katsao	Mine Rock		9.67	0.041	0.005	0.05	0.141	0.087	---	8.2	1.5	1.56	-0.06	0.9	PAG
NL12955	K-11-113	73	74	Stantec	Katsao	Mine Rock		9.62	0.04	0.02	0.02	0.118	0.142	---	7.7	2.4	0.63	1.8	3.8	NAG
NL12956	K-11-113	78	79	Stantec	Katsao	Mine Rock		9.34	0.019	0.005	0.02	0.023	0.082	---	4.1	1.4	0.63	0.77	2.2	NAG
NL12957	K-11-113	83	84	Stantec	Katsao	Mine Rock		9.15	0.318	0.13	0.19	0.049	0.012	---	8.9	0.2	5.94	-5.74	0	PAG
NL12958	K-11-113	87	88	Stantec	Katsao	Mine Rock		9.26	0.123	0.04	0.08	0.062	0.027	---	8.4	0.5	2.5	-2	0.2	PAG
ROB-11-04 68'-70'	ROB-11-04	20.7	21.3	Stantec	Katsao	Mine Rock		10.06	0.18	0.03	0.15	0.097	0.39	---	15	6.5	4.69	1.8	1.4	Uncertain
ROB-11-05A 46'-48'	ROB-11-05A	14	14.6	Stantec	Katsao	Mine Rock		9.94	0.116	0.04	0.08	0.038	0.125	---	9.7	2.1	2.5	-0.4	0.8	PAG
ROB-11-06 43'-45'	ROB-11-06	13.1	13.7	Stantec	Katsao	Mine Rock		9.88	0.21	0.11	0.1	0.033	0.095	---	8.6	1.6	3.13	-1.53	0.5	PAG
ROB-11-13A 43'-45'	ROB-11-13A	13.1	13.7	Stantec	Katsao	Mine Rock		9.28	0.587	0.28	0.31	0.253	1	---	11	16.7	9.69	1.3	1.1	Uncertain
ROB-11-14 5'10"-8'8"	ROB-11-14	1.8	2.6	Stantec	Katsao	Mine Rock		9.8	0.296	0.13	0.17	0.454	2.2	---	11	36.7	5.31	5.7	2.1	NAG
K-08-09 100-101	K-08-09	100	101	Stantec	Menihek	Mine Rock		8.79	3.56	0.92	2.64	6.37	30.3	---	89	505	82.5	6.5	1.1	Uncertain
K-08-09 120-121	K-08-09	120	121	Stantec	Menihek	Mine Rock		9.61	0.235	0.1	0.13	0.203	0.759	---	42	12.7	4.06	38	10.3	NAG
K-08-09 50.2-51.2	K-08-09	50.2	51.2	Stantec	Menihek	Mine Rock		9.11	0.633	0.28	0.35	6.01	28.7	---	462	478.3	10.94	451	42.2	NAG
K-08-11A-139.8	K-08-11A	139.8	140.4	Okane	Menihek	Mine Rock	1	7.4	2.03	0.01	2.02		<0.05		6		63.4	-57	0.09	PAG
K-08-11A-171.25	K-08-11A	171.25	172	Okane	Menihek	Mine Rock	1	8.3	0.98	0.01	0.97		0.22		27		30.6	-4	0.88	PAG
K-08-11A-47.3	K-08-11A	47.3	48.3	Okane	Menihek	Mine Rock	2	7.1	2.13	0.03	2.1		1.65		49		66.6	-18	0.74	PAG
K-08-11A-62.48	K-08-11A	62.48	63.1	Okane	Menihek	Mine Rock	1	7.8	0.03	0.01	0.02		<0.05		11		0.9	10	11.73	NAG
K-08-12-140.79	K-08-12	140.79	141.5	Okane	Menihek	Mine Rock	1	6.5	0.49	0.02	0.47		<0.05		3		15.3	-12	0.2	PAG
K-08-12-49.48	K-08-12	49.48	50.2	Okane	Menihek	Mine Rock	1	4.8	2.36	<0.01	2.36		0.35		3		73.8	-71	0.04	PAG
K-08-17-135.8	K-08-17	135.8	136.3	Okane	Menihek	Mine Rock	1	7.4	0.33	0.03	0.3		0.84		13		10.3	3	1.26	Uncertain
K-08-17-138	K-8-17	138	138.5	Okane	Menihek	Mine Rock	1	4.7	2.66	<0.01	2.66		0.1		3		83.1	-80	0.04	PAG
K-08-18 24-25.5	K-08-18	24	25.5	Stantec	Menihek	Mine Rock		8.06	0.837	0.18	0.66	2.65	12.7	---	41	211.7	20.63	20	2	Uncertain
K-08-18 62-63.1	K-08-18	62	63.1	Stantec	Menihek	Mine Rock		9.34	1.1	0.51	0.59	5.03	26	---	5.7	433.3	18.44	-12.74	0.3	PAG
K-10-26-248.2	K-10-26	248.2	248.7	Okane	Menihek	Mine Rock	1	8.3	4.14	0.02	4.12		<0.05		8		129.5	-121	0.06	PAG
K-10-26-253	K-10-26	253	253.6	Okane	Menihek	Mine Rock	1	8.2	4.19	<0.01	4.19		<0.05		7		131	-124	0.05	PAG
K-10-29 18.7-19.4	K-10-29	18.7	19.4	Stantec	Menihek	Mine Rock		4.98	0.743	0.28	0.46	3.17	15.9	---	1.5	265	14.38	-12.88	0.1	PAG
K-10-29 37.2-38	K-10-29	37.2	38	Stantec	Menihek	Mine Rock		8.73	1.99	0.89	1.1	6.91	33.9	6.52	5.5	565	34.38	-28.88	0.2	PAG

Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-10-29 59-60	K-10-29	59	60	Stantec	Menihek	Mine Rock		9.43	1.9	0.82	1.08	7.92	38.3	7.46	8.7	638.3	33.75	-25.05	0.3	PAG
K-10-35 14-15	K-10-35	14	15	Stantec	Menihek	Mine Rock		5.11	1.74	0.28	1.46	3.62	18	3.41	5.7	300	45.63	-39.93	0.1	PAG
K-10-35 25-26	K-10-35	25	26	Stantec	Menihek	Mine Rock		8.79	0.621	0.21	0.41	0.454	1.36	---	53	22.7	12.81	40	4.1	NAG
K-10-35 42.1-42.9	K-10-35	42.1	42.9	Stantec	Menihek	Mine Rock		9.51	0.95	0.35	0.6	2.35	12.3	2.26	6.1	205	18.75	-12.65	0.3	PAG
K-10-35 50-50.8	K-10-35	50	50.8	Stantec	Menihek	Mine Rock		8.71	2.82	1.02	1.8	5.63	28.4	---	17	473.3	56.25	-39.25	0.3	PAG
K-10-38 105-106	K-10-38	105	106	Stantec	Menihek	Mine Rock		6.03	4.73	0.68	4.05	10.2	47.8	9.44	8.5	796.7	126.56	-118.06	0.1	PAG
K-10-38 21-21.6	K-10-38	21	21.6	Stantec	Menihek	Mine Rock		8.85	1.61	0.51	1.1	2.83	13.3	---	143	221.7	34.38	109	4.2	NAG
K-10-38 291-292	K-10-38	291	292	Stantec	Menihek	Mine Rock		8.83	0.832	0.2	0.63	2.22	10.8	1.94	16	180	19.69	-3.69	0.8	PAG
K-10-38 305-306	K-10-38	305	306	Stantec	Menihek	Mine Rock		8.98	2.99	1.25	1.74	6.46	32.4	6.06	7.1	540	54.38	-47.28	0.1	PAG
K-10-38 59-60	K-10-38	59	60	Stantec	Menihek	Mine Rock		9.85	0.568	0.15	0.42	0.852	4.33	0.69	13	72.2	13.13	-0.13	1	Uncertain
K-10-38 90-91	K-10-38	90	91	Stantec	Menihek	Mine Rock		9.65	1.33	0.6	0.73	2.6	13.1	2.38	7.9	218.3	22.81	-14.91	0.3	PAG
K-10-39A-445	K-10-39A	445	445.7	Okane	Menihek	Mine Rock	1	9.4	0.7	0.01	0.69		0.34		25		21.9	3	1.14	Uncertain
K-10-48-205.7	K-10-48	205.7	206.3	Okane	Menihek	Mine Rock	1	8.8	0.6	0.01	0.59		0.06		11		18.8	-8	0.59	PAG
K-10-48-350.1	K-10-48	350.1	350.6	Okane	Menihek	Mine Rock	3	8.6	0.82	<0.01	0.82		1.88		147		25.6	121	5.74	NAG
K-10-48-384.5	K-10-48	384.5	385	Okane	Menihek	Mine Rock	1	8	1.29	0.02	1.27		<0.05		6		40.3	-34	0.15	PAG
K-10-49 154-155	K-10-49	154	155	Stantec	Menihek	Mine Rock		9.66	0.52	0.2	0.32	2.49	12.1	---	7.2	201.7	10	-2.8	0.7	PAG
K-10-49 195-196	K-10-49	195	196	Stantec	Menihek	Mine Rock		9.05	2.62	1.01	1.61	5.36	26	---	340	433.3	50.31	290	6.8	NAG
K-10-49 219-220	K-10-49	219	220	Stantec	Menihek	Mine Rock		9.21	2.12	0.88	1.24	4.54	20.9	---	90	348.3	38.75	51	2.3	NAG
K-10-49 269.1-270	K-10-49	269.1	270	Stantec	Menihek	Mine Rock		9.96	0.246	0.15	0.1	0.617	2.93	---	6.8	48.8	3.13	3.7	2.2	NAG
K-10-49 30-31.1	K-10-49	30	31.1	Stantec	Menihek	Mine Rock		7.51	0.878	0.18	0.7	2.24	10.5	---	7.5	175	21.88	-14.38	0.3	PAG
K-10-49 90-91	K-10-49	90	91	Stantec	Menihek	Mine Rock		10.13	0.08	0.05	0.03	0.438	2.06	---	8.3	34.3	0.94	7.4	8.9	NAG
K-10-52 281-282	K-10-52	281	282	Stantec	Menihek	Mine Rock		8.37	1.24	0.07	1.17	1.93	9.97	---	5.9	166.2	36.56	-30.66	0.2	PAG
K-10-52 305.5-306.5	K-10-52	305.5	306.5	Stantec	Menihek	Mine Rock		8.56	0.027	0.02	0.01	2.74	14	---	12	233.3	0.31	12	38.4	NAG
K-10-52-308.3	K-10-52	308.3	308.8	Okane	Menihek	Mine Rock	1	8.5	0.18	0.02	0.16		<0.05		7		5.6	1	1.24	Uncertain
K-10-52-444.26	K-10-52	444.26	444.9	Okane	Menihek	Mine Rock	2	8.5	0.09	<0.01	0.09		1.09		74		2.8	71	26.31	NAG
K-10-53-306.8	K-10-53	306.8	307.3	Okane	Menihek	Mine Rock	2	8.3	0.56	0.01	0.55		0.92		49		17.5	32	2.8	NAG
K-10-53-77.8	K-10-53	77.8	78.4	Okane	Menihek	Mine Rock	1	8.8	1	0.01	0.99		<0.05		7		31.3	-24	0.22	PAG
K-10-54-122.7	K-10-54	122.7	123.2	Okane	Menihek	Mine Rock	1	4.9	1.31	0.14	1.17		0.5		1		40.9	-40	0.02	PAG
K-10-54-125.7	K-10-54	125.7	126.2	Okane	Menihek	Mine Rock	1	4.7	2.53	0.12	2.41		0.13		2		79.1	-77	0.03	PAG
K-10-55 457-458	K-10-55	457	458	Stantec	Menihek	Mine Rock		9.56	1.97	0.79	1.18	5.14	25.2	4.8	6.5	420	36.88	-30.38	0.2	PAG
K-10-55 471-472	K-10-55	471	472	Stantec	Menihek	Mine Rock		9.8	0.416	0.27	0.15	1.97	9.72	1.74	15	162	4.69	10	3.2	NAG
K-10-55 541-542	K-10-55	541	542	Stantec	Menihek	Mine Rock		9.33	0.509	0.15	0.36	2.7	13.6	---	11	226.7	11.25	-0.25	1	Uncertain
K-10-59-175.4	K-10-59	175.4	175.9	Okane	Menihek	Mine Rock	1	7.4	0.31	0.03	0.28		0.4		7		9.7	-3	0.72	PAG
K-10-59-182.2	K-10-59	182.2	182.7	Okane	Menihek	Mine Rock	3	7.7	0.85	0.04	0.81		6.17		424		26.6	397	15.96	NAG
K-10-61-258.7	K-10-61	258.7	259.2	Okane	Menihek	Mine Rock	1	7.9	2.11	<0.01	2.11		<0.05		10		65.9	-56	0.15	PAG
K-10-61-263.24	K-10-61	263.24	263.9	Okane	Menihek	Mine Rock	3	8.2	0.27	0.02	0.25		1.5		114		8.4	106	13.51	NAG
K-10-61-266.85	K-10-61	266.85	267.3	Okane	Menihek	Mine Rock	3	8.2	0.31	0.01	0.3		5.1		319		9.7	309	32.93	NAG
K-10-61-320.1	K-10-61	320.1	320.6	Okane	Menihek	Mine Rock	3	8.2	0.05	<0.01	0.05		1.84		136		1.6	134	87.04	NAG
K-10-61-323.5	K-10-61	323.5	324	Okane	Menihek	Mine Rock	1	8	0.13	<0.01	0.13		<0.05		7		4.1	3	1.72	Uncertain
K-10-70-184.57	K-10-70	184.57	185.1	Okane	Menihek	Mine Rock	2	8.1	0.48	<0.01	0.48		0.69		46		15	31	3.07	NAG

Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-10-70-189	K-10-70	189	189.54	Okane	Menihek	Mine Rock	1	8.9	1.62	<0.01	1.62		<0.05		6		50.6	-45	0.12	PAG
K-10-70-462.95	K-10-70	462.95	463.5	Okane	Menihek	Mine Rock	1	9.1	0.95	<0.01	0.95		<0.05		7		29.7	-23	0.24	PAG
K-10-70-466.35	K-10-70	466.35	466.9	Okane	Menihek	Mine Rock	2	8.3	0.29	<0.01	0.29		0.98		63		9.1	54	6.95	NAG
K-10-83-657.9	K-10-83	657.9	658.4	Okane	Menihek	Mine Rock	1	8.2	3.3	<0.01	3.3		0.35		30		103	-73	0.29	PAG
K-10-83-658.8	K-10-83	658.8	659.3	Okane	Menihek	Mine Rock	1	8.5	4.31	<0.01	4.31		<0.05		11		134.5	-124	0.08	PAG
K-10-83-659.7	K-10-83	659.7	660.2	Okane	Menihek	Mine Rock	1	8.3	4.91	<0.01	4.91		0.1		15		153.5	-138	0.1	PAG
K-10-83-660.6	K-10-83	660.6	661.1	Okane	Menihek	Mine Rock	1	8.6	3.31	<0.01	3.31		0.27		26		103.5	-77	0.25	PAG
K-10-83-661.7	K-10-83	661.7	662.2	Okane	Menihek	Mine Rock	1	8.6	2.78	<0.01	2.78		<0.05		9		86.9	-78	0.1	PAG
K-11-133 105-106	K-11-133	105	106	Stantec	Menihek	Mine Rock		9.48	1.33	0.45	0.88	0.127	0.54	0.005	19	9	27.5	-8.5	0.7	PAG
K-11-133 127.5-128	K-11-133	127.5	128	Stantec	Menihek	Mine Rock		9.09	0.166	0.07	0.1	4.04	19.9	---	274	331.7	3.13	271	87.7	NAG
K-11-133 130-130.5	K-11-133	130	130.5	Stantec	Menihek	Mine Rock		8.31	8.51	2.01	6.5	15.5	78	15.3	21	1300	203.13	-182.13	0.1	PAG
K-11-133 159-159.5	K-11-133	159	159.5	Stantec	Menihek	Mine Rock		9.06	0.126	0.06	0.07	5.86	27.7	0.72	328	461.7	2.19	326	149.9	NAG
K-11-133 160-160.5	K-11-133	160	160.5	Stantec	Menihek	Mine Rock		9.98	0.501	0.09	0.41	2.04	10.4	1.96	8.8	173.3	12.81	-4.01	0.7	PAG
K-11-133 4.4-5	K-11-133	4.4	5	Stantec	Menihek	Mine Rock		9.11	0.397	0.1	0.3	0.382	1.69	---	16	28.2	9.38	6.6	1.7	Uncertain
K-11-133 71-71.4	K-11-133	71	71.4	Stantec	Menihek	Mine Rock		9.21	1.09	0.48	0.61	1.58	7.81	---	8.9	130.2	19.06	-10.16	0.5	PAG
K-11-133 91-91.5	K-11-133	91	91.5	Stantec	Menihek	Mine Rock		9.36	1.38	0.44	0.94	1.63	8.28	---	11	138	29.38	-18.38	0.4	PAG
K-11-142-76.47	K-11-142	76.47	77	Okane	Menihek	Mine Rock	3	8	0.61	0.01	0.6		2.47		158		19.1	139	8.29	NAG
K-11-145-155	K-11-145	155	155.5	Okane	Menihek	Mine Rock	1	9.5	0.33	0.02	0.31		0.13		16		10.3	6	1.55	Uncertain
K-11-145-159.4	K-11-145	159.4	159.9	Okane	Menihek	Mine Rock	1	9.4	0.31	<0.01	0.31		0.12		15		9.7	5	1.55	Uncertain
K-11-149 101-101.5	K-11-149	101	101.5	Stantec	Menihek	Mine Rock		9.17	0.635	0.12	0.52	1.77	8.61	---	9.1	143.5	16.25	-7.15	0.6	PAG
K-11-149 115.1-115	K-11-149	115.1	115.6	Stantec	Menihek	Mine Rock		8.61	0.438	0.07	0.37	0.886	4.07	---	16	67.8	11.56	4.4	1.4	Uncertain
K-11-149 140.3-140	K-11-149	140.3	140.8	Stantec	Menihek	Mine Rock		8.17	5.58	0.83	4.75	8.99	43.6	---	46	726.7	148.44	-102.44	0.3	PAG
K-11-149 20.5-20.9	K-11-149	20.5	20.9	Stantec	Menihek	Mine Rock		9.69	0.363	0.12	0.24	0.89	4.18	---	15	69.7	7.5	7.5	2	Uncertain
.	K-11-149	40.2	40.7	Stantec	Menihek	Mine Rock		9.6	0.298	0.1	0.2	0.445	1.95	---	15	32.5	6.25	8.8	2.4	NAG
K-11-149 57.3-57.8	K-11-149	57.3	57.8	Stantec	Menihek	Mine Rock		9.68	0.572	0.23	0.34	0.275	1.23	---	12	20.5	10.63	1.4	1.1	Uncertain
K-11-152-68	K-11-152	68	68.5	Okane	Menihek	Mine Rock	1	4.3	5.77	0.61	5.16		0.2		8		180.5	-172	0.04	PAG
K-11-154-27.1	K-11-154	27.1	27.6	Okane	Menihek	Mine Rock	3	8.6	0.03	0.02	0.01		2.22		167		0.9	166	178.13	NAG
K-11-158-50.5	K-11-158	50.5	51	Okane	Menihek	Mine Rock	1	8.5	0.15	0.02	0.13		0.05		13		4.7	8	2.77	NAG
K-11-158-57.6	K-11-158	57.6	60.1	Okane	Menihek	Mine Rock	1	6.7	0.01	0.02	<0.01		0.1		2		0.3	2	6.4	NAG
K-11-161-181.5	K-11-161	181.5	182	Okane	Menihek	Mine Rock	1	6.8	7.01	0.28	6.73		0.26		20		219	-199	0.09	PAG
K-11-161-89.4	K-11-161	89.4	89.9	Okane	Menihek	Mine Rock	2	8.4	0.36	0.01	0.35		1.1		73		11.3	62	6.49	NAG
K-11-163 122-123	K-11-163	122	123	Stantec	Menihek	Mine Rock		7	0.717	0.03	0.69	2.51	12.3	---	7.8	205	21.56	-13.76	0.4	PAG
K-11-163 93-93.6	K-11-163	93	93.6	Stantec	Menihek	Mine Rock		9.52	0.446	0.32	0.13	2.64	13.7	---	7.8	228.3	4.06	3.7	1.9	Uncertain
K-11-163-120.3	K-11-163	120.3	120.8	Okane	Menihek	Mine Rock	2	8.4	0.17	0.01	0.16		0.67		45		5.3	40	8.47	NAG
K-11-163-123.4	K-11-163	123.4	123.9	Okane	Menihek	Mine Rock	1	8.2	1.04	0.02	1.02		<0.05		6		32.5	-27	0.18	PAG
K-11-163-28.5	K-11-163	28.5	29	Okane	Menihek	Mine Rock	2	8.4	0.02	0.01	0.01		0.51		31		0.6	30	49.6	NAG
K-11-163-38.4	K-11-163	38.4	38.9	Okane	Menihek	Mine Rock	2	7.7	0.23	0.02	0.21		0.65		32		7.2	25	4.45	NAG
K-11-163-41.4	K-11-163	41.4	41.9	Okane	Menihek	Mine Rock	1	4.8	2.21	0.2	2.01		0.21		2		69.1	-67	0.03	PAG
K-11-163-43	K-11-163	43	43.5	Okane	Menihek	Mine Rock	2	8.1	0.1	0.01	0.09		0.76		42		3.1	39	13.44	NAG
K-11-166 120.2-121.2	K-11-166	120.2	121.2	Stantec	Menihek	Mine Rock		8.19	1.12	0.14	0.98	8.05	41.5	---	54	691.7	30.63	23	1.8	Uncertain



Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO3-C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO3/kt	† CaCO3/kt	† CaCO3/kt	† CaCO3/kt	ratio	
K-11-166 23-24	K-11-166	23	24	Stantec	Menihek	Mine Rock		8.79	0.147	0.04	0.11	2.34	11.8	---	6.8	196.7	3.44	3.4	2	Uncertain
K-11-166 38.2-39	K-11-166	38.2	39	Stantec	Menihek	Mine Rock		9.17	0.84	0.26	0.58	1.22	6.22	---	8.5	103.7	18.13	-9.63	0.5	PAG
K-11-166 63.5-64.1	K-11-166	63.5	64.1	Stantec	Menihek	Mine Rock		5.49	1.27	0.28	0.99	1.45	7.39	1.35	5.3	123.2	30.94	-25.64	0.2	PAG
K-11-166 92.3-93	K-11-166	92.3	93	Stantec	Menihek	Mine Rock		5.29	6.13	1.9	4.23	20.7	100	19.6	10	1666.7	132.19	-122.19	0.1	PAG
K-11-166-117.5	K-11-166	117.5	118	Okane	Menihek	Mine Rock	3	7.7	2.99	0.04	2.95		1.28		134		93.4	41	1.43	Uncertain
K-11-166-54.8	K-11-166	54.8	55.3	Okane	Menihek	Mine Rock	1	9.2	0.58	0.02	0.56		0.07		13		18.1	-5	0.72	PAG
K-11-168-276.7	K-11-168	276.7	277.2	Okane	Menihek	Mine Rock	2	8.6	0.03	<0.01	0.03		1.38		96		0.9	95	102.4	NAG
K-11-168-291.5	K-11-168	291.5	292	Okane	Menihek	Mine Rock	1	8	0.99	0.02	0.97		<0.05		7		30.9	-24	0.23	PAG
K-11-170 30-30.5	K-11-170	30	30.5	Stantec	Menihek	Mine Rock		6.51	0.733	0.11	0.62	1.19	5.95	1.05	5.4	99.2	19.38	-13.98	0.3	PAG
K-11-170 36.7-37.2	K-11-170	36.7	37.2	Stantec	Menihek	Mine Rock		8.27	0.677	0.05	0.63	2.21	10.7	---	11	178.3	19.69	-8.69	0.6	PAG
K-11-170 45.5-46	K-11-170	45.5	46	Stantec	Menihek	Mine Rock		4.67	5.77	0.005	5.88	7.35	35.7	6.91	7.3	595	183.75	-176.45	0	PAG
K-11-170 59.1-59.6	K-11-170	59.1	59.6	Stantec	Menihek	Mine Rock		6.85	2.23	0.57	1.66	6.03	28.2	5.55	6.5	470	51.88	-45.38	0.1	PAG
K-11-170 75.1-75.7	K-11-170	75.1	75.7	Stantec	Menihek	Mine Rock		7.36	0.97	0.18	0.79	4.28	20.9	3.94	6	348.3	24.69	-18.69	0.2	PAG
K-11-170 82.4-83	K-11-170	82.4	83	Stantec	Menihek	Mine Rock		9.55	0.89	0.45	0.44	1.71	8.93	---	7.8	148.8	13.75	-5.95	0.6	PAG
K-11-171 11.8-12.4	K-11-171	11.8	12.4	Stantec	Menihek	Mine Rock		8.87	0.696	0.13	0.57	2.36	10.7	---	212	178.3	17.81	194	11.9	NAG
K-11-171 11-11.4	K-11-171	11	11.4	Stantec	Menihek	Mine Rock		5.31	1.34	0.18	1.16	5.4	27.2	---	7.1	453.3	36.25	-29.15	0.2	PAG
K-11-171 20-20.5	K-11-171	20	20.5	Stantec	Menihek	Mine Rock		8.91	0.114	0.01	0.1	1.62	7.91	---	35	131.8	3.13	32	11.2	NAG
K-11-171 25.2-25.8	K-11-171	25.2	25.8	Stantec	Menihek	Mine Rock		7.24	2.67	0.24	2.43	3.79	19	---	10	316.7	75.94	-65.94	0.1	PAG
K-11-171 26.5-27	K-11-171	26.5	27	Stantec	Menihek	Mine Rock		7.17	2.82	0.25	2.57	6.34	31.8	---	7.7	530	80.31	-72.61	0.1	PAG
K-11-171 44-44.6	K-11-171	44	44.6	Stantec	Menihek	Mine Rock		8.11	0.777	0.1	0.68	1.44	7.2	---	3.8	120	21.25	-17.45	0.2	PAG
K-11-171 46.5-47	K-11-171	46.5	47	Stantec	Menihek	Mine Rock		8.32	1.24	0.39	0.85	2.08	10.7	---	9.7	178.3	26.56	-16.86	0.4	PAG
K-11-171 48-48.5	K-11-171	48	48.5	Stantec	Menihek	Mine Rock		7.52	3.53	0.07	3.46	4.56	22.7	---	12	378.3	108.13	-96.13	0.1	PAG
K-11-171 69.9-70.4	K-11-171	69.9	70.4	Stantec	Menihek	Mine Rock		8.29	1.08	0.08	1	3.5	18.4	---	9.1	306.7	31.25	-22.15	0.3	PAG
K-11-171 74-74.5	K-11-171	74	74.5	Stantec	Menihek	Mine Rock		8.5	1.02	0.1	0.92	2.14	11.1	2.11	6.9	185	28.75	-21.85	0.2	PAG
K-11-171 90-90.4	K-11-171	90	90.4	Stantec	Menihek	Mine Rock		8.08	2.54	0.12	2.42	10.6	53.8	10.2	7.4	896.7	75.63	-68.23	0.1	PAG
K-11-171 94-94.5	K-11-171	94	94.5	Stantec	Menihek	Mine Rock		7.51	0.91	0.02	0.89	7.25	35.8	6.58	6.6	596.7	27.81	-21.21	0.2	PAG
K-12-173-197.5	K-12-173	197.5	198	Okane	Menihek	Mine Rock	1	6.8	0.38	0.03	0.35		0.73		4		11.9	-8	0.34	PAG
K-12-173-199.7	K-12-173	199.7	200.2	Okane	Menihek	Mine Rock	1	7.6	0.17	0.1	0.07		1.28		4		5.3	-1	0.75	PAG
K-12-175-16.9	K-12-175	16.9	17.4	Okane	Menihek	Mine Rock	1	6.8	0.08	0.01	0.07		<0.05		4		2.5	2	1.6	Uncertain
K-12-175-176.9	K-12-175	176.9	177.4	Okane	Menihek	Mine Rock	1	6.4	0.97	0.01	0.96		<0.05		5		30.3	-25	0.16	PAG
K-12-175-20.3	K-12-175	20.3	20.8	Okane	Menihek	Mine Rock	1	7.6	0.16	0.01	0.15		<0.05		4		5	-1	0.8	PAG
K-12-175-67.5	K-12-175	67.5	68	Okane	Menihek	Mine Rock	1	7	0.69	0.01	0.68		<0.05		6		21.6	-16	0.28	PAG
K-12-175-86.6	K-12-175	86.6	87.1	Okane	Menihek	Mine Rock	2	7.9	2.05	0.01	2.04		1.37		72		64.1	8	1.12	Uncertain
K-12-178 180-180.4	K-12-178	180	180.4	Stantec	Menihek	Mine Rock		8.97	0.225	0.08	0.15	3.77	18.4	---	13	306.7	4.69	8.3	2.8	NAG
K-12-178 183.5-184	K-12-178	183.5	184	Stantec	Menihek	Mine Rock		8.55	1.68	0.18	1.5	0.8	2.26	---	43	37.7	46.88	-3.88	0.9	PAG
K-12-178 190.9-191	K-12-178	190.9	191.5	Stantec	Menihek	Mine Rock		7.95	3.52	1.13	2.39	6.43	32	---	8.4	533.3	74.69	-66.29	0.1	PAG
K-12-178 240-240.5	K-12-178	240	240.5	Stantec	Menihek	Mine Rock		7.9	0.993	0.34	0.65	1.42	7.43	---	7.6	123.8	20.31	-12.71	0.4	PAG
K-12-178 280-280.5	K-12-178	280	280.5	Stantec	Menihek	Mine Rock		9.74	0.358	0.12	0.24	1.56	7.91	---	9.3	131.8	7.5	1.8	1.2	Uncertain
K-12-178 289.9-290	K-12-178	289.9	290.3	Stantec	Menihek	Mine Rock		8.97	0.171	0.07	0.1	0.05	0.14	---	7.2	2.3	3.13	4.1	2.3	NAG
K-12-178 60.2-60.7	K-12-178	60.2	60.7	Stantec	Menihek	Mine Rock		8.6	0.037	0.03	0.01	0.271	0.919	---	20	15.3	0.31	20	64	NAG

Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-12-178 70-70.4	K-12-178	70	70.4	Stantec	Menihek	Mine Rock		8.57	0.102	0.04	0.06	0.678	2.72	---	24	45.3	1.88	22	12.8	NAG
K-12-179 141.6-142	K-12-179	141.6	142.1	Stantec	Menihek	Mine Rock		5.89	2.28	0.18	2.1	4.31	18.8	---	12	313.3	65.63	-53.63	0.2	PAG
K-12-179 16.6-17.1	K-12-179	16.6	17.1	Stantec	Menihek	Mine Rock		8.76	0.239	0.02	0.22	0.458	2.07	---	11	34.5	6.88	4.1	1.6	Uncertain
K-12-179 180-180.3	K-12-179	180	180.3	Stantec	Menihek	Mine Rock		7.21	0.033	0.02	0.01	0.34	1.43	---	5.4	23.8	0.31	5.1	17.3	NAG
K-12-179 213-214	K-12-179	213	214	Stantec	Menihek	Mine Rock		6.71	0.023	0.02	0.005	0.793	3.91	---	3.6	65.2	0.16	3.4	23.2	NAG
K-12-179 240-240.5	K-12-179	240	240.5	Stantec	Menihek	Mine Rock		8.98	0.014	0.01	0.005	3.67	16.2	---	196	270	0.16	196	1264.5	NAG
K-12-179 270-270.5	K-12-179	270	270.5	Stantec	Menihek	Mine Rock		6.78	0.028	0.02	0.01	2.88	5.56	---	20	92.7	0.31	20	64	NAG
K-12-179 48.9-49.3	K-12-179	48.9	49.3	Stantec	Menihek	Mine Rock		7.82	0.375	0.02	0.36	1.27	6.57	---	6.6	109.5	11.25	-4.65	0.6	PAG
K-12-179 529-530	K-12-179	529	530	Stantec	Menihek	Mine Rock		8.44	0.114	0.005	0.11	1.7	3.56	---	21	59.3	3.44	18	6.1	NAG
K-12-179 539-540	K-12-179	539	540	Stantec	Menihek	Mine Rock		7.31	0.152	0.04	0.11	0.018	0.03	---	7.4	0.5	3.44	4.0	2.2	NAG
K-12-179-168.5	K-12-179	168.5	169	Okane	Menihek	Mine Rock	1	4.4	1.49	0.23	1.26		<0.05		4		46.6	-43	0.09	PAG
K-12-179-172.1	K-12-179	172.1	172.6	Okane	Menihek	Mine Rock	1	6.1	0.49	0.06	0.43		2.56		6		15.3	-9	0.39	PAG
K-12-187-122.5	K-12-187	122.5	123	Okane	Menihek	Mine Rock	3	8.9	0.02	<0.01	0.02		3.45		183		0.6	182	292.8	NAG
K-12-187-132.9	K-12-187	132.9	133.4	Okane	Menihek	Mine Rock	1	7.6	0.1	<0.01	0.1		1.84		14		3.1	11	4.48	NAG
K-12-187-141	K-12-187	141	141.5	Okane	Menihek	Mine Rock	3	8.6	0.04	<0.01	0.04		2.46		162		1.3	161	129.6	NAG
K-12-187-70.6	K-12-187	70.6	71.1	Okane	Menihek	Mine Rock	2	8.2	0.65	<0.01	0.65		0.68		47		20.3	27	2.31	NAG
K-12-187-74	K-12-187	74	74.5	Okane	Menihek	Mine Rock	1	8.8	1.22	<0.01	1.22		<0.05		7		38.1	-31	0.18	PAG
K-12-194-101.5	K-12-194	101.5	102	Okane	Menihek	Mine Rock	1	6.9	0.71	0.02	0.69		0.06		6		22.2	-16	0.27	PAG
K-12-194-122.4	K-12-194	122.4	122.9	Okane	Menihek	Mine Rock	2	8.7	1.06	<0.01	1.06		1.24		93		33.1	60	2.81	NAG
K-12-194-132.7	K-12-194	132.7	133.2	Okane	Menihek	Mine Rock	1	8.7	0.98	0.01	0.97		0.07		11		30.6	-20	0.36	PAG
K-12-194-213.5	K-12-194	213.5	214	Okane	Menihek	Mine Rock	1	4.3	0.83	0.09	0.74		<0.05		2		25.9	-24	0.08	PAG
K-12-194-214.1	K-12-194	214.1	214.6	Okane	Menihek	Mine Rock	1	4	0.55	0.03	0.52		<0.05		0		17.2	-17	0	PAG
K-12-194-38.1	K-12-194	38.1	38.6	Okane	Menihek	Mine Rock	3	7.8	2.91	0.02	2.89		2.21		159		90.9	68	1.75	Uncertain
K-12-194-41.5	K-12-194	41.5	42	Okane	Menihek	Mine Rock	1	6.9	0.96	0.01	0.95		0.17		9		30	-21	0.3	PAG
K-12-194-85	K-12-194	85	85.5	Okane	Menihek	Mine Rock	1	9	0.18	<0.01	0.18		<0.05		7		5.6	1	1.24	Uncertain
K-12-200 110-110.5	K-12-200	110	110.5	Stantec	Menihek	Mine Rock		9.72	0.29	0.14	0.15	2.37	12.3	---	8.6	205	4.69	3.9	1.8	Uncertain
K-12-200 130-130.5	K-12-200	130	130.5	Stantec	Menihek	Mine Rock		9.19	0.788	0.33	0.46	1.16	5.25	---	8.5	87.5	14.38	-5.88	0.6	PAG
K-12-200 157-157.5	K-12-200	157	157.5	Stantec	Menihek	Mine Rock		8.98	0.485	0.1	0.38	0.354	1.19	---	23	19.8	11.88	11	1.9	Uncertain
K-12-200 162.4-163	K-12-200	162.4	163	Stantec	Menihek	Mine Rock		7.15	1.08	0.24	0.84	2.29	10.6	---	17	176.7	26.25	-9.25	0.6	PAG
K-12-200 169.8-170	K-12-200	169.8	170.3	Stantec	Menihek	Mine Rock		6.27	2.91	0.43	2.48	1.23	1.85	---	13	30.8	77.5	-64.5	0.2	PAG
K-12-200 180.3-180	K-12-200	180.3	180.7	Stantec	Menihek	Mine Rock		5.37	1.34	0.26	1.08	1.61	8.05	---	5.6	134.2	33.75	-28.15	0.2	PAG
K-12-200 40-40.4	K-12-200	40	40.4	Stantec	Menihek	Mine Rock		9.1	0.74	0.34	0.4	1.36	3.62	---	33	60.3	12.5	21	2.6	NAG
K-12-200 50-50.5	K-12-200	50	50.5	Stantec	Menihek	Mine Rock		8.14	0.619	0.09	0.53	0.705	3.13	---	13	52.2	16.56	-3.56	0.8	PAG
K-12-200 65-65.5	K-12-200	65	65.5	Stantec	Menihek	Mine Rock		9.44	0.087	0.05	0.04	0.54	2.62	---	8.5	43.7	1.25	7.3	6.8	NAG
K-12-200 89.9-90.4	K-12-200	89.9	90.4	Stantec	Menihek	Mine Rock		7.54	1.65	0.3	1.35	1.88	9.57	---	19	159.5	42.19	-23.19	0.5	PAG
K-12-206-58.4	K-12-206	58.4	58.9	Okane	Menihek	Mine Rock	3	8.6	0.04	<0.01	0.04		2.51		158		1.3	157	126.4	NAG
K-12-209-219.3	K-12-209	219.3	219.8	Okane	Menihek	Mine Rock	3	8.5	0.03	0.02	0.01		1.62		108		0.9	107	115.2	NAG
K-12-213-113.9	K-12-213	113.9	114.9	Okane	Menihek	Mine Rock	2	8.5	0.02	0.02	<0.01		1.21		79		0.6	78	126.4	NAG
K-12-213-116.5	K-12-213	116.5	117	Okane	Menihek	Mine Rock	2	8.8	0.67	<0.01	0.67		0.41		42		20.9	21	2.01	NAG
K-12-213-132.5	K-12-213	132.5	133	Okane	Menihek	Mine Rock	3	8.7	0.08	<0.01	0.08		1.78		127		2.5	125	50.8	NAG

Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-12-213-135.2	K-12-213	135.2	135.7	Okane	Menihek	Mine Rock	1	8.1	1.03	0.03	1		0.05		10		32.2	-22	0.31	PAG
K140/1	K-11-140	13.9	14.2	Stantec	Menihek	Mine Rock		8.11	2.76	0.58	2.18	3.87	16.9	---	212	281.7	68.13	144	3.1	NAG
K140/2	K-11-140	41	41.4	Stantec	Menihek	Mine Rock		9.89	0.913	0.7	0.22	0.328	1.42	---	10.6	23.7	6.88	3.7	1.5	Uncertain
K140/3	K-11-140	74.8	75.1	Stantec	Menihek	Mine Rock		9.14	0.214	0.09	0.12	1.34	5.92	---	67	98.7	3.75	63	17.9	NAG
K140/4	K-11-140	101	101.3	Stantec	Menihek	Mine Rock		9.93	0.377	0.18	0.2	0.273	1.17	---	9	19.5	6.25	2.8	1.4	Uncertain
K140/5	K-11-140	128.4	128.8	Stantec	Menihek	Mine Rock		9.01	0.848	0.19	0.65	1.04	4.9	---	10.5	81.7	20.31	-9.81	0.5	PAG
K140/6	K-11-140	150.7	151.1	Stantec	Menihek	Mine Rock		9.09	0.349	0.06	0.29	0.915	4.13	---	26.9	68.8	9.06	18	3	NAG
K140/7	K-11-140	205.5	206	Stantec	Menihek	Mine Rock		9.52	0.56	0.25	0.31	0.567	2.07	---	56.6	34.5	9.69	47	5.8	NAG
K152/1	K-11-152	58.3	58.6	Stantec	Menihek	Mine Rock		8.18	0.901	0.16	0.74	1.6	7.44	---	7.9	124	23.13	-15.23	0.3	PAG
K152/2	K-11-152	143.2	143.7	Stantec	Menihek	Mine Rock		6.92	0.057	0.03	0.02	1.49	7.74	---	2.7	129	0.63	2.1	4.3	NAG
K163/1	K-11-163	60.6	61	Stantec	Menihek	Mine Rock		7.77	1.14	0.19	0.95	1.45	7.1	---	5.8	118.3	29.69	-23.89	0.2	PAG
K163/2	K-11-163	105	105.2	Stantec	Menihek	Mine Rock		8.18	0.443	0.12	0.33	3.63	18.6	---	7.9	310	10.31	-2.41	0.8	PAG
K163/3	K-11-163	150	150.2	Stantec	Menihek	Mine Rock		9.62	0.174	0.14	0.04	0.335	1.35	---	12.1	22.5	1.25	11	9.7	NAG
K163/5	K-11-163	195.3	195.6	Stantec	Menihek	Mine Rock		4.45	6.29	0.22	6.06	15.5	54.6	---	4	910	189.38	-185.38	0	PAG
K20/1	K-08-20	6	6.4	Stantec	Menihek	Mine Rock		4.72	1.01	0.45	0.55	1.59	6.74	---	3.3	112.3	17.19	-13.89	0.2	PAG
K20/14	K-08-20	426	426.5	Stantec	Menihek	Mine Rock		9.36	0.05	0.03	0.02	1.44	6.64	---	115	110.7	0.63	114	184	NAG
K20/2	K-08-20	84.5	85	Stantec	Menihek	Mine Rock		9.12	1.58	0.85	0.73	2	9.69	---	7.4	161.5	22.81	-15.41	0.3	PAG
K20/3	K-08-20	103.7	104.5	Stantec	Menihek	Mine Rock		8.33	7.43	1.54	5.89	22.4	106	---	24.3	1766.7	184.06	-159.76	0.1	PAG
K20/5	K-08-20	135	135.4	Stantec	Menihek	Mine Rock		9.26	1.87	0.46	1.41	4.66	22.2	---	7.5	370	44.06	-36.56	0.2	PAG
K20/6	K-08-20	139.1	139.7	Stantec	Menihek	Mine Rock		8.81	2.54	0.79	1.74	19	77	---	16.3	1283.3	54.38	-38.08	0.3	PAG
K20/7	K-08-20	162.4	162.9	Stantec	Menihek	Mine Rock		9.22	0.819	0.13	0.69	0.241	0.529	---	39.4	8.8	21.56	18	1.8	Uncertain
K20/9	K-08-20	174	174.5	Stantec	Menihek	Mine Rock		8.89	0.209	0.13	0.08	6.71	30.7	---	409	511.7	2.5	407	163.6	NAG
K24/3	K-08-24	64.1	64.4	Stantec	Menihek	Mine Rock		9.92	0.506	0.32	0.18	2.36	11.6	---	16	193.3	5.63	10	2.8	NAG
K24/4	K-08-24	127.8	128	Stantec	Menihek	Mine Rock		9.83	0.566	0.26	0.3	1.78	8.39	---	25.1	139.8	9.38	16	2.7	NAG
K24/5	K-08-24	192.6	192.8	Stantec	Menihek	Mine Rock		9.78	1.2	0.33	0.88	1.29	6.37	---	7.8	106.2	27.5	-19.7	0.3	PAG
K24/6-280 (K24/9)	K-08-24	230	230.4	Stantec	Menihek	Mine Rock		8.24	2.86	0.23	2.63	12.8	63.2	---	12.1	1053.3	82.19	-70.09	0.1	PAG
K64/5	K-10-64	463.8	464.5	Stantec	Menihek	Mine Rock		8.38	2.32	0.44	1.88	8.24	39.1	---	10.2	651.7	58.75	-48.55	0.2	PAG
K66/10	K-10-66	457.5	457.9	Stantec	Menihek	Mine Rock		9.06	1.17	0.22	0.95	2.75	13.4	---	17.2	223.3	29.69	-12.49	0.6	PAG
K66/11	K-10-66	486	486.5	Stantec	Menihek	Mine Rock		7.19	1.84	0.03	1.81	4.55	21.2	---	5.5	353.3	56.56	-51.06	0.1	PAG
K66/4	K-10-66	184.7	185	Stantec	Menihek	Mine Rock		7.64	2.73	0.005	2.77	7.53	33.4	---	7.2	556.7	86.56	-79.36	0.1	PAG
K66/7	K-10-66	424.6	424.9	Stantec	Menihek	Mine Rock		9.27	0.563	0.27	0.3	1.03	5.14	---	8.7	85.7	9.38	-0.68	0.9	PAG
K66/8	K-10-66	372.4	372.8	Stantec	Menihek	Mine Rock		8.76	6.86	5.75	1.11	18.4	68.5	---	45.8	1141.7	34.69	11	1.3	Uncertain
K66/9	K-10-66	419.1	419.5	Stantec	Menihek	Mine Rock		9.22	0.624	0.2	0.43	0.92	3.84	---	83	64	13.44	70	6.2	NAG
K86B/1	K-10-86b	151.4	152	Stantec	Menihek	Mine Rock		7.83	0.039	0.03	0.01	1.47	8.81	---	2.2	146.8	0.31	1.9	7	NAG
K-08-12-27.35	K-08-12	27.35	28.1	Okane	Overburden	Mine Rock	2	7.4	0.03	0.02	0.01		1.53		70		0.9	69	74.67	NAG
K-10-28-23	K-10-28	23	23.6	Okane	Overburden	Mine Rock	1	8	0.06	<0.01	0.06		<0.05		8		1.9	6	4.27	NAG
K-10-32-13.7	K-10-32	13.7	14.2	Okane	Overburden	Mine Rock	1	9.2	0.07	<0.01	0.07		<0.05		14		2.2	12	6.4	NAG
K-10-58-17.5	K-10-58	17.5	18.06	Okane	Overburden	Mine Rock	1	8.4	0.01	0.01	<0.01		<0.05		4		0.3	4	12.8	NAG
K-10-78-29.9	K-10-78	29.9	30.4	Okane	Overburden	Mine Rock	1	7.5	0.01	<0.01	0.01		<0.05		2		0.3	2	6.4	NAG
K-11-108-87.6	K-11-108	87.6	88.1	Okane	Overburden	Mine Rock	1	9.5	0.01	<0.01	0.01		<0.05		4		0.3	4	12.8	NAG



Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO3-C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO3/kt	† CaCO3/kt	† CaCO3/kt	† CaCO3/kt	ratio	
K-12-185-59.1	K-12-185	59.1	59.6	Okane	Overburden	Mine Rock	1	9.6	0.01	<0.01	0.01		0.1		13		0.3	13	41.6	NAG
K-12-185-62.2	K-12-185	62.2	62.7	Okane	Overburden	Mine Rock	3	8.8	0.04	<0.01	0.04		2.07		138		1.3	137	110.4	NAG
K-12-185-66.3	K-12-185	66.3	66.8	Okane	Overburden	Mine Rock	1	7.2	1.2	0.06	1.14		0.14		17		37.5	-21	0.45	PAG
ROB-11-01A 12	ROB-11-01A	8.2	8.8	Stantec	Overburden	Mine Rock		9.37	0.029	0.02	0.01	0.138	0.52	---	14	8.7	0.31	8.4	27.7	NAG
ROB-11-01A 16	ROB-11-01A	11.3	11.9	Stantec	Overburden	Mine Rock		9.74	0.025	0.02	0.01	0.15	0.48	---	15	8	0.31	7.7	25.6	NAG
ROB-11-01A 2	ROB-11-01A	0.6	1.2	Stantec	Overburden	Mine Rock		8.82	0.007	0.005	0.005	0.067	0.09	---	8.8	1.5	0.16	1.3	9.7	NAG
ROB-11-01A 24	ROB-11-01A	17.4	18	Stantec	Overburden	Mine Rock		9.26	0.029	0.02	0.01	0.192	0.704	---	17	11.7	0.31	11	37.5	NAG
ROB-11-01A 31	ROB-11-01A	23.5	24.1	Stantec	Overburden	Mine Rock		9.56	0.038	0.02	0.02	0.206	0.704	---	18	11.7	0.63	11	18.8	NAG
ROB-11-01A 42	ROB-11-01A	32	32.1	Stantec	Overburden	Mine Rock		8.49	0.157	0.03	0.13	0.912	3.92	---	49	65.3	4.06	45	12.1	NAG
ROB-11-01A 43	ROB-11-01A	32.1	32.7	Stantec	Overburden	Mine Rock		8.46	0.131	0.07	0.06	0.976	4.13	---	50	68.8	1.88	48	26.7	NAG
ROB-11-01A 52	ROB-11-01A	46.2	46.4	Stantec	Overburden	Mine Rock		8.73	0.19	0.04	0.15	0.498	1.86	---	18	31	4.69	13	3.8	NAG
ROB-11-01A 7	ROB-11-01A	4.6	5.2	Stantec	Overburden	Mine Rock		10.03	0.026	0.02	0.01	0.433	1.9	---	37	31.7	0.31	31	101.3	NAG
ROB-11-08A 11	ROB-11-08A	9.1	9.8	Stantec	Overburden	Mine Rock		9.49	0.027	0.02	0.01	0.141	0.47	---	15	7.8	0.31	7.5	25.1	NAG
ROB-11-08A 13	ROB-11-08A	10.2	11.3	Stantec	Overburden	Mine Rock		9.41	0.01	0.01	0.005	0.1	0.385	---	12	6.4	0.16	6.2	41.4	NAG
ROB-11-08A 16	ROB-11-08A	12.8	13.4	Stantec	Overburden	Mine Rock		9.24	0.009	0.005	0.005	0.142	0.495	---	14	8.3	0.16	8.1	53.2	NAG
ROB-11-08A 2	ROB-11-08A	0.6	1.2	Stantec	Overburden	Mine Rock		9.2	0.007	0.005	0.005	0.094	0.07	---	8.9	1.2	0.16	1.0	7.5	NAG
ROB-11-08A 21	ROB-11-08A	17.4	17.9	Stantec	Overburden	Mine Rock		9.57	0.018	0.02	0.005	0.076	0.19	---	9.9	3.2	0.16	3.0	20.4	NAG
ROB-11-08A 22	ROB-11-08A	18.2	18.5	Stantec	Overburden	Mine Rock		9.49	0.007	0.005	0.005	0.114	0.385	---	12	6.4	0.16	6.2	41.4	NAG
ROB-11-08A 25	ROB-11-08A	21.3	21.4	Stantec	Overburden	Mine Rock		8.96	0.049	0.02	0.03	0.29	0.944	---	21	15.7	0.94	15	16.8	NAG
ROB-11-08A 5	ROB-11-08A	4.6	5.2	Stantec	Overburden	Mine Rock		9.15	0.033	0.02	0.01	0.152	0.575	---	12	9.6	0.31	9.3	30.7	NAG
ROB-11-09 18	ROB-11-09	16.7	17.4	Stantec	Overburden	Mine Rock		9.6	0.015	0.02	0.005	0.092	0.25	---	12	4.2	0.16	4.0	26.9	NAG
ROB-11-09 20	ROB-11-09	20	20.1	Stantec	Overburden	Mine Rock		8.43	0.017	0.02	0.005	0.4	0.325	---	12	5.4	0.16	5.2	34.9	NAG
ROB-11-09 21	ROB-11-09	21.3	21.7	Stantec	Overburden	Mine Rock		9.36	0.038	0.02	0.02	0.141	0.435	---	20	7.3	0.63	6.7	11.6	NAG
ROB-11-09#1	ROB-11-09	0	0.6	Stantec	Overburden	Mine Rock		5.84	0.024	0.02	0.005	1.65	0.162	---	2	2.7	0.16	1.8	12.9	NAG
ROB-11-09#19	ROB-11-09	18.3	18.9	Stantec	Overburden	Mine Rock		8.82	0.011	0.01	0.005	0.142	0.498	---	15	8.3	0.16	8.1	53.5	NAG
ROB-11-09#23	ROB-11-09	25.5	25.7	Stantec	Overburden	Mine Rock		4.19	0.952	0.06	0.9	2.3	11.4	---	0.7	190	28.13	-27.43	0	PAG
ROB-11-09#7	ROB-11-09	4.5	5.1	Stantec	Overburden	Mine Rock		8.27	0.023	0.02	0.005	0.04	0.09	---	9.2	1.5	0.16	1.3	9.7	NAG
ROB-11-10 1	ROB-11-10	0	0.6	Stantec	Overburden	Mine Rock		6.08	0.015	0.02	0.005	1.03	0.085	---	4.9	1.4	0.16	1.2	9.1	NAG
ROB-11-10 2	ROB-11-10	0.6	1.2	Stantec	Overburden	Mine Rock		7.06	0.007	0.005	0.005	0.073	0.07	---	7.2	1.2	0.16	1.0	7.5	NAG
ROB-11-10 3	ROB-11-10	15	2.1	Stantec	Overburden	Mine Rock		7.84	0.005	0.005	0.005	0.033	0.04	---	8.1	0.7	0.16	0.54	4.3	NAG
ROB-11-11 1	ROB-11-11	0	0.6	Stantec	Overburden	Mine Rock		5.79	0.02	0.02	0.005	0.909	0.165	---	6.1	2.8	0.16	2.6	17.7	NAG
ROB-11-11 2	ROB-11-11	0.6	1.2	Stantec	Overburden	Mine Rock		8.4	0.006	0.005	0.005	0.056	0.095	---	13	1.6	0.16	1.4	10.2	NAG
ROB-11-11 3	ROB-11-11	1.5	1.8	Stantec	Overburden	Mine Rock		8.03	0.091	0.03	0.06	0.746	2.68	---	18	44.7	1.88	16	9.6	NAG
ROB-11-12 2	ROB-11-12	0.6	0.9	Stantec	Overburden	Mine Rock		6.8	0.008	0.005	0.005	0.489	0.09	---	7	1.5	0.16	1.3	9.7	NAG
ROB-11-12 3	ROB-11-12	1.5	2.1	Stantec	Overburden	Mine Rock		8.78	0.0025	0.005	0.005	0.055	0.085	---	7.9	1.4	0.16	1.2	9.1	NAG
ROB-11-12 4	ROB-11-12	3	3.7	Stantec	Overburden	Mine Rock		9.75	0.0025	0.005	0.005	0.036	0.06	---	7.3	1	0.16	0.84	6.5	NAG
ROB-11-16 10	ROB-11-16	6.7	7.3	Stantec	Overburden	Mine Rock		9.21	0.052	0.02	0.03	0.107	0.33	---	13	5.5	0.94	4.6	5.9	NAG
ROB-11-16 15	ROB-11-16	10.5	11.1	Stantec	Overburden	Mine Rock		9.14	0.035	0.02	0.01	0.059	0.12	---	8.8	2	0.31	1.7	6.4	NAG
ROB-11-16 16	ROB-11-16	11.1	11.7	Stantec	Overburden	Mine Rock		8.55	0.022	0.02	0.005	0.037	0.095	---	8	1.6	0.16	1.4	10.2	NAG
ROB-11-16 2	ROB-11-16	0.6	1.2	Stantec	Overburden	Mine Rock		9.02	0.016	0.02	0.005	0.042	0.07	---	8.5	1.2	0.16	1.0	7.5	NAG

Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO3-C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO3/kt	† CaCO3/kt	† CaCO3/kt	† CaCO3/kt	ratio	
ROB-11-16 4	ROB-11-16	2.1	2.7	Stantec	Overburden	Mine Rock		8.46	0.008	0.005	0.005	0.07	0.105	---	9	1.8	0.16	1.6	11.3	NAG
ROB-11-17 12	ROB-11-17	9.1	9.7	Stantec	Overburden	Mine Rock		9.3	0.031	0.01	0.02	0.147	0.525	---	15	8.8	0.63	8.2	14	NAG
ROB-11-17 17	ROB-11-17	12.8	13.4	Stantec	Overburden	Mine Rock		9.1	0.021	0.01	0.01	0.151	0.53	---	15	8.8	0.31	8.5	28.3	NAG
ROB-11-17 29	ROB-11-17	21.9	22.5	Stantec	Overburden	Mine Rock		9.35	0.058	0.03	0.03	0.142	0.505	---	16	8.4	0.94	7.5	9	NAG
ROB-11-17 3	ROB-11-17	0.5	2.1	Stantec	Overburden	Mine Rock		3.93	0.324	0.22	0.1	0.069	0.07	---	3	1.2	3.13	-1.93	0.4	PAG
ROB-11-17 30	ROB-11-17	22.9	23.5	Stantec	Overburden	Mine Rock		9.35	0.024	0.01	0.01	0.126	0.47	---	15	7.8	0.31	7.5	25.1	NAG
ROB-11-17 32	ROB-11-17	24.4	25	Stantec	Overburden	Mine Rock		9.63	0.026	0.02	0.01	0.14	0.41	---	14	6.8	0.31	6.5	21.9	NAG
ROB-11-17 35	ROB-11-17	27.4	28	Stantec	Overburden	Mine Rock		9.3	0.042	0.02	0.02	0.12	0.43	---	16	7.2	0.63	6.6	11.5	NAG
ROB-11-17 37	ROB-11-17	29	29.6	Stantec	Overburden	Mine Rock		9.15	0.043	0.01	0.03	0.202	0.445	---	16	7.4	0.94	6.5	7.9	NAG
ROB-11-17 9	ROB-11-17	6.7	7.4	Stantec	Overburden	Mine Rock		9.25	0.016	0.005	0.01	0.12	0.445	---	14	7.4	0.31	7.1	23.7	NAG
ROB-11-17#21	ROB-11-17	15.9	16.5	Stantec	Overburden	Mine Rock		9.54	0.018	0.01	0.005	0.087	0.293	---	12	4.9	0.16	4.7	31.5	NAG
ROB-11-17#4	ROB-11-17	2.1	2.7	Stantec	Overburden	Mine Rock		8.73	0.0025	0.005	0.005	0.034	0.061	---	6.2	1	0.16	0.84	6.6	NAG
ROB-11-17#47	ROB-11-17	41.2	41.4	Stantec	Overburden	Mine Rock		8.25	0.861	0.16	0.7	2.17	9.5	---	27	158.3	21.88	5.1	1.2	Uncertain
ROB-11-18 13	ROB-11-18	9.1	9.8	Stantec	Overburden	Mine Rock		10.15	0.02	0.02	0.005	0.065	0.205	---	12	3.4	0.16	3.2	22	NAG
ROB-11-18 15	ROB-11-18	113	11.9	Stantec	Overburden	Mine Rock		9.45	0.036	0.02	0.02	0.214	0.774	---	16	12.9	0.63	12	20.6	NAG
ROB-11-18 22	ROB-11-18	19.7	19.8	Stantec	Overburden	Mine Rock		8.93	0.044	0.02	0.02	0.288	0.864	---	15	14.4	0.63	14	23	NAG
ROB-11-18 24	ROB-11-18	22.4	22.6	Stantec	Overburden	Mine Rock		8.96	0.025	0.02	0.01	0.268	0.914	---	19	15.2	0.31	15	48.7	NAG
ROB-11-18 26	ROB-11-18	25.4	25.6	Stantec	Overburden	Mine Rock		8.53	0.01	0.005	0.01	0.611	2.62	---	9.8	43.7	0.31	9.5	31.4	NAG
ROB-11-18 8	ROB-11-18	5.2	5.8	Stantec	Overburden	Mine Rock		9.31	0.011	0.01	0.005	0.099	0.255	---	11	4.3	0.16	4.1	27.4	NAG
ROB-11-18#17	ROB-11-18	12.8	13.4	Stantec	Overburden	Mine Rock		9.3	0.035	0.02	0.01	0.144	0.536	---	14	8.9	0.31	8.6	28.6	NAG
ROB-11-18#2	ROB-11-18	0.6	1.2	Stantec	Overburden	Mine Rock		4.78	0.43	0.005	0.4	41.4	0.297	---	-16	5	12.5	-28.5	-1.3	PAG
ROB-11-18#7	ROB-11-18	4.5	5.1	Stantec	Overburden	Mine Rock		8.5	0.008	0.005	0.005	0.09	0.249	---	9.3	4.2	0.16	4.0	26.8	NAG
ROB-11-20 9	ROB-11-20			Stantec	Overburden	Mine Rock		9.11	0.009	0.005	0.005	0.026	0.06	---	8.4	1	0.16	0.84	6.5	NAG
ROB-11-20#13	ROB-11-20	9.1	9.7	Stantec	Overburden	Mine Rock		4.74	1.49	0.24	1.26	2.02	9.61	---	7.8	160.2	39.38	-31.58	0.2	PAG
ROB-11-20#3	ROB-11-20	2.5	3.1	Stantec	Overburden	Mine Rock		7.62	0.006	0.005	0.005	0.056	0.087	---	5.9	1.5	0.16	1.3	9.4	NAG
K-08-08-31	K-8-8	31	31.52	Okane	Sokoman	Mine Rock	1	8.7	0.79	0.02	0.77		0.23		16		24.7	-9	0.65	PAG
K-08-09 209.15-210	K-08-09	209.2	210.7	Stantec	Sokoman	Mine Rock		8.29	0.114	0.04	0.07	1.45	5.02	---	19	83.7	2.19	17	8.7	NAG
K-08-09 59-60	K-08-09	59	60	Stantec	Sokoman	Mine Rock		9.08	0.129	0.04	0.09	0.362	1.29	---	24	21.5	2.81	19	7.6	NAG
K-08-09 82.2-83.2	K-08-09	82.2	83.2	Stantec	Sokoman	Mine Rock		7.91	0.593	0.03	0.56	2.43	12.1	---	22	201.7	17.5	4.5	1.3	Uncertain
K-08-10-228.46	K-08-10	228.46	229.1	Okane	Sokoman	Mine Rock	1	8.7	0.85	<0.01	0.85		0.16		27		26.6	0	1.02	Uncertain
K-08-11A-27	K-8-11A	27	28	Okane	Sokoman	Mine Rock	1	8.2	0.03	0.04	<0.01		0.31		29		0.9	28	30.93	NAG
K-08-12-137.93	K-08-12	137.93	138.5	Okane	Sokoman	Mine Rock	1	8.4	0.04	0.03	0.01		<0.05		5		1.3	4	4	NAG
K-08-17-131	K-08-17	131	131.6	Okane	Sokoman	Mine Rock	1	6.2	1.48	0.02	1.46		0.08		4		46.3	-42	0.09	PAG
K-08-18 110-112.2	K-08-18	110	112.2	Stantec	Sokoman	Mine Rock		9.12	0.008	0.005	0.005	1.96	9.47	---	144	157.8	0.16	144	929	NAG
K-08-18 130-131	K-08-18	130	131	Stantec	Sokoman	Mine Rock		8.4	0.138	0.05	0.09	2.7	10.1	---	117	168.3	2.81	114	41.6	NAG
K-08-18 231.8-233	K-08-18	231.8	233	Stantec	Sokoman	Mine Rock		7.78	0.025	0.02	0.005	3.5	13.4	---	175	223.3	0.16	175	1129	NAG
K-08-18 84.8-86	K-08-18	84.8	86	Stantec	Sokoman	Mine Rock		8.23	0.239	0.07	0.17	1.56	7.07	---	101	117.8	5.31	96	19	NAG
K102/1	K-11-102	62	62.5	Stantec	Sokoman	Ore		8.69	0.015	0.01	0.005	3.72	13.5	---	195	225	0.16	195	1258.1	NAG
K102/2	K-11-102	113.7	114.2	Stantec	Sokoman	Ore		8.88	0.006	0.005	0.005	1.29	4.65	---	71.2	77.5	0.16	71	459.4	NAG
K102/3	K-11-102	166.1	166.4	Stantec	Sokoman	Ore		8.83	0.03	0.03	0.005	1.39	1.95	---	38.3	32.5	0.16	32	209.7	NAG

Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K102/4	K-11-102	231.7	232.2	Stantec	Sokoman	Ore		8.84	0.009	0.005	0.005	0.026	0.048	---	3.4	0.8	0.16	0.64	5.2	NAG
K102/5	K-11-102	287	287.7	Stantec	Sokoman	Ore		7.62	0.02	0.02	0.005	0.032	0.019	---	2.6	0.3	0.16	0.14	2	Uncertain
K-10-25-447.35	K-10-25	447.35	447.9	Okane	Sokoman	Mine Rock	1	8.5	0.12	0.01	0.11		<0.05		16		3.8	12	4.27	NAG
K-10-29 101-103.2	K-10-29	101	103.2	Stantec	Sokoman	Ore		8.25	0.41	0.22	0.19	2.13	7.39	---	98	123.2	5.94	92	16.5	NAG
K-10-29 86.1-87	K-10-29	86.1	87	Stantec	Sokoman	Mine Rock		8.65	0.342	0.18	0.16	3.6	16.8	---	246	280	5	241	49.2	NAG
K-10-30-145.42	K-10-30	145.42	146	Okane	Sokoman	Mine Rock	3	8.5	0.19	<0.01	0.19		8.2		105		5.9	99	17.68	NAG
K-10-35 113-114	K-10-35	113	114	Stantec	Sokoman	Ore		8.47	0.014	0.01	0.005	2.27	10.4	---	161	173.3	0.16	161	1038.7	NAG
K-10-35 121-122	K-10-35	121	122	Stantec	Sokoman	Ore		7.46	0.287	0.08	0.21	1.39	6.01	---	106	100.2	6.56	94	15.3	NAG
K-10-35 16-16.5	K-10-35	16	16.5	Stantec	Sokoman	Mine Rock		8.36	1.49	0.92	0.57	1.78	6.92	---	129	115.3	17.81	97	6.5	NAG
K-10-37A-81.62	K-10-37A	81	81.62	Okane	Sokoman	Mine Rock	1	5.5	1.25	0.04	1.21		0.35		12		39.1	-27	0.31	PAG
K-10-38 149-150	K-10-38	149	150	Stantec	Sokoman	Mine Rock		8.4	0.014	0.01	0.005	9.13	43.1	---	506	718.3	0.16	506	3264.5	NAG
K-10-38 172.6-173.5	K-10-38	172.6	173.5	Stantec	Sokoman	Mine Rock		8.29	0.098	0.05	0.05	5.29	26.3	---	344	438.3	1.56	342	220.2	NAG
K-10-38 207-208	K-10-38	207	208	Stantec	Sokoman	Mine Rock		8.55	0.013	0.01	0.005	5.33	24.6	---	182	410	0.16	182	1174.2	NAG
K-10-38 51.5-52	K-10-38	51.5	52	Stantec	Sokoman	Mine Rock		9.33	0.008	0.005	0.01	10.9	36.1	---	899	601.7	0.31	601	1925.3	NAG
K-10-40-210.18	K-10-40	210.18	210.7	Okane	Sokoman	Mine Rock	2	8.5	0.05	0.01	0.04		1.29		76		1.6	74	48.64	NAG
K-10-45-191.5	K-10-45	191.5	192.1	Okane	Sokoman	Mine Rock	1	8.2	4.14	0.01	4.13		0.06		13		129.5	-116	0.1	PAG
K-10-48-25.8	K-10-48	25.8	26.3	Okane	Sokoman	Mine Rock	1	8.6	0.28	0.02	0.26		0.05		9		8.8	0	1.03	Uncertain
K-10-49 132-133	K-10-49	132	133	Stantec	Sokoman	Mine Rock		8.97	0.177	0.1	0.08	7.66	37.7	---	553	628.3	2.5	551	221.2	NAG
K-10-49 23-24	K-10-49	23	24	Stantec	Sokoman	Mine Rock		8.83	0.256	0.1	0.16	0.72	2.18	---	37	36.3	5	31	7.3	NAG
K-10-49 369-370	K-10-49	369	370	Stantec	Sokoman	Mine Rock		9.02	0.042	0.03	0.01	3	10.3	---	107	171.7	0.31	107	342.4	NAG
K-10-49 390.5-391.5	K-10-49	390.5	391.5	Stantec	Sokoman	Ore		9.08	0.018	0.02	0.005	4.49	17.6	---	170	293.3	0.16	170	1096.8	NAG
K-10-49-294.5	K-10-49	294.5	295.3	Okane	Sokoman	Mine Rock	3	8.8	0.34	<0.01	0.34		6.17		414		10.6	403	38.96	NAG
K-10-49-69.8	K-10-49	69.8	70.3	Okane	Sokoman	Mine Rock	2	6.9	3.79	<0.01	3.79		1.29		41		118.5	-77	0.35	PAG
K-10-50-70.1	K-10-50	70.1	70.6	Okane	Sokoman	Mine Rock	1	8.5	0.1	0.02	0.08		0.17		11		3.1	8	3.52	NAG
K-10-51-268.25	K-10-51	268.25	269	Okane	Sokoman	Mine Rock	1	6.3	0.02	<0.01	0.02		<0.05		1		0.6	0	1.6	Uncertain
K-10-52 114.4-115.4	K-10-52	114.4	115.4	Stantec	Sokoman	Mine Rock		8.62	0.113	0.03	0.08	3.75	14.3	---	135	238.3	2.5	133	54	NAG
K-10-52 254.1-255.2	K-10-52	254.1	255.2	Stantec	Sokoman	Mine Rock		8.33	0.021	0.01	0.01	2.81	11.9	---	157	198.3	0.31	157	502.4	NAG
K-10-52 263-264	K-10-52	263	264	Stantec	Sokoman	Mine Rock		8.35	0.029	0.03	0.005	5.68	26.5	---	324	441.7	0.16	324	2090.3	NAG
K-10-52 299-300	K-10-52	299	300	Stantec	Sokoman	Mine Rock		8.13	1.19	0.09	1.1	5.62	25.5	---	344	425	34.38	310	10	NAG
K-10-52 330-331	K-10-52	330	331	Stantec	Sokoman	Mine Rock		8.31	0.134	0.04	0.09	4.52	18.5	---	246	308.3	2.81	243	87.5	NAG
K-10-52 380-381	K-10-52	380	381	Stantec	Sokoman	Mine Rock		8.32	0.203	0.11	0.09	3.41	10.6	---	90	176.7	2.81	87	32	NAG
K-10-52 476-477	K-10-52	476	477	Stantec	Sokoman	Mine Rock		8.22	0.012	0.01	0.005	3.75	12.8	---	148	213.3	0.16	148	954.8	NAG
K-10-52-477.46	K-10-52	477.46	478.1	Okane	Sokoman	Mine Rock	2	8.7	0.01	0.03	<0.01		3.43		76		0.3	76	243.2	NAG
K-10-53-303.1	K-10-53	303.1	303.7	Okane	Sokoman	Mine Rock	1	8.2	3.93	0.02	3.91		0.15		15		123	-108	0.12	PAG
K-10-54-118.5	K-10-54	118.5	119	Okane	Sokoman	Mine Rock	1	7.3	0.22	0.02	0.2		1.09		5		6.9	-2	0.73	PAG
K-10-54-160.5	K-10-54	160.5	161	Okane	Sokoman	Mine Rock	1	6.4	0.01	<0.01	0.01		<0.05		0		0.3	0	0	PAG
K-10-55 270-271	K-10-55	270	271	Stantec	Sokoman	Mine Rock		8.53	0.027	0.03	0.005	0.786	3.52	---	28	58.7	0.16	28	180.6	NAG
K-10-55 553-554	K-10-55	553	554	Stantec	Sokoman	Mine Rock		8.7	0.018	0.02	0.005	4.78	12.6	---	127	210	0.16	127	819.4	NAG
K-10-56-241.8	K-10-56	241.8	242.3	Okane	Sokoman	Mine Rock	3	8.7	0.01	0.01	<0.01		3.97		253		0.3	253	809.6	NAG
K-10-57-107.4	K-10-57	107.4	108	Okane	Sokoman	Mine Rock	1	8.3	0.02	<0.01	0.02		0.25		18		0.6	17	28.8	NAG



Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-10-59-182.98	K-10-59	182.98	183.6	Okane	Sokoman	Mine Rock	3	7.8	0.1	<0.01	0.1		3.2		272		3.1	269	87.04	NAG
K-10-59-213.6	K-10-59	213.6	214.1	Okane	Sokoman	Mine Rock	3	8.4	0.06	<0.01	0.06		2.66		207		1.9	205	110.4	NAG
K-10-61-260.5	K-10-61	260.5	261.1	Okane	Sokoman	Mine Rock	1	8.7	2.11	0.01	2.1		0.13		14		65.9	-52	0.21	PAG
K-10-61-306.5	K-10-61	306.5	307	Okane	Sokoman	Mine Rock	3	8.2	0.1	0.02	0.08		4.05		252		3.1	249	80.64	NAG
K-10-63-124.4	K-10-63	124.4	124.9	Okane	Sokoman	Mine Rock	3	8.7	0.84	<0.01	0.84		3.13		221		26.3	195	8.42	NAG
K-10-70-543.5	K-10-70	543.5	544	Okane	Sokoman	Mine Rock	2	8.5	0.01	<0.01	0.01		1.56		83		0.3	83	265.6	NAG
K-10-70-74.46	K-10-70	74.46	75	Okane	Sokoman	Mine Rock	2	8.3	0.01	<0.01	0.01		1.24		73		0.3	73	233.6	NAG
K-10-71-93.8	K-10-71	93.8	94.3	Okane	Sokoman	Mine Rock	3	8.7	0.12	<0.01	0.12		6.28		408		3.8	404	108.8	NAG
K-10-83-39.5	K-10-83	39.5	40	Okane	Sokoman	Mine Rock	2	8.7	0.01	<0.01	0.01		0.92		72		0.3	72	230.4	NAG
K-10-84-182.8	K-10-84	182.8	183.3	Okane	Sokoman	Mine Rock	3	9	0.03	<0.01	0.03		4.38		295		0.9	294	314.67	NAG
K-10-93-46	K-10-93	46	46.5	Okane	Sokoman	Mine Rock	3	8.1	5.58	<0.01	5.58		1.42		112		174.5	-62	0.64	PAG
K-11-104 140-140.5	K-11-104	140	140.5	Stantec	Sokoman	Ore		7.55	0.018	0.02	0.005	0.062	0.065	---	3.2	1.1	0.16	0.94	7	NAG
K-11-104 296-299	K-11-104	296	299	Stantec	Sokoman	Mine Rock		7.28	0.018	0.02	0.005	0.76	3.59	---	3.1	59.8	0.16	2.9	20	NAG
K-11-104 47-47.5	K-11-104	47	47.5	Stantec	Sokoman	Ore		7.04	0.023	0.01	0.01	2.46	8.21	---	12	136.8	0.31	12	38.4	NAG
K-11-104 85-85.5	K-11-104	85	85.5	Stantec	Sokoman	Ore		8.57	0.014	0.01	0.005	4.92	19.7	---	237	328.3	0.16	237	1529	NAG
K-11-106 141.8-142	K-11-106	141.8	142.3	Stantec	Sokoman	Mine Rock		7.2	0.022	0.02	0.005	0.045	0.05	---	2.8	0.8	0.16	0.64	5.4	NAG
K-11-107-155.5	K-11-107	155.5	156	Okane	Sokoman	Mine Rock	1	7	0.01	<0.01	0.01		<0.05		1		0.3	1	3.2	NAG
K-11-110-87.5	K-11-110	87.5	88	Okane	Sokoman	Mine Rock	1	7.9	0.01	<0.01	0.01		5.77		13		0.3	13	41.6	NAG
K-11-111-43.1	K-11-111	43.1	43.6	Okane	Sokoman	Mine Rock	1	9	0.05	0.01	0.04		0.41		11		1.6	9	7.04	NAG
K-11-115-389.2	K-11-115	389.2	389.7	Okane	Sokoman	Mine Rock	1	6.4	0.01	0.02	<0.01		<0.05		1		0.3	1	3.2	NAG
K-11-116 124.9-126	K-11-116	124.9	126	Stantec	Sokoman	Mine Rock		7.12	0.04	0.04	0.005	0.047	0.025	---	3.4	0.4	0.16	0.24	2.7	NAG
K-11-117-331	K-11-117	331	331.5	Okane	Sokoman	Mine Rock	1	7.3	3.75	0.04	3.71		0.23		14		117	-103	0.12	PAG
K-11-123-153.1	K-11-123	153.1	153.6	Okane	Sokoman	Mine Rock	2	8.9	0.01	0.03	<0.01		1.28		89		0.3	89	284.8	NAG
K-11-123-153.8	K-11-123	153.8	154.3	Okane	Sokoman	Mine Rock	2	8.6	0.21	0.14	0.07		0.55		42		6.6	35	6.4	NAG
K-11-128-103.5	K-11-128	103.5	104	Okane	Sokoman	Mine Rock	1	8.6	0.01	0.01	<0.01		0.32		21		0.3	21	67.2	NAG
K-11-130-448.5	K-11-130	448.5	449	Okane	Sokoman	Mine Rock	2	7.8	0.09	<0.01	0.09		3.67		24		2.8	21	8.53	NAG
K-11-131-105	K-11-131	105	105.5	Okane	Sokoman	Mine Rock	1	7.3	0.38	0.01	0.37		0.32		6		11.9	-6	0.51	PAG
K-11-133 120-120.5	K-11-133	120	120.5	Stantec	Sokoman	Mine Rock		9.52	0.219	0.05	0.17	0.377	1.96	---	9	32.7	5.31	3.7	1.7	Uncertain
K-11-133 149.5-150	K-11-133	149.5	150	Stantec	Sokoman	Mine Rock		8.15	8.05	2.24	5.81	15.3	7.3	---	24	121.7	181.56	-157.56	0.1	PAG
K-11-133 180.2-180	K-11-133	180.2	180.7	Stantec	Sokoman	Mine Rock		9.18	0.1	0.03	0.07	5.85	30.4	---	400	506.7	2.19	398	182.9	NAG
K-11-133 199.5-200	K-11-133	199.5	200	Stantec	Sokoman	Mine Rock		8.21	0.219	0.08	0.14	4.47	19.4	---	154	323.3	4.38	150	35.2	NAG
K-11-133 25-25.7	K-11-133	25	25.7	Stantec	Sokoman	Mine Rock		8.8	1.51	0.45	1.06	1.43	7.11	---	7.8	118.5	33.13	-25.33	0.2	PAG
K-11-133 309.9-311.4	K-11-133	309.9	311.4	Stantec	Sokoman	Mine Rock		9.96	0.078	0.02	0.06	0.025	0.065	---	13	1.1	1.88	-0.78	0.6	PAG
K-11-133 419.8-421	K-11-133	419.8	421.3	Stantec	Sokoman	Mine Rock		8.28	0.02	0.02	0.005	2.68	9.12	---	109	152	0.16	109	703.2	NAG
K-11-133 49-49.5	K-11-133	49	49.5	Stantec	Sokoman	Mine Rock		8.98	0.009	0.005	0.005	3.26	17.3	---	223	288.3	0.16	223	1438.7	NAG
K-11-133-51.1	K-11-133	51.1	51.6	Okane	Sokoman	Mine Rock	2	8.2	0.16	<0.01	0.16		0.67		41		5	36	8.2	NAG
K-11-135-48.5	K-11-135	48.5	49	Okane	Sokoman	Mine Rock	1	8.6	1.19	0.04	1.15		0.05		8		37.2	-29	0.22	PAG
K-11-137-115.5	K-11-137	115.5	116	Okane	Sokoman	Mine Rock	3	8.5	0.03	<0.01	0.03		4.29		268		0.9	267	285.87	NAG
K-11-142-431.5	K-11-142	431.5	432	Okane	Sokoman	Mine Rock	3	8.9	0.01	0.01	<0.01		2.41		178		0.3	178	569.6	NAG
K-11-143-293.82	K-11-143	293.82	294.4	Okane	Sokoman	Mine Rock	3	8.8	0.02	0.01	0.01		1.96		144		0.6	143	230.4	NAG

Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-11-143-297.1	K-11-143	297.1	297.7	Okane	Sokoman	Mine Rock	3	8.9	0.01	0.02	<0.01		1.95		159		0.3	159	508.8	NAG
K-11-145-201.8	K-11-145	201.8	202.3	Okane	Sokoman	Mine Rock	2	8.8	0.49	0.01	0.48		1.51		81		15.3	66	5.29	NAG
K-11-147-161.4	K-11-147	161.4	161.9	Okane	Sokoman	Mine Rock	3	7.9	2.81	0.03	2.78		1.17		119		87.8	31	1.36	Uncertain
K-11-148-314.5	K-11-148	314.5	315	Okane	Sokoman	Mine Rock	3	8.8	0.01	0.02	<0.01		4.52		256		0.3	256	819.2	NAG
K-11-149 208-209	K-11-149	208	209	Stantec	Sokoman	Mine Rock		8.54	0.162	0.05	0.11	4.42	13.8	---	25	230	3.44	22	7.3	NAG
K-11-149 71.1-72	K-11-149	71.1	72	Stantec	Sokoman	Mine Rock		9.01	0.456	0.18	0.28	6.34	30.3	---	477	505	8.75	468	54.5	NAG
K-11-153-49.5	K-11-153	49.5	50	Okane	Sokoman	Mine Rock	3	8.8	0.29	0.01	0.28		7.72		650		9.1	641	71.72	NAG
K-11-158-53.5	K-11-158	53.5	54	Okane	Sokoman	Mine Rock	1	7.8	0.18	0.02	0.16		2.24		10		5.6	4	1.78	Uncertain
K-11-159-442.42	K-11-159	442.42	443	Okane	Sokoman	Mine Rock	2	8.5	0.02	0.01	0.01		0.72		44		0.6	43	70.4	NAG
K-11-159-478.5	K-11-159	478.5	479	Okane	Sokoman	Mine Rock	2	8.7	0.02	0.01	0.01		1.2		71		0.6	70	113.6	NAG
K-11-160-273.2	K-11-160	273.2	273.8	Okane	Sokoman	Mine Rock	2	8.6	0.02	0.01	0.01		0.76		41		0.6	40	65.6	NAG
K-11-161-59.1	K-11-161	59.1	60.4	Okane	Sokoman	Mine Rock	2	8.7	0.19	0.01	0.18		0.98		67		5.9	61	11.28	NAG
K-11-163 251.5-252	K-11-163	251.5	252	Stantec	Sokoman	Mine Rock		8.48	0.0025	0.005	0.005	2.61	12.1	---	150	201.7	0.16	150	967.7	NAG
K-11-163-114.4	K-11-163	114.4	114.9	Okane	Sokoman	Mine Rock	1	8	1.34	0.01	1.33		0.12		13		41.9	-29	0.31	PAG
K-11-163-23.5	K-11-163	23.5	24	Okane	Sokoman	Mine Rock	3	8.8	0.02	0.01	0.01		2.58		182		0.6	181	291.2	NAG
K-11-164-127.5	K-11-164	127.5	128	Okane	Sokoman	Mine Rock	3	8.4	0.02	0.01	0.01		2.57		163		0.6	162	260.8	NAG
K-11-165-288.8	K-11-165	288.8	289.3	Okane	Sokoman	Mine Rock	3	8.8	0.02	0.01	0.01		2.6		178		0.6	177	284.8	NAG
K-11-166 167.3-168.3	K-11-166	167.3	168.3	Stantec	Sokoman	Mine Rock		8.32	0.115	0.04	0.07	2.61	12.2	---	145	203.3	2.19	143	66.3	NAG
K-11-166 27.1-28.1	K-11-166	27.1	28.1	Stantec	Sokoman	Mine Rock		8.26	0.254	0.09	0.16	3.59	15.6	---	212	260	5	207	42.4	NAG
K-11-166 4.6-5.1	K-11-166	4.6	5.1	Stantec	Sokoman	Mine Rock		7.9	0.659	0.12	0.54	5.02	23.7	---	267	395	16.88	250	15.8	NAG
K-11-166 479.1-479.5	K-11-166	479.1	479.5	Stantec	Sokoman	Mine Rock		8.12	0.068	0.005	0.07	2.4	6.14	---	30	102.3	2.19	28	13.7	NAG
K-11-166 520.3-521	K-11-166	520.3	521	Stantec	Sokoman	Mine Rock		8.51	0.058	0.03	0.03	4.13	9.95	---	54	165.8	0.94	53	57.6	NAG
K-11-166 94.6-95.3	K-11-166	94.6	95.3	Stantec	Sokoman	Mine Rock		8.8	0.553	0.23	0.32	4.38	20.1	---	264	335	10	254	26.4	NAG
K-11-168-138.5	K-11-168	138.5	139	Okane	Sokoman	Mine Rock	2	8.5	0.06	0.01	0.05		1.88		30		1.9	28	16	NAG
K-11-169-76.8	K-11-169	76.8	77.3	Okane	Sokoman	Mine Rock	1	7.4	0.09	0.02	0.07		<0.05		8		2.8	5	2.84	NAG
K-11-170 105-106.5	K-11-170	105	106.5	Stantec	Sokoman	Mine Rock		8.94	0.012	0.01	0.005	1.01	4.09	---	67	68.2	0.16	67	432.3	NAG
K-11-170 88-88.8	K-11-170	88	88.8	Stantec	Sokoman	Mine Rock		8.73	1.13	0.78	0.35	0.877	3.02	---	48	50.3	10.94	37	4.4	NAG
K-11-171 100.1-100.6	K-11-171	100.1	100.6	Stantec	Sokoman	Mine Rock		8.24	0.146	0.08	0.07	1.7	7.64	---	112	127.3	2.19	110	51.2	NAG
K-11-171 101-101.6	K-11-171	101	101.6	Stantec	Sokoman	Mine Rock		8.22	0.075	0.02	0.05	3.2	15.6	---	219	260	1.56	217	140.2	NAG
K-11-171 183.8-184.8	K-11-171	183.8	184.8	Stantec	Sokoman	Mine Rock		8.38	0.03	0.02	0.01	1.84	8.39	---	117	139.8	0.31	117	374.4	NAG
K-11-171 275.7-276.7	K-11-171	275.7	276.7	Stantec	Sokoman	Mine Rock		8.85	0.3	0.1	0.2	3.11	15.2	---	236	253.3	6.25	230	37.8	NAG
K-11-171 279.4-279.9	K-11-171	279.4	279.9	Stantec	Sokoman	Mine Rock		8.71	0.011	0.01	0.005	2.69	13.8	---	229	230	0.16	229	1477.4	NAG
K-11-171 50.3-50.6	K-11-171	50.3	50.6	Stantec	Sokoman	Mine Rock		8.66	0.103	0.05	0.05	5.37	26.7	---	373	445	1.56	371	238.7	NAG
K-11-171 51.9-52.4	K-11-171	51.9	52.4	Stantec	Sokoman	Mine Rock		8.24	1.65	0.41	1.24	2.14	7.3	---	140	121.7	38.75	83	3.1	NAG
K-11-171 54.4-54.9	K-11-171	54.4	54.9	Stantec	Sokoman	Mine Rock		8.45	0.16	0.07	0.09	1.83	8.47	---	126	141.2	2.81	123	44.8	NAG
K-11-172-18.4	K-11-172	18.4	18.9	Okane	Sokoman	Mine Rock	3	8	0.72	0.01	0.71		3.36		234		22.5	212	10.4	NAG
K-11-99-158.5	K-11-99	158.5	159	Okane	Sokoman	Mine Rock	1	7.5	0.01	0.01	<0.01		<0.05		1		0.3	1	3.2	NAG
K-12-173-199.2	K-12-173	199.2	199.7	Okane	Sokoman	Mine Rock	1	7.6	0.08	0.01	0.07		2.34		7		2.5	5	2.8	NAG
K-12-175-178.4	K-12-175	178.4	179.9	Okane	Sokoman	Mine Rock	1	8.1	0.32	0.01	0.31		0.19		9		10	-1	0.9	PAG
K-12-175-79.3	K-12-175	79.3	79.8	Okane	Sokoman	Mine Rock	2	7.4	1.75	0.05	1.7		0.54		27		54.7	-28	0.49	PAG

Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-12-177-233.47	K-12-177	233.47	234	Okane	Sokoman	Mine Rock	1	7	0.05	0.01	0.04		0.06		1		1.6	-1	0.64	PAG
K-12-177-244	K-12-177	244	244.5	Okane	Sokoman	Mine Rock	1	7	0.02	0.01	0.01		<0.05		2		0.6	1	3.2	NAG
K-12-177-272.5	K-12-177	272.5	273	Okane	Sokoman	Mine Rock	3	7.5	0.03	0.01	0.02		5.56		113		0.9	112	120.53	NAG
K-12-177-551.5	K-12-177	551.5	552	Okane	Sokoman	Mine Rock	1	6.4	0.02	<0.01	0.02		0.1		2		0.6	1	3.2	NAG
K-12-178 190.1-190	K-12-178	190.1	190.6	Stantec	Sokoman	Mine Rock		9.48	0.936	0.41	0.53	1.99	9.85	---	9.8	164.2	16.56	-6.76	0.6	PAG
K-12-178 195-195.4	K-12-178	195	195.4	Stantec	Sokoman	Mine Rock		8.7	0.157	0.06	0.1	2.09	9.13	---	130	152.2	3.13	127	41.6	NAG
K-12-178 230-230.5	K-12-178	230	230.5	Stantec	Sokoman	Mine Rock		8.98	0.204	0.01	0.19	0.865	4.16	---	49	69.3	5.94	43	8.3	NAG
K-12-178 55-55.5	K-12-178	55	55.5	Stantec	Sokoman	Mine Rock		9.12	0.316	0.11	0.21	0.547	2.32	---	47	38.7	6.56	32	5.9	NAG
K-12-179 121.3-121	K-12-179	121.3	121.9	Stantec	Sokoman	Mine Rock		9.19	0.574	0.46	0.11	0.218	0.055	---	23	0.9	3.44	-2.54	0.3	PAG
K-12-179 143.6-144	K-12-179	143.6	144.1	Stantec	Sokoman	Mine Rock		8.76	0.073	0.04	0.03	2.1	9.97	---	142	166.2	0.94	141	151.5	NAG
K-12-179 161.5-162	K-12-179	161.5	162.1	Stantec	Sokoman	Mine Rock		7.86	0.872	0.04	0.83	2.25	11.4	---	8.5	190	25.94	-17.44	0.3	PAG
K-12-179 175.1-175	K-12-179	175.1	175.6	Stantec	Sokoman	Mine Rock		5.25	0.927	0.12	0.81	0.929	3.79	---	6.9	63.2	25.31	-18.41	0.3	PAG
K-12-179 35.4-35.8	K-12-179	35.4	35.8	Stantec	Sokoman	Mine Rock		7.66	7.14	0.88	6.26	0.19	0.225	---	18	3.8	195.63	-191.83	0	PAG
K-12-179-171.6	K-12-179	171.6	172.1	Okane	Sokoman	Mine Rock	1	7.4	1.02	0.07	0.95		1.56		3		31.9	-29	0.09	PAG
K-12-182-131.5	K-12-182	131.5	132	Okane	Sokoman	Mine Rock	3	8.9	<0.01	<0.01	<0.01		2.93		181		<0.3	181	1158.4	NAG
K-12-183 168.6-169	K-12-183	168.6	169	Stantec	Sokoman	Mine Rock		9.06	0.383	0.15	0.23	0.046	0.18	---	6.7	3	7.19	-4.19	0.4	PAG
K-12-183 239.9-240	K-12-183	239.9	240.5	Stantec	Sokoman	Mine Rock		8.78	0.048	0.03	0.02	0.237	0.819	---	17	13.7	0.63	13	21.8	NAG
K-12-184-448.5	K-12-184	448.5	449	Okane	Sokoman	Mine Rock	1	8.3	<0.01	<0.01	<0.01		<0.05		2		<0.3	2	12.8	NAG
K-12-185A-265.5	K-12-185A	265.5	270	Okane	Sokoman	Mine Rock	3	9.2	<0.01	<0.01	<0.01		2.24		157		<0.3	157	1004.8	NAG
K-12-186-109.4	K-12-186	109.4	109.9	Okane	Sokoman	Mine Rock	3	8.4	0.02	<0.01	0.02		3.05		132		0.6	131	211.2	NAG
K-12-187-50.5	K-12-187	50.5	51	Okane	Sokoman	Mine Rock	3	8.9	<0.01	0.01	<0.01		2.96		160		<0.3	160	1024	NAG
K-12-193-277.5	K-12-193	277.5	278	Okane	Sokoman	Mine Rock	1	6.3	<0.01	<0.01	<0.01		<0.05		2		<0.3	2	12.8	NAG
K-12-194-199.7	K-12-194	199.7	200.2	Okane	Sokoman	Mine Rock	1	7.5	0.25	0.02	0.23		<0.05		17		7.8	9	2.18	NAG
K-12-194-54	K-12-194	54	54.5	Okane	Sokoman	Mine Rock	1	8.8	0.23	<0.01	0.23		<0.05		22		7.2	15	3.06	NAG
K-12-196A-115.5	K-12-196A	115.5	116	Okane	Sokoman	Mine Rock	3	8.1	<0.01	<0.01	<0.01		2.35		96		<0.3	96	614.4	NAG
K-12-198-117.5	K-12-198	117.5	118	Okane	Sokoman	Mine Rock	1	7	0.01	<0.01	0.01		<0.05		0		0.3	0	0	PAG
K-12-200 183.7-184	K-12-200	183.7	184.3	Stantec	Sokoman	Mine Rock		7.45	0.022	0.02	0.005	0.481	0.095	---	8.9	1.6	0.16	1.4	10.2	NAG
K-12-200 199.3-200	K-12-200	199.3	200.3	Stantec	Sokoman	Mine Rock		8.21	0.029	0.03	0.005	1.13	4.92	---	14	82	0.16	14	90.3	NAG
K-12-200 210-211	K-12-200	210	211	Stantec	Sokoman	Mine Rock		7.21	0.016	0.02	0.005	0.446	2.06	---	3.2	34.3	0.16	3.0	20.6	NAG
K-12-200 215-215.5	K-12-200	215	215.5	Stantec	Sokoman	Mine Rock		7.69	0.0025	0.005	0.005	0.022	0.03	---	3	0.5	0.16	0.34	3.2	NAG
K-12-200 22-22.5	K-12-200	22	22.5	Stantec	Sokoman	Ore		8.51	0.033	0.02	0.01	4.59	23.5	---	318	391.7	0.31	318	1017.6	NAG
K-12-200 230-230.5	K-12-200	230	230.5	Stantec	Sokoman	Mine Rock		7.48	0.017	0.02	0.005	0.413	1.77	---	4.2	29.5	0.16	4.0	27.1	NAG
K-12-200 250-250.5	K-12-200	250	250.5	Stantec	Sokoman	Mine Rock		7.74	0.008	0.005	0.005	6.19	3.86	---	72	64.3	0.16	64	415.1	NAG
K-12-200 269.7-270	K-12-200	269.7	270.2	Stantec	Sokoman	Mine Rock		8.18	0.014	0.01	0.005	5.28	25.5	---	291	425	0.16	291	1877.4	NAG
K-12-200 290.1-290	K-12-200	290.1	290.5	Stantec	Sokoman	Mine Rock		8.41	0.014	0.01	0.005	3.72	13.9	---	168	231.7	0.16	168	1083.9	NAG
K-12-206-97.5	K-12-206	97.5	98	Okane	Sokoman	Mine Rock	3	8.9	0.1	<0.01	0.1		3.16		232		3.1	229	74.24	NAG
K-12-208-140	K-12-208	140	140.5	Okane	Sokoman	Mine Rock	1	7	<0.01	<0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-12-209-235.74	K-12-209	235.74	236.4	Okane	Sokoman	Mine Rock	2	8.8	0.29	0.01	0.28		0.5		37		9.1	28	4.08	NAG
K-12-210-127.5	K-12-210	127.5	128	Okane	Sokoman	Mine Rock	1	6.9	<0.01	0.02	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-12-211-122.7	K-12-211	122.7	123.2	Okane	Sokoman	Mine Rock	2	8.5	0.08	0.06	0.02		1.38		85		2.5	83	34	NAG

Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-12-211-36.7	K-12-211	36.7	37.2	Okane	Sokoman	Mine Rock	3	8.3	0.82	0.02	0.8		1.53		126		25.6	100	4.92	NAG
K-12-212-205.5	K-12-212	205.5	206	Okane	Sokoman	Mine Rock	3	8.6	0.02	0.03	<0.01		2.41		154		0.6	153	246.4	NAG
K-12-213-119	K-12-213	119	119.5	Okane	Sokoman	Mine Rock	2	9.3	0.36	0.02	0.34		0.82		69		11.3	58	6.13	NAG
K-12-213-14.2	K-12-213	14.2	14.7	Okane	Sokoman	Mine Rock	1	8.1	0.01	0.02	<0.01		<0.05		4		0.3	4	12.8	NAG
K140/10	K-11-140	286.7	287	Stantec	Sokoman	Ore		8.7	0.042	0.03	0.02	1.5	6.12	---	106	102	0.63	101	163.2	NAG
K140/11	K-11-140	299.4	299.8	Stantec	Sokoman	Ore		8.72	0.03	0.03	0.005	2.24	10.2	---	186	170	0.16	170	1096.8	NAG
K140/12	K-11-140	335	335.4	Stantec	Sokoman	Ore		9.15	0.02	0.02	0.005	0.803	0.27	---	49	4.5	0.16	4.3	29	NAG
K140/13	K-11-140	481.5	428	Stantec	Sokoman	Mine Rock		9.17	0.023	0.02	0.005	0.634	2.32	---	42.2	38.7	0.16	39	249.5	NAG
K140/8	K-11-140	257	257.3	Stantec	Sokoman	Ore		9.09	0.016	0.02	0.005	0.137	0.314	---	11.7	5.2	0.16	5.0	33.8	NAG
K140/9	K-11-140	281	281.3	Stantec	Sokoman	Ore		9.12	0.009	0.005	0.005	2.1	9.27	---	155	154.5	0.16	154	996.8	NAG
K143/1	K-11-143	483.9	484.2	Stantec	Sokoman	Mine Rock		9.4	1.32	0.54	0.78	4.06	16.6	---	119	276.7	24.38	95	4.9	NAG
K143/2	K-11-143	481.5	481.8	Stantec	Sokoman	Ore		8.75	0.818	0.33	0.48	6.84	21.7	---	247	361.7	15	232	16.5	NAG
K163/4	K-11-163	164.8	165	Stantec	Sokoman	Mine Rock		8.65	0.324	0.23	0.09	6.05	29.2	---	373	486.7	2.81	370	132.6	NAG
K163/6	K-11-163	198.5	199.2	Stantec	Sokoman	Mine Rock		7.1	0.109	0.07	0.04	1.38	6.62	---	1.9	110.3	1.25	0.65	1.5	Uncertain
K163/8	K-11-163	364	364.4	Stantec	Sokoman	Ore		9.27	0.018	0.02	0.005	1.38	3.84	---	67.7	64	0.16	64	412.9	NAG
K163/9	K-11-163	414.5	415.9	Stantec	Sokoman	Ore		9.25	0.0025	0.005	0.005	2.14	7.83	---	121	130.5	0.16	121	780.6	NAG
K20/10	K-08-20	213	213.5	Stantec	Sokoman	Ore		9.24	0.007	0.005	0.005	0.963	3.98	---	68.2	66.3	0.16	66	428	NAG
K20/12	K-08-20	412	412.6	Stantec	Sokoman	Mine Rock		8.54	1.13	0.11	1.01	1.03	2.18	---	61.3	36.3	31.56	4.7	1.2	Uncertain
K20/4	K-08-20	113.2	113.5	Stantec	Sokoman	Mine Rock		9.41	0.022	0.01	0.01	1.53	7.43	---	15.3	123.8	0.31	15	49	NAG
K20/8	K-08-20	169.3	169.6	Stantec	Sokoman	Mine Rock		8.96	1.15	0.44	0.72	3.16	12.7	---	206	211.7	22.5	184	9.2	NAG
K24/1	K-08-24	23	23.5	Stantec	Sokoman	Ore		9.13	0.476	0.23	0.25	9.32	33.3	---	655	555	7.81	547	71	NAG
K24/2	K-08-24	40.7	41	Stantec	Sokoman	Ore		9.07	0.513	0.35	0.16	3.49	16	---	209	266.7	5	204	41.8	NAG
K24/6-206.5 (K24/6)	K-08-24	206.5	207	Stantec	Sokoman	Mine Rock		8.61	0.661	0.22	0.44	2.42	7.62	---	112	127	13.75	98	8.1	NAG
K24/6-262.5 (K24/9)	K-08-24	262.5	263	Stantec	Sokoman	Ore		9.2	0.015	0.01	0.005	1.14	1.79	---	77.6	29.8	0.16	30	192.5	NAG
K24/8	K-08-24	236.7	237	Stantec	Sokoman	Mine Rock		8.58	0.523	0.14	0.38	1.71	8.93	---	13.4	148.8	11.88	1.5	1.1	Uncertain
K64/3	K-10-66	163.5	164	Stantec	Sokoman	Ore		8.56	0.055	0.05	0.005	1.05	4.43	---	59.7	73.8	0.16	60	385.2	NAG
K64/4	K-10-64	225.2	225.7	Stantec	Sokoman	Mine Rock		8.93	0.0025	0.005	0.005	3.07	6.62	---	82.7	110.3	0.16	83	533.5	NAG
K66/1	K-10-66	66	66.2	Stantec	Sokoman	Ore		8.79	0.015	0.01	0.005	1.71	7.3	---	120	121.7	0.16	120	774.2	NAG
K66/12	K-10-66	491.6	492	Stantec	Sokoman	Mine Rock		8.76	0.014	0.01	0.005	4.12	18.6	---	224	310	0.16	224	1445.2	NAG
K66/13	K-10-66	556.7	557.3	Stantec	Sokoman	Ore		8.62	0.006	0.005	0.005	0.057	0.084	---	4.9	1.4	0.16	1.2	9	NAG
K66/14	K-10-66	588	588.5	Stantec	Sokoman	Ore		8.62	0.053	0.04	0.01	6.15	10.6	---	89	176.7	0.31	89	284.8	NAG
K66/2	K-10-66	75	75.2	Stantec	Sokoman	Ore		7.64	0.019	0.02	0.005	0.729	2.9	---	37.3	48.3	0.16	37	240.6	NAG
K66/5	K-10-66	224	224.3	Stantec	Sokoman	Mine Rock		8.65	0.225	0.09	0.14	3.62	13.6	---	155	226.7	4.38	151	35.4	NAG
K66/6	K-10-66	307.1	307.6	Stantec	Sokoman	Mine Rock		8.98	3.65	0.86	2.79	5.94	22.7	---	404	378.3	87.19	291	4.3	NAG
ROB-11-10 15'-17'	ROB-11-10	4.6	5.2	Stantec	Sokoman	Mine Rock		8.33	0.012	0.01	0.005	1.02	4.81	---	68	80.2	0.16	68	438.7	NAG
K-08-08-122	K-08-08	122	122.6	Okane	Wishart	Mine Rock	3	8.7	0.01	<0.01	0.01		2.7		215		0.3	215	688	NAG
K-08-09 247-248	K-08-09	247	248	Stantec	Wishart	Mine Rock		9.52	0.011	0.01	0.005	1.25	6.32	---	112	105.3	0.16	105	679.6	NAG
K-08-09 272.6-273.6	K-08-09	272.6	273.6	Stantec	Wishart	Mine Rock		9.51	0.014	0.01	0.005	0.465	2	---	35	33.3	0.16	33	215.1	NAG
K-08-09 301.2-302.2	K-08-09	301.2	302.2	Stantec	Wishart	Mine Rock		9.61	0.024	0.02	0.005	0.162	0.659	---	16	11	0.16	11	70.9	NAG
K-08-11-21.4	K-08-11	21.4	22	Okane	Wishart	Mine Rock	1	8.4	0.03	0.04	<0.01		0.36		28		0.9	27	29.87	NAG



Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO3-C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO3/kt	† CaCO3/kt	† CaCO3/kt	† CaCO3/kt	ratio	
K-08-11-28	K-08-11	28	28.68	Okane	Wishart	Mine Rock	3	8.6	<0.01	<0.01	<0.01		2.54		153		<0.3	153	979.2	NAG
K-08-18 328.1-329	K-08-18	328.1	329	Stantec	Wishart	Mine Rock		8.75	0.034	0.02	0.01	1.6	7.05	---	106	117.5	0.31	106	339.2	NAG
K-08-18 350.2-351	K-08-18	350.2	351	Stantec	Wishart	Mine Rock		9.55	0.555	0.16	0.39	0.038	0.085	---	7.9	1.4	12.19	-10.79	0.1	PAG
K-08-18 368.3-369.3	K-08-18	368.3	369.3	Stantec	Wishart	Mine Rock		9.45	0.076	0.03	0.05	0.257	1.04	---	23	17.3	1.56	16	11.1	NAG
K-08-18 376.2-377	K-08-18	376.2	377	Stantec	Wishart	Mine Rock		9.29	0.078	0.05	0.03	2.19	11.2	---	194	186.7	0.94	186	199.1	NAG
K-08-18 381.8-382.8	K-08-18	381.8	382.8	Stantec	Wishart	Mine Rock		9.77	0.137	0.08	0.06	0.216	0.784	---	19	13.1	1.88	11	7	NAG
K-08-18-325.18	K-8-18	324.63	325.2	Okane	Wishart	Mine Rock	2	8.2	2.62	<0.01	2.62		0.15		21		81.9	-61	0.26	PAG
K-10-35 192-193	K-10-35	192	193	Stantec	Wishart	Mine Rock		9.11	0.67	0.21	0.46	0.549	2.15	---	64	35.8	14.38	21	2.5	NAG
K-10-35 200-200.8	K-10-35	200	200.8	Stantec	Wishart	Mine Rock		9.22	0.03	0.02	0.01	1.3	6.18	---	102	103	0.31	102	326.4	NAG
K-10-35 206-206.9	K-10-35	206	206.9	Stantec	Wishart	Mine Rock		9.43	0.048	0.03	0.02	0.117	0.43	---	12	7.2	0.63	6.6	11.5	NAG
K-10-35-187.8	K-10-35	187.8	188.3	Okane	Wishart	Mine Rock	2	8.8	0.03	0.01	0.02		1.48		90		0.9	89	96	NAG
K-10-49 668-669	K-10-49	668	669	Stantec	Wishart	Mine Rock		6.97	0.032	0.02	0.01	0.539	1.27	---	5.2	21.2	0.31	4.9	16.6	NAG
K-10-49 669-671	K-10-49	669	671	Stantec	Wishart	Mine Rock		7.28	0.012	0.01	0.005	0.102	0.215	---	3.6	3.6	0.16	3.4	23.1	NAG
K-10-52 100-101	K-10-52	100	101	Stantec	Wishart	Mine Rock		9.32	0.068	0.05	0.02	3.28	16.3	---	259	271.7	0.63	258	414.4	NAG
K-10-52 1-2	K-10-52	1	2	Stantec	Wishart	Mine Rock		8.56	0.0025	0.005	0.005	0.024	0.105	---	2.6	1.8	0.16	1.6	11.3	NAG
K-10-52 20-21	K-10-52	20	21	Stantec	Wishart	Mine Rock		8.13	0.005	0.005	0.005	0.019	0.05	---	4.3	0.8	0.16	0.64	5.4	NAG
K-10-52 50-50.7	K-10-52	50	50.7	Stantec	Wishart	Mine Rock		9.51	0.037	0.02	0.02	0.324	1.39	---	23	23.2	0.63	22	36.8	NAG
K-10-55 130-130.9	K-10-55	130	130.9	Stantec	Wishart	Mine Rock		9.21	0.0025	0.005	0.005	0.366	1.63	---	28	27.2	0.16	27	175.3	NAG
K-10-55 160-161	K-10-55	160	161	Stantec	Wishart	Mine Rock		8.62	0.0025	0.005	0.005	0.12	0.46	---	11	7.7	0.16	7.5	49.5	NAG
K-10-55 208-209	K-10-55	208	209	Stantec	Wishart	Mine Rock		9.64	0.008	0.005	0.005	0.048	0.145	---	5.1	2.4	0.16	2.2	15.6	NAG
K-10-55 21-22	K-10-55	21	22	Stantec	Wishart	Mine Rock		8.49	0.0025	0.005	0.005	0.052	0.21	---	5.7	3.5	0.16	3.3	22.6	NAG
K-10-55 213-214	K-10-55	213	214	Stantec	Wishart	Mine Rock		9.34	0.01	0.01	0.005	0.248	1.03	---	19	17.2	0.16	17	110.8	NAG
K-10-55 227-228	K-10-55	227	228	Stantec	Wishart	Mine Rock		9.25	0.151	0.06	0.09	0.182	0.704	---	15	11.7	2.81	8.9	4.2	NAG
K-10-55 249-250	K-10-55	249	250	Stantec	Wishart	Mine Rock		9.45	0.527	0.34	0.19	0.442	1.62	---	40	27	5.94	21	4.5	NAG
K-10-55 31-31.9	K-10-55	31	31.9	Stantec	Wishart	Mine Rock		8.89	0.007	0.005	0.005	3.21	16.1	---	219	268.3	0.16	219	1412.9	NAG
K-10-55 39-40	K-10-55	39	40	Stantec	Wishart	Mine Rock		8.77	0.0025	0.005	0.005	0.124	0.51	---	12	8.5	0.16	8.3	54.8	NAG
K-10-55 61-62	K-10-55	61	62	Stantec	Wishart	Mine Rock		8.95	0.017	0.02	0.005	0.293	1.25	---	23	20.8	0.16	21	134.4	NAG
K-10-55 75-76	K-10-55	75	76	Stantec	Wishart	Mine Rock		9.68	0.006	0.005	0.005	5.49	21.6	---	458	360	0.16	360	2322.6	NAG
K-10-58-18.45	K-10-58	18.45	19.04	Okane	Wishart	Mine Rock	1	7.4	<0.01	0.02	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-10-58-20.43	K-10-58	20.43	21.1	Okane	Wishart	Mine Rock	2	8.3	<0.01	<0.01	<0.01		0.62		52		<0.3	52	332.8	NAG
K-10-58-21.97	K-10-58	21.97	22.5	Okane	Wishart	Mine Rock	3	9	<0.01	<0.01	<0.01		2.04		161		<0.3	161	1030.4	NAG
K-10-58-24.28	K-10-58	24.28	25.1	Okane	Wishart	Mine Rock	1	7.9	0.01	0.01	<0.01		<0.05		1		0.3	1	3.2	NAG
K-10-58-26.3	K-10-58	26.3	27	Okane	Wishart	Mine Rock	1	7.7	<0.01	<0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-10-58-30.48	K-10-58	30.48	31.03	Okane	Wishart	Mine Rock	1	7.9	<0.01	<0.01	<0.01		<0.05		3		<0.3	3	19.2	NAG
K-10-58-32.5	K-10-58	32.5	33.5	Okane	Wishart	Mine Rock	1	7.9	<0.01	<0.01	<0.01		<0.05		2		<0.3	2	12.8	NAG
K-10-58-36.5	K-10-58	36.5	37.1	Okane	Wishart	Mine Rock	1	7.1	<0.01	<0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-10-58-38.5	K-10-58	38.5	39.1	Okane	Wishart	Mine Rock	1	6.6	<0.01	<0.01	<0.01		<0.05		0		<0.3	0	0	PAG
K-10-58-46.5	K-10-58	46.5	47	Okane	Wishart	Mine Rock	1	6.7	<0.01	<0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-10-58-53.4	K-10-58	53.4	54.1	Okane	Wishart	Mine Rock	1	6.7	<0.01	<0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-10-58-57	K-10-58	57	57.5	Okane	Wishart	Mine Rock	1	7.5	<0.01	0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG



Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-10-58-62	K-10-58	62	62.5	Okane	Wishart	Mine Rock	1	6.9	<0.01	<0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-10-63-108.5	K-10-63	108.5	109	Okane	Wishart	Mine Rock	3	8.7	0.01	<0.01	0.01		2.21		162		0.3	162	518.4	NAG
K-10-63-117.5	K-10-63	117.5	118	Okane	Wishart	Mine Rock	1	9.4	0.03	0.01	0.02		0.09		16		0.9	15	17.07	NAG
K-10-83-277.5	K-10-83	277.5	278	Okane	Wishart	Mine Rock	1	9.1	0.1	<0.01	0.1		0.32		22		3.1	19	7.04	NAG
K-10-93-114.3	K-10-93	114.3	114.8	Okane	Wishart	Mine Rock	3	8.1	3.91	<0.01	3.91		1.85		105		122	-17	0.86	PAG
K-11-100B-116.25	K-11-100B	116.25	117	Okane	Wishart	Mine Rock	1	6.9	0.02	<0.01	0.02		<0.05		2		0.6	1	3.2	NAG
K-11-101 149-152	K-11-101	149	152	Stantec	Wishart	Mine Rock		8.34	0.019	0.02	0.005	0.021	0.03	---	2.7	0.5	0.16	0.34	3.2	NAG
K-11-104 300-302	K-11-104	300	302	Stantec	Wishart	Mine Rock		7.52	0.01	0.01	0.005	0.104	0.285	---	3.1	4.8	0.16	2.9	20	NAG
K-11-104 319-320	K-11-104	319	320	Stantec	Wishart	Mine Rock		8.21	0.008	0.005	0.005	0.032	0.1	---	2.3	1.7	0.16	1.5	10.8	NAG
K-11-106 150-150.5	K-11-106	150	150.5	Stantec	Wishart	Mine Rock		7.31	0.008	0.005	0.005	0.025	0.055	---	1.9	0.9	0.16	0.74	5.9	NAG
K-11-107-158.5	K-11-107	158.5	159	Okane	Wishart	Mine Rock	1	6.6	0.01	<0.01	0.01		<0.05		1		0.3	1	3.2	NAG
K-11-112A-174.5	K-11-112A	174.5	175	Okane	Wishart	Mine Rock	1	7.8	0.01	0.03	<0.01		<0.05		1		0.3	1	3.2	NAG
K-11-112A-188.5	K-11-112A	188.5	189	Okane	Wishart	Mine Rock	1	7.3	0.01	<0.01	0.01		<0.05		4		0.3	4	12.8	NAG
K-11-112A-217.5	K-11-112A	217.5	218	Okane	Wishart	Mine Rock	1	6.5	0.01	0.01	<0.01		<0.05		2		0.3	2	6.4	NAG
K-11-113 147-151.5	K-11-113	147	151.5	Stantec	Wishart	Mine Rock		7.78	0.007	0.005	0.005	0.188	0.11	---	4.1	1.8	0.16	1.6	11.8	NAG
K-11-113 162-163	K-11-113	162	163	Stantec	Wishart	Mine Rock		8.42	0.0025	0.005	0.005	0.053	0.125	---	4.8	2.1	0.16	1.9	13.4	NAG
K-11-113 168-171	K-11-113	168	171	Stantec	Wishart	Mine Rock		7.17	0.017	0.02	0.005	0.095	0.07	---	3.2	1.2	0.16	1.0	7.5	NAG
K-11-113 180-180.5	K-11-113	180	180.5	Stantec	Wishart	Mine Rock		7.37	0.012	0.01	0.005	0.083	0.09	---	3.6	1.5	0.16	1.3	9.7	NAG
K-11-113 189-192	K-11-113	189	192	Stantec	Wishart	Mine Rock		7.31	0.008	0.005	0.005	0.023	0.045	---	2.9	0.8	0.16	0.64	4.8	NAG
K-11-113 198-201	K-11-113	198	201	Stantec	Wishart	Mine Rock		7.73	0.011	0.01	0.005	0.072	0.025	---	3.6	0.4	0.16	0.24	2.7	NAG
K-11-116 117-119.2	K-11-116	117	119.2	Stantec	Wishart	Mine Rock		7.25	0.0025	0.005	0.005	0.031	0.07	---	3.5	1.2	0.16	1.0	7.5	NAG
K-11-116 79.5-80	K-11-116	79.5	80	Stantec	Wishart	Mine Rock		6.71	0.005	0.005	0.005	0.06	0.09	---	4.9	1.5	0.16	1.3	9.7	NAG
K-11-116 99.3-102	K-11-116	99.3	102	Stantec	Wishart	Mine Rock		7.22	0.01	0.01	0.005	0.062	0.09	---	4	1.5	0.16	1.3	9.7	NAG
K-11-130-231.03	K-11-130	231.03	231.6	Okane	Wishart	Mine Rock	2	8.4	0.89	0.04	0.85		2.92		65		27.8	37	2.34	NAG
K-11-135-182.5	K-11-135	182.5	183	Okane	Wishart	Mine Rock	2	7.8	0.18	0.03	0.15		2.02		45		5.6	39	8	NAG
K-11-137-289.1	K-11-137	289.1	290.4	Okane	Wishart	Mine Rock	1	7.8	0.49	<0.01	0.49		<0.05		6		15.3	-9	0.39	PAG
K-11-137-291.5	K-11-137	291.5	292	Okane	Wishart	Mine Rock	1	8.5	0.61	<0.01	0.61		0.05		6		19.1	-13	0.31	PAG
K-11-145-355.5	K-11-145	355.5	356	Okane	Wishart	Mine Rock	2	8.7	0.01	0.02	<0.01		1.08		86		0.3	86	275.2	NAG
K-11-147-303.2	K-11-147	303.2	303.7	Okane	Wishart	Mine Rock	2	8.7	0.36	0.02	0.34		1.29		30		11.3	19	2.67	NAG
K-11-147-306.45	K-11-147	306.45	307	Okane	Wishart	Mine Rock	2	9.1	0.05	0.02	0.03		0.82		73		1.6	71	46.72	NAG
K-11-147-308	K-11-147	308	308.5	Okane	Wishart	Mine Rock	1	9.2	0.2	0.02	0.18		0.2		23		6.3	17	3.68	NAG
K-11-147-355.9	K-11-147	355.9	356.4	Okane	Wishart	Mine Rock	1	9.6	0.11	0.01	0.1		0.08		10		3.4	7	2.91	NAG
K-11-147-362.3	K-11-147	362.3	362.8	Okane	Wishart	Mine Rock	1	9.6	0.13	0.01	0.12		0.13		15		4.1	11	3.69	NAG
K-11-149 215.1-216.2	K-11-149	215.1	216.2	Stantec	Wishart	Mine Rock		9.53	0.012	0.01	0.005	2.13	9.99	---	183	166.5	0.16	166	1074.2	NAG
K-11-149 229.6-230	K-11-149	229.6	230	Stantec	Wishart	Mine Rock		8.72	0.012	0.01	0.005	0.015	0.045	---	3.6	0.8	0.16	0.64	4.8	NAG
K-11-149 252.2-252	K-11-149	252.2	252.7	Stantec	Wishart	Mine Rock		9.46	0.02	0.02	0.005	1.99	9.69	---	155	161.5	0.16	155	1000	NAG
K-11-149 270.2-270	K-11-149	270.2	270.6	Stantec	Wishart	Mine Rock		9.44	0.023	0.01	0.01	2.06	9.96	---	160	166	0.31	160	512	NAG
K-11-149-211.5	K-11-149	211.5	212	Okane	Wishart	Mine Rock	2	8.5	0.39	0.01	0.38		4.31		40		12.2	28	3.28	NAG
K-11-153-181.8	K-11-153	181.8	182.3	Okane	Wishart	Mine Rock	3	8.6	1.25	0.01	1.24		2.66		168		39.1	129	4.3	NAG
K-11-156-135	K-11-156	135	135.5	Okane	Wishart	Mine Rock	3	8.4	1.16	0.02	1.14		1.38		114		36.3	78	3.14	NAG



Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-11-159-291	K-11-159	291	291.5	Okane	Wishart	Mine Rock	1	9	0.16	0.02	0.14		0.06		4		5	-1	0.8	PAG
K-11-159-297.2	K-11-159	297.2	297.7	Okane	Wishart	Mine Rock	2	9	1.12	0.01	1.11		0.35		36		35	1	1.03	Uncertain
K-11-163 555.8-556	K-11-163	555.8	556	Stantec	Wishart	Mine Rock		7.71	0.031	0.03	0.005	0.067	0.27	---	2.4	4.5	0.16	2.2	15.5	NAG
K-11-163 570-570.5	K-11-163	570	570.5	Stantec	Wishart	Mine Rock		8.73	0.0025	0.005	0.005	0.017	0.04	---	4.1	0.7	0.16	0.54	4.3	NAG
K-11-166 170.2-171	K-11-166	170.2	171	Stantec	Wishart	Mine Rock		8.16	3.03	0.98	2.05	0.956	2.82	---	53	47	64.06	-17.06	0.7	PAG
K-11-166 174-174.5	K-11-166	174	174.5	Stantec	Wishart	Mine Rock		8.68	0.551	0.27	0.28	0.434	1.67	---	37	27.8	8.75	19	3.2	NAG
K-11-166 180-181	K-11-166	180	181	Stantec	Wishart	Mine Rock		9.02	0.01	0.01	0.005	0.757	3.87	---	63	64.5	0.16	63	406.5	NAG
K-11-166 182.5-183	K-11-166	182.5	183	Stantec	Wishart	Mine Rock		8.96	0.0025	0.005	0.005	0.023	0.045	---	2.1	0.8	0.16	0.64	4.8	NAG
K-11-166 200.6-201	K-11-166	200.6	201	Stantec	Wishart	Mine Rock		9.61	0.009	0.005	0.005	0.91	4.14	---	67	69	0.16	67	432.3	NAG
K-11-166 244.5-245	K-11-166	244.5	245	Stantec	Wishart	Mine Rock		9.26	0.005	0.005	0.005	0.872	4.11	---	65	68.5	0.16	65	419.4	NAG
K-11-166 247.5-248	K-11-166	247.5	248	Stantec	Wishart	Mine Rock		9.1	0.0025	0.005	0.005	0.338	1.37	---	25	22.8	0.16	23	147.3	NAG
K-11-166 379.5-380	K-11-166	379.5	380	Stantec	Wishart	Mine Rock		9.12	0.0025	0.005	0.005	0.121	0.545	---	11	9.1	0.16	8.9	58.6	NAG
K-11-166 420.5-421	K-11-166	420.5	421	Stantec	Wishart	Mine Rock		9.13	0.005	0.005	0.005	4	22.1	---	358	368.3	0.16	358	2309.7	NAG
K-11-166 428-428.5	K-11-166	428	428.5	Stantec	Wishart	Mine Rock		9.48	0.067	0.07	0.03	1.52	7.65	---	123	127.5	0.94	122	131.2	NAG
K-11-171 301-301.5	K-11-171	301	301.5	Stantec	Wishart	Mine Rock		8.28	0.771	0.1	0.67	0.072	0.315	---	12	5.3	20.94	-15.64	0.3	PAG
K-11-172-268.2	K-11-172	268.2	268.2	Okane	Wishart	Mine Rock	2	8.5	0.03	0.01	0.02		1.49		85		0.9	84	90.67	NAG
K-11-99-169	K-11-99	169	169.5	Okane	Wishart	Mine Rock	1	7.2	0.01	0.01	<0.01		<0.05		3		0.3	3	9.6	NAG
K-12-178 10.1-10.7	K-12-178	10.1	10.7	Stantec	Wishart	Mine Rock		8.65	0.0025	0.005	0.005	0.015	0.03	---	2.7	0.5	0.16	0.34	3.2	NAG
K-12-178 210-210.5	K-12-178	210	210.5	Stantec	Wishart	Mine Rock		9.51	0.965	0.36	0.6	0.942	4.93	---	8.2	82.2	18.75	-10.55	0.4	PAG
K-12-178 30.2-30.7	K-12-178	30.2	30.7	Stantec	Wishart	Mine Rock		7.88	0.019	0.02	0.005	0.034	0.13	---	14	2.2	0.16	2.0	14	NAG
K-12-178 40-40.4	K-12-178	40	40.4	Stantec	Wishart	Mine Rock		9.28	0.006	0.005	0.005	0.015	0.05	---	5.2	0.8	0.16	0.64	5.4	NAG
K-12-180-11.3	K-12-180	11.3	11.8	Okane	Wishart	Mine Rock	1	6.6	0.02	0.01	0.01		<0.05		1		0.6	0	1.6	Uncertain
K-12-180-13	K-12-180	13	13.5	Okane	Wishart	Mine Rock	1	7	0.01	0.01	<0.01		<0.05		1		0.3	1	3.2	NAG
K-12-180-18.2	K-12-180	18.2	18.7	Okane	Wishart	Mine Rock	1	7.1	<0.01	<0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-12-180-21.5	K-12-180	21.5	22	Okane	Wishart	Mine Rock	1	7.2	<0.01	0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-12-180-28.1	K-12-180	28.1	29.4	Okane	Wishart	Mine Rock	1	6.9	<0.01	0.01	<0.01		<0.05		0		<0.3	0	0	PAG
K-12-182-435.8	K-12-182	435.8	436.3	Okane	Wishart	Mine Rock	1	7.3	<0.01	<0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-12-183 120.1-120	K-12-183	120.1	120.5	Stantec	Wishart	Mine Rock		8.59	0.0025	0.005	0.005	0.018	0.05	---	3	0.8	0.16	0.64	5.4	NAG
K-12-183 130.3-130	K-12-183	130.3	130.8	Stantec	Wishart	Mine Rock		9.24	0.011	0.01	0.005	2.67	14	---	226	233.3	0.16	226	1458.1	NAG
K-12-183 139.1-139	K-12-183	139.1	139.6	Stantec	Wishart	Mine Rock		9.8	0.053	0.03	0.02	0.415	1.8	---	32	30	0.63	29	48	NAG
K-12-183 149-149.5	K-12-183	149	149.5	Stantec	Wishart	Mine Rock		9.63	0.466	0.24	0.23	0.373	1.26	---	29	21	7.19	14	2.9	NAG
K-12-183 158.1-158	K-12-183	158.1	158.6	Stantec	Wishart	Mine Rock		8.37	0.02	0.02	0.005	0.736	3.03	---	42	50.5	0.16	42	271	NAG
K-12-183 200-200.5	K-12-183	200	200.5	Stantec	Wishart	Mine Rock		9.73	0.059	0.04	0.02	0.076	0.29	---	9	4.8	0.63	4.2	7.7	NAG
K-12-183 230-230.5	K-12-183	230	230.5	Stantec	Wishart	Mine Rock		9.24	0.811	0.15	0.66	1.54	6.91	---	132	115.2	20.63	95	5.6	NAG
K-12-183 320-320.6	K-12-183	320	320.6	Stantec	Wishart	Ore		8.13	0.008	0.005	0.005	0.236	0.13	---	7.8	2.2	0.16	2.0	14	NAG
K-12-183 50-50.6	K-12-183	50	50.6	Stantec	Wishart	Mine Rock		9.13	0.0025	0.005	0.005	0.507	2.17	---	40	36.2	0.16	36	233.3	NAG
K-12-183 68.6-69.1	K-12-183	68.6	69.1	Stantec	Wishart	Mine Rock		9.1	0.0025	0.005	0.005	1.47	6.95	---	115	115.8	0.16	115	741.9	NAG
K-12-183 76.7-77.2	K-12-183	76.7	77.2	Stantec	Wishart	Mine Rock		9.15	0.337	0.07	0.27	1.08	3.11	---	17	51.8	8.44	8.6	2	Uncertain
K-12-183 80-80.5	K-12-183	80	80.5	Stantec	Wishart	Mine Rock		8.81	0.005	0.005	0.005	0.07	0.225	---	6.5	3.8	0.16	3.6	24.2	NAG
K-12-186-413.5	K-12-186	413.5	414	Okane	Wishart	Mine Rock	1	7	0.01	<0.01	0.01		<0.05		3		0.3	3	9.6	NAG



Appendix B

ABA Results and Classification for Mine Rock Samples

Sample ID	Core ID	From (m)	To (m)	Sample Set	Formation	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	Total C	CO ₃ -C	Graph. C	Modified Sobek NP	Carbonate NP	AP	NNP	NPR	Classification
Units								pH units	%	%	%	%	%	%	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	† CaCO ₃ /kt	ratio	
K-12-187-500.5	K-12-187	500.5	501	Okane	Wishart	Mine Rock	1	5.2	1.43	0.03	1.4		<0.05		0		44.7	-45	0	PAG
K-12-192-249.4	K-12-192	249.4	249.9	Okane	Wishart	Mine Rock	1	8.1	0.01	<0.01	0.01		<0.05		1		0.3	1	3.2	NAG
K-12-193-287.5	K-12-193	287.5	288	Okane	Wishart	Mine Rock	1	6.3	0.01	<0.01	0.01		<0.05		2		0.3	2	6.4	NAG
K-12-197-236.2	K-12-197	236.2	236.7	Okane	Wishart	Mine Rock	1	6.5	0.02	0.01	0.01		<0.05		2		0.6	1	3.2	NAG
K-12-199-128.5	K-12-199	128.5	129	Okane	Wishart	Mine Rock	1	6.6	<0.01	0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-12-199-131.5	K-12-199	131.5	132	Okane	Wishart	Mine Rock	1	6.8	<0.01	<0.01	<0.01		<0.05		1		<0.3	1	6.4	NAG
K-12-200 537.7-538	K-12-200	537.7	538.7	Stantec	Wishart	Mine Rock		7.93	0.059	0.03	0.03	0.056	0.135	---	14	2.3	0.94	1.4	2.4	NAG
K-12-200 545-545.5	K-12-200	545	545.5	Stantec	Wishart	Mine Rock		9.3	0.115	0.04	0.07	0.392	1.67	---	33	27.8	2.19	26	12.7	NAG
K-12-204-85.9	K-12-204	85.9	86.4	Okane	Wishart	Mine Rock	1	6.6	<0.01	0.01	<0.01		<0.05		2		<0.3	2	12.8	NAG
K-12-206-411.6	K-12-206	411.6	412.1	Okane	Wishart	Mine Rock	1	6.6	0.01	0.01	<0.01		<0.05		2		0.3	2	6.4	NAG
K-12-208-154.5	K-12-208	154.5	155	Okane	Wishart	Mine Rock	1	7	0.01	<0.01	0.01		<0.05		1		0.3	1	3.2	NAG
K-12-209-101.3	K-12-209	101.3	101.8	Okane	Wishart	Mine Rock	1	9.4	0.09	<0.01	0.09		0.17		16		2.8	13	5.69	NAG
K-12-211-33.8	K-12-211	33.8	34.3	Okane	Wishart	Mine Rock	1	8.2	0.04	<0.01	0.04		0.21		24		1.3	23	19.2	NAG
K-12-213-10.7	K-12-213	10.7	11.2	Okane	Wishart	Mine Rock	2	7.9	0.95	0.06	0.89		0.54		47		29.7	17	1.58	Uncertain
K163/12	K-11-163	543.8	544	Stantec	Wishart	Mine Rock		9.06	0.032	0.03	0.005	0.078	0.289	---	4	4.8	0.16	3.8	25.8	NAG
K20/11	K-08-20	227.2	227.5	Stantec	Wishart	Mine Rock		9.57	0.066	0.03	0.04	0.198	0.78	---	25.3	13	1.25	12	10.4	NAG
K20/13	K-08-20	417	417.7	Stantec	Wishart	Mine Rock		9.14	0.04	0.02	0.02	0.033	0.051	---	10.2	0.9	0.63	0.27	1.4	Uncertain
K24/10	K-08-24	284.4	284.8	Stantec	Wishart	Mine Rock		8.95	0.28	0.06	0.22	0.664	2.96	---	49.5	49.3	6.88	42	7.2	NAG
K24/11	K-08-24	296	296.4	Stantec	Wishart	Mine Rock		8.86	0.0025	0.005	0.005	0.07	0.271	---	4.9	4.5	0.16	4.3	29.1	NAG
K64/1	K-10-64	88.6	88.9	Stantec	Wishart	Mine Rock		8.34	0.0025	0.005	0.005	0.023	0.081	---	2.7	1.4	0.16	1.2	8.7	NAG
K64/2	K-10-64	149.5	150	Stantec	Wishart	Mine Rock		9.33	0.014	0.01	0.005	0.044	0.184	---	4.5	3.1	0.16	2.9	19.8	NAG
K64/3-208.7	K-10-64	208.7	209	Stantec	Wishart	Mine Rock		9.51	0.342	0.23	0.11	0.504	1.71	---	50	28.5	3.44	25	8.3	NAG
ROB-11-08 80'-85'	ROB-11-08	24.4	25.9	Stantec	Wishart	Mine Rock		8.22	0.058	0.03	0.03	0.238	0.06	---	8.3	1	0.94	0.06	1.1	Uncertain
Unknow (K163/11)	K-11-163	539.5	540	Stantec	Wishart	Mine Rock		7.98	0.0025	0.005	0.005	0.053	0.183	---	2.8	3.1	0.16	2.6	18.1	NAG



Appendix B

ABA Results and Classification for Tailings

Tailings Stream	Composite	Sample Set	Material Type	Fizz Rating	Paste pH	Total S	Sulphur-S (Acid Leachable)	Sulphide-S	CO3-C	Modified Sobek NP	AP	NNP	NPR	Classification
Units					pH units	%	%	%	%	† CaCO3/kt	† CaCO3/kt	† CaCO3/kt	ratio	
Gravity Flotation	Year 1-5	Okane	Tailings	1	8.3	0.05	0.03	0.02	0.26	14	1.6	12	8.96	NAG
	High RN	Okane	Tailings	1	8.2	0.05	0.02	0.03	0.31	14	1.6	12	8.96	NAG
	High RC	Okane	Tailings	1	8.5	0.12	0.04	0.08	0.37	22	3.8	18	5.87	NAG
Cobber	Year 1-5	Okane	Tailings	2	8.5	<0.01	0.02	<0.01	0.92	57	<0.3	57	364.8	NAG
	High RN	Okane	Tailings	2	8.5	<0.01	0.02	<0.01	0.71	40	<0.3	40	256	NAG
	High RC	Okane	Tailings	3	8.7	<0.01	<0.01	<0.01	2.2	134	<0.3	134	857.6	NAG
Finisher	Year 1-5	Okane	Tailings	2	8.6	<0.01	<0.01	<0.01	1.07	54	<0.3	54	345.6	NAG
	High RN	Okane	Tailings	2	8.5	<0.01	<0.01	<0.01	0.9	36	<0.3	36	230.4	NAG
	High RC	Okane	Tailings	2	8.5	<0.01	<0.01	<0.01	1.26	79	<0.3	79	505.6	NAG

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Borehole ID	From (m)	To (m)	Sample Set	Formation	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li
Units						ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm
5x Crustal Abundance						0.38	41.8	9	1950	10	0.041	23.3	0.8	332	145	610	15	340	31.1	95	7.5	14	1.2	9.2	173	90
LOD						0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05		0.01	0.05	0.05	0.1	0.005	0.01	0.5	0.2
K-10-55 80.6-81.6	K-10-55	80.6	81.6	Stantec	Denault	0.08		1.1	11	0.08	0.045		0.1		1.8	65		4								
K-10-55 99-100	K-10-55	99	100	Stantec	Denault	0.02		0.7	17	0.04	0.045		0.1		1.7	53		4.4								
K-10-61-34	K-10-61	34	34.5	Okane	Denault	<0.01	0.01	<0.2	10	0.08	0.02	17.05	0.15	1.04	3.3	2	<0.05	2	0.91	0.13	<0.05	<0.1	<0.005	<0.01	0.5	<0.2
K-11-166-251.1	K-11-166	251.1	251.6	Okane	Denault	<0.01	0.02	0.2	10	<0.05	0.01	21.1	0.09	0.62	1.5	<1	<0.05	1	1	0.08	<0.05	<0.1	<0.005	0.01	<0.5	1
K-11-166 259.5-260	K-11-166	259.5	260	Stantec	Denault	0.005		0.7	4.9	0.04	0.045		0.08		1.7	7.8		1								
K-11-166 281-281.5	K-11-166	281	281.5	Stantec	Denault	0.005		0.7	24	0.07	0.045		0.06		1.4	7.1		1.5								
K-11-166 299.3-299.5	K-11-166	299.3	299.5	Stantec	Denault	0.005		1.4	15	0.05	0.045		0.11		3.8	6.5		3.3								
K-11-108 88.3-88.8	K-11-108	88.3	88.8	Stantec	Katsao	0.09		0.25	220	0.3	0.045		0.01		0.6	120		3.3								
K-11-108-93.2	K-11-108	93.2	93.2	Okane	Katsao	0.06	7.87	0.9	470	1.92	0.05	1.6	0.04	27.3	15.6	73	2.74	30	3.16	20.8	0.14	0.8	0.028	2.54	12	32.1
K-11-108 99.3-99.7	K-11-108	99.3	99.7	Stantec	Katsao	0.18		0.25	300	0.97	0.045		0.14		17	170		9								
K-11-108 108.5-109	K-11-108	108.5	109	Stantec	Katsao	0.1		0.25	370	0.42	0.045		0.2		0.77	120		2								
K-11-108-118.2	K-11-108	118.2	118.7	Okane	Katsao	0.6	7.36	0.5	340	1.95	0.21	1.32	0.16	59.7	13.6	136	4.6	90.1	5.92	20.9	0.13	2.9	0.035	2.78	29.9	24.5
K-11-108 120.3-120.7	K-11-108	120.3	120.7	Stantec	Katsao	0.11		0.25	310	0.88	0.045		0.07		6.7	150		11.								
K-11-108 140.2-140.7	K-11-108	140.2	140.7	Stantec	Katsao	0.15		0.25	640	1	0.045		0.16		20	220		48								
K-11-108 151-151.5	K-11-108	151	151.5	Stantec	Katsao	0.07		0.25	470	0.63	0.045		0.04		1.5	90		9								
K-11-108 160-160.5	K-11-108	160	160.5	Stantec	Katsao	0.1		0.25	480	0.82	0.045		0.09		4.6	140		11.0								
K-11-108 170-170.5	K-11-108	170	170.5	Stantec	Katsao	0.24		0.25	340	0.93	0.045		0.08		11	180		38								
K-11-108 176.5-177	K-11-108	176.5	177	Stantec	Katsao	0.77		0.25	450	1	0.045		0.17		11	190		27								
K-11-108 190.1-190.7	K-11-108	190.1	190.7	Stantec	Katsao	0.08		0.25	340	0.6	0.045		0.04		1.1	130		1.5								
K-11-108 204-204.5	K-11-108	204	204.5	Stantec	Katsao	0.14		2.5	790	0.9	0.13		0.17		21	240		39.								
K-11-108 214-214.5	K-11-108	214	214.5	Stantec	Katsao	0.21		0.25	440	1	0.93		0.15		18	170		43								
K-11-108 225-225.5	K-11-108	225	225.5	Stantec	Katsao	0.14		0.25	820	1.4	0.045		0.04		20	190		49								
K-11-108-228.3	K-11-108	228.3	228.8	Okane	Katsao	0.31	9.02	0.4	900	3.17	0.33	3.85	0.11	89.6	21	46	2.73	183	4.12	25.8	0.17	0.4	0.062	1.86	37.5	25.3
K-11-112A-43.1	K-11-112A	43.1	43.6	Okane	Katsao	0.06	7.38	0.7	530	0.91	0.02	0.75	0.08	30.9	5.3	43	2.03	8.8	1.77	16.15	0.11	6.2	0.018	3.46	15.4	15.6
K-11-112A-71.4	K-11-112A	71.4	71.9	Okane	Katsao	0.14	7.94	1	570	2.36	0.02	1.24	0.05	44.2	22.9	114	5.68	81.5	3.05	20.1	0.12	2.7	0.043	3.93	21	32.4
K-11-112A-147.3	K-11-112A	147.3	147.8	Okane	Katsao	0.06	6.86	0.5	340	1	0.01	0.7	0.02	9.67	0.7	8	0.53	5.9	0.48	14.2	0.06	2.4	0.006	3.27	5.2	6.6
K-11-116 42-42.5	K-11-116	42	42.5	Stantec	Katsao	0.33		0.25	730	1.3	0.045		0.12		100	150		27								
K-11-116 48.2-51	K-11-116	48.2	51	Stantec	Katsao	0.38		0.25	740	1.7	0.045		2.3		14	200		57								
K-11-116 69-72	K-11-116	69	72	Stantec	Katsao	11		3.1	170	2	0.045		0.23		23	140		59								
K-11-116-78	K-11-116	78	78.5	Okane	Katsao	0.08	0.06	0.7	10	0.45	<0.01	0.03	0.02	1.84	3.1	4	<0.05	12.4	2.64	0.56	<0.05	<0.1	<0.005	0.01	0.8	2.5
K-08-11A-139.8	K-08-11A	139.8	140.4	Okane	Menihek	0.44	5.46	1.9	110	0.66	0.13	1.6	2.57	53	11	61	2.28	107	16.35	8.34	0.16	2.8	0.03	0.33	28.4	14
K-08-12-140.79	K-08-12	140.79	141.5	Okane	Menihek	0.13	8.54	1.6	830	1.81	0.01	3.15	2.45	63.8	9.9	86	1.76	3.3	17.1	10.85	0.17	4.9	0.053	0.73	32.2	13.8
K-08-17-135.8	K-08-17	135.8	136.3	Okane	Menihek	0.55	1.54	2.2	180	1.96	0.05	0.63	0.15	35.7	13	19	1.59	28	28.3	5.69	0.2	1.3	0.016	0.47	17.1	6.8
K-08-17-138	K-08-17	138	138.5	Okane	Menihek	0.65	5.96	34.6	330	3.48	0.33	0.83	1.08	128	19.1	91	9.74	164.0	6.21	17.35	0.18	5.1	0.073	2.25	64.7	30.9
K20/1	K-08-20	6	6.4	Stantec	Menihek	1.4		0.9	600	2.4	0.46		3.2		17	200		140.								
K20/2	K-08-20	84.5	85	Stantec	Menihek	1		1	780	2.3	0.53		3.6		15	160		120.0								
K20/3	K-08-20	103.7	104.5	Stantec	Menihek	2.3		17	450	2.4	1.3		2.6		24	170		260								
K20/5	K-08-20	135	135.4	Stantec	Menihek	0.84		0.6	690	2.2	0.27		2.2		14	160		85.0								
K20/6	K-08-20	139.1	139.7	Stantec	Menihek	2.1		5.4	290	1.3	0.57		1		14	200		140								
K20/7	K-08-20	162.4	162.9	Stantec	Menihek	0.35		1	590	1.3	0.23		0.2		39	120		50								
K20/9	K-08-20	174	174.5	Stantec	Menihek	0.04		5.6	23	0.28	0.045		0.08		2.5	120		2.3								
K20/14	K-08-20	426	426.5	Stantec	Menihek	0.11		0.25	410	1.6	0.045		0.08		3.6	180		1.7								
K24/3	K-08-24	64.1	64.4	Stantec	Menihek	0.61		0.25	680	2.6	0.29		1.6		9	170		75								
K24/4	K-08-24	127.8	128	Stantec	Menihek	0.38		0.25	750	2.5	0.21		0.78		9.6	170		71								
K24/5	K-08-24	192.6	192.8	Stantec	Menihek	0.89		0.25	700	2.3	0.55		4		12	170		120.								
K24/6-280 (K24/9)	K-08-24	230	230.4	Stantec	Menihek	2.2		49	510	2.9	0.7		1		16	160		150.								
K-10-26-253	K-10-26	253	253.6	Okane	Menihek	1.19	6.55	2	200	1.9	0.48	1.28	5.57	74.9	21.3	91	4.15	180.5	7.5	20.1	0.15	3.8	0.095	2.94	39.2	24.2
K-10-29 18.7-19.4	K-10-29	18.7	19.4	Stantec	Menihek	1.2		15	850	3	0.045		0.73		34	120		110.0								
K-10-29 37.2-38	K-10-29	37.2	38	Stantec	Menihek	1.2		20	650	1.7	0.39		0.68		13	150		74.								

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr	Hg
Units	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ug/g
5x Crustal Abundance	13.8	5300	6	11.4	100	495	5600	65	390	0.004	0.17	1	100	0.25	10.5	1920	8.5	0.025	40.5	3.2	3.6	11.5	680	6	155	380	810	
LOD	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1	1	0.1	0.1	2	0.5	
K-10-55 80.6-81.6		1100	0.4			4.2		0.84				0.4		0.8	0.25	35				7.4	0.01	0.22	0.5			12		0.025
K-10-55 99-100		870	0.3			3.4		1.5				0.4		0.35	0.25	44				13	0.01	0.19	0.5			14		0.025
K-10-61-34	10.6	929	0.1	<0.01	<0.1	2.4	460	0.6	0.2	<0.002	<0.01	<0.05	0.2	<1	<0.2	49.5	<0.05	<0.05	0.03	<0.005	<0.02	0.2	1	<0.1	2	5	<0.5	
K-11-166-251.1	12.55	919	0.18	<0.01	<0.1	0.7	20	<0.5	0.3	<0.002	0.01	<0.05	0.1	<1	<0.2	61.2	<0.05	<0.05	0.03	<0.005	<0.02	0.2	1	<0.1	0.5	3	<0.5	
K-11-166 259.5-260		920	0.05			2.1		0.27				0.4		0.9	0.6	53				8.1	0.01	0.28	1			4.7		0.025
K-11-166 281-281.5		450	0.05			2		0.26				0.4		1.2	0.25	58				18	0.01	0.14	1			6		0.025
K-11-166 299.3-299.5		1100	0.05			3.6		0.61				0.4		1.2	0.25	64				13	0.01	0.31	2			29		0.025
K-11-108 88.3-88.8		35	0.7			2.1		64				0.4		0.8	0.25	96				37	0.38	6.2	3			5.7		0.025
K-11-108-93.2	2.04	527	3.92	3.28	4.9	50.5	1120	12.4	95.3	<0.002	0.1	<0.05	12.1	4	1.7	388	0.32	<0.05	1.52	0.25	0.54	2.6	78	0.3	10.6	72	30.4	
K-11-108 99.3-99.7		400	1.7			47		11				0.4		0.35	0.7	170				2800	0.54	2.6	73			58		0.025
K-11-108 108.5-109		170	0.5			1.8		55				0.4		0.35	0.25	180				40	0.25	41	3			7.1		0.025
K-11-108-118.2	1.95	578	1.49	2.42	8.9	48.9	630	20.1	130.5	<0.002	2.02	<0.05	12.6	1	1.4	246	0.86	<0.05	9.92	0.305	1.07	3.5	93	0.3	29.6	67	100	
K-11-108 120.3-120.7		220	2.2			21		26				0.4		0.35	0.25	140				1900	0.56	28	38			27		0.025
K-11-108 140.2-140.7		490	2.4			62		16				0.4		0.35	0.25	270				3900	0.69	2.2	100			71		0.025
K-11-108 151-151.5		64	0.6			3.7		18				0.4		1.1	0.25	160				95	0.2	3	2			6		0.025
K-11-108 160-160.5		180	0.5			16		19				0.4		0.35	0.5	260				1400	0.46	2.2	29			27		0.025
K-11-108 170-170.5		230	0.4			47		16				0.4		0.35	0.8	190				1900	0.59	1.7	45			40		0.025
K-11-108 176.5-177		230	5.6			40		22				0.4		0.35	1.1	190				2700	0.69	15	60			57		0.025
K-11-108 190.1-190.7		61	0.8			3.6		28				0.4		1.1	0.25	160				390	0.45	4.4	4			6.8		0.025
K-11-108 204-204.5		500	1.7			73		17				0.4		0.35	0.25	250				3700	0.7	2.1	97			74		0.025
K-11-108 214-214.5		980	2.1			54		16				0.4		0.9	1	230				4000	1	1.6	92			93		0.025
K-11-108 225-225.5		290	1.4			68		9.5				0.4		0.35	0.9	280				3600	0.87	1.6	94			57		0.025
K-11-108-228.3	1.82	1340	0.2	3.69	10.3	34.8	1850	22	35.4	<0.002	0.09	<0.05	17.5	1	1.5	1280	0.35	<0.05	4.24	0.205	0.3	1.7	98	0.8	18.7	69	15.5	
K-11-112A-43.1	0.59	350	0.77	2.84	2.3	21.8	260	58	126.5	<0.002	0.02	<0.05	4.7	1	0.7	221	0.16	<0.05	17	0.079	0.64	52.2	26	0.4	28.8	28	129.5	
K-11-112A-71.4	2.52	282	2.41	1.92	5.5	97.6	880	6	123.5	0.004	0.4	<0.05	10.5	2	2.8	182	0.79	<0.05	4.06	0.289	0.92	3	81	0.7	10.2	45	97.6	
K-11-112A-147.3	0.14	57	0.19	3.17	0.8	1.4	150	36.3	87.5	<0.002	0.02	<0.05	0.6	1	0.5	195	0.06	<0.05	2.25	0.016	0.42	1.7	2	0.1	7.5	8	50.4	
K-11-116 42-42.5		2400	4.9			110		18				0.4		0.35	0.6	260				2200	1	5.8	49			45		0.025
K-11-116 48.2-51		200	0.9			62		17				0.4		0.35	1.2	84				2200	0.51	2.3	55			86		0.025
K-11-116 69-72		770	4.2			50		17				0.4		0.35	0.25	21				390	0.1	13	32			110		0.025
K-11-116-78	0.02	194	0.51	<0.01	0.1	3.5	160	2.6	0.6	<0.002	<0.01	<0.05	0.1	1	0.2	0.8	<0.05	<0.05	0.06	<0.005	0.02	2.5	13	0.7	2.6	19	0.7	
K-08-11A-139.8	1	2840	24.1	0.01	8.2	71.7	670	2.5	20.4	0.025	2.02	<0.05	7.9	4	0.8	4.7	0.4	0.18	8	0.184	0.36	14.2	354	1.3	37.2	136	108.5	
K-08-12-140.79	1.37	8780	16.9	0.05	6	30	640	3.5	35.8	0.007	0.52	0.05	24.6	<1	0.5	5.4	0.41	<0.05	8.34	0.184	0.33	13.8	369	3	98.9	329	182	
K-08-17-135.8	0.67	12700	4.88	0.44	3.7	16.8	380	9.2	22.4	0.007	0.35	0.12	2.9	<1	0.4	42.4	0.18	<0.05	3.38	0.061	0.21	2.9	54	6.4	16.4	35	53.4	
K-08-17-138	1.25	1300	37.5	0.94	9.5	103	1280	24.8	105.5	0.036	2.85	0.39	11.2	5	2.1	132	0.52	0.23	16.2	0.315	2.04	21.1	314	2.6	53.1	380	208	
K20/1		280	17			90		34				0.4		1.8	2.4	140				4100	1.8	11	200			340		-
K20/2		290	15			88		20				0.4		2.2	3.5	110				4500	2	9	230			400		-
K20/3		550	240			230		26				0.4		11	1.3	81				2700	1.3	93	1400			520		-
K20/5		1100	42			71		16				0.4		2.8	3.5	120				3900	2.1	23	310			440		-
K20/6		370	210			180		19				1.1		4.3	1.8	100				2200	1.2	62	710			270		-
K20/7		1300	2.8			48		12				0.4		0.7	2.1	230				23000	0.36	1	180			140		-
K20/9		1400	2.5			6.6		2.8				0.4		0.35	0.25	61				130	0.04	1.8	6			13		-
K20/14		770	1.1			5.5		9.4				0.4		0.35	0.6	46				960	0.21	0.92	12			11		-
K24/3		480	9.7			36		31				0.4		0.35	3.7	200				4600	1.3	9.4	230			260		-
K24/4		480	8.9			40		21				0.4		0.7	2.4	130				3600	0.79	7	110			110		-
K24/5		490	16			77		45				0.4		1.6	2.8	120				3400	1.9	7.3	170			310		-
K24/6-280 (K24/9)		1100	140			120		12				0.4		4.4	2.2	17				2900	0.81	58	820			160		-
K-10-26-253	1.45	899	86	0.98	11	152.5	1050	23	115.5	0.04	3.93	<0.05	12.8	7	2.6	110.5	0.67	0.35	9.75	0.311	1.68	38	678	7.5	43.5	617	151.5	
K-10-29 18.7-19.4		600	27			80		49				0.4		4.8	2.1	170				3100	0.96	21	360			340		0.025
K-10-29 37.2-38		460	76			99		24				0.4		2.5	3.9	60				3900	1.1	36	590			210		0.025

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Borehole ID	From (m)	To (m)	Sample Set	Formation	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li
Units						ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm
5x Crustal Abundance						0.38	41.8	9	1950	10	0.041	23.3	0.8	332	145	610	15	340	31.1	95	7.5	14	1.2	9.2	173	90
K-10-29 59-60	K-10-29	59	60	Stantec	Menihek	0.7		1.1	1000	2.8	0.38		0.98		11	170		99.0								
K-10-35 14-15	K-10-35	14	15	Stantec	Menihek	0.74		9.2	510	2.2	0.28		1.8		16	120		91.0								
K-10-35 25-26	K-10-35	25	26	Stantec	Menihek	0.22		0.25	670	2.1	0.045		1.2		34	71		45								
K-10-35 42.1-42.9	K-10-35	42.1	42.9	Stantec	Menihek	0.48		0.8	820	2.4	0.045		0.71		15	130		57								
K-10-35 50-50.8	K-10-35	50	50.8	Stantec	Menihek	0.85		16	1000	2.1	0.33		1.2		26	130		140.0								
K-10-38 21-21.6	K-10-38	21	21.6	Stantec	Menihek	0.48		0.25	240	2.2	0.17		0.99		52	450		140.								
K-10-38 59-60	K-10-38	59	60	Stantec	Menihek	0.34		0.25	260	1.9	0.045		0.85		29	240		69								
K-10-38 90-91	K-10-38	90	91	Stantec	Menihek	0.6		2.4	600	2	0.21		1.4		17	130		110								
K-10-38 105-106	K-10-38	105	106	Stantec	Menihek	2.1		21	500	1.5	1.6		6.9		51	130		250.0								
K-10-38 291-292	K-10-38	291	292	Stantec	Menihek	0.47		0.25	610	2.2	0.34		0.73		11	130		82								
K-10-38 305-306	K-10-38	305	306	Stantec	Menihek	0.81		4.4	700	1.8	0.56		0.69		25	130		170								
K-10-39A-445	K-10-39A	445	445.7	Okane	Menihek	0.21	6.76	1.8	990	4.74	0.05	1.68	0.64	71.5	8.7	106	7.14	29.5	12.2	18.85	0.16	4.5	0.051	3.2	36.1	36.4
K-10-48-384.5	K-10-48	384.5	385	Okane	Menihek	0.39	6.8	2.9	750	2.99	0.17	0.63	2.36	59.8	14.7	73	6.23	97.4	7.73	19.8	0.13	3.9	0.099	2.95	27.8	27.6
K-10-52 281-282	K-10-52	281	282	Stantec	Menihek	0.45		0.25	910	2.3	0.28		0.16		11	140		58.0								
K-10-52 305.5-306.5	K-10-52	305.5	306.5	Stantec	Menihek	0.45		0.25	410	3.1	0.045		1.2		10	140		42								
K-10-52-308.3	K-10-52	308.3	308.8	Okane	Menihek	0.14	7.79	0.8	690	2.53	0.16	1.02	0.66	88.5	18.2	97	7.87	59	4.94	21.3	0.13	3.1	0.074	3.11	42.3	41.7
K-10-53-77.8	K-10-53	77.8	78.4	Okane	Menihek	0.41	8.3	1.1	780	2.12	0.46	0.78	0.54	86.3	12.4	90	5.51	102.5	3.78	21.8	0.15	5.1	0.079	3.86	46.5	41.6
K-10-54-122.7	K-10-54	122.7	123.2	Okane	Menihek	0.44	4.53	8.6	400	2.78	0.19	0.76	0.32	103.5	19.1	62	4.81	91.8	10.75	13.3	0.18	3	0.054	1.72	51.6	21.8
K-10-54-125.7	K-10-54	125.7	126.2	Okane	Menihek	0.56	6.2	6.8	310	2.99	0.27	0.58	0.59	92.2	13.4	63	9.79	141.5	5.73	17.2	0.15	5	0.072	2.5	48.6	30
K-10-59-175.4	K-10-59	175.4	175.9	Okane	Menihek	0.12	1.54	76.4	190	2.15	0.06	0.38	0.69	31.3	9.9	27	1.68	24.6	27.1	5.09	0.18	1.1	0.02	0.57	15.5	6.9
K-10-61-258.7	K-10-61	258.7	259.2	Okane	Menihek	0.55	3.99	2.6	370	1.75	0.42	0.81	0.7	48.3	24.6	63	4.11	90.9	5.6	10.45	0.1	2.7	0.038	1.36	21.5	20.9
K-10-61-263.24	K-10-61	263.24	263.9	Okane	Menihek	0.07	0.12	0.9	30	1.27	0.06	4.22	0.3	11.75	7.4	13	0.07	11	24.8	1.45	0.12	0.1	0.012	0.02	4.5	1.6
K-10-61-323.5	K-10-61	323.5	324	Okane	Menihek	0.3	7.4	0.7	670	3.72	0.14	0.38	0.19	82.8	8.4	100	5.76	36.5	5.26	19.75	0.16	4.6	0.067	3.17	41.4	38.4
K66/4	K-10-66	184.7	185	Stantec	Menihek	0.75		2.1	720	4.3	0.59		0.45		17	210		150								
K66/8	K-10-66	372.4	372.8	Stantec	Menihek	0.86		110	290	1.7	0.97		0.44		27	230		120								
K66/9	K-10-66	419.1	419.5	Stantec	Menihek	0.26		1.1	330	1.2	0.045		0.54		38	190		64								
K66/7	K-10-66	424.6	424.9	Stantec	Menihek	0.45		0.25	360	1.8	0.3		0.27		10	170		50								
K66/10	K-10-66	457.5	457.9	Stantec	Menihek	0.41		1.9	570	2.1	0.43		0.79		19	250		99								
K66/11	K-10-66	486	486.5	Stantec	Menihek	0.58		0.8	430	1.6	0.28		1.4		12	200		120								
K-10-70-189	K-10-70	189	189.54	Okane	Menihek	0.42	7.89	1.9	810	2.92	0.35	1.05	0.33	91.1	18.1	100	7.47	110.5	5.37	22	0.17	5.2	0.091	3.33	45.6	24
K-10-83-658.8	K-10-83	658.8	659.3	Okane	Menihek	1.11	4.91	5.1	180	2.86	1.52	0.93	1.39	73.6	26.8	80	4.79	247	9.71	12.6	0.16	3.5	0.059	2.13	36.3	20.5
K-10-83-660.6	K-10-83	660.6	661.1	Okane	Menihek	0.96	5.23	2.4	230	4.11	1.1	1.85	1.46	70.1	24.6	76	4.71	263	8.28	13.65	0.16	3.7	0.07	2.6	34.9	20.9
K86B/1	K-10-86b	151.4	152	Stantec	Menihek	0.44		0.7	620	2.1	0.3		0.25		4.3	140		42								
K-11-133 105-106	K-11-133	105	106	Stantec	Menihek	0.31		1.4	570	1	0.83		0.2		11	120		9.6								
K-11-133 130-130.5	K-11-133	130	130.5	Stantec	Menihek	2.7		1	350	1.5	1.1		22		28	100		230								
K-11-133 159-159.5	K-11-133	159	159.5	Stantec	Menihek	0.03		1.5	9	0.06	0.045		0.12		2.3	120		9.2								
K-11-133 160-160.5	K-11-133	160	160.5	Stantec	Menihek	0.29		0.6	1100	1.8	0.15		0.17		10	160		57								
K140/1	K-11-140	13.9	14.2	Stantec	Menihek	0.84		1.2	840	1.9	0.42		1.4		14	140		130								
K140/2	K-11-140	41	41.4	Stantec	Menihek	0.68		0.25	760	2.7	0.35		1.1		10	150		49								
K140/3	K-11-140	74.8	75.1	Stantec	Menihek	0.51		0.25	500	2.1	0.39		2.7		6.8	210		53								
K140/4	K-11-140	101	101.3	Stantec	Menihek	0.43		0.9	890	2.5	0.31		0.74		8.9	130		47								
K140/5	K-11-140	128.4	128.8	Stantec	Menihek	0.99		0.25	630	2.3	0.47		21		13	180		120								
K140/6	K-11-140	150.7	151.1	Stantec	Menihek	0.43		0.25	750	2	0.31		0.55		9.1	190		71								
K140/7	K-11-140	205.5	206	Stantec	Menihek	0.18		2.4	450	1.5	0.045		1.1		33	120		48								
K-11-142-76.47	K-11-142	76.47	77	Okane	Menihek	0.08	0.12	6	20	0.91	0.07	4.27	0.64	9.73	6.6	7	0.07	11.5	21.6	1.44	0.19	0.1	0.019	0.01	3.9	1.4
K-11-145-159.4	K-11-145	159.4	159.9	Okane	Menihek	0.31	7.65	0.6	810	2.35	0.32	1.37	1.74	86.9	11.8	124	4.14	86.3	3.12	19.6	0.15	3.8	0.088	3.01	47.4	33.5
K152/1	K-11-152	58.3	58.6	Stantec	Menihek	0.73		0.25	570	2.1	0.33		2.2		17	190		84								
K-11-152-68	K-11-152	68	68.5	Okane	Menihek	1.09	5.63	5.1	60	1.63	0.4	2.2	1.58	71.4	34.1	73	3.45	150	11.05	17.5	0.18	1.9	0.102	1.79	36.3	32.1
K152/2	K-11-152	143.2	143.7	Stantec	Menihek	0.61		1.2	300	1.9	0.38		1.1		36	210		320.0								
K-11-158-50.5	K-11-158	50.5	51	Okane	Menihek	0.02	7.96	0.2	610	1.01	0.02	5.86	0.05	51.5	58.3	113	0.65	65	12.2	25.2	0.16	0.9	0.094	0.83	21.9	20.9

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr	Hg
Units	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ug/g
5x Crustal Abundance	13.8	5300	6	11.4	100	495	5600	65	390	0.004	0.17	1	100	0.25	10.5	1920	8.5	0.025	40.5	3.2	3.6	11.5	680	6	155	380	810	
K-10-29 59-60		750	51			85		23				0.4		2.8	2.8	82				3400	1.3	31	470			270		0.025
K-10-35 14-15		450	28			69		34				0.4		1.6	2.9	83				3200	1.1	14	230			340		0.025
K-10-35 25-26		1900	3.8			28		13				0.4		0.8	4.2	220				24000	0.57	2	240			290		0.025
K-10-35 42.1-42.9		670	13			54		25				0.4		2.1	2.2	170				3900	1.1	11	170			410		0.025
K-10-35 50-50.8		540	59			110		25				0.4		4.2	1.4	110				3600	1.2	30	470			210		0.025
K-10-38 21-21.6		1400	1.7			380		6.3				0.4		1.5	1.5	91				11000	0.95	3.5	210			210		0.025
K-10-38 59-60		1500	2.8			150		11				0.4		0.9	1.7	63				4600	0.77	4.6	160			180		0.025
K-10-38 90-91		1400	13			55		17				0.4		0.35	1.6	120				3000	1.1	12	190			230		0.025
K-10-38 105-106		1100	110			320		19				0.4		7.9	2.1	46				2700	0.9	48	580			460		0.025
K-10-38 291-292		1100	16			59		15				0.4		1.6	2.4	94				3600	1.2	12	210			250		0.025
K-10-38 305-306		390	52			110		10				0.4		5.9	2.6	43				4300	1.5	21	420			260		0.025
K-10-39A-445	1.71	3130	6.81	0.78	13.2	32.8	950	9.8	104	0.005	0.71	0.05	12	<1	2.1	73.4	0.9	<0.05	10.7	0.455	1.03	8.9	239	4.8	23.4	54	171.5	
K-10-48-384.5	1.88	2120	14.35	0.07	13	71.5	940	5.6	106	0.018	1.36	0.07	12.4	2	2.7	34.1	0.77	0.15	10.4	0.323	1.58	10.3	201	13.5	33.4	551	151.5	
K-10-52 281-282		180	9			40		11				0.4		0.35	2.7	35				4300	1.2	9.3	160			74		0.025
K-10-52 305.5-306.5		700	11			51		9.2				0.4		1	2.9	24				3600	1.8	11	140			270		0.025
K-10-52-308.3	1.99	1145	5.77	1.59	14.4	58.3	830	16.5	136.5	0.005	0.2	<0.05	15.4	1	2.6	99.6	0.99	0.05	15.3	0.387	1.42	6.6	137	2.7	26.6	249	120	
K-10-53-77.8	1.46	342	21	1.53	14.2	77.2	730	20	146	0.011	1.05	0.05	13.8	1	2.8	105	0.95	0.07	14.9	0.393	1.31	15.1	229	3	23.6	167	201	
K-10-54-122.7	0.81	2490	12.15	1.25	6.3	52.6	880	19.8	76.1	0.019	1.35	0.2	8.3	1	1.6	106.5	0.38	0.12	12.6	0.206	0.77	11.5	148	1.1	29.8	108	150.5	
K-10-54-125.7	1.1	850	20.8	0.82	10.4	77.8	930	25.4	111.5	0.032	2.62	0.36	10.6	4	2.5	110.5	0.64	0.18	14.1	0.275	2.4	16.1	258	3.3	36.7	305	186.5	
K-10-59-175.4	0.49	4800	3.34	0.31	4.1	16	240	6.7	26.7	0.003	0.33	<0.05	2.8	<1	0.7	17	0.22	0.05	2.72	0.061	0.28	2.4	41	1	10.8	69	45.4	
K-10-61-258.7	1.09	1350	16.2	0.77	9.6	40.9	1870	11.4	64.2	0.015	2.19	0.3	7.4	3	1.3	65.2	0.45	0.15	6.45	0.204	1.19	8.4	164	1.5	28.5	165	101.5	
K-10-61-263.24	1.26	4040	1.01	0.03	2.9	7.2	100	10	0.8	<0.002	0.27	0.06	0.2	1	0.2	90.8	0.1	<0.05	0.21	0.008	0.02	0.2	9	0.1	4.4	45	8.3	
K-10-61-323.5	1.93	478	9.66	0.3	13.5	42.4	770	8	131	0.008	0.15	0.1	14.1	1	2.4	30.7	0.91	<0.05	13.85	0.394	1.06	8.7	192	4.1	26	163	169	
K66/4		740	72			130		21				0.4		5.1	2.2	39				2700	1.3	28	380			120		-
K66/8		400	190			300		24				0.4		4.4	0.8	55				1400	0.82	75	890			34		-
K66/9		1000	2.9			62		6.7				0.4		0.35	1.6	94				9000	0.77	2.6	180			97		-
K66/7		110	5.2			38		6.6				0.4		0.35	1.6	67				3400	0.46	6.7	96			20		-
K66/10		740	23			94		17				0.4		1.2	2.4	110				4200	1.1	11	170			190		-
K66/11		810	36			81		12				0.4		2.4	3.6	49				2700	1	15	260			300		-
K-10-70-189	1.55	989	42.9	1.38	15.1	92.6	890	13.8	143.5	0.022	1.65	0.05	15	4	2.9	159	0.95	0.18	15.1	0.367	1.89	20.7	363	5.9	33	348	179.5	
K-10-83-658.8	1.14	1845	82.9	0.94	10.8	152.5	1230	17.2	93.3	0.043	4	<0.05	9.2	9	1.6	85.4	0.65	0.63	8.1	0.225	1.23	37.2	472	4	45	335	132.5	
K-10-83-660.6	1.2	1895	65.9	0.66	12.1	138	960	12.6	107.5	0.033	3.33	<0.05	10.3	8	1.7	62.2	0.7	0.7	8.31	0.259	1.32	23.5	309	6.3	39.1	350	143	
K86B/1		120	8.7			27		7.1				0.4		0.35	2.9	8.99				4300	1.4	12	180			95		-
K-11-133 105-106		390	1.9			28		5				0.4		0.9	1.6	100				3100	1.1	2.8	69			76		0.025
K-11-133 130-130.5		710	200			270		21				0.4		14	1.1	70				1900	1.4	61	800			1900		0.08
K-11-133 159-159.5		1500	1.1			6.3		3				0.4		0.35	0.25	40				79	0.01	1	3			14		0.025
K-11-133 160-160.5		250	7.8			45		14				0.4		0.35	2.5	87				4300	0.91	8.6	170			120		0.025
K140/1		1700	14			44		20				0.4		2	2.2	100				2400	0.9	7.2	270			92		-
K140/2		410	5.1			22		32				0.4		0.35	2.7	130				4400	1.2	7.4	80			110		-
K140/3		1100	5			22		28				0.4		0.35	3	220				2900	0.76	6.3	59			96		-
K140/4		310	4.4			26		28				0.4		0.35	3.1	130				3900	1.3	6.7	81			140		-
K140/5		440	10			58		34				0.4		1.8	2.5	84				3700	1	9.5	120			390		-
K140/6		470	7.1			40		18				0.4		1	3.1	110				3200	0.86	8.5	74			110		-
K140/7		1300	3.3			29		12				0.4		1	2	220				21000	1.3	1.6	170			230		-
K-11-142-76.47	1.87	3970	0.84	<0.01	1.1	6.8	70	3	0.4	0.003	0.56	0.16	0.5	1	0.3	58.4	<0.05	0.09	0.11	0.008	<0.02	0.6	16	0.3	5.3	115	5.7	
K-11-145-159.4	1.77	523	7.44	1.6	15.6	60.3	640	25.5	129.5	0.008	0.33	0.12	14.9	2	2.6	120.5	0.98	0.08	15.5	0.361	1	7.9	130	1.7	22.4	280	144.5	
K152/1		3100	9			47		28				0.4		1.8	2.6	61				5000	0.9	10	150			280		-
K-11-152-68	1.69	878	94.7	0.89	12.4	138.5	2630	18.4	71.1	0.043	5.78	0.26	18.4	4	1.8	121.5	0.72	0.25	5.5	1.035	0.85	30.6	711	2.9	49.6	319	72.2	
K152/2		2900	11			82		35				0.4		1.7	3.2	7.11				4100	0.16	70	170			66		-
K-11-158-50.5	3.47	2140	0.93	2.24	7.5	61.4	1740	0.9	21.1	<0.002	0.16	0.11	33.3	<1	1.3	254	0.41	<0.05	2.35	1.5	0.23	0.4	270	0.2	39.8	165	26.2	

Appendix B Elemental Digest Results for Mine Rock Samples

Sample ID	Borehole ID	From (m)	To (m)	Sample Set	Formation	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li
Units						ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm
5x Crustal Abundance						0.38	41.8	9	1950	10	0.041	23.3	0.8	332	145	610	15	340	31.1	95	7.5	14	1.2	9.2	173	90
K-11-158-57.6	K-11-158	57.6	60.1	Okane	Menihek	0.13	0.22	4.4	90	3.31	0.04	0.08	4.02	8.83	18.4	4	<0.05	33.2	42.3	1.06	0.31	0.1	0.006	0.01	6	0.8
K-11-161-181.5	K-11-161	181.5	182	Okane	Menihek	3.54	4.67	9.6	100	2.3	0.62	1.38	6.5	68.6	34	91	2.22	514	9.9	13.3	0.2	3.3	0.056	1.9	36.4	20.9
K-11-163-28.5	K-11-163	28.5	29	Okane	Menihek	0.01	0.08	0.2	40	2.68	0.02	1.53	<0.02	12.1	15.4	2	<0.05	1	36.3	1.44	0.77	0.2	0.006	0.01	4.3	9.4
K-11-163-41.4	K-11-163	41.4	41.9	Okane	Menihek	0.75	4.6	6.6	520	3.51	0.79	0.62	1.32	65.3	27.1	67	5.27	172	13.4	12.15	0.15	2.8	0.059	2.23	36.5	35.3
K-11-163-43	K-11-163	43	43.5	Okane	Menihek	0.04	0.1	0.3	40	1.5	0.04	2.14	0.1	7.48	9.5	4	0.17	5.3	28.8	1.48	0.13	0.1	0.006	0.01	2.6	4.9
K163/1	K-11-163	60.6	61	Stantec	Menihek	0.69		1.2	740	1.8	0.54		8.3		9.6	170		110								
K163/2	K-11-163	105	105.2	Stantec	Menihek	0.85		0.6	730	1.9	0.22		0.5		11	160		87								
K163/3	K-11-163	150	150.2	Stantec	Menihek	0.26		1.1	600	2.2	0.26		1.6		15	160		24								
K163/5	K-11-163	195.3	195.6	Stantec	Menihek	2.2		7.1	380	3.1	0.58		13		53	180		290								
K-11-166 23-24	K-11-166	23	24	Stantec	Menihek	0.46		0.25	710	2.1	0.25		0.39		11	150		80								
K-11-166 38.2-39	K-11-166	38.2	39	Stantec	Menihek	0.7		0.7	750	2.1	0.48		2		13	140		91								
K-11-166-54.8	K-11-166	54.8	55.3	Okane	Menihek	0.34	8.07	0.5	820	2.45	0.34	0.71	0.9	87.3	14.8	104	6.87	96.2	3.56	21.4	0.14	4.8	0.078	3.85	45.7	36
K-11-166 63.5-64.1	K-11-166	63.5	64.1	Stantec	Menihek	0.92		0.25	700	2.3	0.56		3.5		13	190		110								
K-11-166 92.3-93	K-11-166	92.3	93	Stantec	Menihek	1.5		0.6	810	3.2	1.8		0.5		29	120		180								
K-11-166-117.5	K-11-166	117.5	118	Okane	Menihek	0.52	2.1	4.3	140	1.97	0.49	4.8	0.22	30.4	15.1	47	2.38	99.6	12.7	6.64	0.11	1.7	0.025	0.61	14.8	18.8
K-11-166 120.2-121.2	K-11-166	120.2	121.2	Stantec	Menihek	0.86		2.2	590	3	0.31		1		11	110		100								
K-11-168-291.5	K-11-168	291.5	292	Okane	Menihek	0.7	8.24	5.1	750	2.66	0.49	0.46	3.32	84.6	13.3	93	5.03	107	4.04	22.2	0.14	3.6	0.078	3.51	44.1	36.5
K-11-170 30-30.5	K-11-170	30	30.5	Stantec	Menihek	0.49		4.2	780	2.5	0.13		9.7		24	140		51								
K-11-170 36.7-37.2	K-11-170	36.7	37.2	Stantec	Menihek	0.52		1.1	540	0.58	0.13		4.9		11	320		30								
K-11-170 45.5-46	K-11-170	45.5	46	Stantec	Menihek	1.4		1.2	370	0.84	0.98		2.4		37	280		320								
K-11-170 59.1-59.6	K-11-170	59.1	59.6	Stantec	Menihek	0.72		1.2	740	2.2	0.46		1.6		15	130		120								
K-11-170 75.1-75.7	K-11-170	75.1	75.7	Stantec	Menihek	0.44		8.3	300	1.4	0.25		1.4		8.3	280		85								
K-11-170 82.4-83	K-11-170	82.4	83	Stantec	Menihek	0.35		0.25	950	3.2	0.11		0.33		20	130		88								
K-11-171 11-11.4	K-11-171	11	11.4	Stantec	Menihek	0.63		0.25	770	2.2	0.29		0.46		23	120		90								
K-11-171 11.8-12.4	K-11-171	11.8	12.4	Stantec	Menihek	0.21		1.1	820	1	0.12		1.5		25	130		40								
K-11-171 20-20.5	K-11-171	20	20.5	Stantec	Menihek	0.15		1.1	730	1.4	0.045		0.58		34	100		26								
K-11-171 25.2-25.8	K-11-171	25.2	25.8	Stantec	Menihek	0.87		13	520	2.4	0.26		1.6		21	120		120								
K-11-171 26.5-27	K-11-171	26.5	27	Stantec	Menihek	1.1		1	660	2.3	0.29		36		18	120		120								
K-11-171 44-44.6	K-11-171	44	44.6	Stantec	Menihek	0.61		36	23	0.18	0.045		2.1		3	170		31								
K-11-171 46.5-47	K-11-171	46.5	47	Stantec	Menihek	0.41		3.1	550	2.2	0.19		1.9		19	120		79								
K-11-171 48-48.5	K-11-171	48	48.5	Stantec	Menihek	1		1.9	770	1.9	0.4		12		35	110		250								
K-11-171 69.9-70.4	K-11-171	69.9	70.4	Stantec	Menihek	0.42		0.25	780	1.6	0.16		2		14	120		87								
K-11-171 74-74.5	K-11-171	74	74.5	Stantec	Menihek	0.43		0.9	720	1.7	0.12		0.98		15	140		57								
K-11-171 90-90.4	K-11-171	90	90.4	Stantec	Menihek	0.87		3.9	1000	2.1	0.52		0.31		11	130		100.0								
K-11-171 94-94.5	K-11-171	94	94.5	Stantec	Menihek	0.74		4.9	110	1.5	0.17		0.34		10	140		84								
K-12-173-197.5	K-12-173	197.5	198	Okane	Menihek	0.19	5.94	4	540	2.31	0.15	0.91	0.92	91.4	15.7	72	5.54	51.9	9.49	15.2	0.14	2.6	0.066	2.28	44	36.8
K-12-173-199.7	K-12-173	199.7	200.2	Okane	Menihek	0.02	0.46	1.8	20	1.18	0.01	0.78	1.13	9.3	12.4	3	1.31	14.8	28.1	2.14	0.12	0.2	0.007	0.05	3.2	2.9
K-12-175-16.9	K-12-175	16.9	17.4	Okane	Menihek	1.07	1.2	2.5	120	2.79	0.04	0.27	0.38	15.4	12.4	19	0.73	35.8	26.9	3.84	0.14	0.6	0.017	0.4	6.7	5.4
K-12-175-20.3	K-12-175	20.3	20.8	Okane	Menihek	0.43	0.64	80.3	40	1.88	0.16	0.13	0.45	8.6	5.9	21	1.23	48.9	14.85	2.12	0.08	0.3	0.018	0.14	6.8	2.8
K-12-175-86.6	K-12-175	86.6	87.1	Okane	Menihek	0.48	0.45	2.2	30	0.7	0.22	2.05	1.09	16.3	17.9	9	0.41	64.3	24.8	3.39	0.11	0.5	0.031	0.07	6.3	2.6
K-12-187-74	K-12-187	74	74.5	Okane	Menihek	0.84	7.88	1	630	2.58	0.56	1.18	2.73	93.6	15.6	98	6.26	138.5	4.26	22.3	0.16	3.5	0.094	2.71	47.6	40.2
K-12-194-85	K-12-194	85	85.5	Okane	Menihek	0.1	8.46	<0.2	790	2.4	0.04	0.77	0.39	76	19.7	104	7.98	29	5.88	23.3	0.16	3.9	0.073	3.41	36.6	51.1
K-12-194-122.4	K-12-194	122.4	122.9	Okane	Menihek	0.5	5.15	4.6	520	1.61	0.15	4.32	0.44	56.4	13.4	65	4.09	71.7	5.85	13.8	0.14	2.8	0.074	2.49	27.9	28.3
K-12-194-214.1	K-12-194	214.1	214.6	Okane	Menihek	0.14	0.22	1.6	20	0.34	0.13	0.06	1.48	4.36	7.1	22	0.2	24.6	8.03	1.27	0.11	0.1	0.01	0.04	2	1.6
K-12-200 65-65.5	K-12-200	65	65.5	Stantec	Menihek	0.3		0.25	630	1.6	0.045		0.5		13	160		28.0								
K-12-200 89.9-90.4	K-12-200	89.9	90.4	Stantec	Menihek	0.62		3	510	1.8	0.45		1.7		41	130		97								
K-12-200 110-110.5	K-12-200	110	110.5	Stantec	Menihek	0.28		0.25	780	2.1	0.1		0.38		8.7	170		33								
K-12-200 130-130.5	K-12-200	130	130.5	Stantec	Menihek	0.45		0.25	690	2.6	0.26		0.7		12	170		80								
K-12-206-58.4	K-12-206	58.4	58.9	Okane	Menihek	0.02	0.15	1.9	30	0.42	0.01	4.02	0.19	3.41	3.3	7	0.37	4.2	21.3	0.7	0.16	0.1	0.009	0.02	1.4	2.1
K-12-209-219.3	K-12-209	219.3	219.8	Okane	Menihek	0.01	0.1	9.6	20	1.75	0.01	3.39	0.93	11	12.4	5	0.09	2.9	29	2.26	0.21	0.1	0.006	0.01	4.5	1.2

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr	Hg
Units	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ug/g
5x Crustal Abundance	13.8	5300	6	11.4	100	495	5600	65	390	0.004	0.17	1	100	0.25	10.5	1920	8.5	0.025	40.5	3.2	3.6	11.5	680	6	155	380	810	
K-11-158-57.6	0.03	823	3.73	0.01	1.4	68.7	5480	7.9	0.3	<0.002	0.01	0.1	0.5	<1	<0.2	4.4	0.05	<0.05	0.13	0.007	0.2	5	18	0.9	19.1	426	6.6	
K-11-161-181.5	1.2	1125	136.5	0.25	11	215	1120	111	70.3	0.068	7.15	2.46	10.6	14	1.9	39	0.58	0.43	9.36	0.234	1.63	53.4	1270	15.2	51.6	927	136.5	
K-11-163-28.5	1.21	9550	0.39	0.42	3	3.1	140	4.8	0.4	<0.002	0.01	0.41	0.3	<1	<0.2	19.2	0.11	<0.05	0.22	0.006	<0.02	0.1	9	2.5	8.4	16	9.4	
K-11-163-41.4	1.52	3360	85.5	0.52	9.1	138.5	1040	15.6	87.7	0.046	2.37	0.21	8.7	4	1.8	51.4	0.57	0.26	6.25	0.229	1.08	32.9	596	3.8	40.2	315	109	
K-11-163-43	0.66	4460	0.5	0.17	3	9.1	100	3.6	0.9	<0.002	0.11	0.25	0.2	<1	<0.2	22.5	0.1	<0.05	0.19	0.005	<0.02	0.2	8	0.3	4	36	9.4	
K163/1		250	16			84		15				0.4		1.3	3.7	46				3900	1.5	7.6	210				510	-
K163/2		530	22			63		12				0.4		0.35	2.8	77				3900	1.4	10	160				170	-
K163/3		900	1.3			40		31				0.4		0.35	3	190				3900	1.4	3.9	75				170	-
K163/5		420	200			170		74				3.8		12	2.3	26				2100	2	78	1190				1390	-
K-11-166 23-24		290	6.6			45		13				0.4		0.35	2.8	37				3900	1.2	7.8	130				84	0.025
K-11-166 38.2-39		510	11			67		34				0.4		1.1	2.9	85				4000	1.7	8.2	160				280	0.025
K-11-166-54.8	1.64	389	9.19	1.19	15	57.4	740	19.5	158	0.006	0.58	0.07	16.7	2	2.7	83	1.04	0.08	15.8	0.412	1.56	9	169	3.2	18.6	179	169	
K-11-166 63.5-64.1		300	16			72		45				0.4		1.4	2.5	110				3700	2	7.3	170				370	0.025
K-11-166 92.3-93		800	240			210		20				0.4		8.9	1.3	11				1900	0.89	81	1200				120	0.025
K-11-166-117.5	1.53	2320	73.8	0.03	11.1	100.5	850	7.3	36.1	0.033	2.91	0.13	4.6	4	0.8	26.9	0.62	0.26	3.79	0.161	0.76	27.7	396	2.5	22.8	85	69.1	
K-11-166 120.2-121.2		1000	77			83		13				0.4		1.9	2.1	27				2500	1.3	30	440				260	0.025
K-11-168-291.5	1.59	543	13.7	1.38	12.2	78.8	750	41.2	141.5	0.011	1.12	0.06	15.8	1	2.8	84.1	0.81	0.08	17.05	0.375	1.68	8.9	201	2.6	18.8	476	138	
K-11-170 30-30.5		1100	9.2			64		30				0.4		1.5	2.6	97				7000	2	23	180				510	0.025
K-11-170 36.7-37.2		3500	37			39		7				0.4		1.6	1.6	7.4				9500	1.8	27	270				500	0.025
K-11-170 45.5-46		1000	110			160		10				0.4		10	1.7	24				2100	0.92	32	340				300	0.025
K-11-170 59.1-59.6		2300	53			78		14				0.4		3.1	2.5	86				3300	1.1	26	390				360	0.025
K-11-170 75.1-75.7		280	47			94		7.2				0.4		1.4	0.9	12				800	0.3	20	230				320	0.09
K-11-170 82.4-83		370	11			41		19				0.4		0.35	1.7	150				4800	1.3	10	170				120	0.025
K-11-171 11-11.4		340	35			87		27				0.4		2	1.2	170				3500	0.98	16	250				200	0.025
K-11-171 11.8-12.4		2700	3.4			55		14				0.4		1	2.5	250				13000	1.7	1.7	150				320	0.025
K-11-171 20-20.5		1300	3.5			45		14				0.4		0.35	2.2	210				18000	0.54	4.8	240				200	0.025
K-11-171 25.2-25.8		990	20			88		33				0.4		4.2	1.7	110				4200	1.4	19	310				490	0.025
K-11-171 26.5-27		350	41			92		33				0.4		3.8	1.6	110				3200	1.4	22	360				1300	0.025
K-11-171 44-44.6		33	36			51		8.2				2.6		1.6	0.25	3.07				130	0.07	13	160				300	0.31
K-11-171 46.5-47		1500	6.8			45		12				0.4		2	1.5	110				3400	1.3	9.7	160				440	0.025
K-11-171 48-48.5		730	73			120		16				0.4		5	2.3	43				3300	1.5	27	320				1100	0.1
K-11-171 69.9-70.4		880	32			64		13				0.4		1.6	2.9	41				3500	1.5	13	230				480	0.025
K-11-171 74-74.5		2500	18			53		12				0.4		1.7	2.5	29				4000	1.7	13	190				250	0.025
K-11-171 90-90.4		930	51			100		37				0.4		5	4.1	37				3700	1.5	47	630				87	0.025
K-11-171 94-94.5		200	73			83		8.1				0.4		1.7	0.8	6				810	0.41	24	300				41	0.025
K-12-173-197.5	1.64	2060	3.34	1.22	11.4	42.6	710	18.2	101	0.005	0.41	0.09	11.6	<1	2.2	85.8	0.78	0.05	12.1	0.292	1.2	13.4	96	2.4	28.5	248	97.4	
K-12-173-199.7	0.5	4190	0.84	0.03	3	15.2	170	6.9	5.7	<0.002	0.19	0.11	1.4	<1	0.3	12.8	0.14	<0.05	0.42	0.022	0.07	4.8	17	0.2	5.6	64	11.8	
K-12-175-16.9	0.35	442	2.1	0.21	2.8	31.5	520	6.3	19.2	<0.002	0.08	0.09	2.1	<1	0.5	31.8	0.15	<0.05	1.76	0.059	0.15	10.4	30	5.2	8.3	143	19.6	
K-12-175-20.3	0.12	314	2.67	0.01	1.9	24.9	560	6.1	7.2	<0.002	0.18	0.06	1.2	<1	0.4	2.2	0.11	<0.05	0.97	0.03	0.16	3	74	0.9	11.6	106	14.3	
K-12-175-86.6	1.09	7090	7.82	0.02	6.3	27.4	210	3	4.7	0.003	2.05	0.16	0.8	1	0.5	139	0.2	0.22	0.99	0.018	0.06	0.8	21	0.9	7.8	179	24.9	
K-12-187-74	1.56	478	11.05	1.81	6.9	84.1	740	36.3	131	0.008	1.16	0.07	16.8	2	2.4	171	0.33	0.09	16.05	0.322	1.47	7	187	1.4	22.5	410	138	
K-12-194-85	1.91	860	1.05	1.73	12.9	59.8	860	13.5	135.5	0.003	0.18	0.06	19.4	<1	2.1	100.5	0.78	<0.05	9.95	0.453	1.17	3.8	143	1.5	22.2	236	155.5	
K-12-194-122.4	2.82	1025	6.14	0.65	9.4	38.6	1130	9.8	98.5	0.006	1.02	0.1	12.2	<1	1.9	95.3	0.6	0.06	9.44	0.411	0.97	8.2	152	2.7	18.1	183	119	
K-12-194-214.1	0.12	200	3.38	0.01	1.1	16.4	310	10.7	3	0.006	0.58	<0.05	0.6	17	<0.2	1.5	<0.05	0.06	0.29	0.012	0.08	2	20	0.5	2.6	36	8.1	
K-12-200 65-65.5		500	1.2			46		20				0.4		0.35	1.9	140				4500	1.3	3.7	110				160	0.025
K-12-200 89.9-90.4		1400	25			90		17				0.4		2.4	2.4	140				12000	0.88	12	250				290	0.025
K-12-200 110-110.5		260	11			47		17																				

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Borehole ID	From (m)	To (m)	Sample Set	Formation	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li
Units						ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm
5x Crustal Abundance						0.38	41.8	9	1950	10	0.041	23.3	0.8	332	145	610	15	340	31.1	95	7.5	14	1.2	9.2	173	90
K-12-213-113.9	K-12-213	113.9	114.9	Okane	Menihek	0.01	0.22	1.3	20	1.16	0.02	2.93	0.33	11.2	7	3	0.53	1.6	26.3	1.56	0.21	0.2	0.008	0.05	3.6	4.2
K-12-213-135.2	K-12-213	135.2	135.7	Okane	Menihek	0.47	8.63	1.6	790	2.67	0.37	1.14	1.58	92.2	16	106	6.92	124.5	4.4	22.7	0.17	3.2	0.078	3.28	47.4	42.3
K-10-32-13.7	K-10-32	13.7	14.2	Okane	Overburden	0.08	8.07	<0.2	880	1.84	0.01	2.94	0.1	60.3	16	126	1.15	17.0	4.08	20.2	0.11	2.3	0.048	1.85	27.3	17.8
K-10-58-17.5	K-10-58	17.5	18.06	Okane	Overburden	0.04	1.31	1.5	100	0.46	0.03	0.33	0.02	14.1	4	30	0.44	3.8	0.9	3.3	<0.05	0.7	0.009	0.56	6.8	3.7
K-10-78-29.9	K-10-78	29.9	30.4	Okane	Overburden	0.03	0.12	0.6	30	0.65	0.01	0.05	0.08	7.03	6.9	10	<0.05	4.8	31.3	0.89	0.16	<0.1	<0.005	0.01	3.6	0.4
K-11-108-87.6	K-11-108	87.6	88.1	Okane	Overburden	0.06	8.2	0.4	580	0.57	0.03	0.66	0.02	16.05	2.2	8	0.86	6.7	1.17	13.7	0.06	0.8	0.01	6.29	8.4	5.2
K-12-185-59.1	K-12-185	59.1	59.6	Okane	Overburden	0.04	6.51	0.4	210	0.61	0.02	1	<0.02	22.3	1.3	7	0.92	2.9	0.81	13.5	0.08	1.1	0.011	3	10.4	12.3
K-12-185-62.2	K-12-185	62.2	62.7	Okane	Overburden	0.07	0.17	2.5	20	0.42	0.02	3.48	0.08	6.19	5.8	13	0.12	5.4	24.9	1.09	0.16	0.1	<0.005	0.04	2	2.4
K-12-185-66.3	K-12-185	66.3	66.8	Okane	Overburden	0.2	7.11	0.5	390	1.74	0.22	1.18	0.09	87.1	25.5	133	3.21	78.9	5.32	19.45	0.11	5.8	0.056	1.99	43.5	42.2
ROB-11-01A 12	ROB-11-01A	8.2	8.8	Stantec	Overburden	0.24		0.8	660	1	0.045		0.13		6.5	160		9								
ROB-11-01A 24	ROB-11-01A	17.4	18	Stantec	Overburden	0.09		6.1	560	1.1	0.045		0.14		9.4	110		13.0								
ROB-11-01A 43	ROB-11-01A	32.1	32.7	Stantec	Overburden	0.04		2.3	440	1.1	0.045		0.2		9.2	110		15								
ROB-11-08A 5	ROB-11-08A	4.6	5.2	Stantec	Overburden	0.09		1.3	690	1.1	0.045		0.2		7.7	120		12								
ROB-11-08A 11	ROB-11-08A	9.1	9.8	Stantec	Overburden	0.05		0.25	670	1.1	0.045		0.11		9	140		12								
ROB-11-08A 13	ROB-11-08A	10.2	11.3	Stantec	Overburden	0.005		1.4	650	1.1	0.045		0.09		6.3	120		8.9								
ROB-11-08A 16	ROB-11-08A	12.8	13.4	Stantec	Overburden	0.005		0.6	590	1.1	0.045		0.1		9.7	150		11								
ROB-11-08A 21	ROB-11-08A	17.4	17.9	Stantec	Overburden	0.005		0.25	640	1.2	0.045		0.08		8.3	170		12								
ROB-11-08A 22	ROB-11-08A	18.2	18.5	Stantec	Overburden	0.03		0.7	630	1.1	0.045		0.13		8.1	150		9.9								
ROB-11-08A 25	ROB-11-08A	21.3	21.4	Stantec	Overburden	0.9		0.8	580	1.1	0.045		0.12		11	160		19								
ROB-11-09 18	ROB-11-09	16.7	17.4	Stantec	Overburden	0.87		0.25	670	1.4	0.045		0.09		8.6	190		15								
ROB-11-09 20	ROB-11-09	20	20.1	Stantec	Overburden	0.32		2.2	700	0.92	0.045		0.13		7.2	130		11								
ROB-11-09 21	ROB-11-09	21.3	21.7	Stantec	Overburden	8.3		0.6	580	1.1	0.045		0.12		19	180		34								
ROB-11-10 2	ROB-11-10	0.6	1.2	Stantec	Overburden	0.47		2.7	740	1.1	0.045		0.13		7.4	120		13								
ROB-11-10 3	ROB-11-10	15	2.1	Stantec	Overburden	0.15		5	720	1.1	0.045		0.14		6.7	120		13								
ROB-11-11 2	ROB-11-11	0.6	1.2	Stantec	Overburden	0.09		0.25	500	1.1	0.045		0.17		8.5	150		7								
ROB-11-12 2	ROB-11-12	0.6	0.9	Stantec	Overburden	0.005		0.9	640	1.3	0.045		0.09		9.2	220		9.6								
ROB-11-12 4	ROB-11-12	3	3.7	Stantec	Overburden	0.11		0.25	1050	0.83	0.045		0.07		4.3	150		7								
ROB-11-16 4	ROB-11-16	2.1	2.7	Stantec	Overburden	1		0.25	640	1.1	0.045		0.13		7.7	160		14								
ROB-11-17 9	ROB-11-17	6.7	7.4	Stantec	Overburden	0.31		0.25	750	2.4	0.58		0.12		9.8	88		10								
ROB-11-17 17	ROB-11-17	12.8	13.4	Stantec	Overburden	0.25		0.6	670	1.2	0.045		0.1		8.7	94		13								
ROB-11-17 29	ROB-11-17	21.9	22.5	Stantec	Overburden	0.15		0.25	690	1.1	0.045		0.13		9.7	97		18								
ROB-11-17 35	ROB-11-17	27.4	28	Stantec	Overburden	0.33		0.25	710	1.2	0.045		0.11		9	87		12								
ROB-11-17 37	ROB-11-17	29	29.6	Stantec	Overburden	0.1		0.5	610	0.96	0.045		0.12		8.7	95		12								
ROB-11-18 8	ROB-11-18	5.2	5.8	Stantec	Overburden	0.09		0.25	660	1	0.045		0.15		6	82		9.3								
ROB-11-18 24	ROB-11-18	22.4	22.6	Stantec	Overburden	0.31		1.1	440	1	0.045		0.1		9.4	89		15								
ROB-11-18 15	ROB-11-18	113	11.9	Stantec	Overburden	0.09		0.25	660	1.1	0.045		0.18		6.1	79		16								
K-08-10-228.46	K-08-10	228.46	229.1	Okane	Sokoman	0.21	7.69	2.4	700	2.49	0.17	2.52	0.86	98.3	30.6	88	4.19	77	8.98	22.4	0.16	3.2	0.087	1.92	46.5	35.8
K-08-11A-27	K-08-11A	27	28	Okane	Sokoman	0.4	3.32	4.4	360	1.65	0.02	1.7	0.09	36.7	15.2	44	0.55	17.2	20.3	8.37	0.17	0.9	0.018	0.91	18.1	8.2
K-08-17-131	K-08-17	131	131.6	Okane	Sokoman	0.42	7.96	1.9	660	2.74	0.41	0.62	1.59	102	18.9	102	7.01	93	5.73	21.7	0.15	2.9	0.076	3.04	50.4	43
K-08-18 84.8-86	K-08-18	84.8	86	Stantec	Sokoman	0.03		2.9	5.1	0.5	0.045		0.09		5.1	61		33								
K-08-18 110-112.2	K-08-18	110	112.2	Stantec	Sokoman	0.005		0.8	66	1	0.045		0.02		7.9	93		2.1								
K-08-18 130-131	K-08-18	130	131	Stantec	Sokoman	0.02		1.2	40	0.81	0.045		0.02		14	61		3.8								
K-08-18 231.8-233	K-08-18	231.8	233	Stantec	Sokoman	0.005		4.5	13	0.61	0.045		0.01		7.3	74		4.5								
K20/4	K-08-20	113.2	113.5	Stantec	Sokoman	0.25		1	230	0.35	0.045		3.2		4.5	260		2.6								
K20/8	K-08-20	169.3	169.6	Stantec	Sokoman	0.09		120	3.9	0.42	0.045		0.06		3.9	220		3.6								
K20/10	K-08-20	213	213.5	Stantec	Sokoman	0.09		2.2	2.4	0.42	0.045		0.01		16	120		0.6								
K20/12	K-08-20	412	412.6	Stantec	Sokoman	0.21		0.25	41	0.27	0.13		0.03		10	200		50								
K24/1	K-08-24	23	23.5	Stantec	Sokoman	0.09		0.6	240	0.65	0.045		0.41		5.1	13		3.2								
K24/2	K-08-24	40.7	41	Stantec	Sokoman	0.06		0.25	29	0.26	0.045		0.06		3.8	130		1.2								
K24/6-206.5 (K24/6)	K-08-24	206.5	207	Stantec	Sokoman	0.02		1.5	39	1.1	0.045		0.06		4.4	140		1								

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr	Hg
Units	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ug/g
5x Crustal Abundance	13.8	5300	6	11.4	100	495	5600	65	390	0.004	0.17	1	100	0.25	10.5	1920	8.5	0.025	40.5	3.2	3.6	11.5	680	6	155	380	810	
K-12-213-113.9	2.31	4000	0.3	0.02	5.1	0.9	80	3.6	2.7	<0.002	0.02	0.07	0.2	<1	0.3	46.4	0.27	<0.05	0.48	0.006	0.08	0.2	7	0.2	3.6	15	13.4	
K-12-213-135.2	1.71	485	13.5	1.74	9.4	85.9	840	22.9	147.5	0.011	0.95	<0.05	17.1	1	2.6	89.2	0.54	0.07	17.7	0.388	1.5	7.2	227	2.1	21.7	376	121.5	
K-10-32-13.7	1.73	564	1.09	2.96	5.3	44.5	1030	13.6	75.1	<0.002	0.08	<0.05	16.9	<1	1.2	613	0.42	<0.05	6.01	0.325	0.47	2.4	88	0.2	17.4	73	86.7	
K-10-58-17.5	0.26	251	0.4	0.26	1	6.6	150	2.1	19	<0.002	0.01	0.06	2.5	<1	0.2	46	0.07	0.05	2.04	0.045	0.09	0.4	16	0.4	3	9	28.1	
K-10-78-29.9	0.12	2320	1.09	<0.01	2.5	2	40	0.8	0.3	<0.002	<0.01	0.07	0.1	1	0.3	1.8	0.13	<0.05	0.28	<0.005	<0.02	0.3	5	0.4	5.5	16	2.3	
K-11-108-87.6	0.27	219	0.3	2.55	0.9	3	260	66.6	99.5	<0.002	0.01	<0.05	2.5	1	0.3	251	0.09	<0.05	5.1	0.075	0.54	2.6	14	0.3	5.5	21	20.6	
K-12-185-59.1	0.29	115	0.23	2.71	3	1	160	48.4	121	<0.002	0.01	<0.05	1.4	<1	0.6	113.5	0.12	<0.05	22.3	0.034	0.63	43.8	2	0.2	19	13	28.4	
K-12-185-62.2	1.2	3730	0.7	0.03	2.7	2.7	70	1.5	1.6	<0.002	0.04	0.05	0.3	1	<0.2	36.9	0.13	0.05	0.33	0.006	0.02	0.2	6	0.7	3.4	<2	4.9	
K-12-185-66.3	2.56	583	5.32	2.74	7.6	102	970	6.4	70.3	0.008	1.19	0.11	15.6	2	1.4	89.7	0.45	0.09	12.6	0.392	0.54	7	136	0.8	20.6	46	214	
ROB-11-01A 12		410	1.3			16		13				0.4		0.35	1	390				1700	0.32	0.68	43			25		0.025
ROB-11-01A 24		720	1.2			20		11				0.4		0.35	0.7	350				2100	0.29	0.99	44			40		0.025
ROB-11-01A 43		1900	2.3			20		8.5				0.4		0.35	0.8	210				2000	0.28	1.6	52			39		0.025
ROB-11-08A 5		600	0.8			19		13				0.4		0.35	1	400				1600	0.36	0.85	43			31		0.025
ROB-11-08A 11		590	2.9			23		13				0.4		0.35	0.9	380				2100	0.35	0.72	45			31		0.025
ROB-11-08A 13		470	0.3			16		13				0.4		0.35	0.8	370				1400	0.3	0.49	35			25		0.025
ROB-11-08A 16		860	0.9			22		12				0.4		0.35	1.2	380				2200	0.31	0.67	50			33		0.025
ROB-11-08A 21		470	1.3			21		13				0.4		0.35	1	400				1800	0.37	0.59	39			30		0.025
ROB-11-08A 22		760	1.2			19		12				0.4		0.35	0.8	370				1900	0.33	0.59	40			28		0.025
ROB-11-08A 25		1100	1.3			27		11				0.4		0.35	0.25	310				2800	0.32	1.1	51			39		0.025
ROB-11-09 18		550	1.5			20		13				0.4		0.35	1.4	410				1700	0.4	0.91	41			34		0.025
ROB-11-09 20		600	0.7			16		21				0.4		0.35	0.8	350				1900	0.32	0.62	35			24		0.025
ROB-11-09 21		970	1.1			49		9.3				0.4		0.35	1.1	370				4600	0.32	0.53	70			58		0.025
ROB-11-10 2		420	0.6			21		15				0.4		0.35	1	420				1700	0.4	0.73	42			27		0.025
ROB-11-10 3		310	0.4			20		15				0.4		0.35	0.6	420				1600	0.37	0.74	41			26		0.025
ROB-11-11 2		560	1			23		18				0.4		0.35	1	410				1900	0.28	0.51	43			110		0.025
ROB-11-12 2		1000	2.3			18		13				0.4		0.35	0.9	370				1800	0.33	0.68	42			29		0.025
ROB-11-12 4		290	1			11		12				0.4		0.35	0.7	420				1300	0.37	0.43	24			20		0.025
ROB-11-16 4		480	1.1			21		13				0.4		0.35	0.8	390				1900	0.35	0.73	43			36		0.025
ROB-11-17 9		910	1.4			23		12				0.4		0.35	1	420				2100	0.32	0.71	50			36		0.025
ROB-11-17 17		1000	1.1			21		12				0.4		0.35	0.9	390				2100	0.3	0.86	44			30		0.025
ROB-11-17 29		670	1			23		12				0.4		0.35	1	400				2200	0.36	0.93	57			37		0.025
ROB-11-17 35		730	0.9			23		11				0.4		0.35	0.8	350				2000	0.37	0.6	45			33		0.025
ROB-11-17 37		760	1.4			25		11				0.4		0.35	1.1	340				2000	0.34	0.78	47			29		0.025
ROB-11-18 8		500	0.9			17		13				0.4		0.35	1.2	410				1700	0.28	0.78	45			24		0.025
ROB-11-18 24		1300	1.3			21		9.9				0.4		0.35	1.1	260				2400	0.24	0.96	46			32		0.025
ROB-11-18 15		450	2			16		20				0.4		0.8	0.9	360				1500	0.41	10	38			25		0.025
K-08-10-228.46	2.59	1450	14.1	2.24	12	68.3	2660	15.2	73.4	0.01	0.87	0.08	23.6	1	1.9	138.5	0.72	0.09	8.72	1.175	0.75	8.4	242	1	38.3	212	131.5	
K-08-11A-27	1.09	4260	0.89	1.18	3	20.7	530	7.6	32	<0.002	0.03	0.15	5	<1	1.3	187.5	0.15	<0.05	2.87	0.159	0.19	0.7	48	3.2	10.9	41	38.5	
K-08-17-131	1.72	910	4.95	1.06	14.6	57	780	26	134	0.007	1.55	0.18	15.7	2	3.1	68.6	1	0.08	16.3	0.398	1.09	5.4	137	3.3	27.3	231	113	
K-08-18 84.8-86		1600	1.7			2.5		2.4				0.4		0.35	0.25	30				8.7	0.01	0.11	4			20		0.025
K-08-18 110-112.2		6200	2.1			7.5		1.6				0.4		0.35	0.6	75				110	0.04	0.22	9			12		0.025
K-08-18 130-131		6900	1.2			4.3		1.6				0.4		0.35	0.25	31				310	0.01	0.12	29			12		0.025
K-08-18 231.8-233		15000	0.4			2.1		0.26				0.4		0.35	0.25	19				33	0.01	0.053	5			5.2		0.025
K20/4		6000	5.6			18		1.5				0.4		0.35	1.4	16				2900	1	6.3	120			180		-
K20/8		1100	3.6			7.8		2.3				0.4		0.35	0.25	33				70	0.01	2.2	2			11		-
K20/10		19000	0.8			2.3		1.3				0.4		0.35	0.25	21				130	0.01	0.086	11			4.9		-
K20/12		8000	1.8			7.5		1.2				0.4		0.35	0.25	21				75	0.07	0.11	3			15		-
K24/1		3300	0.8			4.5		6.5				0.4		0.35	0.25	110				70	0.02	5.9	11			35		-
K24/2		2300	1.3			4.2		2.1				0.4		0.8	1.1	33				18	0.01	0.47	0.5			11		-
K24/6-206.5 (K24/6)		2000	0.8			3.9		1.7				0.4		0.35	0.6	37				34	0.01	0.14	4			9.7		-

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Borehole ID	From (m)	To (m)	Sample Set	Formation	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li
Units						ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm
5x Crustal Abundance						0.38	41.8	9	1950	10	0.041	23.3	0.8	332	145	610	15	340	31.1	95	7.5	14	1.2	9.2	173	90
K24/8	K-08-24	236.7	237	Stantec	Sokoman	0.47		3.3	740	2.1	0.24		0.51		9.1	140		68								
K24/6-262.5 (K24/9)	K-08-24	262.5	263	Stantec	Sokoman	0.03		63	480	2.5	0.045		0.05		20	100		1.8								
K-10-25-447.35	K-10-25	447.35	447.9	Okane	Sokoman	0.02	7.75	2.7	590	1.19	0.03	4.99	0.05	52.6	47.5	82	3.14	56.4	11.85	24.1	0.13	0.7	0.095	0.92	23.3	25.5
K-10-29 86.1-87	K-10-29	86.1	87	Stantec	Sokoman	0.04		36	38	0.78	0.045		0.15		2.2	93		4.2								
K-10-29 101-103.2	K-10-29	101	103.2	Stantec	Sokoman	0.06		1.6	20	1.1	0.045		0.06		6.3	55		19.0								
K-10-35 16-16.5	K-10-35	16	16.5	Stantec	Sokoman	0.41		2.9	10	0.59	0.045		4.2		7.9	74		52								
K-10-35 113-114	K-10-35	113	114	Stantec	Sokoman	0.02		5.8	12	0.67	0.045		0.01		8.8	130		4								
K-10-35 121-122	K-10-35	121	122	Stantec	Sokoman	0.02		82	15	1.2	0.045		0.01		17	71		20								
K-10-37A-81.62	K-10-37A	81	81.62		Sokoman	0.3	7.46	6.1	500	2.87	0.18	2.39	1.11	92	45.1	76	15.7	70	14.1	21.9	0.26	3.1	0.088	2.45	44.8	46.7
K-10-38 51.5-52	K-10-38	51.5	52	Stantec	Sokoman	0.04		3.2	25	0.11	0.045		0.57		1.9	26		2.3								
K-10-38 149-150	K-10-38	149	150	Stantec	Sokoman	0.04		1.4	15	0.06	0.045		0.1		2.1	26		1.8								
K-10-38 172.6-173.5	K-10-38	172.6	173.5	Stantec	Sokoman	0.02		1.3	3	0.12	0.045		0.05		2.7	87		1.8								
K-10-38 207-208	K-10-38	207	208	Stantec	Sokoman	0.02		3.6	9.4	0.52	0.045		0.01		3	51		1.8								
K-10-40-210.18	K-10-40	210.18	210.7	Okane	Sokoman	0.03	0.07	1.2	20	0.35	0.01	1.66	0.06	19.45	15.8	3	0.07	13.2	37.1	2.06	0.23	0.1	<0.005	0.01	13.2	1
K-10-48-25.8	K-10-48	25.8	26.3	Okane	Sokoman	0.15	8.01	0.8	780	3.3	0.15	0.65	0.15	82.1	11.9	81	7.37	66.4	3.77	20.8	0.12	4.5	0.068	3.48	42	33.4
K-10-49-294.5	K-10-49	294.5	295.3	Okane	Sokoman	0.03	0.1	17.4	20	0.55	0.02	10.9	0.08	4.16	2.3	13	0.26	1.9	9.96	0.62	0.07	0.1	<0.005	0.03	2.2	0.5
K-10-51-268.25	K-10-51	268.25	269	Okane	Sokoman	0.09	0.14	8	80	1.11	0.01	0.04	0.43	4.91	6.4	13	0.06	8.1	15	0.82	0.09	0.1	<0.005	0.02	4.4	<0.2
K-10-52 114.4-115.4	K-10-52	114.4	115.4	Stantec	Sokoman	0.06		1.1	48	0.76	0.045		0.08		14	24		5.8								
K-10-52 254.1-255.2	K-10-52	254.1	255.2	Stantec	Sokoman	0.03		2.4	17	0.69	0.045		0.26		3.4	87		0.9								
K-10-52 263-264	K-10-52	263	264	Stantec	Sokoman	0.01		1.9	8.2	0.1	0.045		0.11		2.2	100		1.6								
K-10-52 299-300	K-10-52	299	300	Stantec	Sokoman	0.12		2	3.7	0.05	0.045		0.2		2	94		1.4								
K-10-52 330-331	K-10-52	330	331	Stantec	Sokoman	0.03		1.2	19	0.58	0.045		0.01		2.4	120		1								
K-10-52 380-381	K-10-52	380	381	Stantec	Sokoman	0.08		2.2	62	0.53	0.045		0.14		3.7	94		2.3								
K-10-52 476-477	K-10-52	476	477	Stantec	Sokoman	0.02		1.9	59	0.9	0.045		0.03		3.3	98		0.5								
K-10-52-477.46	K-10-52	477.46	478.1	Okane	Sokoman	<0.01	0.08	3.4	40	0.79	0.01	2.3	0.04	4.4	3.7	10	0.25	1.3	22.5	0.79	0.1	0.1	<0.005	0.02	1.8	1.2
K-10-54-160.5	K-10-54	160.5	161	Okane	Sokoman	0.16	0.05	1.4	10	0.81	<0.01	0.02	0.12	2.35	3	15	0.06	3.6	8.67	0.46	0.05	0.1	<0.005	0.02	2.9	<0.2
K-10-55 270-271	K-10-55	270	271	Stantec	Sokoman	0.06		1.6	110	0.87	0.045		0.07		7.3	120		3.1								
K-10-57-107.4	K-10-57	107.4	108	Okane	Sokoman	0.01	0.79	2.9	280	1.32	0.04	1	0.06	14.8	11.2	7	2.87	1	32	3.4	0.16	1.3	0.018	0.47	7.3	8.8
K-10-59-182.98	K-10-59	182.98	183.6	Okane	Sokoman	0.02	0.07	0.8	30	0.42	0.03	8.08	0.16	8.62	2.3	7	0.14	3.9	13.6	0.57	0.07	0.1	0.006	0.02	3.5	2.7
K-10-61-306.5	K-10-61	306.5	307	Okane	Sokoman	0.02	0.09	3.4	20	0.74	0.02	7.83	0.22	6.72	3.9	4	0.24	10.5	14.1	0.38	0.07	<0.1	0.009	0.01	2.9	0.5
K-10-63-124.4	K-10-63	124.4	124.9	Okane	Sokoman	0.21	0.19	6	120	0.84	0.06	5.99	0.06	15.55	9.2	8	0.27	48.7	4.5	1.24	0.06	<0.1	0.006	0.1	7	1.3
K66/1	K-10-66	66	66.2	Stantec	Sokoman	0.005		0.9	520	0.26	0.045		0.01		11	140		2								
K66/2	K-10-66	75	75.2	Stantec	Sokoman	0.1		3.7	11	1	0.045		0.03		8.7	140		5.2								
K66/3-163.5	K-10-66	163.5	#N/A	Stantec	Sokoman	0.08		0.7	18	2.1	0.93		0.05		10	110		6.5								
K66/5	K-10-66	224	224.3	Stantec	Sokoman	0.07		0.5	17	0.88	0.045		0.32		4	57		1.4								
K66/6	K-10-66	307.1	307.6	Stantec	Sokoman	0.69		8.9	80	0.6	0.4		0.95		12	130		230								
K66/12	K-10-66	491.6	492	Stantec	Sokoman	0.01		0.25	6.7	0.44	0.045		0.01		2	180		0.3								
K66/13	K-10-66	556.7	557.3	Stantec	Sokoman	0.03		1.5	18	1.2	0.045		0.01		8.8	190		0.4								
K66/14	K-10-66	588	588.5	Stantec	Sokoman	0.04		1.1	13	0.63	0.045		0.03		5.3	79		2.3								
K-10-70-74.46	K-10-70	74.46	75	Okane	Sokoman	0.01	0.1	3.2	20	0.62	0.01	2.25	0.03	3.49	3.6	9	0.21	2.1	20.2	0.57	0.1	0.1	<0.005	0.04	2.1	2
K-10-83-39.5	K-10-83	39.5	40	Okane	Sokoman	0.01	0.14	1.1	50	1.16	0.01	1.62	<0.02	13.75	20.7	4	0.33	5.2	31.5	0.96	0.42	<0.1	<0.005	0.04	9.1	6.8
K-10-93-46	K-10-93	46	46.5	Okane	Sokoman	1.52	3.99	4	130	2.41	0.75	4.31	24.6	55.6	27.4	86	1.86	245	11.05	10.65	0.17	2.8	0.098	1.95	31.4	21.1
K102/1	K-11-102	62	62.5	Stantec	Sokoman	0.04		0.6	10	0.89	0.045		0.01		3.9	130		1.5								
K102/5	K-11-102	287	287.7	Stantec	Sokoman	0.02		3.6	8.7	1.1	0.045		0.06		8.2	200		2								
K-11-111-43.1	K-11-111	43.1	43.6	Okane	Sokoman	0.11	6.83	0.5	700	1.3	0.01	1.6	0.04	37.4	11	81	0.67	18.6	4.04	16.4	0.11	2.3	0.022	2.62	18	17.2
K-11-116 124.9-126	K-11-116	124.9	126	Stantec	Sokoman	0.09		18	52	3.6	0.045		0.26		33	44		34								
K-11-117-331	K-11-117	331	331.5	Okane	Sokoman	0.26	0.14	2.1	40	0.3	0.35	0.44	<0.02	0.54	19.2	20	0.14	115	6.08	1.5	<0.05	0.1	<0.005	0.08	<0.5	<0.2
K-11-123-153.8	K-11-123	153.8	154.3	Okane	Sokoman	0.05	5.09	0.4	3170	5.31	0.02	1.43	0.67	22.5	24.2	63	17	22	18.95	11.3	0.16	0.4	0.021	3.09	11	17.8
K-11-128-103.5	K-11-128	103.5	104	Okane	Sokoman	0.03	0.16	0.5	20	3.21	0.01	0.85	0.02	14.8	8.3	6	0.07	1.8	35	1.32	0.66	0.1	0.006	0.02	7.4	3.7
K-11-130-448.5	K-11-130	448.5	449	Okane	Sokoman	0.04	0.63	1.5	50	0.78	0.03	1.2	0.03	21.2	9.4	10	0.55	6.9	23.7	2.29	0.14	0.7	0.014	0.1	11.6	0.6

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr	Hg
Units	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ug/g
5x Crustal Abundance	13.8	5300	6	11.4	100	495	5600	65	390	0.004	0.17	1	100	0.25	10.5	1920	8.5	0.025	40.5	3.2	3.6	11.5	680	6	155	380	810	
K24/8		560	9.5			34		8.6				0.4		1.1	2.4	40				2700	1.1	9	130			86		-
K24/6-262.5 (K24/9)		51000	0.7			2.6		1.5				0.4		0.35	0.25	52				28	0.03	0.15	6			4.3		-
K-10-25-447.35	4.05	2290	1.18	2.09	4.6	91.9	1570	1.4	27.3	0.002	0.13	0.1	26	1	1.2	244	0.27	<0.05	2.32	1.275	0.24	0.5	228	0.2	37.8	145	21.7	
K-10-29 86.1-87		1500	2.2			4.2		2.3				0.4		0.35	0.6	58				200	0.03	1.6	7			40		0.025
K-10-29 101-103.2		2700	0.5			1.9		0.93				0.4		0.35	0.7	26				27	0.02	0.12	6			24		0.025
K-10-35 16-16.5		3400	1.2			29		6.9				0.4		0.8	0.6	63				57	0.03	0.17	13			410		0.025
K-10-35 113-114		12000	2.9			4.2		0.64				0.4		0.8	0.25	26				19	0.01	0.22	2			5		0.025
K-10-35 121-122		8400	4.7			2.4		13				0.8		1.4	0.25	14				51	0.2	0.58	9			41		0.07
K-10-37A-81.62	3.03	2130	17.4	0.75	2.9	93.4	3820	9.2	139	0.011	1.28	0.07	26.1	2	1.3	113	0.17	0.09	4.98	0.926	2.87	7.1	236	1.7	50.3	684	137.5	
K-10-38 51.5-52		470	0.4			7.7		11				0.4		1.3	0.25	120				140	0.03	13	19			100		0.16
K-10-38 149-150		1700	1.7			4		3.2				0.4		0.35	0.25	62				22	0.03	4.2	7			7.1		0.025
K-10-38 172.6-173.5		1300	1.2			3.9		1				0.4		0.35	0.25	22				22	0.01	0.66	2			2.1		0.025
K-10-38 207-208		1300	0.8			5.2		1.1				0.4		0.35	0.25	17				16	0.01	0.096	5			3.7		0.025
K-10-40-210.18	2.08	42100	3.96	0.01	1.8	1.3	90	1.7	0.8	<0.002	0.05	<0.05	0.2	<1	0.2	13	0.05	0.09	0.21	<0.005	<0.02	0.2	11	0.5	12	9	7.7	
K-10-48-25.8	1.54	391	16.05	1.54	19.2	60.3	930	29.2	139	0.011	0.31	<0.05	13.1	1	2.5	161.5	1.12	<0.05	13.8	0.392	1.46	11.5	193	4.4	21.7	122	174.5	
K-10-49-294.5	4.51	1580	0.91	0.01	0.9	3.8	520	1.7	1.7	<0.002	0.34	<0.05	0.2	<1	<0.2	60.4	<0.05	<0.05	0.22	0.005	0.03	2.3	9	0.2	2.5	10	3.8	
K-10-51-268.25	0.05	652	1.91	0.02	1.2	16	410	7.2	0.9	<0.002	0.03	0.07	0.3	<1	0.2	2.1	<0.05	<0.05	0.17	0.007	0.03	3	11	0.8	7.1	50	5.9	
K-10-52 114.4-115.4		24000	0.7			4		2.2				0.4		0.35	0.6	19				640	0.02	0.49	31			25		0.025
K-10-52 254.1-255.2		1300	0.7			2.9		4.1				0.4		0.35	0.5	45				16	0.01	0.058	5			9.8		0.025
K-10-52 263-264		1600	0.5			2.9		3.7				0.4		0.35	0.6	58				7.4	0.01	0.057	1			4.4		0.025
K-10-52 299-300		2400	1.3			3.1		4.9				0.4		0.35	0.25	52				6	0.04	0.52	1			4		0.025
K-10-52 330-331		1700	1.2			2.7		1.2				0.4		0.35	0.25	20				9.7	0.01	0.19	4			3.4		0.025
K-10-52 380-381		1200	0.8			3.8		1.1				0.4		0.35	0.25	22				79	0.03	0.071	11			15		0.025
K-10-52 476-477		1200	0.8			2.4		0.85				0.4		0.35	0.25	22				16	0.01	0.036	5			3.9		0.025
K-10-52-477.46	3.26	1670	0.46	0.01	1.6	2.4	70	<0.5	1.4	<0.002	0.01	0.08	0.1	<1	<0.2	8.2	0.08	<0.05	0.28	<0.005	0.02	0.1	6	0.1	2.1	5	4.2	
K-10-54-160.5	0.02	245	0.44	0.01	0.3	4.3	50	0.8	0.8	<0.002	0.01	<0.05	0.1	<1	0.2	1	<0.05	<0.05	0.15	<0.005	0.02	0.3	3	0.7	4.1	13	2.8	
K-10-55 270-271		13000	0.9			10		1.2				0.4		0.35	0.25	15				770	0.04	0.41	32			10		0.025
K-10-57-107.4	3.37	23200	0.11	0.03	12.3	4.8	830	2.1	22.6	<0.002	0.02	0.05	1.6	<1	<0.2	8	0.49	<0.05	0.13	0.134	0.13	0.4	50	1.7	11.5	22	62.7	
K-10-59-182.98	3.07	2060	0.31	0.01	1.1	1.9	120	1.5	1.1	<0.002	0.11	0.05	0.1	<1	<0.2	84	0.05	<0.05	0.18	<0.005	0.02	0.4	5	<0.1	3.3	22	3.4	
K-10-61-306.5	2.69	3010	0.11	<0.01	0.4	2.7	60	3.7	1	<0.002	0.1	0.11	0.5	1	<0.2	90.7	<0.05	<0.05	0.05	0.014	<0.02	<0.1	4	0.2	4.1	5	2.1	
K-10-63-124.4	2.09	5640	0.98	<0.01	0.9	4.9	60	2.6	4.2	<0.002	0.76	0.1	1	<1	<0.2	59.2	<0.05	0.07	0.22	0.005	0.04	0.1	11	0.6	11.9	8	2.8	
K66/1		14000	1.2			2.4		0.65				0.4		0.35	0.25	14				28	0.01	0.17	7			2.8		-
K66/2		6600	2.5			4.1		0.6				0.4		0.35	0.25	4.07				54	0.01	0.52	17			8.6		-
K66/3-163.5		3600	2.4			3		1.3				0.4		0.35	0.25	11				120	0.01	0.18	14			8.1		-
K66/5		1600	0.9			3.1		1.1				0.4		0.35	0.25	27				16	0.01	0.17	7			69		-
K66/6		2000	19			70		7.4				0.4		1.5	0.25	160				460	0.39	9.5	91			68		-
K66/12		1500	1.3			4		0.75				0.4		0.35	0.8	12				11	0.01	0.14	0.5			3.4		-
K66/13		2000	1.5			3.1		1.3				0.4		0.35	0.8	1.61				53	0.01	0.068	0.5			4.4		-
K66/14		6400	0.5			2.9		1.9				0.4		0.35	0.7	5.27				7.7	0.03	0.092	0.5			11		-
K-10-70-74.46	2.65	6290	0.34	0.01	0.8	1.5	100	0.7	1.7	<0.002	0.01	<0.05	0.2	<1	<0.2	14.8	<0.05	<0.05	0.2	0.005	0.02	0.1	7	0.2	2.3	12	3.7	
K-10-83-39.5	1.71	12950	0.82	0.02	1.1	2.6	140	3.7	2	<0.002	<0.01	0.38	0.3	<1	<0.2	24.6	<0.05	<0.05	0.21	0.005	<0.02	0.1	10	2	12	6	3.5	
K-10-93-46	2.44	1770	181	0.33	9.5	258	1130	18.9	70.2	0.066	5.31	0.11	8.9	12	1.7	148.5	0.55	0.39	5.97	0.202	0.88	60.4	1025	7.6	39.7	2420	112	
K102/1		4000	1.2			3.2		0.46				0.4		0.35	0.25	15				23	0.01	0.092	0.5			4.3		-
K102/5		360	4.4			20		1.4				1.4		0.35	0.5	1.14				21	0.05	1.1	16			24		-
K-11-111-43.1	1.21	677	0.37	2.31	3.4	29.8	650	10.4	119	<0.002	0.05	<0.05	6.9	1	0.9	388	0.25	<0.05	9.6	0.177	0.59	1.2	52	2.1	10.8	49	71.2	
K-11-116 124.9-126		1400	3.3			48		0.57				0.4		0.35	0.25	1.8				230	0.17	8.9	41			150		0.025
K-11-117-331	0.2	445	23.8	<0.01	0.5	26.1	20	2.4	2.9	0.009	3.43	<0.05	1.1	2	0.2	3.9	<0.05	0.21	0.13	0.007	0.04	3.3	114	0.5	0.3	4	6.8	
K-11-123-153.8	3.68	11800	9.28	0.59	6.4	24.8	830	72.2	171.5	0.004	0.26	0.06	13.2	1	0.4	103.5	0.24	0.05	0.62	0.277	0.87	0.2	148	1.6	13.8	225	14.8	
K-11-128-103.5	1.78	8430	2.33	0.02	2.9	2.5	230	1.3	0.8	<0.002	<0.01	<0.05	0.5	1	0.4	9.6	0.08	<0.05	0.37	0.021	<0.02	0.1	21	0.4	10.3	11	8.4	
K-11-130-448.5	2.36	15800	0.29	0.01	7.6	4.3	810	2.1	4.7	<0.002	0.1	<0.05	1.4	1	0.3	15.5	0.33	0.08	0.59	0.093	0.04	0.3	40	0.8	11.9	12	33.2	

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Borehole ID	From (m)	To (m)	Sample Set	Formation	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li
Units						ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm
5x Crustal Abundance						0.38	41.8	9	1950	10	0.041	23.3	0.8	332	145	610	15	340	31.1	95	7.5	14	1.2	9.2	173	90
K-11-131-105	K-11-131	105	105.5	Okane	Sokoman	0.4	2.43	1.2	240	0.89	0.08	0.51	1.02	23.4	5.2	35	2.93	35.8	5.3	6.45	0.06	1.6	0.03	0.98	12	16.4
K-11-133-51.1	K-11-133	51.1	51.6	Okane	Sokoman	0.04	0.1	4.5	20	1.01	0.01	1.6	0.13	4.16	2.7	7	0.14	5.9	24.6	0.78	0.11	0.1	<0.005	0.02	1.7	4.9
K-11-133 199.5-200	K-11-133	199.5	200	Stantec	Sokoman	0.03		2.8	21	0.44	0.045		0.01		3.7	100		6								
K-11-133 309.9-311.4	K-11-133	309.9	311.4	Stantec	Sokoman	0.06		0.25	500	0.64	0.045		0.06		50	130		31								
K140/8	K-11-140	257	257.3	Stantec	Sokoman	0.02		2	13	1.2	0.045		0.08		14	160		2.5								
K140/9	K-11-140	281	281.3	Stantec	Sokoman	0.02		1.5	7.8	6.3	0.045		0.01		17	110		2								
K140/10	K-11-140	286.7	287	Stantec	Sokoman	0.04		7.6	35	3.7	0.045		0.01		7.1	160		2.9								
K140/11	K-11-140	299.4	299.8	Stantec	Sokoman	0.04		3.7	1500	1.4	0.045		0.01		8.4	130		0.6								
K-11-143-297.1	K-11-143	297.1	297.7	Okane	Sokoman	0.07	0.01	1.2	20	0.07	0.01	3.35	<0.02	4.43	6.2	20	<0.05	1.9	7.19	0.67	0.08	<0.1	<0.005	<0.01	4.1	<0.2
K143/2	K-11-143	481.5	481.8	Stantec	Sokoman	0.25		1.6	120	1.4	0.17		0.23		7.9	36		21								
K143/1	K-11-143	483.9	484.2	Stantec	Sokoman	0.67		0.7	590	4.1	0.46		0.38		10	130		30								
K-11-145-201.8	K-11-145	201.8	202.3	Okane	Sokoman	0.11	0.03	7.3	10	0.45	0.04	2.05	0.29	2.37	2.6	7	0.05	13	15.8	0.49	0.12	<0.1	0.01	0.01	1	2.3
K-11-147-161.4	K-11-147	161.4	161.9	Okane	Sokoman	1.29	6.78	1.5	710	4.05	0.3	4.05	0.4	61.2	13.5	90	3.94	102	8.13	16.45	0.16	3.7	0.055	2.34	33.8	39.8
K-11-149 208-209	K-11-149	208	209	Stantec	Sokoman	0.21		22	71	0.62	0.26		0.19		13	29		9								
K-11-159-478.5	K-11-159	478.5	479	Okane	Sokoman	0.05	0.04	9.8	10	0.84	0.04	2.13	0.02	5.24	11.6	4	0.19	3.2	26.8	0.59	0.14	<0.1	<0.005	0.01	3.3	0.9
K-11-163-23.5	K-11-163	23.5	24	Okane	Sokoman	0.01	0.05	6	20	0.35	0.01	4.38	0.07	3.82	3.7	4	0.26	1.3	24.2	0.36	0.12	<0.1	<0.005	0.02	1.5	6.5
K163/4	K-11-163	164.8	165	Stantec	Sokoman	0.05		1.6	9	0.38	0.045		0.91		2.6	110		3.6								
K163/6	K-11-163	198.5	199.2	Stantec	Sokoman	0.42		25	16	0.59	0.045		0.93		20	180		5								
K163/8	K-11-163	364	364.4	Stantec	Sokoman	0.18		0.5	1.6	0.54	0.045		0.01		9.5	150		2.5								
K163/9	K-11-163	414.5	415.9	Stantec	Sokoman	0.01		1.7	20	1.7	0.045		0.01		8.1	200		1.8								
K-11-164-127.5	K-11-164	127.5	128	Okane	Sokoman	0.02	0.02	3.3	20	0.85	0.01	4.27	0.02	6.69	3.3	7	0.05	1.3	20.8	0.32	0.1	<0.1	<0.005	0.01	2.3	1.1
K-11-165-288.8	K-11-165	288.8	289.3	Okane	Sokoman	0.03	0.02	4.2	10	1.91	0.01	4.37	0.02	5.97	3.3	6	<0.05	2	22.9	0.54	0.1	<0.1	<0.005	<0.01	2	0.7
K-11-166 4.6-5.1	K-11-166	4.6	5.1	Stantec	Sokoman	0.19		4.1	270	1.2	0.045		0.09		5	71		19								
K-11-166 27.1-28.1	K-11-166	27.1	28.1	Stantec	Sokoman	0.03		1.4	36	1.9	0.045		0.06		6.3	40		1.4								
K-11-166 94.6-95.3	K-11-166	94.6	95.3	Stantec	Sokoman	0.07		12	56	0.5	0.045		0.19		3.7	110		12								
K-11-166 167.3-168.3	K-11-166	167.3	168.3	Stantec	Sokoman	0.09		1.1	92	0.88	0.045		0.14		9.8	33		5.7								
K-11-166 479.1-479.5	K-11-166	479.1	479.5	Stantec	Sokoman	0.06		1.6	30	0.86	0.045		0.03		9.8	41		5.4								
K-11-166 520.3-521	K-11-166	520.3	521	Stantec	Sokoman	0.04		2	6.3	0.34	0.045		0.03		13	58		2.8								
K-11-168-138.5	K-11-168	138.5	139	Okane	Sokoman	0.06	0.64	3.7	210	1.4	0.02	0.94	0.05	17.55	17.4	8	2.38	3.8	31.8	2.76	0.14	0.9	0.017	0.24	9.7	10.9
K-11-169-76.8	K-11-169	76.8	77.3	Okane	Sokoman	0.12	4.04	4	190	1.11	0.03	1.13	2.05	53.5	8.1	54	8.41	8.3	25	11.15	0.57	2.6	0.04	0.83	24.6	15.1
K-11-170 88-88.8	K-11-170	88	88.8	Stantec	Sokoman	0.14		3	36	0.66	0.045		0.06		7	270		48								
K-11-170 105-106.5	K-11-170	105	106.5	Stantec	Sokoman	0.005		0.25	5.9	0.76	0.045		0.02		7.6	170		1.1								
K-11-171 50.3-50.6	K-11-171	50.3	50.6	Stantec	Sokoman	0.04		1.3	6.6	0.09	0.045		0.08		1.7	120		3.5								
K-11-171 51.9-52.4	K-11-171	51.9	52.4	Stantec	Sokoman	0.8		7	23	0.81	0.045		0.18		10	90		110.0								
K-11-171 54.4-54.9	K-11-171	54.4	54.9	Stantec	Sokoman	0.08		6.5	25	1.8	0.045		0.06		5.7	74		7.2								
K-11-171 100.1-100.6	K-11-171	100.1	100.6	Stantec	Sokoman	0.04		1.7	21	1.3	0.045		0.15		5	94		8.0								
K-11-171 101-101.6	K-11-171	101	101.6	Stantec	Sokoman	0.02		1.8	22	1.3	0.045		0.23		7	71		5								
K-11-171 183.8-184.8	K-11-171	183.8	184.8	Stantec	Sokoman	0.01		5.5	20	0.66	0.045		0.01		9	130		3								
K-11-171 275.7-276.7	K-11-171	275.7	276.7	Stantec	Sokoman	0.05		1	180	0.48	0.045		0.12		12	120		7								
K-11-171 279.4-279.9	K-11-171	279.4	279.9	Stantec	Sokoman	0.1		0.7	230	1.9	0.045		0.1		4.4	99		2								
K-11-99-158.5	K-11-99	158.5	159	Okane	Sokoman	0.03	0.11	1.3	20	0.79	0.03	0.03	0.07	3.12	8.3	7	0.08	5	22.6	0.72	0.36	0.1	<0.005	0.02	2.9	1.2
K-12-175-79.3	K-12-175	79.3	79.8	Okane	Sokoman	0.67	4.5	10.8	360	1.7	0.32	1.75	2.01	47.9	19	59	3.71	122	13.05	11	0.11	2.7	0.05	0.88	24.6	23.4
K-12-177-233.47	K-12-177	233.47	234	Okane	Sokoman	0.08	0.16	1.7	20	0.71	0.03	0.03	0.02	6.22	4.8	6	0.1	3.7	27.4	1.2	0.12	0.1	0.005	0.03	2.4	1.7
K-12-177-272.5	K-12-177	272.5	273	Okane	Sokoman	0.25	0.21	25.2	40	1.5	0.01	0.56	0.09	5.72	9.6	2	0.21	2.5	27.5	1.19	0.11	0.2	0.005	0.04	2.9	1.2
K-12-179-171.6	K-12-179	171.6	172.1	Okane	Sokoman	0.45	4.44	8.2	460	1.94	0.17	0.85	0.74	47.7	17.2	63	4.5	62.7	15.95	11.45	0.13	2.7	0.043	2	25.3	26.7
K-12-182-131.5	K-12-182	131.5	132	Okane	Sokoman	0.01	0.01	5.6	<10	0.95	0.01	4.95	<0.02	4.95	3.9	7	<0.05	2.2	22.7	0.34	0.1	<0.1	<0.005	<0.01	1.4	1.9
K-12-187-50.5	K-12-187	50.5	51	Okane	Sokoman	<0.01	0.06	1.9	20	0.37	0.01	4.2	0.05	2.21	1.5	13	0.31	3.4	13.3	0.5	0.11	0.2	<0.005	0.02	1.1	1.7
K-12-193-277.5	K-12-193	277.5	278	Okane	Sokoman	0.02	0.12	<0.2	10	0.68	0.01	0.01	0.04	5.41	10.3	9	<0.05	3.0	29.2	1.63	0.23	<0.1	0.008	0.03	2.9	1
K-12-194-54	K-12-194	54	54.5	Okane	Sokoman	0.06	7.71	<0.2	650	1.63	0.07	5.2	0.24	94	49	78	1.32	37	11.45	24.7	0.22	1.1	0.119	1.11	38.9	27.3
K-12-196A-115.5	K-12-196A	115.5	116	Okane	Sokoman	0.01	0.04	0.9	10	1.07	0.02	2.66	<0.02	6.21	6.8	5	0.05	1.4	25.3	0.83	0.16	<0.1	<0.005	0.01	1.9	1.3



Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr	Hg
Units	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ug/g
5x Crustal Abundance	13.8	5300	6	11.4	100	495	5600	65	390	0.004	0.17	1	100	0.25	10.5	1920	8.5	0.025	40.5	3.2	3.6	11.5	680	6	155	380	810	
K-11-131-105	1.22	1630	6.33	0.09	4.5	21.6	460	4.5	45.3	0.009	0.41	<0.05	4.6	2	0.9	21.1	0.32	<0.05	4.31	0.118	0.72	4.8	93	3.1	14.9	176	58.3	
K-11-133-51.1	2.65	1120	0.24	0.01	1.3	1.6	90	1.1	0.8	<0.002	0.16	0.07	0.1	1	<0.2	22.8	0.08	0.05	0.19	<0.005	<0.02	0.1	7	0.3	2.6	19	6.1	
K-11-133 199.5-200		1500	0.9			3.1		1.2				0.4		0.35	0.25	20				74	0.01	0.39	4			7.2		0.025
K-11-133 309.9-311.4		1400	0.5			97		5.7				0.4		0.35	0.7	240				5600	0.09	0.22	160			110		0.025
K140/8		5900	1.4			2.8		1.6				0.4		0.35	0.25	5.59				120	0.01	0.18	17			6.9		-
K140/9		16000	1.1			3.7		0.52				0.4		0.35	0.25	25				170	0.01	0.097	17			6.8		-
K140/10		9500	1.5			3.6		0.69				0.4		0.9	0.25	21				84	0.01	0.1	1			7.1		-
K140/11		28000	1.6			2.5		0.54				0.4		0.35	0.9	35				30	0.01	2.2	3			3.2		-
K-11-143-297.1	1.07	11250	0.31	<0.01	1.2	1.5	20	0.6	0.1	<0.002	0.01	<0.05	0.1	<1	<0.2	11.3	<0.05	0.16	0.02	<0.005	<0.02	<0.1	6	0.6	2.9	22	2.6	
K143/2		12000	2.6			14		8.3				0.4		1.2	0.8	88				1600	0.14	1.9	97			32		-
K143/1		3600	40			27		8.5				0.4		1.5	1.4	63				10000	1.1	14	510			28		-
K-11-145-201.8	2.09	757	0.38	0.01	0.3	3.9	70	1.6	0.5	<0.002	0.41	0.13	0.1	1	<0.2	24.5	<0.05	0.13	0.09	<0.005	<0.02	0.1	4	0.3	1.4	34	1.7	
K-11-147-161.4	3.83	1190	68.6	0.73	8.8	45.1	900	18.3	85.9	0.007	2.77	0.06	12.9	2	1.9	85.9	0.5	0.53	11.8	0.305	0.76	6.9	448	6.6	21.1	79	148.5	
K-11-149 208-209		22000	0.4			6.7		22				0.4		0.7	0.7	15				1500	0.06	0.94	46			61		0.025
K-11-159-478.5	3.04	9240	0.56	0.01	0.8	1.5	170	3.5	0.5	<0.002	0.02	0.05	0.3	<1	<0.2	5.8	<0.05	<0.05	0.06	<0.005	<0.02	0.1	8	3	5.8	7	2.9	
K-11-163-23.5	3.74	1955	0.31	0.01	1.1	1.8	50	2	1.1	<0.002	0.02	0.1	0.1	<1	<0.2	28.7	0.06	<0.05	0.12	<0.005	<0.02	0.1	4	0.4	2.1	9	2.3	
K163/4		1800	0.9			4.4		5.2				0.4		0.35	0.25	93				23	0.01	0.28	4			53		-
K163/6		370	4.2			56		11				0.4		0.35	0.8	2.53				92	0.59	4.1	10			270		-
K163/8		8500	1.4			3.5		0.48				0.4		0.35	0.5	13				35	0.01	0.1	3			5.4		-
K163/9		5800	1.2			3.2		1.7				0.4		0.35	0.25	33				86	0.01	0.078	5			3.3		-
K-11-164-127.5	3.21	1875	0.19	0.01	0.4	1.3	30	0.5	0.4	<0.002	0.01	<0.05	<0.1	<1	<0.2	9.3	<0.05	<0.05	0.05	<0.005	<0.02	0.1	3	0.3	3.4	6	0.7	
K-11-165-288.8	1.65	1745	0.63	0.01	0.7	1.2	40	1.1	0.2	<0.002	0.02	0.05	<0.1	<1	<0.2	16.4	<0.05	<0.05	0.07	<0.005	<0.02	0.1	3	0.3	3.3	4	1.2	
K-11-166 4.6-5.1		3800	1.2			6.5		3.1				0.4		0.35	0.25	59				37	0.07	0.09	20			21		0.025
K-11-166 27.1-28.1		6700	0.4			1.5		0.96				0.4		0.35	0.25	20				20	0.01	0.062	5			24		0.025
K-11-166 94.6-95.3		1300	2.9			12		2				0.4		0.35	1.3	50				230	0.12	2.4	19			32		0.025
K-11-166 167.3-168.3		23000	0.7			4.7		3.1				0.4		0.9	0.25	56				1000	0.06	0.39	60			45		0.025
K-11-166 479.1-479.5		17000	0.2			4.4		1.9				0.4		0.35	0.6	15				540	0.01	0.2	32			18		0.025
K-11-166 520.3-521		31000	0.6			1.8		1.7				0.4		0.35	0.25	6.6				110	0.01	0.098	35			36		0.025
K-11-168-138.5	3.49	26900	0.25	0.05	10.6	4.7	690	0.8	14.7	<0.002	0.06	<0.05	1.2	<1	<0.2	5.3	0.49	0.05	1.02	0.097	0.06	0.5	43	1	10.8	17	41.6	
K-11-169-76.8	1.23	1865	8.13	0.02	13.7	19.3	580	3.9	87.5	0.002	0.09	<0.05	8.9	<1	1	6.2	0.69	<0.05	7.06	0.225	1.64	7.6	170	2.5	24.1	453	106	
K-11-170 88-88.8		480	12			14		2.2				0.4		0.35	0.25	21				50	0.03	3.2	30			20		0.025
K-11-170 105-106.5		2800	1.4			2.3		1				0.4		0.35	0.25	19				33	0.01	0.081	1			43		0.025
K-11-171 50.3-50.6		3300	1.3			5.7		1.9				0.4		0.35	0.9	71				23	0.01	0.44	8			14		0.025
K-11-171 51.9-52.4		1900	1.4			6.9		2.2				0.4		7.8	0.25	31				21	0.02	0.084	4			24		0.025
K-11-171 54.4-54.9		3400	0.8			1.7		1				0.4		0.9	0.25	39				24	0.01	0.1	3			17		0.025
K-11-171 100.1-100.6		3600	1.1			1.8		1.2				0.4		0.35	0.25	48				46	0.01	0.41	7			29		0.025
K-11-171 101-101.6		7200	0.3			5.7		1.4				0.4		0.35	0.25	110				63	0.01	0.23	9			27		0.025
K-11-171 183.8-184.8		12000	1.3			2.4		0.35				0.4		0.35	0.25	14				18	0.01	0.075	3			7.4		0.025
K-11-171 275.7-276.7		1900	0.7			5.6		4.7				0.4		0.35	0.25	82				200	0.12	0.8	4			14		0.025
K-11-171 279.4-279.9		1700	0.4			4.9		4.5				0.4		0.35	0.25	44				900	0.18	1.4	14			14		0.025
K-11-99-158.5	0.02	1020	2.96	0.01	1.3	12.2	180	1.1	1	<0.002	0.01	0.14	0.2	<1	<0.2	1.4	<0.05	<0.05	0.19	0.005	0.03	1.6	15	1.5	8.3	27	3.2	
K-12-175-79.3	1.35	2850	4.37	0.08	8.3	63.4	390	6.4	53.3	0.004	1.84	0.13	9.5	1	1.2	30.3	0.57	0.85	8.26	0.189	0.65	5.3	134	2.6	18.4	161	101	
K-12-177-233.47	0.06	861	1.25	0.01	3.4	2.3	50	1.4	1.5	<0.002	0.05	0.09	0.1	<1	<0.2	1.6	0.18	<0.05	0.4	0.005	<0.02	0.1	6	0.9	2.1	10	4.8	
K-12-177-272.5	1.23	11050	0.33	0.02	3	4.8	170	1.4	1.8	<0.002	0.03	<0.05	0.1	<1	<0.2	3.5	0.19	<0.05	0.35	0.005	0.23	0.2	6	3	4.2	18	8	
K-12-179-171.6	1	3010	5.57	0.79	8.1	40.3	1060	19.9	69.5	0.005	1.09	0.11	8.8	<1	1.5	59.5	0.51	<0.05	7.89	0.241	0.66	8.6	146	3.6	17.8	107	107	
K-12-182-131.5	3.73	2000	0.12	0.01	0.7	0.8	30	1	0.1	<0.002	0.01	<0.05	<0.1	<1	<0.2	10.4	<0.05	<0.05	0.03	<0.005	<0.02	<0.1	1	0.3	2	7	1	
K-12-187-50.5	2.47	2050	0.18	0.01	1.1	1.1	80	1.5	1.2	<0.002	<0.01	0.07	0.1	<1	<0.2	27.												

Highlighted cells exceed x5 crustal abundance (after Price, 1997)

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Borehole ID	From (m)	To (m)	Sample Set	Formation	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li
Units						ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm
5x Crustal Abundance						0.38	41.8	9	1950	10	0.041	23.3	0.8	332	145	610	15	340	31.1	95	7.5	14	1.2	9.2	173	90
K-12-206-97.5	K-12-206	97.5	98	Okane	Sokoman	0.01	0.03	1.1	30	0.2	<0.01	5.21	0.03	1.06	1.2	7	0.07	1.4	6.57	0.38	0.05	<0.1	0.005	0.01	<0.5	0.5
K-12-211-36.7	K-12-211	36.7	37.2	Okane	Sokoman	0.07	3.01	<0.2	500	1.73	0.09	4.1	0.03	38.1	13.4	29	0.88	13.2	3.61	6.28	0.08	2.1	0.017	2.35	16.4	14.5
K-12-212-205.5	K-12-212	205.5	206	Okane	Sokoman	0.02	0.07	4.6	30	0.96	0.01	4.06	0.14	7.69	3.4	2	0.38	.8	27.6	0.5	0.2	0.1	<0.005	0.02	2.7	2.9
K-12-213-14.2	K-12-213	14.2	14.7	Okane	Sokoman	0.03	0.16	0.8	10	0.21	0.01	0.13	0.02	1.64	4.2	10	0.08	7.7	2.96	0.68	<0.05	0.1	0.009	0.04	0.7	1.3
K-08-08-122	K-08-08	122	122.6	Okane	Wishart	0.02	6.05	0.7	650	0.92	0.02	6.52	0.07	44.2	8.6	98	1.32	14.2	2.58	14.6	0.1	2.8	0.027	4.44	22.3	18.6
K-08-09 272.6-273.6	K-08-09	272.6	273.6	Stantec	Wishart	0.31		9.8	1100	0.99	0.16		0.19		3.6	120		8.5								
K-08-09 301.2-302.2	K-08-09	301.2	302.2	Stantec	Wishart	0.32		0.25	1100	0.79	0.045		0.14		3.5	120		2.9								
K-08-11-28	K-08-11	28	28.68	Okane	Wishart	0.01	0.06	3.8	40	0.76	<0.01	4.66	0.02	7.4	7.4	11	0.1	.9	13	1.11	0.08	0.1	<0.005	0.02	4.1	<0.2
K-08-18-325.18	K-08-18	325.18	325.2	Okane	Wishart	0.58	2.94	0.9	460	1.52	0.49	0.83	0.03	92.8	20.5	51	9.14	86.4	14.45	10.15	0.22	3.8	0.02	2.4	49.2	15
K20/11	K-08-20	227.2	227.5	Stantec	Wishart	0.05		0.5	710	7	0.1		0.04		42	180		19.								
K20/13	K-08-20	417	417.7	Stantec	Wishart	0.17		0.25	140	0.85	0.045		0.05		4.2	230		1.5								
K24/10	K-08-24	284.4	284.8	Stantec	Wishart	0.27		0.25	410	2	0.045		0.15		15	200		53.0								
K24/11	K-08-24	296	296.4	Stantec	Wishart	0.01		0.25	7.9	0.06	0.045		0.01		1.1	280		2								
K-10-35-187.8	K-10-35	187.8	188.3	Okane	Wishart	0.02	0.15	0.9	20	0.34	0.01	2.82	0.06	5.02	6.7	9	0.09	1.7	28.3	1.18	0.15	0.1	0.005	0.03	2.9	0.8
K-10-35 192-193	K-10-35	192	193	Stantec	Wishart	0.26		0.9	540	2.5	0.1		0.15		13	150		8.6								
K-10-35 200-200.8	K-10-35	200	200.8	Stantec	Wishart	0.1		1.2	580	0.66	0.045		0.07		1.6	98		1.3								
K-10-35 206-206.9	K-10-35	206	206.9	Stantec	Wishart	0.23		3.9	870	0.37	0.045		0.11		3.1	100		1.6								
K-10-52 1-2	K-10-52	1	2	Stantec	Wishart	0.005		0.7	7.3	0.04	0.15		0.01		2.3	220		4.0								
K-10-52 20-21	K-10-52	20	21	Stantec	Wishart	0.11		0.25	280	1.1	0.045		0.09		12	140		15.0								
K-10-52 50-50.7	K-10-52	50	50.7	Stantec	Wishart	0.17		0.25	740	1.1	0.045		0.24		4.1	100		3.3								
K-10-52 100-101	K-10-52	100	101	Stantec	Wishart	0.04		4.6	110	0.4	0.045		0.03		4.1	110		3.4								
K-10-55 130-130.9	K-10-55	130	130.9	Stantec	Wishart	0.02		0.25	6.6	0.01	0.045		0.06		0.89	220		3.0								
K-10-55 160-161	K-10-55	160	161	Stantec	Wishart	0.005		0.25	3.9	0.01	0.045		0.02		0.58	200		2.0								
K-10-55 208-209	K-10-55	208	209	Stantec	Wishart	0.01		0.5	5.8	0.01	0.045		0.03		1.1	190		5.7								
K-10-55 213-214	K-10-55	213	214	Stantec	Wishart	0.18		0.7	760	1	0.045		0.13		9.3	170		14								
K-10-55 227-228	K-10-55	227	228	Stantec	Wishart	0.21		0.25	980	0.72	0.045		0.15		3.9	110		7.0								
K-10-55 249-250	K-10-55	249	250	Stantec	Wishart	0.14		0.25	430	2	0.045		0.1		9.2	150		6.6								
K-10-58-18.45	K-10-58	18.45	19.04	Okane	Wishart	0.01	0.15	0.7	20	0.08	0.01	0.04	0.02	1.14	1.6	30	0.05	2.0	0.97	0.47	<0.05	0.1	<0.005	0.06	0.6	<0.2
K-10-58-21.97	K-10-58	21.97	22.5	Okane	Wishart	0.01	0.04	0.3	10	<0.05	0.01	4.07	<0.02	0.63	1.2	20	<0.05	2.4	1.24	0.24	<0.05	<0.1	<0.005	0.01	<0.5	<0.2
K-10-58-24.28	K-10-58	24.28	25.1	Okane	Wishart	0.01	0.22	0.8	30	0.1	0.01	0.03	0.02	1.65	1.3	31	0.06	2.8	0.55	0.48	<0.05	0.1	<0.005	0.08	0.9	<0.2
K-10-58-30.48	K-10-58	30.48	31.03	Okane	Wishart	0.01	0.13	1	20	0.1	<0.01	0.46	0.04	1.66	6.8	16	0.12	14.0	0.95	0.33	<0.05	0.1	<0.005	0.04	0.8	<0.2
K-10-58-36.5	K-10-58	36.5	37.1	Okane	Wishart	0.01	0.05	0.3	10	<0.05	<0.01	0.03	0.02	0.2	1.6	17	<0.05	1.5	0.48	0.2	<0.05	<0.1	<0.005	0.01	<0.5	<0.2
K-10-58-46.5	K-10-58	46.5	47	Okane	Wishart	<0.01	0.12	0.3	10	0.08	0.01	0.02	<0.02	0.56	1.7	23	<0.05	1.6	0.4	0.48	<0.05	0.1	<0.005	0.03	<0.5	<0.2
K-10-58-57	K-10-58	57	57.5	Okane	Wishart	<0.01	0.03	0.3	10	<0.05	<0.01	0.04	<0.02	0.12	1	17	<0.05	.9	0.33	0.24	<0.05	<0.1	<0.005	0.01	<0.5	<0.2
K-10-63-117.5	K-10-63	117.5	118	Okane	Wishart	0.03	5.61	<0.2	580	1.27	0.02	0.35	<0.02	84	3.4	38	3.61	2	5.44	11.2	0.14	6.4	0.007	4.08	40.5	21.6
K64/1	K-10-64	88.6	88.9	Stantec	Wishart	0.005		0.25	6.8	0.03	0.045		0.01		1.2	340		1								
K-11-100B-116.25	K-11-100B	116.25	117	Okane	Wishart	0.07	0.74	6.8	60	6.54	0.02	0.05	0.4	28	19.5	15	<0.05	28	41.5	2.38	1.06	0.7	0.015	0.03	16.8	2.7
K-11-112A-174.5	K-11-112A	174.5	175	Okane	Wishart	0.11	1.47	1.6	150	1.2	0.03	0.01	0.12	11	6.6	20	0.25	8.6	1.59	3.47	0.05	0.9	<0.005	0.81	5.6	4.3
K-11-112A-217.5	K-11-112A	217.5	218	Okane	Wishart	0.16	1.14	3.3	80	3.42	0.02	0.08	0.3	21.3	22.8	44	0.14	44.2	11.2	3.2	0.09	0.4	0.009	0.32	6.7	1.8
K-11-116 79.5-80	K-11-116	79.5	80	Stantec	Wishart	0.34		1.2	52	0.58	0.045		0.06		6.1	130		10.0								
K-11-116 99.3-102	K-11-116	99.3	102	Stantec	Wishart	0.09		4.2	40	0.89	0.045		0.08		15	130		18								
K-11-116 117-119.2	K-11-116	117	119.2	Stantec	Wishart	0.05		0.25	5.4	0.1	0.045		0.01		1.5	190		7.2								
K-11-137-291.5	K-11-137	291.5	292	Okane	Wishart	0.14	7.64	1.1	590	4.31	0.1	0.15	<0.02	74.6	12.2	106	1.62	21.1	3.68	21.3	0.13	4.5	0.049	5.45	37.3	19.8
K-11-147-308	K-11-147	308	308.5	Okane	Wishart	0.03	7.94	0.3	540	1.99	0.03	0.77	0.02	61.1	20.6	67	11.95	7.8	7.09	16.2	0.16	2.6	0.018	5.8	31.9	36.4
K-11-147-362.3	K-11-147	362.3	362.8	Okane	Wishart	0.04	7.03	<0.2	1100	0.81	0.04	0.55	<0.02	83.1	4	44	1.63	7.2	0.8	14.65	0.15	5.6	0.015	4.49	35.7	8.3
K-11-149-211.5	K-11-149	211.5	212	Okane	Wishart	0.09	0.75	1	40	0.46	0.03	1.2	0.12	24.9	15	13	0.26	22.4	33.5	2.92	0.26	1	0.029	0.08	15.6	4.3
K-11-149 215.1-216.2	K-11-149	215.1	216.2	Stantec	Wishart	0.25		14	790	0.78	0.045		0.19		5.2	100		6								
K-11-156-135	K-11-156	135	135.5	Okane	Wishart	0.26	0.74	4.1	40	0.52	0.11	3.15	0.07	10.3	8.4	27	0.27	10	30.1	2.75	0.41	0.2	0.013	0.05	5.6	4.1
K-11-159-291	K-11-159	291	291.5	Okane	Wishart	0.12	4.87	3.8	890	0.66	0.03	0.19	0.03	36.2	1.9	21	0.77	5.6	0.74	9.22	0.08	3	0.007	5.36	18.1	4
Unknown (K163/11)	K-11-163	539.5	540	Stantec	Wishart	0.16		0.5	5.1	0.13	0.045		0.03		1.6	240		6.1								

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr	Hg
Units	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ug/g
5x Crustal Abundance	13.8	5300	6	11.4	100	495	5600	65	390	0.004	0.17	1	100	0.25	10.5	1920	8.5	0.025	40.5	3.2	3.6	11.5	680	6	155	380	810	
K-12-206-97.5	2.19	1725	0.39	<0.01	0.4	1.2	20	0.6	0.4	<0.002	0.11	<0.05	<0.1	<1	<0.2	17.5	<0.05	<0.05	0.04	<0.005	<0.02	0.3	2	0.2	0.6	6	1.2	
K-12-211-36.7	2.34	1305	0.68	0.04	2.4	10.7	1050	11.2	60.6	0.002	0.78	<0.05	3.3	<1	0.4	48.5	0.2	<0.05	7.68	0.098	0.25	1.4	18	0.7	10	12	78.4	
K-12-212-205.5	3.54	1675	0.25	0.01	1.2	1.6	110	1.3	1.8	<0.002	0.02	0.14	0.1	<1	<0.2	30.7	<0.05	<0.05	0.32	<0.005	<0.02	0.2	6	0.7	4.3	9	4	
K-12-213-14.2	0.48	1960	0.88	0.01	0.5	3.6	90	0.7	1.9	<0.002	0.01	<0.05	1.2	<1	0.5	3.9	<0.05	<0.05	0.19	0.007	0.02	0.3	13	0.2	3.4	11	4.4	
K-08-08-122	3.31	501	0.36	0.24	5.2	30.9	350	10.8	113	<0.002	0.01	<0.05	8.9	<1	0.9	107	0.37	<0.05	8.31	0.243	0.51	1	57	0.8	8.5	31	103	
K-08-09 272.6-273.6		200	0.2			11		22				0.4		0.35	1.2	73				2200	0.58	1.2	36			29		0.025
K-08-09 301.2-302.2		100	0.4			10		16				0.4		0.35	0.9	95				1900	0.87	2.2	29			14		0.025
K-08-11-28	2.31	10350	0.54	0.01	1.3	1.6	150	<0.5	1.1	<0.002	0.01	<0.05	0.2	<1	<0.2	13.5	<0.05	<0.05	0.11	0.006	<0.02	0.2	8	0.6	5	5	6.2	
K-08-18-325.18	2.41	2730	45.8	<0.01	27.6	25	2600	3.5	123	0.013	2.16	<0.05	5.9	2	0.5	29.6	1.64	0.73	7.5	0.542	0.88	5.5	191	2.4	12.6	60	173	
K20/11		1800	2.1			51		4.2				0.4		0.35	1	140				9900	0.19	0.42	200			75		-
K20/13		440	1.5			4.9		0.93				0.4		0.35	0.25	2.04				1000	0.5	1.3	17			30		-
K24/10		510	2.4			35		1.7				0.4		0.35	1.2	34				2400	0.41	3.4	43			28		-
K24/11		52	1.4			3.6		0.21				0.4		0.35	1	1.05				13	0.01	0.23	0.5			0.35		-
K-10-35-187.8	1.38	9470	3.44	0.01	1.1	2.3	160	2.2	1.8	<0.002	0.03	0.05	0.4	<1	0.2	47.3	0.06	0.05	0.23	0.008	0.04	0.3	10	0.1	4.3	16	5.4	
K-10-35 192-193		540	1.7			21		27				0.4		0.35	1.2	81				2000	0.58	1.9	35			34		0.025
K-10-35 200-200.8		370	1.1			5.3		11				0.4		0.35	0.25	66				500	0.46	0.78	6			11		0.025
K-10-35 206-206.9		76	0.6			8.6		11				0.4		1.3	1.3	59				530	0.55	1.5	7			5.4		0.025
K-10-52 1-2		51	2.7			6.8		0.25				0.4		0.35	0.5	0.98				13	0.01	0.088	3			11		0.025
K-10-52 20-21		140	1.4			24		1.7				0.4		0.35	1	18				1400	0.4	1.4	21			25		0.025
K-10-52 50-50.7		190	0.8			10		12				0.4		0.35	1	63				1500	0.66	1.2	26			44		0.025
K-10-52 100-101		1500	1.4			5.4		3.3				0.4		0.35	0.25	27				350	0.12	2.2	10			6.6		0.025
K-10-55 130-130.9		200	0.6			3.3		2.8				0.4		1.1	0.25	3.7				21	0.01	0.14	8			43		0.025
K-10-55 160-161		82	0.4			2.5		0.3				0.4		0.35	0.25	1				4.5	0.01	0.031	12			1.4		0.025
K-10-55 208-209		47	0.5			3.2		0.44				0.4		0.35	0.25	1.3				22	0.01	0.12	7			3.7		0.025
K-10-55 213-214		200	0.6			31		3.9				0.4		0.35	1	67				3000	0.59	0.93	47			21		0.025
K-10-55 227-228		110	0.3			11		6.3				0.4		0.35	0.25	72				2000	0.82	2.2	28			5.7		0.025
K-10-55 249-250		400	0.9			23		6				0.4		0.35	0.25	39				1900	0.39	1.8	29			29		0.025
K-10-58-18.45	0.08	511	0.42	0.01	0.2	3.4	70	0.6	2	<0.002	<0.01	<0.05	0.2	<1	<0.2	1.2	<0.05	<0.05	0.23	0.005	0.02	0.4	5	0.1	1.1	3	2.6	
K-10-58-21.97	1.89	684	0.23	<0.01	0.1	1.5	30	<0.5	0.4	<0.002	<0.01	<0.05	0.2	<1	<0.2	12.6	<0.05	<0.05	0.05	<0.005	<0.02	0.2	28	<0.1	2.2	3	0.7	
K-10-58-24.28	0.09	114	0.27	0.01	0.3	3.3	30	<0.5	2.6	<0.002	<0.01	<0.05	0.2	<1	<0.2	1.2	<0.05	<0.05	0.35	0.009	0.02	0.3	8	0.1	0.9	6	3.4	
K-10-58-30.48	0.55	158	0.29	0.01	0.3	6.4	540	7.8	2.4	<0.002	<0.01	<0.05	0.3	<1	<0.2	1	<0.05	0.07	0.18	0.007	0.04	0.7	9	0.2	2.2	14	2.7	
K-10-58-36.5	0.04	113	0.23	<0.01	0.1	2.7	20	<0.5	0.5	<0.002	<0.01	<0.05	0.1	<1	<0.2	0.4	<0.05	<0.05	0.04	<0.005	<0.02	0.1	4	<0.1	0.5	5	0.7	
K-10-58-46.5	0.05	46	0.22	<0.01	0.1	3	20	<0.5	1.2	<0.002	<0.01	<0.05	0.1	<1	<0.2	0.5	<0.05	<0.05	0.19	<0.005	<0.02	0.1	2	0.1	0.5	4	3.7	
K-10-58-57	0.03	47	0.2	<0.01	<0.1	1.3	10	<0.5	0.3	<0.002	<0.01	<0.05	<0.1	<1	<0.2	0.5	<0.05	<0.05	0.02	<0.005	<0.02	<0.1	1	<0.1	0.2	2	0.6	
K-10-63-117.5	2.67	243	0.25	0.11	2.9	6.8	360	3.5	132.5	<0.002	0.03	<0.05	2.9	<1	0.4	26.3	0.24	<0.05	20.2	0.138	0.73	1.7	19	0.7	8.4	20	224	
K64/1		120	2.4			3.9		0.14				0.4		0.35	0.6	0.76				14	0.01	0.043	0.5			0.35		-
K-11-100B-116.25	0.11	3890	4.02	0.01	11.7	49.2	1550	1.5	0.9	<0.002	0.02	0.07	1.5	<1	0.3	8.4	0.47	0.05	1.52	0.088	0.04	9.4	48	1.2	33.8	132	33.1	
K-11-112A-174.5	0.16	331	0.55	0.03	0.5	9.7	160	4	23.6	<0.002	0.01	0.06	1	1	0.2	4	<0.05	<0.05	1.54	0.024	0.24	1	14	0.9	4.1	16	31.4	
K-11-112A-217.5	0.1	633	1.62	0.08	0.5	35.9	770	26.8	7.9	<0.002	<0.01	0.13	2.9	1	0.3	15	<0.05	0.06	1.44	0.03	0.08	7.9	73	2.2	17	102	15.2	
K-11-116 79.5-80		1200	2.1			13		3				0.4		0.35	0.25	3				18	0.01	2.9	5			32		0.025
K-11-116 99.3-102		760	3.2			28		3				0.4		0.35	0.25	9				92	0.03	4.8	13			47		0.025
K-11-116 117-119.2		100	2.1			10		0.44				0.4		0.35	0.25	4				25	0.01	0.8	0.5			7.5		0.025
K-11-137-291.5	1.04	143	1.21	0.1	10.3	34.8	330	10.3	148.5	<0.002	0.59	<0.05	11.9	1	1.5	42	0.74	<0.05	17.05	0.373	0.55	2.3	73	1.3	12.1	36	154.5	
K-11-147-308	3.23	736	0.52	0.17	4.4	28.7	740	5.4	243	<0.002	0.23	0.13	16.6	1	1.1	26.9	0.22	<0.05										

Appendix B

Elemental Digest Results for Mine Rock Samples

Sample ID	Borehole ID	From (m)	To (m)	Sample Set	Formation	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li
Units						ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm
5x Crustal Abundance						0.38	41.8	9	1950	10	0.041	23.3	0.8	332	145	610	15	340	31.1	95	7.5	14	1.2	9.2	173	90
K163/12	K-11-163	543.8	544	Stantec	Wishart	0.44		4.6	680	2.4	0.045		0.18		4.4	220		14								
K-11-166 170.2-171	K-11-166	170.2	171	Stantec	Wishart	0.46		0.7	69	0.5	0.15		0.05		1.6	260		60								
K-11-166 174-174.5	K-11-166	174	174.5	Stantec	Wishart	0.28		0.25	300	1.8	0.045		0.09		8.9	150		9.8								
K-11-166 180-181	K-11-166	180	181	Stantec	Wishart	0.14		0.25	570	1.5	0.045		0.1		6.7	130		15								
K-11-166 182.5-183	K-11-166	182.5	183	Stantec	Wishart	0.07		0.25	40	0.25	0.045		0.04		0.89	190		10								
K-11-166 200.6-201	K-11-166	200.6	201	Stantec	Wishart	0.005		0.6	6.9	0.01	0.045		0.01		1.2	140		5								
K-11-166 244.5-245	K-11-166	244.5	245	Stantec	Wishart	0.005		0.6	5.3	0.02	0.045		0.04		1.4	180		3								
K-11-166 247.5-248	K-11-166	247.5	248	Stantec	Wishart	0.005		0.25	5	0.04	0.045		0.01		0.94	160		3								
K-11-166 379.5-380	K-11-166	379.5	380	Stantec	Wishart	0.005		0.9	16	0.08	0.045		0.01		4.6	180		3								
K-11-166 420.5-421	K-11-166	420.5	421	Stantec	Wishart	0.1		0.25	580	0.74	0.045		0.08		4	98		1								
K-11-166 428-428.5	K-11-166	428	428.5	Stantec	Wishart	0.17		0.25	1000	0.9	0.045		0.15		3.3	86		3.1								
K-11-171 301-301.5	K-11-171	301	301.5	Stantec	Wishart	0.16		0.25	560	2.6	0.21		0.16		11	170		13.								
K-12-180-11.3	K-12-180	11.3	11.8	Okane	Wishart	0.04	0.04	0.3	<10	<0.05	0.01	0.01	<0.02	0.78	0.3	18	<0.05	3	0.62	0.23	<0.05	<0.1	<0.005	0.02	<0.5	0.6
K-12-180-18.2	K-12-180	18.2	18.7	Okane	Wishart	0.05	0.15	0.2	20	0.07	0.01	0.02	<0.02	0.87	0.7	10	<0.05	4	0.47	0.51	<0.05	0.1	<0.005	0.07	<0.5	0.9
K-12-180-28.1	K-12-180	28.1	29.4	Okane	Wishart	0.3	0.06	0.3	10	<0.05	0.01	0.01	<0.02	0.77	0.5	13	<0.05	3	0.4	0.26	<0.05	<0.1	<0.005	0.02	<0.5	0.4
K-12-182-435.8	K-12-182	435.8	436.3	Okane	Wishart	0.02	0.05	0.7	10	0.25	0.01	0.03	0.03	0.95	1.4	19	<0.05	5	1.61	0.32	<0.05	<0.1	<0.005	0.02	0.6	0.5
K-12-186-413.5	K-12-186	413.5	414	Okane	Wishart	0.15	0.92	7.3	100	6.95	0.02	0.09	2.15	49.3	51.6	11	0.17	49	45.6	5.1	2.36	1.3	0.031	0.04	28.8	50.9
K-12-187-500.5	K-12-187	500.5	501	Okane	Wishart	0.38	0.12	1.9	10	1.42	0.17	0.03	0.05	3.89	15	12	0.19	45	11.35	0.89	0.11	0.1	0.007	0.01	2.1	0.8
K-12-192-249.4	K-12-192	249.4	249.9	Okane	Wishart	0.09	0.07	0.2	20	0.17	0.02	0.03	0.04	1.47	0.9	10	0.05	6	0.88	0.46	<0.05	<0.1	<0.005	0.02	0.6	1.5
K-12-193-287.5	K-12-193	287.5	288	Okane	Wishart	0.21	2.24	6.9	1010	1.15	0.1	0.09	3.07	181.5	46.8	43	3.57	47	32.7	11.3	0.61	3.4	0.081	0.12	78.6	4.3
K-12-199-131.5	K-12-199	131.5	132	Okane	Wishart	0.09	2.09	0.2	120	1.12	0.02	0.03	0.03	36.9	2.1	24	0.24	5	2.78	4.99	0.09	1.3	0.014	0.65	22.2	5
K-12-209-101.3	K-12-209	101.3	101.8	Okane	Wishart	<0.01	6.49	<0.2	1010	0.86	0.03	0.54	<0.02	92.8	1.8	28	1.2	1	0.75	12.7	0.11	6.4	0.016	4.8	42.6	7.1
K-12-213-10.7	K-12-213	10.7	11.2	Okane	Wishart	0.06	3.36	<0.2	430	1.91	0.09	1.77	<0.02	38.5	20.5	42	0.61	10.1	3.43	7.76	0.09	1.8	0.024	2	16.8	14.3

Appendix B

Elemental Digest Results for Mine Rock Samples

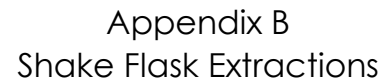
Sample ID	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr	Hg
Units	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ug/g
5x Crustal Abundance	13.8	5300	6	11.4	100	495	5600	65	390	0.004	0.17	1	100	0.25	10.5	1920	8.5	0.025	40.5	3.2	3.6	11.5	680	6	155	380	810	
K163/12		89	1.7			18		8.5				0.4		0.35	1.5	23				3200	0.93	2	45			43		-
K-11-166 170.2-171		980	4			28		1.9				0.4		1.1	0.25	14				860	0.2	2.1	71			17		0.025
K-11-166 174-174.5		450	1.7			23		1.9				0.4		0.35	1	21				1500	0.31	3.4	30			18		0.025
K-11-166 180-181		260	0.3			14		4.3				0.4		0.35	0.7	78				1000	0.32	1.5	21			45		0.025
K-11-166 182.5-183		24	0.8			13		0.75				0.4		0.35	0.25	2.1				250	0.04	0.46	0.5			11		0.025
K-11-166 200.6-201		250	0.5			2.7		0.97				0.4		0.35	0.5	8.5				13	0.01	0.089	0.5			15		0.025
K-11-166 244.5-245		230	0.4			2.7		2.7				0.4		0.35	0.25	7.4				10	0.01	0.14	5			19		0.025
K-11-166 247.5-248		82	1.8			4.6		1.1				0.4		0.35	0.9	2.9				19	0.01	0.076	4			5.5		0.025
K-11-166 379.5-380		78	1			7.5		0.36				0.4		0.35	0.25	2.7				54	0.01	0.6	5			13		0.025
K-11-166 420.5-421		1800	0.5			11		6.3				0.4		0.35	0.6	110				1400	0.47	0.83	22			36		0.025
K-11-166 428-428.5		610	0.3			10		19				0.4		0.35	0.7	140				1200	0.75	1.7	20			38		0.025
K-11-171 301-301.5		340	2			20		7.3				0.4		0.35	1.1	39				2500	0.47	1.7	46			47		0.025
K-12-180-11.3	0.01	89	0.45	0.01	0.1	1.4	10	0.5	0.6	<0.002	0.01	<0.05	0.1	<1	<0.2	0.8	<0.05	<0.05	0.13	<0.005	<0.02	0.1	1	0.3	0.2	3	1.1	
K-12-180-18.2	0.03	67	0.24	0.01	0.2	1.7	10	0.8	2.1	<0.002	<0.01	<0.05	0.4	<1	<0.2	1.4	<0.05	<0.05	0.16	0.007	0.02	0.1	3	0.4	0.5	5	2.3	
K-12-180-28.1	0.02	61	0.19	0.01	0.1	1.4	10	0.9	0.9	<0.002	<0.01	<0.05	0.2	<1	<0.2	1.2	<0.05	<0.05	0.1	<0.005	<0.02	0.1	1	2.1	0.4	3	1.6	
K-12-182-435.8	0.02	363	0.38	0.01	0.3	2.8	40	0.6	0.5	<0.002	0.01	<0.05	0.2	<1	0.2	0.7	<0.05	<0.05	0.06	<0.005	0.02	0.1	4	0.2	0.7	7	2.7	
K-12-186-413.5	0.04	8890	2.74	0.05	17	93.1	990	2.2	1.2	<0.002	0.01	0.14	2.6	<1	0.3	19.9	0.62	0.42	1.69	0.185	1.58	2.4	73	1.6	31.9	202	65	
K-12-187-500.5	0.02	623	10.7	0.01	0.7	16.5	670	3.6	2	0.004	1.4	<0.05	0.6	<1	0.2	1.3	<0.05	0.24	0.11	0.007	0.05	1	48	1.6	3.1	23	4.8	
K-12-192-249.4	0.02	407	0.32	0.01	0.2	2	30	0.6	0.9	<0.002	0.01	<0.05	0.2	<1	<0.2	1.6	<0.05	<0.05	0.13	<0.005	0.07	0.2	6	0.2	0.5	8	2.4	
K-12-193-287.5	0.03	30800	4.9	0.02	33.9	52.8	860	6.1	10.6	<0.002	0.02	0.09	5.6	<1	1.5	68	1.79	0.44	6.23	0.381	2.68	4.3	243	2.4	29.2	55	159.5	
K-12-199-131.5	0.1	192	0.59	0.03	2.3	5.3	120	1.2	16.7	<0.002	0.01	0.05	2.3	<1	0.4	4.8	0.16	0.09	5.61	0.081	0.09	1.4	15	1.6	15.6	8	51.8	
K-12-209-101.3	0.4	119	0.26	0.12	2.5	6.1	580	11.8	92.4	<0.002	0.11	<0.05	3	<1	0.3	78.1	0.21	<0.05	23.1	0.127	0.69	2.1	17	0.2	8.4	6	248	
K-12-213-10.7	1.25	889	0.73	0.04	3.2	14.4	890	3.1	54.2	<0.002	0.91	<0.05	4.5	<1	0.6	24.8	0.26	<0.05	8.37	0.133	0.17	1.4	29	1	8.3	11	72.9	



Appendix B Elemental Digest Results for Tailings

Parameter	Unit	5x Crustal Abundance	Gravity Flotation			Cobber			Finisher		
			Year 1-5	High RN	High RC	Year 1-5	High RN	High RC	Year 1-5	High RN	High RC
Ag	ppm	0.38	0.04	0.03	0.03	0.01	0.02	0.01	0.02	0.01	0.01
Al	%	41.8	0.15	0.17	0.17	0.16	0.11	0.29	0.07	0.07	0.06
As	ppm	9	23.5	31	47.1	4.4	4.2	11.2	3.6	3.3	3.9
Ba	ppm	1950	150	100	380	130	110	240	40	30	50
Be	ppm	10	0.79	1.18	1.02	2.23	1.43	2.38	1.65	1.52	1.79
Bi	ppm	0.041	0.02	0.03	0.04	0.02	0.02	0.05	0.02	0.02	0.07
Ca	%	23.3	0.33	0.27	0.61	1.62	1.02	3.76	1.46	0.85	2.18
Cd	ppm	0.8	0.03	0.02	0.02	0.06	0.05	0.04	0.02	0.02	0.02
Ce	ppm	332	21.1	16.05	27.6	9.42	7.81	13.45	7.09	6.71	8.19
Co	ppm	145	16.5	13.6	18.9	6.3	5.3	7.8	5	4.5	4.4
Cr	ppm	610	34	71	69	4	5	5	174	251	166
Cs	ppm	15	0.07	0.13	0.13	0.32	0.24	0.61	0.22	0.25	0.17
Cu	ppm	340	24	38.4	36.4	9.7	6.8	4.3	27	23.1	15.2
Fe	%	31.1	45.4	38.2	45.2	7.64	8.13	6.32	7.55	6.93	6.58
Ga	ppm	95	2.21	1.56	2.34	0.7	0.59	1.16	0.52	0.4	0.5
Ge	ppm	7.5	0.45	0.24	0.7	<0.05	0.05	<0.05	<0.05	<0.05	<0.05
Hf	ppm	14	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
In	ppm	1.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005
K	ppm	9.2	0.01	0.02	0.02	0.06	0.03	0.12	0.02	0.02	0.02
La	ppm	173	10.7	7.8	15.3	5	4	6.7	3	2.7	3.7
Li	ppm	90	3.6	3.3	6.7	6.1	2.6	14.5	4	2.9	3
Mg	%	13.8	0.39	0.48	0.55	0.88	0.69	1.79	1.07	0.91	1.24
Mn	ppm	5300	9210	6960	12750	9840	5810	19850	7940	5250	10600
Mo	ppm	6	4.28	3.37	4.94	0.86	0.96	1.18	3.6	3.73	2.52
Na	ppm	11.4	0.02	0.02	0.05	0.07	0.03	0.15	0.02	0.02	0.02
Nb	ppm	100	3.3	3	2.9	0.9	1.1	1.1	2	3.9	1.6
Ni	ppm	495	8.3	11	13.8	5.1	5.1	3.3	71.9	69	56.5
P	ppm	5600	200	220	300	130	130	160	110	100	110
Pb	ppm	65	0.8	1	1.5	1.4	1.1	2.4	1.1	1.2	1.6
Rb	ppm	390	0.5	0.8	1.1	2.5	1.4	5.6	1.2	1.1	1.1
Re	ppm	0.0035	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
S	%	0.17	0.06	0.06	0.14	0.01	0.01	0.02	0.01	0.01	0.01
Sb	ppm	1	0.34	0.26	0.4	0.08	0.09	0.1	0.16	0.18	0.17
Sc	ppm	100	0.6	0.5	0.6	0.4	0.3	0.7	0.3	0.2	0.3
Se	ppm	0.25	<1	1	1	1	1	1	1	1	1
Sn	ppm	10.5	3.7	6.9	4.9	0.5	0.5	0.3	4.4	3.6	1.2
Sr	ppm	1920	5.1	4.4	9.2	15.7	10.1	38.2	12	6.2	16.7
Ta	ppm	8.5	0.1	0.11	0.07	<0.05	<0.05	<0.05	0.06	0.09	<0.05
Te	ppm	0.025	<0.05	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Th	ppm	40.5	0.38	0.32	0.42	0.14	0.13	0.24	0.15	0.2	0.11
Ti	ppm	3.2	0.017	0.016	0.019	0.009	0.007	0.019	0.005	<0.005	0.016
Tl	ppm	3.6	<0.02	0.02	<0.02	0.03	0.03	0.04	<0.02	<0.02	<0.02
U	ppm	11.5	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1
V	ppm	680	28	23	31	6	5	8	10	9	8
W	ppm	6	2.6	2.2	2.7	0.7	0.8	0.7	1	0.8	1
Y	ppm	155	6	5.8	7.3	6.7	5.4	9.8	4.5	3	5.7
Zn	ppm	380	13	16	18	13	13	13	14	13	11
Zr	ppm	810	7.1	6.2	8.6	3.2	2.8	5.8	4.1	4.1	4.1

Highlighted cells exceed x5 crustal abundance (after Price, 1997)



Sample ID	Borehole ID	From (m)	To (m)	Formation	Company	Material Type	pH	pH2	Acidity (as CaCO3)	Conductivity	Moisture	ORP	Alkalinity, total (as CaCO3)	Ammonia, total (as N)	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	Phosphorus, total dissolved	Sulfate
Units							-	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration																				
MDMER Maximum Authorized Concentration in a Composite																				
MDMER Maximum Authorized Concentration in a Grab Sample																				
CCME Freshwater Aquatic Chronic														0.019	120	0.12	13			
CCME Freshwater Aquatic Acute							?								640		550			
K-11-166 259.5-	K-11-166	259.5	260	Denault	Stantec	Mine Rock	9.67	9.73												
K-11-166 281-24	K-11-166	281	281.5	Denault	Stantec	Mine Rock	9.53	9.87												
K-11-166 299.3-	K-11-166	299.3	299.5	Denault	Stantec	Mine Rock	9.37	9.83												
K-10-55 80.6-81	K-10-55	80.6	81.6	Denault	Stantec	Mine Rock	9.62	9.95												
K-10-55 99-100	K-10-55	99	100	Denault	Stantec	Mine Rock	9.57	9.86												
ROB-11-05A 46	ROB-11-05A	14	14.6	Katsao	Stantec	Mine Rock	9.36	9.85												
K-11-116 48.2-5	K-11-116	48.2	51	Katsao	Stantec	Mine Rock	9.04	8.6												
K-11-116 69-72	K-11-116	69	72	Katsao	Stantec	Mine Rock	7.61	7.67												
K-11-108 88.3-8	K-11-108	88.3	88.8	Katsao	Stantec	Mine Rock	8.23	9.14												
K-11-108 120.3-	K-11-108	120.3	120.7	Katsao	Stantec	Mine Rock	7.5	9.57												
K-11-108 140.2-	K-11-108	140.2	140.7	Katsao	Stantec	Mine Rock	6.89	9.69												
K-11-108 160.14	K-11-108	160	160.5	Katsao	Stantec	Mine Rock	7	9.22												
K-11-108 170.1-	K-11-108	170	170.5	Katsao	Stantec	Mine Rock	9.14	9.85												
K-11-108 176.5-	K-11-108	176.5	177	Katsao	Stantec	Mine Rock	7.04	8.87												
K-11-108 204.24	K-11-108	204	204.5	Katsao	Stantec	Mine Rock	6.74	8.86												
K-11-108 214.2	K-11-108	214	214.5	Katsao	Stantec	Mine Rock	6.59	8.98												
K-11-108 225.2-	K-11-108	225	225.5	Katsao	Stantec	Mine Rock	8.48	8.66												
ROB-11-06 43-	ROB-11-06	13.1	13.7	Katsao	Stantec	Mine Rock	8.41	9.73												
K-11-116 42-42	K-11-116	42	42.5	Katsao	Stantec	Mine Rock	7.9	8.67												
K-11-108 99.3-9	K-11-108	99.3	99.7	Katsao	Stantec	Mine Rock	5.62	8.61												
K-11-108 108.5-	K-11-108	108.5	109	Katsao	Stantec	Mine Rock	6.75	8.92												
K-11-108 151.14	K-11-108	151	151.5	Katsao	Stantec	Mine Rock	9.12	9.06												
K-11-108 190.1-	K-11-108	190.1	190.7	Katsao	Stantec	Mine Rock	9.12	9.3												
K20/7	K-08-20	162.4	162.9	Menihiek	Stantec	Mine Rock	9.43	8.71												
K24/3	K-08-24	64.1	64.4	Menihiek	Stantec	Mine Rock	9.53	9.63												
K24/4	K-08-24	127.8	128	Menihiek	Stantec	Mine Rock	9.66	9.6												
K24/5	K-08-24	192.6	192.8	Menihiek	Stantec	Mine Rock	9.19	9.35												
K66/4	K-10-66	184.7	185	Menihiek	Stantec	Mine Rock	9.43	7.36												
K66/7	K-10-66	424.6	424.9	Menihiek	Stantec	Mine Rock	8.65	8.82												
K66/10	K-10-66	457.5	457.9	Menihiek	Stantec	Mine Rock	8.95	8.55												
K66/11	K-10-66	486	486.5	Menihiek	Stantec	Mine Rock	7.79	7.02												
K140/1	K-11-140	13.9	14.2	Menihiek	Stantec	Mine Rock	8.86	8.12												
K140/2	K-11-140	41	41.4	Menihiek	Stantec	Mine Rock	9.62	9.7												
K140/3	K-11-140	74.8	75.1	Menihiek	Stantec	Mine Rock	9.64	9.39												
K140/4	K-11-140	101	101.3	Menihiek	Stantec	Mine Rock	9.76	9.7												
K163/1	K-11-163	60.6	61	Menihiek	Stantec	Mine Rock	5.75	6.77												
K163/2	K-11-163	105	105.2	Menihiek	Stantec	Mine Rock	6.39	7.8												
K163/3	K-11-163	150	150.2	Menihiek	Stantec	Mine Rock	9.47	9.47												
K-11-170 59.1-5	K-11-170	59.1	59.6	Menihiek	Stantec	Mine Rock	5.87	6.42												
K-11-166 23-24	K-11-166	23	24	Menihiek	Stantec	Mine Rock	8.89	9.12												
K-11-166 38.2-3	K-11-166	38.2	39	Menihiek	Stantec	Mine Rock	8.99	9.27												
K-11-166 63.5-6	K-11-166	63.5	64.1	Menihiek	Stantec	Mine Rock	4.14	4.67												
K-10-38 59-60	K-10-38	59	60	Menihiek	Stantec	Mine Rock	8.73	9.92												
K-10-38 90-91	K-10-38	90	91	Menihiek	Stantec	Mine Rock	7.3	8.63												
K-10-38 291-29	K-10-38	291	292	Menihiek	Stantec	Mine Rock	7.49	8.28												
K20/2	K-08-20	84.5	85	Menihiek	Stantec	Mine Rock	7.96	8.82												



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Bromide	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration								0.1									0.1		0.08		
MDMER Maximum Authorized Concentration in a Composite								0.15									0.15		0.12		
MDMER Maximum Authorized Concentration in a Grab Sample								0.2									0.2		0.16		
CCME Freshwater Aquatic Chronic								0.005				1.5	0.0002		0.0089			0.3			
CCME Freshwater Aquatic Acute												22									
K-11-166 259.5	K-11-166	259.5	260	Denault		0.005		0.0003		0.000005			0.000241		0.00025	0.000077	0.00025	0.005	0.00002		
K-11-166 281-2	K-11-166	281	281.5	Denault		0.01		0.0001		0.000005			0.000006		0.00025	0.000084	0.00025	0.014	0.00001		
K-11-166 299.3	K-11-166	299.3	299.5	Denault		0.005		0.0005		0.000005			0.0000015		0.00025	0.000081	0.00025	0.0015	0.00001		
K-10-55 80.6-81	K-10-55	80.6	81.6	Denault		0.005		0.0002		0.00002			0.0000015		0.00025	0.000013	0.00025	0.0015	0.00001		
K-10-55 99-100	K-10-55	99	100	Denault		0.005		0.0001		0.00001			0.0000015		0.00025	0.000008	0.00025	0.0015	0.00001		
ROB-11-05A 46	ROB-11-05A	14	14.6	Katsao		1.79		0.0011		0.000005			0.000017		0.0065	0.000799	0.0018	1.42	0.00072		
K-11-116 48.2-5	K-11-116	48.2	51	Katsao		0.005		0.0002		0.00001			0.000395		0.0007	0.000198	0.0037	0.014	0.00001		
K-11-116 69-72	K-11-116	69	72	Katsao		0.16		0.0001		0.00005			0.000015		0.0007	0.000406	0.0042	0.371	0.00027		
K-11-108 88.3-8	K-11-108	88.3	88.8	Katsao		1.11		0.0003		0.00024			0.000004		0.00025	0.000048	0.0012	0.132	0.00813		
K-11-108 120.3	K-11-108	120.3	120.7	Katsao		2.21		0.0001		0.00003			0.000029		0.003	0.0012	0.0009	0.803	0.00048		
K-11-108 140.2	K-11-108	140.2	140.7	Katsao		3.48		0.001		0.00004			0.000028		0.009	0.0029	0.0014	2.52	0.00054		
K-11-108 160-1	K-11-108	160	160.5	Katsao		1.87		0.0014		0.00003			0.000011		0.004	0.0012	0.001	0.868	0.00145		
K-11-108 170-1	K-11-108	170	170.5	Katsao		1.58		0.0008		0.00002			0.000005		0.006	0.000486	0.0079	0.999	0.00034		
K-11-108 176.5	K-11-108	176.5	177	Katsao		1.43		0.0005		0.00005			0.00001		0.008	0.00448	0.0029	1.46	0.0011		
K-11-108 204-2	K-11-108	204	204.5	Katsao		1.54		0.0035		0.00005			0.000063		0.007	0.00448	0.0017	1.7	0.00081		
K-11-108 214-2	K-11-108	214	214.5	Katsao		0.72		0.0005		0.00004			0.000024		0.003	0.000913	0.0019	0.821	0.0004		
K-11-108 225-2	K-11-108	225	225.5	Katsao		0.06		0.0007		0.00002			0.000003		0.00025	0.000164	0.0013	0.016	0.00003		
ROB-11-06 43	ROB-11-06	13.1	13.7	Katsao		1.58		0.0014		0.000005			0.000003		0.0052	0.000641	0.0008	1.1	0.00031		
K-11-116 42-42	K-11-116	42	42.5	Katsao		0.29		0.0004		0.00004			0.000021		0.0014	0.00985	0.0034	0.403	0.00075		
K-11-108 99.3-9	K-11-108	99.3	99.7	Katsao		0.77		0.0001		0.00006			0.000008		0.0019	0.0019	0.016	0.617	0.00016		
K-11-108 108.5	K-11-108	108.5	109	Katsao		1.88		0.0002		0.00004			0.00001		0.00025	0.000019	0.0009	0.153	0.00133		
K-11-108 151-1	K-11-108	151	151.5	Katsao		1.8		0.0005		0.00004			0.000011		0.00025	0.000234	0.0015	0.24	0.00165		
K-11-108 190.1	K-11-108	190.1	190.7	Katsao		1.37		0.0024		0.00001			0.000005		0.00025	0.000162	0.00025	0.374	0.00171		
K20/7	K-08-20	162.4	162.9	Menihiek		0.38		0.0018		0.00004			0.0000015		0.00025	0.000023	0.0006	0.01	0.00003		
K24/3	K-08-24	64.1	64.4	Menihiek		1.66		0.0013		0.000005			0.0000015		0.001	0.00008	0.0007	0.309	0.0003		
K24/4	K-08-24	127.8	128	Menihiek		1.4		0.0015		0.000005			0.0000015		0.0006	0.000043	0.00025	0.158	0.0002		
K24/5	K-08-24	192.6	192.8	Menihiek		2.16		0.0009		0.00004			0.0000015		0.0013	0.000165	0.0011	0.483	0.00106		
K66/4	K-10-66	184.7	185	Menihiek		0.01		0.0041		0.00004			0.0000015		0.00025	0.00129	0.0009	0.004	0.00001		
K66/7	K-10-66	424.6	424.9	Menihiek		0.36		0.0002		0.00002			0.0000015		0.00025	0.000058	0.0008	0.038	0.00003		
K66/10	K-10-66	457.5	457.9	Menihiek		0.16		0.0003		0.00001			0.0000015		0.00025	0.000146	0.00025	0.0015	0.00006		
K66/11	K-10-66	486	486.5	Menihiek		0.02		0.0003		0.00002			0.000038		0.00025	0.00498	0.00025	0.012	0.00002		
K140/1	K-11-140	13.9	14.2	Menihiek		0.06		0.0003		0.00023			0.0000015		0.00025	0.000355	0.0005	0.004	0.00001		
K140/2	K-11-140	41	41.4	Menihiek		1.77		0.0011		0.00002			0.0000015		0.00025	0.000052	0.00025	0.114	0.00019		
K140/3	K-11-140	74.8	75.1	Menihiek		0.6		0.0005		0.000005			0.0000015		0.00025	0.000015	0.0007	0.007	0.00004		
K140/4	K-11-140	101	101.3	Menihiek		1.98		0.001		0.000005			0.0000015		0.00025	0.000077	0.00025	0.166	0.00024		
K163/1	K-11-163	60.6	61	Menihiek		0.02		0.0007		0.00001			0.000934		0.00025	0.0365	0.00025	0.003	0.00003		
K163/2	K-11-163	105	105.2	Menihiek		0.31		0.0003		0.00005			0.0000015		0.00025	0.000997	0.0006	0.206	0.00019		
K163/3	K-11-163	150	150.2	Menihiek		1.19		0.0014		0.00002			0.000022		0.001	0.000257	0.0009	0.461	0.00029		
K-11-170 59.1-5	K-11-170	59.1	59.6	Menihiek		0.01		0.0001		0.000005			0.000167		0.00025	0.00398	0.00025	0.022	0.00002		
K-11-166 23-24	K-11-166	23	24	Menihiek		1.29		0.001		0.00001			0.000009		0.0012	0.000309	0.00025	0.355	0.00019		
K-11-166 38.2-3	K-11-166	38.2	39	Menihiek		1.2		0.003		0.000005			0.000049		0.0007	0.000218	0.00025	0.146	0.00053		
K-11-166 63.5-6	K-11-166	63.5	64.1	Menihiek		0.47		0.0001		0.000005			0.0226		0.00025	0.148	0.0079	13.6	0.00201		
K-10-38 59-60	K-10-38	59	60	Menihiek		0.85		0.0018		0.00001			0.000028		0.0037	0.000468	0.00025	0.499	0.00014		
K-10-38 90-91	K-10-38	90	91	Menihiek		0.56		0.0001		0.00002			0.000012		0.0007	0.000228	0.00025	0.387	0.00026		
K-10-38 291-29	K-10-38	291	292	Menihiek		0.18		0.0001		0.00017			0.000006		0.00025	0.000199	0.00025	0.0015	0.00001		
K20/2	K-08-20	84.5	85	Menihiek		1.67		0.0022		0.00005			0.0002		0.0017	0.000288	0.0011	0.609	0.00055		



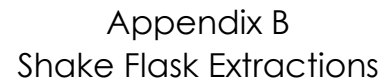
Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Manganese	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration							0.25														0.4
MDMER Maximum Authorized Concentration in a Composite							0.38														0.6
MDMER Maximum Authorized Concentration in a Grab Sample							0.5														0.8
CCME Freshwater Aquatic Chronic						0.073	0.07036			0.001		0.00025							0.015		
CCME Freshwater Aquatic Acute																			0.033		
K-11-166 259.5	K-11-166	259.5	260	Denault		0.00025	0.0002			0.0005						0.00001			0.000035		0.0005
K-11-166 281-2	K-11-166	281	281.5	Denault		0.00022	0.0002			0.0005						0.00001			0.000037		0.0005
K-11-166 299.3	K-11-166	299.3	299.5	Denault		0.00015	0.0003			0.0005						0.00001			0.000034		0.0005
K-10-55 80.6-81	K-10-55	80.6	81.6	Denault		0.00051	0.00005			0.0005						0.00001			0.000063		0.0005
K-10-55 99-100	K-10-55	99	100	Denault		0.00046	0.00005			0.0005						0.00001			0.000016		0.0005
ROB-11-05A 46	ROB-11-05A	14	14.6	Katsao		0.00211	0.0029			0.0005						0.00003			0.0021		0.004
K-11-116 48.2-5	K-11-116	48.2	51	Katsao		0.0182	0.0011			0.001						0.00001			0.00603		0.0005
K-11-116 69-72	K-11-116	69	72	Katsao		0.0178	0.0041			0.0005						0.00001			0.000495		0.003
K-11-108 88.3-8	K-11-108	88.3	88.8	Katsao		0.00082	0.0002			0.0005						0.00001			0.00195		0.0005
K-11-108 120.3	K-11-108	120.3	120.7	Katsao		0.061	0.0064			0.0005						0.00003			0.00374		0.002
K-11-108 140.2	K-11-108	140.2	140.7	Katsao		0.017	0.0154			0.0005						0.00004			0.000987		0.005
K-11-108 160-1	K-11-108	160	160.5	Katsao		0.00562	0.0044			0.0005						0.00002			0.00192		0.003
K-11-108 170-1	K-11-108	170	170.5	Katsao		0.00032	0.0023			0.0005						0.00003			0.00217		0.003
K-11-108 176.5	K-11-108	176.5	177	Katsao		0.00229	0.018			0.0005						0.00004			0.00193		0.004
K-11-108 204-2	K-11-108	204	204.5	Katsao		0.00235	0.0256			0.0005						0.00004			0.000647		0.004
K-11-108 214-2	K-11-108	214	214.5	Katsao		0.00387	0.004			0.002						0.00002			0.000198		0.002
K-11-108 225-2	K-11-108	225	225.5	Katsao		0.00524	0.0028			0.0005						0.00001			0.00199		0.0005
ROB-11-06 43	ROB-11-06	13.1	13.7	Katsao		0.00088	0.0035			0.0005						0.00003			0.00121		0.003
K-11-116 42-42	K-11-116	42	42.5	Katsao		0.00892	0.008			0.0005						0.00001			0.000841		0.002
K-11-108 99.3-9	K-11-108	99.3	99.7	Katsao		0.00225	0.0075			0.0005						0.00001			0.000272		0.002
K-11-108 108.5	K-11-108	108.5	109	Katsao		0.0008	0.0002			0.0005						0.00001			0.0259		0.0005
K-11-108 151-1	K-11-108	151	151.5	Katsao		0.00125	0.0005			0.0005						0.00001			0.00618		0.001
K-11-108 190.1	K-11-108	190.1	190.7	Katsao		0.00038	0.0006			0.0005						0.00001			0.00469		0.001
K20/7	K-08-20	162.4	162.9	Menihek		0.0364	0.0004			0.003						0.00001			0.00748		0.0005
K24/3	K-08-24	64.1	64.4	Menihek		0.00192	0.0005			0.001						0.00001			0.00951		0.003
K24/4	K-08-24	127.8	128	Menihek		0.00131	0.0003			0.0005						0.00001			0.00431		0.0005
K24/5	K-08-24	192.6	192.8	Menihek		0.0017	0.0015			0.002						0.00002			0.00168		0.006
K66/4	K-10-66	184.7	185	Menihek		0.0278	0.0463			0.015						0.00002			0.00192		0.002
K66/7	K-10-66	424.6	424.9	Menihek		0.00185	0.0013			0.001						0.00001			0.000336		0.0005
K66/10	K-10-66	457.5	457.9	Menihek		0.016	0.0213			0.005						0.00001			0.00255		0.0005
K66/11	K-10-66	486	486.5	Menihek		0.0048	0.172			0.009						0.00002			0.000933		0.005
K140/1	K-11-140	13.9	14.2	Menihek		0.00232	0.0046			0.006						0.00003			0.00368		0.0005
K140/2	K-11-140	41	41.4	Menihek		0.001	0.0001			0.0005						0.00001			0.0061		0.001
K140/3	K-11-140	74.8	75.1	Menihek		0.00374	0.0002			0.002						0.00001			0.000758		0.001
K140/4	K-11-140	101	101.3	Menihek		0.00134	0.0002			0.0005						0.00001			0.005767		0.002
K163/1	K-11-163	60.6	61	Menihek		0.00036	1.2			0.022						0.00004			0.000251		0.01
K163/2	K-11-163	105	105.2	Menihek		0.00353	0.0172			0.004						0.00001			0.000369		0.001
K163/3	K-11-163	150	150.2	Menihek		0.00075	0.0007			0.0005						0.00001			0.00645		0.002
K-11-170 59.1-5	K-11-170	59.1	59.6	Menihek		0.00047	0.0572			0.001						0.00001			0.00803		0.003
K-11-166 23-24	K-11-166	23	24	Menihek		0.00272	0.0017			0.004						0.00001			0.000322		0.001
K-11-166 38.2-3	K-11-166	38.2	39	Menihek		0.00263	0.0012			0.002						0.00001			0.00365		0.001
K-11-166 63.5-6	K-11-166	63.5	64.1	Menihek		0.0001	0.947			0.003						0.00015			0.0392		2.53
K-10-38 59-60	K-10-38	59	60	Menihek		0.00081	0.003			0.0005						0.00001			0.000608		0.003
K-10-38 90-91	K-10-38	90	91	Menihek		0.00152	0.0011			0.0005						0.00001			0.000358		0.003
K-10-38 291-29	K-10-38	291	292	Menihek		0.0037	0.0042			0.009						0.00001			0.00775		0.0005
K20/2	K-08-20	84.5	85	Menihek		0.00289	0.0021			0.0005						0.00004			0.00147		0.009



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Mercury	Hardness (as CaCO ₃)
Units					mg/L	mg CaCO ₃ /L
MDMER Maximum Authorized Monthly Mean Concentration						
MDMER Maximum Authorized Concentration in a Composite						
MDMER Maximum Authorized Concentration in a Grab Sample						
CCME Freshwater Aquatic Chronic						
CCME Freshwater Aquatic Acute						
K-11-166 259.5	K-11-166	259.5	260	Denault	0.00001	
K-11-166 281-2	K-11-166	281	281.5	Denault	0.000005	
K-11-166 299.3	K-11-166	299.3	299.5	Denault	0.000005	
K-10-55 80.6-81	K-10-55	80.6	81.6	Denault	0.000005	
K-10-55 99-100	K-10-55	99	100	Denault	0.000005	
ROB-11-05A 46	ROB-11-05A	14	14.6	Katsao	0.00001	
K-11-116 48.2-5	K-11-116	48.2	51	Katsao	0.00001	
K-11-116 69-72	K-11-116	69	72	Katsao	0.00002	
K-11-108 88.3-8	K-11-108	88.3	88.8	Katsao	0.000005	
K-11-108 120.3	K-11-108	120.3	120.7	Katsao	0.00001	
K-11-108 140.2	K-11-108	140.2	140.7	Katsao	0.000005	
K-11-108 160-1	K-11-108	160	160.5	Katsao	0.000005	
K-11-108 170-1	K-11-108	170	170.5	Katsao	0.00001	
K-11-108 176.5	K-11-108	176.5	177	Katsao	0.00001	
K-11-108 204-2	K-11-108	204	204.5	Katsao	0.00001	
K-11-108 214-2	K-11-108	214	214.5	Katsao	0.00001	
K-11-108 225-2	K-11-108	225	225.5	Katsao	0.000005	
ROB-11-06 43-4	ROB-11-06	13.1	13.7	Katsao	0.000005	
K-11-116 42-42	K-11-116	42	42.5	Katsao	0.00002	
K-11-108 99.3-9	K-11-108	99.3	99.7	Katsao	0.000005	
K-11-108 108.5	K-11-108	108.5	109	Katsao	0.00001	
K-11-108 151-1	K-11-108	151	151.5	Katsao	0.000005	
K-11-108 190.1	K-11-108	190.1	190.7	Katsao	0.00001	
K20/7	K-08-20	162.4	162.9	Menihek	0.00001	
K24/3	K-08-24	64.1	64.4	Menihek	0.00001	
K24/4	K-08-24	127.8	128	Menihek	0.000005	
K24/5	K-08-24	192.6	192.8	Menihek	0.000005	
K66/4	K-10-66	184.7	185	Menihek	0.000005	
K66/7	K-10-66	424.6	424.9	Menihek	0.00001	
K66/10	K-10-66	457.5	457.9	Menihek	0.00001	
K66/11	K-10-66	486	486.5	Menihek	0.00001	
K140/1	K-11-140	13.9	14.2	Menihek	0.000005	
K140/2	K-11-140	41	41.4	Menihek	0.000005	
K140/3	K-11-140	74.8	75.1	Menihek	0.000005	
K140/4	K-11-140	101	101.3	Menihek	0.00001	
K163/1	K-11-163	60.6	61	Menihek	0.000005	
K163/2	K-11-163	105	105.2	Menihek	0.00001	
K163/3	K-11-163	150	150.2	Menihek	0.000005	
K-11-170 59.1-5	K-11-170	59.1	59.6	Menihek	0.00001	
K-11-166 23-24	K-11-166	23	24	Menihek	0.000005	
K-11-166 38.2-3	K-11-166	38.2	39	Menihek	0.000005	
K-11-166 63.5-6	K-11-166	63.5	64.1	Menihek	0.000005	
K-10-38 59-60	K-10-38	59	60	Menihek	0.00001	
K-10-38 90-91	K-10-38	90	91	Menihek	0.00001	
K-10-38 291-29	K-10-38	291	292	Menihek	0.00001	
K20/2	K-08-20	84.5	85	Menihek	0.000005	



Sample ID	Borehole ID	From (m)	To (m)	Formation	Company	Material Type	pH	pH2	Acidity (as CaCO3)	Conductivity	Moisture	ORP	Alkalinity, total (as CaCO3)	Ammonia, total (as N)	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	Phosphorus, total dissolved	Sulfate
Units							-	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration																				
MDMER Maximum Authorized Concentration in a Composite																				
MDMER Maximum Authorized Concentration in a Grab Sample																				
CCME Freshwater Aquatic Chronic														0.019	120	0.12	13			
CCME Freshwater Aquatic Acute							?								640		550			
K20/14	K-08-20	426	426.5	Menihek	Stantec	Mine Rock	9.68	9.33												
K140/6	K-11-140	150.7	151.1	Menihek	Stantec	Mine Rock	9.63	9.39												
K-10-52 305.5-3	K-10-52	305.5	306.5	Menihek	Stantec	Mine Rock	8.99	9.19												
K-12-200 89.9-9	K-12-200	89.9	90.4	Menihek	Stantec	Mine Rock	9.77	9.38												
K-12-200 110-1	K-12-200	110	110.5	Menihek	Stantec	Mine Rock	8.92	9.32												
K-12-200 130-1	K-12-200	130	130.5	Menihek	Stantec	Mine Rock	7.38	8.48												
K20/1	K-08-20	6	6.4	Menihek	Stantec	Mine Rock	3.63	3.77												
K20/5	K-08-20	135	135.4	Menihek	Stantec	Mine Rock	8.24	9.13												
K20/9	K-08-20	174	174.5	Menihek	Stantec	Mine Rock	9.48	8.79												
K-10-52 281-28	K-10-52	281	282	Menihek	Stantec	Mine Rock	7.29	8.65												
K86B/1	K-10-B6b	151.4	152	Menihek	Stantec	Mine Rock	7.03	7.25												
K152/1	K-11-152	58.3	58.6	Menihek	Stantec	Mine Rock	8.03	8.32												
K152/2	K-11-152	143.2	143.7	Menihek	Stantec	Mine Rock	7.36	7.32												
K24/6-280 (K24	K-08-24	230	230.4	Menihek	Stantec	Mine Rock	9.68	8.52												
K66/8	K-10-66	372.4	372.8	Menihek	Stantec	Mine Rock	9.1	8.27												
K140/5	K-11-140	128.4	128.8	Menihek	Stantec	Mine Rock	9.3	8.88												
K163/5	K-11-163	195.3	195.6	Menihek	Stantec	Mine Rock	4.33	4.42												
K-10-35 14-15	K-10-35	14	15	Menihek	Stantec	Mine Rock	5.72	6.35												
K-10-35 42.1-42	K-10-35	42.1	42.9	Menihek	Stantec	Mine Rock	8.37	8.99												
K-11-171 11-11	K-11-171	11	11.4	Menihek	Stantec	Mine Rock	5.06	5.12												
K-11-171 25.2-2	K-11-171	25.2	25.8	Menihek	Stantec	Mine Rock	6.21	7.18												
K-11-171 26.5-2	K-11-171	26.5	27	Menihek	Stantec	Mine Rock	6.61	7.49												
K-11-171 44-44	K-11-171	44	44.6	Menihek	Stantec	Mine Rock	7.65	7.28												
K-11-171 46.5-4	K-11-171	46.5	47	Menihek	Stantec	Mine Rock	7	8.01												
K-11-171 69.9-7	K-11-171	69.9	70.4	Menihek	Stantec	Mine Rock	7.66	7.67												
K-11-171 74-74	K-11-171	74	74.5	Menihek	Stantec	Mine Rock	7.13	7.55												
K-11-171 90-90	K-11-171	90	90.4	Menihek	Stantec	Mine Rock	7.61	7.41												
K-10-29 37.2-38	K-10-29	37.2	38	Menihek	Stantec	Mine Rock	6.49	8.66												
K-10-29 59-60	K-10-29	59	60	Menihek	Stantec	Mine Rock	8.7	8.91												
K-11-170 30-30	K-11-170	30	30.5	Menihek	Stantec	Mine Rock	4.21	4.6												
K-11-170 45.5-4	K-11-170	45.5	46	Menihek	Stantec	Mine Rock	4.16	4.03												
K-11-170 75.1-7	K-11-170	75.1	75.7	Menihek	Stantec	Mine Rock	6.45	7.1												
K-11-166 92.3-9	K-11-166	92.3	93	Menihek	Stantec	Mine Rock	4.84	6.06												
K-11-166 120.2	K-11-166	120.2	121.2	Menihek	Stantec	Mine Rock	9.2	8.19												
K-10-38 105-10	K-10-38	105	106	Menihek	Stantec	Mine Rock	5.78	6.41												
K-10-38 305-30	K-10-38	305	306	Menihek	Stantec	Mine Rock	7.69	9.18												
K-12-200 65-65	K-12-200	65	65.5	Menihek	Stantec	Mine Rock	9.23	9.7												
K-11-133 159-1	K-11-133	159	159.5	Menihek	Stantec	Mine Rock	9.68	9.1												
K-11-133 130-1	K-11-133	130	130.5	Menihek	Stantec	Mine Rock	8.51	8.53												
K20/3	K-08-20	103.7	104.5	Menihek	Stantec	Mine Rock	9.03	8.31												
K20/6	K-08-20	139.1	139.7	Menihek	Stantec	Mine Rock	9.36	9.02												
K-11-171 94-94	K-11-171	94	94.5	Menihek	Stantec	Mine Rock	6.04	6.62												
K-11-133 105-1	K-11-133	105	106	Menihek	Stantec	Mine Rock	9.68	8.48												
K-11-133 160-1	K-11-133	160	160.5	Menihek	Stantec	Mine Rock	8.89	9.51												
K66/9	K-10-66	419.1	419.5	Menihek	Stantec	Mine Rock	9.62	9.06												
K140/7	K-11-140	205.5	206	Menihek	Stantec	Mine Rock	9.78	9.56												



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Bromide	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration								0.1									0.1		0.08		
MDMER Maximum Authorized Concentration in a Composite								0.15									0.15		0.12		
MDMER Maximum Authorized Concentration in a Grab Sample								0.2									0.2		0.16		
CCME Freshwater Aquatic Chronic								0.005				1.5	0.0002		0.0089			0.3			
CCME Freshwater Aquatic Acute												29									
K20/14	K-08-20	426	426.5	Menihek		0.25		0.0003		0.000005			0.0000015		0.00025	0.000012	0.00025	0.007	0.00001		
K140/6	K-11-140	150.7	151.1	Menihek		0.55		0.0005		0.000005			0.0000015		0.00025	0.000069	0.00025	0.089	0.00012		
K-10-52 305.5-3	K-10-52	305.5	306.5	Menihek		0.98		0.0009		0.000005			0.000006		0.00025	0.000053	0.00025	0.506	0.00007		
K-12-200 89.9-9	K-12-200	89.9	90.4	Menihek		0.31		0.0005		0.000005			0.0000015		0.00025	0.000001	0.00025	0.011	0.00001		
K-12-200 110-1	K-12-200	110	110.5	Menihek		2.15		0.0016		0.00006			0.000018		0.0033	0.000815	0.0006	1.15	0.00109		
K-12-200 130-1	K-12-200	130	130.5	Menihek		0.78		0.0021		0.00003			0.00002		0.0018	0.000923	0.00025	0.636	0.0004		
K20/1	K-08-20	6	6.4	Menihek		41		0.0026		0.000005			0.197		0.0264	2.01	2.33	64.4	0.00082		
K20/5	K-08-20	135	135.4	Menihek		1.29		0.0011		0.00002			0.0000015		0.0007	0.000071	0.0005	0.161	0.00026		
K20/9	K-08-20	174	174.5	Menihek		0.005		0.0004		0.000005			0.0000015		0.00025	0.000024	0.00025	0.0015	0.00001		
K-10-52 281-28	K-10-52	281	282	Menihek		0.58		0.0002		0.00006			0.000017		0.0012	0.000161	0.00025	0.368	0.00023		
K86B/1	K-10-86b	151.4	152	Menihek		0.005		0.0001		0.000005			0.0000015		0.00025	0.000079	0.0009	0.0015	0.00005		
K152/1	K-11-152	58.3	58.6	Menihek		0.03		0.0006		0.00034			0.000018		0.00025	0.000212	0.001	0.007	0.00005		
K152/2	K-11-152	143.2	143.7	Menihek		0.01		0.0001		0.000005			0.000071		0.00025	0.000275	0.0007	0.0015	0.00007		
K24/6-280 (K24	K-08-24	230	230.4	Menihek		0.005		0.0001		0.000005			0.0000015		0.00025	0.000018	0.0006	0.0015	0.00001		
K66/8	K-10-66	372.4	372.8	Menihek		0.15		0.0001		0.00002			0.0000015		0.00025	0.000048	0.0005	0.006	0.00007		
K140/5	K-11-140	128.4	128.8	Menihek		0.51		0.0004		0.00006			0.0000015		0.00025	0.000052	0.00025	0.013	0.00006		
K163/5	K-11-163	195.3	195.6	Menihek		1.63		0.0033		0.00001			0.196		0.00025	0.0637	2.92	7.28	0.133		
K-10-35 14-15	K-10-35	14	15	Menihek		0.005		0.0001		0.00004			0.0001		0.00025	0.0373	0.00025	0.774	0.00001		
K-10-35 42.1-42	K-10-35	42.1	42.9	Menihek		1.58		0.0005		0.00001			0.000008		0.0017	0.000368	0.00025	0.469	0.00061		
K-11-171 11-11	K-11-171	11	11.4	Menihek		0.16		0.0001		0.000005			0.00479		0.00025	0.58	0.0005	5.39	0.00029		
K-11-171 25.2-2	K-11-171	25.2	25.8	Menihek		0.02		0.0001		0.000005			0.000026		0.00025	0.00127	0.00025	0.003	0.00001		
K-11-171 26.5-2	K-11-171	26.5	27	Menihek		0.1		0.0001		0.000005			0.000115		0.00025	0.000894	0.00025	0.037	0.00003		
K-11-171 44-44	K-11-171	44	44.6	Menihek		0.1		0.0164		0.00026			0.000142		0.0006	0.00603	0.0006	0.164	0.00175		
K-11-171 46.5-4	K-11-171	46.5	47	Menihek		0.37		0.0001		0.00029			0.00001		0.0005	0.00044	0.00025	0.285	0.00014		
K-11-171 69.9-7	K-11-171	69.9	70.4	Menihek		0.1		0.0001		0.000005			0.000006		0.00025	0.00167	0.00025	0.03	0.00001		
K-11-171 74-74	K-11-171	74	74.5	Menihek		0.13		0.0001		0.00002			0.00001		0.00025	0.00141	0.00025	0.038	0.00023		
K-11-171 90-90	K-11-171	90	90.4	Menihek		0.05		0.0001		0.00012			0.000007		0.00025	0.000137	0.00025	0.026	0.00002		
K-10-29 37.2-38	K-10-29	37.2	38	Menihek		0.6		0.0013		0.00001			0.000045		0.0012	0.000114	0.0007	0.317	0.00042		
K-10-29 59-60	K-10-29	59	60	Menihek		0.61		0.0004		0.000005			0.000004		0.00025	0.000533	0.00025	0.038	0.00005		
K-11-170 30-30	K-11-170	30	30.5	Menihek		0.57		0.0006		0.000005			0.231		0.00025	0.558	0.487	1.45	0.00178		
K-11-170 45.5-4	K-11-170	45.5	46	Menihek		12.7		0.0024		0.000005			0.0718		0.0012	0.535	2.5	23.3	0.00337		
K-11-170 75.1-7	K-11-170	75.1	75.7	Menihek		0.02		0.0007		0.000005			0.00001		0.00025	0.00326	0.00025	0.012	0.00001		
K-11-166 92.3-9	K-11-166	92.3	93	Menihek		0.005		0.0001		0.000005			0.000037		0.00025	0.00402	0.00025	44.2	0.00004		
K-11-166 120.2	K-11-166	120.2	121.2	Menihek		0.09		0.0001		0.00026			0.000019		0.00025	0.000249	0.00025	0.006	0.00001		
K-10-38 105-10	K-10-38	105	106	Menihek		0.005		0.0001		0.000005			0.000161		0.00025	0.372	0.00025	4.78	0.00001		
K-10-38 305-30	K-10-38	305	306	Menihek		0.99		0.0012		0.000005			0.000005		0.00025	0.000001	0.00025	0.116	0.00006		
K-12-200 65-65	K-12-200	65	65.5	Menihek		1.79		0.0013		0.000005			0.000005		0.0029	0.000385	0.00025	0.91	0.00039		
K-11-133 159-1	K-11-133	159	159.5	Menihek		0.005		0.0009		0.000005			0.0000015		0.00025	0.000018	0.00025	0.0015	0.00001		
K-11-133 130-1	K-11-133	130	130.5	Menihek		0.24		0.0001		0.00003			0.00001		0.00025	0.000074	0.0005	0.009	0.00002		
K20/3	K-08-20	103.7	104.5	Menihek		0.13		0.0005		0.00004			0.000053		0.00025	0.000096	0.0006	0.009	0.00007		
K20/6	K-08-20	139.1	139.7	Menihek		0.26		0.0001		0.00004			0.0000015		0.00025	0.00004	0.0007	0.02	0.00011		
K-11-171 94-94	K-11-171	94	94.5	Menihek		0.005		0.0004		0.00001			0.000038		0.00025	0.0479	0.0008	0.006	0.00001		
K-11-133 105-1	K-11-133	105	106	Menihek		0.27		0.0145		0.00002			0.000006		0.0015	0.000045	0.0015	0.137	0.00018		
K-11-133 160-1	K-11-133	160	160.5	Menihek		2.58		0.0042		0.00003			0.000005		0.0052	0.000445	0.0015	1.09	0.0011		
K66/9	K-10-66	419.1	419.5	Menihek		0.31		0.0001		0.000005			0.0000015		0.00025	0.000017	0.00025	0.004	0.00001		
K140/7	K-11-140	205.5	206	Menihek		0.93		0.0018		0.000005			0.0000015		0.00025	0.000037	0.0007	0.097	0.00009		



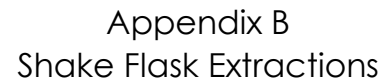
Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Manganese	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc	
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration							0.25															0.4
MDMER Maximum Authorized Concentration in a Composite							0.38															0.6
MDMER Maximum Authorized Concentration in a Grab Sample							0.5															0.8
CCME Freshwater Aquatic Chronic						0.073	0.07036			0.001		0.00025							0.015			
CCME Freshwater Aquatic Acute																			0.033			
K20/14	K-08-20	426	426.5	Menihek		0.00092	0.0001			0.0005						0.00001			0.000117		0.002	
K140/6	K-11-140	150.7	151.1	Menihek		0.0107	0.0005			0.005						0.00001			0.000851		0.0005	
K-10-52 305.5-3	K-10-52	305.5	306.5	Menihek		0.00286	0.0006			0.0005						0.00001			0.000125		0.002	
K-12-200 89.9-9	K-12-200	89.9	90.4	Menihek		0.00178	0.0005			0.002						0.00001			0.00159		0.0005	
K-12-200 110-1	K-12-200	110	110.5	Menihek		0.00226	0.0036			0.0005						0.00004			0.00161		0.007	
K-12-200 130-1	K-12-200	130	130.5	Menihek		0.00282	0.0038			0.001						0.00003			0.00105		0.005	
K20/1	K-08-20	6	6.4	Menihek		0.0013	6.29			0.017						0.00117			0.227		8.69	
K20/5	K-08-20	135	135.4	Menihek		0.00809	0.0005			0.0005						0.00001			0.00602		0.003	
K20/9	K-08-20	174	174.5	Menihek		0.00158	0.0002			0.0005						0.00001			0.00163		0.001	
K-10-52 281-28	K-10-52	281	282	Menihek		0.00172	0.0021			0.0005						0.00001			0.000326		0.001	
K86B/1	K-10-86b	151.4	152	Menihek		0.00113	0.0005			0.0005						0.00001			0.000032		0.003	
K152/1	K-11-152	58.3	58.6	Menihek		0.00672	0.0013			0.008						0.00001			0.0223		0.003	
K152/2	K-11-152	143.2	143.7	Menihek		0.00046	0.0006			0.0005						0.00003			0.000369		0.002	
K24/6-280 (K24	K-08-24	230	230.4	Menihek		0.00011	0.0001			0.0005						0.00001			0.000038		0.0005	
K66/8	K-10-66	372.4	372.8	Menihek		0.0122	0.0017			0.001						0.00001			0.00378		0.002	
K140/5	K-11-140	128.4	128.8	Menihek		0.00181	0.0007			0.007						0.00001			0.000848		0.0005	
K163/5	K-11-163	195.3	195.6	Menihek		0.00012	0.805			0.028						0.00027			1.98		23.2	
K-10-35 14-15	K-10-35	14	15	Menihek		0.00073	0.443			0.001						0.00001			0.000473		0.015	
K-10-35 42.1-42	K-10-35	42.1	42.9	Menihek		0.00374	0.0017			0.002						0.00001			0.00035		0.005	
K-11-171 11-11	K-11-171	11	11.4	Menihek		0.00024	3.61			0.013						0.00003			0.0129		0.702	
K-11-171 25.2-2	K-11-171	25.2	25.8	Menihek		0.00165	0.0668			0.005						0.00001			0.000133		0.002	
K-11-171 26.5-2	K-11-171	26.5	27	Menihek		0.00556	0.0189			0.004						0.00001			0.000187		0.004	
K-11-171 44-44	K-11-171	44	44.6	Menihek		0.015	0.132			0.005						0.00002			0.00799		0.028	
K-11-171 46.5-4	K-11-171	46.5	47	Menihek		0.00675	0.0031			0.003						0.00001			0.000306		0.003	
K-11-171 69.9-7	K-11-171	69.9	70.4	Menihek		0.00742	0.042			0.01						0.00002			0.000271		0.0005	
K-11-171 74-74	K-11-171	74	74.5	Menihek		0.0124	0.0576			0.015						0.00003			0.000412		0.001	
K-11-171 90-90	K-11-171	90	90.4	Menihek		0.0343	0.0279			0.018						0.00004			0.00132		0.0005	
K-10-29 37.2-38	K-10-29	37.2	38	Menihek		0.00491	0.0022			0.002						0.00001			0.0034		0.002	
K-10-29 59-60	K-10-29	59	60	Menihek		0.0156	0.0005			0.002						0.00001			0.00809		0.0005	
K-11-170 30-30	K-11-170	30	30.5	Menihek		0.00006	1.28			0.017						0.0002			0.0346		2.92	
K-11-170 45.5-4	K-11-170	45.5	46	Menihek		0.00026	1.78			0.009						0.0004			3.3		3.88	
K-11-170 75.1-7	K-11-170	75.1	75.7	Menihek		0.0119	0.0484			0.003						0.00001			0.00166		0.003	
K-11-166 92.3-9	K-11-166	92.3	93	Menihek		0.00006	0.0449			0.005						0.00001			0.000957		0.02	
K-11-166 120.2	K-11-166	120.2	121.2	Menihek		0.0471	0.0044			0.008						0.00001			0.00912		0.0005	
K-10-38 105-10	K-10-38	105	106	Menihek		0.00023	3.51			0.012						0.00001			0.000256		0.043	
K-10-38 305-30	K-10-38	305	306	Menihek		0.00582	0.0001			0.002						0.00001			0.00242		0.001	
K-12-200 65-65	K-12-200	65	65.5	Menihek		0.00043	0.0015			0.0005						0.00003			0.000336		0.005	
K-11-133 159-1	K-11-133	159	159.5	Menihek		0.00028	0.0002			0.0005						0.00001			0.00212		0.0005	
K-11-133 130-1	K-11-133	130	130.5	Menihek		0.0106	0.0016			0.0005						0.00001			0.0076		0.001	
K20/3	K-08-20	103.7	104.5	Menihek		0.0309	0.0028			0.001						0.00001			0.0383		0.002	
K20/6	K-08-20	139.1	139.7	Menihek		0.00212	0.0004			0.0005						0.00001			0.000648		0.001	
K-11-171 94-94	K-11-171	94	94.5	Menihek		0.0285	2.07			0.011						0.00017			0.00233		0.002	
K-11-133 105-1	K-11-133	105	106	Menihek		0.00109	0.0004			0.0005						0.00001			0.000514		0.0005	
K-11-133 160-1	K-11-133	160	160.5	Menihek		0.00142	0.0023			0.0005						0.00003			0.00172		0.008	
K66/9	K-10-66	419.1	419.5	Menihek		0.00175	0.0005			0.0005						0.00001			0.000138		0.0005	
K140/7	K-11-140	205.5	206	Menihek		0.00133	0.0002			0.0005						0.00001			0.000247		0.003	



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Mercury	Hardness (as CaCO ₃)
Units					mg/L	mg CaCO ₃ /L
MDMER Maximum Authorized Monthly Mean Concentration						
MDMER Maximum Authorized Concentration in a Composite						
MDMER Maximum Authorized Concentration in a Grab Sample						
CCME Freshwater Aquatic Chronic						
CCME Freshwater Aquatic Acute						
K20/14	K-08-20	426	426.5	Menihek	0.00001	
K140/6	K-11-140	150.7	151.1	Menihek	0.000005	
K-10-52 305.5-3	K-10-52	305.5	306.5	Menihek	0.00001	
K-12-200 89.9-9	K-12-200	89.9	90.4	Menihek	0.000005	
K-12-200 110-1	K-12-200	110	110.5	Menihek	0.00001	
K-12-200 130-1	K-12-200	130	130.5	Menihek	0.00001	
K20/1	K-08-20	6	6.4	Menihek	0.000005	
K20/5	K-08-20	135	135.4	Menihek	0.000005	
K20/9	K-08-20	174	174.5	Menihek	0.000005	
K-10-52 281-28	K-10-52	281	282	Menihek	0.00001	
K86B/1	K-10-86b	151.4	152	Menihek	0.000005	
K152/1	K-11-152	58.3	58.6	Menihek	0.00001	
K152/2	K-11-152	143.2	143.7	Menihek	0.000005	
K24/6-280 (K24	K-08-24	230	230.4	Menihek	0.000005	
K66/8	K-10-66	372.4	372.8	Menihek	0.00003	
K140/5	K-11-140	128.4	128.8	Menihek	0.000005	
K163/5	K-11-163	195.3	195.6	Menihek	0.000005	
K-10-35 14-15	K-10-35	14	15	Menihek	0.000005	
K-10-35 42.1-42	K-10-35	42.1	42.9	Menihek	0.000005	
K-11-171 11-11	K-11-171	11	11.4	Menihek	0.000005	
K-11-171 25.2-2	K-11-171	25.2	25.8	Menihek	0.000005	
K-11-171 26.5-2	K-11-171	26.5	27	Menihek	0.000005	
K-11-171 44-44	K-11-171	44	44.6	Menihek	0.000005	
K-11-171 46.5-4	K-11-171	46.5	47	Menihek	0.000005	
K-11-171 69.9-7	K-11-171	69.9	70.4	Menihek	0.000005	
K-11-171 74-74	K-11-171	74	74.5	Menihek	0.000005	
K-11-171 90-90	K-11-171	90	90.4	Menihek	0.00001	
K-10-29 37.2-38	K-10-29	37.2	38	Menihek	0.000005	
K-10-29 59-60	K-10-29	59	60	Menihek	0.00002	
K-11-170 30-30	K-11-170	30	30.5	Menihek	0.00001	
K-11-170 45.5-4	K-11-170	45.5	46	Menihek	0.000005	
K-11-170 75.1-7	K-11-170	75.1	75.7	Menihek	0.000005	
K-11-166 92.3-9	K-11-166	92.3	93	Menihek	0.000005	
K-11-166 120.2	K-11-166	120.2	121.2	Menihek	0.000005	
K-10-38 105-10	K-10-38	105	106	Menihek	0.00001	
K-10-38 305-30	K-10-38	305	306	Menihek	0.00001	
K-12-200 65-65	K-12-200	65	65.5	Menihek	0.00001	
K-11-133 159-1	K-11-133	159	159.5	Menihek	0.000005	
K-11-133 130-1	K-11-133	130	130.5	Menihek	0.000005	
K20/3	K-08-20	103.7	104.5	Menihek	0.000005	
K20/6	K-08-20	139.1	139.7	Menihek	0.000005	
K-11-171 94-94	K-11-171	94	94.5	Menihek	0.000005	
K-11-133 105-1	K-11-133	105	106	Menihek	0.00001	
K-11-133 160-1	K-11-133	160	160.5	Menihek	0.00001	
K66/9	K-10-66	419.1	419.5	Menihek	0.00002	
K140/7	K-11-140	205.5	206	Menihek	0.000005	



Sample ID	Borehole ID	From (m)	To (m)	Formation	Company	Material Type	pH	pH2	Acidity (as CaCO3)	Conductivity	Moisture	ORP	Alkalinity, total (as CaCO3)	Ammonia, total (as N)	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	Phosphorus, total dissolved	Sulfate
Units							-	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration																				
MDMER Maximum Authorized Concentration in a Composite																				
MDMER Maximum Authorized Concentration in a Grab Sample																				
CCME Freshwater Aquatic Chronic														0.019	120	0.12	13			
CCME Freshwater Aquatic Acute							?								640		550			
K-10-35 25-26	K-10-35	25	26	Menihek	Stantec	Mine Rock	9.22	8.92												
K-10-35 50-50.8	K-10-35	50	50.8	Menihek	Stantec	Mine Rock	8.72	8.81												
K-11-171 11.8-1	K-11-171	11.8	12.4	Menihek	Stantec	Mine Rock	9.64	9.31												
K-11-171 20-20	K-11-171	20	20.5	Menihek	Stantec	Mine Rock	9.66	9.44												
K-11-171 48-48	K-11-171	48	48.5	Menihek	Stantec	Mine Rock	7.53	8.35												
K-10-29 18.7-19	K-10-29	18.7	19.4	Menihek	Stantec	Mine Rock	4.06	3.71												
K-11-170 36.7-3	K-11-170	36.7	37.2	Menihek	Stantec	Mine Rock	5.59	7.68												
K-11-170 82.4-8	K-11-170	82.4	83	Menihek	Stantec	Mine Rock	7.04	9.68												
K-10-38 21-21.6	K-10-38	21	21.6	Menihek	Stantec	Mine Rock	8.92	9.24												
K-11-133 71-71	K-11-133	71	71.4	Menihek	Stantec	Mine Rock	9.18	9.26												
ROB-11-18#7	ROB-11-18	4.5	5.1	Overburden	Stantec	Mine Rock	8.63	9.03												
ROB-11-01A 52	ROB-11-01A	46.2	46.4	Overburden	Stantec	Mine Rock	8.7	8.45												
ROB-11-18#2	ROB-11-18	0.6	1.2	Overburden	Stantec	Mine Rock	4.91	4.91												
ROB-11-09#1	ROB-11-09	0	0.6	Overburden	Stantec	Mine Rock	6.03	5.75												
ROB-11-09#7	ROB-11-09	4.5	5.1	Overburden	Stantec	Mine Rock	6.33	8.55												
ROB-11-09#19	ROB-11-09	18.3	18.9	Overburden	Stantec	Mine Rock	9.06	9.06												
ROB-11-09#23	ROB-11-09	25.5	25.7	Overburden	Stantec	Mine Rock	3.12	3.04												
ROB-11-17#4	ROB-11-17	2.1	2.7	Overburden	Stantec	Mine Rock	6.85	7.87												
ROB-11-17#21	ROB-11-17	15.9	16.5	Overburden	Stantec	Mine Rock	8.97	9.29												
ROB-11-17#47	ROB-11-17	41.2	41.4	Overburden	Stantec	Mine Rock	8.59	8.66												
ROB-11-18#17	ROB-11-18	12.8	13.4	Overburden	Stantec	Mine Rock	8.86	9.36												
ROB-11-20#3	ROB-11-20	2.5	3.1	Overburden	Stantec	Mine Rock	6.52	6.95												
ROB-11-20#13	ROB-11-20	9.1	9.7	Overburden	Stantec	Mine Rock	3.5	3.8												
ROB-11-01A 12	ROB-11-01A	8.2	8.8	Overburden	Stantec	Mine Rock	7.1	7.24												
ROB-11-01A 24	ROB-11-01A	17.4	18	Overburden	Stantec	Mine Rock	9.3	9.14												
ROB-11-01A 43	ROB-11-01A	32.1	32.7	Overburden	Stantec	Mine Rock	8.5	8.36												
ROB-11-08A 5	ROB-11-08A	4.6	5.2	Overburden	Stantec	Mine Rock	9.1	9.2												
ROB-11-08A 11	ROB-11-08A	9.1	9.8	Overburden	Stantec	Mine Rock	8.6	9.18												
ROB-11-08A 13	ROB-11-08A	10.2	11.3	Overburden	Stantec	Mine Rock	9.2	9.27												
ROB-11-08A 16	ROB-11-08A	12.8	13.4	Overburden	Stantec	Mine Rock	9.1	8.85												
ROB-11-08A 21	ROB-11-08A	17.4	17.9	Overburden	Stantec	Mine Rock	9.3	9.31												
ROB-11-08A 22	ROB-11-08A	18.2	18.5	Overburden	Stantec	Mine Rock	9.4	9.28												
ROB-11-08A 25	ROB-11-08A	21.3	21.4	Overburden	Stantec	Mine Rock	9.4	8.94												
ROB-11-09 18	ROB-11-09	16.7	17.4	Overburden	Stantec	Mine Rock	9	9.34												
ROB-11-09 20	ROB-11-09	20	20.1	Overburden	Stantec	Mine Rock	8.6	8.42												
ROB-11-09 21	ROB-11-09	21.3	21.7	Overburden	Stantec	Mine Rock	9.4	9.26												
ROB-11-10 2	ROB-11-10	0.6	1.2	Overburden	Stantec	Mine Rock	7	7.44												
ROB-11-10 3	ROB-11-10	15	2.1	Overburden	Stantec	Mine Rock	7.2	7.36												
ROB-11-11 2	ROB-11-11	0.6	1.2	Overburden	Stantec	Mine Rock	7.3	7.09												
ROB-11-12 2	ROB-11-12	0.6	0.9	Overburden	Stantec	Mine Rock	6.2	5.99												
ROB-11-12 4	ROB-11-12	3	3.7	Overburden	Stantec	Mine Rock	7.7	8.51												
ROB-11-16 4	ROB-11-16	2.1	2.7	Overburden	Stantec	Mine Rock	6.7	7.58												
ROB-11-17 9	ROB-11-17	6.7	7.4	Overburden	Stantec	Mine Rock	9.3	9.3												
ROB-11-17 17	ROB-11-17	12.8	13.4	Overburden	Stantec	Mine Rock	9.1	9.13												
ROB-11-17 29	ROB-11-17	21.9	22.5	Overburden	Stantec	Mine Rock	9.3	9.29												
ROB-11-17 35	ROB-11-17	27.4	28	Overburden	Stantec	Mine Rock	9.3	9.28												



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Bromide	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration								0.1									0.1		0.08		
MDMER Maximum Authorized Concentration in a Composite								0.15									0.15		0.12		
MDMER Maximum Authorized Concentration in a Grab Sample								0.2									0.2		0.16		
CCME Freshwater Aquatic Chronic								0.005				1.5	0.0002		0.0089			0.3			
CCME Freshwater Aquatic Acute												29									
K-10-35 25-26	K-10-35	25	26	Menihok		0.26		0.0001		0.000005			0.000003		0.00025	0.000062	0.00025	0.021	0.00001		
K-10-35 50-50.8	K-10-35	50	50.8	Menihok		0.38		0.0001		0.00005			0.000005		0.00025	0.000064	0.00025	0.023	0.00004		
K-11-171 11.8-1	K-11-171	11.8	12.4	Menihok		0.5		0.0018		0.000005			0.0000015		0.00025	0.0000254	0.00025	0.004	0.00001		
K-11-171 20-20	K-11-171	20	20.5	Menihok		0.61		0.0007		0.000005			0.000003		0.00025	0.000054	0.0006	0.016	0.00001		
K-11-171 48-48	K-11-171	48	48.5	Menihok		0.15		0.0005		0.00022			0.000009		0.00025	0.000233	0.00025	0.007	0.00001		
K-10-29 18.7-19	K-10-29	18.7	19.4	Menihok		23.3		0.0021		0.000005			0.0576		0.003	4.86	0.348	144	0.00009		
K-11-170 36.7-3	K-11-170	36.7	37.2	Menihok		0.18		0.0004		0.000005			0.000254		0.0005	0.000447	0.00025	0.241	0.00006		
K-11-170 82.4-8	K-11-170	82.4	83	Menihok		2.23		0.0009		0.00001			0.000072		0.0019	0.000707	0.0006	1.2	0.00038		
K-10-38 21-21.4	K-10-38	21	21.6	Menihok		0.11		0.0001		0.00001			0.0000015		0.00025	0.000093	0.00025	0.006	0.00001		
K-11-133 71-71	K-11-133	71	71.4	Menihok		1.2		0.0003		0.00003			0.000025		0.0014	0.000109	0.0006	0.278	0.00065		
ROB-11-18#7	ROB-11-18	4.5	5.1	Overburden		0.72		0.0002		0.000005			0.000009		0.0021	0.000399	0.0045	0.975	0.00048		
ROB-11-01A 52	ROB-11-01A	46.2	46.4	Overburden		0.05		0.0007		0.000005			0.0000015		0.0007	0.000071	0.0022	0.086	0.00005		
ROB-11-18#2	ROB-11-18	0.6	1.2	Overburden		-		-		-			-		-	-	-	-	-		
ROB-11-09#1	ROB-11-09	0	0.6	Overburden		0.74		0.0003		0.000005			0.00001		0.0041	0.000598	0.0035	1.59	0.00066		
ROB-11-09#7	ROB-11-09	4.5	5.1	Overburden		1.07		0.0007		0.00055			0.000011		0.0041	0.00297	0.0093	1.84	0.0018		
ROB-11-09#19	ROB-11-09	18.3	18.9	Overburden		0.2		0.0014		0.00006			0.0000015		0.0006	0.000064	0.0008	0.187	0.00005		
ROB-11-09#23	ROB-11-09	25.5	25.7	Overburden		4.49		0.0061		0.000005			0.0152		0.0066	0.351	20.6	83.5	0.0271		
ROB-11-17#4	ROB-11-17	2.1	2.7	Overburden		3.73		0.0009		0.000005			0.000039		0.0102	0.00409	0.025	5.55	0.00556		
ROB-11-17#21	ROB-11-17	15.9	16.5	Overburden		0.53		0.0007		0.000005			0.000003		0.0014	0.000336	0.0036	0.685	0.00035		
ROB-11-17#47	ROB-11-17	41.2	41.4	Overburden		0.06		0.0017		0.000005			0.0000015		0.0008	0.000095	0.0027	0.167	0.00007		
ROB-11-18#17	ROB-11-18	12.8	13.4	Overburden		1		0.0006		0.000005			0.000028		0.0019	0.00144	0.0085	0.683	0.00026		
ROB-11-20#3	ROB-11-20	2.5	3.1	Overburden		3.55		0.0003		0.000005			0.0000015		0.0042	0.00143	0.0085	4.1	0.00131		
ROB-11-20#13	ROB-11-20	9.1	9.7	Overburden		25.3		0.0017		0.000005			0.0231		0.0024	1.26	5.48	9.46	0.00284		
ROB-11-01A 12	ROB-11-01A	8.2	8.8	Overburden		0.54		0.0006		0.00001			0.000015		0.0038	0.000374	0.0064	0.875	0.00097		
ROB-11-01A 24	ROB-11-01A	17.4	18	Overburden		0.3		0.0012		0.000005			0.0000015		0.0012	0.000281	0.0025	0.314	0.00024		
ROB-11-01A 43	ROB-11-01A	32.1	32.7	Overburden		0.1		0.0008		0.000005			0.0000015		0.0006	0.000151	0.0035	0.189	0.00007		
ROB-11-08A 5	ROB-11-08A	4.6	5.2	Overburden		0.26		0.001		0.000005			0.0000015		0.0011	0.000167	0.0019	0.257	0.00014		
ROB-11-08A 11	ROB-11-08A	9.1	9.8	Overburden		0.31		0.001		0.000005			0.0000015		0.001	0.000145	0.0018	0.229	0.00012		
ROB-11-08A 13	ROB-11-08A	10.2	11.3	Overburden		0.32		0.001		0.000005			0.0000015		0.0012	0.000163	0.0013	0.289	0.00017		
ROB-11-08A 16	ROB-11-08A	12.8	13.4	Overburden		0.36		0.0005		0.000005			0.0000015		0.0019	0.000297	0.0021	0.427	0.0002		
ROB-11-08A 21	ROB-11-08A	17.4	17.9	Overburden		0.28		0.0011		0.000005			0.0000015		0.0012	0.000316	0.0015	0.273	0.00025		
ROB-11-08A 22	ROB-11-08A	18.2	18.5	Overburden		0.37		0.0016		0.000005			0.0000015		0.0025	0.000425	0.0026	0.479	0.00039		
ROB-11-08A 25	ROB-11-08A	21.3	21.4	Overburden		0.3		0.0012		0.00002			0.0000015		0.0021	0.000204	0.0024	0.432	0.0001		
ROB-11-09 18	ROB-11-09	16.7	17.4	Overburden		0.72		0.0016		0.00055			0.000003		0.0025	0.00111	0.0099	0.899	0.00117		
ROB-11-09 20	ROB-11-09	20	20.1	Overburden		0.69		0.0008		0.00002			0.000007		0.0017	0.000461	0.0051	0.438	0.00058		
ROB-11-09 21	ROB-11-09	21.3	21.7	Overburden		0.24		0.001		0.00108			0.000017		0.0007	0.000125	0.0035	0.189	0.0001		
ROB-11-10 2	ROB-11-10	0.6	1.2	Overburden		1.41		0.0003		0.00002			0.00001		0.0028	0.00101	0.0026	0.508	0.00071		
ROB-11-10 3	ROB-11-10	15	2.1	Overburden		0.81		0.0003		0.00002			0.000008		0.0027	0.000603	0.0036	0.477	0.00067		
ROB-11-11 2	ROB-11-11	0.6	1.2	Overburden		0.67		0.0004		0.000005			0.000005		0.0037	0.00106	0.0023	0.799	0.00088		
ROB-11-12 2	ROB-11-12	0.6	0.9	Overburden		2.86		0.0013		0.00002			0.000015		0.0076	0.0023	0.0188	1.81	0.001		
ROB-11-12 4	ROB-11-12	3	3.7	Overburden		0.88		0.001		0.00008			0.000008		0.0029	0.000948	0.0059	0.884	0.0018		
ROB-11-16 4	ROB-11-16	2.1	2.7	Overburden		0.81		0.0004		0.00048			0.000018		0.0033	0.000632	0.0098	1.32	0.00131		
ROB-11-17 9	ROB-11-17	6.7	7.4	Overburden		0.23		0.0022		0.00004			0.0000015		0.0015	0.000209	0.0017	0.309	0.00015		
ROB-11-17 17	ROB-11-17	12.8	13.4	Overburden		0.31		0.0012		0.00004			0.0000015		0.0018	0.000373	0.0034	0.396	0.00033		
ROB-11-17 29	ROB-11-17	21.9	22.5	Overburden		0.24		0.0009		0.00001			0.0000015		0.0011	0.00026	0.0026	0.245	0.00024		
ROB-11-17 35	ROB-11-17	27.4	28	Overburden		0.22		0.0012		0.00002			0.0000015		0.0011	0.000219	0.0017	0.271	0.00019		



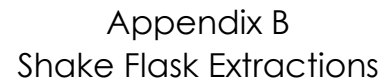
Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Manganese	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration							0.25														0.4
MDMER Maximum Authorized Concentration in a Composite							0.38														0.6
MDMER Maximum Authorized Concentration in a Grab Sample							0.5														0.8
CCME Freshwater Aquatic Chronic						0.073	0.07036			0.001		0.00025							0.015		
CCME Freshwater Aquatic Acute																			0.033		
K-10-35 25-26	K-10-35	25	26	Menihok		0.00293	0.0004			0.002						0.00001			0.000717		0.0005
K-10-35 50-50.8	K-10-35	50	50.8	Menihok		0.0104	0.0002			0.002						0.00001			0.000571		0.0005
K-11-171 11.8-1	K-11-171	11.8	12.4	Menihok		0.00046	0.0016			0.0005						0.00001			0.0003		0.0005
K-11-171 20-20	K-11-171	20	20.5	Menihok		0.00516	0.0001			0.0005						0.00001			0.000297		0.0005
K-11-171 48-48	K-11-171	48	48.5	Menihok		0.00983	0.0048			0.011						0.00001			0.0035		0.0005
K-10-29 18.7-19	K-10-29	18.7	19.4	Menihok		0.00016	8.03			0.025						0.00038			0.635		4.97
K-11-170 36.7-3	K-11-170	36.7	37.2	Menihok		0.00755	0.0024			0.002						0.00002			0.000793		0.004
K-11-170 82.4-8	K-11-170	82.4	83	Menihok		0.00184	0.0015			0.001						0.00003			0.00199		0.005
K-10-38 21-21.4	K-10-38	21	21.6	Menihok		0.00128	0.0015			0.0005						0.00001			0.00033		0.0005
K-11-133 71-71	K-11-133	71	71.4	Menihok		0.00274	0.0008			0.002						0.00001			0.00153		0.003
ROB-11-18#7	ROB-11-18	4.5	5.1	Overburden		0.00204	0.0011			0.002						0.00001			0.000583		0.002
ROB-11-01A 52	ROB-11-01A	46.2	46.4	Overburden		0.0151	0.0005			0.002						0.00001			0.000157		0.0005
ROB-11-18#2	ROB-11-18	0.6	1.2	Overburden		-	-			-						-			-		-
ROB-11-09#1	ROB-11-09	0	0.6	Overburden		0.00032	0.0006			0.0005						0.00001			0.000142		0.001
ROB-11-09#7	ROB-11-09	4.5	5.1	Overburden		0.00678	0.0051			0.0005						0.00002			0.000269		0.003
ROB-11-09#19	ROB-11-09	18.3	18.9	Overburden		0.0125	0.0005			0.0005						0.00001			0.000287		0.0005
ROB-11-09#23	ROB-11-09	25.5	25.7	Overburden		0.00052	0.915			0.342						0.00114			1.68		0.096
ROB-11-17#4	ROB-11-17	2.1	2.7	Overburden		0.0135	0.0112			0.0005						0.00007			0.000383		0.016
ROB-11-17#21	ROB-11-17	15.9	16.5	Overburden		0.0037	0.0011			0.0005						0.00001			0.000569		0.002
ROB-11-17#47	ROB-11-17	41.2	41.4	Overburden		0.0168	0.0008			0.003						0.00001			0.0008		0.003
ROB-11-18#17	ROB-11-18	12.8	13.4	Overburden		0.00353	0.0048			0.0005						0.00002			0.0128		0.005
ROB-11-20#3	ROB-11-20	2.5	3.1	Overburden		0.00051	0.0031			0.0005						0.00003			0.000334		0.012
ROB-11-20#13	ROB-11-20	9.1	9.7	Overburden		0.00049	4.14			0.048						0.00102			0.892		3.87
ROB-11-01A 12	ROB-11-01A	8.2	8.8	Overburden		0.00596	0.0014			0.0005						0.00002			0.000274		0.002
ROB-11-01A 24	ROB-11-01A	17.4	18	Overburden		0.00577	0.0011			0.0005						0.00001			0.000237		0.0005
ROB-11-01A 43	ROB-11-01A	32.1	32.7	Overburden		0.00344	0.0016			0.003						0.00001			0.00165		0.0005
ROB-11-08A 5	ROB-11-08A	4.6	5.2	Overburden		0.00411	0.0007			0.0005						0.00001			0.000349		0.001
ROB-11-08A 11	ROB-11-08A	9.1	9.8	Overburden		0.00315	0.0007			0.004						0.00001			0.000416		0.0005
ROB-11-08A 13	ROB-11-08A	10.2	11.3	Overburden		0.00292	0.0008			0.0005						0.00001			0.000257		0.001
ROB-11-08A 16	ROB-11-08A	12.8	13.4	Overburden		0.0109	0.0014			0.0005						0.00001			0.00026		0.002
ROB-11-08A 21	ROB-11-08A	17.4	17.9	Overburden		0.00366	0.0006			0.0005						0.00001			0.000109		0.0005
ROB-11-08A 22	ROB-11-08A	18.2	18.5	Overburden		0.00267	0.0017			0.0005						0.00001			0.000146		0.002
ROB-11-08A 25	ROB-11-08A	21.3	21.4	Overburden		0.0205	0.0011			0.0005						0.00001			0.00135		0.003
ROB-11-09 18	ROB-11-09	16.7	17.4	Overburden		0.00652	0.0025			0.0005						0.00001			0.000182		0.003
ROB-11-09 20	ROB-11-09	20	20.1	Overburden		0.00252	0.0015			0.0005						0.00001			0.000324		0.001
ROB-11-09 21	ROB-11-09	21.3	21.7	Overburden		0.0124	0.0012			0.0005						0.00001			0.000139		0.0005
ROB-11-10 2	ROB-11-10	0.6	1.2	Overburden		0.00155	0.0014			0.0005						0.00001			0.000109		0.002
ROB-11-10 3	ROB-11-10	15	2.1	Overburden		0.00298	0.0013			0.0005						0.00001			0.000158		0.002
ROB-11-11 2	ROB-11-11	0.6	1.2	Overburden		0.00085	0.002			0.0005						0.00001			0.000115		0.007
ROB-11-12 2	ROB-11-12	0.6	0.9	Overburden		0.00075	0.0046			0.0005						0.00002			0.000229		0.005
ROB-11-12 4	ROB-11-12	3	3.7	Overburden		0.00432	0.0017			0.0005						0.00001			0.00028		0.003
ROB-11-16 4	ROB-11-16	2.1	2.7	Overburden		0.00214	0.0031			0.0005						0.00001			0.000362		0.006
ROB-11-17 9	ROB-11-17	6.7	7.4	Overburden		0.00766	0.0007			0.0005						0.00001			0.000137		0.001
ROB-11-17 17	ROB-11-17	12.8	13.4	Overburden		0.0131	0.0012			0.0005						0.00001			0.000195		0.002
ROB-11-17 29	ROB-11-17	21.9	22.5	Overburden		0.00514	0.0008			0.0005						0.00001			0.000155		0.001
ROB-11-17 35	ROB-11-17	27.4	28	Overburden		0.0107	0.0007			0.0005						0.00001			0.000068		0.0005



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Mercury	Hardness (as CaCO ₃)
Units					mg/L	mg CaCO ₃ /L
MDMER Maximum Authorized Monthly Mean Concentration						
MDMER Maximum Authorized Concentration in a Composite						
MDMER Maximum Authorized Concentration in a Grab Sample						
CCME Freshwater Aquatic Chronic						
CCME Freshwater Aquatic Acute						
K-10-35 25-26	K-10-35	25	26	Menihek	0.000005	
K-10-35 50-50.8	K-10-35	50	50.8	Menihek	0.000005	
K-11-171 11.8-1	K-11-171	11.8	12.4	Menihek	0.000005	
K-11-171 20-20	K-11-171	20	20.5	Menihek	0.000005	
K-11-171 48-48	K-11-171	48	48.5	Menihek	0.000005	
K-10-29 18.7-19	K-10-29	18.7	19.4	Menihek	0.000005	
K-11-170 36.7-3	K-11-170	36.7	37.2	Menihek	0.000005	
K-11-170 82.4-8	K-11-170	82.4	83	Menihek	0.00001	
K-10-38 21-21.4	K-10-38	21	21.6	Menihek	0.00001	
K-11-133 71-71	K-11-133	71	71.4	Menihek	0.00001	
ROB-11-18#7	ROB-11-18	4.5	5.1	Overburden	0.00001	
ROB-11-01A 52	ROB-11-01A	46.2	46.4	Overburden	0.000005	
ROB-11-18#2	ROB-11-18	0.6	1.2	Overburden	0.00002	
ROB-11-09#1	ROB-11-09	0	0.6	Overburden	0.00001	
ROB-11-09#7	ROB-11-09	4.5	5.1	Overburden	0.00001	
ROB-11-09#19	ROB-11-09	18.3	18.9	Overburden	0.00001	
ROB-11-09#23	ROB-11-09	25.5	25.7	Overburden	0.00001	
ROB-11-17#4	ROB-11-17	2.1	2.7	Overburden	0.00002	
ROB-11-17#21	ROB-11-17	15.9	16.5	Overburden	0.00001	
ROB-11-17#47	ROB-11-17	41.2	41.4	Overburden	0.00001	
ROB-11-18#17	ROB-11-18	12.8	13.4	Overburden	0.00001	
ROB-11-20#3	ROB-11-20	2.5	3.1	Overburden	0.00003	
ROB-11-20#13	ROB-11-20	9.1	9.7	Overburden	0.00001	
ROB-11-01A 12	ROB-11-01A	8.2	8.8	Overburden	0.00001	
ROB-11-01A 24	ROB-11-01A	17.4	18	Overburden	0.00001	
ROB-11-01A 43	ROB-11-01A	32.1	32.7	Overburden	0.000005	
ROB-11-08A 5	ROB-11-08A	4.6	5.2	Overburden	0.00001	
ROB-11-08A 11	ROB-11-08A	9.1	9.8	Overburden	0.00001	
ROB-11-08A 13	ROB-11-08A	10.2	11.3	Overburden	0.00001	
ROB-11-08A 16	ROB-11-08A	12.8	13.4	Overburden	0.000005	
ROB-11-08A 21	ROB-11-08A	17.4	17.9	Overburden	0.00001	
ROB-11-08A 22	ROB-11-08A	18.2	18.5	Overburden	0.00001	
ROB-11-08A 25	ROB-11-08A	21.3	21.4	Overburden	0.00001	
ROB-11-09 18	ROB-11-09	16.7	17.4	Overburden	0.00001	
ROB-11-09 20	ROB-11-09	20	20.1	Overburden	0.00001	
ROB-11-09 21	ROB-11-09	21.3	21.7	Overburden	0.00001	
ROB-11-10 2	ROB-11-10	0.6	1.2	Overburden	0.00001	
ROB-11-10 3	ROB-11-10	15	2.1	Overburden	0.00001	
ROB-11-11 2	ROB-11-11	0.6	1.2	Overburden	0.00001	
ROB-11-12 2	ROB-11-12	0.6	0.9	Overburden	0.00003	
ROB-11-12 4	ROB-11-12	3	3.7	Overburden	0.00001	
ROB-11-16 4	ROB-11-16	2.1	2.7	Overburden	0.00001	
ROB-11-17 9	ROB-11-17	6.7	7.4	Overburden	0.00001	
ROB-11-17 17	ROB-11-17	12.8	13.4	Overburden	0.00001	
ROB-11-17 29	ROB-11-17	21.9	22.5	Overburden	0.00001	
ROB-11-17 35	ROB-11-17	27.4	28	Overburden	0.00001	



Sample ID	Borehole ID	From (m)	To (m)	Formation	Company	Material Type	pH	pH2	Acidity (as CaCO3)	Conductivity	Moisture	ORP	Alkalinity, total (as CaCO3)	Ammonia, total (as N)	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	Phosphorus, total dissolved	Sulfate
Units							-	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration																				
MDMER Maximum Authorized Concentration in a Composite																				
MDMER Maximum Authorized Concentration in a Grab Sample																				
CCME Freshwater Aquatic Chronic														0.019	120	0.12	13			
CCME Freshwater Aquatic Acute							?								640		550			
ROB-11-17.37	ROB-11-17	29	29.6	Overburden	Stantec	Mine Rock	8.9	9.02												
ROB-11-18.8	ROB-11-18	5.2	5.8	Overburden	Stantec	Mine Rock	9	8.8												
ROB-11-18.15	ROB-11-18	113	11.9	Overburden	Stantec	Mine Rock	9.5	9.2												
ROB-11-18.24	ROB-11-18	22.4	22.6	Overburden	Stantec	Mine Rock	8.9	8.79												
K102/5	K-11-102	287	287.7	Sokoman	Stantec	Ore	8.36	7.86												
K24/6-262.5 (K2)	K-08-24	262.5	263	Sokoman	Stantec	Ore	9.29	8.75												
K66/1	K-10-66	66	66.2	Sokoman	Stantec	Ore	9.07	9.26												
K140/11	K-11-140	299.4	299.8	Sokoman	Stantec	Ore	9.44	8.85												
K163/8	K-11-163	364	364.4	Sokoman	Stantec	Ore	8.8	9.25												
K-11-171 54.4-5	K-11-171	54.4	54.9	Sokoman	Stantec	Mine Rock	9.64	8.34												
K-11-170 105-10	K-11-170	105	106.5	Sokoman	Stantec	Mine Rock	9.11	9.38												
ROB-11-10 15.5-	ROB-11-10	4.6	5.2	Sokoman	Stantec	Mine Rock	9.65	8.58												
K102/1	K-11-102	62	62.5	Sokoman	Stantec	Ore	9.12	8.27												
K-10-35 113-11	K-10-35	113	114	Sokoman	Stantec	Ore	9.23	8.83												
K-10-52 114.4-1	K-10-52	114.4	115.4	Sokoman	Stantec	Mine Rock	9.13	8.5												
K20/10	K-08-20	213	213.5	Sokoman	Stantec	Ore	9.04	9.31												
K20/12	K-08-20	412	412.6	Sokoman	Stantec	Mine Rock	9.28	8.43												
K66/13	K-10-66	556.7	557.3	Sokoman	Stantec	Ore	8.55	8.37												
K140/9	K-11-140	281	281.3	Sokoman	Stantec	Ore	9.48	9.21												
K163/9	K-11-163	414.5	415.9	Sokoman	Stantec	Ore	9.31	9.21												
K-08-18 110-11	K-08-18	110	112.2	Sokoman	Stantec	Mine Rock	9.08	9.36												
K-11-133 199.5-	K-11-133	199.5	200	Sokoman	Stantec	Mine Rock	9.52	8.83												
K64/3	K-10-66	163.5	164	Sokoman	Stantec	Ore	9.27	8.35												
K-08-18 130-13	K-08-18	130	131	Sokoman	Stantec	Mine Rock	9.1	8.73												
K-10-52 254.1-2	K-10-52	254.1	255.2	Sokoman	Stantec	Mine Rock	9.5	8.59												
K-10-38 51.5-52	K-10-38	51.5	52	Sokoman	Stantec	Mine Rock	9.53	9.67												
K20/4	K-08-20	113.2	113.5	Sokoman	Stantec	Mine Rock	9.39	9.46												
K24/1	K-08-24	23	23.5	Sokoman	Stantec	Ore	9.69	8.78												
K66/6	K-10-66	307.1	307.6	Sokoman	Stantec	Mine Rock	9.76	8.83												
K66/2	K-10-66	75	75.2	Sokoman	Stantec	Ore	9.46	9.01												
K-10-38 149-15	K-10-38	149	150	Sokoman	Stantec	Mine Rock	9.48	8.9												
K143/1	K-11-143	483.9	484.2	Sokoman	Stantec	Mine Rock	9.22	9.17												
K-10-35 121-12	K-10-35	121	122	Sokoman	Stantec	Ore	8.33	8.34												
K-11-171 50.3-5	K-11-171	50.3	50.6	Sokoman	Stantec	Mine Rock	9.7	8.83												
K-11-171 275.7	K-11-171	275.7	276.7	Sokoman	Stantec	Mine Rock	9.32	8.77												
K-11-171 279.4	K-11-171	279.4	279.9	Sokoman	Stantec	Mine Rock	9.64	9												
K-11-170 88-88	K-11-170	88	88.8	Sokoman	Stantec	Mine Rock	8.9	9.04												
K-11-166 27.1-2	K-11-166	27.1	28.1	Sokoman	Stantec	Mine Rock	9.41	8.22												
K-11-166 94.6-9	K-11-166	94.6	95.3	Sokoman	Stantec	Mine Rock	9.53	8.79												
K-11-166 520.3	K-11-166	520.3	521	Sokoman	Stantec	Mine Rock	8.74	7.66												
K-10-52 330-33	K-10-52	330	331	Sokoman	Stantec	Mine Rock	9.48	8.49												
K-10-52 476-47	K-10-52	476	477	Sokoman	Stantec	Mine Rock	9.19	8												
K-11-116 124.9	K-11-116	124.9	126	Sokoman	Stantec	Mine Rock	6.89	7.35												
K-11-133 309.9	K-11-133	309.9	311.4	Sokoman	Stantec	Mine Rock	9.48	9.91												
K24/6-206.5 (K2)	K-08-24	206.5	207	Sokoman	Stantec	Mine Rock	9.18	9.27												
K66/12	K-10-66	491.6	492	Sokoman	Stantec	Mine Rock	9.36	8.81												



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Bromide	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration								0.1									0.1		0.08		
MDMER Maximum Authorized Concentration in a Composite								0.15									0.15		0.12		
MDMER Maximum Authorized Concentration in a Grab Sample								0.2									0.2		0.16		
CCME Freshwater Aquatic Chronic								0.005				1.5	0.0002		0.0089			0.3			
CCME Freshwater Aquatic Acute												29									
ROB-11-17 37	ROB-11-17	29	29.6	Overburden		0.3		0.0011		0.00003			0.0000015		0.0013	0.000348	0.0033	0.316	0.0003		
ROB-11-18 8	ROB-11-18	5.2	5.8	Overburden		0.45		0.0006		0.000005			0.000011		0.0024	0.000518	0.0056	0.605	0.00058		
ROB-11-18 15	ROB-11-18	113	11.9	Overburden		0.26		0.0008		0.000005			0.0000015		0.0012	0.000208	0.0019	0.226	0.00019		
ROB-11-18 24	ROB-11-18	22.4	22.6	Overburden		0.29		0.0007		0.00003			0.000005		0.0017	0.000539	0.0087	0.54	0.00045		
K102/5	K-11-102	287	287.7	Sokoman		0.01		0.0001		0.000005			0.0000015		0.00025	0.000051	0.0006	0.356	0.00011		
K24/6-262.5 (K	K-08-24	262.5	263	Sokoman		0.29		0.0031		0.00004			0.0000015		0.00025	0.00004	0.00025	0.012	0.00001		
K66/1	K-10-66	66	66.2	Sokoman		0.03		0.0004		0.000005			0.0000015		0.00025	0.000009	0.00025	0.0015	0.00001		
K140/11	K-11-140	299.4	299.8	Sokoman		0.005		0.0006		0.000005			0.0000015		0.00025	0.000014	0.00025	0.005	0.00001		
K163/8	K-11-163	364	364.4	Sokoman		0.02		0.0004		0.000005			0.000243		0.00025	0.000144	0.00025	0.005	0.00024		
K-11-171 54.4-5	K-11-171	54.4	54.9	Sokoman		0.005		0.0002		0.000005			0.0000015		0.00025	0.000077	0.00025	0.0015	0.00001		
K-11-170 105-11	K-11-170	105	106.5	Sokoman		0.005		0.0005		0.00003			0.000003		0.00025	0.000109	0.00025	0.0015	0.00001		
ROB-11-10 15	ROB-11-10	4.6	5.2	Sokoman		0.02		0.0001		0.000005			0.0000015		0.00025	0.000016	0.0005	0.009	0.00004		
K102/1	K-11-102	62	62.5	Sokoman		0.02		0.0001		0.000005			0.0000015		0.00025	0.000048	0.0006	0.0015	0.00001		
K-10-35 113-11	K-10-35	113	114	Sokoman		0.005		0.0036		0.000005			0.0000015		0.00025	0.000131	0.00025	0.0015	0.00001		
K-10-52 114.4-1	K-10-52	114.4	115.4	Sokoman		0.005		0.0001		0.00008			0.000004		0.00025	0.000056	0.00025	0.0015	0.00001		
K20/10	K-08-20	213	213.5	Sokoman		0.05		0.0001		0.000005			0.0000015		0.00025	0.000007	0.00025	0.005	0.00002		
K20/12	K-08-20	412	412.6	Sokoman		0.01		0.0001		0.000005			0.0000015		0.00025	0.000071	0.00025	0.026	0.00001		
K66/13	K-10-66	556.7	557.3	Sokoman		0.03		0.0001		0.000005			0.0000015		0.00025	0.000029	0.0005	0.136	0.00001		
K140/9	K-11-140	281	281.3	Sokoman		0.03		0.0004		0.000005			0.0000015		0.00025	0.000011	0.00025	0.006	0.00001		
K163/9	K-11-163	414.5	415.9	Sokoman		0.02		0.0012		0.000005			0.00005		0.00025	0.000042	0.00025	0.0015	0.00009		
K-08-18 110-11	K-08-18	110	112.2	Sokoman		0.02		0.001		0.000005			0.000004		0.00025	0.000188	0.00025	0.005	0.00001		
K-11-133 199.5	K-11-133	199.5	200	Sokoman		0.01		0.0001		0.000005			0.0000015		0.00025	0.000008	0.00025	0.0015	0.00001		
K64/3	K-10-66	163.5	164	Sokoman		0.01		0.0001		0.000005			0.0000015		0.00025	0.00003	0.00025	0.011	0.00001		
K-08-18 130-13	K-08-18	130	131	Sokoman		0.005		0.0001		0.000005			0.0000015		0.0006	0.000174	0.00025	0.0015	0.00001		
K-10-52 254.1-2	K-10-52	254.1	255.2	Sokoman		0.005		0.0001		0.00001			0.0000015		0.00025	0.000011	0.00025	0.0015	0.00001		
K-10-38 51.5-52	K-10-38	51.5	52	Sokoman		0.04		0.0016		0.000005			0.000003		0.00025	0.000032	0.00025	0.0015	0.00001		
K20/4	K-08-20	113.2	113.5	Sokoman		0.66		0.0021		0.000005			0.0000015		0.00025	0.000462	0.0006	0.286	0.00003		
K24/1	K-08-24	23	23.5	Sokoman		0.03		0.0001		0.000005			0.0000015		0.0005	0.000016	0.00025	0.0015	0.00001		
K66/6	K-10-66	307.1	307.6	Sokoman		0.09		0.0008		0.000005			0.0000015		0.00025	0.000021	0.00025	0.0015	0.00001		
K66/2	K-10-66	75	75.2	Sokoman		0.01		0.0015		0.000005			0.0000015		0.00025	0.00002	0.00025	0.011	0.00005		
K-10-38 149-15	K-10-38	149	150	Sokoman		0.01		0.0001		0.000005			0.0000015		0.00025	0.000001	0.00025	0.0015	0.00001		
K143/1	K-11-143	483.9	484.2	Sokoman		0.36		0.0009		0.000005			0.0000015		0.00025	0.000016	0.00025	0.009	0.00001		
K-10-35 121-122	K-10-35	121	122	Sokoman		0.005		0.0017		0.000005			0.0000015		0.00025	0.000169	0.00025	0.007	0.00001		
K-11-171 50.3-5	K-11-171	50.3	50.6	Sokoman		0.005		0.0001		0.000005			0.0000015		0.00025	0.000127	0.00025	0.0015	0.00001		
K-11-171 275.7	K-11-171	275.7	276.7	Sokoman		0.1		0.0001		0.000005			0.0000015		0.00025	0.000088	0.00025	0.0015	0.00001		
K-11-171 279.4	K-11-171	279.4	279.9	Sokoman		0.05		0.0001		0.000005			0.0000015		0.00025	0.000038	0.00025	0.0015	0.00001		
K-11-170 88-88	K-11-170	88	88.8	Sokoman		0.04		0.0039		0.000005			0.000005		0.00025	0.000189	0.00025	0.011	0.00001		
K-11-166 27.1-2	K-11-166	27.1	28.1	Sokoman		0.005		0.0001		0.000005			0.000004		0.0006	0.000164	0.00025	0.0015	0.00001		
K-11-166 94.6-9	K-11-166	94.6	95.3	Sokoman		0.11		0.0009		0.000005			0.000004		0.00025	0.000188	0.00025	0.01	0.00001		
K-11-166 520.3	K-11-166	520.3	521	Sokoman		0.005		0.0001		0.000005			0.000005		0.00025	0.000254	0.00025	0.0015	0.00001		
K-10-52 330-33	K-10-52	330	331	Sokoman		0.02		0.0001		0.000005			0.000004		0.00025	0.000032	0.00025	0.0015	0.00001		
K-10-52 476-47	K-10-52	476	477	Sokoman		0.005		0.0003		0.000005			0.000003		0.00025	0.000056	0.00025	0.0015	0.00001		
K-11-116 124.9	K-11-116	124.9	126	Sokoman		0.005		0.0001		0.00002			0.0000015		0.00025	0.000023	0.00025	0.0015	0.00001		
K-11-133 309.9	K-11-133	309.9	311.4	Sokoman		1.45		0.001		0.000005			0.0000015		0.0018	0.00115	0.0008	1.66	0.00016		
K24/6-206.5 (K	K-08-24	206.5	207	Sokoman		0.01		0.0034		0.000005			0.0000015		0.00025	0.000017	0.0005	0.02	0.00003		
K66/12	K-10-66	491.6	492	Sokoman		0.005		0.0001		0.000005			0.0000015		0.00025	0.000055	0.00025	0.0015	0.00003		



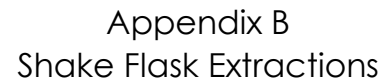
Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Manganese	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc	
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration							0.25														0.4	
MDMER Maximum Authorized Concentration in a Composite							0.38														0.6	
MDMER Maximum Authorized Concentration in a Grab Sample							0.5														0.8	
CCME Freshwater Aquatic Chronic						0.073	0.07036			0.001		0.00025							0.015			
CCME Freshwater Aquatic Acute																			0.033			
ROB-11-17 37	ROB-11-17	29	29.6	Overburden		0.00359	0.0015			0.0005						0.00001			0.000117		0.002	
ROB-11-18 8	ROB-11-18	5.2	5.8	Overburden		0.00275	0.0015			0.002						0.00001			0.000164		0.002	
ROB-11-18 15	ROB-11-18	113	11.9	Overburden		0.00321	0.0007			0.0005						0.00001			0.00179		0.0005	
ROB-11-18 24	ROB-11-18	22.4	22.6	Overburden		0.0125	0.0017			0.0005						0.00001			0.000758		0.003	
K102/5	K-11-102	287	287.7	Sokoman		0.0008	0.0004			0.0005						0.00001			0.000166		0.003	
K24/6-262.5 (K)	K-08-24	262.5	263	Sokoman		0.00761	0.0008			0.008						0.00002			0.000508		0.0005	
K66/1	K-10-66	66	66.2	Sokoman		0.00127	0.0001			0.0005						0.00001			0.000311		0.0005	
K140/11	K-11-140	299.4	299.8	Sokoman		0.00122	0.0002			0.0005						0.00001			0.000352		0.0005	
K163/8	K-11-163	364	364.4	Sokoman		0.00137	0.0018			0.0005						0.00001			0.00036		0.0005	
K-11-171 54.4-5	K-11-171	54.4	54.9	Sokoman		0.00294	0.0004			0.0005						0.00001			0.000185		0.0005	
K-11-170 105-11	K-11-170	105	106.5	Sokoman		0.00068	0.0002			0.0005						0.00001			0.000118		0.0005	
ROB-11-10 15	ROB-11-10	4.6	5.2	Sokoman		0.00103	0.0002			0.0005						0.00001			0.000123		0.0005	
K102/1	K-11-102	62	62.5	Sokoman		0.0003	0.0004			0.0005						0.00001			0.000266		0.003	
K-10-35 113-11	K-10-35	113	114	Sokoman		0.00594	0.00005			0.0005						0.00001			0.00101		0.0005	
K-10-52 114.4-1	K-10-52	114.4	115.4	Sokoman		0.00027	0.0001			0.0005						0.00001			0.000159		0.0005	
K20/10	K-08-20	213	213.5	Sokoman		0.00308	0.0001			0.0005						0.00001			0.000117		0.002	
K20/12	K-08-20	412	412.6	Sokoman		0.00076	0.0003			0.0005						0.00001			0.000121		0.0005	
K66/13	K-10-66	556.7	557.3	Sokoman		0.00054	0.0005			0.0005						0.00001			0.000104		0.0005	
K140/9	K-11-140	281	281.3	Sokoman		0.00239	0.0002			0.0005						0.00001			0.00005		0.0005	
K163/9	K-11-163	414.5	415.9	Sokoman		0.00045	0.0004			0.0005						0.00001			0.00014		0.0005	
K-08-18 110-11	K-08-18	110	112.2	Sokoman		0.00331	0.0029			0.0005						0.00001			0.000039		0.0005	
K-11-133 199.5	K-11-133	199.5	200	Sokoman		0.00041	0.00005			0.0005						0.00001			0.000303		0.0005	
K64/3	K-10-66	163.5	164	Sokoman		0.00121	0.0002			0.0005						0.00001			0.000137		0.0005	
K-08-18 130-13	K-08-18	130	131	Sokoman		0.00062	0.00005			0.0005						0.00001			0.000458		0.0005	
K-10-52 254.1-2	K-10-52	254.1	255.2	Sokoman		0.00012	0.00005			0.0005						0.00001			0.000023		0.0005	
K-10-38 51.5-52	K-10-38	51.5	52	Sokoman		0.00047	0.00005			0.0005						0.00001			0.00053		0.0005	
K20/4	K-08-20	113.2	113.5	Sokoman		0.00269	0.0013			0.0005						0.00001			0.00516		0.002	
K24/1	K-08-24	23	23.5	Sokoman		0.00056	0.0002			0.0005						0.00001			0.00208		0.0005	
K66/6	K-10-66	307.1	307.6	Sokoman		0.0037	0.0003			0.0005						0.00001			0.00127		0.0005	
K66/2	K-10-66	75	75.2	Sokoman		0.00932	0.0004			0.0005						0.00001			0.000664		0.001	
K-10-38 149-15	K-10-38	149	150	Sokoman		0.00028	0.00005			0.0005						0.00001			0.000955		0.0005	
K143/1	K-11-143	483.9	484.2	Sokoman		0.0112	0.0002			0.0005						0.00001			0.000793		0.001	
K-10-35 121-122	K-10-35	121	122	Sokoman		0.0019	0.00005			0.001						0.00001			0.000764		0.0005	
K-11-171 50.3-5	K-11-171	50.3	50.6	Sokoman		0.00644	0.0015			0.0005						0.00001			0.000818		0.0005	
K-11-171 275.7	K-11-171	275.7	276.7	Sokoman		0.0128	0.0001			0.0005						0.00001			0.00092		0.0005	
K-11-171 279.4	K-11-171	279.4	279.9	Sokoman		0.00198	0.00005			0.0005						0.00001			0.00011		0.0005	
K-11-170 88-88	K-11-170	88	88.8	Sokoman		0.00145	0.0003			0.0005						0.00001			0.00254		0.0005	
K-11-166 27.1-2	K-11-166	27.1	28.1	Sokoman		0.00092	0.0003			0.0005						0.00001			0.000227		0.0005	
K-11-166 94.6-9	K-11-166	94.6	95.3	Sokoman		0.00244	0.0006			0.001						0.00001			0.00146		0.0005	
K-11-166 520.3	K-11-166	520.3	521	Sokoman		0.00038	0.0002			0.0005						0.00001			0.000078		0.001	
K-10-52 330-33	K-10-52	330	331	Sokoman		0.00023	0.00005			0.0005						0.00001			0.000027		0.0005	
K-10-52 476-47	K-10-52	476	477	Sokoman		0.00023	0.00005			0.0005						0.00001			0.000086		0.0005	
K-11-116 124.9	K-11-116	124.9	126	Sokoman		0.0003	0.0001			0.0005						0.00001			0.000007		0.0005	
K-11-133 309.9	K-11-133	309.9	311.4	Sokoman		0.00065	0.0027			0.0005						0.00001			0.000176		0.004	
K24/6-206.5 (K)	K-08-24	206.5	207	Sokoman		0.00019	0.00005			0.0005						0.00001			0.000055		0.001	
K66/12	K-10-66	491.6	492	Sokoman		0.00084	0.0016			0.0005						0.00001			0.00428		0.001	



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Mercury	Hardness (as CaCO ₃)
Units					mg/L	mg CaCO ₃ /L
MDMER Maximum Authorized Monthly Mean Concentration						
MDMER Maximum Authorized Concentration in a Composite						
MDMER Maximum Authorized Concentration in a Grab Sample						
CCME Freshwater Aquatic Chronic						
CCME Freshwater Aquatic Acute						
ROB-11-17 37	ROB-11-17	29	29.6	Overburden	0.00001	
ROB-11-18 8	ROB-11-18	5.2	5.8	Overburden	0.00001	
ROB-11-18 15	ROB-11-18	113	11.9	Overburden	0.00001	
ROB-11-18 24	ROB-11-18	22.4	22.6	Overburden	0.000005	
K102/5	K-11-102	287	287.7	Sokoman	0.00001	
K24/6-262.5 (K	K-08-24	262.5	263	Sokoman	0.000005	
K66/1	K-10-66	66	66.2	Sokoman	0.000005	
K140/11	K-11-140	299.4	299.8	Sokoman	0.000005	
K163/8	K-11-163	364	364.4	Sokoman	0.000005	
K-11-171 54.4-5	K-11-171	54.4	54.9	Sokoman	0.000005	
K-11-170 105-11	K-11-170	105	106.5	Sokoman	0.000005	
ROB-11-10 15	ROB-11-10	4.6	5.2	Sokoman	0.000005	
K102/1	K-11-102	62	62.5	Sokoman	0.000005	
K-10-35 113-11	K-10-35	113	114	Sokoman	0.000005	
K-10-52 114.4-1	K-10-52	114.4	115.4	Sokoman	0.00001	
K20/10	K-08-20	213	213.5	Sokoman	0.00001	
K20/12	K-08-20	412	412.6	Sokoman	0.00001	
K66/13	K-10-66	556.7	557.3	Sokoman	0.00001	
K140/9	K-11-140	281	281.3	Sokoman	0.000005	
K163/9	K-11-163	414.5	415.9	Sokoman	0.000005	
K-08-18 110-11	K-08-18	110	112.2	Sokoman	0.00001	
K-11-133 199.5	K-11-133	199.5	200	Sokoman	0.00001	
K64/3	K-10-66	163.5	164	Sokoman	0.000005	
K-08-18 130-13	K-08-18	130	131	Sokoman	0.00001	
K-10-52 254.1-2	K-10-52	254.1	255.2	Sokoman	0.00001	
K-10-38 51.5-52	K-10-38	51.5	52	Sokoman	0.00001	
K20/4	K-08-20	113.2	113.5	Sokoman	0.00001	
K24/1	K-08-24	23	23.5	Sokoman	0.00001	
K66/6	K-10-66	307.1	307.6	Sokoman	0.00001	
K66/2	K-10-66	75	75.2	Sokoman	0.00001	
K-10-38 149-15	K-10-38	149	150	Sokoman	0.00001	
K143/1	K-11-143	483.9	484.2	Sokoman	0.000005	
K-10-35 121-122	K-10-35	121	122	Sokoman	0.00001	
K-11-171 50.3-5	K-11-171	50.3	50.6	Sokoman	0.000005	
K-11-171 275.7	K-11-171	275.7	276.7	Sokoman	0.000005	
K-11-171 279.4	K-11-171	279.4	279.9	Sokoman	0.000005	
K-11-170 88-88	K-11-170	88	88.8	Sokoman	0.00001	
K-11-166 27.1-2	K-11-166	27.1	28.1	Sokoman	0.00001	
K-11-166 94.6-9	K-11-166	94.6	95.3	Sokoman	0.000005	
K-11-166 520.3	K-11-166	520.3	521	Sokoman	0.00001	
K-10-52 330-33	K-10-52	330	331	Sokoman	0.00001	
K-10-52 476-47	K-10-52	476	477	Sokoman	0.00001	
K-11-116 124.9	K-11-116	124.9	126	Sokoman	0.000005	
K-11-133 309.9	K-11-133	309.9	311.4	Sokoman	0.00001	
K24/6-206.5 (K	K-08-24	206.5	207	Sokoman	0.000005	
K66/12	K-10-66	491.6	492	Sokoman	0.00001	



Sample ID	Borehole ID	From (m)	To (m)	Formation	Company	Material Type	pH	pH2	Acidity (as CaCO3)	Conductivity	Moisture	ORP	Alkalinity, total (as CaCO3)	Ammonia, total (as N)	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	Phosphorus, total dissolved	Sulfate
Units							-	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration																				
MDMER Maximum Authorized Concentration in a Composite																				
MDMER Maximum Authorized Concentration in a Grab Sample																				
CCME Freshwater Aquatic Chronic														0.019	120	0.12	13			
CCME Freshwater Aquatic Acute							?								640		550			
K163/4	K-11-163	164.8	165	Sokoman	Stantec	Mine Rock	9.46	8.33												
K163/6	K-11-163	198.5	199.2	Sokoman	Stantec	Mine Rock	6.17	7.16												
K140/8	K-11-140	257	257.3	Sokoman	Stantec	Ore	9.55	9.09												
K20/8	K-08-20	169.3	169.6	Sokoman	Stantec	Mine Rock	9.63	9.35												
K24/2	K-08-24	40.7	41	Sokoman	Stantec	Ore	9.68	8.81												
K-10-29 86.1-87	K-10-29	86.1	87	Sokoman	Stantec	Mine Rock	9.61	9.02												
K-10-52 299-30	K-10-52	299	300	Sokoman	Stantec	Mine Rock	9.16	8.38												
K-10-38 172.6-1	K-10-38	172.6	173.5	Sokoman	Stantec	Mine Rock	9.46	8.93												
K140/10	K-11-140	286.7	287	Sokoman	Stantec	Ore	9.33	8.82												
K-11-171 100.1-	K-11-171	100.1	100.6	Sokoman	Stantec	Mine Rock	9.51	8.5												
K-11-171 101-10	K-11-171	101	101.6	Sokoman	Stantec	Mine Rock	9.4	8.33												
K-11-171 183.8-	K-11-171	183.8	184.8	Sokoman	Stantec	Mine Rock	9.15	8.77												
K-10-29 101-10	K-10-29	101	103.2	Sokoman	Stantec	Ore	9.35	8.65												
K-11-166 479.1-	K-11-166	479.1	479.5	Sokoman	Stantec	Mine Rock	8.59	8.3												
K-10-52 380-38	K-10-52	380	381	Sokoman	Stantec	Mine Rock	9.02	8.47												
K-10-38 207-20	K-10-38	207	208	Sokoman	Stantec	Mine Rock	9.25	8.54												
K24/8	K-08-24	236.7	237	Sokoman	Stantec	Mine Rock	8.92	8.26												
K66/5	K-10-66	224	224.3	Sokoman	Stantec	Mine Rock	7.24	8.3												
K66/14	K-10-66	588	588.5	Sokoman	Stantec	Ore	8.49	7.06												
K143/2	K-11-143	481.5	481.8	Sokoman	Stantec	Ore	9.09	8.5												
K-11-149 208-20	K-11-149	208	209	Sokoman	Stantec	Mine Rock	8.93	8.65												
K-10-35 16-16.5	K-10-35	16	16.5	Sokoman	Stantec	Mine Rock	9.54	8.59												
K-11-171 51.9-52	K-11-171	51.9	52.4	Sokoman	Stantec	Mine Rock	9.68	8.28												
K-08-18 84.8-84.9	K-08-18	84.8	86	Sokoman	Stantec	Mine Rock	9.63	8.58												
K-08-18 231.8-232	K-08-18	231.8	233	Sokoman	Stantec	Mine Rock	9.28	8.36												
K-11-166 4.6-5.1	K-11-166	4.6	5.1	Sokoman	Stantec	Mine Rock	8.74	8.29												
K-11-166 167.3-168	K-11-166	167.3	168.3	Sokoman	Stantec	Mine Rock	9.46	8.73												
K-10-52 263-264	K-10-52	263	264	Sokoman	Stantec	Mine Rock	9.33	8.57												
K-10-55 270-27	K-10-55	270	271	Sokoman	Stantec	Mine Rock	8.96	8.97												
K-11-166 180-181	K-11-166	180	181	Wishart	Stantec	Mine Rock	9.25	8.87												
K20/11	K-08-20	227.2	227.5	Wishart	Stantec	Mine Rock	9.66	9.8												
K64/1	K-10-64	88.6	88.9	Wishart	Stantec	Mine Rock	8.13	8.06												
Unknown (K163/4)	K-11-163	539.5	540	Wishart	Stantec	Mine Rock	7.51	7.74												
K20/13	K-08-20	417	417.7	Wishart	Stantec	Mine Rock	8.49	9.61												
K-11-149 215.1-	K-11-149	215.1	216.2	Wishart	Stantec	Mine Rock	9.55	9.61												
K-08-09 272.6-273	K-08-09	272.6	273.6	Wishart	Stantec	Mine Rock	9.74	9.48												
K-11-166 200.6-	K-11-166	200.6	201	Wishart	Stantec	Mine Rock	9.59	9.56												
K-11-166 244.5-	K-11-166	244.5	245	Wishart	Stantec	Mine Rock	9.7	9.6												
K-10-55 213-214	K-10-55	213	214	Wishart	Stantec	Mine Rock	9.66	9.65												
K-10-55 249-250	K-10-55	249	250	Wishart	Stantec	Mine Rock	9.62	9.44												
K163/12	K-11-163	543.8	544	Wishart	Stantec	Mine Rock	7.9	8.21												
K-11-171 301-301.5	K-11-171	301	301.5	Wishart	Stantec	Mine Rock	8	8.48												
K-11-166 170.2-	K-11-166	170.2	171	Wishart	Stantec	Mine Rock	8.84	8.41												
K-11-166 174-174.5	K-11-166	174	174.5	Wishart	Stantec	Mine Rock	8.84	8.8												
K-11-166 420.5-	K-11-166	420.5	421	Wishart	Stantec	Mine Rock	9.68	9.3												
K-11-166 182.5-	K-11-166	182.5	183	Wishart	Stantec	Mine Rock	8.75	8.33												



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Bromide	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration								0.1									0.1		0.08		
MDMER Maximum Authorized Concentration in a Composite								0.15									0.15		0.12		
MDMER Maximum Authorized Concentration in a Grab Sample								0.2									0.2		0.16		
CCME Freshwater Aquatic Chronic								0.005				1.5	0.0002		0.0089			0.3			
CCME Freshwater Aquatic Acute												29									
K163/4	K-11-163	164.8	165	Sokoman		0.005		0.0001		0.000005			0.0000015		0.00025	0.000043	0.00025	0.0015	0.00001		
K163/6	K-11-163	198.5	199.2	Sokoman		0.01		0.0004		0.000005			0.00116		0.00025	0.000237	0.00025	0.034	0.00059		
K140/8	K-11-140	257	257.3	Sokoman		0.01		0.0011		0.000005			0.0000015		0.00025	0.000013	0.00025	0.089	0.00008		
K20/8	K-08-20	169.3	169.6	Sokoman		0.005		0.059		0.000005			0.0000015		0.00025	0.000016	0.00025	0.0015	0.00001		
K24/2	K-08-24	40.7	41	Sokoman		0.01		0.0001		0.000005			0.0000015		0.00025	0.000012	0.00025	0.0015	0.00001		
K-10-29 86.1-87	K-10-29	86.1	87	Sokoman		0.005		0.0149		0.000005			0.0000015		0.00025	0.000288	0.00025	0.004	0.00001		
K-10-52 299-300	K-10-52	299	300	Sokoman		0.005		0.0001		0.00003			0.000004		0.00025	0.00007	0.00025	0.0015	0.00001		
K-10-38 172.6-173.5	K-10-38	172.6	173.5	Sokoman		0.005		0.0001		0.000005			0.0000015		0.00025	0.000041	0.00025	0.0015	0.00001		
K140/10	K-11-140	286.7	287	Sokoman		0.005		0.0017		0.000005			0.0000015		0.00025	0.00003	0.00025	0.037	0.00001		
K-11-171 100.1-101	K-11-171	100.1	100.6	Sokoman		0.005		0.0001		0.000005			0.000004		0.00025	0.00007	0.00025	0.0015	0.00001		
K-11-171 101-101.6	K-11-171	101	101.6	Sokoman		0.005		0.0001		0.000005			0.0000015		0.00025	0.000059	0.00025	0.0015	0.00001		
K-11-171 183.8-184.8	K-11-171	183.8	184.8	Sokoman		0.005		0.0014		0.000005			0.0000015		0.00025	0.000071	0.00025	0.016	0.00001		
K-10-29 101-103.2	K-10-29	101	103.2	Sokoman		0.005		0.0001		0.000005			0.000003		0.0006	0.000202	0.00025	0.004	0.00001		
K-11-166 479.1-479.5	K-11-166	479.1	479.5	Sokoman		0.01		0.0003		0.000005			0.0000015		0.00025	0.000022	0.00025	0.046	0.00001		
K-10-52 380-381	K-10-52	380	381	Sokoman		0.005		0.0001		0.000005			0.000003		0.00025	0.000041	0.00025	0.0015	0.00001		
K-10-38 207-208	K-10-38	207	208	Sokoman		0.02		0.0001		0.000005			0.0000015		0.00025	0.000012	0.00025	0.0015	0.00001		
K24/8	K-08-24	236.7	237	Sokoman		0.14		0.002		0.00021			0.000013		0.00025	0.000083	0.00025	0.008	0.00001		
K66/5	K-10-66	224	224.3	Sokoman		0.005		0.0001		0.000005			0.0000015		0.00025	0.000033	0.00025	0.004	0.00001		
K66/14	K-10-66	588	588.5	Sokoman		0.005		0.0001		0.000005			0.0000015		0.0016	0.000975	0.00025	0.0015	0.00001		
K143/2	K-11-143	481.5	481.8	Sokoman		0.005		0.0003		0.000005			0.0000015		0.00025	0.000033	0.00025	0.004	0.00001		
K-11-149 208-209	K-11-149	208	209	Sokoman		0.02		0.0001		0.00022			0.0000015		0.00025	0.000059	0.00025	0.013	0.00001		
K-10-35 16-16.5	K-10-35	16	16.5	Sokoman		0.005		0.0001		0.000005			0.000003		0.00025	0.000071	0.00025	0.004	0.00001		
K-11-171 51.9-52.4	K-11-171	51.9	52.4	Sokoman		0.005		0.0001		0.000005			0.0000015		0.00025	0.000085	0.00025	0.004	0.00001		
K-08-18 84.8-86	K-08-18	84.8	86	Sokoman		0.01		0.0001		0.000005			0.0000015		0.00025	0.000038	0.00025	0.0015	0.00001		
K-08-18 231.8-233	K-08-18	231.8	233	Sokoman		0.005		0.0009		0.000005			0.0000015		0.00025	0.000225	0.00025	0.01	0.00001		
K-11-166 4.6-5.1	K-11-166	4.6	5.1	Sokoman		0.005		0.0001		0.0002			0.0000015		0.00025	0.000211	0.00025	0.0015	0.00001		
K-11-166 167.3-168.3	K-11-166	167.3	168.3	Sokoman		0.02		0.0001		0.000005			0.0000015		0.00025	0.00011	0.00025	0.004	0.00001		
K-10-52 263-264	K-10-52	263	264	Sokoman		0.02		0.0001		0.000005			0.0000015		0.00025	0.000021	0.00025	0.0015	0.00001		
K-10-55 270-271	K-10-55	270	271	Sokoman		0.005		0.0004		0.000005			0.0000015		0.00025	0.000024	0.0007	0.165	0.00001		
K-11-166 180-181	K-11-166	180	181	Wishart		0.21		0.0001		0.000005			0.000005		0.00025	0.000123	0.00025	0.01	0.00001		
K20/11	K-08-20	227.2	227.5	Wishart		0.69		0.0005		0.000005			0.0000015		0.00025	0.000033	0.00025	0.05	0.00002		
K64/1	K-10-64	88.6	88.9	Wishart		0.03		0.0001		0.000005			0.0000015		0.00025	0.000243	0.0005	1.8	0.00005		
Unknow (K163/13)	K-11-163	539.5	540	Wishart		0.11		0.0001		0.00004			0.0000015		0.00025	0.000426	0.003	3.23	0.00022		
K20/13	K-08-20	417	417.7	Wishart		1.58		0.0001		0.000005			0.0000015		0.0007	0.000093	0.00025	1.14	0.00008		
K-11-149 215.1-216.2	K-11-149	215.1	216.2	Wishart		0.52		0.0003		0.000005			0.000003		0.00025	0.000031	0.00025	0.004	0.00004		
K-08-09 272.6-273.6	K-08-09	272.6	273.6	Wishart		0.74		0.0004		0.000005			0.000018		0.00025	0.000069	0.00025	0.024	0.00002		
K-11-166 200.6-201	K-11-166	200.6	201	Wishart		0.005		0.0015		0.000005			0.0000015		0.00025	0.000154	0.0015	0.016	0.00006		
K-11-166 244.5-245	K-11-166	244.5	245	Wishart		0.005		0.0007		0.000005			0.000008		0.00025	0.000136	0.00025	0.007	0.00001		
K-10-55 213-214	K-10-55	213	214	Wishart		1.74		0.0014		0.000005			0.0000015		0.0009	0.000176	0.0029	0.262	0.00005		
K-10-55 249-250	K-10-55	249	250	Wishart		1.03		0.0001		0.00007			0.0000015		0.00025	0.000028	0.0006	0.143	0.00003		
K163/12	K-11-163	543.8	544	Wishart		1.34		0.0001		0.00003			0.000032		0.0007	0.00028	0.0015	1.41	0.00023		
K-11-171 301-301.5	K-11-171	301	301.5	Wishart		0.25		0.0001		0.000005			0.0000015		0.00025	0.000083	0.00025	0.006	0.00001		
K-11-166 170.2-171	K-11-166	170.2	171	Wishart		0.02		0.0001		0.00001			0.000008		0.00025	0.000184	0.00025	0.01	0.00001		
K-11-166 174-174.5	K-11-166	174	174.5	Wishart		0.49		0.0005		0.00001			0.000011		0.00025	0.000155	0.00025	0.004	0.00001		
K-11-166 420.5-421	K-11-166	420.5	421	Wishart		0.11		0.0001		0.000005			0.000003		0.00025	0.000003	0.00025	0.0015	0.00001		
K-11-166 182.5-183	K-11-166	182.5	183	Wishart		0.73		0.0005		0.00002			0.000067		0.0006	0.000183	0.00025	0.117	0.00014		



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Manganese	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc	
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration							0.25															0.4
MDMER Maximum Authorized Concentration in a Composite							0.38															0.6
MDMER Maximum Authorized Concentration in a Grab Sample							0.5															0.8
CCME Freshwater Aquatic Chronic						0.073	0.07036			0.001		0.00025							0.015			
CCME Freshwater Aquatic Acute																			0.033			
K163/4	K-11-163	164.8	165	Sokoman		0.00024	0.0009			0.0005						0.00001			0.00039		0.0005	
K163/6	K-11-163	198.5	199.2	Sokoman		0.0001	0.0003			0.004						0.00006			0.00008		0.0005	
K140/8	K-11-140	257	257.3	Sokoman		0.00059	0.0001			0.0005						0.00001			0.000233		0.0005	
K20/8	K-08-20	169.3	169.6	Sokoman		0.00079	0.0001			0.0005						0.00001			0.00179		0.0005	
K24/2	K-08-24	40.7	41	Sokoman		0.00057	0.0001			0.0005						0.00001			0.000939		0.0005	
K-10-29 86.1-87	K-10-29	86.1	87	Sokoman		0.00083	0.0004			0.0005						0.00001			0.000836		0.0005	
K-10-52 299-300	K-10-52	299	300	Sokoman		0.00143	0.0002			0.0005						0.00001			0.00206		0.0005	
K-10-38 172.6-173	K-10-38	172.6	173.5	Sokoman		0.00026	0.0002			0.0005						0.00001			0.000744		0.0005	
K140/10	K-11-140	286.7	287	Sokoman		0.00649	0.0002			0.0005						0.00001			0.000087		0.0005	
K-11-171 100.1-101	K-11-171	100.1	100.6	Sokoman		0.00108	0.0006			0.0005						0.00001			0.000173		0.0005	
K-11-171 101-101.6	K-11-171	101	101.6	Sokoman		0.00044	0.0003			0.0005						0.00001			0.000082		0.0005	
K-11-171 183.8-184.8	K-11-171	183.8	184.8	Sokoman		0.00073	0.0004			0.0005						0.00001			0.000118		0.0005	
K-10-29 101-103.2	K-10-29	101	103.2	Sokoman		0.00018	0.0001			0.0005						0.00001			0.000114		0.0005	
K-11-166 479.1-479.5	K-11-166	479.1	479.5	Sokoman		0.0001	0.00005			0.0005						0.00001			0.000067		0.0005	
K-10-52 380-381	K-10-52	380	381	Sokoman		0.00012	0.0002			0.0005						0.00001			0.000039		0.0005	
K-10-38 207-208	K-10-38	207	208	Sokoman		0.00005	0.00005			0.0005						0.00001			0.000051		0.0005	
K24/8	K-08-24	236.7	237	Sokoman		0.0942	0.001			0.003						0.00001			0.00194		0.0005	
K66/5	K-10-66	224	224.3	Sokoman		0.00162	0.0004			0.0005						0.00001			0.0001		0.001	
K66/14	K-10-66	588	588.5	Sokoman		0.00007	0.003			0.0005						0.00002			0.000147		0.0005	
K143/2	K-11-143	481.5	481.8	Sokoman		0.00082	0.0003			0.0005						0.00001			0.000323		0.0005	
K-11-149 208-209	K-11-149	208	209	Sokoman		0.00023	0.00005			0.0005						0.00001			0.000066		0.0005	
K-10-35 16-16.5	K-10-35	16	16.5	Sokoman		0.0005	0.0003			0.0005						0.00001			0.00011		0.0005	
K-11-171 51.9-52.4	K-11-171	51.9	52.4	Sokoman		0.00125	0.0002			0.0005						0.00001			0.000146		0.0005	
K-08-18 84.8-86	K-08-18	84.8	86	Sokoman		0.00076	0.00005			0.0005						0.00001			0.000074		0.0005	
K-08-18 231.8-233	K-08-18	231.8	233	Sokoman		0.0008	0.0003			0.0005						0.00001			0.00013		0.0005	
K-11-166 4.6-5.1	K-11-166	4.6	5.1	Sokoman		0.00188	0.0004			0.0005						0.00001			0.00017		0.0005	
K-11-166 167.3-168.3	K-11-166	167.3	168.3	Sokoman		0.00171	0.0003			0.0005						0.00001			0.00052		0.0005	
K-10-52 263-264	K-10-52	263	264	Sokoman		0.00004	0.00005			0.0005						0.00001			0.000034		0.0005	
K-10-55 270-271	K-10-55	270	271	Sokoman		0.00014	0.0001			0.0005						0.00001			0.000061		0.0005	
K-11-166 180-181	K-11-166	180	181	Wishart		0.00173	0.0003			0.0005						0.00001			0.000569		0.0005	
K20/11	K-08-20	227.2	227.5	Wishart		0.0005	0.0001			0.0005						0.00001			0.000043		0.0005	
K64/1	K-10-64	88.6	88.9	Wishart		0.00078	0.0012			0.0005						0.00001			0.000088		0.002	
Unknow (K163/13)	K-11-163	539.5	540	Wishart		0.0024	0.0008			0.0005						0.00001			0.000157		0.002	
K20/13	K-08-20	417	417.7	Wishart		0.00072	0.0001			0.0005						0.00001			0.000102		0.002	
K-11-149 215.1-216.2	K-11-149	215.1	216.2	Wishart		0.00024	0.00005			0.0005						0.00001			0.00013		0.001	
K-08-09 272.6-273.6	K-08-09	272.6	273.6	Wishart		0.00021	0.0001			0.0005						0.00001			0.000252		0.0005	
K-11-166 200.6-201	K-11-166	200.6	201	Wishart		0.00055	0.0005			0.0005						0.00001			0.000258		0.001	
K-11-166 244.5-245	K-11-166	244.5	245	Wishart		0.00059	0.0003			0.0005						0.00001			0.000437		0.0005	
K-10-55 213-214	K-10-55	213	214	Wishart		0.00019	0.0005			0.0005						0.00001			0.000241		0.0005	
K-10-55 249-250	K-10-55	249	250	Wishart		0.00071	0.0003			0.0005						0.00001			0.000606		0.0005	
K163/12	K-11-163	543.8	544	Wishart		0.00247	0.0014			0.0005						0.00001			0.000551		0.008	
K-11-171 301-301.5	K-11-171	301	301.5	Wishart		0.00271	0.0008			0.0005						0.00001			0.000252		0.0005	
K-11-166 170.2-171	K-11-166	170.2	171	Wishart		0.0334	0.0006			0.0005						0.00001			0.00598		0.0005	
K-11-166 174-174.5	K-11-166	174	174.5	Wishart		0.00434	0.0008			0.015						0.00001			0.00408		0.0005	
K-11-166 420.5-421	K-11-166	420.5	421	Wishart		0.00036	0.00005			0.0005						0.00001			0.000009		0.0005	
K-11-166 182.5-183	K-11-166	182.5	183	Wishart		0.00061	0.0008			0.0005						0.00001			0.00017		0.0005	



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Mercury	Hardness (as CaCO ₃)
Units					mg/L	mg CaCO ₃ /L
MDMER Maximum Authorized Monthly Mean Concentration						
MDMER Maximum Authorized Concentration in a Composite						
MDMER Maximum Authorized Concentration in a Grab Sample						
CCME Freshwater Aquatic Chronic						
CCME Freshwater Aquatic Acute						
K163/4	K-11-163	164.8	165	Sokoman	0.000005	
K163/6	K-11-163	198.5	199.2	Sokoman	0.000005	
K140/8	K-11-140	257	257.3	Sokoman	0.00001	
K20/8	K-08-20	169.3	169.6	Sokoman	0.00001	
K24/2	K-08-24	40.7	41	Sokoman	0.000005	
K-10-29 86.1-87	K-10-29	86.1	87	Sokoman	0.000005	
K-10-52 299-304	K-10-52	299	300	Sokoman	0.00001	
K-10-38 172.6-1	K-10-38	172.6	173.5	Sokoman	0.00001	
K140/10	K-11-140	286.7	287	Sokoman	0.000005	
K-11-171 100.1	K-11-171	100.1	100.6	Sokoman	0.000005	
K-11-171 101-1	K-11-171	101	101.6	Sokoman	0.000005	
K-11-171 183.8	K-11-171	183.8	184.8	Sokoman	0.000005	
K-10-29 101-103	K-10-29	101	103.2	Sokoman	0.000005	
K-11-166 479.1	K-11-166	479.1	479.5	Sokoman	0.00001	
K-10-52 380-38	K-10-52	380	381	Sokoman	0.00001	
K-10-38 207-204	K-10-38	207	208	Sokoman	0.00001	
K24/8	K-08-24	236.7	237	Sokoman	0.000005	
K66/5	K-10-66	224	224.3	Sokoman	0.00001	
K66/14	K-10-66	588	588.5	Sokoman	0.00001	
K143/2	K-11-143	481.5	481.8	Sokoman	0.000005	
K-11-149 208-2	K-11-149	208	209	Sokoman	0.000005	
K-10-35 16-16.5	K-10-35	16	16.5	Sokoman	0.000005	
K-11-171 51.9-5	K-11-171	51.9	52.4	Sokoman	0.000005	
K-08-18 84.8-86	K-08-18	84.8	86	Sokoman	0.000005	
K-08-18 231.8-2	K-08-18	231.8	233	Sokoman	0.00001	
K-11-166 4.6-5.1	K-11-166	4.6	5.1	Sokoman	0.00001	
K-11-166 167.3	K-11-166	167.3	168.3	Sokoman	0.00001	
K-10-52 263-26	K-10-52	263	264	Sokoman	0.00001	
K-10-55 270-27	K-10-55	270	271	Sokoman	0.000005	
K-11-166 180-18	K-11-166	180	181	Wishart	0.000005	
K20/11	K-08-20	227.2	227.5	Wishart	0.00001	
K64/1	K-10-64	88.6	88.9	Wishart	0.00004	
Unknow (K163/	K-11-163	539.5	540	Wishart	0.000005	
K20/13	K-08-20	417	417.7	Wishart	0.00001	
K-11-149 215.1	K-11-149	215.1	216.2	Wishart	0.000005	
K-08-09 272.6-2	K-08-09	272.6	273.6	Wishart	0.000005	
K-11-166 200.6	K-11-166	200.6	201	Wishart	0.000005	
K-11-166 244.5	K-11-166	244.5	245	Wishart	0.000005	
K-10-55 213-21	K-10-55	213	214	Wishart	0.00001	
K-10-55 249-25	K-10-55	249	250	Wishart	0.000005	
K163/12	K-11-163	543.8	544	Wishart	0.000005	
K-11-171 301-3	K-11-171	301	301.5	Wishart	0.000005	
K-11-166 170.2	K-11-166	170.2	171	Wishart	0.000005	
K-11-166 174-1	K-11-166	174	174.5	Wishart	0.00001	
K-11-166 420.5	K-11-166	420.5	421	Wishart	0.00001	
K-11-166 182.5	K-11-166	182.5	183	Wishart	0.000005	



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Company	Material Type	pH	pH2	Acidity (as CaCO3)	Conductivity	Moisture	ORP	Alkalinity, total (as CaCO3)	Ammonia, total (as N)	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	Phosphorus, total dissolved	Sulfate
Units							-	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration																				
MDMER Maximum Authorized Concentration in a Composite																				
MDMER Maximum Authorized Concentration in a Grab Sample																				
CCME Freshwater Aquatic Chronic														0.019	120	0.12	13			
CCME Freshwater Aquatic Acute							2								640		550			
K-11-166 247.5	K-11-166	247.5	248	Wishart	Stantec	Mine Rock	9.34	9.46												
K-11-166 379.5	K-11-166	379.5	380	Wishart	Stantec	Mine Rock	9.15	9.48												
K-10-52 1-2	K-10-52	1	2	Wishart	Stantec	Mine Rock	8.38	8.4												
K-10-55 130-134	K-10-55	130	130.9	Wishart	Stantec	Mine Rock	9.6	9.57												
K-10-55 160-16	K-10-55	160	161	Wishart	Stantec	Mine Rock	9.56	9.31												
K-10-55 208-20	K-10-55	208	209	Wishart	Stantec	Mine Rock	9.11	9.27												
K24/10	K-08-24	284.4	284.8	Wishart	Stantec	Mine Rock	9.43	8.93												
K24/11	K-08-24	296	296.4	Wishart	Stantec	Mine Rock	9.13	9.19												
K-08-09 301.2-3	K-08-09	301.2	302.2	Wishart	Stantec	Mine Rock	9.33	9.37												
K-10-35 192-19	K-10-35	192	193	Wishart	Stantec	Mine Rock	9.56	9.16												
K-10-35 200-20	K-10-35	200	200.8	Wishart	Stantec	Mine Rock	9.55	9.34												
K-10-35 206-20	K-10-35	206	206.9	Wishart	Stantec	Mine Rock	9.15	9.44												
K-11-166 428-4	K-11-166	428	428.5	Wishart	Stantec	Mine Rock	9.44	9.45												
K-10-52 20-21	K-10-52	20	21	Wishart	Stantec	Mine Rock	7.16	7.93												
K-10-52 50-50.7	K-10-52	50	50.7	Wishart	Stantec	Mine Rock	9.25	9.4												
K-10-52 100-10	K-10-52	100	101	Wishart	Stantec	Mine Rock	9.19	9.33												
K-11-116 79.5-8	K-11-116	79.5	80	Wishart	Stantec	Mine Rock	7.18	7.4												
K-11-116 99.3-1	K-11-116	99.3	102	Wishart	Stantec	Mine Rock	7.37	7.59												
K-11-116 117-1	K-11-116	117	119.2	Wishart	Stantec	Mine Rock	7.59	7.67												
K-10-55 227-22	K-10-55	227	228	Wishart	Stantec	Mine Rock	9.17	9.28												
K-11-166 251.1	K-11-166	251.1	251.6	Denault	Okane	Mine Rock	8.35		<4	73	<0.25	217	33	0.007	2.7	<0.02	0.006	<0.001	0.0021	1.1
K-10-61-34	K-10-61	34	34.5	Denault	Okane	Mine Rock	8.1		<4	79	<0.25	138	36	0.01	4.5	<0.02	0.011	<0.001	0.01	<0.5
K-11-108-118.2	K-11-108	118.2	118.7	Katsao	Okane	Mine Rock	3.96		78	534	<0.25	344	<2	0.078	0.86	0.23	0.014	<0.001	<0.002	268
K-11-108-228.3	K-11-108	228.3	228.8	Katsao	Okane	Mine Rock	7.7		<4	130	<0.25	210	39	0.017	3.6	<0.08	0.4	0.0032	0.061	15
K-11-112A-147	K-11-112A	147.3	147.8	Katsao	Okane	Mine Rock	6.9		<4	50	0.26	320	4.4	0.006	7.9	0.031	0.033	<0.001	0.043	3.6
K-11-112A-43.1	K-11-112A	43.1	43.6	Katsao	Okane	Mine Rock	7.6		<4	53	<0.25	312	14	0.01	1.6	0.039	0.044	0.002	0.058	5.7
K-11-112A-71.4	K-11-112A	71.4	71.9	Katsao	Okane	Mine Rock	6.22		<4	154	<0.25	338	<2	0.015	0.83	0.028	0.024	<0.001	0.011	58
K-11-112A-102	K-11-112A	102.8	103.3	Katsao	Okane	Mine Rock	7.75		<4	101	<0.25	281	23	0.024	1.7	0.046	0.046	<0.001	0.0075	19
K-11-116-78	K-11-116	78	78.5	Katsao	Okane	Mine Rock	6.72		<4	29	<0.25	332	4.0	0.005	1.5	0.027	0.046	<0.001	0.1	3.1
K-12-175-86.6	K-12-175	86.6	87.1	Menihiek	Okane	Mine Rock	7.93		<4	297	<0.25	228	51	0.013	5.0	0.023	0.036	<0.001	<0.002	80
K-12-187-74	K-12-187	74	74.5	Menihiek	Okane	Mine Rock	7.67		<4	146	<0.25	248	26	0.13	1.0	0.16	0.05	<0.001	0.0086	38
K-12-194-122.4	K-12-194	122.4	122.9	Menihiek	Okane	Mine Rock	7.91		<4	236	<0.25	254	44	0.063	2.2	0.15	0.084	<0.001	0.0026	63
K-12-194-214.1	K-12-194	214.1	214.6	Menihiek	Okane	Mine Rock	3.32		272	797	<0.25	388	<2	0.1	<2.5	<0.1	0.031	0.012	<0.002	410
K-12-194-85	K-12-194	85	85.5	Menihiek	Okane	Mine Rock	6.81		<4	80	<0.25	266	5.0	0.07	2.6	0.11	0.059	0.0012	0.021	19
K-12-206-58.4	K-12-206	58.4	58.9	Menihiek	Okane	Mine Rock	8.32		<4	174	<0.25	245	78	0.033	1.0	<0.02	0.044	0.0019	0.0023	11
K-12-209-219.3	K-12-209	219.3	219.8	Menihiek	Okane	Mine Rock	8.35		<4	69	<0.25	252	34	<0.005	<0.5	<0.02	0.016	0.0035	<0.002	1.4
K-12-213-113.9	K-12-213	113.9	114.9	Menihiek	Okane	Mine Rock	8.26		<4	143	<0.25	279	65	0.03	0.67	0.038	0.069	0.004	0.0028	5.2
K-10-83-658.8	K-10-83	658.8	659.3	Menihiek	Okane	Mine Rock	7.68		<4	135	<0.25	232	26	0.017	1.5	0.16	0.022	<0.001	0.0051	32
K-10-83-660.6	K-10-83	660.6	661.1	Menihiek	Okane	Mine Rock	7.62		<4	130	<0.25	221	26	0.012	1.1	0.12	0.015	<0.001	0.003	29
K-11-142-76.47	K-11-142	76.47	77	Menihiek	Okane	Mine Rock	8.13		<4	352	<0.25	256	80	0.008	0.98	<0.02	0.024	<0.001	0.0032	92
K-11-145-159.4	K-11-145	159.4	159.9	Menihiek	Okane	Mine Rock	8.29		<4	129	<0.25	269	38	0.093	2.0	0.52	0.064	0.0026	0.018	15
K-11-152-68	K-11-152	68	68.5	Menihiek	Okane	Mine Rock	3.32		726	1,980	0.6	381	<2	0.13	<2.5	1.9	0.046	<0.005	0.0075	1,310
K-11-158-50.5	K-11-158	50.5	51	Menihiek	Okane	Mine Rock	6.43		<4	218	<0.25	253	2.7	0.041	0.77	0.022	0.016	<0.001	<0.002	92
K-11-158-57.6	K-11-158	57.6	60.1	Menihiek	Okane	Mine Rock	6.98		<4	41	0.5	252	8.7	0.017	1.1	0.077	0.086	0.011	0.039	7.0
K-11-161-181.5	K-11-161	181.5	182	Menihiek	Okane	Mine Rock	7.6		12	1,550	0.53	250	105	0.088	2.5	<0.1	0.22	<0.005	<0.002	904
K-11-163-28.5	K-11-163	28.5	29	Menihiek	Okane	Mine Rock	7.62		<4	111	<0.25	271	29	0.005	0.5	<0.04	0.029	0.0043	0.0027	24



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Bromide	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration								0.1									0.1		0.08		
MDMER Maximum Authorized Concentration in a Composite								0.15									0.15		0.12		
MDMER Maximum Authorized Concentration in a Grab Sample								0.2									0.2		0.16		
CCME Freshwater Aquatic Chronic								0.005				1.5	0.0002		0.0089			0.3			
CCME Freshwater Aquatic Acute												29									
K-11-166 247.5	K-11-166	247.5	248	Wishart		0.005		0.0007		0.000005			0.0000015		0.00025	0.000116	0.00025	0.0015	0.00001		
K-11-166 379.5	K-11-166	379.5	380	Wishart		0.02		0.0047		0.000005			0.0000015		0.00025	0.000046	0.00025	0.008	0.00001		
K-10-52 1-2	K-10-52	1	2	Wishart		0.06		0.0005		0.000005			0.000007		0.00025	0.000361	0.0008	0.07	0.0001		
K-10-55 130-134	K-10-55	130	130.9	Wishart		0.005		0.0005		0.00002			0.0000015		0.00025	0.00002	0.00025	0.0015	0.00001		
K-10-55 160-161	K-10-55	160	161	Wishart		0.005		0.0006		0.000005			0.0000015		0.00025	0.00001	0.0014	0.0015	0.00001		
K-10-55 208-209	K-10-55	208	209	Wishart		0.04		0.0017		0.000005			0.0000015		0.00025	0.000048	0.0018	0.04	0.00003		
K24/10	K-08-24	284.4	284.8	Wishart		0.62		0.0015		0.00004			0.0000015		0.00025	0.000055	0.0006	0.007	0.00001		
K24/11	K-08-24	296	296.4	Wishart		0.03		0.001		0.000005			0.0000015		0.00025	0.000048	0.00025	0.052	0.00004		
K-08-09 301.2-3	K-08-09	301.2	302.2	Wishart		1.27		0.0008		0.00003			0.000085		0.0009	0.000361	0.00025	0.098	0.00015		
K-10-35 192-193	K-10-35	192	193	Wishart		0.22		0.0009		0.000005			0.000004		0.00025	0.000049	0.00025	0.014	0.00001		
K-10-35 200-201	K-10-35	200	200.8	Wishart		0.17		0.0014		0.000005			0.0000015		0.00025	0.000049	0.00025	0.0015	0.00001		
K-10-35 206-207	K-10-35	206	206.9	Wishart		0.7		0.0042		0.000005			0.000082		0.0006	0.000269	0.00025	0.134	0.00024		
K-11-166 428-43	K-11-166	428	428.5	Wishart		0.41		0.001		0.000005			0.000004		0.00025	0.000063	0.00025	0.007	0.00001		
K-10-52 20-21	K-10-52	20	21	Wishart		0.34		0.0001		0.00002			0.000098		0.0011	0.00103	0.0024	0.307	0.00055		
K-10-52 50-50.7	K-10-52	50	50.7	Wishart		1.09		0.0001		0.000005			0.000038		0.00025	0.000125	0.00025	0.06	0.00025		
K-10-52 100-101	K-10-52	100	101	Wishart		0.1		0.0004		0.00019			0.000004		0.00025	0.000017	0.00025	0.0015	0.00001		
K-11-116 79.5-8	K-11-116	79.5	80	Wishart		0.01		0.0001		0.00003			0.000005		0.00025	0.00043	0.0011	0.429	0.0001		
K-11-116 99.3-1	K-11-116	99.3	102	Wishart		0.04		0.0001		0.00007			0.00001		0.00025	0.000247	0.0009	0.236	0.00011		
K-11-116 117-1	K-11-116	117	119.2	Wishart		0.03		0.0001		0.00009			0.0000015		0.00025	0.00009	0.0007	0.036	0.00001		
K-10-55 227-228	K-10-55	227	228	Wishart		1.16		0.0003		0.00008			0.000007		0.00025	0.000287	0.0014	0.087	0.00005		
K-11-166-251.1	K-11-166	251.1	251.6	Denault	<0.05	0.034	<0.0001	<0.001	0.0039	<0.0005	<0.0005	<0.01	<0.00005	6.6	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.7
K-10-61-34	K-10-61	34	34.5	Denault	<0.05	<0.005	0.0001	<0.001	0.0084	<0.0005	<0.0005	<0.01	<0.00005	6.2	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	5.4
K-11-108-118.2	K-11-108	118.2	118.7	Katsao	<0.05	4.0	<0.0001	<0.001	0.0083	<0.00092	<0.0005	<0.01	0.01	22	0.014	0.19	0.72	24	<0.0001	0.038	27
K-11-108-228.3	K-11-108	228.3	228.8	Katsao	0.059	1.1	<0.0001	<0.001	0.038	<0.0005	<0.0005	<0.01	<0.00005	10	0.00056	0.00056	0.0018	0.74	0.00053	<0.005	5.7
K-11-112A-147	K-11-112A	147.3	147.8	Katsao	<0.05	1.2	0.00021	<0.001	0.0069	<0.0005	<0.0005	<0.01	<0.00005	0.72	<0.0005	<0.0001	<0.001	0.14	0.0032	<0.005	0.21
K-11-112A-43.1	K-11-112A	43.1	43.6	Katsao	<0.05	1.9	0.00019	0.0025	0.0093	<0.0005	<0.0005	<0.01	0.00011	2.6	0.0032	0.00076	0.0014	0.84	0.0085	<0.005	0.71
K-11-112A-71.4	K-11-112A	71.4	71.9	Katsao	<0.05	0.15	0.00019	<0.001	0.0073	<0.0005	<0.0005	<0.01	0.00025	10	0.00058	0.03	0.0054	0.096	<0.0001	0.0056	4.1
K-11-112A-102	K-11-112A	102.8	103.3	Katsao	<0.05	0.79	0.00032	<0.001	0.0033	<0.0005	<0.0005	<0.01	<0.00005	9.3	<0.0005	0.00014	<0.001	0.3	0.00095	<0.005	0.9
K-11-116-78	K-11-116	78	78.5	Katsao	<0.05	0.31	0.00016	<0.001	0.0095	<0.0005	<0.0005	<0.01	<0.00005	2.8	0.0011	0.0021	0.017	8.7	0.00077	<0.005	0.59
K-12-175-86.6	K-12-175	86.6	87.1	Menihiek	<0.05	<0.005	0.00011	<0.001	0.02	<0.0005	<0.0005	<0.01	0.00006	37	<0.0005	0.0014	<0.001	<0.03	<0.0001	<0.005	8.4
K-12-187-74	K-12-187	74	74.5	Menihiek	<0.05	0.49	0.00048	<0.001	0.0037	<0.0005	<0.0005	<0.01	<0.00005	12	<0.0005	<0.0001	<0.001	0.046	0.00012	0.0079	2.3
K-12-194-122.4	K-12-194	122.4	122.9	Menihiek	<0.05	0.26	0.0004	<0.001	0.0041	<0.0005	<0.0005	<0.01	<0.00005	25	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	7.8
K-12-194-214.1	K-12-194	214.1	214.6	Menihiek	<0.25	2.3	<0.0001	0.0011	0.054	0.0016	<0.0005	<0.01	0.09	17	0.03	0.45	0.39	130	0.027	0.0082	18
K-12-194-85	K-12-194	85	85.5	Menihiek	<0.05	1.2	0.00026	<0.001	0.0091	<0.0005	<0.0005	<0.01	<0.00005	1.1	0.0018	0.0011	<0.001	1.2	0.00037	0.007	1.4
K-12-206-58.4	K-12-206	58.4	58.9	Menihiek	<0.05	<0.005	0.00027	<0.001	0.076	<0.0005	<0.0005	<0.01	<0.00005	19	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	8.3
K-12-209-219.3	K-12-209	219.3	219.8	Menihiek	<0.05	0.019	0.00017	<0.001	0.031	<0.0005	<0.0005	0.017	<0.00005	9.9	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	2.2
K-12-213-113.9	K-12-213	113.9	114.9	Menihiek	<0.05	0.0078	0.00018	<0.001	0.035	<0.0005	<0.0005	0.017	<0.00005	17	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.6
K-10-83-658.8	K-10-83	658.8	659.3	Menihiek	<0.05	0.53	<0.0001	<0.001	0.012	<0.0005	<0.0005	<0.01	<0.00005	14	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	2.4
K-10-83-660.6	K-10-83	660.6	661.1	Menihiek	<0.05	0.39	<0.0001	<0.001	0.0072	<0.0005	<0.0005	<0.01	<0.00005	16	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	2.2
K-11-142-76.47	K-11-142	76.47	77	Menihiek	<0.05	<0.005	<0.0001	<0.001	0.016	<0.0005	<0.0005	<0.01	<0.00005	55	<0.0005	0.00012	<0.001	<0.03	<0.0001	<0.005	9.6
K-11-145-159.4	K-11-145	159.4	159.9	Menihiek	<0.05	2.5	0.0016	0.0031	0.017	<0.0005	<0.0005	<0.01	0.00019	5.2	0.0028	0.00067	0.005	0.71	0.0012	0.0088	1.0
K-11-152-68	K-11-152	68	68.5	Menihiek	<0.25	33	<0.0002	0.0043	0.026	0.015	<0.001	<0.02	0.061	89	0.018	0.41	3.5	239	<0.0002	0.12	85
K-11-158-50.5	K-11-158	50.5	51	Menihiek	<0.05	0.0058	<0.0001	<0.001	0.11	<0.0005	<0.0005	<0.01	<0.00005	12	<0.0005	0.081	<0.001	<0.03	<0.0001	0.016	11
K-11-158-57.6	K-11-158	57.6	60.1	Menihiek	<0.05	0.025	<0.0001	<0.001	0.085	<0.0005	<0.0005	<0.01	0.000056	4.5	<0.0005	0.00027	0.0014	1.2	<0.0001	<0.005	0.95
K-11-161-181.5	K-11-161	181.5	182	Menihiek	<0.25	<0.025	<0.0005	<0.005	0.0094	<0.0025	<0.0025	<0.05	0.015	308	<0.0025	0.0084	0.0066	<0.15	<0.0005	<0.025	39
K-11-163-28.5	K-11-163	28.5	29	Menihiek	<0.05	0.009	0.0002	<0.001	0.0063	<0.0005	<0.0005	<0.01	<0.00005	14	<0.0005	<0.0001	0.0097	0.15	0.00034	<0.005	4.0



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Manganese	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc	
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration							0.25															0.4
MDMER Maximum Authorized Concentration in a Composite							0.38															0.6
MDMER Maximum Authorized Concentration in a Grab Sample							0.5															0.8
CCME Freshwater Aquatic Chronic						0.073	0.07036			0.001		0.00025							0.015			
CCME Freshwater Aquatic Acute																			0.033			
K-11-166 247.5	K-11-166	247.5	248	Wishart		0.00045	0.0003			0.0005						0.00001			0.000278		0.0005	
K-11-166 379.5	K-11-166	379.5	380	Wishart		0.0003	0.0001			0.0005						0.00001			0.000263		0.0005	
K-10-52 1-2	K-10-52	1	2	Wishart		0.0004	0.0008			0.0005						0.00001			0.000065		0.001	
K-10-55 130-134	K-10-55	130	130.9	Wishart		0.00034	0.0001			0.0005						0.00001			0.000108		0.0005	
K-10-55 160-16	K-10-55	160	161	Wishart		0.00039	0.0001			0.0005						0.00001			0.000072		0.0005	
K-10-55 208-20	K-10-55	208	209	Wishart		0.00023	0.0002			0.0005						0.00001			0.00395		0.0005	
K24/10	K-08-24	284.4	284.8	Wishart		0.00427	0.0006			0.0005						0.00001			0.000804		0.0005	
K24/11	K-08-24	296	296.4	Wishart		0.00037	0.0002			0.0005						0.00001			0.000253		0.003	
K-08-09 301.2-3	K-08-09	301.2	302.2	Wishart		0.0154	0.0008			0.0005						0.00001			0.00406		0.0005	
K-10-35 192-19	K-10-35	192	193	Wishart		0.00365	0.00005			0.0005						0.00001			0.000192		0.0005	
K-10-35 200-20	K-10-35	200	200.8	Wishart		0.0012	0.00005			0.003						0.00001			0.000146		0.0005	
K-10-35 206-20	K-10-35	206	206.9	Wishart		0.0005	0.0009			0.0005						0.00001			0.000518		0.0005	
K-11-166 428-4	K-11-166	428	428.5	Wishart		0.00025	0.0011			0.0005						0.00001			0.00014		0.0005	
K-10-52 20-21	K-10-52	20	21	Wishart		0.00321	0.0017			0.0005						0.00001			0.000385		0.001	
K-10-52 50-50.7	K-10-52	50	50.7	Wishart		0.00057	0.0004			0.0005						0.00001			0.0024		0.0005	
K-10-52 100-10	K-10-52	100	101	Wishart		0.00057	0.00005			0.0005						0.00001			0.000033		0.0005	
K-11-116 79.5-8	K-11-116	79.5	80	Wishart		0.00049	0.0008			0.0005						0.00001			0.00024		0.002	
K-11-116 99.3-1	K-11-116	99.3	102	Wishart		0.00239	0.0009			0.0005						0.00001			0.000247		0.002	
K-11-116 117-1	K-11-116	117	119.2	Wishart		0.00494	0.0004			0.0005						0.00001			0.000175		0.0005	
K-10-55 227-22	K-10-55	227	228	Wishart		0.00051	0.0013			0.0005						0.00001			0.00245		0.0005	
K-11-166-251.1	K-11-166	251.1	251.6	Denault	<0.0005	0.00028	<0.0005	<0.3	0.5	<0.0005	0.23	<0.00005	0.78	0.0088	0.57	<0.0001	<0.0005	<0.01	0.00013	<0.001	<0.01	
K-10-61-34	K-10-61	34	34.5	Denault	<0.0005	0.00015	<0.0005	<0.3	0.36	<0.0005	0.78	<0.00005	1.7	0.009	<0.5	<0.0001	<0.0005	<0.01	0.000011	<0.001	<0.01	
K-11-108-118.2	K-11-108	118.2	118.7	Katsao	4.2	<0.0001	0.96	<0.3	22	<0.0005	3.6	<0.00005	2.5	0.028	86	0.00023	<0.0005	<0.01	0.0086	<0.001	0.2	
K-11-108-228.3	K-11-108	228.3	228.8	Katsao	0.01	0.0015	0.0029	<0.3	12	<0.0005	9.4	0.000085	3.3	0.095	4.6	<0.0001	<0.0005	0.01	0.00027	0.0067	<0.01	
K-11-112A-147	K-11-112A	147.3	147.8	Katsao	0.0044	0.00076	<0.0005	<0.3	5.1	<0.0005	5.3	0.000058	6.2	0.0051	0.87	<0.0001	<0.0005	<0.01	0.0016	<0.001	<0.01	
K-11-112A-43.1	K-11-112A	43.1	43.6	Katsao	0.024	0.014	0.0051	<0.3	7.3	0.00078	6.7	0.00005	3.8	0.0087	1.7	<0.0001	<0.0005	0.033	0.12	0.0034	<0.01	
K-11-112A-71.4	K-11-112A	71.4	71.9	Katsao	0.43	0.042	0.59	<0.3	13	0.0036	2.3	<0.00005	2.7	0.027	19	0.00015	<0.0005	<0.01	0.0023	<0.001	<0.01	
K-11-112A-102	K-11-112A	102.8	103.3	Katsao	0.014	0.0017	0.00092	<0.3	9.1	<0.0005	3.2	<0.00005	3.3	0.021	7.3	<0.0001	<0.0005	0.011	0.064	0.0013	<0.01	
K-11-116-78	K-11-116	78	78.5	Katsao	0.39	0.00082	0.0053	<0.3	0.87	<0.0005	1.9	0.00013	1.2	0.0059	0.71	<0.0001	<0.0005	<0.01	0.0024	0.0074	0.015	
K-12-175-86.6	K-12-175	86.6	87.1	Menihiek	2.7	0.00024	0.0069	<0.3	3.1	<0.0005	1.7	<0.00005	1.5	0.24	31	<0.0001	<0.0005	<0.01	0.00016	<0.001	<0.01	
K-12-187-74	K-12-187	74	74.5	Menihiek	0.011	0.0016	<0.0005	<0.3	14	0.002	2.7	<0.00005	4.1	0.018	15	<0.0001	<0.0005	<0.01	0.00084	0.0023	<0.01	
K-12-194-122.4	K-12-194	122.4	122.9	Menihiek	0.046	0.0021	0.00072	<0.3	15	0.0011	2.3	<0.00005	2.4	0.03	25	<0.0001	<0.0005	<0.01	0.0043	<0.001	<0.01	
K-12-194-214.1	K-12-194	214.1	214.6	Menihiek	4.9	<0.0001	0.92	<0.3	1.6	0.043	3.3	<0.00005	0.4	0.026	131	0.00089	<0.0005	<0.01	0.005	<0.001	0.41	
K-12-194-85	K-12-194	85	85.5	Menihiek	0.0099	0.0003	0.0055	<0.3	13	0.00087	3.8	<0.00005	4.1	0.0029	7.3	<0.0001	<0.0005	0.063	0.00014	0.0031	<0.01	
K-12-206-58.4	K-12-206	58.4	58.9	Menihiek	0.0063	0.00045	<0.0005	<0.3	8.0	<0.0005	2.9	<0.00005	0.93	0.035	5.1	<0.0001	<0.0005	<0.01	0.0018	<0.001	<0.01	
K-12-209-219.3	K-12-209	219.3	219.8	Menihiek	0.045	0.00059	<0.0005	<0.3	0.17	<0.0005	2.0	<0.00005	0.096	0.02	<0.5	<0.0001	<0.0005	<0.01	0.000072	<0.001	<0.01	
K-12-213-113.9	K-12-213	113.9	114.9	Menihiek	0.023	0.00078	<0.0005	<0.3	11	<0.0005	5.0	<0.00005	0.48	0.025	1.9	<0.0001	<0.0005	<0.01	0.0025	<0.001	<0.01	
K-10-83-658.8	K-10-83	658.8	659.3	Menihiek	0.0018	0.0071	<0.0005	<0.3	11	0.0023	2.3	<0.00005	2.5	0.036	13	<0.0001	<0.0005	<0.01	0.0016	0.017	<0.01	
K-10-83-660.6	K-10-83	660.6	661.1	Menihiek	0.0064	0.0078	<0.0005	<0.3	9.7	0.002	2.1	<0.00005	1.2	0.03	12	<0.0001	<0.0005	<0.01	0.0038	0.0057	<0.01	
K-11-142-76.47	K-11-142	76.47	77	Menihiek	0.14	0.00096	0.0006	<0.3	0.78	0.00072	1.9	<0.00005	0.22	0.091	34	<0.0001	<0.0005	<0.01	0.00099	<0.001	<0.01	
K-11-145-159.4	K-11-145	159.4	159.9	Menihiek	0.014	0.0081	0.0024	<0.3	23	0.0043	7.4	<0.00005	6.3	0.015	6.3	<0.0001	<0.0005	0.074	0.0045	0.015	<0.01	
K-11-152-68	K-11-152	68	68.5	Menihiek	4.2	<0.0002	1.4	<0.6	20	0.0041	7.5	<0.0001	1.2	0.19	443	0.00056	<0.001	<0.02	2.0	0.18	2.3	
K-11-158-50.5	K-11-158	50.5	51	Menihiek	1.4	<0.0001	0.19	<0.3	9.5	<0.0005	2.0	<0.00005	3.0	0.019	31	0.00018	<0.0005	<0.01	<0.00001	<0.001	<0.01	
K-11-158-57.6	K-11-158	57.6	60.1	Menihiek	0.034	0.00036	0.00075	<0.3	1.1	0.00097	2.9	<0.00005	0.81	0.018	2.1	0.00084	<0.0005	<0.01	0.00005	<0.001	<0.01	
K-11-161-181.5	K-11-161	181.5	182	Menihiek	21	0.0046	0.56	<1.5	3.2	0.022	3.2	<0.00025	0.63	0.32	312	<0.0005	<0.0025	<0.05	0.025	<0.005	0.46	
K-11-163-28.5	K-11-163	28.5	29	Menihiek	0.11	0.00044	<0.0005	<0.3	0.39	<0.0005	2.0	<0.00005	0.28	0.016	7.6	<0.0001	<0.0005	<0.01	0.00037	<0.001	<0.01	



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Mercury	Hardness (as CaCO ₃)
Units					mg/L	mg CaCO ₃ /L
MDMER Maximum Authorized Monthly Mean Concentration						
MDMER Maximum Authorized Concentration in a Composite						
MDMER Maximum Authorized Concentration in a Grab Sample						
CCME Freshwater Aquatic Chronic						
CCME Freshwater Aquatic Acute						
K-11-166 247.5	K-11-166	247.5	248	Wishart	0.000005	
K-11-166 379.5	K-11-166	379.5	380	Wishart	0.00001	
K-10-52 1-2	K-10-52	1	2	Wishart	0.00001	
K-10-55 130-134	K-10-55	130	130.9	Wishart	0.000005	
K-10-55 160-164	K-10-55	160	161	Wishart	0.000005	
K-10-55 208-209	K-10-55	208	209	Wishart	0.00001	
K24/10	K-08-24	284.4	284.8	Wishart	0.000005	
K24/11	K-08-24	296	296.4	Wishart	0.000005	
K-08-09 301.2-302.2	K-08-09	301.2	302.2	Wishart	0.000005	
K-10-35 192-193	K-10-35	192	193	Wishart	0.000005	
K-10-35 200-200.8	K-10-35	200	200.8	Wishart	0.000005	
K-10-35 206-206.9	K-10-35	206	206.9	Wishart	0.000005	
K-11-166 428-428.5	K-11-166	428	428.5	Wishart	0.00001	
K-10-52 20-21	K-10-52	20	21	Wishart	0.00001	
K-10-52 50-50.7	K-10-52	50	50.7	Wishart	0.00001	
K-10-52 100-101	K-10-52	100	101	Wishart	0.00001	
K-11-116 79.5-80	K-11-116	79.5	80	Wishart	0.00002	
K-11-116 99.3-102	K-11-116	99.3	102	Wishart	0.00001	
K-11-116 117-119.2	K-11-116	117	119.2	Wishart	0.00001	
K-10-55 227-228	K-10-55	227	228	Wishart	0.000005	
K-11-166-251.1	K-11-166	251.1	251.6	Denault	<0.00005	36
K-10-61-34	K-10-61	34	34.5	Denault	<0.00005	38
K-11-108-118.2	K-11-108	118.2	118.7	Katsao	<0.00005	165
K-11-108-228.3	K-11-108	228.3	228.8	Katsao	<0.00005	48
K-11-112A-147.3	K-11-112A	147.3	147.8	Katsao	<0.00005	2.7
K-11-112A-43.1	K-11-112A	43.1	43.6	Katsao	<0.00005	9.4
K-11-112A-71.4	K-11-112A	71.4	71.9	Katsao	<0.00005	42
K-11-112A-102.8	K-11-112A	102.8	103.3	Katsao	<0.00005	27
K-11-116-78	K-11-116	78	78.5	Katsao	<0.00005	9.3
K-12-175-86.6	K-12-175	86.6	87.1	Menihek	<0.00005	127
K-12-187-74	K-12-187	74	74.5	Menihek	<0.00005	40
K-12-194-122.4	K-12-194	122.4	122.9	Menihek	<0.00005	95
K-12-194-214.1	K-12-194	214.1	214.6	Menihek	<0.00005	113
K-12-194-85	K-12-194	85	85.5	Menihek	<0.00005	8.6
K-12-206-58.4	K-12-206	58.4	58.9	Menihek	<0.00005	82
K-12-209-219.3	K-12-209	219.3	219.8	Menihek	<0.00005	34
K-12-213-113.9	K-12-213	113.9	114.9	Menihek	<0.00005	62
K-10-83-658.8	K-10-83	658.8	659.3	Menihek	<0.00005	44
K-10-83-660.6	K-10-83	660.6	661.1	Menihek	<0.00005	49
K-11-142-76.47	K-11-142	76.47	77	Menihek	<0.00005	176
K-11-145-159.4	K-11-145	159.4	159.9	Menihek	<0.00005	17
K-11-152-68	K-11-152	68	68.5	Menihek	<0.00005	574
K-11-158-50.5	K-11-158	50.5	51	Menihek	<0.00005	73
K-11-158-57.6	K-11-158	57.6	60.1	Menihek	<0.00005	15
K-11-161-181.5	K-11-161	181.5	182	Menihek	<0.00005	930
K-11-163-28.5	K-11-163	28.5	29	Menihek	<0.00005	51



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Company	Material Type	pH	pH2	Acidity (as CaCO3)	Conductivity	Moisture	ORP	Alkalinity, total (as CaCO3)	Ammonia, total (as N)	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	Phosphorus, total dissolved	Sulfate
Units							-	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration																				
MDMER Maximum Authorized Concentration in a Composite																				
MDMER Maximum Authorized Concentration in a Grab Sample																				
CCME Freshwater Aquatic Chronic														0.019	120	0.12	13			
CCME Freshwater Aquatic Acute							2								640		550			
K-11-163-41.4	K-11-163	41.4	41.9	Menihek	Okane	Mine Rock	3.93		110	779	0.32	369	<2	0.12	1.9	0.095	0.17	<0.001	<0.002	408
K-11-163-43	K-11-163	43	43.5	Menihek	Okane	Mine Rock	7.85		<4	214	<0.25	228	48	0.018	2.2	0.044	0.16	0.0027	0.0033	51
K-11-166-54.8	K-11-166	54.8	55.3	Menihek	Okane	Mine Rock	7.72		<4	121	<0.25	273	25	0.057	1.3	0.28	0.037	<0.001	0.0039	26
K-11-166-117.5	K-11-166	117.5	118	Menihek	Okane	Mine Rock	7.93		<4	360	0.29	221	63	0.02	3.4	0.043	0.058	<0.001	<0.002	106
K-11-168-291.5	K-11-168	291.5	292	Menihek	Okane	Mine Rock	7.39		<4	161	<0.25	264	14	0.12	1.5	0.23	0.054	<0.001	<0.002	47
K-12-173-197.5	K-12-173	197.5	198	Menihek	Okane	Mine Rock	4.94		8.4	412	<0.25	267	<2	0.083	2.8	0.044	0.063	<0.001	<0.002	183
K-12-173-199.7	K-12-173	199.7	200.2	Menihek	Okane	Mine Rock	7.8		<4	899	1.6	239	43	<0.005	5.9	0.14	0.19	0.0047	0.0048	442
K-12-175-16.9	K-12-175	16.9	17.4	Menihek	Okane	Mine Rock	7.72		<4	478	0.62	263	35	0.011	4.4	0.19	0.13	0.0011	0.0048	194
K-12-175-20.3	K-12-175	20.3	20.8	Menihek	Okane	Mine Rock	4.38		<4	122	<0.25	325	<2	0.048	5.7	0.024	0.087	<0.001	<0.002	41
K-08-11A-139.8	K-08-11A	139.8	140.4	Menihek	Okane	Mine Rock	5.38		6.0	115	<0.25	198	<2	0.038	<0.5	0.066	0.025	<0.001	<0.002	44
K-08-12-140.79	K-08-12	140.79	141.47	Menihek	Okane	Mine Rock	5.36		4.9	158	<0.25	208	<2	0.12	<0.5	<0.02	0.064	<0.001	<0.002	63
K-08-17-135.8	K-08-17	135.8	136.3	Menihek	Okane	Mine Rock	8.01		<4	458	0.3	153	110	0.069	0.68	<0.02	0.31	0.0015	0.0086	81
K-08-17-138	K-08-17	138	138.5	Menihek	Okane	Mine Rock	3.52		166	524	<0.25	360	<2	0.12	<0.5	0.25	0.02	<0.001	<0.002	230
K-10-26-253	K-10-26	253	253.55	Menihek	Okane	Mine Rock	7.87		<4	133	<0.25	222	29	0.022	<0.5	0.18	0.014	<0.001	0.0042	31
K-10-39A-445	K-10-39A	445	445.66	Menihek	Okane	Mine Rock	8.82		<4	87	<0.25	193	35	0.01	0.61	0.14	0.038	0.0015	0.011	4.1
K-10-48-205.7	K-10-48	205.7	206.3	Menihek	Okane	Mine Rock	7.78		<4	82	<0.25	210	25	0.043	0.96	0.14	0.028	<0.001	0.015	10
K-10-48-384.5	K-10-48	384.5	385	Menihek	Okane	Mine Rock	7.27		<4	82	<0.25	235	14	0.046	<0.5	0.049	0.047	<0.001	0.0066	18
K-10-52-308.3	K-10-52	308.3	308.8	Menihek	Okane	Mine Rock	7.51		<4	70	<0.25	205	19	0.046	1.2	0.16	0.06	0.0023	0.019	8.0
K-10-53-77.8	K-10-53	77.8	78.4	Menihek	Okane	Mine Rock	7.8		<4	84	<0.25	188	26	0.021	1.1	0.15	0.02	<0.001	0.011	10
K-10-54-122.7	K-10-54	122.7	123.2	Menihek	Okane	Mine Rock	3.71		<4	1,240	<0.25	337	<2	0.29	<2.5	0.17	0.076	<0.005	<0.002	669
K-10-54-125.7	K-10-54	125.7	126.2	Menihek	Okane	Mine Rock	3.58		249	545	<0.25	352	<2	0.14	<0.5	0.26	0.011	<0.001	<0.0033	247
K-10-59-175.4	K-10-59	175.4	175.9	Menihek	Okane	Mine Rock	8.19		<4	507	0.3	200	104	0.023	<0.5	<0.02	0.071	<0.001	0.0038	141
K-10-61-258.7	K-10-61	258.7	259.2	Menihek	Okane	Mine Rock	7.57		<4	255	<0.25	197	33	0.24	1.5	0.085	0.12	<0.001	0.0057	83
K-10-61-263.24	K-10-61	263.24	263.85	Menihek	Okane	Mine Rock	7.9		<4	116	<0.25	209	51	0.015	2.9	<0.02	0.04	0.0016	0.0051	3.4
K-10-61-266.85	K-10-61	266.85	267.3	Menihek	Okane	Mine Rock	8.03		<4	130	<0.25	204	63	0.009	2.6	<0.02	0.053	0.0028	0.01	0.9
K-10-61-323.5	K-10-61	323.5	324	Menihek	Okane	Mine Rock	7.66		<4	183	<0.25	213	38	0.073	<0.5	<0.05	0.18	0.0013	0.017	36
K-10-70-189	K-10-70	189	189.54	Menihek	Okane	Mine Rock	6.9		<4	78	<0.25	250	6.5	0.042	<0.5	0.11	0.025	<0.001	0.0038	22
K-12-185-59.1	K-12-185	59.1	59.6	Overburden	Okane	Mine Rock	7.7		<4	70	<0.25	277	23	0.014	3.8	0.027	0.074	<0.001	0.0095	4.6
K-12-185-62.2	K-12-185	62.2	62.7	Overburden	Okane	Mine Rock	7.78		<4	126	<0.25	287	36	0.015	2.1	0.031	0.13	0.0023	0.0038	20
K-11-108-87.6	K-11-108	87.6	88.1	Overburden	Okane	Mine Rock	7.51		<4	47	<0.25	191	17	<0.005	1.7	0.081	0.033	<0.001	0.071	2.0
K-10-32-13.7	K-10-32	13.7	14.2	Overburden	Okane	Mine Rock	8.6		<4	75	<0.25	215	26	0.024	1.2	0.066	0.044	0.0012	0.04	7.3
K-10-58-17.5	K-10-58	17.5	18.06	Overburden	Okane	Mine Rock	7.23		<4	27	<0.25	230	11	0.007	0.88	0.021	0.032	<0.001	0.026	<0.5
K-10-78-29.9	K-10-78	29.9	30.4	Overburden	Okane	Mine Rock	7.64		<4	92	<0.25	224	39	0.15	<0.5	<0.02	0.1	0.011	0.0095	0.83
K-12-175-79.3	K-12-175	79.3	79.8	Sokoman	Okane	Mine Rock	8.1		<4	557	<0.25	224	81	0.021	1.7	0.051	0.025	<0.001	<0.002	199
K-12-177-233.4	K-12-177	233.47	234	Sokoman	Okane	Mine Rock	6.88		<4	29	<0.25	295	4.5	0.059	1.2	0.044	0.05	0.0026	0.012	4.5
K-12-177-272.5	K-12-177	272.5	273	Sokoman	Okane	Mine Rock	7.65		<4	118	<0.25	275	28	0.009	4.8	0.13	0.12	0.012	0.011	19
K-12-179-171.6	K-12-179	171.6	172.1	Sokoman	Okane	Mine Rock	8.03		<4	923	0.37	255	71	0.062	59	<0.04	0.36	0.006	<0.002	330
K-12-182-131.5	K-12-182	131.5	132	Sokoman	Okane	Mine Rock	7.95		<4	91	<0.25	222	45	0.01	<0.5	<0.02	0.017	0.001	0.0027	2.2
K-12-187-50.5	K-12-187	50.5	51	Sokoman	Okane	Mine Rock	7.95		<4	96	<0.25	253	46	0.013	0.77	<0.02	0.036	0.0013	<0.002	1.6
K-12-193-277.5	K-12-193	277.5	278	Sokoman	Okane	Mine Rock	6.79		<4	44	<0.25	317	6.7	<0.005	2.5	0.1	0.026	0.0033	0.071	5.7
K-12-194-54	K-12-194	54	54.5	Sokoman	Okane	Mine Rock	8.92		<4	104	<0.25	214	49	0.011	0.84	<0.02	0.024	0.0016	0.005	3.8
K-12-196A-115	K-12-196A	115.5	116	Sokoman	Okane	Mine Rock	7.95		<4	163	0.3	256	61	0.01	5.1	<0.04	0.32	0.0089	0.0028	8.9
K-12-206-97.5	K-12-206	97.5	98	Sokoman	Okane	Mine Rock	8.75		<4	92	<0.25	226	44	0.011	0.73	<0.02	0.022	0.0018	0.0026	3.4
K-12-211-36.7	K-12-211	36.7	37.2	Sokoman	Okane	Mine Rock	7.76		<4	418	<0.25	261	40	0.028	4.4	0.083	0.083	<0.001	0.0037	162
K-12-212-205.5	K-12-212	205.5	206	Sokoman	Okane	Mine Rock	8.39		<4	118	0.66	249	58	<0.005	0.54	0.056	0.022	0.0044	<0.002	2.9
K-12-213-14.2	K-12-213	14.2	14.7	Sokoman	Okane	Mine Rock	7.15		<4	65	<0.25	317	14	0.008	2.4	0.051	0.072	0.0015	0.043	9.9



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Bromide	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration								0.1									0.1		0.08		
MDMER Maximum Authorized Concentration in a Composite								0.15									0.15		0.12		
MDMER Maximum Authorized Concentration in a Grab Sample								0.2									0.2		0.16		
CCME Freshwater Aquatic Chronic								0.005				1.5	0.0002		0.0089			0.3			
CCME Freshwater Aquatic Acute												29									
K-11-163-41.4	K-11-163	41.4	41.9	Menihiek	<0.05	1.1	<0.001	<0.01	0.058	<0.005	<0.005	<0.1	0.019	39	<0.005	0.59	0.047	37	0.0014	<0.05	32
K-11-163-43	K-11-163	43	43.5	Menihiek	<0.05	<0.005	0.00021	<0.001	0.013	<0.0005	<0.0005	<0.01	<0.00005	29	<0.0005	0.00011	0.028	<0.03	0.00096	<0.005	6.4
K-11-166-54.8	K-11-166	54.8	55.3	Menihiek	<0.05	0.65	0.00014	<0.001	0.0074	<0.0005	<0.0005	<0.01	<0.00005	9.1	<0.0005	<0.0001	<0.001	0.058	0.00019	<0.005	2.0
K-11-166-117.5	K-11-166	117.5	118	Menihiek	<0.05	0.023	<0.0001	<0.001	0.011	<0.0005	<0.0005	<0.01	<0.00005	55	<0.0005	0.00017	<0.001	<0.03	<0.0001	0.0059	8.1
K-11-168-291.5	K-11-168	291.5	292	Menihiek	<0.05	0.14	0.00015	<0.001	0.022	<0.0005	<0.0005	<0.01	0.00037	10	<0.0005	0.0016	<0.001	0.031	0.00018	0.0073	5.2
K-12-173-197.5	K-12-173	197.5	198	Menihiek	<0.05	0.15	<0.0001	<0.001	0.044	<0.0005	<0.0005	<0.01	0.0077	26	<0.0005	0.14	0.0061	1.7	0.00015	0.022	22
K-12-173-199.7	K-12-173	199.7	200.2	Menihiek	<0.05	0.019	0.00027	<0.001	0.027	<0.0005	<0.0005	<0.01	0.000076	88	<0.0005	0.00029	0.0011	<0.03	<0.0001	0.0059	67
K-12-175-16.9	K-12-175	16.9	17.4	Menihiek	<0.05	0.015	<0.0001	<0.001	0.05	<0.0005	<0.0005	<0.01	0.00045	48	<0.0005	0.00031	0.0033	<0.03	<0.0001	0.0083	27
K-12-175-20.3	K-12-175	20.3	20.8	Menihiek	<0.05	<0.005	<0.0001	<0.001	0.0033	<0.0005	<0.0005	<0.01	0.00035	9.7	<0.0005	0.0049	0.0013	<0.03	<0.0001	0.0058	4.0
K-08-11A-139.8	K-08-11A	139.8	140.4	Menihiek	<0.05	0.029	<0.0001	<0.001	0.06	<0.0005	<0.0005	<0.01	0.000066	6.3	<0.0005	0.013	<0.001	2.1	<0.0001	0.0075	6.0
K-08-12-140.79	K-08-12	140.79	141.47	Menihiek	<0.05	0.027	<0.0001	<0.001	0.035	<0.0005	<0.0005	<0.01	0.0021	13	<0.0005	0.12	<0.001	1.0	<0.0001	0.0055	7.3
K-08-17-135.8	K-08-17	135.8	136.3	Menihiek	0.14	0.0059	0.00035	<0.001	0.035	<0.0005	<0.0005	<0.01	<0.00005	52	<0.0005	0.00031	<0.001	<0.03	<0.0001	<0.005	36
K-08-17-138	K-08-17	138	138.5	Menihiek	<0.05	5.3	<0.0001	0.005	0.065	0.0069	<0.0005	<0.01	0.0051	10	0.0049	0.12	0.2	60	0.0016	0.029	10
K-10-26-253	K-10-26	253	253.55	Menihiek	<0.05	0.41	0.00012	<0.001	0.0052	<0.0005	<0.0005	<0.01	<0.00005	17	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	1.8
K-10-39A-445	K-10-39A	445	445.66	Menihiek	<0.05	0.8	0.00036	0.001	0.0043	<0.0005	<0.0005	<0.01	<0.00005	7.7	<0.0005	<0.0001	<0.001	0.037	<0.0001	<0.005	0.97
K-10-48-205.7	K-10-48	205.7	206.3	Menihiek	<0.05	0.9	0.00029	<0.001	0.0048	<0.0005	<0.0005	<0.01	<0.00005	7.1	<0.0005	<0.0001	<0.001	0.052	0.00018	<0.005	0.97
K-10-48-384.5	K-10-48	384.5	385	Menihiek	<0.05	0.29	0.00019	<0.001	0.0051	<0.0005	<0.0005	<0.01	<0.00005	4.4	<0.0005	0.00019	<0.001	0.13	<0.0001	<0.005	3.0
K-10-52-308.3	K-10-52	308.3	308.8	Menihiek	<0.05	0.74	0.00038	0.0012	0.0079	<0.0005	<0.0005	<0.01	<0.00005	2.8	<0.0005	<0.0001	<0.001	0.12	0.00019	0.0053	1.4
K-10-53-77.8	K-10-53	77.8	78.4	Menihiek	<0.05	1.2	0.00056	0.0032	0.0039	<0.0005	<0.0005	<0.01	<0.00005	6.6	<0.0005	<0.0001	<0.001	0.096	0.00028	<0.005	0.78
K-10-54-122.7	K-10-54	122.7	123.2	Menihiek	<0.25	<0.005	<0.0001	<0.001	0.0083	<0.0005	<0.0005	<0.01	<0.00005	6.0	<0.0005	0.00022	<0.001	<0.03	<0.0001	<0.005	2.0
K-10-54-125.7	K-10-54	125.7	126.2	Menihiek	<0.05	3.1	<0.0005	<0.005	0.11	0.0075	<0.0025	<0.05	0.0063	112	0.0027	0.76	0.096	109	0.0037	0.027	46
K-10-59-175.4	K-10-59	175.4	175.9	Menihiek	<0.05	<0.005	<0.0001	0.0017	0.052	<0.0005	<0.0005	0.013	0.00027	58	<0.0005	0.0018	<0.001	<0.03	<0.0001	<0.005	36
K-10-61-258.7	K-10-61	258.7	259.2	Menihiek	<0.05	0.02	0.00074	<0.001	0.02	<0.0005	<0.0005	<0.01	<0.00005	21	<0.0005	0.0057	<0.001	<0.03	<0.0001	0.0072	14
K-10-61-263.24	K-10-61	263.24	263.85	Menihiek	<0.05	0.0066	0.00017	<0.001	0.0079	<0.0005	<0.0005	<0.01	<0.00005	17	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.7
K-10-61-266.85	K-10-61	266.85	267.3	Menihiek	<0.05	<0.005	0.00014	<0.001	0.0084	<0.0005	<0.0005	0.03	<0.00005	17	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	7.6
K-10-61-323.5	K-10-61	323.5	324	Menihiek	<0.05	0.089	0.00055	<0.001	0.0096	<0.0005	<0.0005	0.014	<0.00005	17	<0.0005	0.0003	<0.001	0.032	<0.0001	0.0067	9.1
K-10-70-189	K-10-70	189	189.54	Menihiek	<0.05	0.21	0.0002	<0.001	0.0062	<0.0005	<0.0005	<0.01	<0.00005	2.8	<0.0005	0.00019	<0.001	0.091	0.00012	<0.005	1.6
K-12-185-59.1	K-12-185	59.1	59.6	Overburden	<0.05	1.1	0.00049	0.0011	0.0068	<0.0005	<0.0005	<0.01	<0.00005	6.4	<0.0005	<0.0001	<0.001	0.068	0.0016	<0.005	0.54
K-12-185-62.2	K-12-185	62.2	62.7	Overburden	<0.05	0.026	<0.0001	<0.001	0.05	<0.0005	<0.0005	<0.01	<0.00005	14	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	5.1
K-11-108-87.6	K-11-108	87.6	88.1	Overburden	<0.05	1.7	0.00064	<0.001	0.0095	<0.0005	<0.0005	<0.01	<0.00005	3.6	<0.0005	0.00027	0.003	1.5	0.011	<0.005	0.71
K-10-32-13.7	K-10-32	13.7	14.2	Overburden	<0.05	0.96	0.0003	<0.001	0.016	<0.0005	<0.0005	<0.01	<0.00005	5.4	0.00082	0.00015	0.0011	0.25	0.00027	<0.005	0.84
K-10-58-17.5	K-10-58	17.5	18.06	Overburden	<0.05	0.34	0.00052	<0.001	0.0054	<0.0005	<0.0005	<0.01	<0.00005	1.8	0.00054	0.00051	0.0013	0.53	0.00044	<0.005	0.68
K-10-78-29.9	K-10-78	29.9	30.4	Overburden	<0.05	0.0055	0.00086	<0.001	<0.001	<0.0005	<0.0005	<0.01	<0.00005	13	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.1
K-12-175-79.3	K-12-175	79.3	79.8	Sokoman	<0.05	0.008	<0.0001	<0.001	0.014	<0.0005	<0.0005	<0.01	0.00025	85	<0.0005	0.0021	<0.001	<0.03	<0.0001	0.0052	13
K-12-177-233.4	K-12-177	233.47	234	Sokoman	<0.05	0.27	<0.0001	<0.001	0.0055	<0.0005	<0.0005	<0.01	<0.00005	2.2	<0.0005	0.00084	0.0018	1.9	<0.0001	<0.005	0.76
K-12-177-272.5	K-12-177	272.5	273	Sokoman	<0.05	0.056	0.0002	<0.001	0.005	<0.0005	<0.0005	<0.01	<0.00005	9.6	<0.0005	0.0012	0.0026	2.3	0.00014	<0.005	4.8
K-12-179-171.6	K-12-179	171.6	172.1	Sokoman	<0.075	0.0058	0.00014	<0.001	0.024	<0.0005	<0.0005	<0.01	0.0005	89	<0.0005	0.0064	0.0033	<0.03	<0.0001	0.0096	4.9
K-12-182-131.5	K-12-182	131.5	132	Sokoman	<0.05	<0.005	0.00039	<0.001	<0.001	<0.0005	<0.0005	<0.01	<0.00005	11	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	5.0
K-12-187-50.5	K-12-187	50.5	51	Sokoman	<0.05	<0.005	<0.0001	<0.001	0.012	<0.0005	<0.0005	<0.01	<0.00005	11	<0.0005	<0.0001	<0.001				



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Manganese	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration							0.25														0.4
MDMER Maximum Authorized Concentration in a Composite							0.38														0.6
MDMER Maximum Authorized Concentration in a Grab Sample							0.5														0.8
CCME Freshwater Aquatic Chronic						0.073	0.07036			0.001		0.00025							0.015		
CCME Freshwater Aquatic Acute																			0.033		
K-11-163-41.4	K-11-163	41.4	41.9	Menihek	41	<0.001	2.6	<3	6.9	0.011	4.1	<0.0005	1.	0.035	133	<0.001	<0.005	<0.1	0.13	<0.01	1.6
K-11-163-43	K-11-163	43	43.5	Menihek	0.24	0.00027	0.00082	<0.3	1.4	<0.0005	2.8	<0.0005	0.44	0.024	19	<0.0001	<0.0005	<0.01	0.00067	<0.001	0.017
K-11-166-54.8	K-11-166	54.8	55.3	Menihek	0.0055	0.0024	<0.0005	<0.3	14	0.0019	2.3	<0.0005	2.4	0.015	11	<0.0001	<0.0005	<0.01	0.0011	0.0017	<0.01
K-11-166-117.5	K-11-166	117.5	118	Menihek	0.18	0.0023	0.0033	<0.3	7.8	0.0023	1.8	0.000069	0.79	0.046	44	<0.0001	<0.0005	<0.01	0.0091	<0.001	<0.01
K-11-168-291.5	K-11-168	291.5	292	Menihek	0.33	0.0077	0.049	<0.3	11	0.0037	2.5	<0.0005	2.4	0.025	16	0.00012	<0.0005	<0.01	0.00035	<0.001	<0.01
K-12-173-197.5	K-12-173	197.5	198	Menihek	4.8	<0.0001	0.48	<0.3	14	0.0026	4.3	<0.0005	3.5	0.051	61	0.0001	<0.0005	<0.01	0.022	<0.001	0.59
K-12-173-199.7	K-12-173	199.7	200.2	Menihek	0.02	0.00067	0.0017	<0.3	1.7	0.0037	1.3	<0.0005	0.4	0.18	151	<0.0001	<0.0005	<0.01	0.029	<0.001	<0.01
K-12-175-16.9	K-12-175	16.9	17.4	Menihek	0.57	0.0021	0.021	<0.3	6.4	0.0089	3.9	<0.0005	1.6	0.034	67	<0.0001	<0.0005	<0.01	0.0039	<0.001	<0.01
K-12-175-20.3	K-12-175	20.3	20.8	Menihek	0.53	<0.0001	0.034	<0.3	1.7	0.0028	2.4	<0.0005	2.7	0.012	13	0.00035	<0.0005	<0.01	0.000028	<0.001	<0.01
K-08-11A-139.8	K-08-11A	139.8	140.4	Menihek	0.58	<0.0001	0.093	<0.3	4.1	0.00094	2.2	<0.0005	0.25	0.017	18	<0.0001	<0.0005	<0.01	0.00063	<0.001	0.025
K-08-12-140.79	K-08-12	140.79	141.47	Menihek	1.1	<0.0001	0.22	<0.3	3.0	0.0023	2.0	<0.0005	0.28	0.0081	22	<0.0001	<0.0005	<0.01	0.0011	<0.001	0.42
K-08-17-135.8	K-08-17	135.8	136.3	Menihek	0.16	0.00077	0.002	<0.3	1.5	0.00091	2.9	<0.0005	0.097	0.058	35	<0.0001	<0.0005	<0.01	0.0029	<0.001	<0.01
K-08-17-138	K-08-17	138	138.5	Menihek	1.7	<0.0001	0.63	<0.3	8.3	0.0023	3.9	<0.0005	1.1	0.027	76	0.00025	<0.0005	<0.01	0.16	<0.001	1.7
K-10-26-253	K-10-26	253	253.55	Menihek	0.078	<0.0005	<0.0005	<0.3	9.2	0.0019	1.9	<0.0005	1.2	0.018	12	<0.0001	<0.0005	<0.01	0.016	0.0061	<0.01
K-10-39A-445	K-10-39A	445	445.66	Menihek	0.004	0.0025	<0.0005	<0.3	13	<0.0005	2.1	<0.0005	1.1	0.016	2.2	<0.0001	<0.0005	<0.01	0.0011	0.0051	<0.01
K-10-48-205.7	K-10-48	205.7	206.3	Menihek	0.0024	0.0027	0.00056	<0.3	9.4	0.0019	2.6	<0.0005	1.8	0.0095	4.4	<0.0001	<0.0005	<0.01	0.00062	0.0036	<0.01
K-10-48-384.5	K-10-48	384.5	385	Menihek	0.02	0.0066	<0.0005	<0.3	8.9	0.0016	1.6	<0.0005	0.51	0.0099	7.2	<0.0001	<0.0005	<0.01	0.00017	<0.001	<0.01
K-10-52-308.3	K-10-52	308.3	308.8	Menihek	0.0043	0.002	0.00065	<0.3	11	0.0021	2.7	<0.0005	2.7	0.0068	3.4	<0.0001	<0.0005	<0.01	0.00023	0.0022	<0.01
K-10-53-77.8	K-10-53	77.8	78.4	Menihek	0.0053	0.0039	<0.0005	<0.3	12	0.0011	3.6	<0.0005	2.1	0.01	4.6	<0.0001	<0.0005	0.013	0.0018	0.008	<0.01
K-10-54-122.7	K-10-54	122.7	123.2	Menihek	0.11	<0.0001	0.00097	<0.3	5.9	<0.0005	3.8	<0.0005	1.4	0.0097	1.4	0.00015	<0.0005	<0.01	<0.00001	<0.001	<0.01
K-10-54-125.7	K-10-54	125.7	126.2	Menihek	16	<0.0005	0.98	<1.5	11	0.0058	7.0	<0.00025	2.5	0.17	238	<0.0005	<0.0025	<0.05	0.12	<0.005	0.82
K-10-59-175.4	K-10-59	175.4	175.9	Menihek	0.37	0.00032	0.013	<0.3	2.3	0.00081	3.3	<0.0005	0.18	0.045	57	<0.0001	<0.0005	<0.01	0.0029	<0.001	<0.01
K-10-61-258.7	K-10-61	258.7	259.2	Menihek	0.22	0.012	0.048	<0.3	11	0.0036	2.6	<0.00053	2.8	0.032	32	0.00013	<0.0005	<0.01	0.00047	<0.001	<0.01
K-10-61-263.24	K-10-61	263.24	263.85	Menihek	0.026	0.0023	<0.0005	<0.3	0.71	<0.0005	3.3	<0.0005	0.39	0.044	1.6	<0.0001	<0.0005	<0.01	0.00035	<0.001	<0.01
K-10-61-266.85	K-10-61	266.85	267.3	Menihek	0.015	0.00052	<0.0005	<0.3	0.62	<0.0005	1.1	<0.0005	0.35	0.087	<0.5	<0.0001	<0.0005	<0.01	0.000027	<0.001	<0.01
K-10-61-323.5	K-10-61	323.5	324	Menihek	0.1	0.03	0.0049	<0.3	9.1	0.003	2.3	<0.0005	0.86	0.03	11	<0.0001	<0.0005	<0.01	0.0014	<0.001	<0.01
K-10-70-189	K-10-70	189	189.54	Menihek	0.054	0.0024	0.0015	<0.3	11	0.001	2.4	<0.0005	1.7	0.0063	8.4	<0.0001	<0.0005	<0.01	0.00059	0.0014	<0.01
K-12-185-59.1	K-12-185	59.1	59.6	Overburden	0.0053	0.00058	<0.0005	<0.3	4.8	<0.0005	5.5	<0.0005	3.9	0.016	1.6	<0.0001	<0.0005	<0.01	0.0075	<0.001	<0.01
K-12-185-62.2	K-12-185	62.2	62.7	Overburden	0.018	0.0029	<0.0005	<0.3	1.2	<0.0005	1.2	<0.0005	0.87	0.021	6.8	<0.0001	<0.0005	<0.01	0.00028	<0.001	<0.01
K-11-108-87.6	K-11-108	87.6	88.1	Overburden	0.043	0.00086	0.00074	<0.3	6.6	<0.0005	7.3	0.00094	2.7	0.0096	<0.5	<0.0001	<0.0005	<0.01	0.0029	0.0013	<0.01
K-10-32-13.7	K-10-32	13.7	14.2	Overburden	0.0088	0.00025	0.00098	<0.3	10	<0.0005	3.7	<0.0005	3.6	0.021	2.8	<0.0001	<0.0005	0.017	0.00037	0.0032	<0.01
K-10-58-17.5	K-10-58	17.5	18.06	Overburden	0.037	0.0023	0.00089	<0.3	3.5	<0.0005	4.3	<0.0005	0.7	0.0028	<0.5	<0.0001	<0.0005	0.013	0.00012	0.0013	<0.01
K-10-78-29.9	K-10-78	29.9	30.4	Overburden	0.0061	0.011	<0.0005	<0.3	1.1	<0.0005	2.4	<0.0005	0.6	0.018	<0.5	<0.0001	<0.0005	<0.01	0.00013	<0.001	<0.01
K-12-175-79.3	K-12-175	79.3	79.8	Sokoman	2.9	0.00018	0.015	<0.3	5.4	0.0018	1.6	0.000055	0.92	0.092	74	<0.0001	<0.0005	<0.01	0.0013	<0.001	<0.01
K-12-177-233.4	K-12-177	233.47	234	Sokoman	0.54	0.00028	0.0029	<0.3	1.3	0.00066	2.7	<0.0005	0.46	0.0055	1.6	<0.0001	<0.0005	<0.01	0.000031	<0.001	<0.01
K-12-177-272.5	K-12-177	272.5	273	Sokoman	0.43	0.00032	0.0034	<0.3	3.5	<0.0005	1.7	0.00081	2.3	0.015	6.2	<0.0001	<0.0005	<0.01	0.00002	<0.001	<0.01
K-12-179-171.6	K-12-179	171.6	172.1	Sokoman	1.3	0.0014	0.018	<0.3	8.2	0.0047	2.7	<0.0005	25	0.16	116	<0.0001	<0.0005	<0.01	0.018	<0.001	<0.01
K-12-182-131.5	K-12-182	131.5	132	Sokoman	0.0024	0.00056	<0.0005	<0.3	0.16	<0.0005	0.95	<0.0005	0.18	0.0034	0.75	<0.0001	<0.0005	<0.01	0.000071	<0.001	<0.01
K-12-187-50.5	K-12-187	50.5	51	Sokoman	0.004	0.0004	<0.0005	<0.3	2.4	<0.0005	1.9	<0.0005	0.29	0.0079	<0.5	<0.0001	<0.0005	<0.01	0.000048	<0.001	<0.01
K-12-193-277.5	K-12-193	277.5	278	Sokoman	0.83	0.00016	0.00095	<0.3	1.3	<0.0005	6.3	0.000056	1.5	0.014	1.8	<0.0001	<0.0005	0.011	0.00004	<0.001	<0.01
K-12-194-54	K-12-194	54	54.5	Sokoman	0.0046	0.00046	<0.0005	<0.3	0.46	<0.0005	3.3	<0.0005	0.35	0.0067	1.5	<0.0001	<0.0005	<0.01	0.00065	<0.001	<0.01
K-12-196A-115	K-12-196A	115.5	116	Sokoman	0.021	0.0017	<0.0005	<0.3	0.77	<0.0005	3.6	<0.0005	0.84	0.02	3.0	<0.0001	<0.0005	<0.01	0.00036	<0.001	<0.01
K-12-206-97.5	K-12-206	97.5	98	Sokoman	0.0049	0.00047	<0.0005	<0.3	0.39	<0.0005	2.7	<0.0005	0.33	0.0058	1.2	<0.0001	<0.0005	<0.01	0.00054	<0.001	<0.01
K-12-211-36.7	K-12-211	36.7	37.2	Sokoman	0.26	0.00066	0.00088	<0.3	13	0.0022	1.9	<0.0005	1.3	0.095	57	<0.0001	<0.0005	<0.01	0.0016	<0.001	<0.01
K-12-212-205.5	K-12-212	205.5	206	Sokoman	0.006	0.00032	<0.0005	<0.3	0.14	<0.0005	3.2	<0.0005	0.065	0.029	1.1	<0.0001	<0.0005	<0.01	0.00039	<0.001	<0.01
K-12-213-14.2	K-12-213	14.2	14.7	Sokoman	0.36	0.0036	0.00074	<0.3	2.6	<0.0005	4.6	<0.0005	1.2	0.0098	3.1	<0.0001	<0.0005	<0.01	0.000059	<0.001	<0.01



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Mercury	Hardness (as CaCO ₃)
Units					mg/L	mg CaCO ₃ /L
MDMER Maximum Authorized Monthly Mean Concentration						
MDMER Maximum Authorized Concentration in a Composite						
MDMER Maximum Authorized Concentration in a Grab Sample						
CCME Freshwater Aquatic Chronic						
CCME Freshwater Aquatic Acute						
K-11-163-41.4	K-11-163	41.4	41.9	Menihek	<0.00005	231
K-11-163-43	K-11-163	43	43.5	Menihek	<0.00005	100
K-11-166-54.8	K-11-166	54.8	55.3	Menihek	<0.00005	31
K-11-166-117.5	K-11-166	117.5	118	Menihek	<0.00005	170
K-11-168-291.5	K-11-168	291.5	292	Menihek	<0.00005	48
K-12-173-197.5	K-12-173	197.5	198	Menihek	<0.00005	154
K-12-173-199.7	K-12-173	199.7	200.2	Menihek	<0.00005	496
K-12-175-16.9	K-12-175	16.9	17.4	Menihek	<0.00005	231
K-12-175-20.3	K-12-175	20.3	20.8	Menihek	<0.00005	41
K-08-11A-139.8	K-08-11A	139.8	140.4	Menihek	<0.00005	41
K-08-12-140.79	K-08-12	140.79	141.47	Menihek	<0.00005	63
K-08-17-135.8	K-08-17	135.8	136.3	Menihek	<0.00005	278
K-08-17-138	K-08-17	138	138.5	Menihek	<0.00005	67
K-10-26-253	K-10-26	253	253.55	Menihek	<0.00005	51
K-10-39A-445	K-10-39A	445	445.66	Menihek	<0.00005	23
K-10-48-205.7	K-10-48	205.7	206.3	Menihek	<0.00005	22
K-10-48-384.5	K-10-48	384.5	385	Menihek	<0.00005	24
K-10-52-308.3	K-10-52	308.3	308.8	Menihek	<0.00005	13
K-10-53-77.8	K-10-53	77.8	78.4	Menihek	<0.00005	20
K-10-54-122.7	K-10-54	122.7	123.2	Menihek	<0.00005	23
K-10-54-125.7	K-10-54	125.7	126.2	Menihek	<0.00005	470
K-10-59-175.4	K-10-59	175.4	175.9	Menihek	<0.00005	291
K-10-61-258.7	K-10-61	258.7	259.2	Menihek	<0.00005	112
K-10-61-263.24	K-10-61	263.24	263.85	Menihek	<0.00005	61
K-10-61-266.85	K-10-61	266.85	267.3	Menihek	<0.00005	73
K-10-61-323.5	K-10-61	323.5	324	Menihek	<0.00005	79
K-10-70-189	K-10-70	189	189.54	Menihek	<0.00005	14
K-12-185-59.1	K-12-185	59.1	59.6	Overburden	<0.00005	18
K-12-185-62.2	K-12-185	62.2	62.7	Overburden	<0.00005	55
K-11-108-87.6	K-11-108	87.6	88.1	Overburden	<0.00005	12
K-10-32-13.7	K-10-32	13.7	14.2	Overburden	<0.00005	17
K-10-58-17.5	K-10-58	17.5	18.06	Overburden	<0.00005	7.4
K-10-78-29.9	K-10-78	29.9	30.4	Overburden	<0.00005	49
K-12-175-79.3	K-12-175	79.3	79.8	Sokoman	<0.00005	267
K-12-177-233.4	K-12-177	233.47	234	Sokoman	<0.00005	8.5
K-12-177-272.5	K-12-177	272.5	273	Sokoman	<0.00005	44
K-12-179-171.6	K-12-179	171.6	172.1	Sokoman	<0.00005	424
K-12-182-131.5	K-12-182	131.5	132	Sokoman	<0.00005	48
K-12-187-50.5	K-12-187	50.5	51	Sokoman	<0.00005	45
K-12-193-277.5	K-12-193	277.5	278	Sokoman	<0.00005	15
K-12-194-54	K-12-194	54	54.5	Sokoman	<0.00005	53
K-12-196A-115	K-12-196A	115.5	116	Sokoman	<0.00005	84
K-12-206-97.5	K-12-206	97.5	98	Sokoman	<0.00005	49
K-12-211-36.7	K-12-211	36.7	37.2	Sokoman	<0.00005	196
K-12-212-205.5	K-12-212	205.5	206	Sokoman	<0.00005	64
K-12-213-14.2	K-12-213	14.2	14.7	Sokoman	<0.00005	25



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Company	Material Type	pH	pH2	Acidity (as CaCO3)	Conductivity	Moisture	ORP	Alkalinity, total (as CaCO3)	Ammonia, total (as N)	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	Phosphorus, total dissolved	Sulfate
Units							-	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration																				
MDMER Maximum Authorized Concentration in a Composite																				
MDMER Maximum Authorized Concentration in a Grab Sample																				
CCME Freshwater Aquatic Chronic														0.019	120	0.12	13			
CCME Freshwater Aquatic Acute							2								640		550			
K-10-93-46	K-10-93	46	46.5	Sokoman	Okane	Mine Rock	7.6		<4	177	<0.25	218	28	0.052	<0.5	0.054	0.074	<0.001	0.0035	49
K-11-111-43.1	K-11-111	43.1	43.6	Sokoman	Okane	Mine Rock	7.89		<4	73	<0.25	280	28	<0.005	1.9	0.072	0.02	0.0024	0.032	3.3
K-11-117-331	K-11-117	331	331.5	Sokoman	Okane	Mine Rock	7.67		<4	419	<0.25	248	44	0.051	3.6	<0.02	0.061	<0.001	<0.002	149
K-11-123-153.8	K-11-123	153.8	154.3	Sokoman	Okane	Mine Rock	7.4		<4	921	<0.25	279	12	0.015	0.6	0.1	0.012	0.0036	0.0053	471
K-11-128-103.5	K-11-128	103.5	104	Sokoman	Okane	Mine Rock	7.77		<4	73	<0.25	313	27	0.006	0.54	0.025	0.027	<0.001	0.012	7.4
K-11-130-448.5	K-11-130	448.5	449	Sokoman	Okane	Mine Rock	7.75		<4	81	<0.25	297	35	0.013	1.7	0.038	0.035	0.0016	0.0068	3.2
K-11-131-105	K-11-131	105	105.5	Sokoman	Okane	Mine Rock	6.85		<4	413	<0.25	318	7.8	0.082	2.7	<0.048	0.2	<0.001	<0.002	177
K-11-133-51.1	K-11-133	51.1	51.6	Sokoman	Okane	Mine Rock	8.02		<4	73	<0.25	287	35	0.008	<0.5	<0.02	0.01	0.0011	0.0043	1.3
K-11-143-297.1	K-11-143	297.1	297.65	Sokoman	Okane	Mine Rock	8.4		<4	92	<0.25	232	39	0.013	4.3	<0.02	0.016	<0.001	0.02	1.2
K-11-145-201.8	K-11-145	201.8	202.3	Sokoman	Okane	Mine Rock	7.96		<4	81	<0.25	270	39	0.006	<0.5	<0.02	0.012	<0.001	0.0028	2.5
K-11-147-161.4	K-11-147	161.4	161.9	Sokoman	Okane	Mine Rock	7.91		<4	505	0.66	260	56	0.12	11	0.12	0.86	<0.001	0.0098	170
K-11-159-478.5	K-11-159	478.5	479	Sokoman	Okane	Mine Rock	8.12		<4	100	<0.25	250	46	0.006	3.6	<0.02	0.018	<0.001	0.0042	1.5
K-11-163-23.5	K-11-163	23.5	24	Sokoman	Okane	Mine Rock	8.11		<4	96	<0.25	229	51	<0.005	<0.5	<0.02	0.018	0.0026	0.0033	1.2
K-11-164-127.5	K-11-164	127.5	128	Sokoman	Okane	Mine Rock	8.1		<4	108	<0.25	254	57	0.009	<0.5	<0.02	0.028	0.0045	<0.002	1.1
K-11-165-288.8	K-11-165	288.8	289.3	Sokoman	Okane	Mine Rock	8.06		<4	97	<0.25	273	41	0.009	3.7	0.024	0.062	0.0012	0.0034	3.5
K-11-168-138.5	K-11-168	138.5	139	Sokoman	Okane	Mine Rock	7.72		<4	80	0.75	268	37	<0.005	0.71	0.073	0.016	0.0012	0.015	3.2
K-11-169-76.8	K-11-169	76.8	77.3	Sokoman	Okane	Mine Rock	8		<4	565	1.1	244	61	0.014	0.76	0.08	0.019	<0.001	0.0035	227
K-11-99-158.5	K-11-99	158.5	159	Sokoman	Okane	Mine Rock	7.4		<4	47	<0.25	272	15	<0.005	0.72	0.071	0.04	0.0093	0.024	3.7
K-08-10-228.46	K-08-10	228.46	229.1	Sokoman	Okane	Mine Rock	8.34		<4	127	<0.25	209	30	0.031	1.2	0.11	0.027	<0.001	0.011	24
K-08-11A-27	K-8-11A	27	28	Sokoman	Okane	Mine Rock	7.76		<4	218	<0.25	172	62	0.005	0.5	0.046	0.073	0.0034	0.0098	9.0
K-08-17-131	K-8-17	131	131.6	Sokoman	Okane	Mine Rock	4.77		17	323	<0.25	271	<2	0.34	<0.5	0.03	0.13	<0.001	0.002	136
K-10-25-447.35	K-10-25	447.35	447.85	Sokoman	Okane	Mine Rock	8.14		<4	70	<0.25	206	28	0.043	<0.5	0.047	0.036	0.0022	0.023	4.1
K-10-30-145.42	K-10-30	145.42	146	Sokoman	Okane	Mine Rock	8.57		<4	72	<0.25	222	31	0.029	<0.5	<0.02	0.026	<0.001	0.0061	4.3
K-10-37A-81.62	K-10-37A	81	81.62	Sokoman	Okane	Mine Rock	3.95		265	1,010	<0.25	310	<2	0.22	<2.5	0.1	0.072	<0.005	0.0058	580
K-10-40-210.18	K-10-40	210.18	210.7	Sokoman	Okane	Mine Rock	8.15		<4	59	<0.25	208	29	0.008	<0.5	<0.02	0.023	0.0042	0.0061	1.3
K-10-48-25.8	K-10-48	25.8	26.3	Sokoman	Okane	Mine Rock	7.48		<4	101	<0.25	222	20	0.047	<0.5	0.065	0.02	<0.001	0.0034	24
K-10-49-294.5	K-10-49	294.5	295.3	Sokoman	Okane	Mine Rock	7.98		<4	110	<0.25	186	54	0.014	1.7	<0.02	0.01	<0.001	<0.002	1.8
K-10-51-268.25	K-10-51	268.25	269	Sokoman	Okane	Mine Rock	6.95		<4	126	<0.25	204	29	0.18	<0.5	<0.02	0.12	0.012	<0.002	1.4
K-10-52-477.46	K-10-52	477.46	478.07	Sokoman	Okane	Mine Rock	8.06		<4	122	<0.25	190	62	0.01	1.3	<0.02	0.007	<0.001	0.0026	<0.5
K-10-54-160.5	K-10-54	160.5	161	Sokoman	Okane	Mine Rock	6.7		180	71	<0.25	212	12	0.033	<0.5	<0.02	0.16	0.0082	0.0023	5.4
K-10-57-107.4	K-10-57	107.4	108	Sokoman	Okane	Mine Rock	7.79		<4	87	0.36	195	40	0.012	2.1	0.046	<0.005	<0.001	0.0044	1.1
K-10-59-182.98	K-10-59	182.98	183.6	Sokoman	Okane	Mine Rock	8.12		<4	309	<0.25	174	92	0.061	4.0	<0.02	0.054	0.0023	0.0061	42
K-10-61-306.5	K-10-61	306.5	307	Sokoman	Okane	Mine Rock	8.29		<4	244	1.1	202	116	<0.005	6.6	0.16	0.076	0.0046	0.014	2.2
K-10-63-124.4	K-10-63	124.4	124.9	Sokoman	Okane	Mine Rock	7.73		<4	88	<0.25	166	35	0.013	2.9	<0.02	0.032	<0.001	0.0076	3.6
K-10-70-74.46	K-10-70	74.46	75	Sokoman	Okane	Mine Rock	7.97		<4	86	<0.25	194	44	0.01	0.94	<0.02	0.019	0.0026	0.0075	<0.5
K-10-83-39.5	K-10-83	39.5	40	Sokoman	Okane	Mine Rock	7.87		<4	63	<0.25	168	31	0.023	<0.5	<0.07	0.028	0.0027	0.0097	<0.5
K-12-180-11.3	K-12-180	11.3	11.8	Wishart	Okane	Mine Rock	6.29		<4	32	<0.25	319	<2	0.089	2.3	0.024	0.11	<0.001	0.0082	6.0
K-12-180-18.2	K-12-180	18.2	18.7	Wishart	Okane	Mine Rock	6.5		<4	58	<0.25	324	2.8	0.052	6.5	<0.08	0.1	<0.001	0.025	7.9
K-12-180-28.1	K-12-180	28.1	29.4	Wishart	Okane	Mine Rock	6.05		<4	36	<0.25	326	<2	0.034	2.5	<0.04	0.086	<0.001	0.033	7.3
K-12-182-435.8	K-12-182	435.8	436.3	Wishart	Okane	Mine Rock	7.37		<4	114	<0.25	288	14	0.026	2.2	0.025	0.047	<0.001	0.024	2.9
K-12-187-500.5	K-12-187	500.5	501	Wishart	Okane	Mine Rock	7.06		<4	194	<0.25	253	16	0.06	2.7	<0.02	0.2	0.001	<0.002	66
K-12-192-249.4	K-12-192	249.4	249.9	Wishart	Okane	Mine Rock	6.77		<4	30	<0.25	301	5.6	0.006	1.9	0.11	0.02	<0.001	0.051	1.9
K-12-193-287.5	K-12-193	287.5	288	Wishart	Okane	Mine Rock	7.23		<4	67	0.83	280	17	0.006	2.8	0.12	0.2	0.0019	0.0072	8.2
K-12-199-131.5	K-12-199	131.5	132	Wishart	Okane	Mine Rock	6.63		<4	87	<0.25	313	5.7	0.1	6.8	0.14	0.4	0.0028	0.066	14
K-12-209-101.3	K-12-209	101.3	101.8	Wishart	Okane	Mine Rock	8		<4	72	<0.25	265	25	0.019	1.5	<0.05	0.054	<0.001	0.018	5.7
K-12-213-10.7	K-12-213	10.7	11.2	Wishart	Okane	Mine Rock	7.72		<4	922	<0.25	256	94	0.057	<2.5	<0.1	0.031	<0.005	<0.002	436



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Bromide	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration								0.1									0.1		0.08			
MDMER Maximum Authorized Concentration in a Composite								0.15									0.15		0.12			
MDMER Maximum Authorized Concentration in a Grab Sample								0.2									0.2		0.16			
CCME Freshwater Aquatic Chronic								0.005				1.5	0.0002		0.0089			0.3				
CCME Freshwater Aquatic Acute												29										
K-10-93-46	K-10-93	46	46.5	Sokoman	<0.05	0.33	0.00046	<0.001	0.02	<0.0005	<0.0005	<0.01	<0.00005	23	<0.0005	<0.0001	<0.001	<0.03	0.00033	<0.005	4.6	
K-11-111-43.1	K-11-111	43.1	43.6	Sokoman	<0.05	1.1	0.00054	<0.001	0.011	<0.0005	<0.0005	<0.01	<0.00005	4.7	0.0012	0.00029	0.0026	0.75	0.00058	<0.005	0.66	
K-11-117-331	K-11-117	331	331.5	Sokoman	<0.05	<0.005	<0.0001	<0.001	0.11	<0.0005	<0.0005	<0.01	<0.00005	47	<0.0005	0.0083	<0.001	<0.03	<0.0001	<0.005	17	
K-11-123-153.8	K-11-123	153.8	154.3	Sokoman	<0.05	0.21	0.0001	<0.001	0.059	<0.0005	<0.0005	<0.01	<0.00005	190	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.0	
K-11-128-103.5	K-11-128	103.5	104	Sokoman	<0.05	0.018	0.00029	<0.001	0.016	<0.0005	<0.0005	<0.01	<0.00005	11	<0.0005	<0.0001	<0.001	0.12	<0.0001	<0.005	1.6	
K-11-130-448.5	K-11-130	448.5	449	Sokoman	<0.05	0.012	0.00019	<0.001	0.074	<0.0005	<0.0005	<0.01	<0.00005	8.1	<0.0005	<0.0001	<0.001	0.13	<0.0001	<0.005	4.1	
K-11-131-105	K-11-131	105	105.5	Sokoman	<0.05	0.035	<0.0005	<0.005	0.043	<0.0025	<0.0025	<0.05	0.018	36	<0.0025	0.08	<0.005	<0.15	<0.0005	<0.025	18	
K-11-133-51.1	K-11-133	51.1	51.6	Sokoman	<0.05	<0.005	0.0004	<0.001	0.011	<0.0005	<0.0005	<0.01	<0.00005	11	<0.0005	<0.0001	<0.001	0.044	<0.0001	<0.005	2.1	
K-11-143-297.1	K-11-143	297.1	297.65	Sokoman	0.071	<0.005	<0.0001	<0.001	0.36	<0.0005	<0.0005	<0.01	<0.00005	11	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.4	
K-11-145-201.8	K-11-145	201.8	202.3	Sokoman	<0.05	<0.005	0.00049	<0.001	0.0092	<0.0005	<0.0005	<0.01	<0.00005	10	<0.0005	<0.0001	<0.001	0.032	<0.0001	<0.005	3.8	
K-11-147-161.4	K-11-147	161.4	161.9	Sokoman	0.14	0.044	0.00013	<0.001	0.0066	<0.0005	<0.0005	0.013	<0.00005	68	<0.0005	0.00016	0.001	<0.03	<0.0001	0.0067	16	
K-11-159-478.5	K-11-159	478.5	479	Sokoman	0.081	<0.005	<0.0001	<0.001	0.032	<0.0005	<0.0005	<0.01	<0.00005	12	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.7	
K-11-163-23.5	K-11-163	23.5	24	Sokoman	<0.05	<0.005	<0.0001	<0.001	0.018	<0.0005	<0.0005	<0.01	<0.00005	12	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.9	
K-11-164-127.5	K-11-164	127.5	128	Sokoman	<0.05	<0.005	<0.0001	<0.001	0.0027	<0.0005	<0.0005	<0.01	<0.00005	13	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	5.7	
K-11-165-288.8	K-11-165	288.8	289.3	Sokoman	<0.05	<0.005	<0.0001	<0.001	<0.001	<0.0005	<0.0005	<0.01	<0.00005	11	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.4	
K-11-168-138.5	K-11-168	138.5	139	Sokoman	<0.05	0.063	0.00015	<0.001	0.0087	<0.0005	<0.0005	0.019	<0.00005	7.6	<0.0005	0.00015	<0.001	1.2	<0.0001	<0.005	4.8	
K-11-169-76.8	K-11-169	76.8	77.3	Sokoman	<0.05	0.0072	<0.0001	<0.001	0.063	<0.0005	<0.0005	<0.01	0.00019	54	<0.0005	0.00074	<0.001	<0.03	<0.0001	0.0063	35	
K-11-99-158.5	K-11-99	158.5	159	Sokoman	<0.05	0.074	0.00012	<0.001	0.021	<0.0005	<0.0005	<0.01	<0.00005	5.3	<0.0005	0.00043	0.0019	2.4	<0.0001	<0.005	1.7	
K-08-10-228.46	K-08-10	228.46	229.1	Sokoman	<0.05	0.49	0.00045	<0.001	0.021	<0.0005	<0.0005	<0.01	<0.00005	11	<0.0005	<0.0001	<0.001	0.044	<0.0001	0.005	2.4	
K-08-11A-27	K-8-11A	27	28	Sokoman	<0.16	0.06	0.00038	<0.001	0.18	<0.0005	<0.0005	<0.01	<0.00005	31	<0.0005	0.00014	0.0033	0.082	<0.0001	0.0098	8.2	
K-08-17-131	K-8-17	131	131.6	Sokoman	<0.05	0.19	0.00016	<0.001	0.093	0.0014	<0.0005	<0.01	0.0045	31	<0.0005	0.14	0.014	4.6	0.004	0.012	15	
K-10-25-447.35	K-10-25	447.35	447.85	Sokoman	<0.05	0.44	0.00017	0.0012	0.07	<0.0005	<0.0005	<0.01	<0.00005	5.0	<0.0005	0.00011	<0.001	0.18	<0.0001	<0.005	2.4	
K-10-30-145.42	K-10-30	145.42	146	Sokoman	<0.05	0.0096	0.00026	<0.001	0.0092	<0.0005	<0.0005	0.021	<0.00005	9.5	<0.0005	<0.0001	<0.001	0.034	<0.0001	<0.005	2.4	
K-10-37A-81.62	K-10-37A	81	81.62	Sokoman	<0.25	1.7	<0.0001	0.0015	0.088	0.0016	<0.0005	<0.01	0.0089	60	0.00066	0.72	0.074	129	0.0006	0.045	39	
K-10-40-210.18	K-10-40	210.18	210.7	Sokoman	<0.05	<0.005	0.00011	<0.001	0.047	<0.0005	<0.0005	0.017	<0.00005	6.2	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	3.6	
K-10-48-25.8	K-10-48	25.8	26.3	Sokoman	<0.05	0.094	0.00015	<0.001	0.0043	<0.0005	<0.0005	<0.01	<0.00005	7.1	<0.0005	0.002	<0.001	<0.03	<0.0001	<0.005	3.9	
K-10-49-294.5	K-10-49	294.5	295.3	Sokoman	<0.05	0.024	0.00012	<0.001	0.0068	<0.0005	<0.0005	<0.01	<0.00005	8.9	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	9.2	
K-10-51-268.25	K-10-51	268.25	269	Sokoman	<0.05	<0.005	<0.0001	<0.001	0.97	<0.0005	<0.0005	<0.01	0.00012	14	<0.0005	0.00024	<0.001	<0.03	0.0001	<0.005	6.3	
K-10-52-477.46	K-10-52	477.46	478.07	Sokoman	<0.05	<0.005	0.00015	<0.001	0.041	<0.0005	<0.0005	<0.01	<0.00005	13	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	7.2	
K-10-54-160.5	K-10-54	160.5	161	Sokoman	<0.05	5.9	<0.0001	0.0016	0.033	0.0056	<0.0005	<0.01	0.0047	7.9	0.0034	0.094	0.54	66	0.0016	0.027	9.4	
K-10-57-107.4	K-10-57	107.4	108	Sokoman	<0.05	0.057	<0.0001	<0.001	0.021	<0.0005	<0.0005	0.012	<0.00005	10	<0.0005	<0.0001	<0.001	0.13	<0.0001	<0.005	3.4	
K-10-59-182.98	K-10-59	182.98	183.6	Sokoman	0.082	<0.005	0.00012	<0.001	0.099	<0.0005	<0.0005	<0.01	<0.00005	42	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	17	
K-10-61-306.5	K-10-61	306.5	307	Sokoman	<0.05	<0.005	0.00028	<0.001	0.0053	<0.0005	<0.0005	0.37	<0.00005	19	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	23	
K-10-63-124.4	K-10-63	124.4	124.9	Sokoman	<0.05	0.038	0.0008	0.0013	0.2	<0.0005	<0.0005	<0.01	<0.00005	8.4	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.7	
K-10-70-74.46	K-10-70	74.46	75	Sokoman	<0.05	<0.005	<0.0001	<0.001	0.0046	<0.0005	<0.0005	0.013	<0.00005	11	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.0	
K-10-83-39.5	K-10-83	39.5	40	Sokoman	<0.05	0.023	0.00013	<0.001	0.022	<0.0005	<0.0005	<0.01	<0.00005	7.0	<0.0005	<0.0001	0.0013	<0.03	<0.0001	<0.005	3.1	
K-12-180-11.3	K-12-180	11.3	11.8	Wishart	<0.05	0.15	0.00023	<0.001	0.0075	<0.0005	<0.0005	<0.01	0.000055	2.0	0.00076	0.0025	0.068	0.24	0.00052	<0.005	0.72	
K-12-180-18.2	K-12-180	18.2	18.7	Wishart	<0.075	0.22	0.00023	<0.001	0.012	<0.0005	<0.0005	<0.01	0.000074	2.8	0.00094	0.0066	0.01	0.28	0.00024	<0.005	1.4	
K-12-180-28.1	K-12-180	28.1	29.4	Wishart	<0.1	0.43	0.00019	<0.001	0.013	<0.0005	<0.0005	<0.01	0.00.									



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Manganese	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration							0.25														0.4
MDMER Maximum Authorized Concentration in a Composite							0.38														0.6
MDMER Maximum Authorized Concentration in a Grab Sample							0.5														0.8
CCME Freshwater Aquatic Chronic						0.073	0.07036			0.001		0.00025							0.015		
CCME Freshwater Aquatic Acute																			0.033		
K-10-93-46	K-10-93	46	46.5	Sokoman	0.0019	0.021	<0.0005	<0.3	9.7	0.0026	1.8	<0.0005	0.98	0.045	20	<0.0001	<0.0005	<0.01	0.0018	0.015	<0.01
K-11-111-43.1	K-11-111	43.1	43.6	Sokoman	0.018	0.0014	0.0013	<0.3	11	<0.0005	4.2	0.000059	3.7	0.016	1.3	<0.0001	<0.0005	0.018	0.00071	0.0022	<0.01
K-11-117-331	K-11-117	331	331.5	Sokoman	3.6	0.00013	0.013	<0.3	9.9	<0.0005	1.9	<0.00005	1.0	0.051	55	<0.0001	<0.0005	<0.01	0.00051	<0.001	<0.01
K-11-123-153.8	K-11-123	153.8	154.3	Sokoman	0.18	0.0018	<0.0005	<0.3	14	<0.0005	1.5	<0.00005	2.0	1.1	169	<0.0001	<0.0005	<0.01	0.000094	<0.001	<0.01
K-11-128-103.5	K-11-128	103.5	104	Sokoman	0.036	0.0015	<0.0005	<0.3	0.8	<0.0005	2.7	<0.00005	0.19	0.027	2.4	<0.0001	<0.0005	<0.01	0.00017	<0.001	<0.01
K-11-130-448.5	K-11-130	448.5	449	Sokoman	0.12	0.00028	<0.0005	<0.3	1.8	<0.0005	1.2	<0.00005	0.77	0.022	1.1	<0.0001	<0.0005	<0.01	0.000025	<0.001	<0.01
K-11-131-105	K-11-131	105	105.5	Sokoman	13	<0.0005	0.36	<1.5	9.9	0.0043	1.5	<0.00025	1.6	0.074	61	<0.0005	<0.0025	<0.05	0.0027	<0.005	1.1
K-11-133-51.1	K-11-133	51.1	51.6	Sokoman	0.0023	0.00042	<0.0005	<0.3	1.2	<0.0005	2.2	<0.00005	0.19	0.023	<0.5	<0.0001	<0.0005	<0.01	0.0002	<0.001	<0.01
K-11-143-297.1	K-11-143	297.1	297.65	Sokoman	0.05	0.0039	<0.0005	<0.3	0.35	<0.0005	7.1	<0.00005	0.7	0.026	<0.5	<0.0001	<0.0005	<0.01	0.000057	<0.001	<0.01
K-11-145-201.8	K-11-145	201.8	202.3	Sokoman	0.0018	0.00042	<0.0005	<0.3	0.73	<0.0005	1.8	<0.00005	0.21	0.019	0.95	<0.0001	<0.0005	<0.01	0.000063	<0.001	<0.01
K-11-147-161.4	K-11-147	161.4	161.9	Sokoman	0.17	0.0025	<0.3	5.7	0.0036	2.6	<0.00005	5.6	0.23	57	<0.0001	<0.0005	<0.01	0.00073	0.0021	<0.01	<0.01
K-11-159-478.5	K-11-159	478.5	479	Sokoman	0.029	0.00068	<0.0005	<0.3	0.33	<0.0005	2.3	<0.00005	0.49	0.012	<0.5	<0.0001	<0.0005	<0.01	0.000073	<0.001	<0.01
K-11-163-23.5	K-11-163	23.5	24	Sokoman	0.0051	0.00028	<0.0005	<0.3	0.91	<0.0005	1.4	<0.00005	0.12	0.013	<0.5	<0.0001	<0.0005	<0.01	0.000098	<0.001	<0.01
K-11-164-127.5	K-11-164	127.5	128	Sokoman	0.0035	0.0002	<0.0005	<0.3	0.46	<0.0005	2.4	<0.00005	0.2	0.0046	<0.5	<0.0001	<0.0005	<0.01	0.00008	<0.001	<0.01
K-11-165-288.8	K-11-165	288.8	289.3	Sokoman	0.006	0.00061	<0.0005	<0.3	0.3	<0.0005	2.0	<0.00005	1.3	0.0069	1.1	<0.0001	<0.0005	<0.01	0.000072	<0.001	<0.01
K-11-168-138.5	K-11-168	138.5	139	Sokoman	0.26	0.00045	<0.0005	<0.3	0.87	<0.0005	4.3	<0.00005	0.35	0.0048	1.2	<0.0001	<0.0005	<0.01	0.0014	<0.001	<0.01
K-11-169-76.8	K-11-169	76.8	77.3	Sokoman	0.18	0.00042	0.0014	<0.3	7.5	0.011	3.9	<0.00005	0.63	0.064	79	0.00019	<0.0005	<0.01	0.0018	<0.001	<0.01
K-11-99-158.5	K-11-99	158.5	159	Sokoman	0.22	0.0011	0.0013	<0.3	0.99	<0.0005	1.7	<0.00005	0.41	0.015	1.3	<0.0001	<0.0005	<0.01	0.00016	<0.001	<0.01
K-08-10-228.46	K-08-10	228.46	229.1	Sokoman	0.0024	0.0034	<0.0005	<0.3	12	0.0023	2.0	<0.00005	3.4	0.03	10	<0.0001	<0.0005	<0.01	0.00029	0.0053	<0.01
K-08-11A-27	K-8-11A	27	28	Sokoman	0.62	0.0012	<0.0005	<0.3	7.1	0.00078	4.4	<0.00005	1.7	0.089	3.1	<0.0001	<0.0005	<0.01	0.0006	<0.001	<0.01
K-08-17-131	K-8-17	131	131.6	Sokoman	0.34	<0.0001	0.31	<0.3	10	0.004	4.4	<0.00005	1.2	0.054	49	<0.0001	<0.0005	<0.01	0.0047	<0.001	0.12
K-10-25-447.35	K-10-25	447.35	447.85	Sokoman	0.0022	0.00046	0.00056	<0.3	6.7	<0.0005	3.1	<0.00005	2.7	0.0097	1.6	<0.0001	<0.0005	0.012	0.00003	0.012	<0.01
K-10-30-145.42	K-10-30	145.42	146	Sokoman	0.077	0.00078	<0.0005	<0.3	2.1	<0.0005	2.0	<0.00005	0.2	0.015	1.8	<0.0001	<0.0005	<0.01	0.000032	<0.001	<0.01
K-10-37A-81.62	K-10-37A	81	81.62	Sokoman	4.3	<0.0001	2.2	<0.3	25	0.0047	6.0	<0.00005	2.1	0.091	201	0.0004	<0.0005	<0.01	0.034	<0.001	2.3
K-10-40-210.18	K-10-40	210.18	210.7	Sokoman	0.23	0.0023	<0.0005	<0.3	0.42	<0.0005	1.9	<0.00005	0.13	0.0088	<0.5	<0.0001	<0.0005	<0.01	0.000016	<0.001	<0.01
K-10-48-25.8	K-10-48	25.8	26.3	Sokoman	0.21	0.00066	0.019	<0.3	9.2	0.0014	1.5	<0.00005	1.6	0.011	9.4	<0.0001	<0.0005	<0.01	0.0003	<0.001	<0.01
K-10-49-294.5	K-10-49	294.5	295.3	Sokoman	0.0019	0.00063	<0.0005	<0.3	0.8	<0.0005	1.1	<0.00005	0.31	0.011	1.0	<0.0001	<0.0005	<0.01	0.002	<0.001	<0.01
K-10-51-268.25	K-10-51	268.25	269	Sokoman	0.62	<0.0001	0.0011	<0.3	1.7	<0.0005	2.0	<0.00005	0.83	0.068	0.55	<0.0001	<0.0005	<0.01	<0.00001	<0.001	<0.01
K-10-52-477.46	K-10-52	477.46	478.07	Sokoman	0.0025	0.00054	<0.0005	<0.3	3.0	<0.0005	1.4	<0.00005	0.18	0.01	<0.5	<0.0001	<0.0005	<0.01	0.000043	<0.001	<0.01
K-10-54-160.5	K-10-54	160.5	161	Sokoman	1.8	<0.0001	0.54	<0.3	7.4	0.0019	4.3	<0.00005	1.1	0.022	81	0.0003	<0.0005	<0.01	0.42	<0.001	1.9
K-10-57-107.4	K-10-57	107.4	108	Sokoman	0.088	0.00056	<0.0005	<0.3	2.9	<0.0005	2.3	<0.00005	0.38	0.011	<0.5	<0.0001	<0.0005	<0.01	0.000035	<0.001	<0.01
K-10-59-182.98	K-10-59	182.98	183.6	Sokoman	0.047	0.00064	<0.0005	<0.3	2.1	<0.0005	5.6	<0.00005	0.38	0.099	18	<0.0001	<0.0005	<0.01	0.0008	<0.001	<0.01
K-10-61-306.5	K-10-61	306.5	307	Sokoman	0.055	0.00036	<0.0005	<0.3	0.16	<0.0005	6.8	<0.00005	0.18	0.038	0.78	<0.0001	<0.0005	<0.01	0.000012	<0.001	<0.01
K-10-63-124.4	K-10-63	124.4	124.9	Sokoman	0.016	0.014	<0.0005	<0.3	3.1	<0.0005	1.9	<0.00005	0.65	0.037	1.6	<0.0001	<0.0005	<0.01	0.000061	<0.001	<0.01
K-10-70-74.46	K-10-70	74.46	75	Sokoman	0.018	0.0013	<0.0005	<0.3	1.6	<0.0005	2.4	<0.00005	0.29	0.0093	<0.5	<0.0001	<0.0005	<0.01	0.000024	<0.001	<0.01
K-10-83-39.5	K-10-83	39.5	40	Sokoman	0.011	0.00094	<0.0005	<0.3	2.0	<0.0005	3.3	<0.00005	0.25	0.012	<0.5	<0.0001	<0.0005	<0.01	0.000043	<0.001	<0.01
K-12-180-11.3	K-12-180	11.3	11.8	Wishart	0.49	0.00067	0.0059	<0.3	1.1	<0.0005	5.8	0.000087	1.3	0.011	1.6	<0.0001	<0.0005	0.011	0.000063	<0.001	0.13
K-12-180-18.2	K-12-180	18.2	18.7	Wishart	0.84	0.00042	0.0069	<0.3	1.3	<0.0005	1.3	<0.00005	4.1	0.0098	2.5	<0.0001	<0.0005	0.011	0.0001	<0.001	0.036
K-12-180-28.1	K-12-180	28.1	29.4	Wishart	0.65	0.00057	0.0077	<0.3	1.1	<0.0005	2.4	0.00096	1.8	0.0076	2.1	<0.0001	<0.0005	0.023	0.00013	<0.001	0.057
K-12-182-435.8	K-12-182	435.8	436.3	Wishart	0.092	0.0011	<0.0005	<0.3	0.84	<0.0005	2.9	<0.00005	14	0.011	0.86	<0.0001	<0.0005	<0.01	<0.00001	<0.001	<0.01
K-12-187-500.5	K-12-187	500.5	501	Wishart	3.3	0.00011	0.014	<0.3	1.5	0.0044	2.8	<0.00005	4.3	0.057	24	<0.0001	<0.0005	<0.01	0.000014	<0.001	<0.01
K-12-192-249.4	K-12-192	249.4	249.9	Wishart	0.36	0.0012	0.0031	<0.3	1.3	<0.0005	6.5	0.00011	0.9	0.011	0.72	<0.0001	<0.0005	0.011	0.00026	0.0063	0.016
K-12-193-287.5	K-12-193	287.5	288	Wishart	0.026	0.00024	0.00059	<0.3	5.3	<0.0005	6.1	<0.00005	1.9	0.024	2.8	<0.0001	<0.0005	<0.01	0.000016	<0.001	<0.01
K-12-199-131.5	K-12-199	131.5	132	Wishart	0.24	0.0011	0.0088	<0.3	7.6	<0.0005	1.3	<0.00005	3.5	0.013	4.5	<0.0001	<0.0005	0.012	0.00014	<0.001	0.011
K-12-209-101.3	K-12-209	101.3	101.8	Wishart	0.0099	0.00044	0.00057	<0.3	8.1	<0.0005	3.2	<0.00005	0.72	0.0056	2.5	<0.0001	<0.0005	<0.01	0.0024	<0.001	<0.01
K-12-213-10.7	K-12-213	10.7	11.2	Wishart	10	0.00026	0.028	<0.6	12	<0.001	3.3	<0.0001	0.77	0.21	158	<0.0002	<0.001	<0.02	0.0012	<0.002	<0.02



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Mercury	Hardness (as CaCO ₃)
Units					mg/L	mg CaCO ₃ /L
MDMER Maximum Authorized Monthly Mean Concentration						
MDMER Maximum Authorized Concentration in a Composite						
MDMER Maximum Authorized Concentration in a Grab Sample						
CCME Freshwater Aquatic Chronic						
CCME Freshwater Aquatic Acute						
K-10-93-46	K-10-93	46	46.5	Sokoman	<0.00005	76
K-11-111-43.1	K-11-111	43.1	43.6	Sokoman	<0.00005	15
K-11-117-331	K-11-117	331	331.5	Sokoman	<0.00005	188
K-11-123-153.8	K-11-123	153.8	154.3	Sokoman	<0.00005	491
K-11-128-103.5	K-11-128	103.5	104	Sokoman	<0.00005	35
K-11-130-448.5	K-11-130	448.5	449	Sokoman	<0.00005	37
K-11-131-105	K-11-131	105	105.5	Sokoman	<0.00005	165
K-11-133-51.1	K-11-133	51.1	51.6	Sokoman	<0.00005	35
K-11-143-297.1	K-11-143	297.1	297.65	Sokoman	<0.00005	45
K-11-145-201.8	K-11-145	201.8	202.3	Sokoman	<0.00005	42
K-11-147-161.4	K-11-147	161.4	161.9	Sokoman	<0.00005	234
K-11-159-478.5	K-11-159	478.5	479	Sokoman	<0.00005	49
K-11-163-23.5	K-11-163	23.5	24	Sokoman	<0.00005	49
K-11-164-127.5	K-11-164	127.5	128	Sokoman	<0.00005	57
K-11-165-288.8	K-11-165	288.8	289.3	Sokoman	<0.00005	46
K-11-168-138.5	K-11-168	138.5	139	Sokoman	<0.00005	39
K-11-169-76.8	K-11-169	76.8	77.3	Sokoman	<0.00005	278
K-11-99-158.5	K-11-99	158.5	159	Sokoman	<0.00005	20
K-08-10-228.46	K-08-10	228.46	229.1	Sokoman	<0.00005	37
K-08-11A-27	K-8-11A	27	28	Sokoman	<0.00005	112
K-08-17-131	K-8-17	131	131.6	Sokoman	<0.00005	140
K-10-25-447.35	K-10-25	447.35	447.85	Sokoman	<0.00005	22
K-10-30-145.42	K-10-30	145.42	146	Sokoman	<0.00005	34
K-10-37A-81.62	K-10-37A	81	81.62	Sokoman	<0.00005	310
K-10-40-210.18	K-10-40	210.18	210.7	Sokoman	<0.00005	30
K-10-48-25.8	K-10-48	25.8	26.3	Sokoman	<0.00005	34
K-10-49-294.5	K-10-49	294.5	295.3	Sokoman	<0.00005	60
K-10-51-268.25	K-10-51	268.25	269	Sokoman	<0.00005	60
K-10-52-477.46	K-10-52	477.46	478.07	Sokoman	<0.00005	61
K-10-54-160.5	K-10-54	160.5	161	Sokoman	<0.00005	58
K-10-57-107.4	K-10-57	107.4	108	Sokoman	<0.00005	39
K-10-59-182.98	K-10-59	182.98	183.6	Sokoman	<0.00005	176
K-10-61-306.5	K-10-61	306.5	307	Sokoman	<0.00005	142
K-10-63-124.4	K-10-63	124.4	124.9	Sokoman	<0.00005	40
K-10-70-74.46	K-10-70	74.46	75	Sokoman	<0.00005	43
K-10-83-39.5	K-10-83	39.5	40	Sokoman	<0.00005	30
K-12-180-11.3	K-12-180	11.3	11.8	Wishart	<0.00005	7.9
K-12-180-18.2	K-12-180	18.2	18.7	Wishart	<0.00005	13
K-12-180-28.1	K-12-180	28.1	29.4	Wishart	<0.00005	8.8
K-12-182-435.8	K-12-182	435.8	436.3	Wishart	<0.00005	19
K-12-187-500.5	K-12-187	500.5	501	Wishart	<0.00005	77
K-12-192-249.4	K-12-192	249.4	249.9	Wishart	<0.00005	11
K-12-193-287.5	K-12-193	287.5	288	Wishart	<0.00005	21
K-12-199-131.5	K-12-199	131.5	132	Wishart	<0.00005	20
K-12-209-101.3	K-12-209	101.3	101.8	Wishart	<0.00005	23
K-12-213-10.7	K-12-213	10.7	11.2	Wishart	<0.00005	514



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Company	Material Type	pH	pH2	Acidity (as CaCO3)	Conductivity	Moisture	ORP	Alkalinity, total (as CaCO3)	Ammonia, total (as N)	Chloride	Fluoride	Nitrate (as N)	Nitrite (as N)	Phosphorus, total dissolved	Sulfate
Units							-	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration																				
MDMER Maximum Authorized Concentration in a Composite																				
MDMER Maximum Authorized Concentration in a Grab Sample																				
CCME Freshwater Aquatic Chronic														0.019	120	0.12	13			
CCME Freshwater Aquatic Acute							2								640		550			
K-11-100B-116	K-11-100B	116.25	117	Wishart	Okane	Mine Rock	7.18		<4	35	<0.25	250	13	<0.005	<0.5	0.097	0.006	<0.001	0.02	2.5
K-11-112A-174	K-11-112A	174.5	175	Wishart	Okane	Mine Rock	6.75		<4	18	<0.25	338	4.5	0.01	0.51	0.046	0.026	0.001	0.075	1.5
K-11-112A-217	K-11-112A	217.5	218	Wishart	Okane	Mine Rock	7.03		<4	38	<0.25	325	10	0.085	2.0	0.075	0.066	0.0088	0.23	2.0
K-11-137-291.5	K-11-137	291.5	292	Wishart	Okane	Mine Rock	7.4		<4	76	<0.25	302	15	0.036	0.63	0.099	0.025	<0.001	0.0068	13
K-11-147-308	K-11-147	308	308.5	Wishart	Okane	Mine Rock	7.66		<4	154	<0.25	239	26	0.028	1.6	0.15	0.072	0.0014	0.0026	38
K-11-147-362.3	K-11-147	362.3	362.83	Wishart	Okane	Mine Rock	7.79		<4	77	<0.25	250	25	0.016	1.6	0.097	0.058	0.0013	0.021	7.5
K-11-149-211.5	K-11-149	211.5	212	Wishart	Okane	Mine Rock	7.53		<4	92	<0.25	254	34	0.007	1.5	0.023	0.044	0.0022	0.0025	8.3
K-11-156-135	K-11-156	135	135.5	Wishart	Okane	Mine Rock	7.51		<4	209	0.4	187	37	0.014	7.1	0.09	0.31	0.0034	0.0032	49
K-11-159-291	K-11-159	291	291.5	Wishart	Okane	Mine Rock	7.5		<4	132	<0.25	232	23	0.023	2.8	0.057	0.071	<0.001	0.0057	32
K-08-08-122	K-08-08	122	122.63	Wishart	Okane	Mine Rock	8.84		<4	98	<0.25	194	33	0.069	0.69	0.04	0.055	0.0034	0.014	5.8
K-08-11-21.4	K-08-11	21.4	22	Wishart	Okane	Mine Rock	7.86		<4	119	<0.25	204	37	0.11	0.56	0.028	0.073	0.0048	0.021	7.1
K-08-11-28	K-08-11	28	28.68	Wishart	Okane	Mine Rock	8.8		<4	92	<0.25	215	46	0.01	1.1	<0.02	0.023	0.0023	0.003	1.9
K-08-18-325.18	K-08-18	324.63	325.18	Wishart	Okane	Mine Rock	7.72		<4	208	<0.25	199	42	0.038	1.0	0.084	0.086	<0.001	0.006	47
K-10-35-187.8	K-10-35	187.8	188.3	Wishart	Okane	Mine Rock	8.77		<4	85	<0.25	214	37	0.031	<0.5	<0.02	0.024	0.0021	0.0091	3.6
K-10-58-18.45	K-10-58	18.45	19.04	Wishart	Okane	Mine Rock	7.08		<4	29	<0.25	246	10	0.039	1.6	<0.02	0.025	<0.001	0.013	<0.5
K-10-58-21.97	K-10-58	21.97	22.5	Wishart	Okane	Mine Rock	7.92		<4	80	<0.25	160	41	0.014	1.7	<0.02	0.012	0.0022	0.0028	<0.5
K-10-58-24.28	K-10-58	24.28	25.1	Wishart	Okane	Mine Rock	7.26		<4	38	<0.25	234	13	0.098	2.8	<0.03	0.054	<0.001	0.072	<0.5
K-10-58-30.48	K-10-58	30.48	31.03	Wishart	Okane	Mine Rock	7.22		<4	39	<0.25	252	15	0.3	1.6	<0.03	0.13	0.0018	0.059	0.62
K-10-58-36.5	K-10-58	36.5	37.1	Wishart	Okane	Mine Rock	7.19		<4	23	<0.25	265	9.9	0.048	0.64	<0.02	<0.005	<0.001	0.024	<0.5
K-10-58-46.5	K-10-58	46.5	47	Wishart	Okane	Mine Rock	7.05		<4	20	<0.25	271	7.4	0.046	1.0	<0.02	0.031	<0.001	0.033	<0.5
K-10-58-57	K-10-58	57	57.5	Wishart	Okane	Mine Rock	7.11		<4	22	<0.25	272	8.4	0.032	1.5	<0.02	<0.005	<0.001	0.047	<0.5
K-10-63-117.5	K-10-63	117.5	118	Wishart	Okane	Mine Rock	7.97		<4	82	<0.25	152	35	0.019	1.2	0.11	0.027	0.0049	0.018	1.7
Year 1 @ 5 - Cobber Tails					Okane	Tailings			4.4	77	<0.25	281	29	0.096	0.56	0.028	0.031	0.012	0.019	2.7
Year 1 @ 5 - Finisher Tails					Okane	Tailings			<4	110	<0.25	294	44	0.0075	4.6	0.068	0.01	<0.001	0.12	5.3
Year 1 @ 5 - Gravity Flotation Tails					Okane	Tailings			<4	47	<0.25	159	22	0.056	0.62	0.045	0.025	0.016	0.015	1.9
High RN - Cobber Tails					Okane	Tailings			<4	73	<0.25	224	26	0.0072	1.6	0.091	0.025	0.0017	0.0096	8.0
High RN - Finisher Tails					Okane	Tailings			<4	75	<0.25	238	30	0.0065	3.3	0.081	0.02	0.0023	0.072	4.2
High RN - Gravity Flotation Tails					Okane	Tailings			<4	43	<0.25	185	16	0.065	0.56	0.028	0.027	0.011	0.063	1.9
High RC - Cobber Tails					Okane	Tailings			<4	74	<0.25	215	28	0.0058	1.9	0.11	0.015	<0.001	0.0029	5.9
High RC - Finisher Tails					Okane	Tailings			<4	75	<0.25	212	31	0.0092	2.5	0.029	0.015	0.0027	0.028	4.1
High RC - Gravity Flotation Tails					Okane	Tailings			<4	48	<0.25	226	19	0.07	0.58	0.024	0.025	0.015	0.0099	2.7



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Bromide	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration								0.1									0.1		0.08		
MDMER Maximum Authorized Concentration in a Composite								0.15									0.15		0.12		
MDMER Maximum Authorized Concentration in a Grab Sample								0.2									0.2		0.16		
CCME Freshwater Aquatic Chronic								0.005				1.5	0.0002		0.0089			0.3			
CCME Freshwater Aquatic Acute												29									
K-11-100B-116	K-11-100B	116.25	117	Wishart	<0.05	0.061	0.00018	<0.001	0.0015	<0.0005	<0.0005	<0.01	<0.00005	3.9	<0.0005	<0.0001	<0.001	0.57	<0.0001	<0.005	0.91
K-11-112A-174	K-11-112A	174.5	175	Wishart	<0.05	0.61	0.0003	<0.001	0.013	<0.0005	<0.0005	<0.01	<0.00005	1.0	0.0048	0.0025	0.004	2.8	0.00098	<0.005	0.31
K-11-112A-217	K-11-112A	217.5	218	Wishart	<0.05	1.1	0.00031	<0.001	0.028	<0.0005	<0.0005	<0.01	<0.00005	3.3	0.0049	0.0021	0.0068	6.2	0.0015	<0.005	1.1
K-11-137-291.5	K-11-137	291.5	292	Wishart	<0.05	0.66	0.0001	<0.001	0.006	<0.0005	<0.0005	<0.01	<0.00005	5.6	0.0012	0.00074	0.0013	0.58	0.00064	<0.005	2.4
K-11-147-308	K-11-147	308	308.5	Wishart	<0.05	0.58	0.00015	<0.001	0.013	<0.0005	<0.0005	<0.01	<0.00005	11	<0.0005	<0.0001	<0.001	0.077	<0.0001	<0.005	3.3
K-11-147-362.3	K-11-147	362.3	362.83	Wishart	<0.05	1.6	0.00018	<0.001	0.017	<0.0005	<0.0005	<0.01	<0.00005	6.7	0.00083	0.00039	<0.001	0.12	0.00048	<0.005	0.84
K-11-149-211.5	K-11-149	211.5	212	Wishart	0.067	0.019	<0.0001	<0.001	0.096	<0.0005	<0.0005	0.017	<0.00005	8.6	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.8
K-11-156-135	K-11-156	135	135.5	Wishart	<0.05	0.0084	<0.0001	<0.001	0.0047	<0.0005	<0.0005	<0.01	<0.00005	24	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	8.9
K-11-159-291	K-11-159	291	291.5	Wishart	<0.05	0.46	0.00018	<0.001	0.0062	<0.0005	<0.0005	<0.01	<0.00005	12	<0.0005	<0.0001	<0.001	0.06	0.00015	<0.005	2.8
K-08-08-122	K-08-08	122	122.63	Wishart	<0.05	0.21	0.00028	<0.001	0.0046	<0.0005	<0.0005	<0.01	<0.00005	9.6	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	4.0
K-08-11-21.4	K-08-11	21.4	22	Wishart	<0.05	0.098	0.00023	<0.001	0.077	<0.0005	<0.0005	<0.01	<0.00005	17	<0.0005	<0.0001	0.0014	0.071	<0.0001	0.0061	3.6
K-08-11-28	K-08-11	28	28.68	Wishart	<0.05	<0.005	0.0001	<0.001	0.066	<0.0005	<0.0005	0.027	<0.00005	11	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	5.3
K-08-18-325.18	K-08-18	324.63	325.18	Wishart	<0.05	0.032	0.0003	<0.001	0.083	<0.0005	<0.0005	<0.01	<0.00005	11	<0.0005	0.00032	<0.001	0.052	<0.0001	0.0085	12
K-10-35-187.8	K-10-35	187.8	188.3	Wishart	<0.05	0.026	0.0002	<0.001	0.053	<0.0005	<0.0005	0.11	<0.00005	8.8	<0.0005	<0.0001	<0.001	0.032	<0.0001	<0.005	4.7
K-10-58-18.45	K-10-58	18.45	19.04	Wishart	<0.05	0.053	0.00026	<0.001	0.0017	<0.0005	<0.0005	<0.01	<0.00005	3.0	<0.0005	0.00028	0.01	0.68	0.00025	<0.005	1.2
K-10-58-21.97	K-10-58	21.97	22.5	Wishart	<0.05	<0.005	0.00025	<0.001	0.0025	<0.0005	<0.0005	<0.01	<0.00005	6.9	<0.0005	<0.0001	<0.001	<0.03	<0.0001	<0.005	6.5
K-10-58-24.28	K-10-58	24.28	25.1	Wishart	<0.05	0.11	0.00067	<0.001	0.016	<0.0005	<0.0005	0.01	<0.00005	3.5	<0.0005	0.0002	<0.001	0.24	<0.0001	<0.005	1.5
K-10-58-30.48	K-10-58	30.48	31.03	Wishart	<0.05	0.18	0.001	<0.001	0.004	<0.0005	<0.0005	<0.01	<0.00005	3.9	<0.0005	0.00093	0.0034	0.71	0.0017	<0.005	1.9
K-10-58-36.5	K-10-58	36.5	37.1	Wishart	<0.05	0.13	0.00074	<0.001	0.0056	<0.0005	<0.0005	<0.01	<0.00005	2.6	<0.0005	0.00072	<0.001	0.66	0.00015	<0.005	1.2
K-10-58-46.5	K-10-58	46.5	47	Wishart	<0.05	0.071	0.00033	<0.001	0.0032	<0.0005	<0.0005	<0.01	<0.00005	1.9	<0.0005	0.00066	<0.001	0.17	<0.0001	<0.005	0.83
K-10-58-57	K-10-58	57	57.5	Wishart	<0.05	0.15	0.00044	<0.001	0.014	<0.0005	<0.0005	<0.01	<0.00005	2.3	0.00059	0.002	<0.001	0.25	0.00046	<0.005	0.92
K-10-63-117.5	K-10-63	117.5	118	Wishart	<0.05	1.6	0.00076	<0.001	0.012	<0.0005	<0.0005	<0.01	<0.00005	4.0	0.00057	<0.0001	<0.001	0.97	0.00022	<0.005	0.91
Year 1 @ 5 - Cobber Tails					<0.05	0.034	<0.0001	<0.001	0.01	<0.0005	<0.0005	<0.01	<0.00005	9.7	0.00052	<0.0001	<0.001	0.1	<0.0001	<0.005	2.0
Year 1 @ 5 - Finisher Tails					<0.05	0.048	0.00027	0.002	0.014	<0.0005	<0.0005	<0.01	<0.00005	14	0.0093	0.00035	0.0079	1.7	0.00014	0.0068	3.1
Year 1 @ 5 - Gravity Flotation Tails					<0.05	0.031	0.0001	<0.001	0.098	<0.0005	<0.0005	<0.01	<0.00005	5.7	<0.0005	<0.0001	0.029	<0.03	<0.0001	<0.005	0.92
High RN - Cobber Tails					<0.05	0.011	<0.0001	<0.001	0.001	<0.0005	<0.0005	<0.01	<0.00005	9.2	<0.0005	<0.0001	0.0019	0.097	<0.0001	<0.005	1.9
High RN - Finisher Tails					<0.05	0.032	0.00017	0.0014	0.0025	<0.0005	<0.0005	<0.01	<0.00005	8.0	0.01	0.00028	0.0059	1.6	0.00014	<0.005	2.8
High RN - Gravity Flotation Tails					<0.05	0.02	<0.0001	<0.001	0.0095	<0.0005	<0.0005	<0.01	<0.00005	5.2	<0.0005	0.00016	0.028	<0.03	<0.0001	<0.005	1.1
High RC - Cobber Tails					<0.05	0.032	<0.0001	0.0011	0.052	<0.0005	<0.0005	0.011	<0.00005	7.9	<0.0005	<0.0001	<0.001	0.071	<0.0001	<0.005	2.1
High RC - Finisher Tails					<0.05	0.011	0.00017	0.0027	0.026	<0.0005	<0.0005	<0.01	<0.00005	9.2	0.0049	0.0001	0.0042	0.51	<0.0001	<0.005	2.2
High RC - Gravity Flotation Tails					<0.05	0.02	<0.0001	<0.001	0.39	<0.0005	<0.0005	<0.01	<0.00005	6.7	<0.0005	<0.0001	0.017	<0.03	<0.0001	<0.005	0.8



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Manganese	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulfur	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
Units					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDMER Maximum Authorized Monthly Mean Concentration							0.25														0.4
MDMER Maximum Authorized Concentration in a Composite							0.38														0.6
MDMER Maximum Authorized Concentration in a Grab Sample							0.5														0.8
CCME Freshwater Aquatic Chronic						0.073	0.07036			0.001		0.00025							0.015		
CCME Freshwater Aquatic Acute																			0.033		
K-11-100B-116	K-11-100B	116.25	117	Wishart	0.04	0.0016	<0.0005	<0.3	2.3	<0.0005	2.7	<0.0005	0.39	0.0091	<0.5	<0.0001	<0.0005	<0.01	0.000053	<0.001	<0.01
K-11-112A-174	K-11-112A	174.5	175	Wishart	0.16	0.0015	0.0075	<0.3	2.8	<0.0005	2.9	0.000082	0.34	0.0029	<0.5	0.00012	<0.0005	0.033	0.00072	0.0034	<0.01
K-11-112A-217	K-11-112A	217.5	218	Wishart	0.46	0.0007	0.0056	<0.3	1.9	<0.0005	2.8	<0.00005	0.98	0.0078	0.71	<0.0001	<0.0005	0.022	0.00059	0.011	0.012
K-11-137-291.5	K-11-137	291.5	292	Wishart	0.13	0.0024	0.0034	<0.3	8.5	<0.0005	2.3	<0.00005	0.38	0.0086	5.1	<0.0001	<0.0005	0.018	0.00033	<0.001	<0.01
K-11-147-308	K-11-147	308	308.5	Wishart	0.0034	0.001	<0.0005	<0.3	19	<0.0005	2.1	<0.00005	1.0	0.037	14	<0.0001	<0.0005	<0.01	0.00028	0.0012	<0.01
K-11-147-362.3	K-11-147	362.3	362.83	Wishart	0.0046	0.00038	0.00099	<0.3	12	<0.0005	5.0	<0.00005	0.53	0.012	3.0	<0.0001	<0.0005	0.02	0.0013	0.0012	<0.01
K-11-149-211.5	K-11-149	211.5	212	Wishart	0.046	0.00031	<0.0005	<0.3	1.5	<0.0005	0.62	<0.00005	0.44	0.02	3.5	<0.0001	<0.0005	<0.01	0.000031	<0.001	<0.01
K-11-156-135	K-11-156	135	135.5	Wishart	0.06	0.003	<0.0005	<0.3	2.9	0.0072	2.4	<0.00005	1.0	0.031	19	<0.0001	<0.0005	<0.01	0.00061	<0.001	<0.01
K-11-159-291	K-11-159	291	291.5	Wishart	0.019	0.0012	0.0012	<0.3	11	<0.0005	3.2	<0.00005	1.0	0.014	11	<0.0001	<0.0005	<0.01	0.00011	<0.001	<0.01
K-08-08-122	K-08-08	122	122.63	Wishart	0.0014	0.0015	<0.0005	<0.3	7.3	0.00087	2.4	<0.00005	0.49	0.021	2.2	<0.0001	<0.0005	<0.01	0.000039	<0.001	<0.01
K-08-11-21.4	K-08-11	21.4	22	Wishart	0.15	0.0013	<0.0005	<0.3	4.3	0.00054	2.9	<0.00005	0.95	0.043	2.3	<0.0001	<0.0005	<0.01	0.00034	<0.001	<0.01
K-08-11-28	K-08-11	28	28.68	Wishart	0.039	0.0015	<0.0005	<0.3	0.36	<0.0005	1.9	<0.00005	0.2	0.012	0.53	<0.0001	<0.0005	<0.01	0.0004	<0.001	<0.01
K-08-18-325.18	K-08-18	324.63	325.18	Wishart	0.24	0.00071	0.00078	<0.3	24	<0.0005	1.5	<0.00005	0.61	0.035	21	<0.0001	<0.0005	<0.01	0.00037	<0.001	<0.01
K-10-35-187.8	K-10-35	187.8	188.3	Wishart	0.04	0.0024	<0.0005	<0.3	3.2	0.002	2.4	<0.00005	0.35	0.017	1.9	<0.0001	<0.0005	<0.01	0.00044	<0.001	<0.01
K-10-58-18.45	K-10-58	18.45	19.04	Wishart	0.065	0.0033	<0.0005	<0.3	1.2	<0.0005	5.0	<0.00005	0.61	0.0044	<0.5	<0.0001	<0.0005	<0.01	0.000053	<0.001	<0.01
K-10-58-21.97	K-10-58	21.97	22.5	Wishart	0.0011	0.00046	<0.0005	<0.3	0.7	<0.0005	4.4	<0.00005	0.38	0.0064	<0.5	<0.0001	<0.0005	<0.01	0.000025	0.0048	<0.01
K-10-58-24.28	K-10-58	24.28	25.1	Wishart	0.031	0.0025	0.00058	<0.3	1.2	<0.0005	7.8	<0.00005	0.89	0.0079	<0.5	<0.0001	<0.0005	<0.01	0.00009	0.0019	<0.01
K-10-58-30.48	K-10-58	30.48	31.03	Wishart	0.072	0.002	0.0012	<0.3	0.98	<0.0005	3.6	<0.00005	0.71	0.0058	<0.5	<0.0001	<0.0005	<0.01	0.00011	0.0013	<0.01
K-10-58-36.5	K-10-58	36.5	37.1	Wishart	0.07	0.0018	0.0013	<0.3	0.37	<0.0005	5.4	<0.00005	0.17	0.0052	<0.5	<0.0001	<0.0005	<0.01	0.000053	0.0013	<0.01
K-10-58-46.5	K-10-58	46.5	47	Wishart	0.061	0.00049	0.0011	<0.3	0.65	<0.0005	2.8	<0.00005	0.31	0.0042	<0.5	<0.0001	<0.0005	<0.01	0.000016	<0.001	<0.01
K-10-58-57	K-10-58	57	57.5	Wishart	0.061	0.00054	0.0013	<0.3	0.36	<0.0005	13	<0.00005	0.4	0.0086	<0.5	<0.0001	<0.0005	<0.01	0.000046	<0.001	<0.01
K-10-63-117.5	K-10-63	117.5	118	Wishart	0.0074	0.00058	<0.0005	<0.3	21	<0.0005	5.6	<0.00005	0.56	0.0056	0.74	<0.0001	<0.0005	0.022	0.0003	0.0012	<0.01
Year 1 @ 5 - Cobber Tails					0.02	0.016	<0.0005	<0.3	1.1	<0.0005	1.8	<0.00005	1.5	0.016	2.1	<0.0001	<0.0005	<0.01	0.00012	<0.001	<0.01
Year 1 @ 5 - Finisher Tails					0.13	0.04	0.0036	<0.3	1.9	<0.0005	11	<0.00005	3.9	0.034	1.9	<0.0001	<0.0005	<0.01	0.000073	0.0036	<0.01
Year 1 @ 5 - Gravity Flotation Tails					0.012	0.0028	<0.0005	<0.3	0.52	<0.0005	0.51	<0.00005	0.58	0.025	0.62	<0.0001	<0.0005	<0.01	<0.00001	<0.001	<0.01
High RN - Cobber Tails					0.02	0.011	0.0011	<0.3	1.2	<0.0005	1.6	<0.00005	1.4	0.0094	2.6	<0.0001	<0.0005	<0.01	0.000066	<0.001	<0.01
High RN - Finisher Tails					0.08	0.026	0.0024	<0.3	0.96	<0.0005	6.8	<0.00005	2.0	0.016	1.5	<0.0001	<0.0005	<0.01	0.000022	0.0028	<0.01
High RN - Gravity Flotation Tails					0.012	0.0036	<0.0005	<0.3	0.37	<0.0005	0.4	<0.00005	0.48	0.012	0.62	<0.0001	<0.0005	<0.01	<0.00001	<0.001	<0.01
High RC - Cobber Tails					0.06	0.013	<0.0005	<0.3	1.7	<0.0005	2.2	<0.00005	2.2	0.022	2.0	<0.0001	<0.0005	<0.01	0.00014	<0.001	<0.01
High RC - Finisher Tails					0.087	0.019	0.002	<0.3	1.2	<0.0005	7.4	<0.00005	1.8	0.027	1.5	<0.0001	<0.0005	<0.01	0.000035	0.0048	<0.01
High RC - Gravity Flotation Tails					0.044	0.0027	<0.0005	<0.3	0.45	<0.0005	0.55	<0.00005	0.51	0.023	1.0	<0.0001	<0.0005	<0.01	0.000012	<0.001	<0.01



Appendix B Shake Flask Extractions

Sample ID	Borehole ID	From (m)	To (m)	Formation	Mercury	Hardness (as CaCO ₃)
Units					mg/L	mg CaCO ₃ /L
MDMER Maximum Authorized Monthly Mean Concentration						
MDMER Maximum Authorized Concentration in a Composite						
MDMER Maximum Authorized Concentration in a Grab Sample						
CCME Freshwater Aquatic Chronic						
CCME Freshwater Aquatic Acute						
K-11-100B-116	K-11-100B	116.25	117	Wishart	<0.00005	13
K-11-112A-174	K-11-112A	174.5	175	Wishart	<0.00005	3.8
K-11-112A-217	K-11-112A	217.5	218	Wishart	<0.00005	13
K-11-137-291.5	K-11-137	291.5	292	Wishart	<0.00005	24
K-11-147-308	K-11-147	308	308.5	Wishart	<0.00005	42
K-11-147-362.3	K-11-147	362.3	362.83	Wishart	<0.00005	20
K-11-149-211.5	K-11-149	211.5	212	Wishart	<0.00005	41
K-11-156-135	K-11-156	135	135.5	Wishart	<0.00005	97
K-11-159-291	K-11-159	291	291.5	Wishart	<0.00005	41
K-08-08-122	K-08-08	122	122.63	Wishart	<0.00005	41
K-08-11-21.4	K-08-11	21.4	22	Wishart	<0.00005	57
K-08-11-28	K-08-11	28	28.68	Wishart	<0.00005	50
K-08-18-325.18	K-08-18	324.63	325.18	Wishart	<0.00005	77
K-10-35-187.8	K-10-35	187.8	188.3	Wishart	<0.00005	41
K-10-58-18.45	K-10-58	18.45	19.04	Wishart	<0.00005	12
K-10-58-21.97	K-10-58	21.97	22.5	Wishart	<0.00005	44
K-10-58-24.28	K-10-58	24.28	25.1	Wishart	<0.00005	15
K-10-58-30.48	K-10-58	30.48	31.03	Wishart	<0.00005	18
K-10-58-36.5	K-10-58	36.5	37.1	Wishart	<0.00005	11
K-10-58-46.5	K-10-58	46.5	47	Wishart	<0.00005	8.1
K-10-58-57	K-10-58	57	57.5	Wishart	<0.00005	9.6
K-10-63-117.5	K-10-63	117.5	118	Wishart	<0.00005	14
Year 1 @ 5 - Cobber Tails					<0.00005	32
Year 1 @ 5 - Finisher Tails					<0.00005	47
Year 1 @ 5 - Gravity Flotation Tails					<0.00005	18
High RN - Cobber Tails					<0.00005	31
High RN - Finisher Tails					<0.00005	32
High RN - Gravity Flotation Tails					<0.00005	18
High RC - Cobber Tails					<0.00005	28
High RC - Finisher Tails					<0.00005	32
High RC - Gravity Flotation Tails					<0.00005	20



Appendix B Tailings Supernatant Water Quality

Sample ID	High RN Blend	High RN Blend-Dup	SL-Blank (Long Lake Water)	Tail Year 01-05 (Gravity Flotation Stream)	High RN Floff (Gravity Flotation Stream)	High RC floff (Gravity Flotation Stream)	Eau Ville (Quebec City Water)
Conductivity	240	244	23	261	229	229	172
Alkalinity (as CaCO ₃)	63.5	88.9	8.3	99.1	66.9	69.8	23.3
Hardness (as CaCO ₃), dissolved	66.7	66.9	9.33	45.7	51.1	56.7	44.6
Hardness (as CaCO ₃), from total Ca/Mg				47.2	53.2	54.5	48.6
TDS	156	172	14.6	188	140	150	100
Solids, total suspended [TSS]				18.1	7.2	4.4	<3.0
Turbidity				28.2	37.8	26.3	0.64
pH	7.61	7.79	7.06	9.36	8.83	8.97	7.55
Ammonia (as N)	0.0523	0.049	<0.0050	0.112	0.0642	0.0542	0.0071
Bromide				<0.050	<0.050	<0.050	<0.050
Chloride	7.75	7.85	0.55	20.6	14.2	13	19.7
Fluoride	0.272	0.275	<0.020	0.143	0.051	0.05	0.044
Nitrate (as N)	0.033	0.024	0.043	0.148	0.143	0.129	0.122
Nitrite (as N)	0.02	0.013	<0.010	0.0053	0.0142	0.0094	<0.0010
Nitrogen, total	0.519	0.517	0.228	8.86	5.78	4.99	0.219
Phosphate, ortho-, dissolved (as P)				0.0237	0.0232	0.0076	0.04
Phosphorus, total	0.0171	0.0169	0.0086	0.0604	0.0398	0.0338	0.0849
Sulphate	53.1	53.9	0.89	24.4	33.5	34.4	22.9
Carbon, dissolved organic [DOC]				<0.50	<0.50	23.4	3.07
Carbon, total organic [TOC]	2.49	2.49	6.9	30.1	25.2	21.4	2.75
Sulfide, total (as S)	<0.0150	<0.0150	<0.0015	<0.010	<0.010	<0.010	<0.010
Sulfide, total (as H ₂ S)	<0.0160	<0.0160	<0.0016	<0.011	<0.011	<0.011	<0.011
Aluminum, total	1.61	21	0.0825	0.0677	0.0953	0.0704	0.147
Antimony, total	0.00069	<0.00200	<0.00010	<0.00010	0.00013	0.00012	0.00019
Arsenic, total	0.0115	0.0301	0.0001	0.0003	0.00129	0.00192	0.00258
Barium, total	0.29	2.83	0.01	0.00972	0.00973	0.0921	0.026
Beryllium, total	0.00117	0.0114	<0.000020	<0.000100	<0.000100	<0.000100	<0.000100
Bismuth, total	<0.000250	0.00131	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	<0.050	<0.200	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, total	0.000219	0.00222	<0.0000050	0.000011	<0.0000100	<0.0000050	0.00001
Calcium, total	65.8	492	3.15	16.2	18.5	18.4	16.4
Cesium, total	0.000857	0.0104	<0.000010	<0.000010	0.000084	0.000075	0.000052
Chromium, total	0.173	2.17	<0.00050	<0.00050	0.00207	0.00126	0.0044
Cobalt, total	0.0269	0.256	<0.00010	<0.00010	0.00033	0.00018	0.00069
Copper, total	0.179	1.68	0.00096	0.0832	0.0138	0.0121	0.024
Iron, total	108	1080	0.058	0.204	1.16	0.776	2.91
Lead, total	0.00716	0.0713	<0.000050	0.00195	0.000097	0.000098	0.000212
Lithium, total	0.0083	0.0464	<0.0010	<0.0010	0.002	0.0014	0.0018
Magnesium, total	30.7	303	0.974	1.64	1.71	2.08	1.85
Manganese, total	27.9	268	0.00208	0.0084	0.241	0.164	0.418
Mercury, total	0.000018	0.0000174	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	0.0192	0.0206	0.000094	0.000292	0.00742	0.00621	0.00618
Nickel, total	0.0758	0.846	0.00059	0.0007	0.00093	0.00062	0.00223
Phosphorus, total	0.0171	0.0169	0.0086	0.0604	0.0398	0.0338	0.0849
Potassium, total	9.26	18.2	2.08	0.846	1.03	1.1	1.87
Rubidium, total	0.0103	0.0664	0.00227	0.00148	0.00223	0.00264	0.00259
Selenium, total	0.000368	<0.00100	<0.000050	<0.000050	0.000128	0.000122	0.000171
Silicon, total	11.1	73.6	1.3	2.32	2.4	2.86	2.64
Silver, total	0.000186	0.00142	<0.000010	0.000038	<0.000010	<0.000010	0.000082
Sodium, total	16.7	18	0.815	12.6	22.5	21.1	34.2
Strontium, total	0.0923	0.597	0.0239	0.0746	0.0527	0.0671	0.0604
Sulfur, total	18.6	18	<0.50	7.86	12.3	12.7	9.44
Tellurium, total	<0.00100	<0.00400	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, total	0.000092	0.000951	<0.000010	<0.000010	0.000011	<0.000010	<0.000010
Thorium, total	0.00109	0.00752	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	0.0109	0.0345	<0.00010	<0.00010	0.00037	0.0002	0.00049
Titanium, total	0.0423	0.398	0.00072	<0.00030	0.0008	0.0009	0.00195
Tungsten, total	<0.00050	<0.00200	<0.00010	<0.00010	0.00023	0.00026	0.00019
Uranium, total	0.000765	0.00539	0.000031	0.00001	0.000115	0.00007	0.0001
Vanadium, total	0.0206	0.336	<0.00050	<0.00050	0.00052	0.0007	0.0016
Zinc, total	0.0888	0.902	0.0089	0.0187	0.0053	0.0045	0.0052
Zirconium, total	0.0013	0.00975	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Aluminum, dissolved	0.005	0.0049	0.0742	0.0994	0.0756	0.0439	0.0376



Appendix B Tailings Supernatant Water Quality

Sample ID	High RN Blend	High RN Blend-Dup	SL-Blank (Long Lake Water)	Tail Year 01-05 (Gravity Flotation Stream)	High RN Flott (Gravity Flotation Stream)	High RC flott (Gravity Flotation Stream)	Eau Ville (Quebec City Water)
Antimony, dissolved	0.00015	0.00015	<0.00010	0.0001	<0.00010	0.0001	<0.00010
Arsenic, dissolved	0.00036	0.00033	<0.00010	0.00196	0.00109	0.00177	0.00024
Barium, dissolved	0.00347	0.00328	0.00726	0.00981	0.00489	0.0691	0.0103
Beryllium, dissolved	<0.000020	<0.000020	<0.000020	<0.000100	<0.000100	<0.000100	<0.000100
Bismuth, dissolved	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, dissolved	0.0000055	0.0000056	<0.0000050	<0.0000100	<0.0000050	<0.0000050	0.0000099
Calcium, dissolved	18	18.1	2.41	15.2	17.6	19.5	14.9
Cesium, dissolved	0.000018	0.00002	<0.000010	0.000052	0.000076	0.000072	<0.000010
Chromium, dissolved	0.00139	0.00142	<0.00050	0.00056	0.00106	<0.00050	<0.00050
Cobalt, dissolved	0.00035	0.00035	<0.00010	0.00014	<0.00010	<0.00010	<0.00010
Copper, dissolved	0.00696	0.00692	0.00073	0.0225	0.0118	0.00934	0.063
Iron, dissolved	0.106	0.114	0.047	0.195	0.183	0.07	0.077
Lead, dissolved	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.00074
Lithium, dissolved	0.0042	0.0042	<0.0010	0.0018	0.0013	0.0014	<0.0010
Magnesium, dissolved	5.29	5.27	0.805	1.89	1.74	1.95	1.81
Manganese, dissolved	0.0532	0.0525	0.00047	0.0245	0.0236	0.03	0.00568
Mercury, dissolved	<0.0000050	<0.0000050	<0.0000050	<0.0000250	<0.0000500	<0.0000500	<0.0000050
Molybdenum, dissolved	0.0281	0.0286	0.000077	0.00706	0.00785	0.006	0.000301
Nickel, dissolved	0.00227	0.0023	<0.00050	0.00103	0.0005	<0.00050	0.00064
Phosphorus, dissolved	<0.050	<0.050	<0.050	0.057	<0.050	<0.050	0.062
Potassium, dissolved	8.12	8.3	0.804	2.31	1.09	1.11	0.976
Rubidium, dissolved	0.00564	0.00554	0.00154	0.00284	0.00235	0.0024	0.00153
Selenium, dissolved	0.000342	0.00039	<0.000050	0.000201	0.000156	0.000153	<0.000050
Silicon, dissolved	3.49	3.55	1.18	2.32	2.36	2.76	2.26
Silver, dissolved	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	15.1	15.1	0.628	37.6	24.2	21.2	13.9
Strontium, dissolved	0.037	0.0385	0.00945	0.0594	0.0528	0.0711	0.0751
Sulfur, dissolved	20.4	20.4	<0.50	8.28	11.8	12.1	8.2
Tellurium, dissolved	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, dissolved	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, dissolved	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, dissolved	0.00089	0.00093	<0.00010	0.00045	0.00067	0.00049	<0.00010
Titanium, dissolved	<0.00030	<0.00030	0.00044	<0.00030	<0.00030	0.00031	<0.00030
Tungsten, dissolved	0.00013	0.00013	<0.00010	0.00029	0.00024	0.00025	<0.00010
Uranium, dissolved	0.000227	0.000223	0.000035	0.000095	0.000089	0.000053	<0.000010
Vanadium, dissolved	<0.00050	<0.00050	<0.00050	0.00129	<0.00050	0.00053	<0.00050
Zinc, dissolved	<0.0010	<0.0010	0.002	0.001	0.0016	0.0017	0.0172
Zirconium, dissolved	<0.00030	<0.00030	<0.00030	<0.00020	<0.00020	<0.00020	<0.00020



Appendix B

Naturally Occurring Radioactive Materials

Sample ID	Formation/ Material	Radium-228	Thorium-228	Thorium-230	Radium-226	Lead-210	Potassium-40	Thorium-232 calculated	Uranium-234 calculated	Uranium-235 calculated	Uranium-238 calculated	Sum of Ratios
		Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g	Bq/g
Unconditional Release Limit		0.3	0.3	10	0.3	0.3	17	10	-	-	10	1
K-11-166-271	Denault	<0.004	<0.002	<0.2	<0.04	<0.02	<0.03	<0.001	0.003	0.0002	0.003	0.24
K-12-174-175.9	Denault	<0.003	<0.002	<0.08	<0.02	<0.01	<0.02	<0.001	0.002	0.00008	0.002	0.12
K-11-108-103.5	Katsao	0.03	0.018	<0.3	<0.06	<0.04	<0.2	0.018	0.015	0.0007	0.015	0.54
K-11-108-180.3	Katsao	0.14	0.15	<0.4	<0.07	<0.04	1.8	0.12	0.028	0.0014	0.028	1.5
K-11-108-218	Katsao	0.04	0.04	<0.4	0.2	0.05	1.7	0.033	0.06	0.003	0.06	1.2
K-11-112A-113.8	Katsao	0.04	0.039	<0.4	0.08	0.04	1.9	0.028	0.027	0.0014	0.027	0.82
K-11-112A-166.8	Katsao	0.07	0.069	<0.4	0.2	0.05	2.2	0.052	0.06	0.003	0.06	1.5
K-10-59-182.2	Menihek	0.01	0.012	<0.3	0.1	<0.04	0.19	0.014	0.068	0.0034	0.068	0.58
K-10-61-260.5	Menihek	0.06	0.05	0.6	0.4	0.3	0.9	0.037	0.29	0.014	0.29	2.8
K-10-70-466.35	Menihek	<0.008	0.007	<0.2	0.08	<0.02	0.11	0.006	0.027	0.0013	0.027	0.41
K-10-83-659.7	Menihek	0.04	0.04	0.8	0.5	0.4	0.8	0.027	0.45	0.023	0.45	3.4
K-12-179-168.5	Menihek	0.07	0.07	<0.6	0.2	0.1	0.9	0.054	0.14	0.0069	0.14	1.6
K-12-194-101.5	Menihek	0.06	0.05	<0.5	0.1	0.1	0.61	0.042	0.12	0.0061	0.12	1.1
K-08-08-31	Sokoman	0.06	0.054	<0.4	0.1	0.07	<0.07	0.001	0.002	0.0001	0.002	0.99
K-10-45-191.5	Sokoman	0.05	0.06	1	1.2	0.7	0.8	0.06	1.5	0.073	1.5	6.8
K-11-135-48.5	Sokoman	0.08	0.07	<0.4	0.2	0.1	1	0.058	0.078	0.0039	0.078	1.6
K-12-194-199.7	Sokoman	0.02	0.02	<0.2	0.04	0.04	0.19	0.014	0.04	0.002	0.04	0.43
K-11-135-182.5	Wishart	0.01	0.006	<0.1	<0.02	<0.02	<0.05	0.005	0.01	0.0005	0.01	0.2
K-11-147-303.2	Wishart	<0.002	0.003	<0.1	<0.02	<0.02	<0.02	0.002	0.003	0.0001	0.003	0.16
K-11-153-181.8	Wishart	0.03	0.021	<0.2	0.09	<0.02	0.44	0.012	0.025	0.0012	0.025	0.58
K-11-159-297.2	Wishart	0.08	0.079	<0.4	0.1	<0.03	1.8	0.062	0.02	0.001	0.02	1.1
K-08-12-27.35	Overburden	<0.004	<0.003	<0.2	<0.05	<0.03	<0.03	0.001	0.001	<0.00006	0.001	0.31
K-10-28-23	Overburden	<0.006	0.004	<0.3	<0.03	<0.03	0.12	0.004	0.007	0.0004	0.007	0.27
K-12-185-66.3	Overburden	0.06	0.054	<0.4	0.09	0.07	0.74	0.048	0.073	0.0037	0.073	1
YEAR 1 @5 - COBBER TAILS	Tailings	<0.007	<0.003	<0.2	<0.06	<0.02	<0.04	0.001	0.003	0.0002	0.003	0.32
YEAR 1 @5 - FINISHER TAILS	Tailings	<0.006	<0.003	<0.2	<0.03	<0.03	<0.01	0.001	0.001	<0.00006	0.001	0.25
YEAR 1 @5 - GRAVITY FLOTATION	Tailings	0.006	0.002	<0.1	<0.02	<0.02	<0.1	0.001	0.002	0.0001	0.002	0.18

Highlighted cells exceed unconditional release limit.

Appendix C

Geochemical Characterization Phase I Report

Kami Geochemical Characterization Report – Phase I Static Testing

April 24, 2024



CHAMPION IRON 



Kami Geochemical Characterization Report – Phase I Static Testing

0923-224-003

April 2024

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Rev. #	Status	Rev. Date	Author	Reviewer Sign-off	Major Changes
0	DRAFT	January 12 2024	KR/JP	HD	
1	FINAL	April 24 2024	KR	GA	Recommendations for future work removed

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EXECUTIVE SUMMARY

Okane Consultants (Okane) was retained by Champion Iron Mine Ltd. (Champion) to characterize metal leaching/acid rock drainage (ML/ARD) risk of units identified as future mine rock during the mining operations of the Kamistatusset Iron Ore Mine Project (Kami Project). To meet updated best practice guidelines for this stage of the project, Okane (2023a) recommended additional samples be collected and analyzed for static and kinetic testing. In this report, Okane uses previous work characterizing ML/ARD risk by Stantec (2013) and provides a comparison based on interpretations of initial static test results (i.e. acid-base accounting (ABA) and whole rock analysis) received to date. Additional samples have been submitted by Okane for humidity cell testing, shake-flask extraction, and x-ray diffraction analysis, however, results from these analyses were not available at the time of drafting this report.

Results from the current characterization program are generally consistent with previous analyses. ABA indicate that potentially acid generating (PAG) material is present in all mine rock units except for the Denault, although most of the PAG samples were concentrated in the Menihek Formation (particularly the graphitic schist lithology). However, more samples were identified as PAG within the Sokoman and Wishart Formations within the new sample set, which may be related to different block models used between the two studies or naturally occurring heterogeneities. Statistical comparisons of static testing results from the Stantec and Okane datasets indicate that no statistically significant variation was observed for key metal(loid)s of concern and for ABA parameters, except for in Sokoman Formation samples. ANOVA testing completed on PAG classification results from each dataset indicated that no statistically significant differences existed in the PAG and Uncertain samples. However, statistically significant differences between the distribution of non potentially acid generating (NPAG) samples in Kami mine rock was observed, indicating potential differences in total carbon measurements and carbonate buffering potential between datasets. This report explored the availability of sufficient neutralization potential (NP) to neutralize potential acidity generated given the latest static test results and updated mine rock volumes planned for the Tailings Management Facility (TMF) dam embankment. Following guidelines from Price (2009), a neutralization potential ratio (NPR) >2 indicates that there is sufficient NP to classify mine rock as NPAG. After removing an estimated 82.4 Mt of NPAG mine rock required for the TMF dam embankment, the total average and median NPR values were 5.0 and 7.2 respectively for the remaining rock in the Mine Rock Stockpile (MRS), indicating that there is sufficient NP available to neutralize potential acidity generated from sulfide oxidation.

Whole rock analysis results indicate that several potential contaminants of concern (including Ag, Bi, Cd, S, Se, Te, and U) were high relative to global crustal abundances. However, high relative crustal abundance is not indicative of their release. Additional ongoing test work will be used to investigate implications for metal release.

Cross sections of the Kami Project deposit were developed showing sample locations and their respective neutralization potential ratios (NPR). Interpretation of these results show that zones of PAG mine rock may be present at relatively shallow depths in the Kami deposit. While sufficient neutralization

NP is available within the deposit to buffer acid potential (AP) generated, this assumes mine rock will be sufficiently blended over the life of mine to prevent development of acidic zones or initial sulfide oxidation at the surface during early years of mine life. Consideration for the extraction or deposition schedule of these zones may be required to ensure a well mixed MRS and TMF embankments to avoid high-risk pockets. To address this, Champion should manage PAG extracted during the construction phase (likely through temporary stockpiling) and during the operations phase to ensure sufficient NP is available to neutralize acidity through blending of crushed rock placed the MRS. Details of PAG management will be addressed in the waste management plan.

This report acts as an initial interpretation of the overall geochemical characterization program planned for the Kami Project and further refines the understanding of ML/ARD risk for mine rock units at the Kami Project. The interpretation of on-going static and kinetic analyses anticipated for later versions of this report will provide further refinement to the findings communicated here.

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1 INTRODUCTION

Okane Consultants (Okane) was retained by Champion Iron Mines Ltd. (Champion) to complete a geochemical characterization program for the Kamistatusset Iron Ore Mine Project (Kami Project). To appropriately plan for closure and rehabilitation of the proposed developments at the Kami Project, a full understanding of the geochemical nature of anticipated mine rock, overburden, and tailings materials from the Rose Pit are required. Geochemical characterization studies were recommended (Okane, 2023a) to meet commitments from the 2014 ministerial release (Shea, J., 2014) to better inform the potential for metal leaching/acid rock drainage (ML/ARD) and environmental risks resulting from mined materials. These studies will inform operational waste management practices as well as mine closure strategies and landform designs in the future.

Champion requested this work to be released in a phased approach to support Champion's ongoing deliverables towards the Pre-feasibility Study and to receive updates as results are obtained from the acquired laboratory services. In this preliminary Phase I report, an analysis of static test results received to date for mine rock geochemistry are compared to results from material characterization work previously undertaken by Alderon Iron Ore (WorleyParsons, 2014).

In addition, Okane is currently developing geochemical source terms for a parallel project to be used in a site-wide water quality water balance model (WQWBM) led by Lorax Environmental Inc. Current source terms use results from previous geochemical characterization work completed by Stantec (2013). To support confidence in using the Stantec dataset in terms of result quality and representativeness, comparison between the Stantec and Okane datasets are provided herein.

1.1 Project Objectives and Scope

An overarching objective of this project is to complete a geochemical characterization program that will address conditions from the 2014 release which may be used to inform on waste management strategies. The current geochemical characterization program (Okane, 2023a) includes sample recommendations to build upon previous characterization work, using existing core samples for geochemical analysis of representative samples for mine rock and tailings materials currently undergoing testing with Soutex Inc. The scope of this Phase I report includes comparison of previous sample analysis from Stantec (2012, 2013 - herein referred to as "Stantec" samples) to the most recently analyzed static samples (referred to in this report as "Okane" samples). The current draft report only includes static test results from mine rock received to date.

The purpose of this Phase I report includes:

- 1) Summarize static test results received to date (Acid Base Accounting (ABA) and whole rock).

- 2) Confirm static test results by Stantec are in alignment with the static test results received to date by Okane (ABA and whole rock).
- 3) Confirm previous ABA classification.
 - a. Confirmation of ABA characterization will support parallel work conducted by Okane to develop the source terms for the water quality water balance model being developed by Lorax.

1.2 Report Organization

For convenient reference, this report has been subdivided into the following sections:

- Section 2 – Background information including the geology, previous geochemical characterization study findings, and planned mine rock tonnages referenced throughout this report;
- Section 3 – Methods for sample section used in Okane's geochemical characterization program and laboratory analysis methods selected;
- Section 4 – Results of ABA and whole rock analysis from Okane samples received to date and Stantec datasets, and results from statistical tests that compare these datasets; and
- Section 5 – Discussion of the results and implications.

2 BACKGROUND

Previous ML/ARD characterization of the mine rock, overburden, ore, and tailings materials were conducted in three phases by Stantec Consulting Ltd. (Stantec) (2012; 2013) and WorleyParsons Ltd. (WorleyParsons) (2014). Phase III (WorleyParsons, 2014) involved reclassification of ABA and interpretation of the analyses and sampling program completed in Phases I and II by Stantec (2012, 2013). Okane completed background review of this work in the Geochemical Characterization Program Memorandum (Okane, 2023a) to support the geochemical sampling and analysis recommendations.

2.1 Site Description

The Kami Project is a high-grade iron ore project located in the Labrador Trough geological belt in southwestern Newfoundland along the Québec border, near the town of Fermont. The deposit is currently planned to be mined over a 26 year period. Mine rock excavated from the Rose Pit is planned to be blasted and crushed using an in-pit crusher, then moved via a conveyor towards the Mine Rock Stockpile (MRS) to be deposited (Figure 2.1). Overburden will be shoveled and taken to the Overburden Stockpile (OVBS).

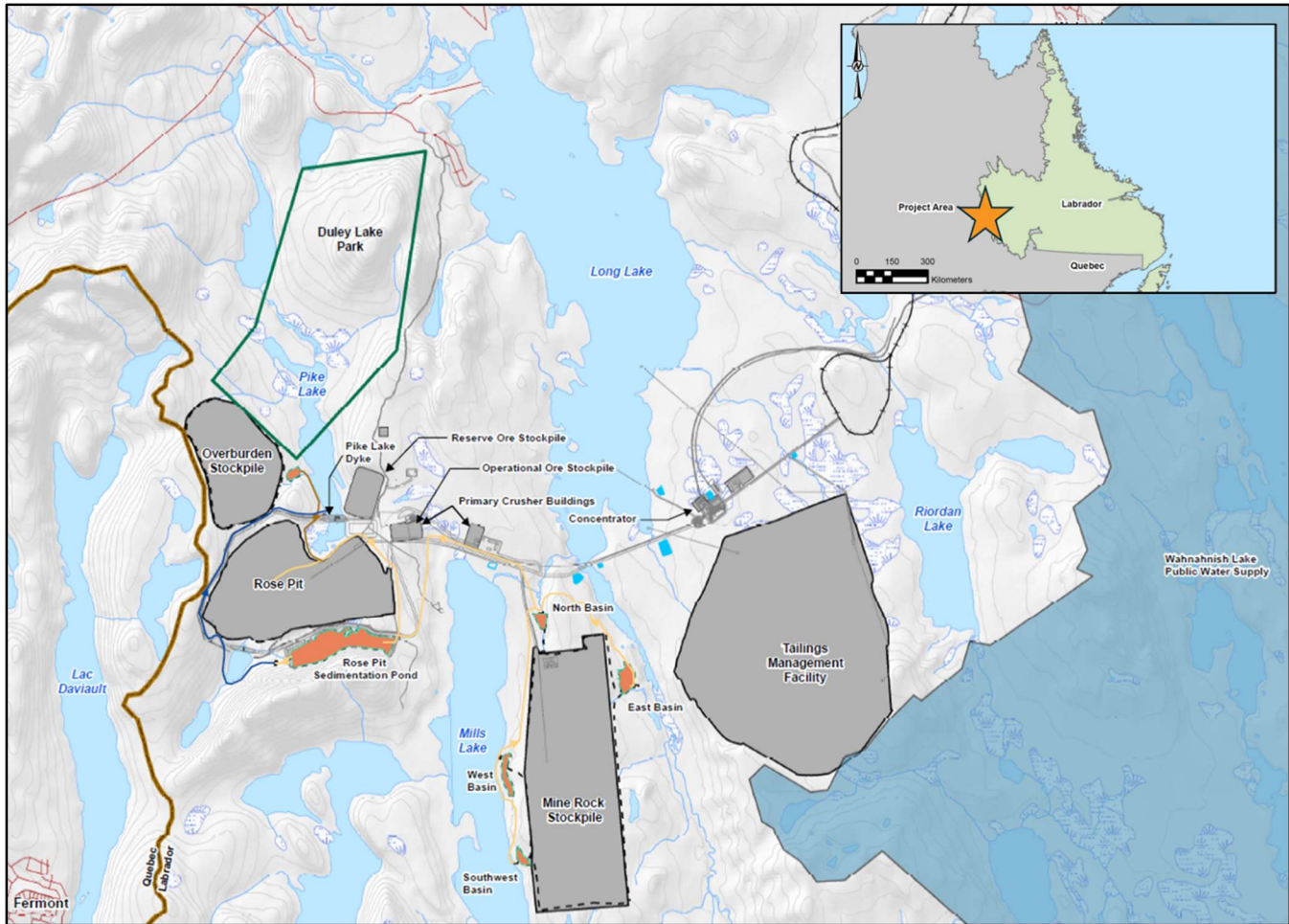


Figure 2.1: Layout and footprints of major mine material storage facilities for the Kami Project.

Modified from WSP 2023.

2.2 Geology

The Project is situated in the metamorphosed and deformed metasedimentary sequence of the Grenville Province, Gagnon Terrane of the Labrador Trough. Metamorphism is responsible for recrystallization of both iron oxides and silica in primary iron formation, producing coarse-grained sugary quartz, magnetite, and specular hematite schist or gneiss (Stantec, 2012). There are five major formations identified in the planned Rose Pit to be mined over the proposed Kami Project:

- 1) The Denault Formation consists of dolomitic marble with interlocking grains and generally is a competent unit. Bands of quartzite are common.
- 2) The Katsao Formation is represented by coarse leuco- and melanocratic banded gneiss with potassium and plagioclase feldspars, various micas, and quartz. It is typically free of sulfides, graphite, and carbonates.

- 3) The Menihek Formation consists of fine mica schist (variable muscovite and biotite with low quartz) and graphitic mica schist with traces of pyrrhotite (sulfide) mostly developed as irregular lenses in the basal 50 m. The formation often contains amphibole-biotite-garnet gneiss. The Menihek Formation, which has been identified as a risk of long-term acidity generating and previously classified as PAG, demonstrates complex geology and includes banded lithologies. Previous core logging work has identified interbedding of Sokoman and Menihek formations (WorleyParsons, 2014).
- 4) The Sokoman Iron Formation consists of metataconite (ore) and associated ankeritic marble-quartz-Fe-silicate gneiss. Mineral grains are generally medium- to coarse-grained and interlocking, making the rock coherent. Sokoman footwall in the Rose Central Pit between the Wishart formation and the ore zone consists of mostly quartz and Fe-silicates. Sokoman non-ore formation in contact with the Menihek formation contains an undefined mix of silicates and carbonates.
- 5) The Wishart Formation is represented by granular quartzite and mica-quartz schist with disseminated calcite near the top.

2.3 Material Tonnages

Champion advised to use previous tonnages to develop a percentage breakdown of each formation, which was applied to more recent tonnages of expected mine rock removal from the pit (Table 2.1). 82.5 Mt of crushed non-potentially-acid generating (NPAG) material will be used to construct the Tailings Management Facility (TMF) Dam Embankment (A. Ghirian, personal communication, November 29, 2023), which is assumed to be equally divided between Sokoman and Wishart Formation mine rock. The MRS will be constructed of 105.6 Mt of overburden material.

Table 2.1: Tonnages of mine rock placed in storage facilities by formation.

Formation	MRS	TMF Dam Embankment (Mine Rock)	Overburden Stockpile	Percentage of MRS	Percentage of Total Material from Rose Pit
Denault	21,969,349			3%	2%
Katsao	53,903,758			6%	5%
Menihek	288,509,265			34%	28%
Overburden			105,600,000	0%	10%
Sokoman	264,367,614	41,234,712		31%	29%
Wishart	224,714,039	41,234,712		26%	26%
Total	853,428,428	82,469,424	105,600,000		100%

2.4 Previous Geochemical Characterization Work

Okane (2023a) completed a background review of previous geochemical characterization performed on the Kami Project. A phased approach was taken by Stantec and intended to screen materials produced during the project for ML/ARD risk (Stantec, 2012; 2013). Following this, WorleyParsons (2014) completed an ABA assessment of mine rock lithologies, which included some reassessment of ABA classification. Conclusions from the previous geochemical characterization work (Stantec, 2013; WorleyParsons, 2014) are summarized below:

- Ore, concentrate, and tailings are considered NPAG, with low metal-leaching potential based on static tests.
- Overburden contains 8.1% of PAG materials with some shake-flask extraction (SFE) samples exceeding Metal Mining Effluent Regulation (MMER) guidelines for Cu, Ni, and Zn.
- Most formations extracted from the Rose South Pit will contain some amount of PAG, the stockpile overall will have a positive Net Neutralization Potential (NNP). This suggests that if mine rock is well-mixed, the stockpile will not generate significant downstream acidic runoff.
 - NPAG units include the Sokoman, Wishart, and Denault Formations.
 - The Katsao Formation was classified as uncertain acid generating potential.
 - PAG risk is highest in the Menihek Formation which was generally associated with the graphitic mica schists, although non-graphitic mica schist was classified as uncertain in acid generating potential. Previous kinetic studies showed that acidity can be generated immediately or delayed up to an estimated 19 years in shallow graphitic mica schist samples. Current geochemical characterization aims to increase certainty around ML/ARD risk from the Menihek formation and total volumes of PAG material.
- Estimates of total PAG mine rock ranged from 76 Mt to 316 Mt; however ongoing kinetic testing and rock cuttings sampling for ABA in the first year of mining will allow updated classification of mine rock and narrowing of PAG rock tonnage estimates.
- WorleyParsons (2014) highlighted several potential metals of concern from mine rock leaching including Ag, Al, As, Cd, Cr, Co, Cu, Fe, Hg, Mo, Ni, Se, and U.

3 METHODS

The process for sample selection and geochemical analysis methods are provided below. Additional details on the methods applied to Stantec and Okane samples are provided in Appendix A.

3.1 Sample Selection

Drill core samples for the most recent testing (Okane, 2023b) from overburden and mine rock were selected from the same core samples used in the previous geochemical characterization program (Stantec 2012, 2013). Okane was informed by Champion that drill cores were stored where they have been protected against the elements and undergone minimal weathering. A full list of samples collected are provided below (Table 3.1).

Using the block model provided from Champion, mine rock samples (excluding ore) were randomly selected by Okane for each formation type relative to anticipated tonnages. Samples by borehole ID, depth, and formation were provided on a sample collection sheet to geologists on-site for sample collection, with additional “backup” samples suggested for each formation type. Three hundred and nineteen (319) static tests were recommended based on an anticipated 913.9 Mt of mine rock in and 105.6 Mt of overburden (Price, 1997). However, it was noted that many of the samples provided from the list were not available, therefore only 263 new samples were collected.

Table 3.1: Total number of samples for analysis by formation.

Formation	Stantec	Okane	Total
Denault	8	4	12
Katsao	37	14	51
Overburden	62	9	71
Menihek	128	83	211
Sokoman	118	90	208
Wishart	86	63	149
Total	439	263	702

3.1.1 Block Model

Champion provided Okane with a Leapfrog file which contained the pit shell and major formation types in order to support the sample selection process for the geochemical characterization program (Okane, 2023a). The updated block model used for identifying samples by formation for Okane samples was a different block model than what was used by Stantec (2013). Champion noted that there were some uncertainties related to the lithology types carried over into the new block model. However, as Stantec (2013) noted that the highest risk PAG material comes from the graphitic schist material (associated with

the Menihek formation), an attempt was made to connect lithology codes to the formations in order to determine if there was an obvious trend for some higher risk lithology types (particularly, the graphitic schist). When linking lithology types to the newer block model for Okane samples, some of the Sokoman Formation samples were identified as graphitic schist. Both Champion and WorleyParsons (2014) highlighted the complex interbedding associated with the Menihek and Sokoman formations. This will be considered in the interpretation of results below when comparing the Okane and Stantec datasets but is also noted here as a possible source of discrepancy and complexity associated with the geology of this deposit.

3.2 Geochemical Analysis Methods

Samples were analyzed following the geochemical characterization program recommendations (Okane, 2023a). At the time of drafting this report, only ABA and whole rock analysis data was available for review and inclusion. A summary of methods used in the are listed below.

- ABA analysis. Materials were classified as non NPAG if the neutralization potential ratio (NPR) > 2 , “uncertain” where $2 > \text{NPR} > 1$, or PAG where $\text{NPR} < 1$ (Price, 2009).
 - When considering neutralization potential (NP) of these materials, presence of graphite, siderite, and ankerite previously identified through mineralogical analyses were considered in measurements (where Carbonate NP was determined using HClO_4 digestion and CO_2 coulometer).
- Metals from solid samples for 48 elements were analyzed using four-acid digests with ICP-MS in both rounds of sample analysis. Analyzed metals include:
 - Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, FE, Ga, Ge, Hf, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, and Zr.
- SFE were previously performed – testing on the latest round of samples is currently ongoing and will be reported on in future report phases.

Some difference exists between the analytical methods used by Stantec (2013) and the methods used in the current dataset. A comparison of analytical methods used in both studies is shown in Appendix A.

4 RESULTS

4.1 Laboratory Test Results

4.1.1 Acid Base Accounting

A summary of ABA parameter statistics by mine rock unit for the Okane dataset and all samples (Okane and Stantec) are provided below (Table 4.1 and Table 4.2, respectively). Results for Stantec's data only are provided in Stantec (2013). In addition to listing the results by formation, graphitic schist lithology ABA statistics are included below (Table 4.1 and Table 4.2). As mentioned, this lithology was previously identified as the highest risk material, which is consistent with Okane samples. However, it was noted that 5 of the Okane samples labeled as part of the Sokoman Formation during sample collection fell within the graphitic schist classification in the borehole model. This may be an error in linking classifications between using the old and new block models.

Average total sulfur content was highest in the Menihek Formation samples (1.6 wt.%), specifically the graphitic schist lithology (2.3 wt.%). Several samples from the Sokoman Formation also had elevated total sulfur content relative to the other mine rock units. Acid potential (AP) (calculated using total S) was generally highest in the Menihek Formation – especially related to the graphitic schist lithology type – ranging from the limit of detection to 219 kg CaCO₃/t. The Denault Formation had AP and total S below detection limit for all samples. Sulfate-sulfur was generally low in all mine rock units, suggesting most of total sulfur is associated with sulfide minerals and minimal sulfide oxidation had occurred during sample collection, transport, and processing. Sobek NP was generally highest in Denault unit and lowest in the Katsao unit. Several samples with low Sobek NP (<10 kg CaCO₃/tonne) were observed in all units, except the Denault. Average NNP was >20 kg CaCO₃/tonne in all mine rock units excluding the Katsao and the Menihek Formations.

Figures showing distribution of ABA results from all 702 mine rock samples grouped by formation are also given below (Figure 4.1 to Figure 4.3). In general, findings were consistent with previous studies in that the majority of PAG risk is associated with the Menihek and Katsao Formations (Stantec, 2013). However, samples from all formations (except the Denault Formation) had samples classified as PAG or Uncertain (Figure 4.1). Paste pH values were mostly neutral to slightly basic (Table 4.2, Figure 4.2, and Figure 4.3), though several samples with paste pH below 5 and relatively high sulfate-S may indicate weathering and generated stored acidity due to the oxidation of sulfides. Consistent with the ABA classification, sulphide was measured in all samples except for the Denault (Table 4.2, Figure 4.1), though in analyzing the data it was difficult to discern any notable trends in sulphide or Total S content and ABA-risk parameters (such as NPR, NNP, paste pH). While it is not recommended to use NNP to classify ABA risk, the visual distribution of NNP in all samples (Figure 4.3) highlights the high NP content previously noted by Stantec (2013) that should be sufficient quantity for neutralizing the acidity produced assuming mine rock is well blended.

Table 4.1: Summary of ABA parameter statistics grouped by Formation for Okane samples.

Mine Rock Unit	Analyte	AP	NP	NNP	NPR	Paste pH	Total S	Sulfide-S	S as SO ₄	Total Inorganic C (as CO ₃)
	Units	kg CaCO ₃ /t	kg CaCO ₃ /t	kg CaCO ₃ /t	-	pH Unit	wt. %	wt. %	wt. %	wt. %
Denault (n=4)	Min	0.3*	840	840	5,376	9.2	0.01*	0.01*	0.01*	51
	P05	0.3*	849	849	5,432	9.2	0.01*	0.01*	0.01*	52
	P50	0.3*	908	908	5,808	9.4	0.01*	0.01*	0.01*	60
	Average	0.3*	919	919	5,880	9.4	0.01*	0.01*	0.01*	58
	P75	0.3*	943	943	6,034	9.4	0.01*	0.01*	0.01*	62
	P95	0.3*	1,005	1,005	6,429	9.4	0.01*	0.01*	0.01*	62
	Max	0.3*	1,020	1,020	6,528	9.4	0.01*	0.01*	0.01*	62
Katsao (n=14)	Min	0.3*	1.0	-54.0	0.1	6.0	0.01*	0.01*	0.01*	0.25*
	P05	0.3*	2.3	-20.9	0.48	6.3	0.01*	0.01*	0.01*	0.25*
	P50	3.8	7.0	1.5	2.7	8.6	0.12	0.09	0.01*	0.25*
	Average	8.3	7.0	-1.2	3.5	8.5	0.27	0.25	0.018	0.26
	P75	8.4	8.8	5.0	4.6	9.5	0.27	0.27	0.018	0.25*
	P95	28	12	8.7	11	9.7	0.9	0.88	0.054	0.3
	Max	60	13	10	13	9.7	1.9	1.9	0.06	0.3
Menihek (n=83)	Min	0.3*	0	-199.0	0	4.0	0.01*	0.01*	0.01*	0.25*
	P05	0.9	2.0	-123.7	0.04	4.7	0.03	0.011	0.01*	0.25*
	P50	20	13	-1.0	0.88	8.2	0.65	0.65	0.01*	1.3
	Average	36	47	11	18	7.7	1.2	1.1	0.035	3.9
	P75	44	56	40	6.1	8.6	1.4	1.3	0.02	6.1
	P95	131	162	161	125	9.1	4.2	4.2	0.14	13

Mine Rock Unit	Analyte	AP	NP	NNP	NPR	Paste pH	Total S	Sulfide-S	S as SO ₄	Total Inorganic C (as CO ₃)
Overburden (n=9)	Max	219	424	397	293	9.5	7.0	6.7	0.61	31
	Min	0.3*	2.0	-21.0	0.45	7.2	0.01*	0.01*	0.010*	0.25*
	P05	0.3*	2.8	-11.8	2.0	7.3	0.01*	0.01*	0.010*	0.25*
	P50	0.9	13	6.0	13	8.4	0.03	0.01*	0.010*	0.25*
	Average	5.0	30	25	30	8.4	0.16	0.15	0.017	2.3
	P75	1.9	17	13	42	9.2	0.06	0.06	0.010*	0.7
	P95	23	111	110	96	9.6	0.75	0.71	0.044	9.3
	Max	38	138	137	110	9.6	1.2	1.1	0.060	10
	Min	0.3*	0	-116.0	0	6.2	0.01	0.01	0.010*	0.25*
Sokoman (n=90)	P05	0.3*	1.0	-57.5	0.11	6.4	0.01	0.01	0.010*	0.25*
	P50	1.6	39	28	8.5	8.4	0.05	0.04	0.010*	5.2
	Average	15	87	72	125	8.1	0.48	0.47	0.017	7.8
	P75	9.1	141	140	113	8.7	0.29	0.28	0.020	13
	P95	104	270	268	722	8.9	3.3	3.3	0.040	25
	Max	175	650	641	1,158	9.3	5.6	5.6	0.140	39
	Min	0.3*	0	-61.0	0	5.2	0.01*	0.01*	0.010*	0.25*
Wishart (n=63)	P05	0.3*	1.0	-12.6	0.27	6.5	0.01*	0.01*	0.010*	0.25*
	P50	0.3*	3.0	2.0	6.4	7.9	0.01*	0.01*	0.010*	0.25*
	Average	8.3	31	23	69	7.8	0.27	0.26	0.014	2.8
	P75	3.8	38	21	11	8.6	0.12	0.11	0.010*	2.9
	P95	39	160	151	500	9.4	1.2	1.2	0.030	13
	Max	122	215	215	1,030	9.6	3.9	3.9	0.060	22
	Min	2.5	2.0	-199	0.03	4.7	0.08	0.07	0.01*	0.25*

Mine Rock Unit	Analyte	AP	NP	NNP	NPR	Paste pH	Total S	Sulfide-S	S as SO ₄	Total Inorganic C (as CO ₃)
Graphitic Schist Lithology (n=27)	P05	4.5	4.0	-133.8	0.053	6.8	0.14	0.088	0.01*	0.25*
	P50	66	10	-52	0.23	8.2	2.1	2.1	0.01*	0.66
	Average	73	23	-50	0.9	8.0	2.3	2.3	0.03	2.1
	P75	126	18	-8.0	0.62	8.6	4.0	4.0	0.02	1.9
	P95	168	97	44	4.9	8.8	5.4	5.4	0.11	8.8
	Max	219	147	121	7.0	9.1	7.0	6.7	0.28	12

* Value reported at detection limit

Table 4.2: Summary of ABA parameter statistics grouped by Formation for Okane and Stantec samples.

Mine Rock Unit	Analyte	AP	NP	NNP	NPR	Paste pH	Total S	Sulfide-S	S as SO ₄	Total Inorganic C (as CO ₃)
	Units	kg CaCO ₃ /t	kg CaCO ₃ /t	kg CaCO ₃ /t	-	pH Unit	wt. %	wt. %	wt. %	wt. %
Denault (n=12)	Min	0.16*	483	483	2,240	9.2	0.0025*	0.005*	0.005*	29
	P05	0.16*	484	484	2,723	9.3	0.0025*	0.005*	0.005*	29
	P50	0.16*	802	802	5,150	9.4	0.0025*	0.005*	0.005*	48
	Average	0.22*	763	763	4,717	9.4	0.005*	0.0071*	0.0067*	47
	P75	0.3*	907	907	5,838	9.5	0.01*	0.01*	0.01*	57
	P95	0.31	984	984	6,326	9.6	0.01*	0.01*	0.01*	62
	Max	0.31	1,020	1,020	6,528	9.6	0.01*	0.01*	0.01*	62
Katsao (n=51)	Min	0.16*	0	-54.0	0	6.0	0.0025*	0.005*	0.005*	0.0025
	P05	0.16*	0.15	-8.4	0	7.1	0.0085	0.005*	0.005*	0.0063
	P50	2.5	1.6	0.2	1.4	9.3	0.08	0.07	0.02	0.11*
	Average	4.4	3.5	-0.9	3.6	9.0	0.18	0.14	0.04	0.2*
	P75	5.5	6.3	1.9	4.2	9.7	0.24	0.18	0.045	0.25*
	P95	11	12	7.2	14	10.0	0.48	0.35	0.13	0.62
	Max	60	14	10	42	10	1.9	1.9	0.28	2.2
Menihek (n=211)	Min	0.16*	0	-199.0	0	4.0	0.01*	0.005*	0.005*	0.03*
	P05	0.62	3.0	-119.6	0.07	4.9	0.03	0.01*	0.01*	0.25*
	P50	19	11	-3.6	0.8	8.4	0.78	0.62	0.07	6.6
	Average	33	40	6.7	18	8.1	1.3	1.1	0.22	12
	P75	38	33	18	3.1	9.1	1.6	1.2	0.25	13
	P95	130	175	164	95	9.7	4.5	4.2	0.87	40
	Max	219	462	451	1,265	10	8.5	6.7	5.8	106

Mine Rock Unit	Analyte	AP	NP	NNP	NPR	Paste pH	Total S	Sulfide-S	S as SO ₄	Total Inorganic C (as CO ₃)
Overburden (n=71)	Min	0.16*	-16.0	-31.6	-1.3	3.9	0.0025*	0.005*	0.005*	0.04*
	P05	0.16*	1.0	-11.5	0.43	5.3	0.0055	0.005*	0.005*	0.066*
	P50	0.31	6.8	5.3	13	9.0	0.024	0.01*	0.02	0.39
	Average	2.5	11	8.1	21	8.5	0.1	0.08	0.025	1.2
	P75	0.77	9.7	8.6	27	9.4	0.041	0.02	0.02	0.64
	P95	17	40	38	53	9.7	0.65	0.55	0.065	8.6
	Max	39	138	137	110	10	1.5	1.3	0.24	11
Sokoman (n=208)	Min	0.16*	0	-191.9	0	5.2	0.0025*	0.005*	0.005*	0.019
	P05	0.16*	1.0	-29.0	0.21	7.0	0.009*	0.005*	0.005*	0.2*
	P50	1.3	71	67	34	8.5	0.054	0.03	0.02	7.3
	Average	11	111	100	246	8.3	0.43	0.35	0.075	9.5
	P75	6.6	162	161	247	8.8	0.29	0.2	0.04	14
	P95	52	373	360	1,148	9.2	1.7	1.6	0.39	28
	Max	196	650	641	3,265	10.0	8.1	6.3	2.2	43
Wishart (n=149)	Min	0.16*	0	-61.0	0	5.2	0.0025*	0.005*	0.005*	0.025*
	P05	0.16*	0.8	-10.0	0.39	6.6	0.0025*	0.005*	0.005*	0.05*
	P50	0.3*	6.0	3.4	8.0	8.6	0.011*	0.01*	0.01*	0.32
	Average	5.0	38	33	139	8.4	0.19	0.16	0.035	2.8
	P75	1.3	36	27	47	9.2	0.067	0.03	0.02	3.0
	P95	29	167	165	884	9.6	0.96	1.2	0.16	13
	Max	122	360	360	2,323	9.8	3.9	3.9	0.98	22
Graphitic Schist Lithology (n=65)	Min	0.31	2.0	-199	0.0	4.5	0.08	0.01*	0.005*	0.25*
	P05	2.3	4.0	-173	0.052	5.1	0.037	0.07	0.01*	0.25*
	P50	37	9.1	-30	0.2	8.3	0.11	1.2	0.09	14

Mine Rock Unit	Analyte	AP	NP	NNP	NPR	Paste pH	Total S	Sulfide-S	S as SO ₄	Total Inorganic C (as CO ₃)
	Average	64	22	-42	4.1	7.9	1.9	2.0	0.34	94
	P75	87	15	-8.5	0.59	8.7	2.4	2.8	0.28	162
	P95	184	61	23	6.9	9.5	3.3	5.9	1.5	383
	Max	219	328	326	150	10.0	6.7	6.7	5.8	539

* Value reported at or below detection limit. Detection limits from both Okane and Stantec datasets were merged; Stantec may have used only half the detection limit in their reporting in some instances.

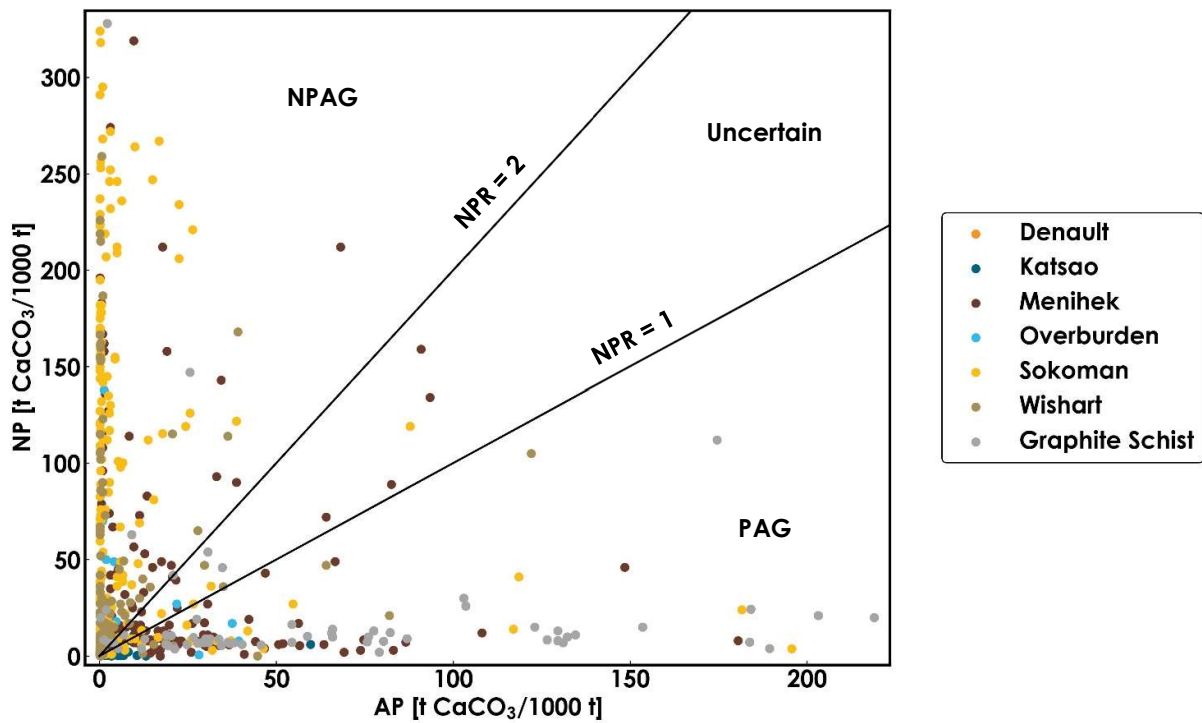


Figure 4.1: Distribution of NPR in Kami mine rock units for Okane and Stantec samples.

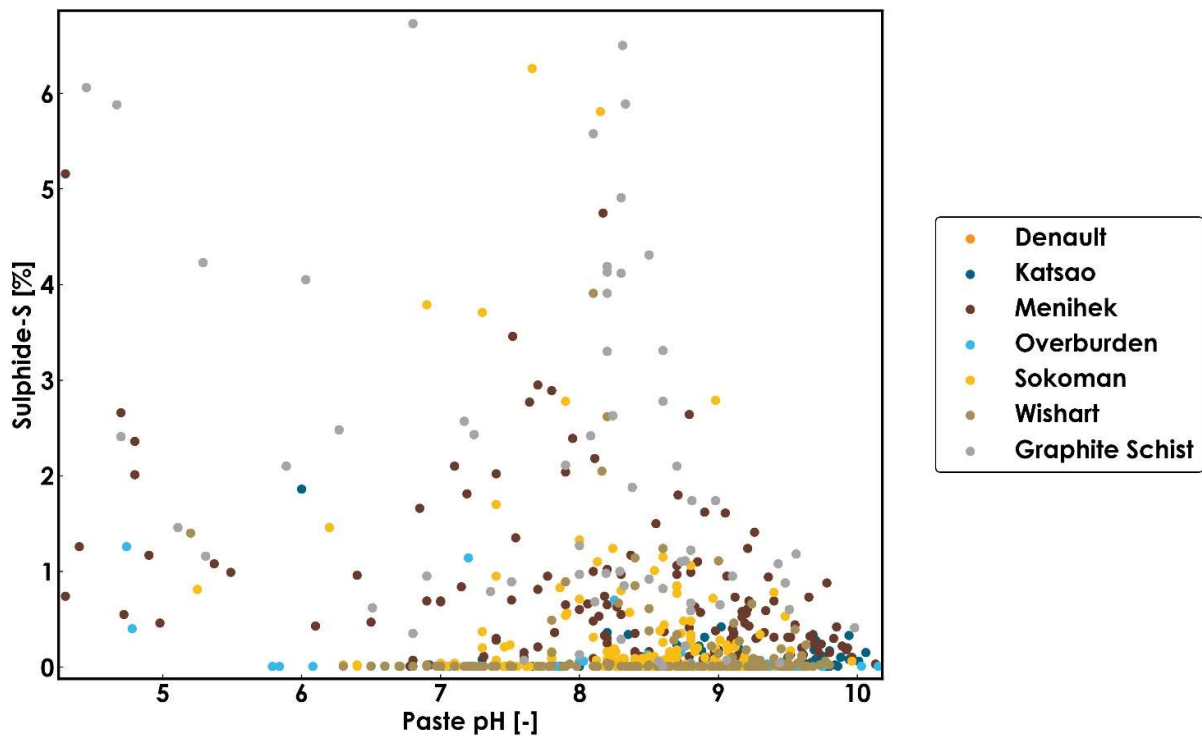


Figure 4.2: Paste pH and sulphide-S in Kami mine rock units for Okane and Stantec samples.

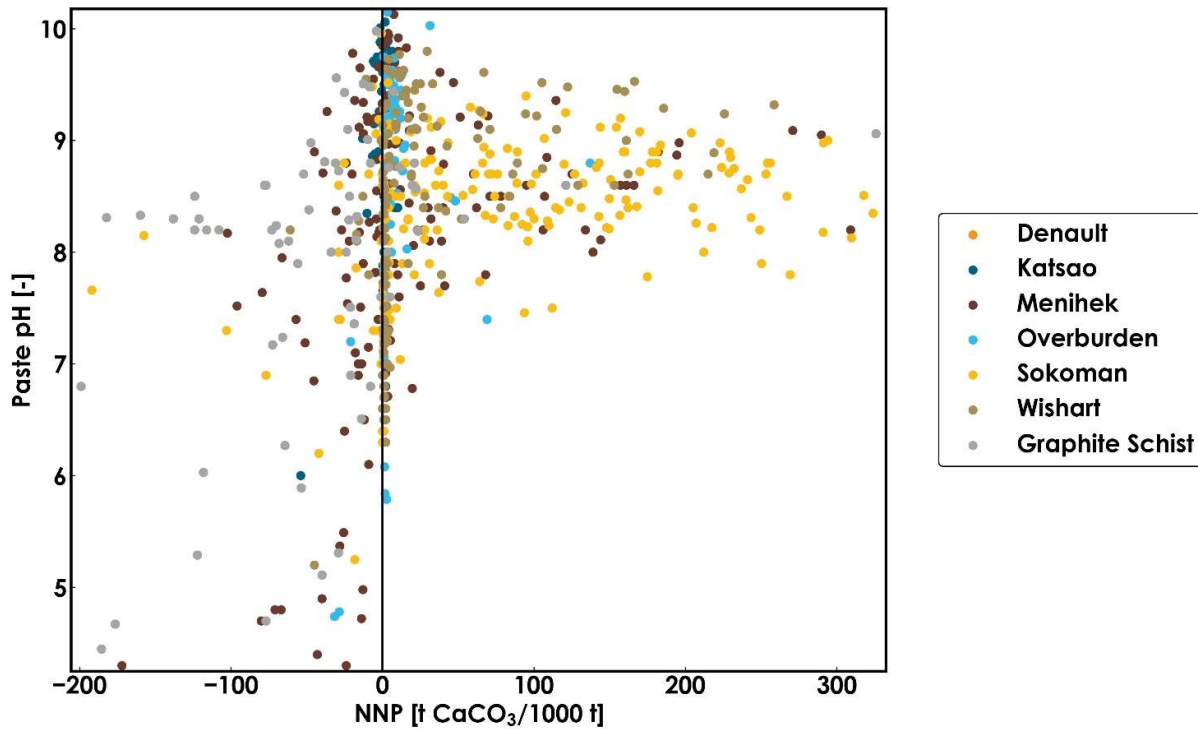


Figure 4.3: NNP and paste pH in Kami mine rock units for Okane and Stantec samples.

4.1.1.1 Spatial Distribution of NPR in Planned Kami Pit

Selected cross sections showing sample locations and their respective NPR were developed to illustrate the spatial distribution of NPR in the various Kami mine rock units. Previous pit geology map with boreholes sampled for ML/ARD by Stantec (2013) were used to develop cross sections for comparison (Appendix C). Samples were classified into one of three categories based on NPR:

- Red for PAG if $\text{NPR} \leq 1$
- Yellow for Uncertain if $1 < \text{NPR} \leq 2$
- Green for NPAG if $\text{NPR} > 2$

Additional cross sections with NPR distributions throughout the pit shell are found in Appendix C.

In general, samples with the lowest NPRs were observed to be concentrated in the Menihek formation and its margins. An important observation is the concentration of low NPR samples at a relatively shallow depth above the ore body (Figure 4.4). Several samples with low NPR (≤ 1) were also observed in the Katsao and Sokoman formations (Figure 4.5).

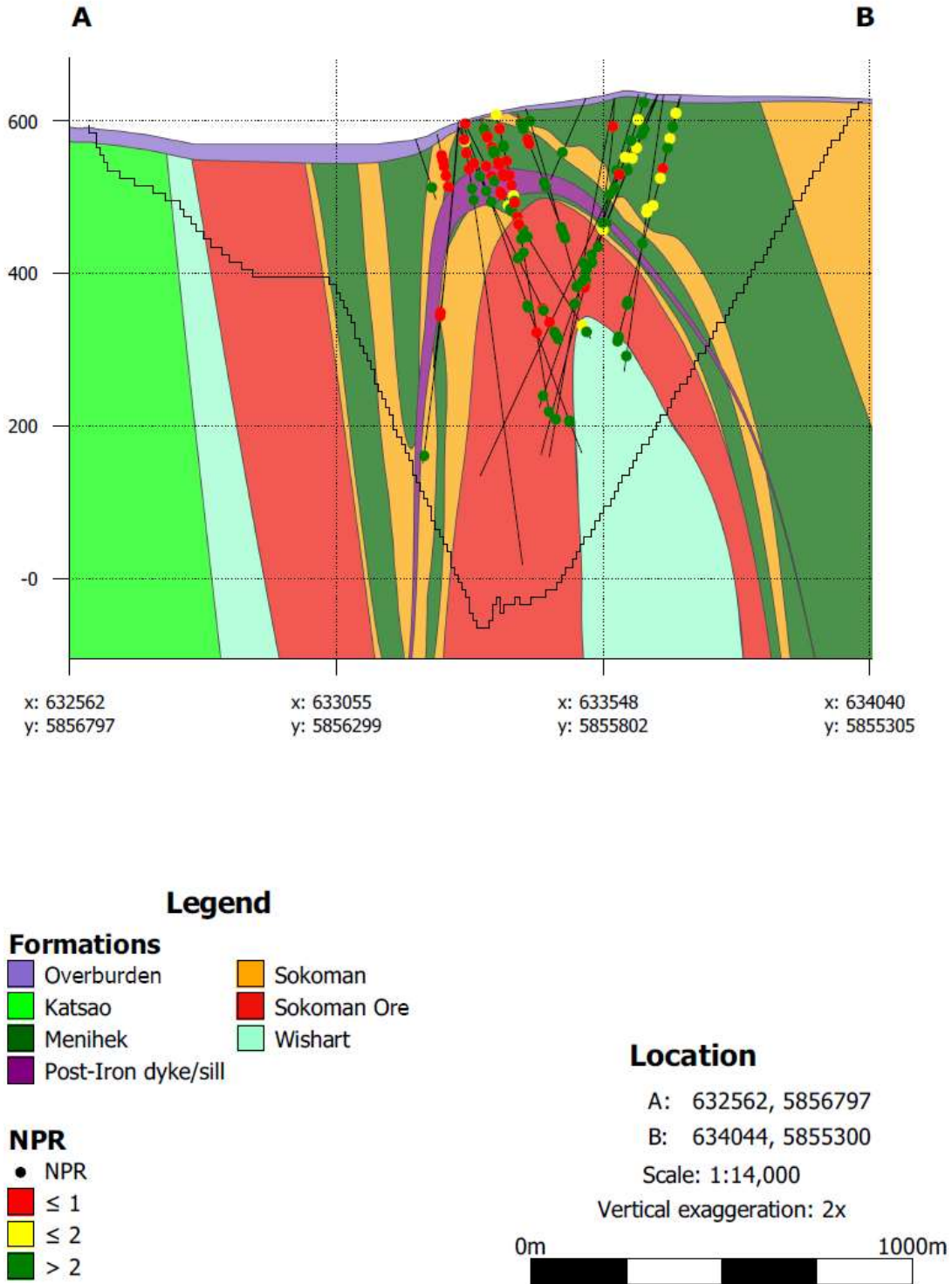


Figure 4.4: L18 cross section showing spatial distribution of NPR in Kami pit shell.

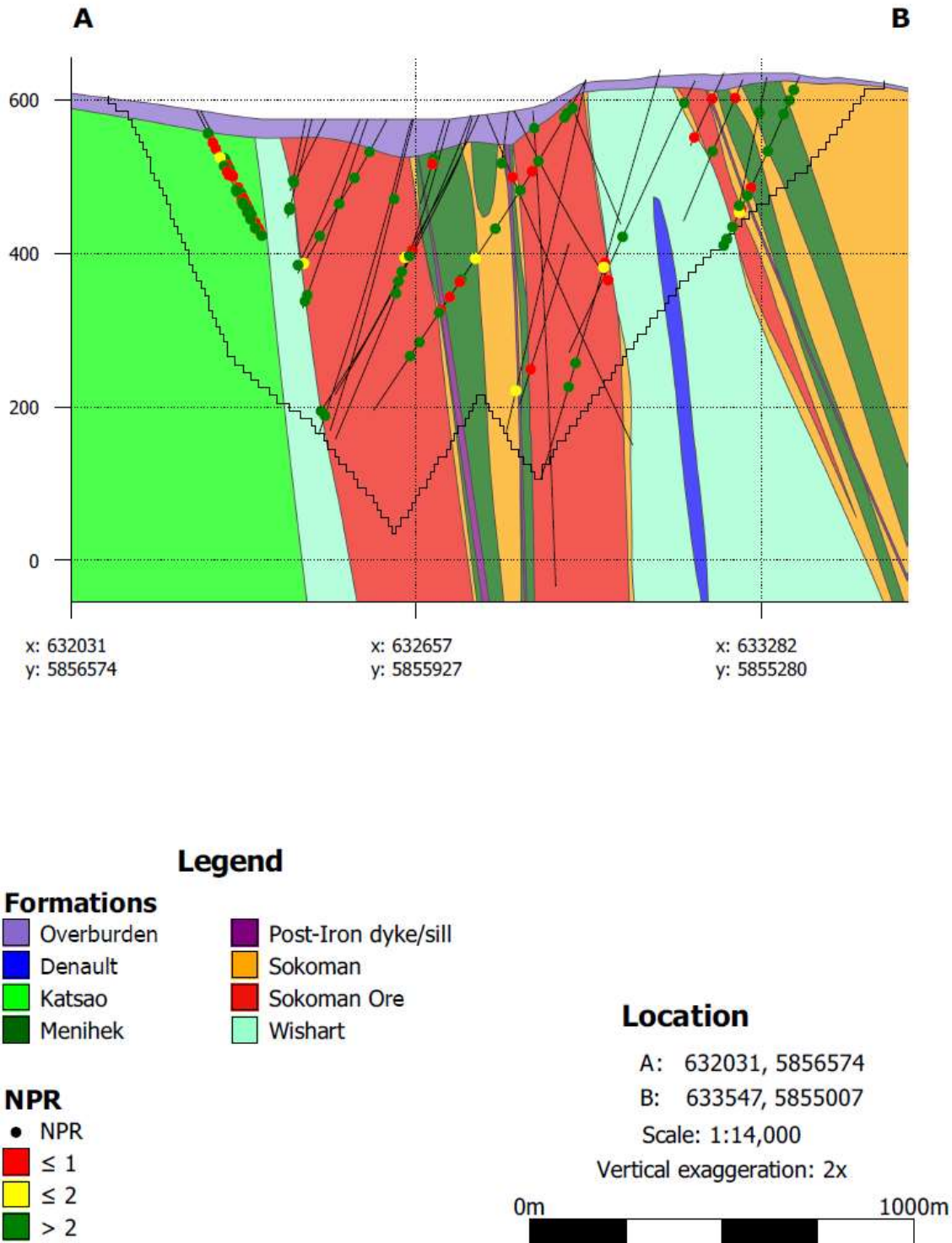


Figure 4.5: L12 cross section showing spatial distribution of NPR in Kami pit shell.

4.1.2 Whole Rock Analysis

Whole rock analysis data can be used to provide a preliminary understanding of potential contaminants of concern from mine rock by identifying elements that are elevated relative to crustal abundances. However, elevated crustal abundance does not necessarily indicate these metals will be mobilized. Interpretations of potential contaminants using whole rock analysis should be verified using SFE tests and kinetic studies.

Metal(loid) concentrations obtained via four-acid digest were compared relative to global crustal abundances as a pre-liminary assessment of potential environmental risks (Price, 1997). Parameters which are elevated relative to 5x crustal abundance and may be potential environmental concerns are highlighted in Table 4.3.

Key contaminants of concern (As, Cu, Ni, and Zn) previously identified by Stantec (2013) were all below the 5x crustal abundance threshold in Kami Project mine rock solids. However, this does not eliminate the possibility of potential associated water quality issues. Findings should be further assessed with SFE and kinetic study data. In general, the highest concentrations of metals were associated with the Menihek Formation followed by the Sokoman Formation.

Table 4.3: Average whole rock analysis results by rock unit.

Parameter (unit)	Unit	5x Crustal Abundance	Denault	Katsao	Menihek	Overburden	Sokoman	Wishart
Ag	ppm	0.38	0.01	0.2	0.48	0.05	0.2	0.10
Al	%	41.8	0.02	6.6	4.3	4.8	1.9	2.0
As	ppm	9	0.2	0.7	7.4	0.6	3.9	1.6
Ba	ppm	1950	10	450	350	360	250	250
Be	ppm	10	0.07	1.7	2.2	0.8	1.3	1.2
Bi	ppm	0.041	0.02	0.09	0.3	0.02	0.08	0.05
Ca	%	23.3	19	1.4	1.7	1.0	2.7	0.9
Cd	ppm	0.8	0.1	0.07	1.3	0.05	0.8	0.2
Ce	ppm	332	0.8	38	54	24	23	31
Co	ppm	145	2.4	12	16	6.1	12	9.8
Cr	ppm	610	0.7	50	39	51	31	24
Cs	ppm	15	0.05	2.6	3.5	0.7	1.7	1.2
Cu	ppm	340	1.5	59	87	7.0	27	14
Fe	%	31.1	1.0	3.0	15	7.7	17	9.4
Ga	ppm	95	0.1	17	12	10	5.5	5.0
Ge	ppm	7.5	0.05	0.1	0.2	0.09	0.2	0.2
Hf	ppm	14	0.1	2.2	2.4	1.0	0.9	1.5
In	ppm	1.2	0.005	0.03	0.05	0.02	0.02	0.01
K	ppm	9.2	0.01	2.6	1.6	2.3	0.7	1.3
La	ppm	173	0.5	17	27	11	12	15

Parameter (unit)	Unit	5x Crustal Abundance	Denault	Katsao	Menihok	Overburden	Sokoman	Wishart
Li	ppm	90	0.6	20	20	7.9	9.5	7.2
Mg	%	13.8	12	1.3	1.4	0.5	2.1	0.9
Mn	ppm	5300	920	480	2800	690	5380	6700
Mo	ppm	6	0.1	1.4	22	0.6	8.0	2.6
Na	ppm	11.4	0.01	2.5	0.7	1.7	0.3	0.05
Nb	ppm	100	0.1	4.7	8.1	2.5	4.3	4.5
Ni	ppm	495	1.6	37	61	11	22	15
P	ppm	5600	240	720	860	330	500	450
Pb	ppm	65	0.6	22	15	26	6.6	4.6
Rb	ppm	390	0.3	86	66	63	28	37
Re	ppm	0.0035	0.002	0.002	0.01	0.002	0.004	0.002
S	%	0.17	0.01	0.4	1.3	0.02	0.5	0.2
Sb	ppm	1	0.05	0.05	0.18	0.06	0.09	0.06
Sc	ppm	100	0.2	8.3	9.1	4.7	4.4	2.6
Se	ppm	0.25	1.0	1.6	2.8	1.0	1.3	1.0
Sn	ppm	10.5	0.2	1.3	1.4	0.5	0.6	0.4
Sr	ppm	1920	55	360	72	200	56	25
Ta	ppm	8.5	0.05	0.4	0.5	0.2	0.2	0.3
Te	ppm	0.025	0.05	0.05	0.1	0.05	0.1	0.1
Th	ppm	40.5	0.03	5.6	7.4	7.2	2.6	4.5
Ti	ppm	3.2	0.01	0.2	0.3	0.1	0.2	0.1
Tl	ppm	3.6	0.02	0.6	0.8	0.4	0.3	0.4
U	ppm	11.5	0.2	9.6	11.6	9.9	3.0	1.6
V	ppm	680	1.0	56	220	25	81	39
W	ppm	6	0.1	0.5	3.0	0.3	1.4	0.8
Y	ppm	155	1.3	15	25	10	11	8.0
Zn	ppm	380	4.0	44	230	26	110	29
Zr	ppm	810	0.5	61	93	33	34	57

Crustal Abundance after Price (1997)

4.2 Dataset Comparisons and Statistical Test Results

4.2.1 Comparison of Okane and Stantec Results

Results from the Okane ABA analysis were compared to previous analyses completed by Stantec to ensure consistency. In general, distributions of NPAG and PAG material by mine rock unit were comparable between the two datasets (Table 4.4 to Table 4.6). However, an increase of ~5 % PAG samples were observed in the Okane dataset, mainly associated with increased PAG samples observed in the Sokoman and Wishart units. However, 1.6% more PAG samples in the Menihok unit

were observed in the Stantec dataset relative to Okane. A visual comparison of NP-Sobek versus AP between datasets by formation is shown in Figure 4.6. Table 4.4 shows the total number of samples analyzed that correspond to the ABA classification. In order to consider how these numbers apply to the total mine rock and MRS, the percentage of NPAG, PAG, and Uncertain samples are applied to the total tonnage of mine rock (Table 4.5) and to MRS (Table 4.6) (considering NPAG tonnages removed for TMF dam embankment construction). If applying the percentage of PAG samples by formation to each of the units, 27.3% of the overall planned MRS may consist of PAG rock, with an additional 6.7% of the mine rock being Uncertain (Table 4.6). Using ABA classification from Okane and Stantec datasets (Table 4.5), the total PAG mine rock is estimated between 249 Mt to 312 Mt (which falls within the range provided by WorleyParsons (2014) estimating total PAG mine rock ranged from 76 Mt to 316 Mt).

Additionally, weighted ABA parameters were calculated using all data and Okane samples only (Table 4.7) based on planned contributions of each formation to the MRS (Table 2.1). Even when removing NPAG mine rock for the TMF embankment, there should be sufficient NP available to neutralize acidity from sulfide minerals assuming a well-blended MRS, as both median and average NPR values are > 2. This finding is consistent with Stantec (2013). The OVBS which is planned to contain only overburden material, would have average and median NPR values of 30 and 13 respectively, with the 5th percentile of data still being an NPR of 2. Therefore, it can be assumed that the OVBS is not a risk for acidic drainage, consistent with conclusions by WorleyParsons (2014).

Table 4.4: Number of samples under each ABA classification based on NPR.

Company	Formation	Total Samples	Number of NPAG Samples	Number of PAG Samples	Number of Uncertain Samples
Stantec	Denault	8	8	0	0
	Katsao	37	17	17	3
	Menihek	128	42	72	14
	Overburden	62	57	4	1
	Sokoman	118	104	9	5
	Wishart	86	80	4	2
	Total	439	308	106	25
Okane	Denault	4	4	0	0
	Katsao	14	8	6	0
	Menihek	83	30	42	11
	Overburden	9	8	1	0
	Sokoman	90	67	18	5
	Wishart	63	52	8	3
	Total	263	169	75	19
Total	Denault	12	12	0	0
	Katsao	51	25	23	3
	Menihek	211	72	114	25

Company	Formation	Total Samples	Number of NPAG Samples	Number of PAG Samples	Number of Uncertain Samples
	Overburden	71	65	5	1
	Sokoman	208	171	27	10
	Wishart	149	132	12	5
	Total	702	477	181	44

NPAG – NPR >=2; PAG – NPR <=1; Uncertain = 1 > NPR > 2.

Table 4.5: ABA classifications weighted percentages based on total final formation tonnages.

Company	Formation	Number of Samples	NPAG Contribution	PAG Contribution	Uncertain Contribution
Stantec	Denault	8	2.0%	0.0%	0.0%
	Katsao	37	2.3%	2.3%	0.4%
	Menihek	128	9.2%	15.8%	3.1%
	Overburden	62	9.2%	0.6%	0.2%
	Sokoman	118	25.6%	2.2%	1.2%
	Wishart	86	24.2%	1.2%	0.6%
	Total	439	72.4%	22.1%	5.5%
Okane	Denault	4	2.0%	0.0%	0.0%
	Katsao	14	2.9%	2.1%	0.0%
	Menihek	83	10.1%	14.2%	3.7%
	Overburden	9	8.9%	1.1%	0.0%
	Sokoman	90	21.6%	5.8%	1.6%
	Wishart	63	21.5%	3.3%	1.2%
	Total	263	66.9%	26.5%	6.6%
Total	Denault	12	2.0%	0.0%	0.0%
	Katsao	51	2.5%	2.3%	0.3%
	Menihek	211	9.6%	15.1%	3.3%
	Overburden	71	9.2%	0.7%	0.1%
	Sokoman	208	23.8%	3.8%	1.4%
	Wishart	149	23.0%	2.1%	0.9%
	Total	702	70.0%	23.9%	6.0%

Table 4.6: ABA classifications weighted percentages based on of MRS formation tonnages.

Company	Formation	Number of Samples	NPAG Contribution	PAG Contribution	Uncertain Contribution
Stantec	Denault	8	2.6%	0.0%	0.0%
	Katsao	37	2.9%	2.9%	0.5%
	Menihek	128	11.1%	19.0%	3.7%
	Sokoman	118	27.3%	2.4%	1.3%

Company	Formation	Number of Samples	NPAG Contribution	PAG Contribution	Uncertain Contribution
	Wishart	86	24.5%	1.2%	0.6%
	Total	439	68.4%	25.5%	6.1%
Okane	Denault	4	2.6%	0.0%	0.0%
	Katsao	14	3.6%	2.7%	0.0%
	Menihek	83	12.2%	17.1%	4.5%
	Sokoman	90	23.1%	6.2%	1.7%
	Wishart	63	21.7%	3.3%	1.3%
	Total	263	63.2%	29.4%	7.5%
Total	Denault	12	2.6%	0.0%	0.0%
	Katsao	51	3.1%	2.8%	0.4%
	Menihek	211	11.5%	18.3%	4.0%
	Sokoman	208	25.5%	4.0%	1.5%
	Wishart	149	23.3%	2.1%	0.9%
	Total	702	66.0%	27.3%	6.7%

Table 4.7: Weighted ABA Values Based on MRS Tonnages.

Weighted By Tonnage	AP	NP	NPR	Total S (wt. %)	Sulfide-S (wt. %)	Total Inorganic C (as CO ₃ wt. %)
Okane Dataset						
Median	7.7	45	5.8	0.25	0.24	3.9
Average	20	79	4.0	0.63	0.61	6.2
All Data						
Median	7.2	51	7.2	0.29	0.23	6.0
Average	16	81	5.0	0.62	0.52	9.1

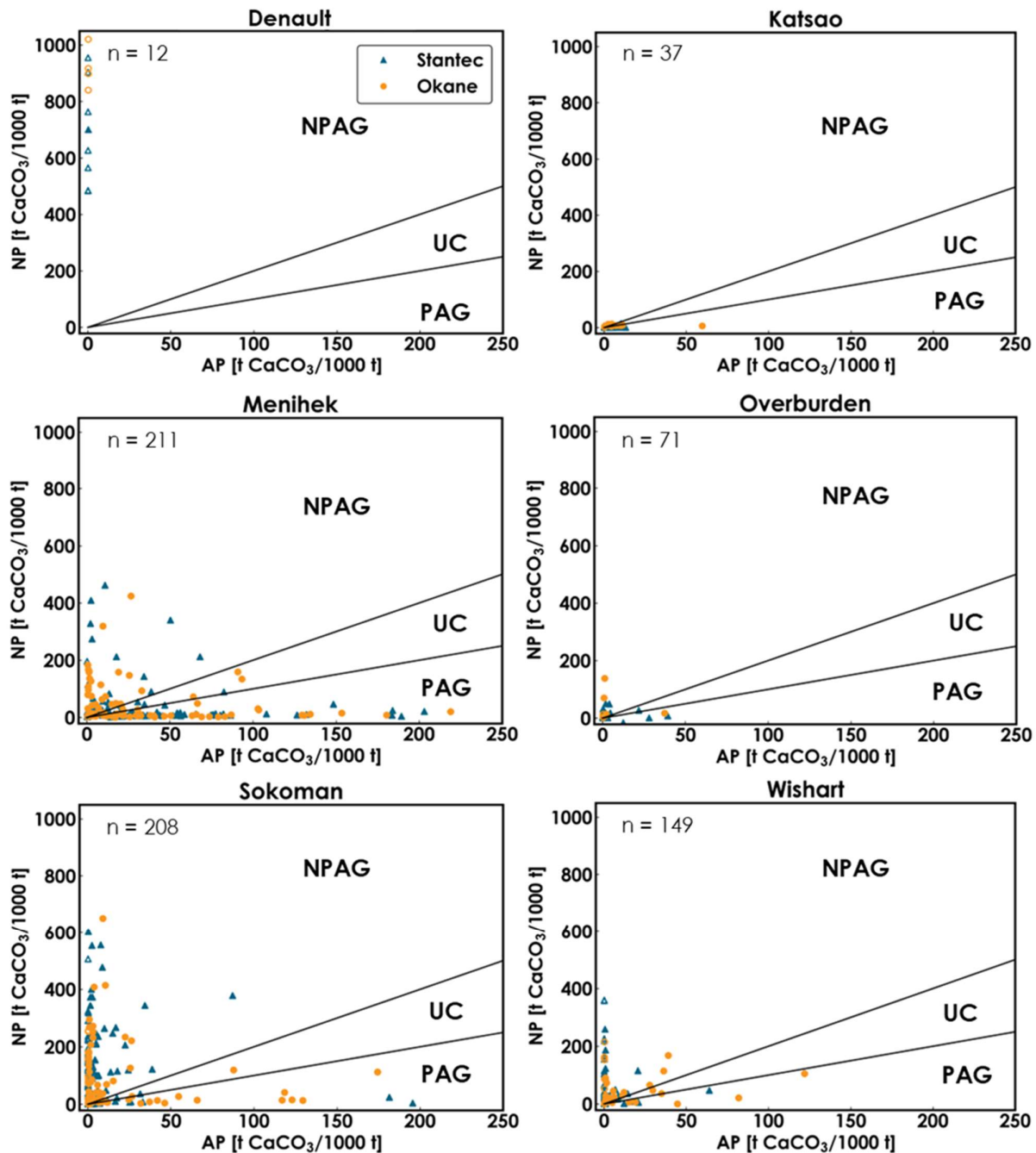


Figure 4.6: Comparison of NP Sobek vs. AP for the Stantec (2013) and Okane datasets.

Open symbols represent samples with total sulphur values below detection limit.

The graphitic schist lithology, which has previously been highlighted as a lithology of concern, was assessed in all datasets. Consistent with previous results, most (82%) of graphitic schist samples were classified as PAG (Table 4.8). Stantec (2013) previously classified this lithology as associated solely with the Menihek Formation. However, in the current Okane dataset, several graphitic schist samples were also associated with the Sokoman Formation. This could be due to inconsistencies between the lithology codes and updated formation types in the most recent block model previously identified.

Stantec (2013) previously estimated 76 Mt of graphitic mica schist in the Rose Pit, representing about 7% of the total mine rock. While the graphitic mica schist lithology is highlighted as the highest risk material, it does not account for all the PAG mine rock (Table 4.5).

Table 4.8: Summary of Graphitic Schist lithology ABA results.

Company	Number of Samples	NPAG		PAG		Uncertain	
		Number	Percentage	Number	Percentage	Number	Percentage
Stantec	38	4	10.5%	31	81.6%	3	7.9%
Okane	27	4	14.8%	22	81.5%	1	3.7%
All	65	8	12.3%	53	81.5%	4	6.2%

4.2.2 Statistical Tests

To identify any inconsistencies between the Stantec and Okane datasets, a comparison of basic statistics for ABA parameters (Table 4.9) and metals of concern (As, Cu, Ni, Zn) highlighted by Stantec (2013) in solids (Table 4.10) was undertaken. Although the metals noted here were not highlighted in the whole rock metals as being over 5x the global crustal abundance, these metals were highlighted from SFE and kinetic tests.

To determine whether there are statistically significant differences between the Stantec data and the Okane datasets, Student's t-tests were performed at a 0.05 level of significance assuming unequal variances for these two datasets. If the p-value is smaller than the level of significance in the t-tests, there is a statistically significant difference between the two tested data; if the p-value is greater than the level of significance, no statistically significant difference exists in the two tested data. Results of Student's t-test results are shown in Appendix B.

The t-test results for NPR data from the Stantec and the Okane data showed consistencies for all tested lithologies and formations between the two datasets, except in the Sokoman Formation, that displayed statistically significant differences between the NPR data. T-test results on whole metals for As, Cu, Ni, and Zn data found no statistically significant differences between the Stantec and the Okane datasets. Therefore, the data obtained by Okane is statistically consistent with the previous Stantec's assessment, with the exception the NPR data in the Sokoman Formation.

Table 4.9: Statistics of ABA data by formation and for graphitic schist lithology.

Data Groups	Lithology	No.	NPR			Total Sulfur (%)						Paste pH					
			Mean	stdev	CV	Min	Max	Mean	stdev	CV	Min	Max	Mean	stdev	CV	Min	Max
Stantec	Denault	8	4136	1388	34%	2240	6161	0.003	0.000	0%	0.0025	0.0025	9.48	0.09	1%	9.34	9.63
	Katsao	37	4	7	204%	0	42	0.141	0.160	114%	0.0025	0.587	9.14	0.88	10%	7.01	10.24
	Menihek	128	18	114	632%	0	1265	1.360	1.594	117%	0.014	8.51	8.38	1.30	16%	4.45	10.13
	Graphite Schist	38	6	26	405%	0	150	2.386	2.226	93%	0.037	8.51	7.85	1.50	19%	4.45	9.98
	Overburden	62	19	17	88%	-1.3	101	0.093	0.248	267%	0.0025	1.49	8.53	1.42	17%	3.93	10.15
	Sokoman	118	338	556	165%	0	3265	0.386	1.067	276%	0.0025	8.05	8.50	0.65	8%	5.25	9.96
	Wishart	86	190	440	232%	0.1	2323	0.128	0.375	292%	0.0025	3.03	8.77	0.78	9%	6.71	9.8
Okane	Denault	4	5880	480	8%	5376	6528	0.010	0.000	0%	0.01	0.01	9.35	0.10	1%	9.2	9.4
	Katsao	14	3	4	105%	0.1	13	0.266	0.488	184%	0.01	1.91	8.48	1.17	14%	6	9.7
	Menihek	83	18	47	265%	0	293	1.155	1.418	123%	0.01	7.01	7.72	1.32	17%	4	9.5
	Graphite Schist	27	1	2	191%	0.03	7	2.330	1.925	83%	0.08	7.01	8.02	0.89	11%	4.7	9.1
	Overburden	9	30	38	128%	0.45	110	0.160	0.391	244%	0.01	1.2	8.40	0.93	11%	7.2	9.6
	Sokoman	90	125	243	194%	0	1158	0.478	1.050	220%	0.01	5.58	8.13	0.77	9%	6.2	9.3
	Wishart	63	69	207	299%	0	1030	0.266	0.656	246%	0.01	3.91	7.80	0.99	13%	5.2	9.6
Total (Okane and Stantec)	Denault	12	4717	1423	30%	2240	6528	0.005	0.004	74%	0.0025	0.01	9.44	0.11	1%	9.2	9.63
	Katsao	51	4	7	183%	0	42	0.175	0.289	165%	0.0025	1.91	8.96	1.00	11%	6	10.24
	Menihek	211	18	94	522%	0	1265	1.279	1.527	119%	0.01	8.51	8.12	1.35	17%	4	10.13
	Graphite Schist	65	4	20	484%	0	150	2.362	2.090	88%	0.037	8.51	7.92	1.28	16%	4.45	9.98
	Overburden	71	21	21	100%	-1.3	110	0.101	0.267	264%	0.0025	1.49	8.51	1.36	16%	3.93	10.15
	Sokoman	208	246	460	187%	0	3265	0.426	1.058	248%	0.0025	8.05	8.34	0.72	9%	5.25	9.96
	Wishart	149	139	364	263%	0	2323	0.187	0.515	276%	0.0025	3.91	8.36	1.00	12%	5.2	9.8

Data Groups	Lithology	No.	NP (kg CaCO ₃ /t)					AP (kg CaCO ₃ /t)					NNP (kg CaCO ₃ /t)				
			Mean	stdev	CV	Min	Max	Mean	stdev	CV	Min	Max	Mean	stdev	CV	Min	Max
Stantec	Denault	8	8	685	179	26%	483.3	955	0.18	0.05	30%	0.16	0.31	685.0	179.4	0.3	483.2
	Katsao	37	37	2	3	158%	0	14.3	2.97	3.62	122%	0.16	13.13	-0.8	3.9	-4.8	-13.1
	Menihek	128	128	36	76	214%	1.5	462	31.75	40.19	127%	0.16	203.13	4.0	89.3	22.4	-185.4
	Graphite Schist	38	38	21	52	252%	3.8	328	57.04	55.67	98%	0.31	203.13	-36.3	82.3	-2.3	-185.4
	Overburden	62	62	8	10	131%	-16	50	2.16	6.72	311%	0.16	39.38	5.6	11.9	2.1	-31.6
	Sokoman	118	118	130	134	103%	0.3	601.7	8.38	26.22	313%	0.16	195.63	121.3	137.7	1.1	-191.9
	Wishart	86	86	43	76	177%	0.4	360	2.54	8.00	314%	0.16	64.06	40.2	76.1	1.9	-17.1
Okane	Denault	4	4	919	75	8%	840	1020	0.30	0.00	0%	0.3	0.3	918.8	75.0	0.1	840.0
	Katsao	14	14	7	3	48%	1	13	8.31	15.26	184%	0.3	59.7	-1.2	15.7	-12.9	-54.0
	Menihek	83	83	47	72	154%	0	424	36.11	44.32	123%	0.3	219	10.9	91.3	8.4	-199.0
	Graphite Schist	27	27	23	34	149%	2	147	72.81	60.16	83%	2.5	219	-50.0	66.9	-1.3	-199.0
	Overburden	9	9	30	46	152%	2	138	5.00	12.21	244%	0.3	37.5	25.1	48.3	1.9	-21.0
	Sokoman	90	90	87	113	130%	0	650	14.94	32.82	220%	0.3	174.5	72.3	121.5	1.7	-116.0
	Wishart	63	63	31	51	163%	0	215	8.31	20.48	246%	0.3	122	23.0	49.9	2.2	-61.0
Total (Okane and Stantec)	Denault	12	12	763	188	25%	483.3	1020	0.22	0.07	33%	0.16	0.31	762.9	187.8	0.2	483.2
	Katsao	51	51	3	4	115%	0	14.3	4.43	8.70	196%	0.16	59.7	-0.9	8.7	-9.3	-54.0
	Menihek	211	211	40	75	186%	0	462	33.46	41.82	125%	0.16	219	6.7	89.9	13.4	-199.0
	Graphite Schist	65	65	22	45	210%	2	328	63.59	57.65	91%	0.31	219	-42.0	76.0	-1.8	-199.0
	Overburden	71	71	11	20	184%	-16	138	2.52	7.57	300%	0.16	39.38	8.1	20.8	2.6	-31.6
	Sokoman	208	208	111	127	114%	0	650	11.22	29.36	262%	0.16	195.63	100.1	132.9	1.3	-191.9
	Wishart	149	149	38	66	175%	0	360	4.98	14.85	298%	0.16	122	32.9	66.6	2.0	-61.0

Data Groups	Lithology	No.	Sulfate-S (%)					Sulfide-S (%)					CO ₃ (%)				
			Mean	stdev	CV	Min	Max	Mean	stdev	CV	Min	Max	Mean	stdev	CV	Min	Max
Stantec	Denault	8	0.005	0.000	0%	0.005	0.005	0.006	0.002	31%	0.005	0.01	41.11	10.77	26%	29	57.3
	Katsao	37	0.048	0.060	126%	0.005	0.28	0.095	0.116	122%	0.005	0.42	0.18	0.40	226%	0.0025	2.2
	Menihek	128	0.345	0.599	174%	0.005	5.75	1.016	1.286	127%	0.005	6.5	16.85	19.16	114%	0.03	106
	Graphite Schist	38	0.563	1.002	178%	0.005	5.75	1.825	1.781	98%	0.01	6.5	31.21	27.59	88%	0.54	106
	Overburden	62	0.026	0.044	170%	0.005	0.24	0.069	0.215	311%	0.005	1.26	1.05	2.24	213%	0.04	11.4
	Sokoman	118	0.120	0.267	223%	0.005	2.24	0.268	0.839	313%	0.005	6.26	10.73	9.29	87%	0.019	43.1
	Wishart	86	0.051	0.124	246%	0.005	0.98	0.081	0.256	315%	0.005	2.05	2.74	4.71	172%	0.025	22.1
Okane	Denault	4	0.010	0.000	0%	0.01	0.01	0.010	0.000	0%	0.01	0.01	58.19	5.34	9%	51	62.25
	Katsao	14	0.018	0.016	91%	0.01	0.06	0.254	0.477	188%	0.01	1.86	0.26	0.02	7%	0.25	0.3
	Menihek	83	0.035	0.079	226%	0.01	0.61	1.124	1.381	123%	0.01	6.73	3.89	5.55	143%	0.25	30.85
	Graphite Schist	27	0.030	0.057	191%	0.01	0.28	2.305	1.905	83%	0.07	6.73	2.08	3.11	150%	0.25	11.7
	Overburden	9	0.017	0.017	99%	0.01	0.06	0.151	0.372	246%	0.01	1.14	2.27	3.88	171%	0.25	10.35
	Sokoman	90	0.017	0.017	101%	0.01	0.14	0.467	1.047	224%	0.01	5.58	7.78	8.67	111%	0.25	38.6
	Wishart	63	0.014	0.009	67%	0.01	0.06	0.260	0.653	251%	0.01	3.91	2.84	4.72	166%	0.25	21.55
Total (Okane and Stantec)	Denault	12	0.007	0.002	37%	0.005	0.01	0.007	0.003	36%	0.005	0.01	46.80	12.34	26%	29	62.25
	Katsao	51	0.040	0.053	135%	0.005	0.28	0.139	0.272	196%	0.005	1.86	0.20	0.34	172%	0.0025	2.2
	Menihek	211	0.223	0.493	221%	0.005	5.75	1.058	1.322	125%	0.005	6.73	11.75	16.56	141%	0.03	106
	Graphite Schist	65	0.341	0.807	236%	0.005	5.75	2.025	1.834	91%	0.01	6.73	19.11	25.56	134%	0.25	106
	Overburden	71	0.025	0.041	168%	0.005	0.24	0.080	0.238	300%	0.005	1.26	1.21	2.50	207%	0.04	11.4
	Sokoman	208	0.075	0.207	275%	0.005	2.24	0.354	0.937	265%	0.005	6.26	9.45	9.12	97%	0.019	43.1
	Wishart	149	0.035	0.096	275%	0.005	0.98	0.157	0.473	302%	0.005	3.91	2.78	4.70	169%	0.025	22.1

Table 4.10: Statistics of whole rock metal data by formation.

Data Groups	Lithology	No.	As (mg/kg)					Cu (mg/kg)				
			Mean	stdev	CV	Min	Max	Mean	stdev	CV	Min	Max
Stantec	Denault	5	0.92	0.32	35%	0.70	1.4	2.92	1.50	51%	1.2	4.4
	Katsao	16	0.57	0.88	154%	0.25	3.1	27.09	20.63	76%	1.5	59.0
	Menihek	78	5.16	14.38	279%	0.25	110.0	98.88	68.44	69%	1.7	320.0
	Overburden	27	1.12	1.45	129%	0.25	6.1	12.97	5.15	40%	6.6	34.0
	Sokoman	70	7.36	18.92	257%	0.25	120.0	13.45	32.08	239%	0.3	230.0
	Wishart	37	1.48	2.86	193%	0.25	14.0	9.44	12.50	133%	0.9	60.0
Okane	Denault	2	0.20	0.00	0%	0.20	0.2	1.45	0.49	34%	1.1	1.8
	Katsao	7	0.67	0.22	33%	0.40	1.0	58.80	64.82	110%	5.9	183.0
	Menihek	42	7.36	16.97	231%	0.20	80.3	86.80	94.15	108%	1.0	514.0
	Overburden	5	0.62	0.51	83%	0.20	1.5	7.04	5.74	82%	2.9	17.0
	Sokoman	46	3.88	4.64	120%	0.20	25.2	27.40	46.43	169%	0.8	245.0
	Wishart	32	1.59	2.10	132%	0.20	7.3	14.47	19.73	136%	0.9	86.4
Total (Okane and Stantec)	Denault	7	0.71	0.44	61%	0.20	1.4	2.50	1.43	57%	1.1	4.4
	Katsao	23	0.60	0.74	123%	0.25	3.1	36.74	40.72	111%	1.5	183.0
	Menihek	120	5.93	15.30	258%	0.20	110.0	94.65	78.22	83%	1.0	514.0
	Overburden	32	1.05	1.36	130%	0.20	6.1	12.04	5.60	46%	2.9	34.0
	Sokoman	116	5.98	15.04	251%	0.20	120.0	18.98	38.83	205%	0.3	245.0
	Wishart	69	1.53	2.52	165%	0.20	14.0	11.77	16.33	139%	0.9	86.4

Data Groups	Lithology	No.	Ni (mg/kg)					Zn (mg/kg)				
			Mean	stdev	CV	Min	Max	Mean	stdev	CV	Min	Max
Stantec	Denault	5	3.06	0.97	32%	2.0	4.2	13.14	9.69	74%	4.70	29
	Katsao	16	41.33	31.18	75%	1.8	110.0	48.16	33.32	69%	5.70	110
	Menihek	78	84.22	69.94	83%	5.5	380.0	293.72	303.92	103%	11.00	1900
	Overburden	27	21.15	6.48	31%	11.0	49.0	34.48	16.81	49%	20.00	110
	Sokoman	70	9.55	16.35	171%	1.5	97.0	34.96	63.40	181%	2.10	410
	Wishart	37	13.46	10.94	81%	2.5	51.0	23.20	17.53	76%	0.35	75
Okane	Denault	2	1.55	1.20	78%	0.7	2.4	4.00	1.41	35%	3.00	5
	Katsao	7	36.93	33.22	90%	1.4	97.6	44.00	26.19	60%	8.00	72
	Menihek	42	60.61	49.95	82%	0.9	215.0	230.21	189.80	82%	15.00	927
	Overburden	5	11.42	18.61	163%	1.0	44.5	26.40	26.42	100%	9.00	73
	Sokoman	46	21.79	42.34	194%	0.8	258.0	108.67	359.47	331%	4.00	2420
	Wishart	32	15.12	20.21	134%	1.3	93.1	29.00	43.67	151%	2.00	202
Total (Okane and Stantec)	Denault	7	2.63	1.19	45%	0.7	4.2	10.53	9.10	86%	3.00	29
	Katsao	23	39.99	31.11	78%	1.4	110.0	46.90	30.79	66%	5.70	110
	Menihek	120	75.96	64.44	85%	0.9	380.0	271.49	270.38	100%	11.00	1900
	Overburden	32	19.63	9.64	49%	1.0	49.0	33.22	18.32	55%	9.00	110
	Sokoman	116	14.41	29.97	208%	0.8	258.0	64.19	232.99	363%	2.10	2420
	Wishart	69	14.23	15.82	111%	1.3	93.1	25.89	32.25	125%	0.35	202

Additionally, Q-Q plots were developed with log-transformed NPR data from both Stantec and Okane datasets to illustrate data distribution (Figure 4.7). Both datasets follow a normal distribution, suggesting that the two datasets are statistically similar.

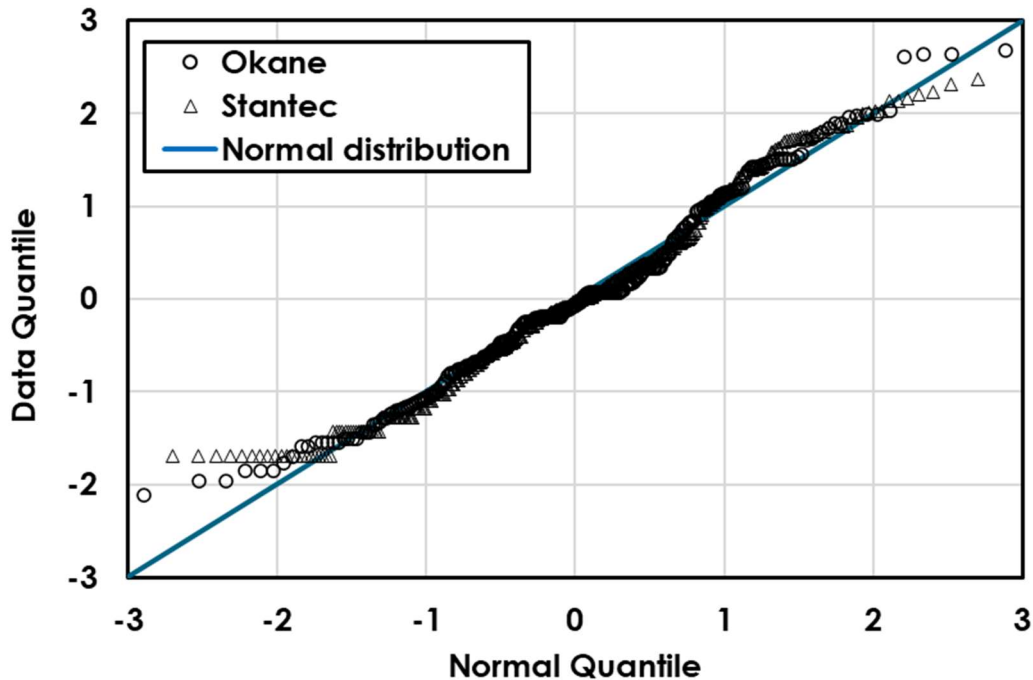


Figure 4.7: Q-Q plot of log transformed NPR data for both Stantec and Okane datasets.

4.2.3 Additional Geochemical Considerations from Statistical Measurements

Looking at the Stantec dataset, significant positive correlation is observed between total carbon (TC) and NP as presented in Figure 4.8. An important observation is that TC > 12 wt.% was observed in many samples, while the theoretical TC for calcite (CaCO_3) is around 12 wt.%. Those samples with TC > 12 wt.% are mainly from Menihek where graphite is likely disseminated in samples, besides one from Sokoman and one overburden sample. Additionally, a positive correlation is observed between NP and TC, which is not explained by the increasing graphite-carbon observed in these samples when carbonate-carbon must be less than 12 wt.%. After removing the samples with TC > 12 wt.%, the correlation became improved with correlation coefficient increasing from 0.92 to 0.95 (Figure 4.9). TC can thus be used as a reasonable indicator for NP from the Stantec dataset. In the Okane dataset, carbonate NP was directly calculated from the carbonate content of the samples, which was calculated to consider the effects of graphite and non-buffering carbonates (Appendix A).

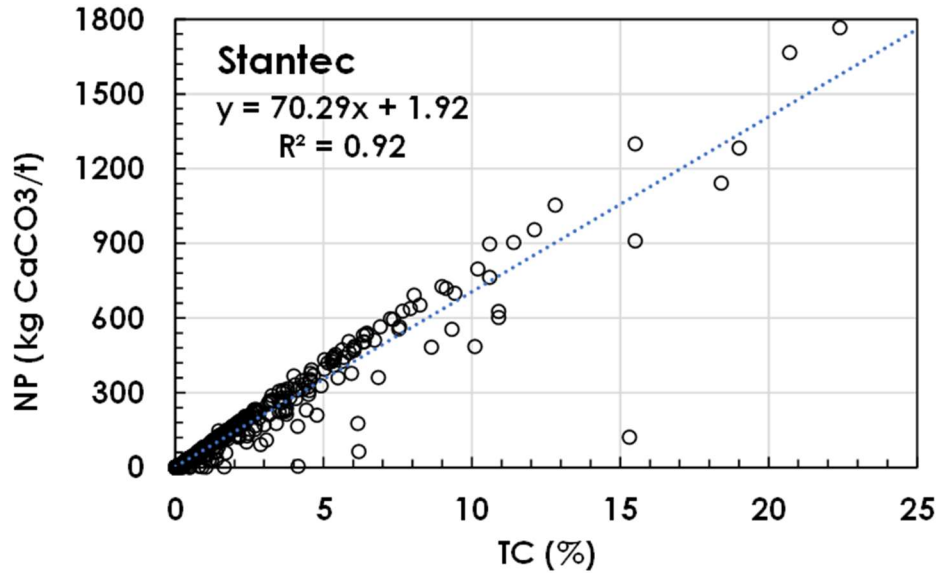


Figure 4.8: Positive correlation between TC and NP for Stantec data, in which samples with TC > 12 wt. % included.

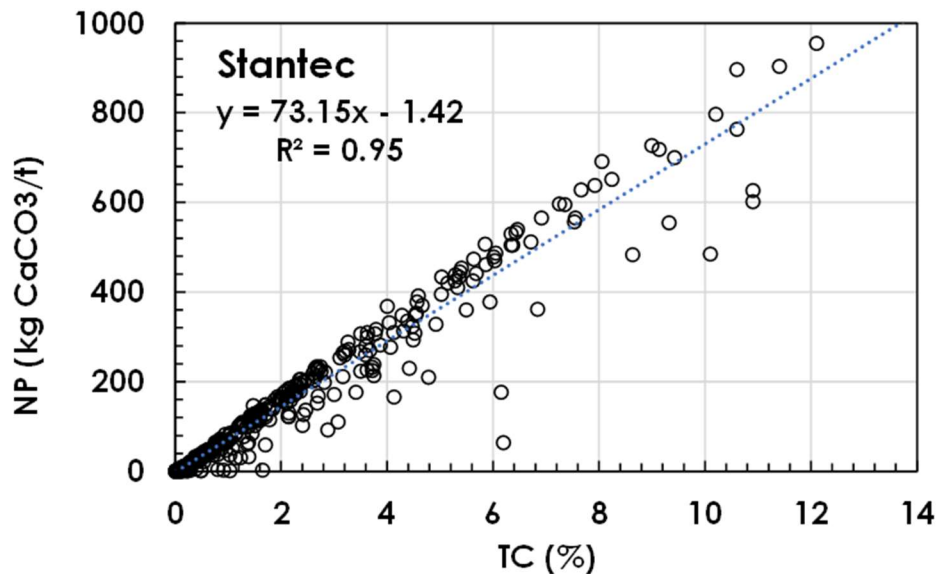


Figure 4.9: Positive correlation between TC and NP for Stantec (2013) data, in which samples with TC > 12 wt. % excluded.

ANOVA testing was completed to provide insight into statistically significant differences between the ARD risk classification results from the Stantec, Okane, and total data groups. Testing was completed on each ARD category (NPAG, PAG, Uncertain). When the p-value (probability) is less than significance level, the null hypothesis is rejected, therefore it is assumed that there is no statistically significant difference between the groups tested.

When comparing the number of samples classified as NPAG in each dataset, p-values were less than the significance level for both datasets and between formations (Table 4.11), meaning that there are statistically significant differences between NPAG distribution for both the Stantec and Okane datasets and between formation groups. It is possible that the statistically significant difference between datasets here related to methods used to measure carbon content and related NP between Stantec and Okane samples, related to the fact that within some formations (such as the Menihek and Sokoman) the presence of graphite influenced these measurements (Appendix A).

However, when comparing the PAG and Uncertain ARD risk categories, p-values were less than the significance level for formation and greater than significance levels for datasets (Table 4.12 and Table 4.13). These results suggest that is no statistically significant difference between the classification of PAG and Uncertain ARD mine risk between the Stantec and Okane datasets, but there are statistically significant differences between the formation groupings. The statistically significant difference between different rock units is expected based on previous results that there are naturally occurring differences in the geology between formations.

Table 4.11: ANOVA test results for number of NPAG samples from each dataset.

Source of Variation	SS	df	MS	F	P-value	F crit
Formation	25229	5	5046	12.80	0.0004	3.33
Datasets	7930	2	3965	10.06	0.004	4.10
Error	3941	10	394			
Total	37100	17				

Significance of level $\alpha = 0.05$

Table 4.12: ANOVA test results for the number of PAG samples from each dataset.

Source of Variation	SS	df	MS	F	P-value	F crit
Formation	11950	5	2390	12.09	0.0006	3.33
Datasets	990	2	495	2.50	0.13	4.10
Error	1977	10	198			
Total	14918	17				

Significance of level $\alpha = 0.05$

Table 4.13: ANOVA test results for the number of Uncertain samples from each dataset.

Source of Variation	SS	df	MS	F	P-value	F crit
Formation	583	5	116.6	14.60	0.0003	3.33
Datasets	57	2	28.4	3.55	0.07	4.10
Error	80	10	8.0			
Total	720	17				

Significance of level $\alpha = 0.05$

5 DISCUSSION

The purpose of the Geochemical Characterization Phase I Report is to provide an update on laboratory results from the geochemical characterization program (Okane, 2023a) to date, and determine whether results received thus far are consistent with the Stantec dataset. Discussion of these objectives based on the results in previous sections are summarized below.

5.1 Classification and Interpretation of Laboratory Results

Consistent with previous findings (Stantec 2013; WorleyParsons, 2014), overburden material is classified as NPAG, with average and median NPRs of 30 and 13, respectively. At the 5th percentile, NPR was 2. It can be concluded that the OVBS which is planned to consist of overburden material is not a concern for acidic drainage. Findings from ABA results for mine rock also support the idea that there is sufficient NP in the MRS to neutralize acid generation if the stockpile is well mixed, even considering removal of NPAG rock for the TMF dam embankment construction. However, there is still potential risk for metals to be released from sulfide oxidation, though maintaining high pH from available buffering carbonate minerals could potentially attenuate some of these metals released from sulfide oxidation before seeing their release into the environment.

Previous work (Stantec, 2013; WorleyParsons, 2014) emphasized the risk from graphitic mica schist lithology associated with the Menihek Formation. While additional samples in this report support the risk associated with graphitic schist (i.e. 80% PAG), previous estimates by tonnage were that the graphitic schist rock accounts for 7% of the whole deposit material. As the total PAG tonnage of the deposit may fall between 22.1 to 26.5%, it is important to consider other rock types or formations that may contain PAG materials. However, even after removing an estimated 82.4 Mt of NPAG mine rock required for the TMF dam embankment, the total average and median NPR values were 5.0 and 7.2 respectively for the remaining rock in the MRS, indicating that there is sufficient NP available to neutralize potential acidity generated from sulfide oxidation through management.

When analyzing the spatial distribution of NPR in the Rose Pit from cross sections, most PAG samples (i.e. $\text{NPR} < 1$) are related to the Menihek unit and its margins. However, some PAG samples are also observed in the Katsao, Wishart, and Sokoman Formations. Cross sections (Appendix C) showed that PAG samples are observed at relatively shallow depths within the pit shell. Okane understands that Champion will construct the MRS using an in-pit crusher and conveyor, which will allow for even distribution of higher NP materials to mitigate the risk of generating acidity. During the construction and operations phases of mine life, NPAG mine rock is planned to be used for construction of the TMF dam embankment. To balance the needs for NPAG material for construction and sufficient blending of NP in the MRS during earlier years of mine life, Champion should manage PAG placement and/or extraction schedules (likely through temporary stockpiling). Details for the PAG management plan will be addressed in the waste management plan.

Results from the whole metal analysis identified several metals over the 5x global crustal abundance including (Ag, Bi, Cd, S, Se, Te, U), however these were different than some of the metals highlighted as concern in previous works (As, Cu, Ni, Zn). Static testing data can raise a concern of contaminants that may become a potential risk when their abundances are beyond the Canadian Interim sediment quality guidelines (ISQG), but the static data cannot be used to provide evidence for the evolution of these contaminants in seepage from mine during weathering. Results of SFE, XRD, and kinetic testing is expected to provide additional insight once data becomes available for review. The additional test results as part of the geochemical characterization program will provide insight into the potential risks associated of metal leaching.

5.2 Statistical Comparisons of Datasets and Formations

ABA risk in previous work (WorleyParsons, 2014) was highlighted mainly in the Menihek Formation, though it was noted that all samples contained some PAG samples. However, the statistical tests reveal some differences by formation type between the two datasets, suggesting that it's possible to have more acid generation or metal release risk in other formation types, such as Sokoman and Wishart Formations. It was noted that some inconsistencies may have developed between the old and new block models.

The Student's t-test results revealed that Stantec ABA and metal data are both consistent with Okane data, with the exception of ABA data from the Sokoman Formation. Findings from ANOVA testing conducted on ARD risk classification for both the Stantec and Okane datasets suggest that there may be some statistically significant differences in materials classified as NPAG between the Okane and Stantec datasets, and between formations. It was also noted that abnormally high TC (over the theoretical limit) was measured from the Stantec dataset, which may also contribute to statistical differences. This means the NP of samples from the Menihek formation and from other graphite-containing samples could be overestimated in previous data based on total carbon in the Stantec datasets. When looking at the PAG and Uncertain classification groups, statistically significant differences were also noted between formation type, but not between Okane and Stantec datasets. It has been previously noted that differences exist by formation in terms of PAG risk, therefore the ANOVA tests suggest consistency in the methods for classification of PAG and Uncertain rock types between Stantec and Okane datasets.

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7 CLOSURE

We trust information provided is satisfactory for your requirements. Please do not hesitate to contact the undersigned at 437-684-4071 for further information or questions.

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Appendix A

Summary of Stantec and Okane Static Methods

Stantec Methods

ABA tests were undertaken in the previous work completed for Alderon using the following methods:

- AP in Phase III of previous material characterization (WorleyParsons, 2014) of all materials was calculated from the total sulphur content, where:
 - Total S (wt. %) was determined by LECO furnace;
 - Sulphate S (wt. %), determined by colourimetry following dilute hydrochloric acid digestion); and
 - Sulphide S (wt. %) was determined by difference between total S and sulphate S.
- Carbonate NP was calculated from the carbonate content of the samples (determined by pyrolysis followed by quantification by LECO furnace) (i.e. Carbonate NP = (Total C – Graphite C) x 83.3).
- Sobek NP was calculated analytical determination of the modified Sobek NP.
- In previous ABA characterization work, neutralization potential ratio (NP/AP = NPR) was calculated using both carbonate NP and Sobek NP, where the lowest NPR of the two values were used for all formations except for Menihek (which only used Sobek NP due to the presence of graphite).

Okane Methods

ABA tests were undertaken in the previous work completed for Alderon using the following methods:

- AP of all materials was calculated from the total Sulphur content, where:
 - Total S (wt. %) was determined by LECO furnace and IR spectroscopy;
 - Sulphate S (wt. %) determined as barium sulphate precipitation and gravimetric finish following dilute (15%) hydrochloric acid digestion; and
 - Sulphide S (wt%) was calculated as the difference between total S and sulphate S.
- Carbonate NP was calculated from the carbonate content of the samples (determined using HClO₄ digestion and CO₂ coulometer).

Appendix B

Student T-test Results

Table B.1: T-test for NPR data for the graphitic schist lithology.

NNP	Okane	Stantec
Mean	-47	-35
Variance	4444	6932
Observations	26	37
Hypothesized Mean Difference	0	
Degree of freedom (df)	60	
t Stat	-0.62838	
P(T<=t) one-tail	0.266071	
t Critical one-tail	1.670649	
P(T<=t) two-tail	0.532142	
t Critical two-tail	2.000298	
	P > 0.05	

Table B.2: T-test for NPR data of mine rock in the Menihek Formation.

NNP	Okane	Stantec
Mean	11.7	3.9
Variance	8375	8034
Observations	82	127
Hypothesized Mean Difference	0	
Degree of freedom (df)	170	
t Stat	0.611581	
P(T<=t) one-tail	0.270816	
t Critical one-tail	1.653866	
P(T<=t) two-tail	0.541632	
t Critical two-tail	1.974017	
	P > 0.05	

Table B.3: T-test for NPR data of mine rock in the Sokoman Formation.

NPR	Okane	Stantec
Mean	127	341
Variance	59642	311127
Observations	89	117
Hypothesized Mean Difference	0	
Degree of freedom (df)	168	
t Stat	-3.7050275	
P(T<=t) two-tail	0.00028656	
t Critical two-tail	1.97418519	
	P > 0.05	

Table B.4: T-test for NPR data of mine rock in the Katsao Formation.

NPR	Okane	Stantec
Mean	4	4
Variance	14	58
Observations	13	36
Hypothesized Mean Difference	0	
Degree of freedom (df)	42	
t Stat	-0.017037	
P(T<=t) two-tail	0.9864876	
t Critical two-tail	2.0180817	
	P > 0.05	

Table B.5: T-test for NPR data of mine rock in the Wishart Formation.

NPR	Okane	Stantec
Mean	59	40
Variance	37371	5853
Observations	62	85
Hypothesized Mean Difference	0	
Degree of freedom (df)	75	
t Stat	0.75528	
P(T<=t) two-tail	0.452447	
t Critical two-tail	1.992102	
	P > 0.05	

Table B.6: T-test for NPR data of Overburden.

NPR	Okane	Stantec
Mean	29	19
Variance	1669	290
Observations	8	61
Hypothesized Mean Difference	0	
Degree of freedom (df)	7	
t Stat	0.637607	
P(T<=t) two-tail	0.544013	
t Critical two-tail	2.364624	
	P > 0.05	

Table B.7: T-test for As data for all mine rock formations.

As	Okane	Stantec
Mean	4.1	4.4
Variance	104.0	184.1
Observations	133	232
Hypothesized Mean Difference	0	
Degree of freedom (df)	337	
t Stat	-0.21492	
P(T<=t) two-tail	0.829963	
t Critical two-tail	1.967028	
	P > 0.05	

Table B.8: T-test for Cu data for all mine rock formations.

Cu	Okane	Stantec
Mean	44	42
Variance	4739	3573
Observations	133	232
Hypothesized Mean Difference	0	
Degree of freedom (df)	245	
t Stat	0.20923	
P(T<=t) two-tail	0.834443	
t Critical two-tail	1.969694	
	P > 0.05	

Table B.9: T-test for Ni data for all mine rock formations.

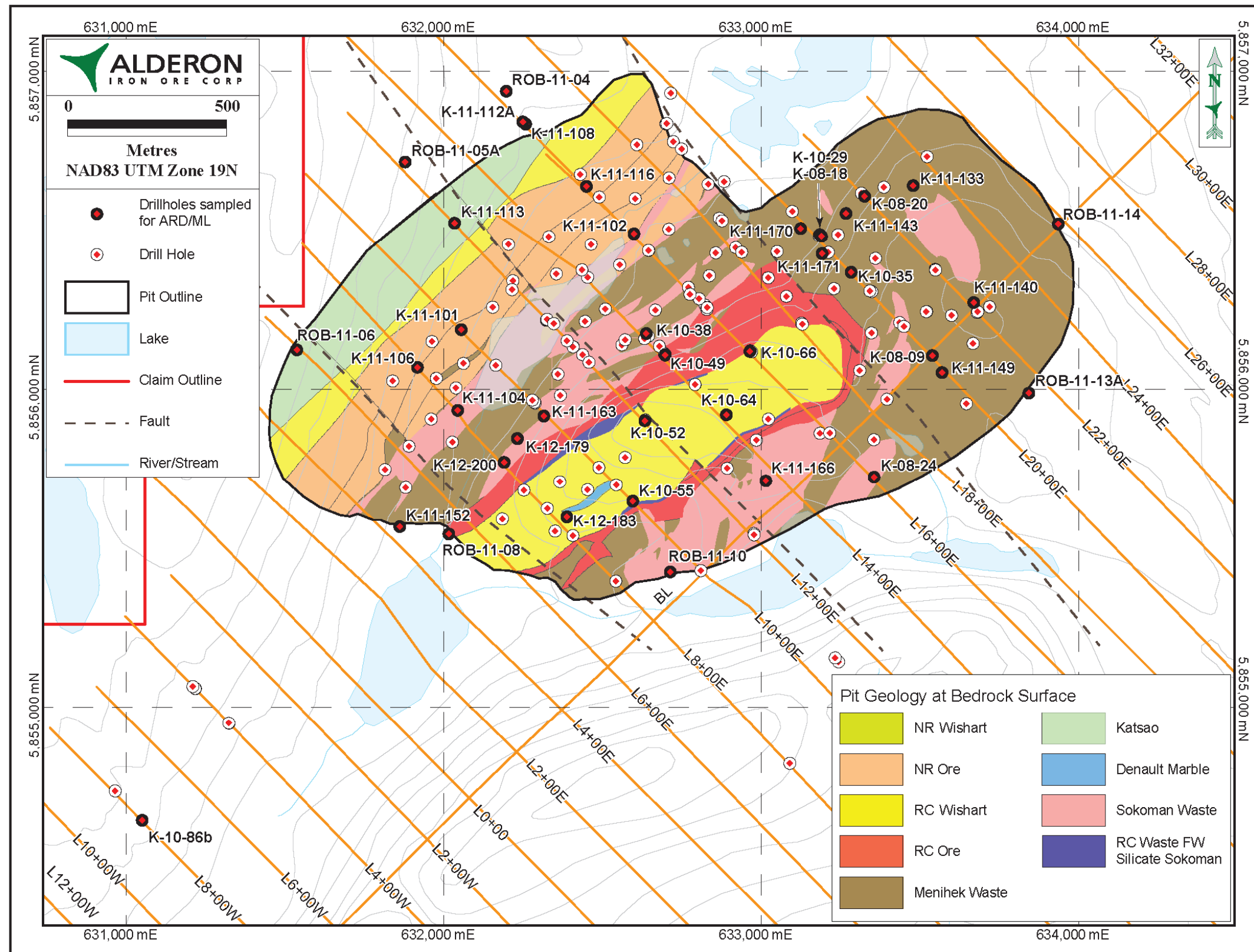
Ni	Okane	Stantec
Mean	33	39
Variance	1933	2914
Observations	133	232
Hypothesized Mean Difference	0	
Degree of freedom (df)	322	
t Stat	-1.15703	
P(T<=t) two-tail	0.248117	
t Critical two-tail	1.967359	
	P > 0.05	

Table B.10: T-test for Zn data for all mine rock formations.

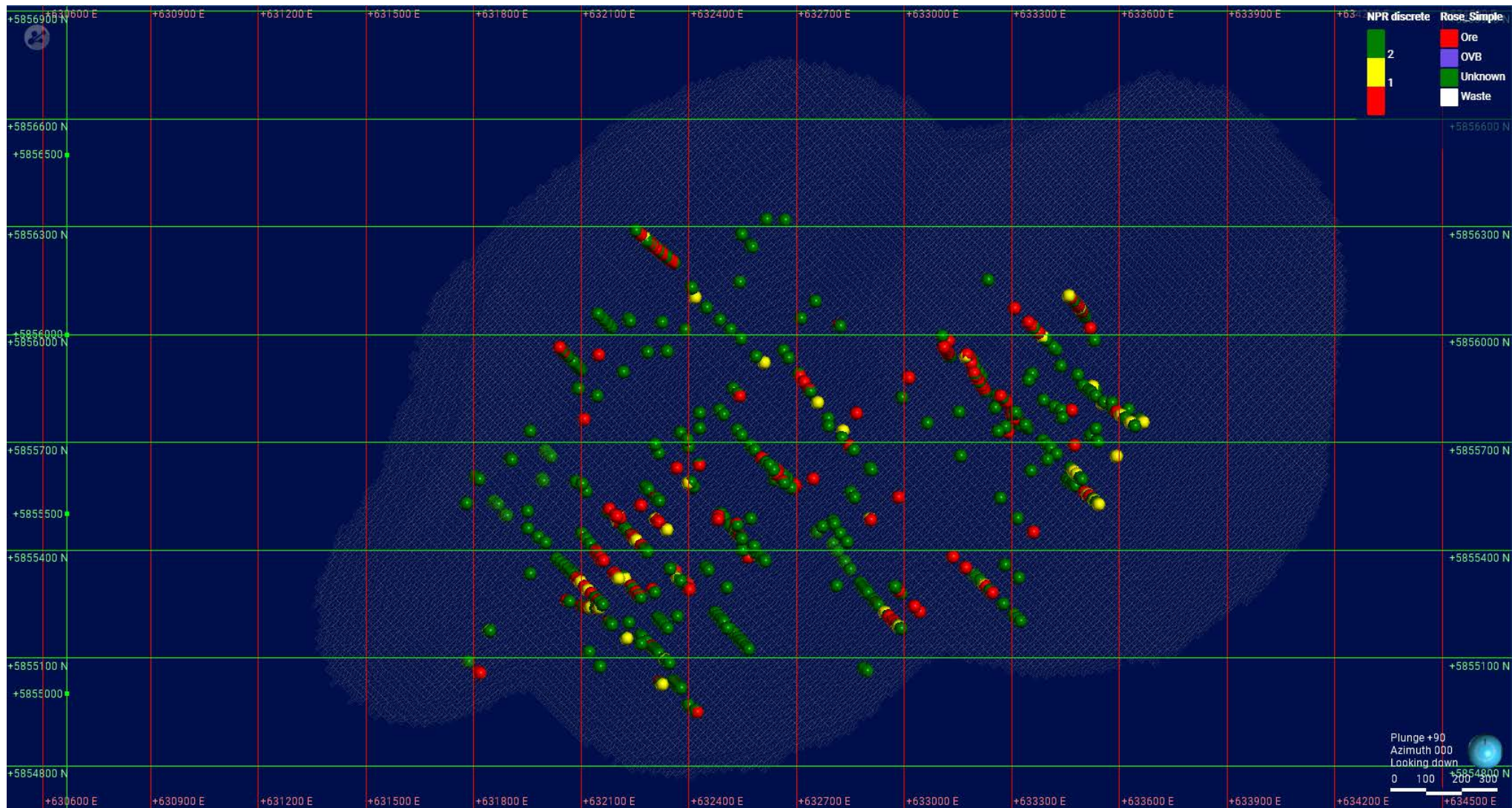
Zn	Okane	Stantec
Mean	121	121
Variance	62399	47427
Observations	133	232
Hypothesized Mean Difference	0	
Degree of freedom (df)	245	
t Stat	-0.00012	
P(T<=t) two-tail	0.999908	
t Critical two-tail	1.969694	
	P > 0.05	

Appendix C

Geologic Cross Sections and NPR

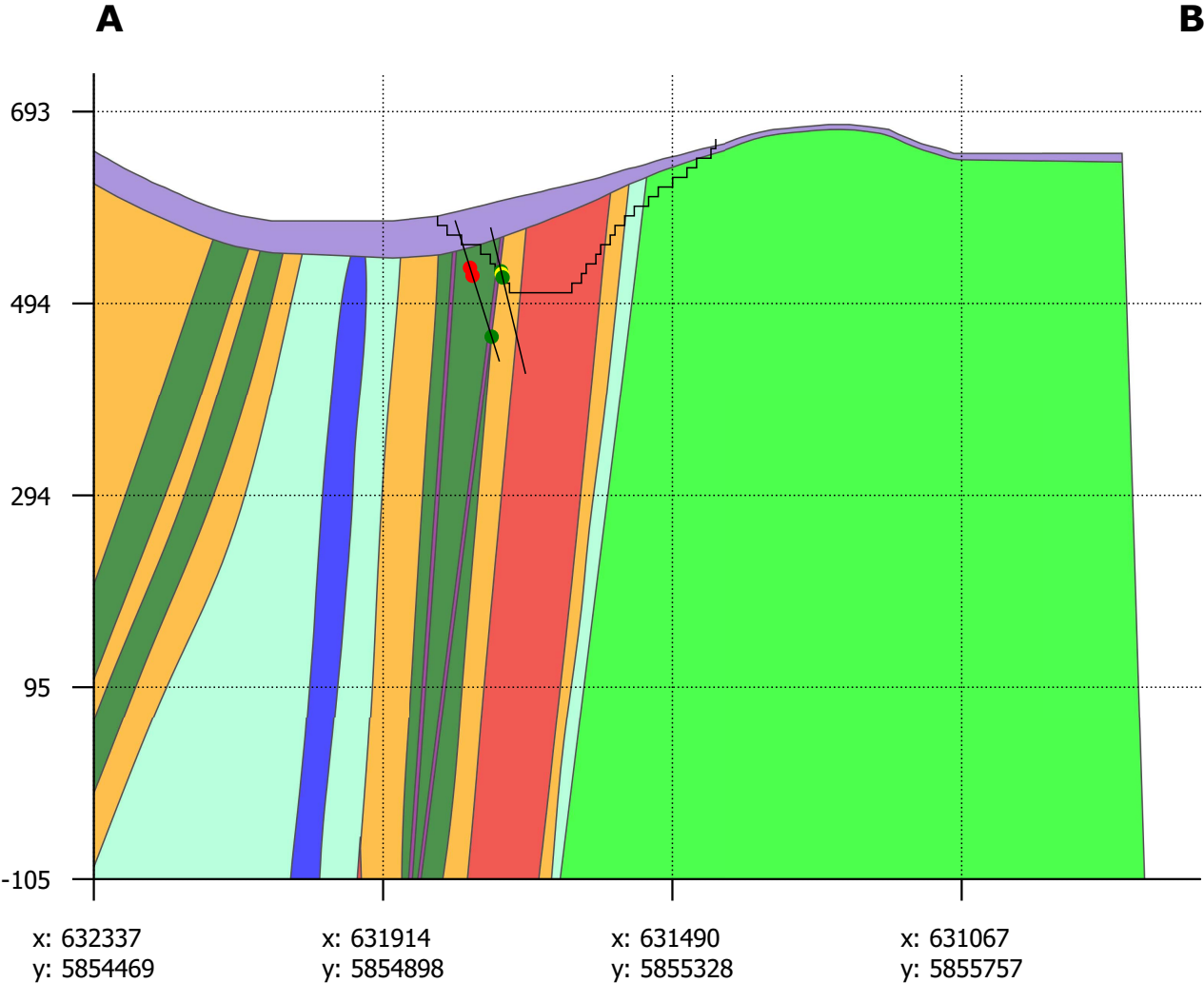


Previous pit geology map with boreholes sampled for ARD/ML by Stantec and cross section lines used in new pit shell model



NPR looking down in pit shell

L0+00E



Legend

Formations

Overburden	Post-Iron dyke/sill
Denault	Sokoman
Katsao	Sokoman Ore
Menihek	Wishart

NPR

- NPR
- ≤ 1
- ≤ 2
- > 2

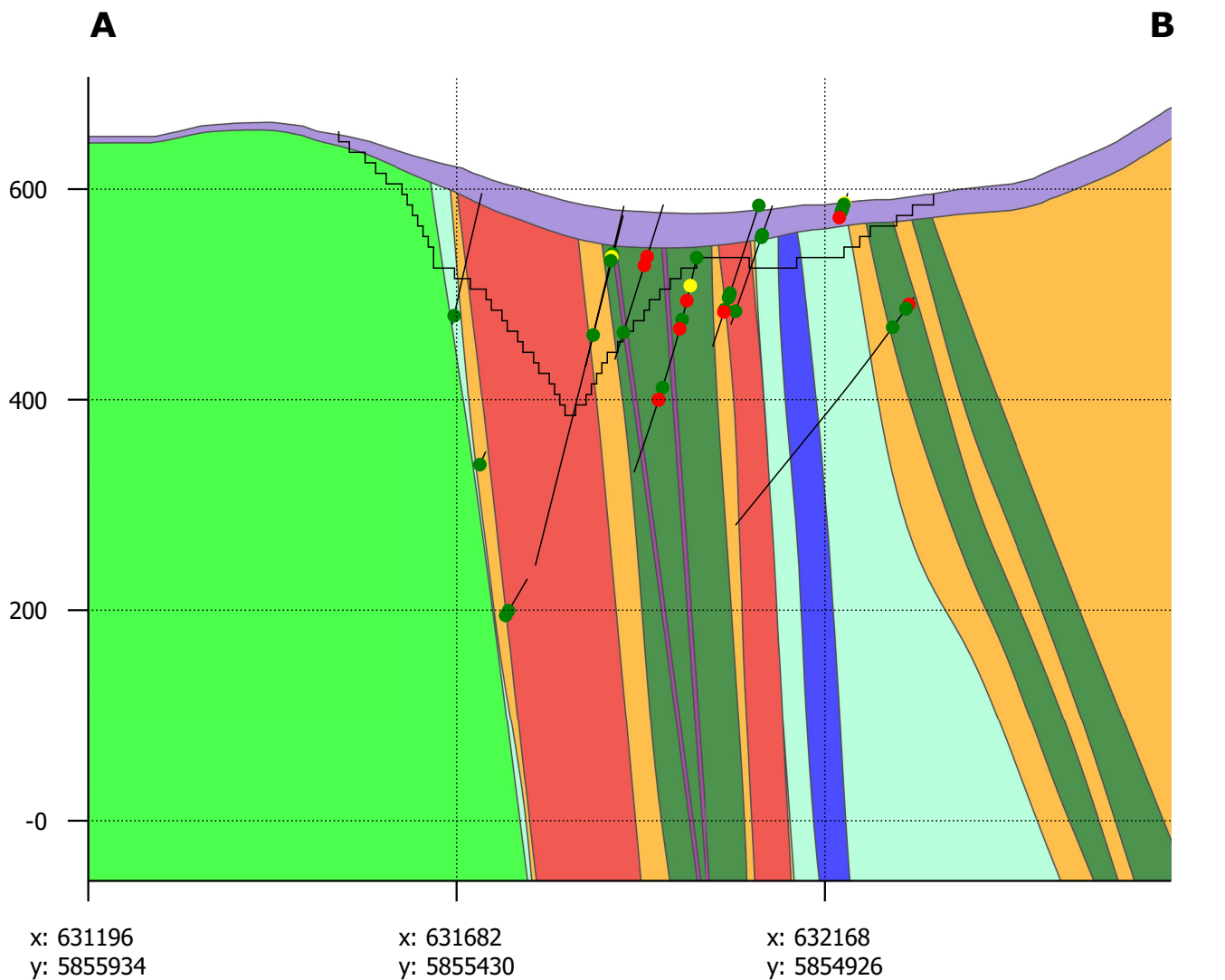
Location

A: 632301, 5854433
B: 630681, 5856076

Scale: 1:15,000
Vertical exaggeration: 2x



L2+00E



Legend

Formations

Overburden	Post-Iron dyke/sill
Denault	Sokoman
Katsao	Sokoman Ore
Menihek	Wishart

NPR

●	NPR
	≤ 1
	≤ 2
	> 2

Location

A: 631196, 5855934

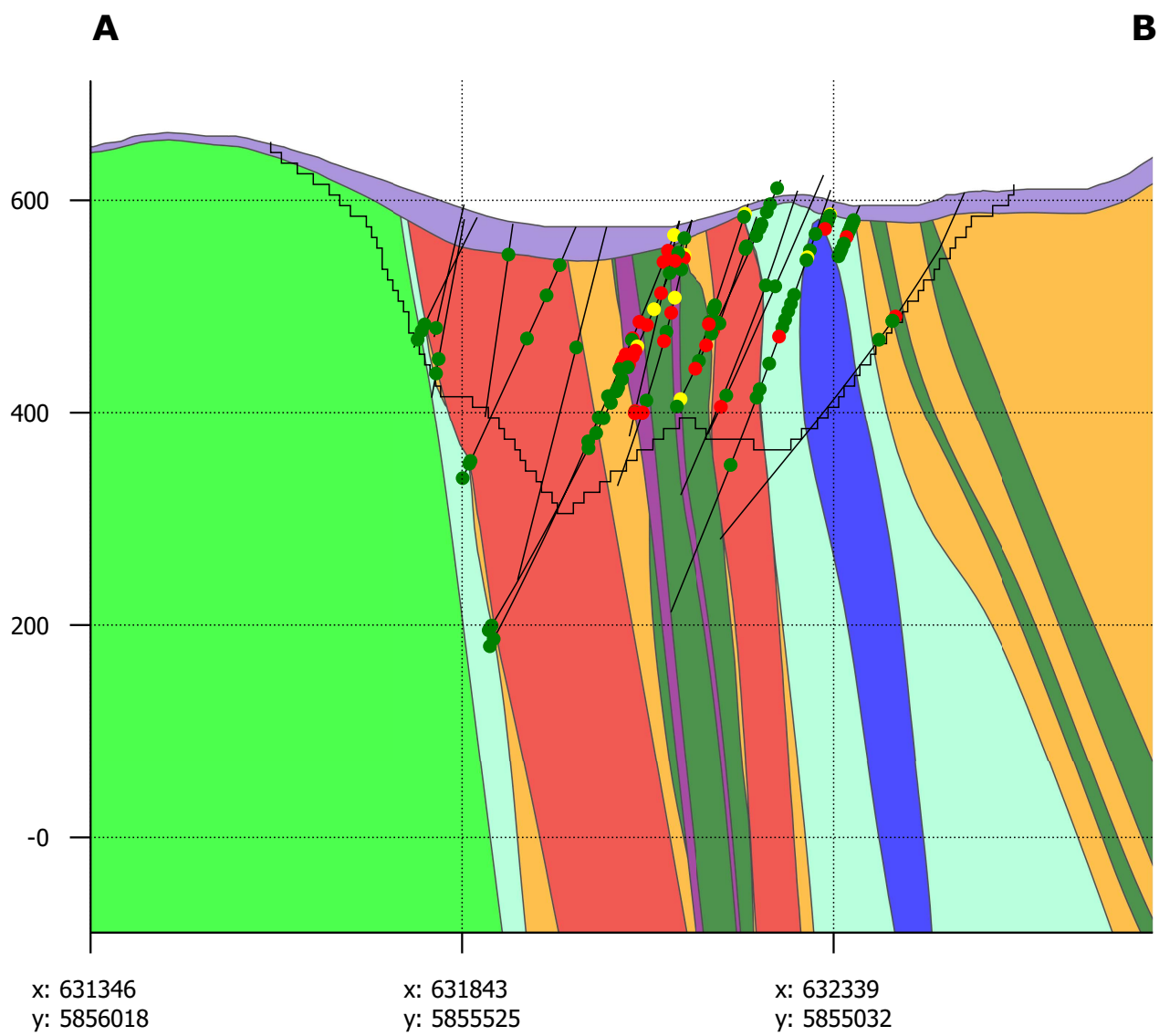
B: 632625, 5854453

Scale: 1:13,000

Vertical exaggeration: 2x



L4+00E



Legend

Formations

Overburden	Post-Iron dyke/sill
Denault	Sokoman
Katsao	Sokoman Ore
Menihek	Wishart

NPR

NPR
≤ 1
≤ 2
> 2

Location

A: 631346, 5856018

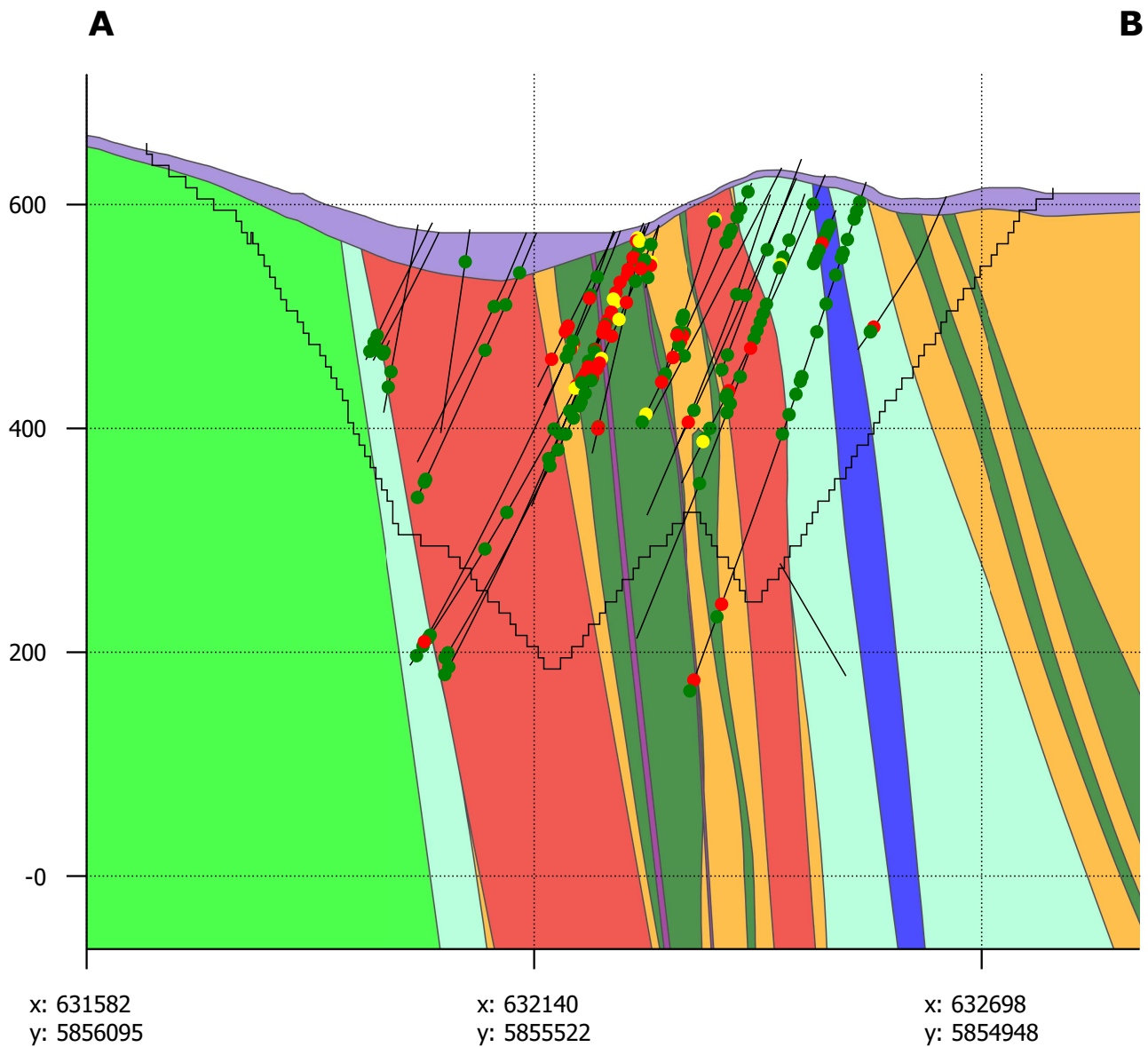
B: 632766, 5854608

Scale: 1:13,000

Vertical exaggeration: 2x



L6+00E



Legend

Formations

 Overburden	 Post-Iron dyke/sill
 Denault	 Sokoman
 Katsao	 Sokoman Ore
 Menihek	 Wishart

NPR

 NPR
 ≤ 1
 ≤ 2
 > 2

Location

A: 631582, 5856095

B: 632895, 5854746

Scale: 1:12,000

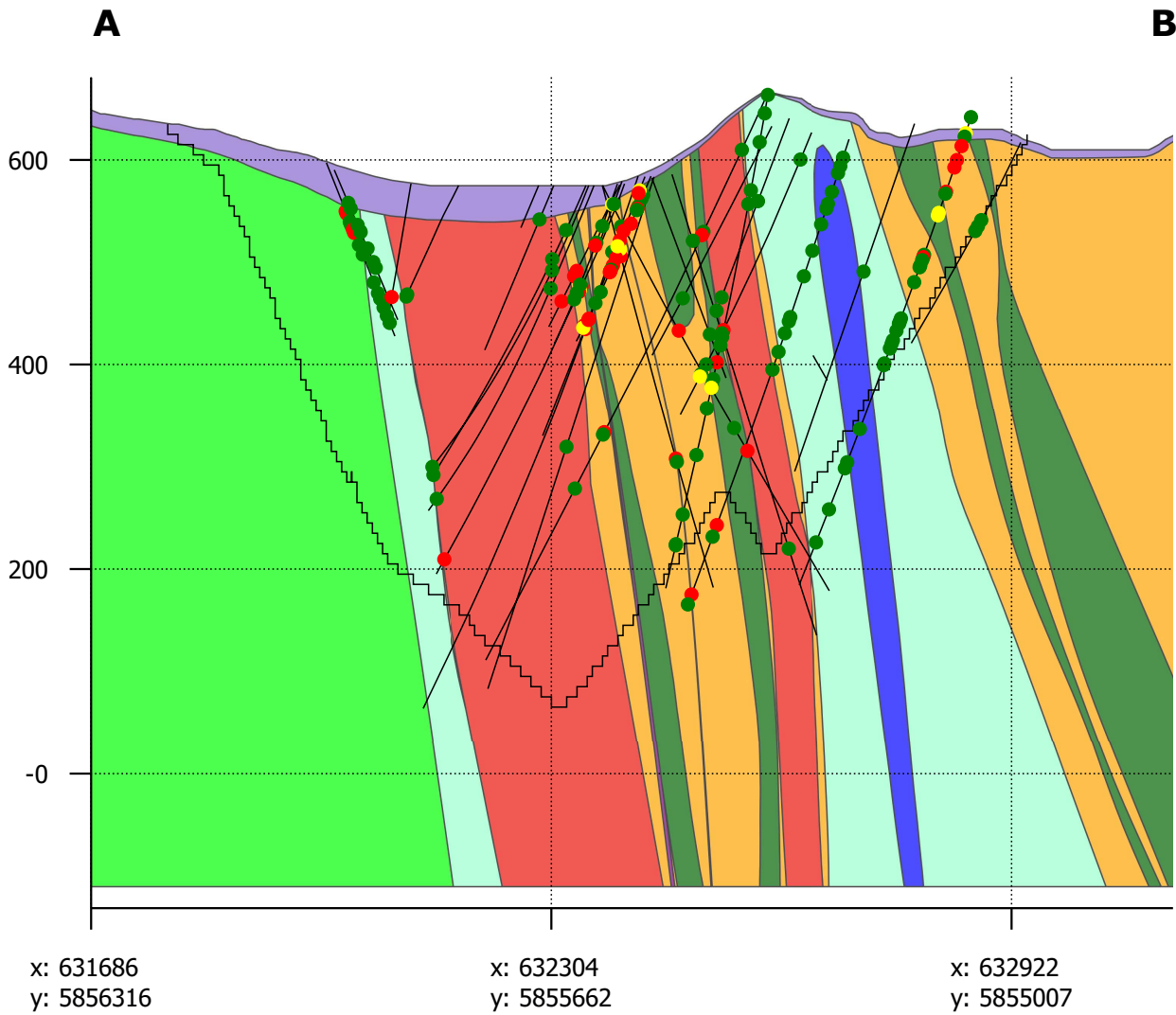
Vertical exaggeration: 2x

0m

940m



L8+00E



Legend

Formations

Overburden	Post-Iron dyke/sill
Denault	Sokoman
Katsao	Sokoman Ore
Menihek	Wishart

NPR

NPR
≤ 1
≤ 2
> 2

Location

A: 631686, 5856316

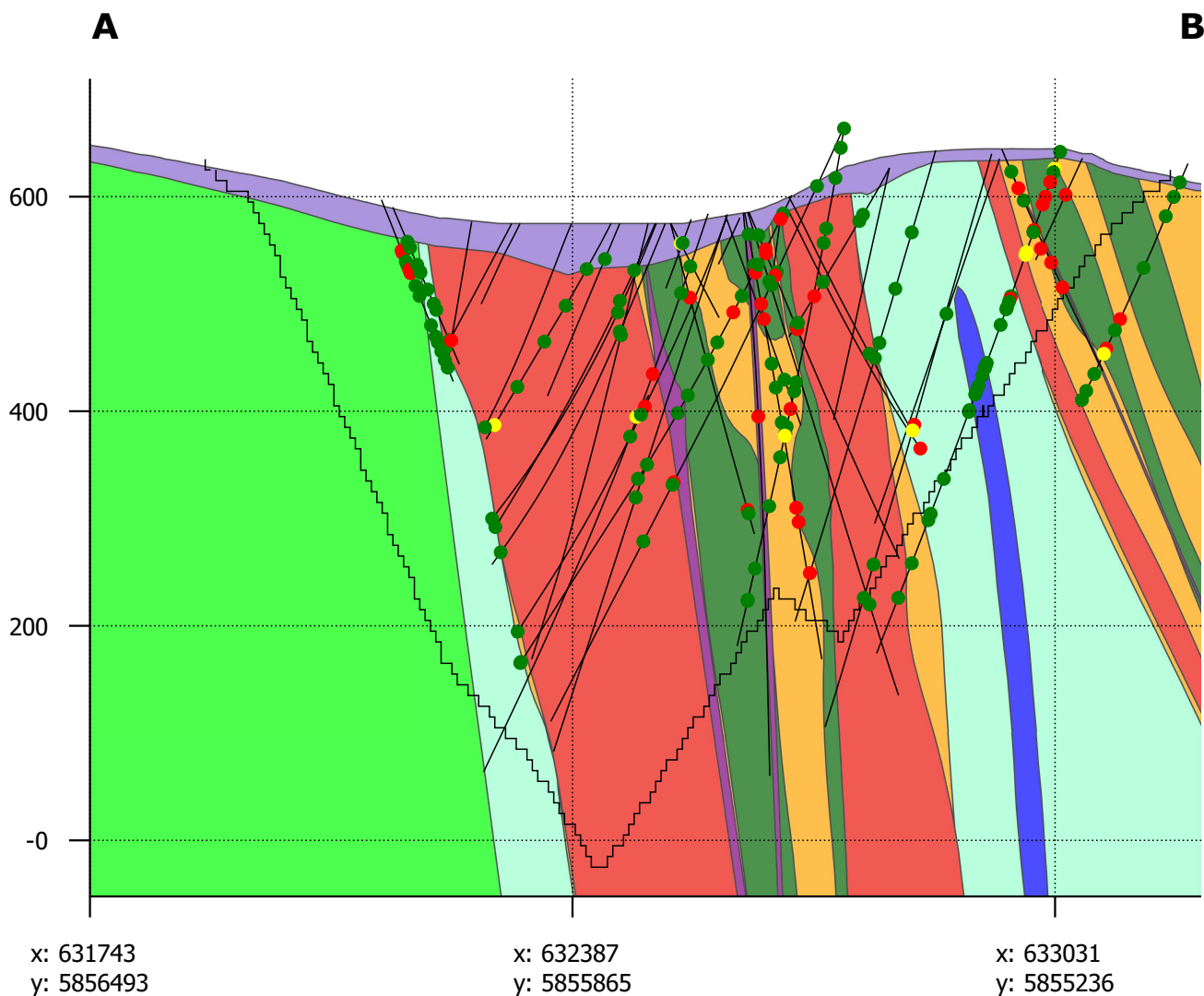
B: 633138, 5854778

Scale: 1:14,000

Vertical exaggeration: 2x



L10+00E



Legend

Formations

Overburden	Post-Iron dyke/sill
Denault	Sokoman
Katsao	Sokoman Ore
Menihek	Wishart

Location

A: 631743, 5856493

B: 633226, 5855046

NPR

NPR
≤ 1
≤ 2
> 2

Scale: 1:13,000

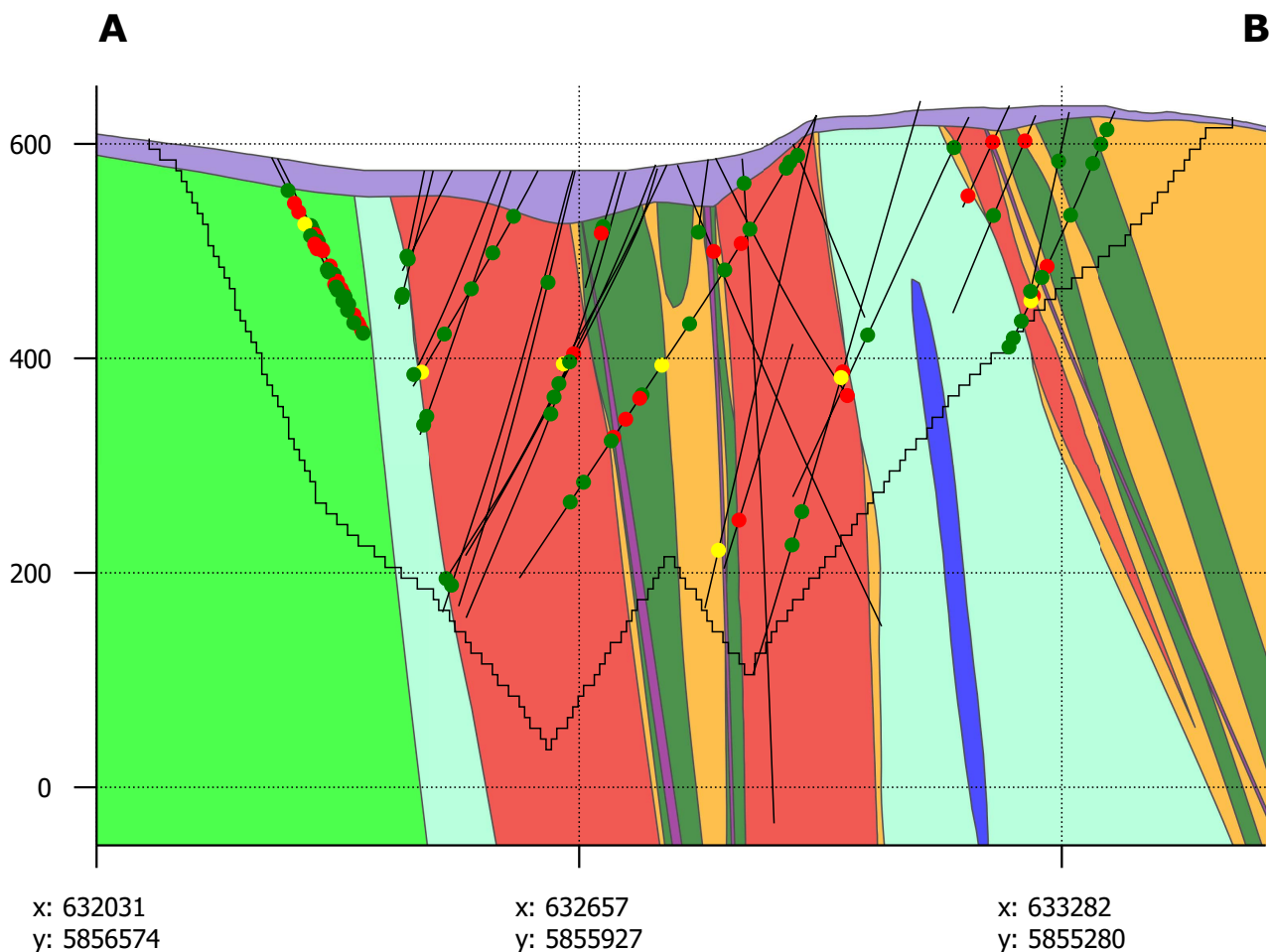
Vertical exaggeration: 2x

0m

1000m



L12+00E



Legend

Formations

Overburden	Post-Iron dyke/sill
Denault	Sokoman
Katsao	Sokoman Ore
Menihek	Wishart

NPR

NPR
≤ 1
≤ 2
> 2

Location

A: 632031, 5856574

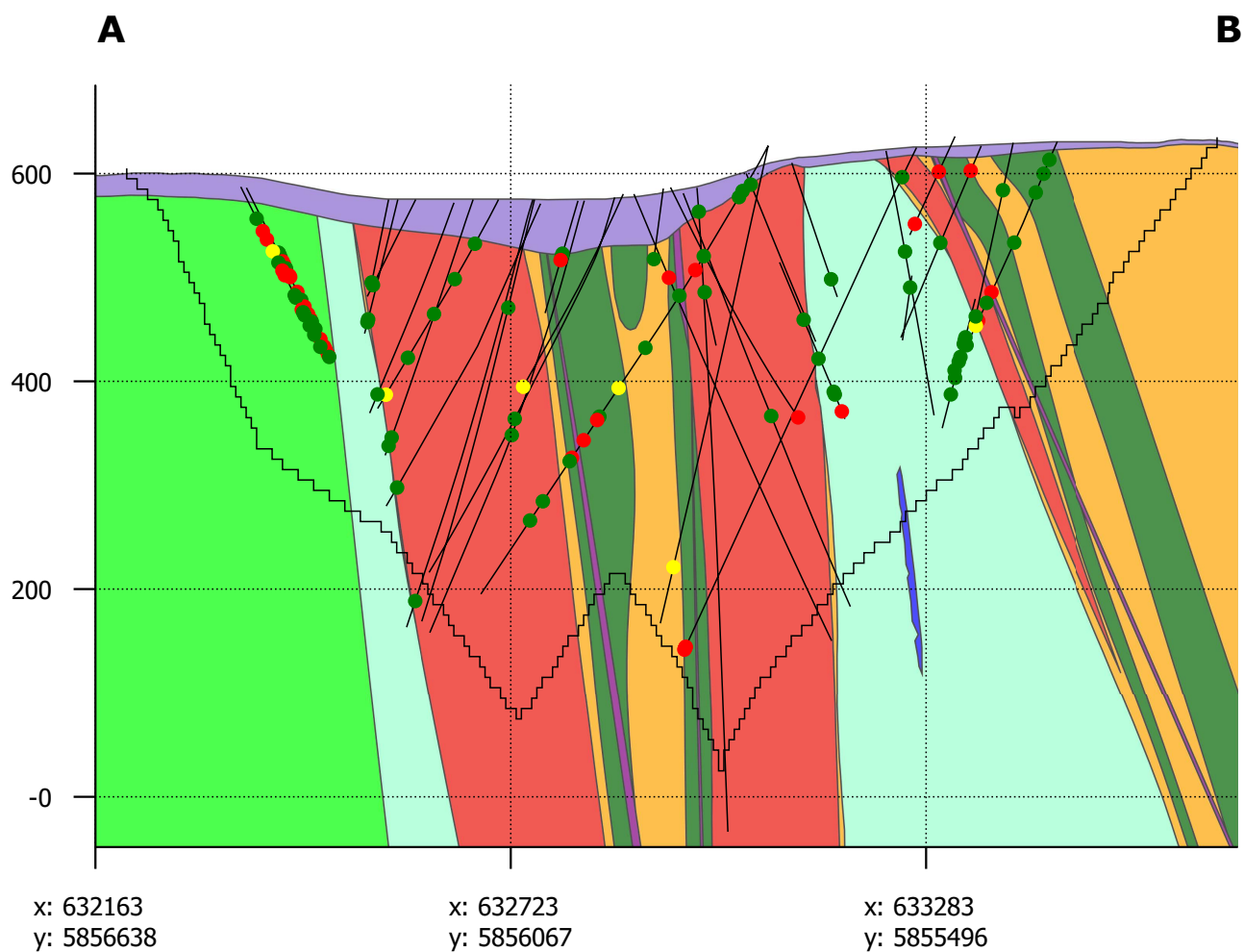
B: 633547, 5855007

Scale: 1:14,000

Vertical exaggeration: 2x



L14+00E



Legend

Formations

Overburden	Post-Iron dyke/sill
Denault	Sokoman
Katsao	Sokoman Ore
Menihek	Wishart

NPR

- NPR
- ≤ 1
- ≤ 2
- > 2

Location

A: 632163, 5856638

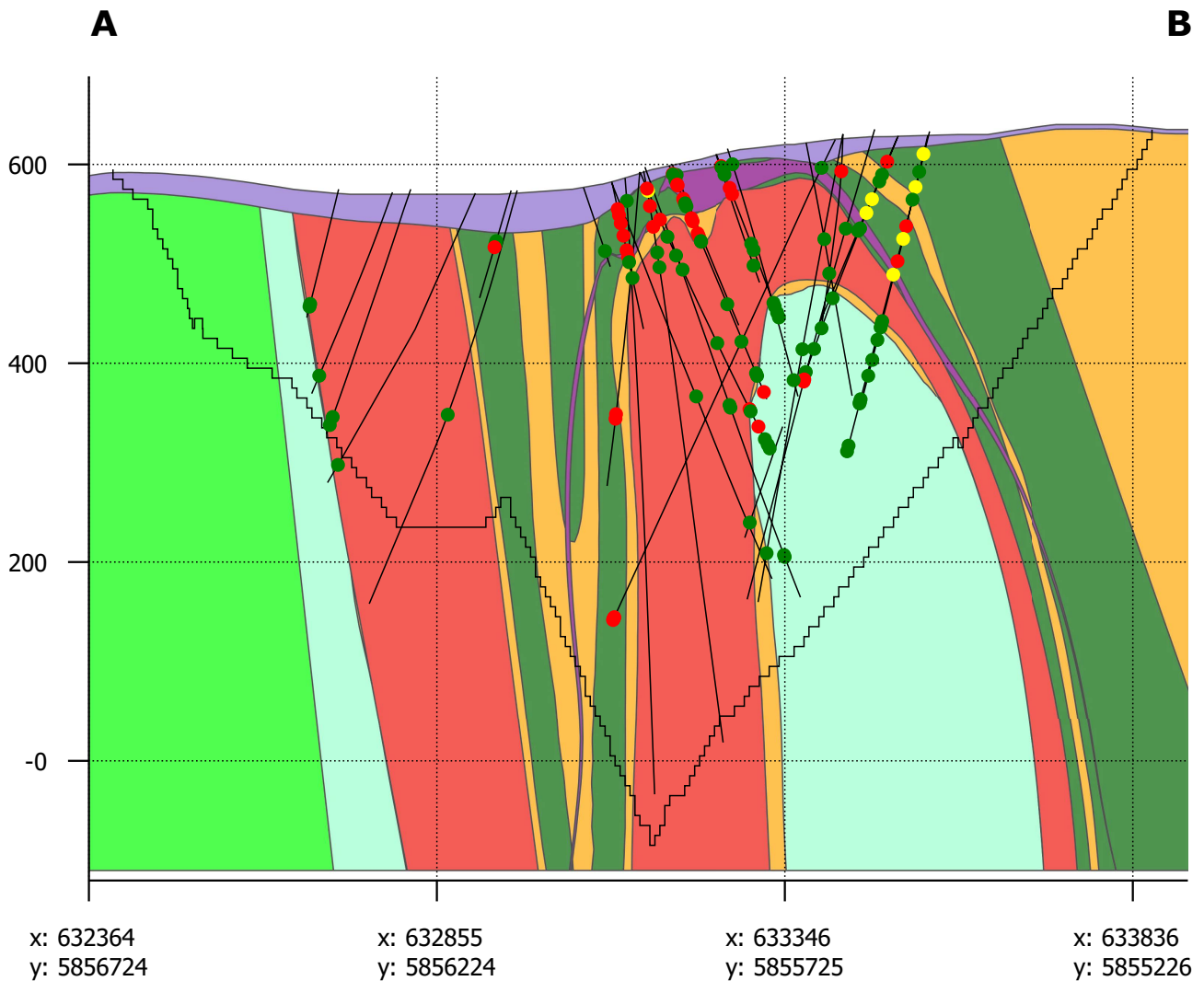
B: 633704, 5855067

Scale: 1:14,000

Vertical exaggeration: 2x



L16+00E



Legend

Formations

Overburden	Sokoman
Katsao	Sokoman Ore
Menihek	Wishart
Post-Iron dyke/sill	

NPR

- NPR
- ≤ 1
- ≤ 2
- > 2

Location

A: 632364, 5856724

B: 633914, 5855147

Scale: 1:14,000

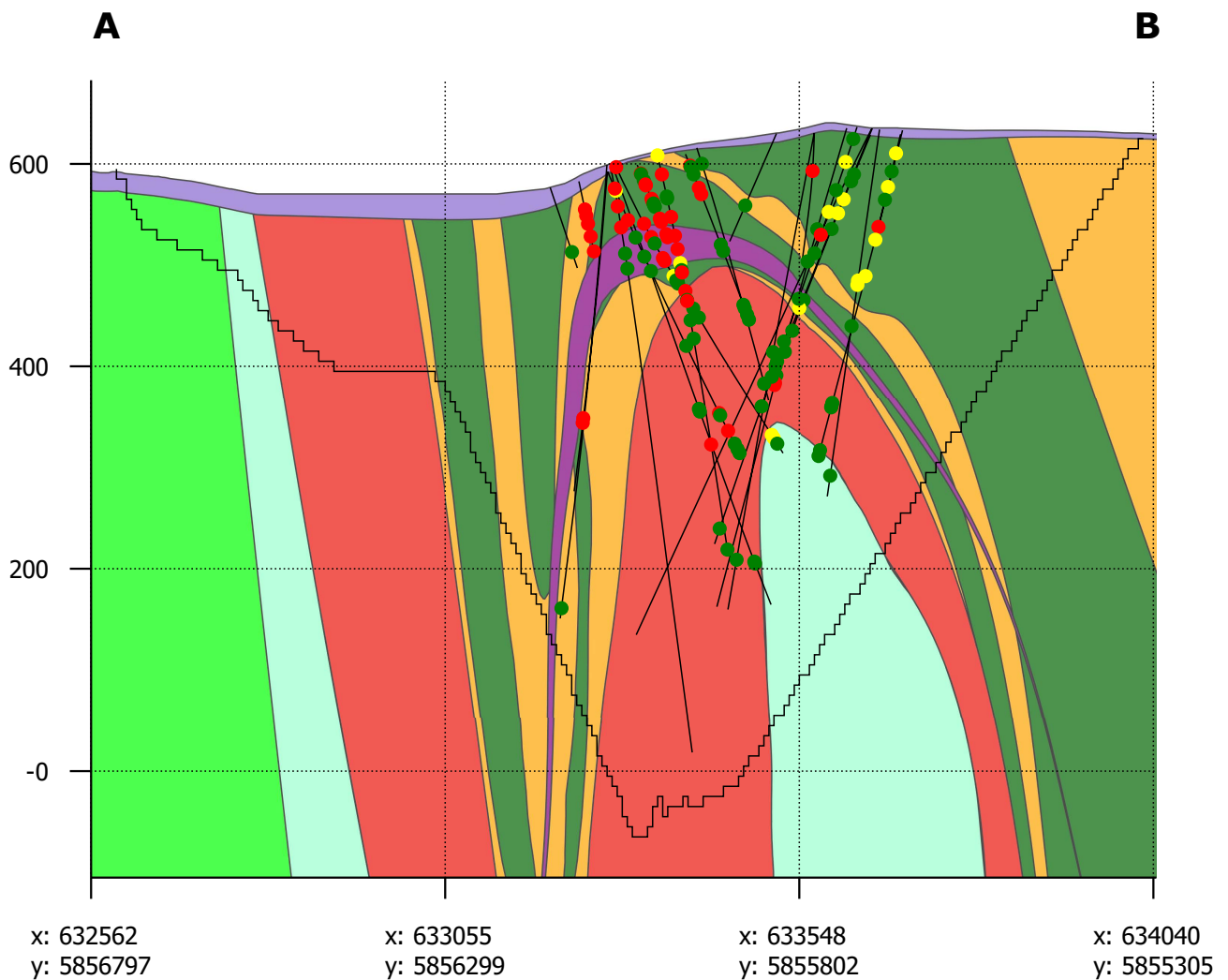
Vertical exaggeration: 2x

0m

1000m



L18+00E



Legend

Formations

Overburden	Sokoman
Katsao	Sokoman Ore
Menihek	Wishart
Post-Iron dyke/sill	

NPR

- NPR
- ≤ 1
- ≤ 2
- > 2

Location

A: 632562, 5856797

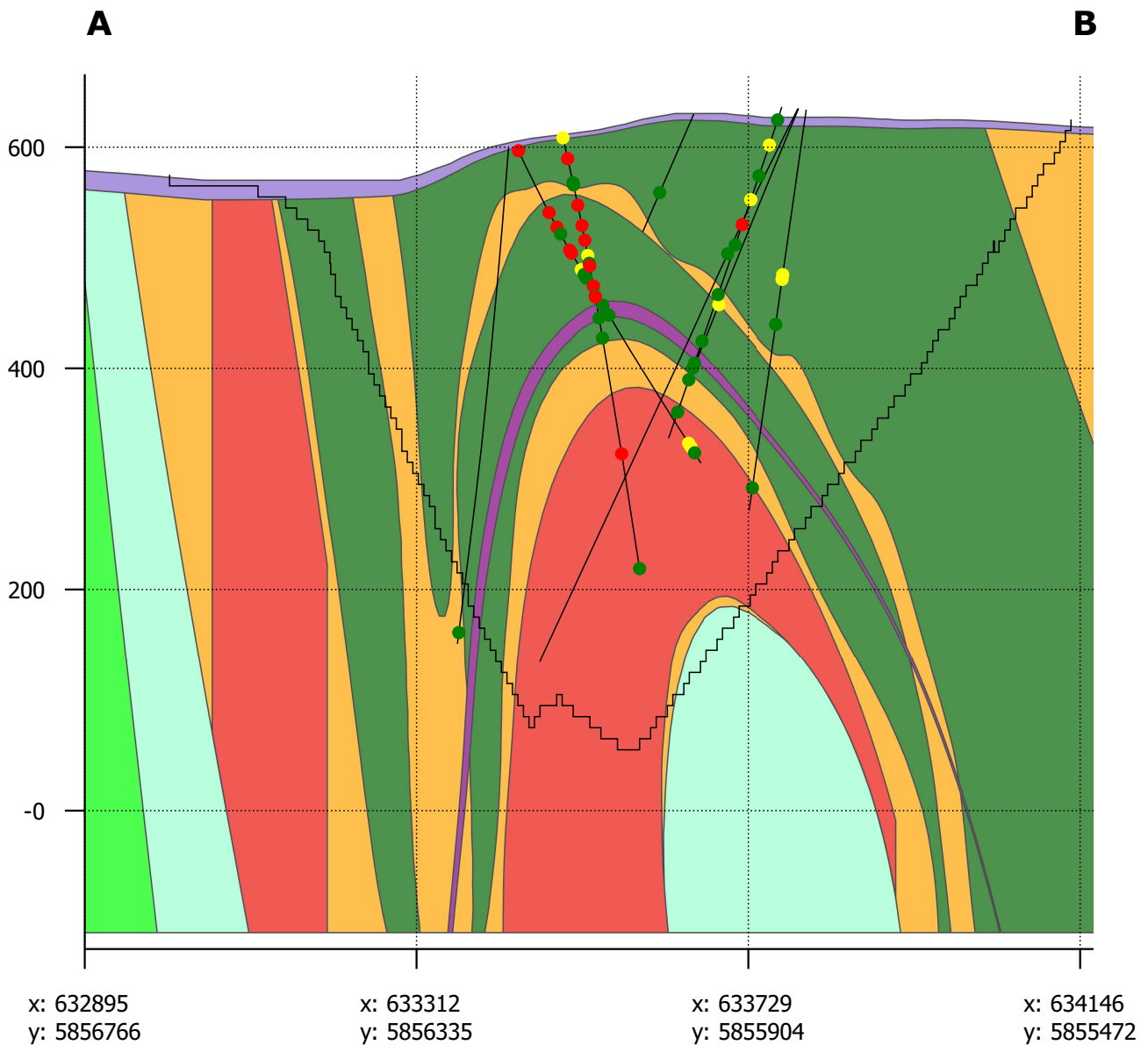
B: 634044, 5855300

Scale: 1:14,000

Vertical exaggeration: 2x



L20+00E



Legend

Formations

Overburden	Sokoman
Katsao	Sokoman Ore
Menihek	Wishart
Post-Iron dyke/sill	

NPR

- NPR
- ≤ 1
- ≤ 2
- > 2

Location

A: 632895, 5856766

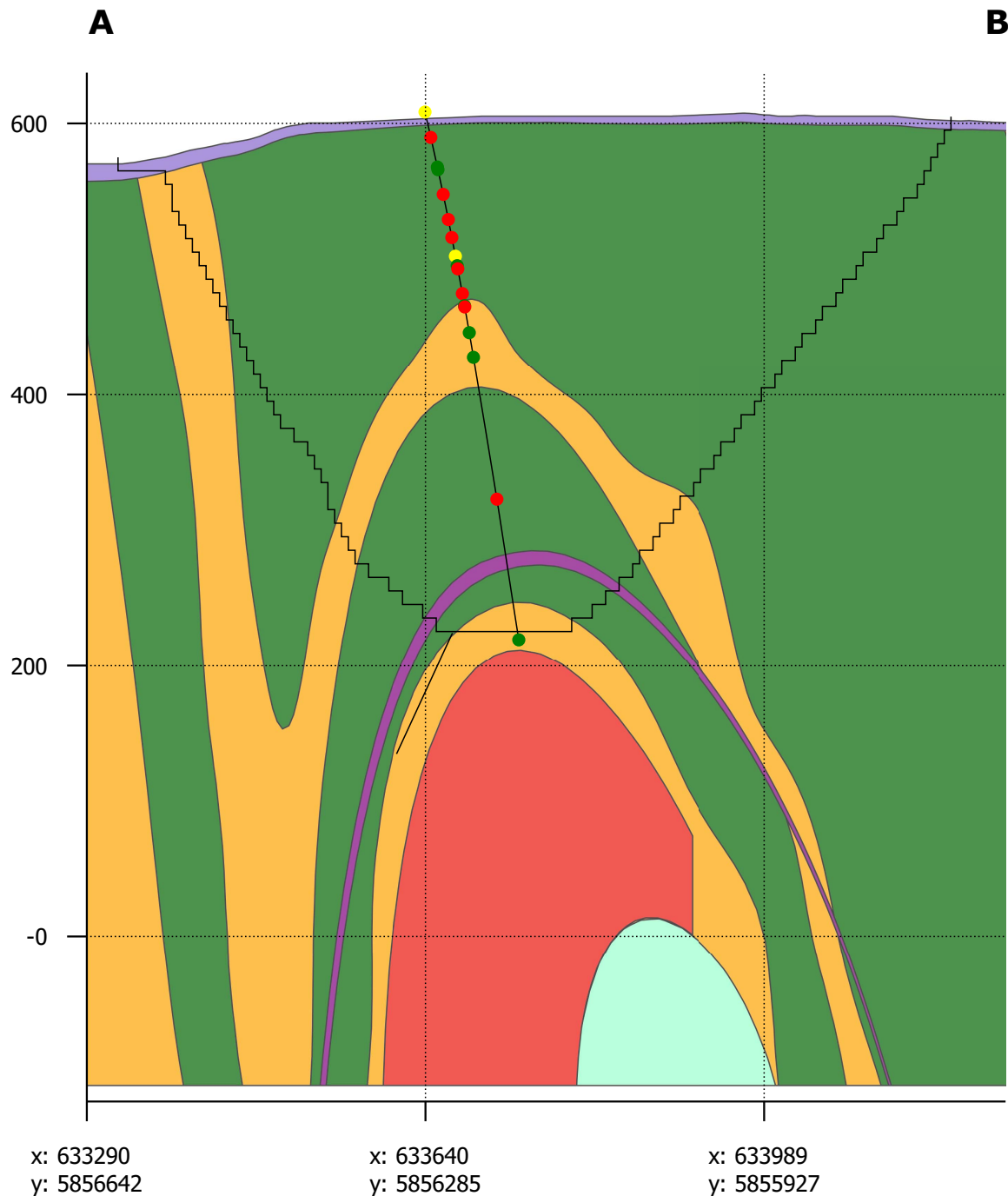
B: 634163, 5855455

Scale: 1:12,000

Vertical exaggeration: 2x



L22+00E



Legend

Formations

Overburden	Sokoman
Katsao	Sokoman Ore
Menihek	Wishart
Post-Iron dyke/sill	

NPR

- NPR
- ≤ 1
- ≤ 2
- > 2

Location

A: 633290, 5856642

B: 634239, 5855672

Scale: 1:9,700

Vertical exaggeration: 2x





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Appendix D

Certificates of Analysis

**QUANTITATIVE PHASE ANALYSIS OF FIFTEEN POWDER SAMPLES USING THE
RIETVELD METHOD AND X-RAY POWDER DIFFRACTION DATA**

Work Order #: VA23331173

Project: Champion Iron Ore

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**Electron Microbeam/X-Ray Diffraction Facility (EMXDF)
Dept. of Earth, Ocean & Atmospheric Sciences
The University of British Columbia
6339 Stores Road
Vancouver, BC V6T 1Z4**

January 16, 2024

METHOD

The 15 samples of **WO#: VA23331173, Project: Champion Iron Ore** were reduced to the optimum grain-size range for quantitative X-ray analysis ($<10\text{ }\mu\text{m}$) by grinding under ethanol in a vibratory McCrone XRD Mill (Retsch GmbH, Germany) for 10 minutes. Continuous-scan X-ray powder-diffraction data were collected over a range of $4\text{--}80^\circ 2\theta$ with $\text{CoK}\alpha$ radiation on a Bruker D8 Advance Bragg-Brentano diffractometer equipped with an Fe filter foil, 0.6 mm (0.3°) divergence slit, incident- and diffracted-beam Soller slits and a LynxEye-XE detector. The long fine-focus Co X-ray tube was operated at 35 kV and 40 mA , using a take-off angle of 6° .

RESULTS

The X-ray diffractograms were analyzed using the International Centre for Diffraction Database PDF-4+ and Search-Match software by Bruker. X-ray powder-diffraction data of the samples were refined with Rietveld program Topas 4.2 (Bruker AXS). The results of quantitative phase analysis by Rietveld refinements are given in Table 1 (separate file, *ALS Geochemistry Results Jan 16 2024 - WO VA23331173 proj Champion Iron Ore - 15 samples.xlsx*). These amounts represent the relative amounts of crystalline phases normalized to 100%. The Rietveld refinement plots are shown in Figures 1-15. Ideal formulae of the minerals are shown in Table 2.

Some of the phases present were poorly crystalline clays. To fit these phases, empirical models for poorly crystalline clays have been calibrated against reference minerals from the Source Clays Project (The Clay Minerals Society) or the Pacific Museum of Earth at UBC using the PONKCS method (Scarlett and Madsen, Powder Diffraction, Vol. 21, No. 4, December 2006). Errors in the models can lead to a decrease in overall accuracy of the phase abundance.

Table 2. Ideal formulae of the present phases for WO#: VA23331173, Proj: Champion Iron Ore

Mineral	Ideal Formula
Almandine - Spessartine	$\text{Fe}_3^{2+}\text{Al}_2(\text{SiO}_4)_3 - \text{Mn}^{2+}_3\text{Al}_2(\text{SiO}_4)_3$
Ankerite - Dolomite	$\text{Ca}(\text{Fe}^{2+}, \text{Mg}, \text{Mn})(\text{CO}_3)_2 - \text{CaMg}(\text{CO}_3)_2$
Apatite	$\text{Ca}_5(\text{PO}_4)_3(\text{F}, \text{Cl}, \text{OH})$
Bayerite	$\text{Al}(\text{OH})_3$
Biotite	$\text{K}(\text{Mg}, \text{Fe}^{2+})_3\text{AlSi}_3\text{O}_{10}(\text{OH})_2$
Calcite	CaCO_3
Clinochlore	$(\text{Mg}, \text{Fe}^{2+})_5\text{Al}(\text{Si}_3\text{Al})\text{O}_{10}(\text{OH})_8$
Ferrosilite	$\text{Fe}^{2+}_2\text{Si}_2\text{O}_6$
Goethite	$\alpha\text{-Fe}^{3+}\text{O}(\text{OH})$
Grunerite	$\text{Fe}_7^{2+}\text{Si}_8\text{O}_{22}(\text{OH})_2$
Gypsum	$\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
Halloysite	$\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$
Hematite	$\alpha\text{-Fe}_2\text{O}_3$
Illite - Muscovite 1M & 2M1	$\sim \text{K}_{0.65}\text{Al}_{2.0}(\text{Al}_{0.65}\text{Si}_{3.35}\text{O}_{10})(\text{OH})_2 - \text{KAl}_2(\text{AlSi}_3\text{O}_{10})(\text{OH})_2$
Illite - Smectite (mixed layer)	$\sim \text{K}_{0.65}\text{Al}_{2.0}(\text{Al}_{0.65}\text{Si}_{3.35}\text{O}_{10})(\text{OH})_2 - (\text{Na}, \text{Ca})_{0.3}(\text{Al}, \text{Mg})_2\text{Si}_4\text{O}_{10}(\text{OH})_2 \cdot n\text{H}_2\text{O}$
Iron	$\alpha\text{-Fe}$
Jarosite	$\text{K}_2\text{Fe}_6^{3+}(\text{SO}_4)_4(\text{OH})_{12}$
Kaolinite	$\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$
K-feldspar (microcline, orthoclase)	KAlSi_3O_8
Magnetite	$\text{Fe}^{2+}\text{Fe}^{3+}_2\text{O}_4$
Montmorillonite (smectite)	$(\text{Na}, \text{Ca})_{0.3}(\text{Al}, \text{Mg})_2\text{Si}_4\text{O}_{10}(\text{OH})_2 \cdot n\text{H}_2\text{O}$
Nacrite	$\text{Al}_2(\text{Si}_2\text{O}_5)(\text{OH})_4$
Plagioclase (albite; albite, calcian)	$\text{NaAlSi}_3\text{O}_8\text{-CaAl}_2\text{Si}_2\text{O}_8$
Pyrite	FeS_2
Pyrolusite	Mn^{4+}O_2
Pyrrhotite	Fe_{1-x}S
Quartz	SiO_2

Rutile	TiO_2
Siderite	FeCO_3
Sphalerite	$(\text{Zn,Fe})\text{S}$
Titanite	CaTiSiO_5
Vermiculite	$(\text{Mg,Fe}^{2+},\text{Al})_3(\text{Si,Al})_4\text{O}_{10}(\text{OH})_2 \cdot 4\text{H}_2\text{O}$

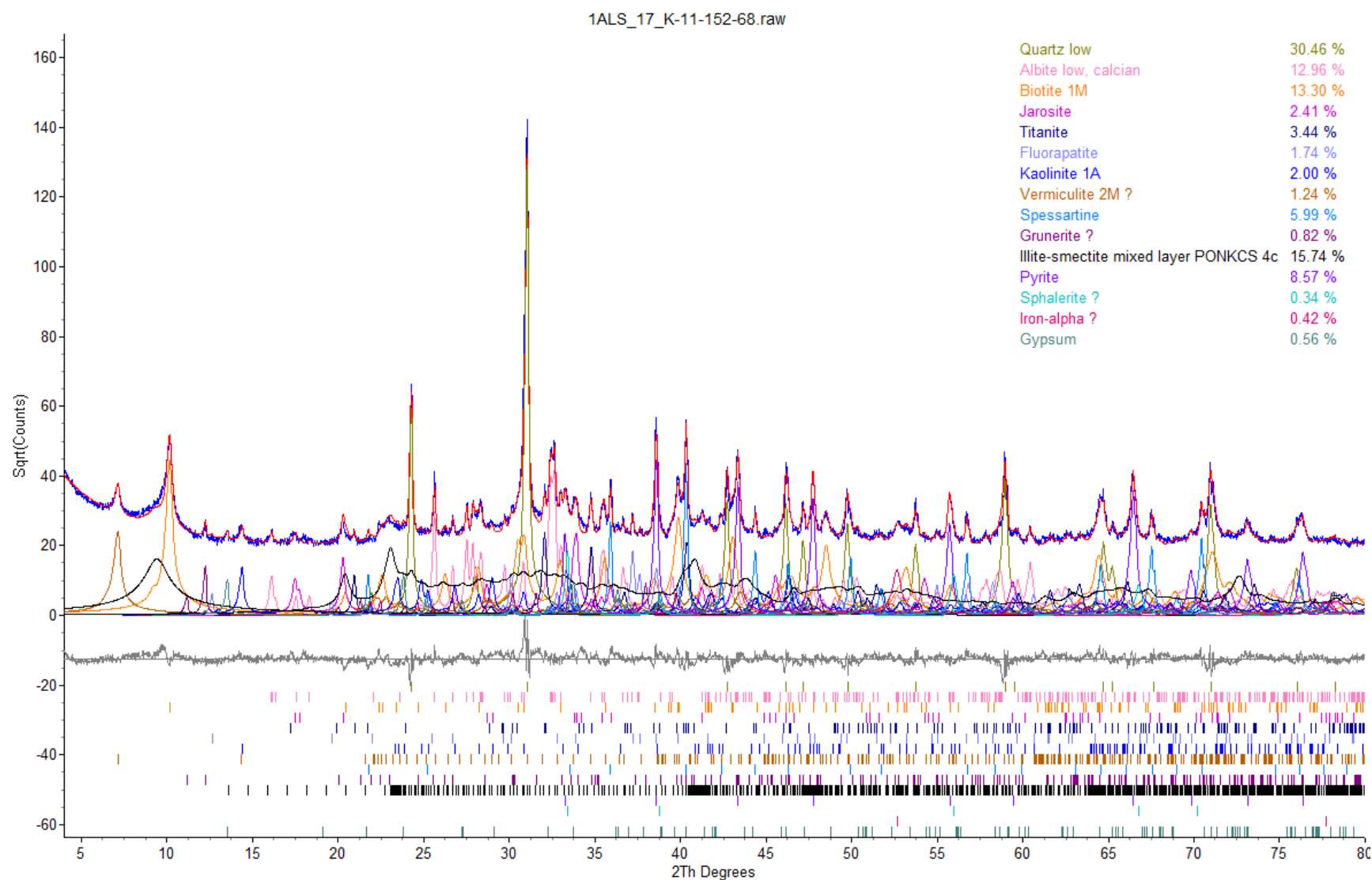


Figure 1. Rietveld refinement plot of sample **ALS Geochemistry - 17_K-11-152-68** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

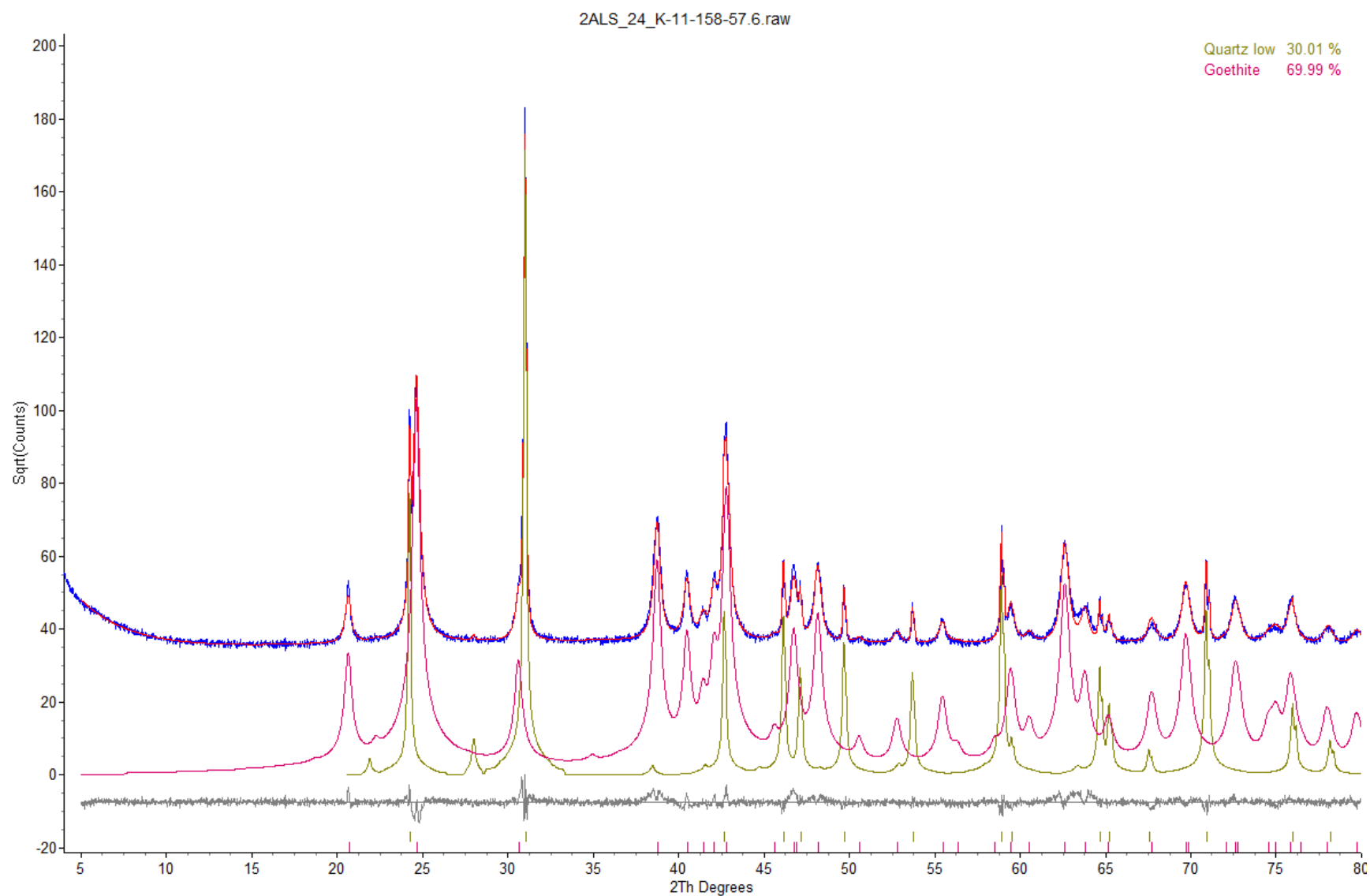


Figure 2. Rietveld refinement plot of sample **ALS Geochemistry - 24_K-11-158-57.6** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

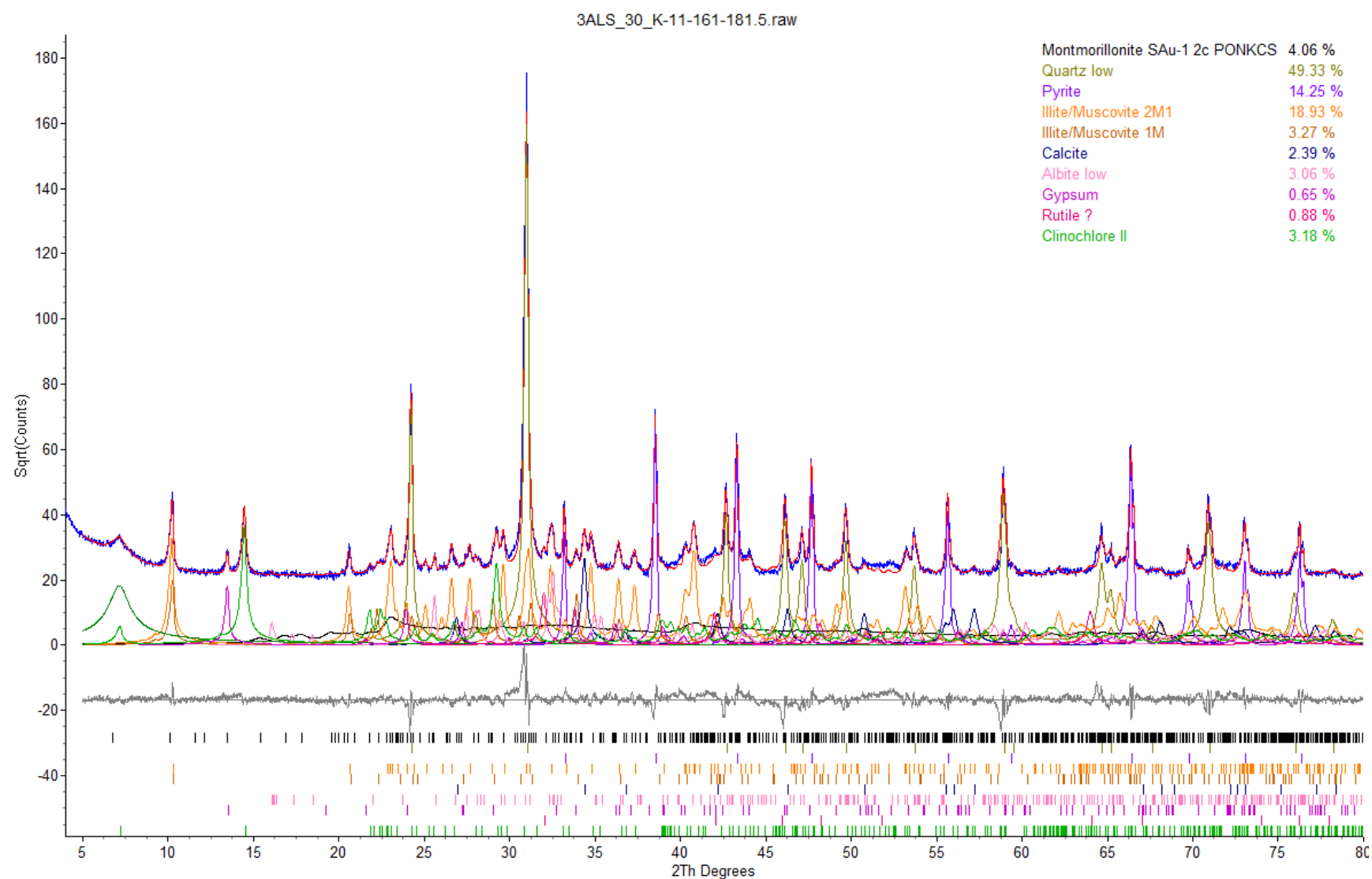


Figure 3. Rietveld refinement plot of sample **ALS Geochemistry - 30_K-11-161-181.5** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

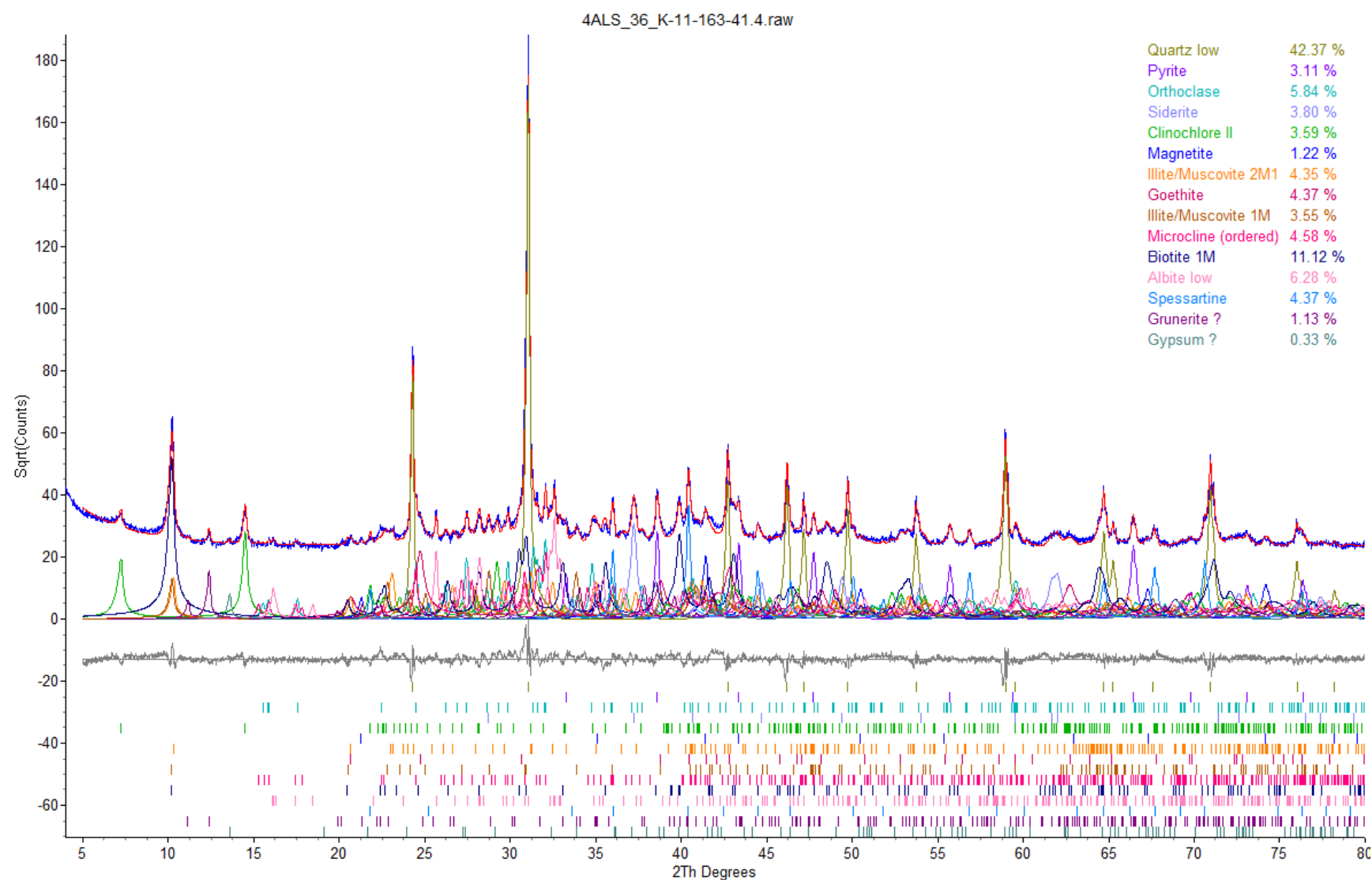


Figure 4. Rietveld refinement plot of sample **ALS Geochemistry - 36_K-11-163-41.4** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

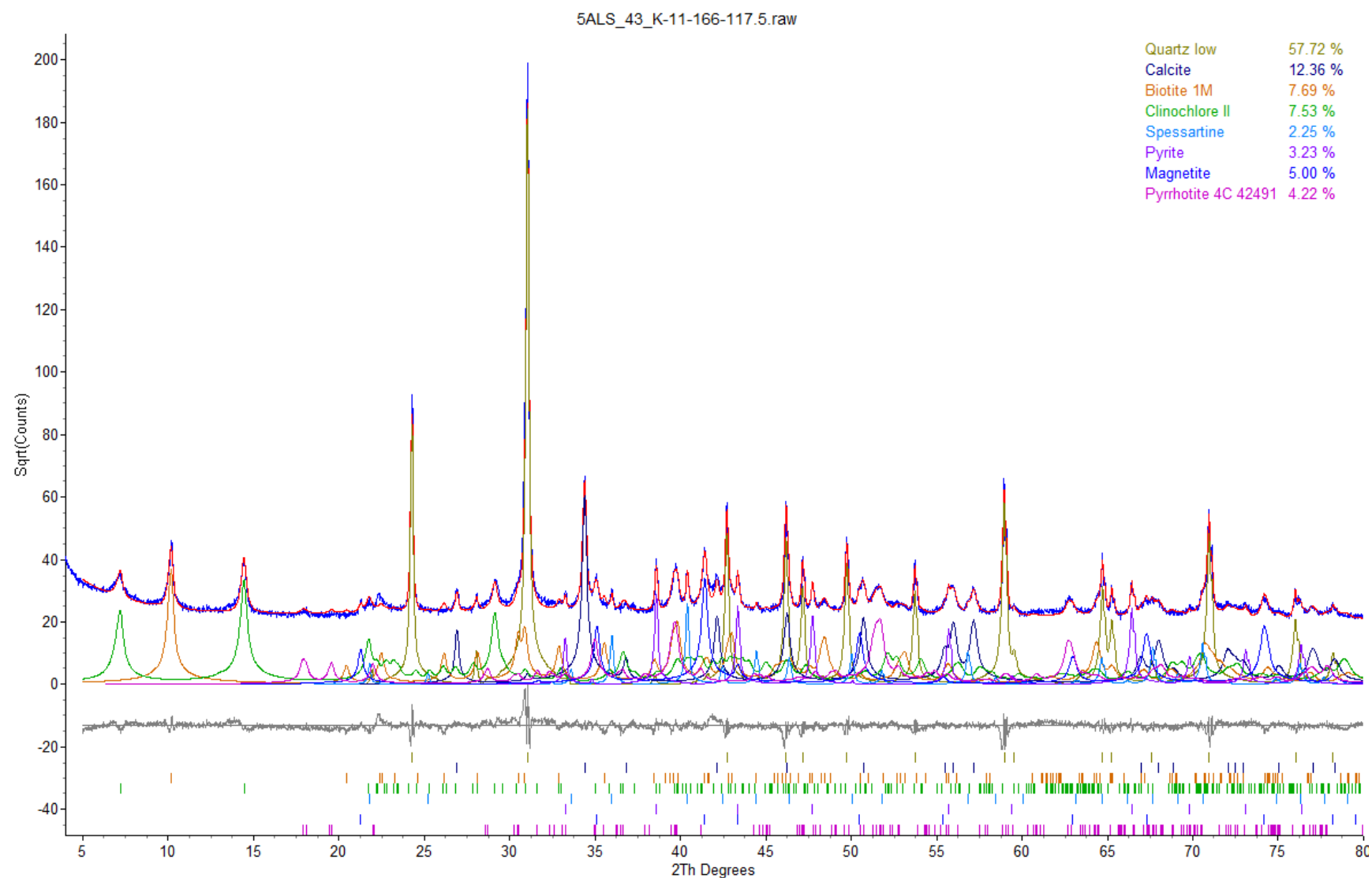


Figure 5. Rietveld refinement plot of sample **ALS Geochemistry - 43_K-11-166-117.5** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

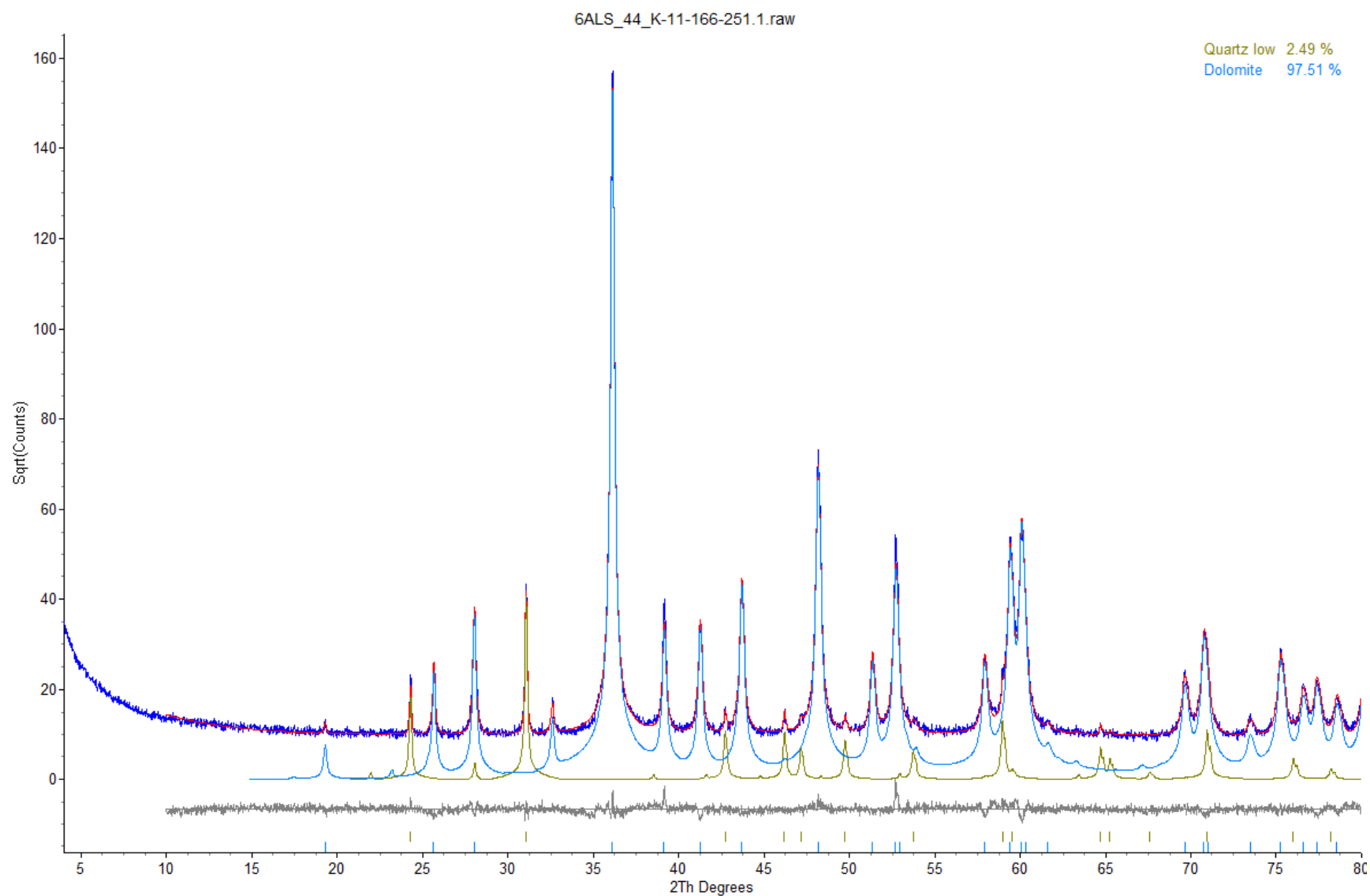


Figure 6. Rietveld refinement plot of sample **ALS Geochemistry - 44_K-11-166-251.1** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

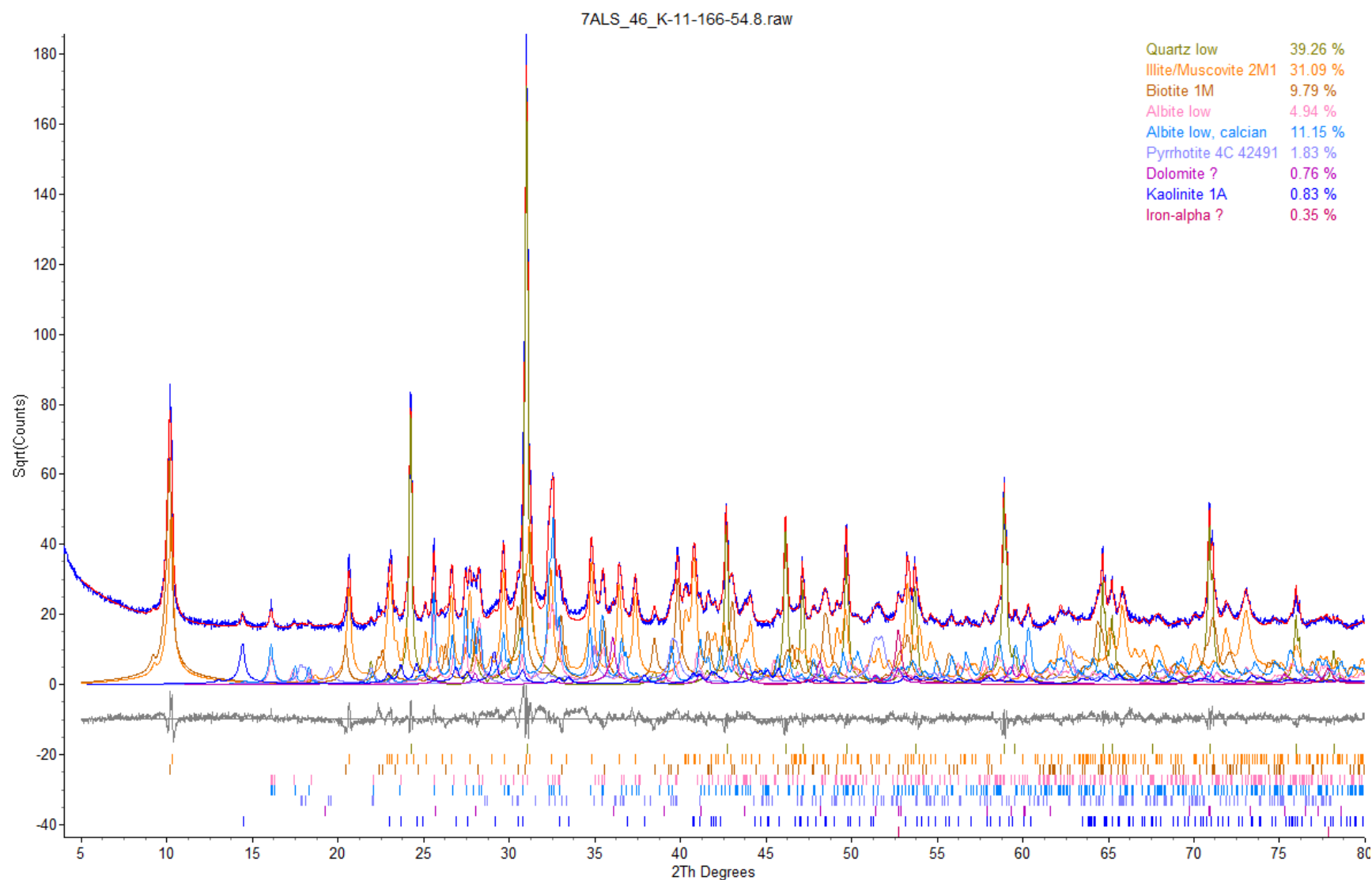


Figure 7. Rietveld refinement plot of sample **ALS Geochemistry - 46_K-11-166-54.8** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections; vertical blue lines - positions of peaks phases). Coloured lines are individual diffraction patterns of all phases.



Figure 8. Rietveld refinement plot of sample **ALS Geochemistry - 82_K-12-185-59.1** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

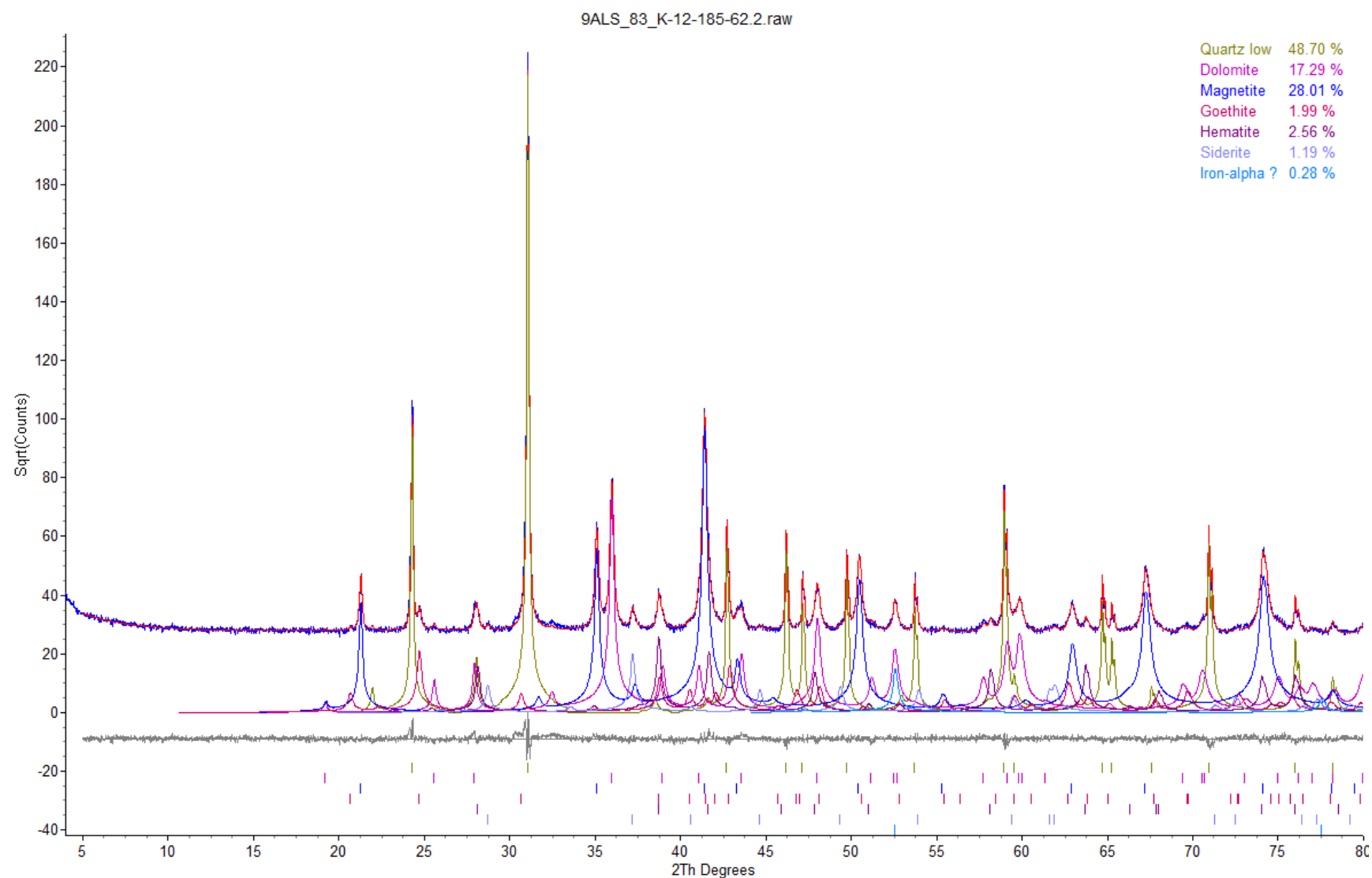


Figure 9. Rietveld refinement plot of sample **ALS Geochemistry - 83_K-12-185-62.2** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

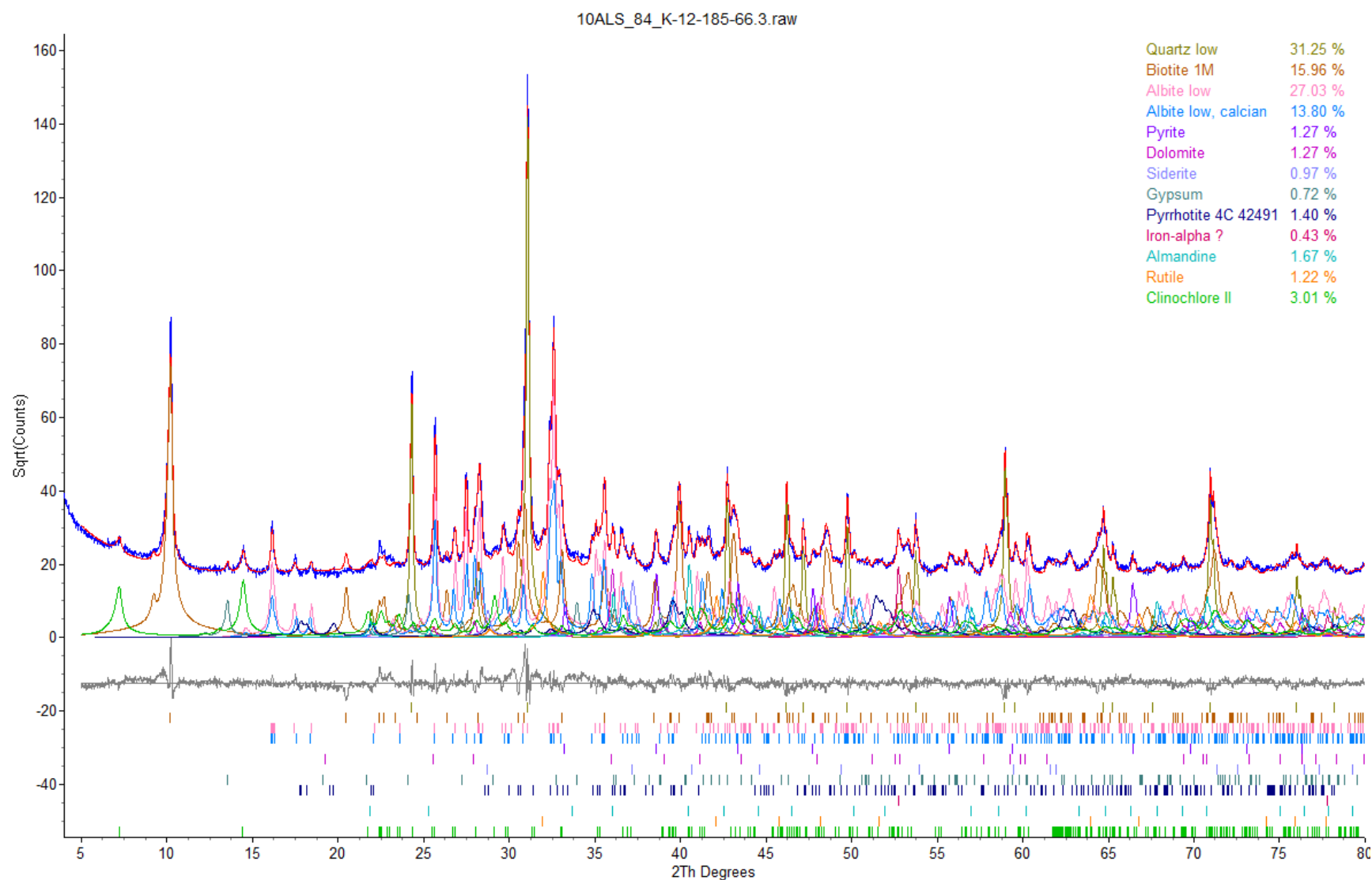


Figure 10. Rietveld refinement plot of sample **ALS Geochemistry - 84_K-12-185-66.3** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections; vertical blue lines - positions of peaks phases). Coloured lines are individual diffraction patterns of all phases.

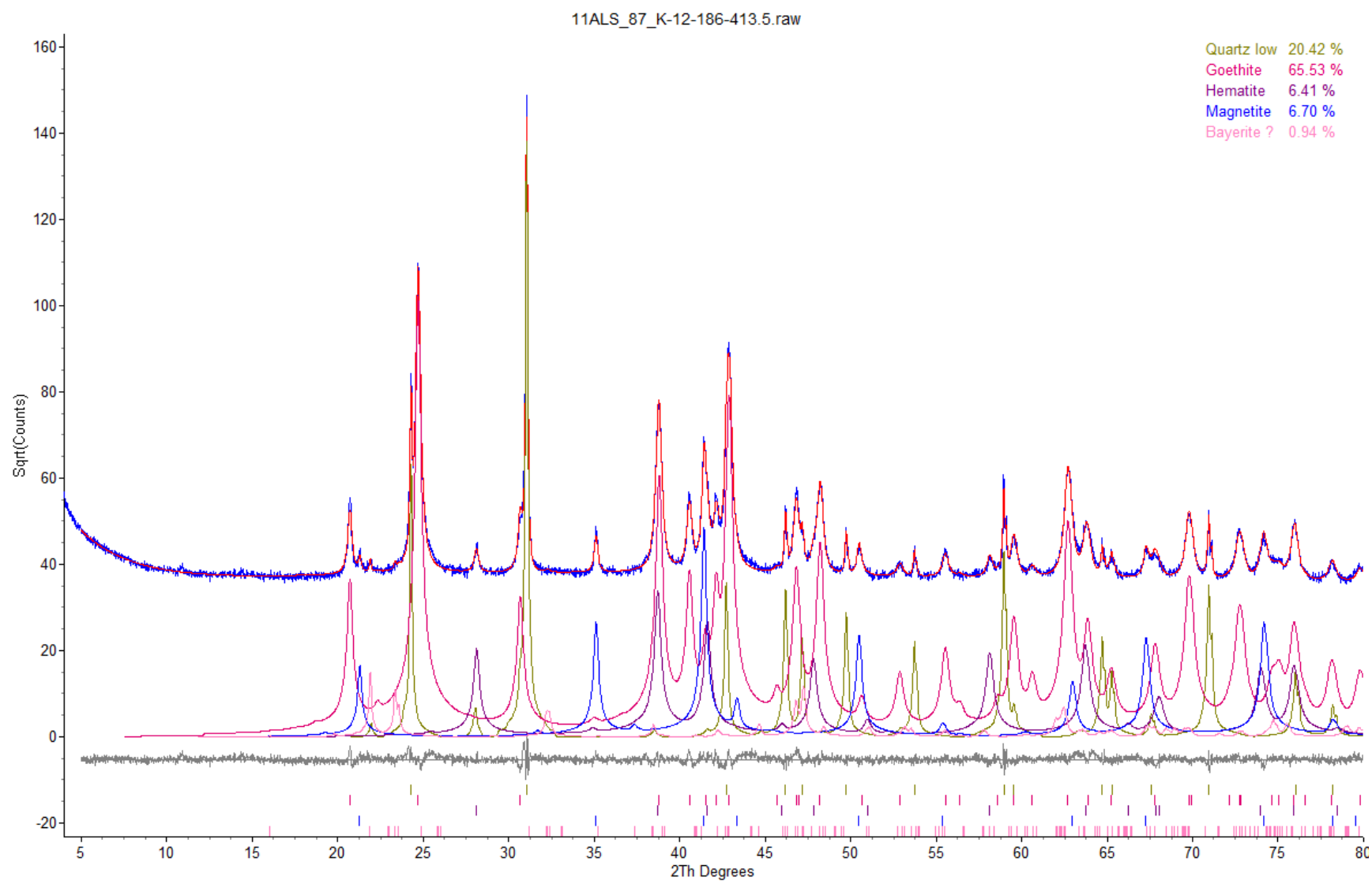


Figure 11. Rietveld refinement plot of sample **ALS Geochemistry - 87_K-12-186-413.5** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

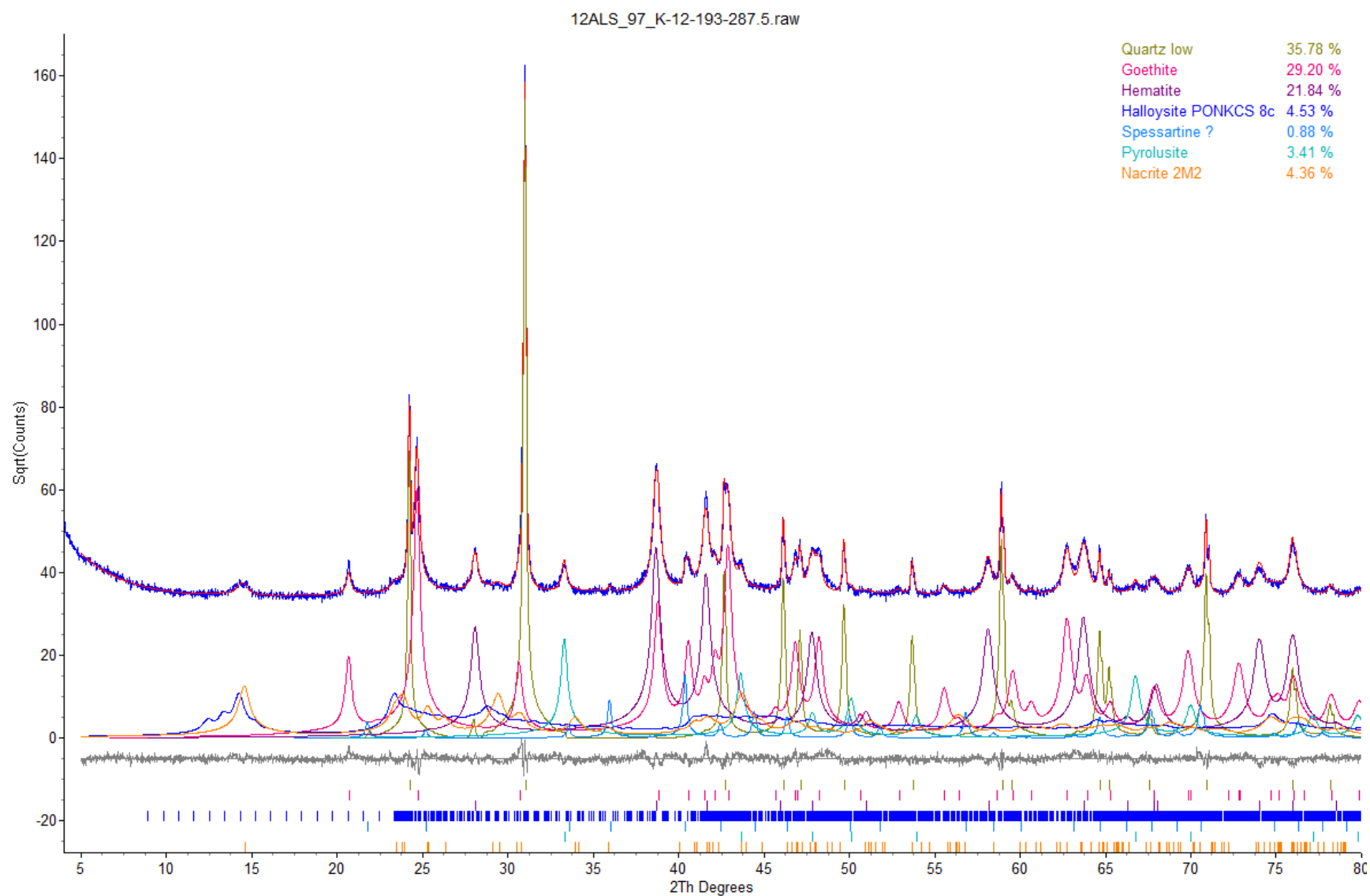


Figure 12. Rietveld refinement plot of sample **ALS Geochemistry - 97_K-12-193-287.5** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

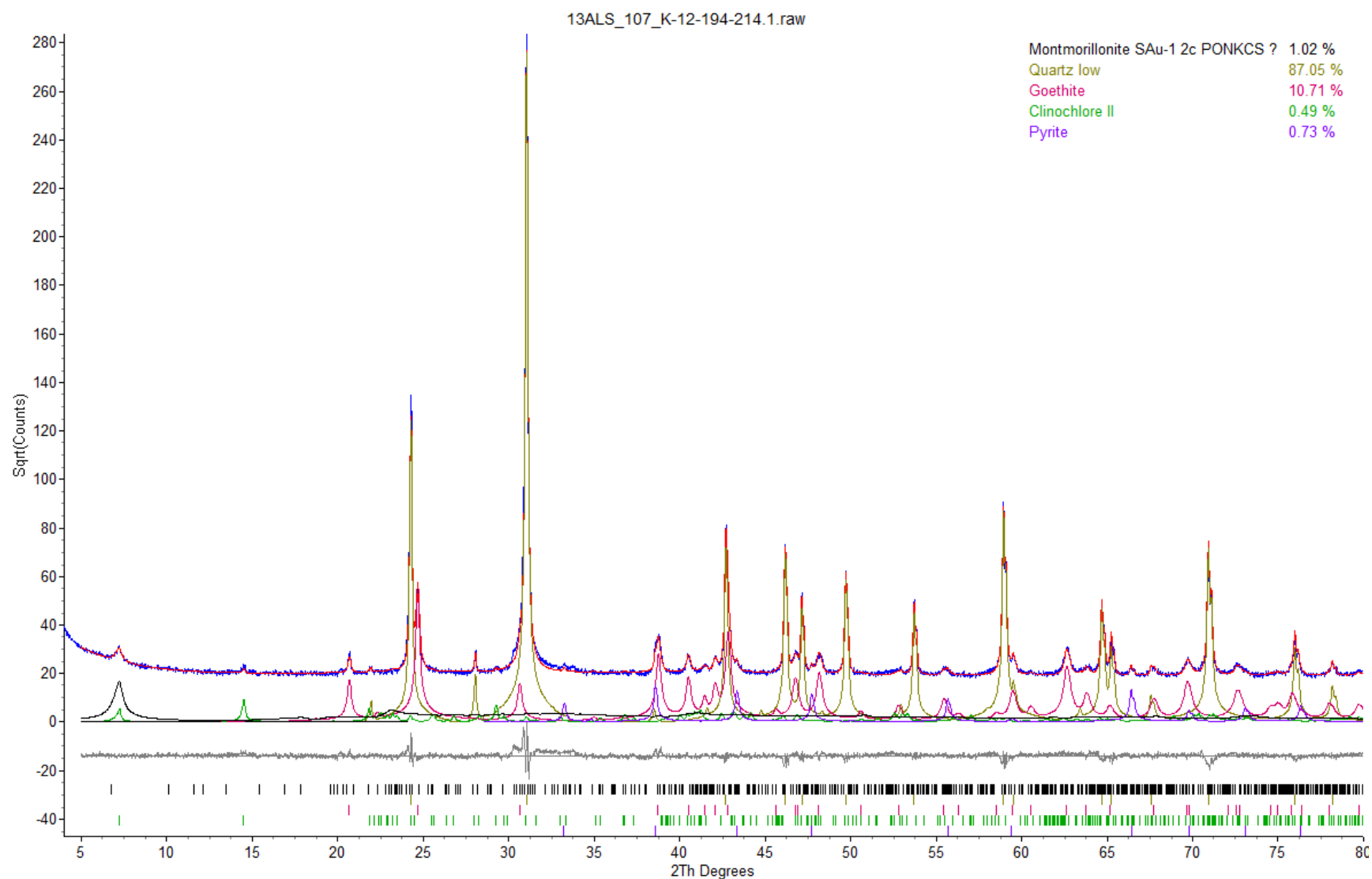


Figure 13. Rietveld refinement plot of sample **ALS Geochemistry - 107_K-12-194-214.1** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

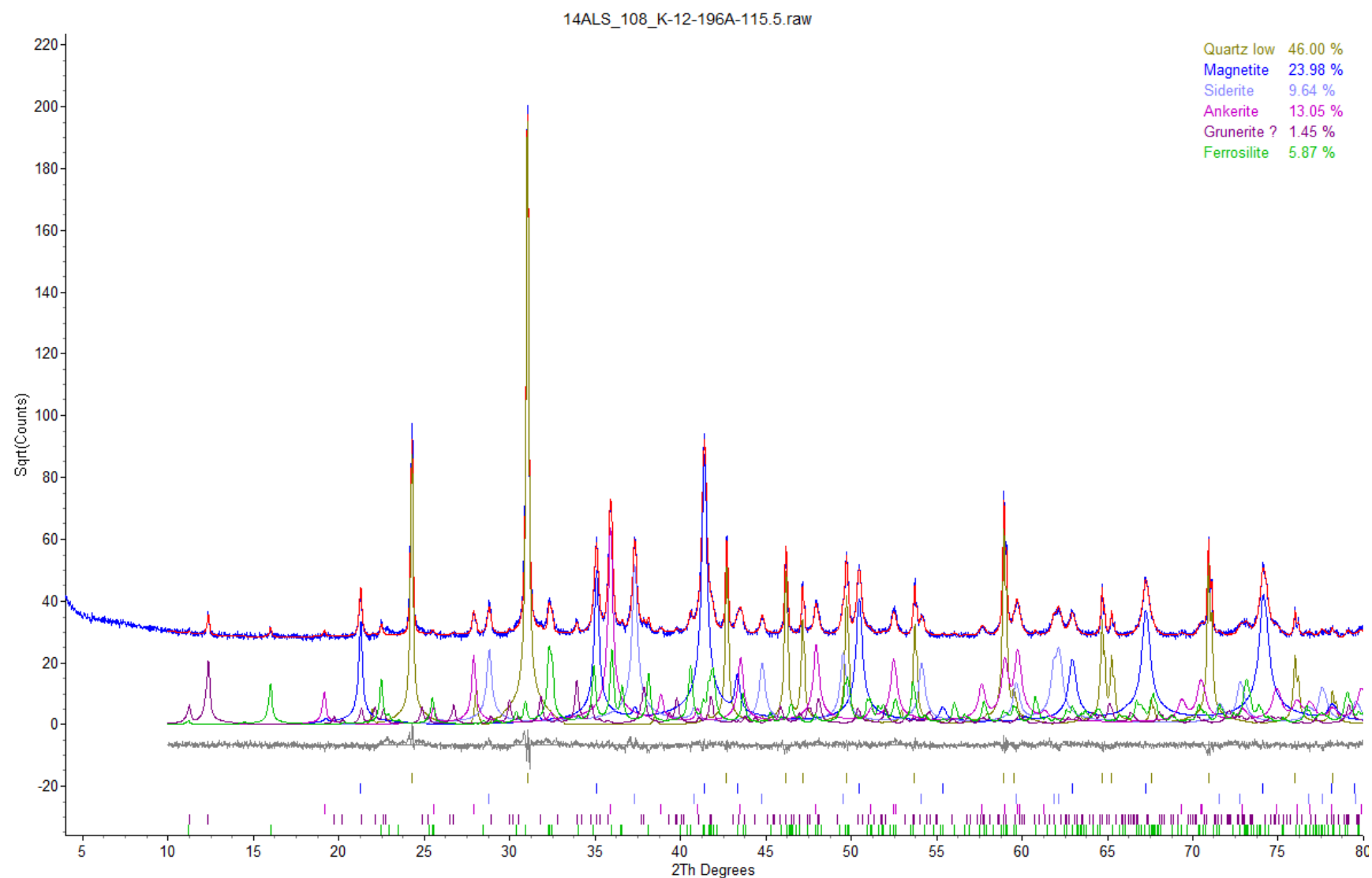


Figure 14. Rietveld refinement plot of sample **ALS Geochemistry - 108_K-12-196A-115.5** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

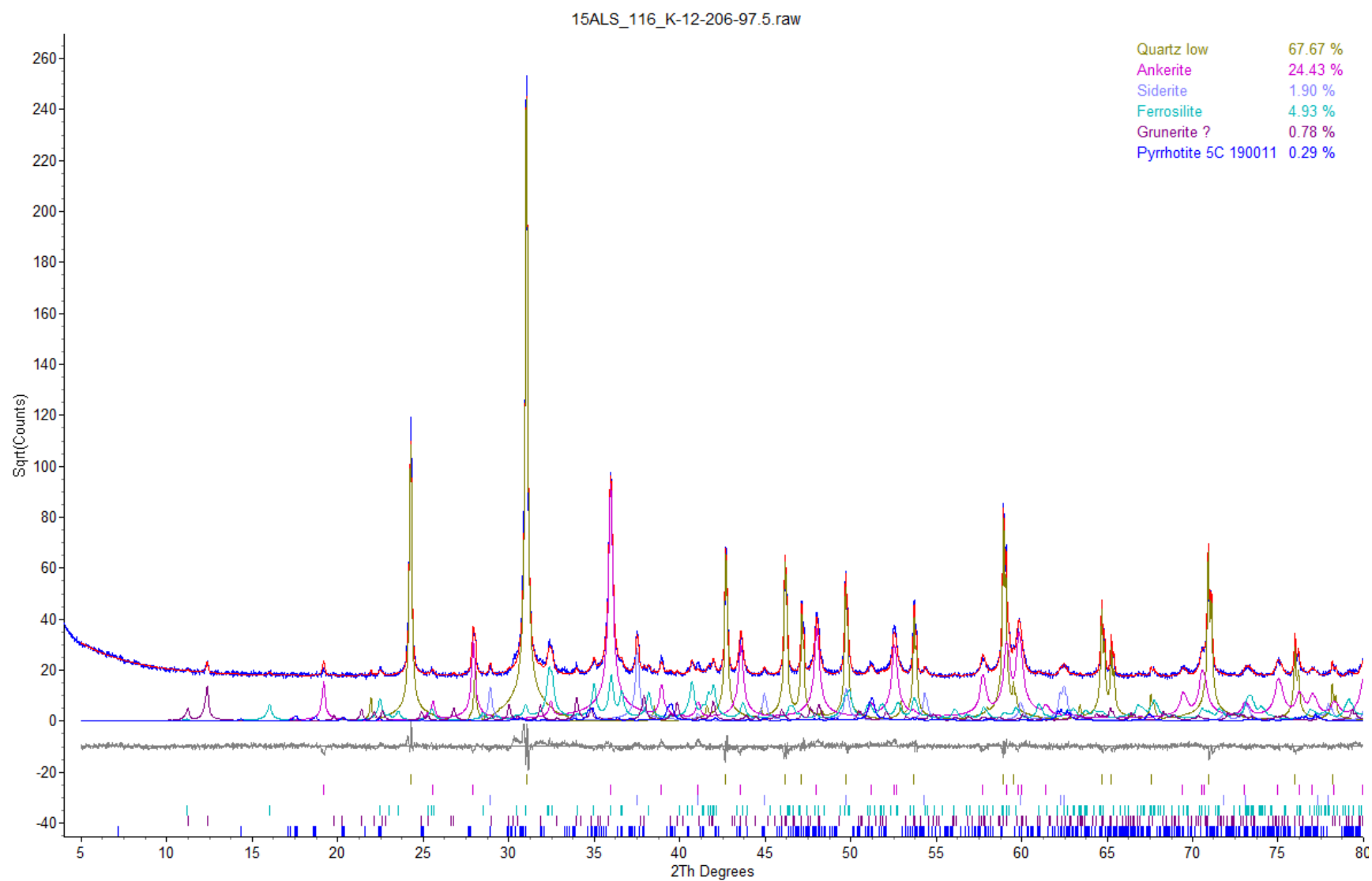


Figure 15. Rietveld refinement plot of sample **ALS Geochemistry - 116_K-12-206-97.5** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

**QUANTITATIVE PHASE ANALYSIS OF TWENTY-TWO POWDER SAMPLES USING
THE RIETVELD METHOD AND X-RAY POWDER DIFFRACTION DATA**

Work Order #: VA23331153

Project: Champion Iron Ore

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January 24, 2024

METHOD

The 22 samples of **WO#: VA23331153, Project: Champion Iron Ore** were reduced to the optimum grain-size range for quantitative X-ray analysis ($<10\text{ }\mu\text{m}$) by grinding under ethanol in a vibratory McCrone XRD Mill (Retsch GmbH, Germany) for 10 minutes. Continuous-scan X-ray powder-diffraction data were collected over a range of $4\text{--}80^\circ 2\theta$ with $\text{CoK}\alpha$ radiation on a Bruker D8 Advance Bragg-Brentano diffractometer equipped with an Fe filter foil, 0.6 mm (0.3°) divergence slit, incident- and diffracted-beam Soller slits and a LynxEye-XE detector. The long fine-focus Co X-ray tube was operated at 35 kV and 40 mA, using a take-off angle of 6° .

RESULTS

The X-ray diffractograms were analyzed using the International Centre for Diffraction Database PDF-4+ and Search-Match software by Bruker. X-ray powder-diffraction data of the samples were refined with Rietveld program Topas 4.2 (Bruker AXS). The results of quantitative phase analysis by Rietveld refinements are given in Table 1 (separate file, *ALS Geochemistry Results Jan 24 2024 - WO VA23331153 proj Champion Iron Ore - 22 samples.xlsx*). These amounts represent the relative amounts of crystalline phases normalized to 100%. The Rietveld refinement plots are shown in Figures 1-22. Ideal formulae of the minerals are shown in Table 2.

One of the phases present was poorly crystalline clay. To fit the phase, an empirical model for poorly crystalline clay has been calibrated against reference minerals from the Source Clays Project (The Clay Minerals Society) or the Pacific Museum of Earth at UBC using the PONKCS method (Scarlett and Madsen, Powder Diff., Vol. 21, No. 4, December 2006). Error in the model can lead to a decrease in overall accuracy of the phase abundance.

Table 2. Ideal formulae of the present phases for WO#: VA23331153, Proj: Champion Iron Ore

Mineral	Ideal Formula
Actinolite	$\text{Ca}_2(\text{Mg}, \text{Fe}^{2+})_5\text{Si}_8\text{O}_{22}(\text{OH})_2$
Anatase	TiO_2
Ankerite - Dolomite	$\text{Ca}(\text{Fe}^{2+}, \text{Mg}, \text{Mn})(\text{CO}_3)_2 - \text{CaMg}(\text{CO}_3)_2$
Apatite	$\text{Ca}_5(\text{PO}_4)_3(\text{F}, \text{Cl}, \text{OH})$
Biotite	$\text{K}(\text{Mg}, \text{Fe}^{2+})_3\text{AlSi}_3\text{O}_{10}(\text{OH})_2$
Calcite	CaCO_3
Chlorite (chamosite - clinochlore)	$(\text{Fe}^{2+}, \text{Mg}, \text{Fe}^{3+})_5\text{Al}(\text{Si}_3\text{Al})\text{O}_{10}(\text{OH}, \text{O})_8 - (\text{Mg}, \text{Fe}^{2+})_5\text{Al}(\text{Si}_3\text{Al})\text{O}_{10}(\text{OH})_8$
Clinozoisite	$\text{Ca}_2\text{Al}_3(\text{SiO}_4)_3(\text{OH})$
Ferrosilite	$\text{Fe}^{2+}_2\text{Si}_2\text{O}_6$
Garnet (almandine - spessartine)	$\text{Fe}_3^{2+}\text{Al}_2(\text{SiO}_4)_3 - \text{Mn}^{2+}_3\text{Al}_2(\text{SiO}_4)_3$
Goethite	$\alpha\text{-Fe}^{3+}\text{O}(\text{OH})$
Graphite	C
Grunerite	$\text{Fe}_7^{2+}\text{Si}_8\text{O}_{22}(\text{OH})_2$
Hematite	$\alpha\text{-Fe}_2\text{O}_3$
Illite - Muscovite 1M & 2M1	$\sim \text{K}_{0.65}\text{Al}_{2.0}(\text{Al}_{0.65}\text{Si}_{3.35}\text{O}_{10})(\text{OH})_2 - \text{KAl}_2(\text{AlSi}_3\text{O}_{10})(\text{OH})_2$
Illite - Smectite (mixed layer)	$\sim \text{K}_{0.65}\text{Al}_{2.0}(\text{Al}_{0.65}\text{Si}_{3.35}\text{O}_{10})(\text{OH})_2 - (\text{Na}, \text{Ca})_{0.3}(\text{Al}, \text{Mg})_2\text{Si}_4\text{O}_{10}(\text{OH})_2 \cdot n\text{H}_2\text{O}$
Iron	$\alpha\text{-Fe}$
Kaolinite	$\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$
K-feldspar (microcline, orthoclase)	KAlSi_3O_8
Kutnohorite	$\text{Ca}(\text{Mn}^{2+}, \text{Mg}, \text{Fe}^{2+})(\text{CO}_3)_2$
Magnetite	$\text{Fe}^{2+}\text{Fe}^{3+}_2\text{O}_4$
Plagioclase (albite; albite, calcian)	$\text{NaAlSi}_3\text{O}_8\text{-CaAl}_2\text{Si}_2\text{O}_8$
Pyrite	FeS_2
Pyrrhotite	Fe_{1-x}S
Quartz	SiO_2
Rhodochrosite	$\text{Mn}^{2+}\text{CO}_3$

Siderite	FeCO_3
Sphalerite	$(\text{Zn,Fe})\text{S}$
Talc	$\text{Mg}_3\text{Si}_4\text{O}_{10}(\text{OH})_2$

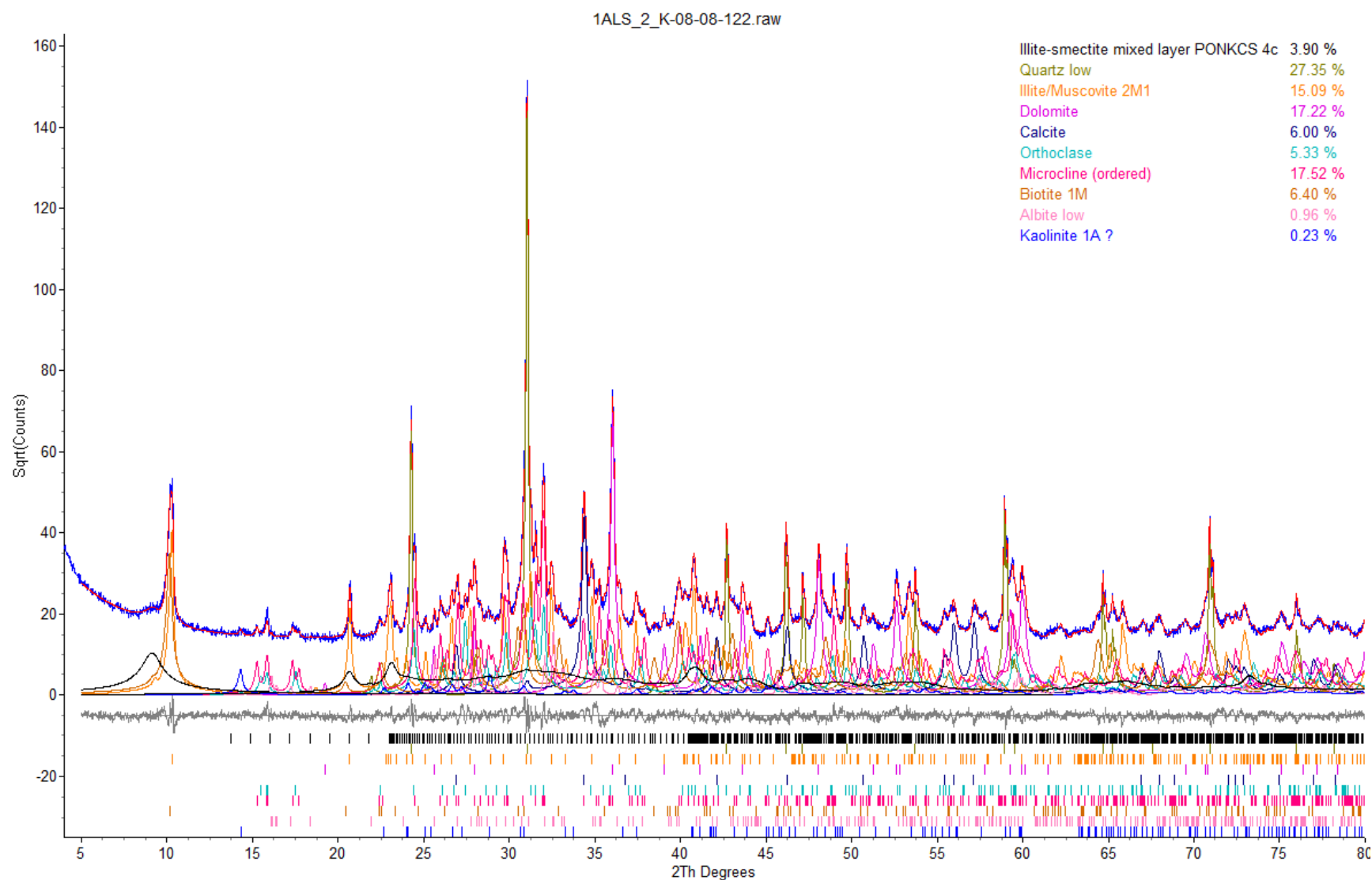


Figure 1. Rietveld refinement plot of sample **ALS Geochemistry - 2_K-08-08-122** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

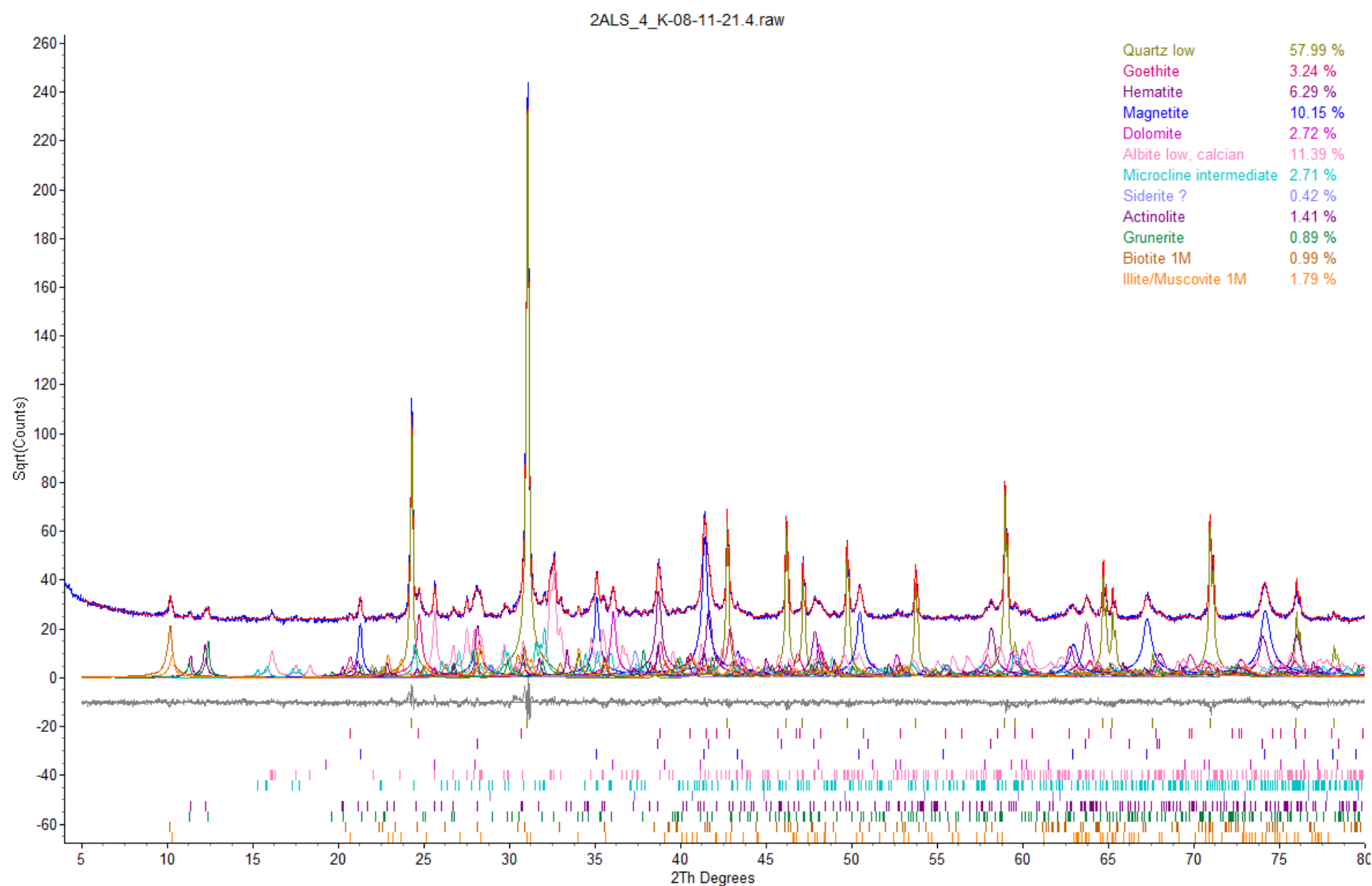


Figure 2. Rietveld refinement plot of sample **ALS Geochemistry - 4_K-08-11-21.4** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

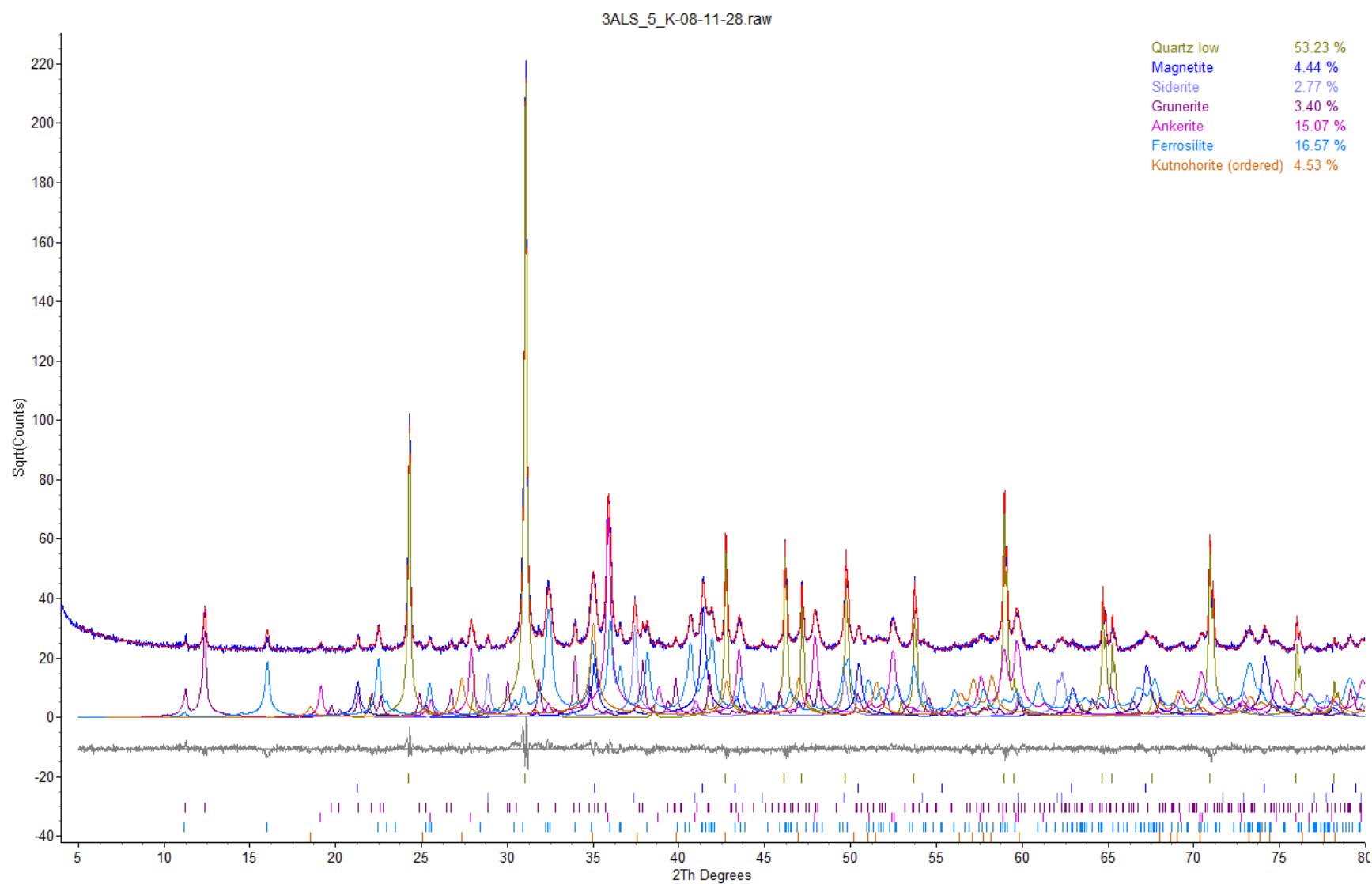


Figure 3. Rietveld refinement plot of sample **ALS Geochemistry - 5_K-08-11-28** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

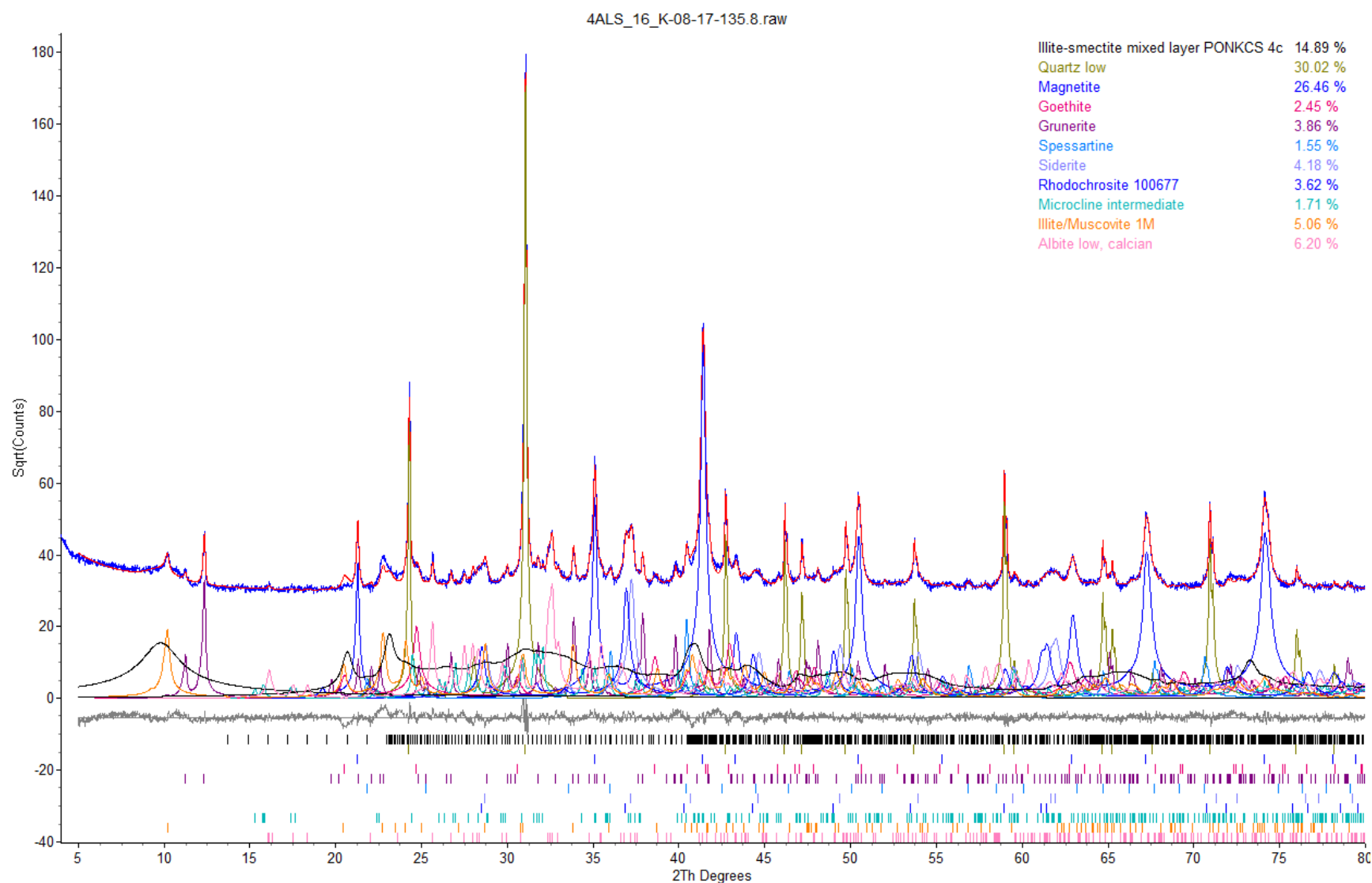


Figure 4. Rietveld refinement plot of sample **ALS Geochemistry - 16_K-08-17-135.8** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

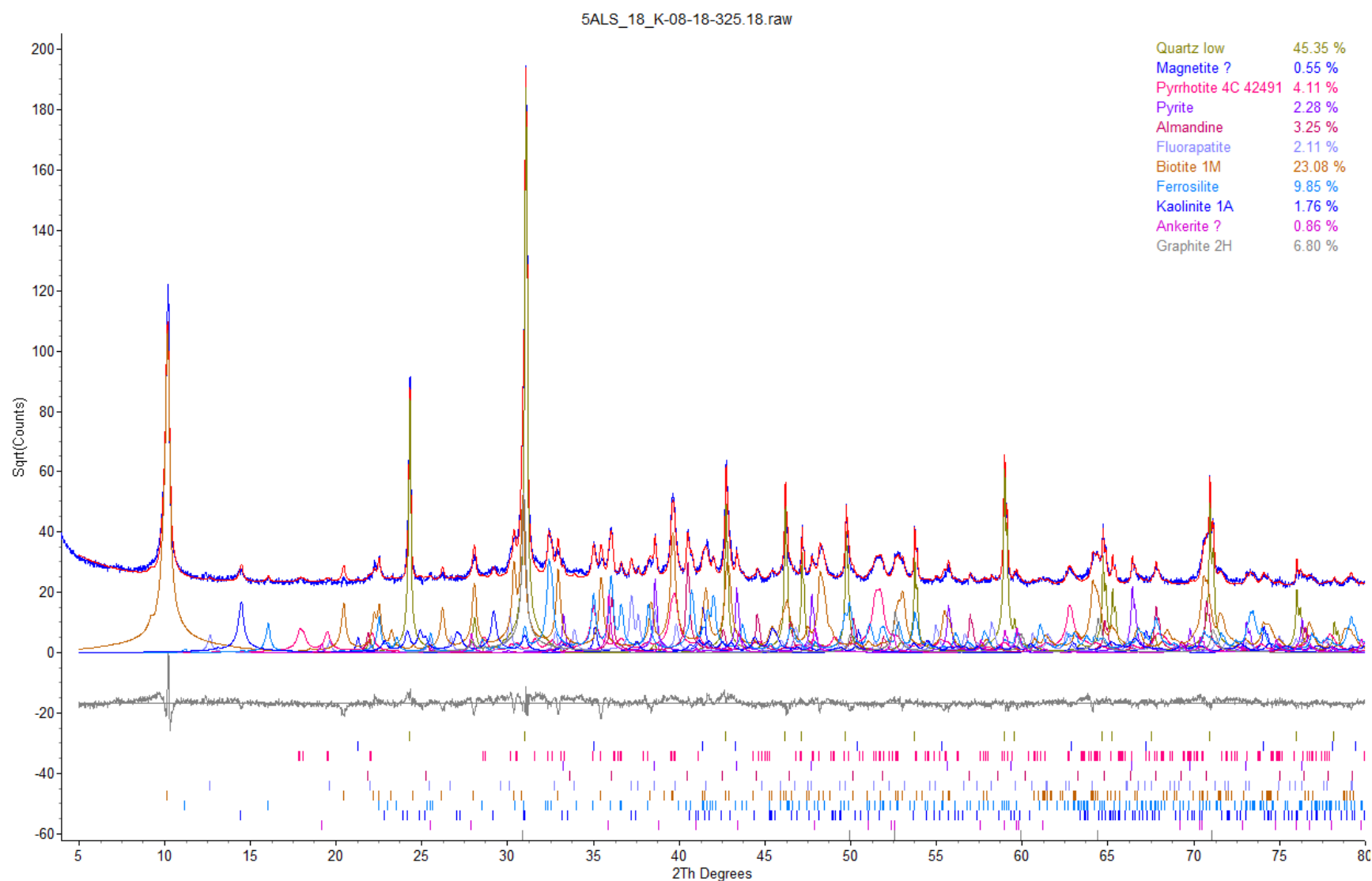


Figure 5. Rietveld refinement plot of sample **ALS Geochemistry - 18_K-08-18-325.18** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

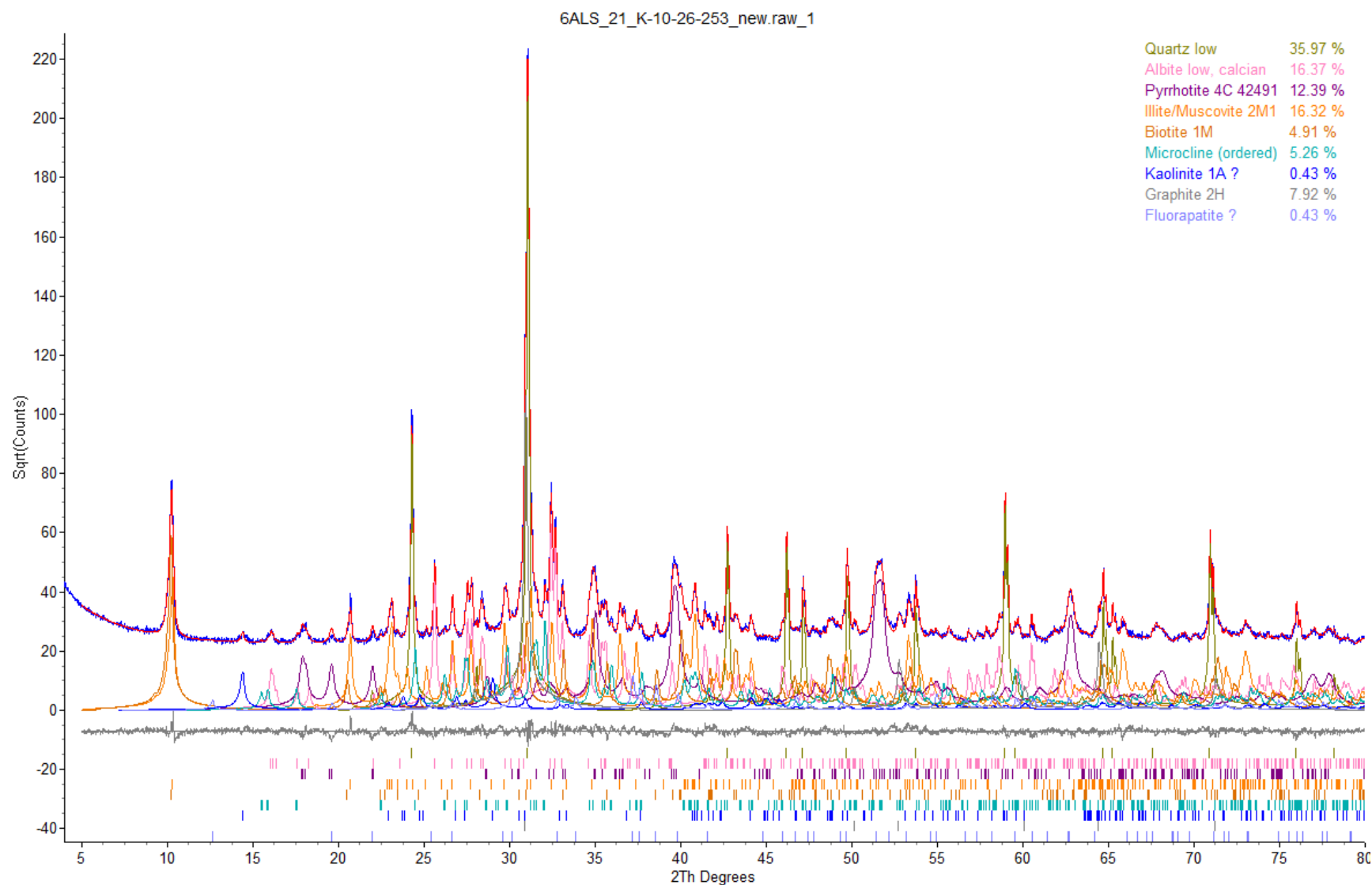


Figure 6. Rietveld refinement plot of sample **ALS Geochemistry - 21_K-10-26-253** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

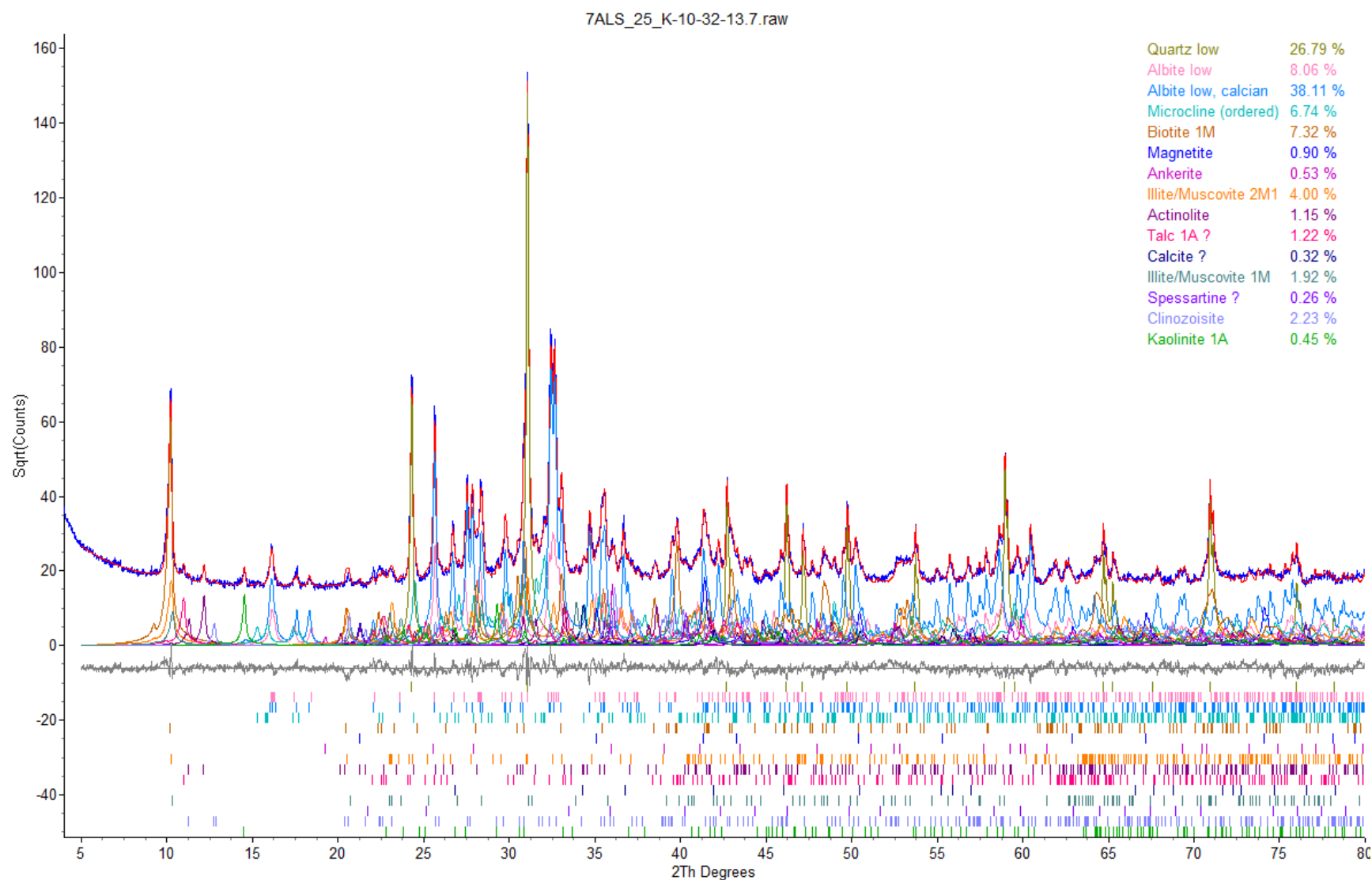


Figure 7. Rietveld refinement plot of sample **ALS Geochemistry - 25_K-10-32-13.7** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections; vertical blue lines - positions of peaks phases). Coloured lines are individual diffraction patterns of all phases.

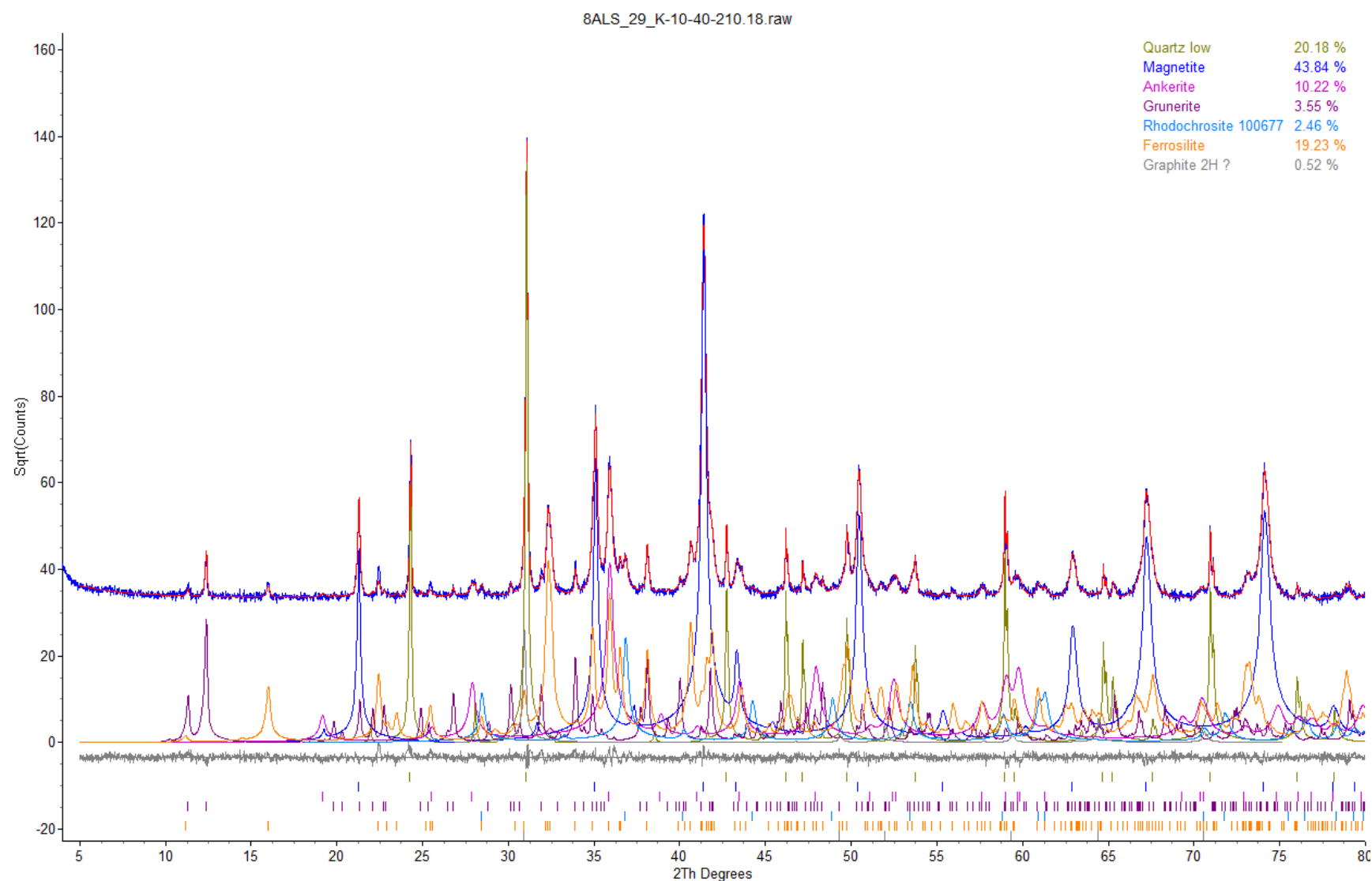


Figure 8. Rietveld refinement plot of sample **ALS Geochemistry - 29_K-10-40-210.18** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

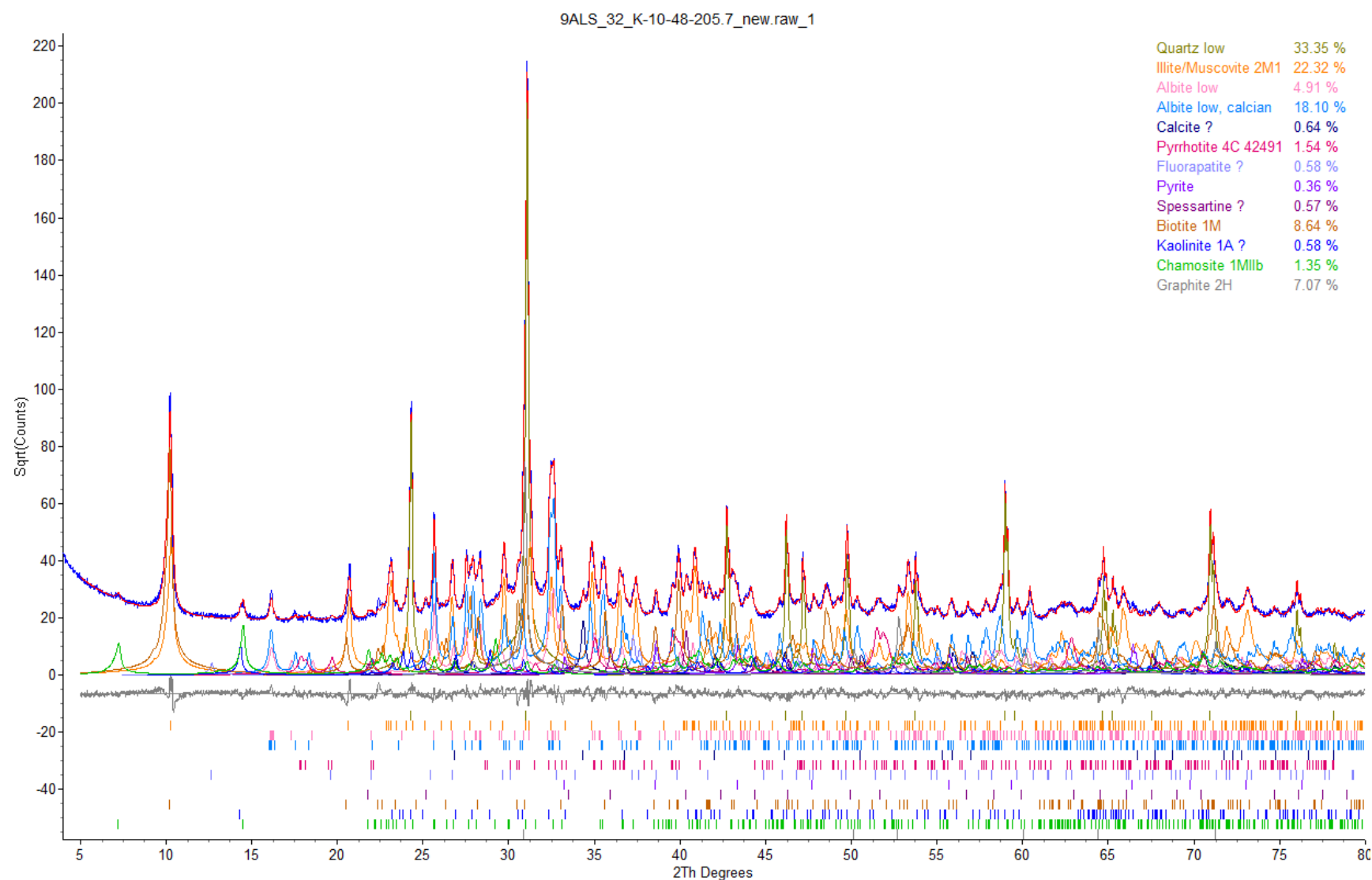


Figure 9. Rietveld refinement plot of sample **ALS Geochemistry - 32_K-10-48-205.7** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

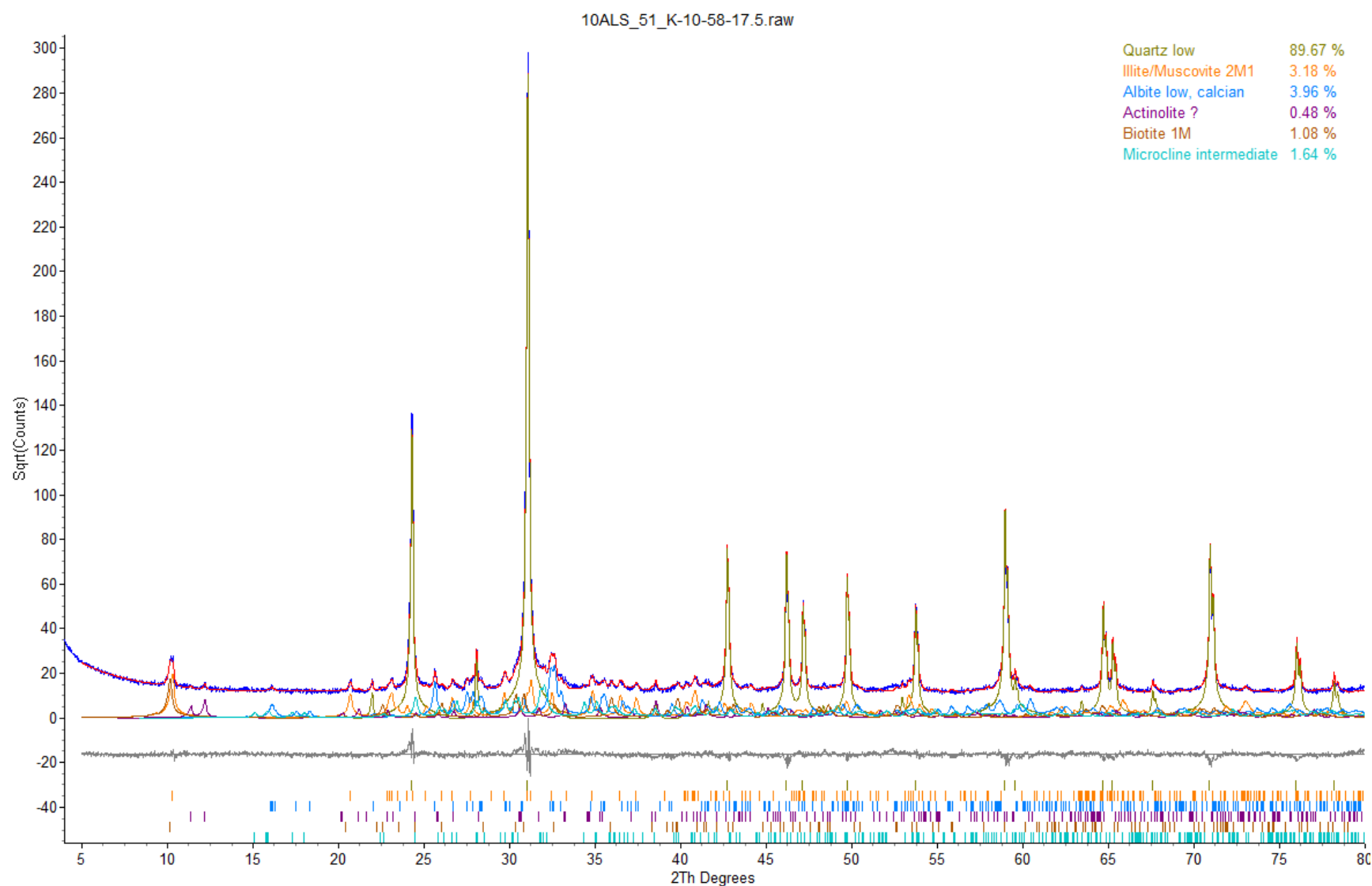


Figure 10. Rietveld refinement plot of sample **ALS Geochemistry - 51_K-10-58-17.5** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections; vertical blue lines - positions of peak phases). Coloured lines are individual diffraction patterns of all phases.

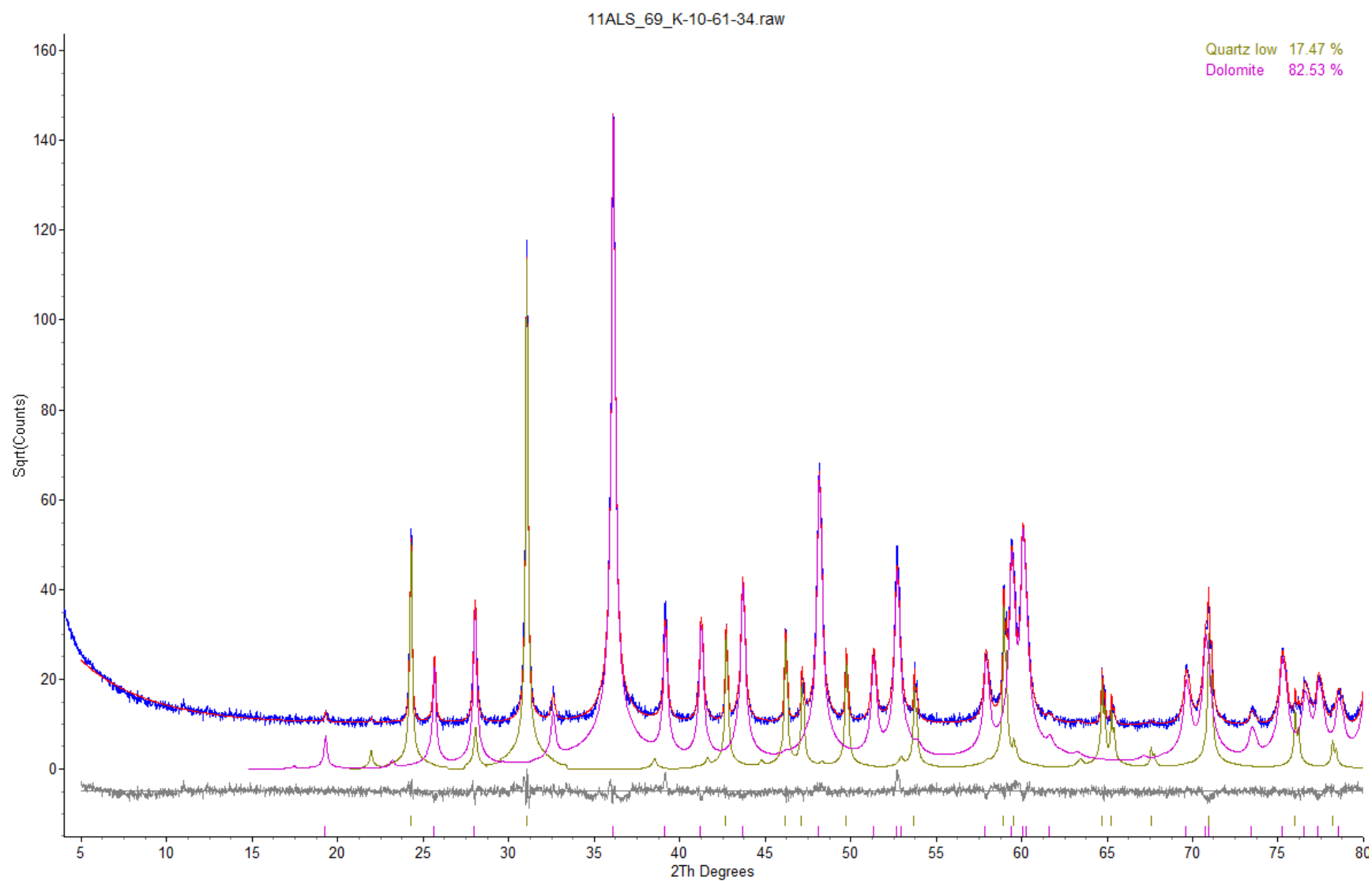


Figure 11. Rietveld refinement plot of sample **ALS Geochemistry - 69_K-10-61-34** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

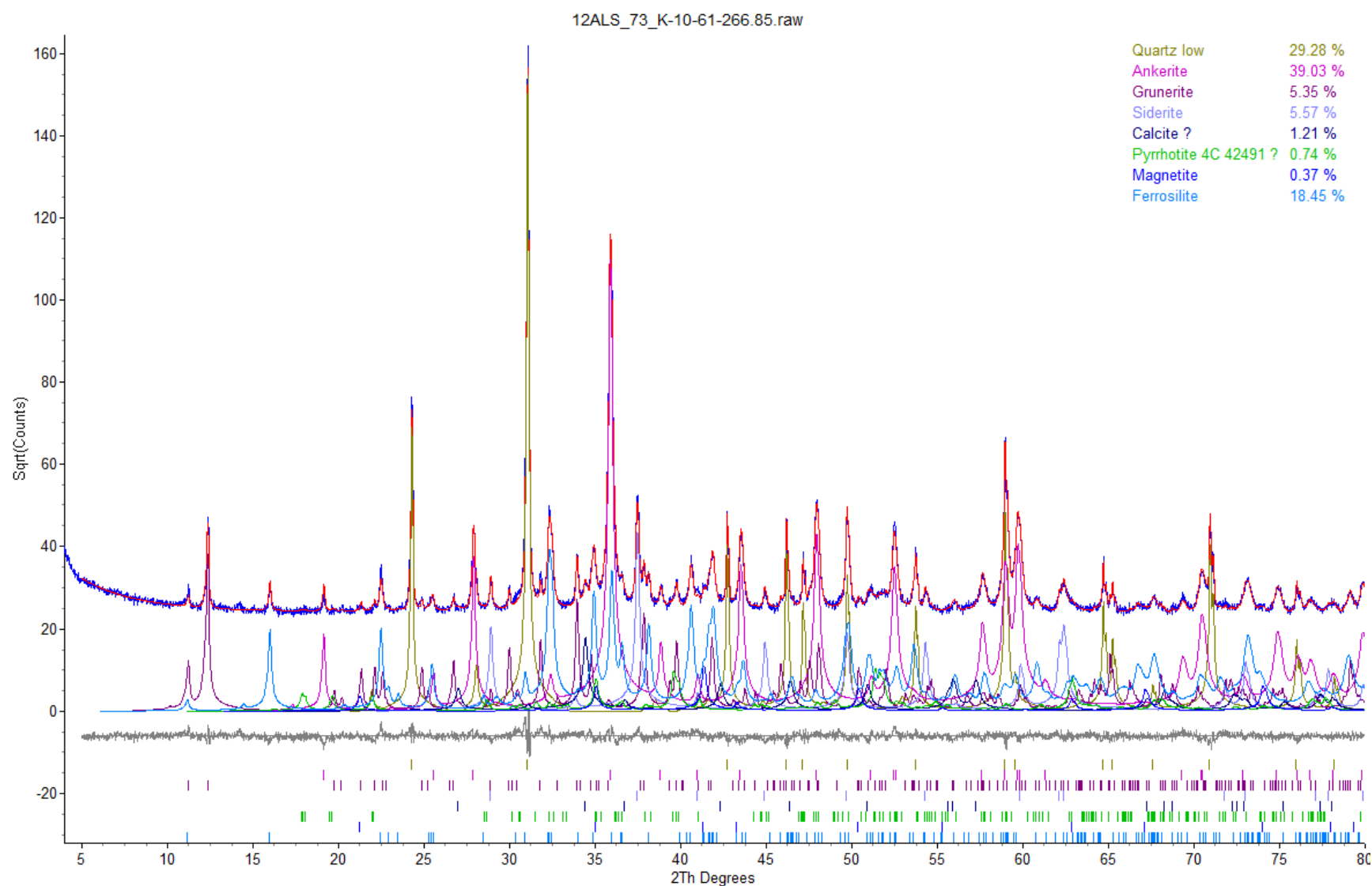


Figure 12. Rietveld refinement plot of sample **ALS Geochemistry - 73_K-10-61-266.85** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

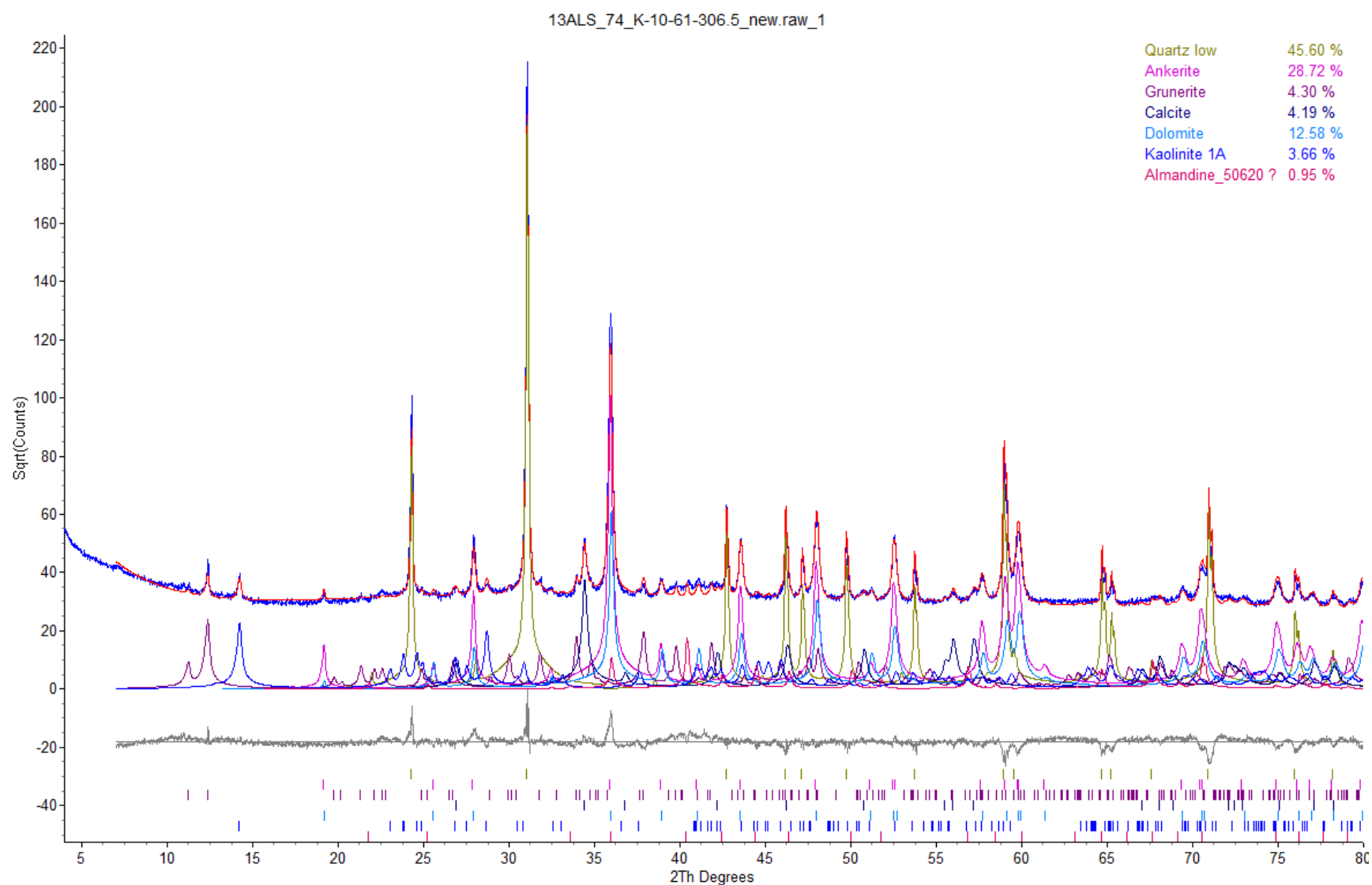


Figure 13. Rietveld refinement plot of sample **ALS Geochemistry - 74_K-10-61-306.5** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

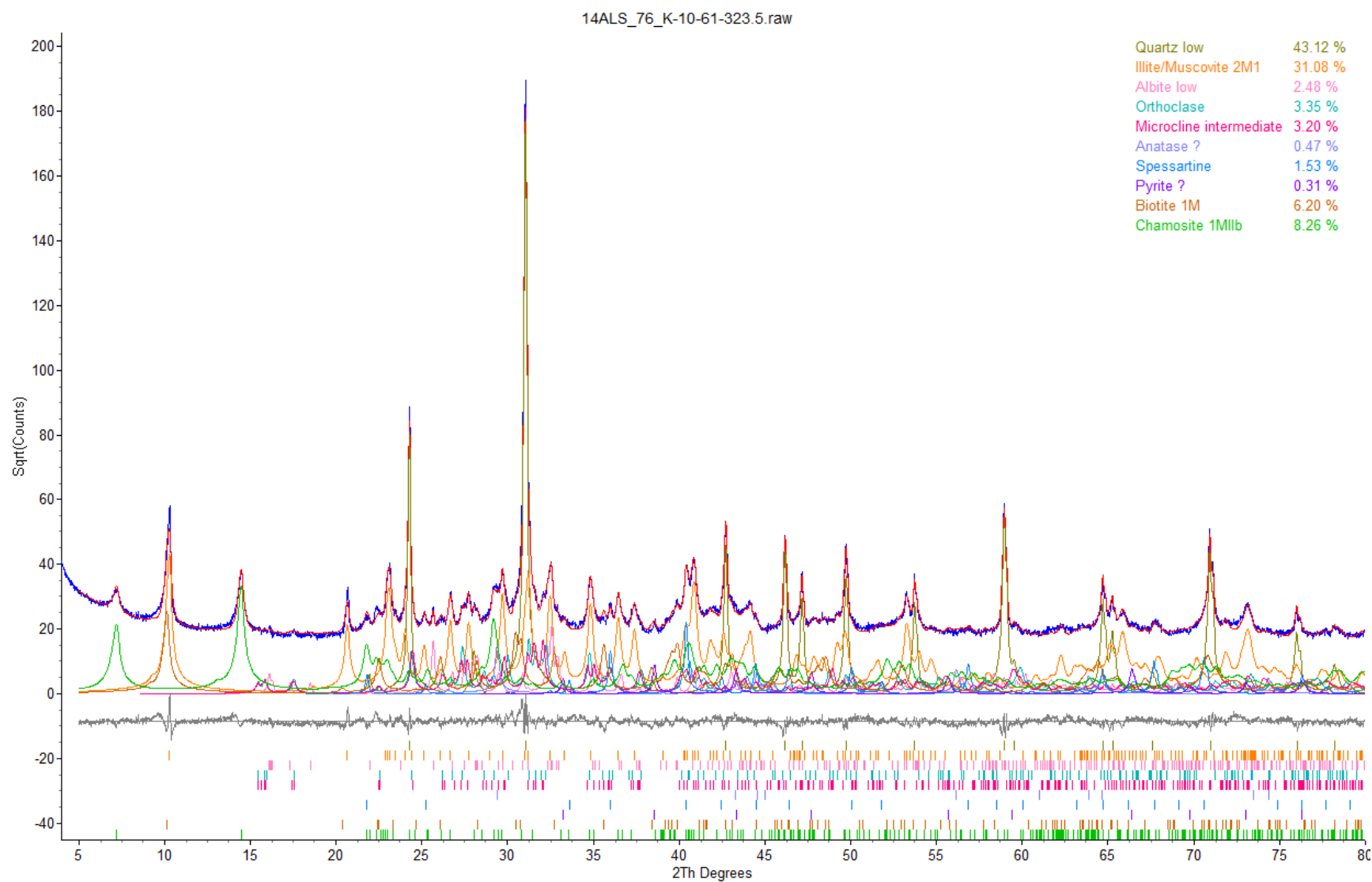


Figure 14. Rietveld refinement plot of sample **ALS Geochemistry - 76_K-10-61-323.5** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

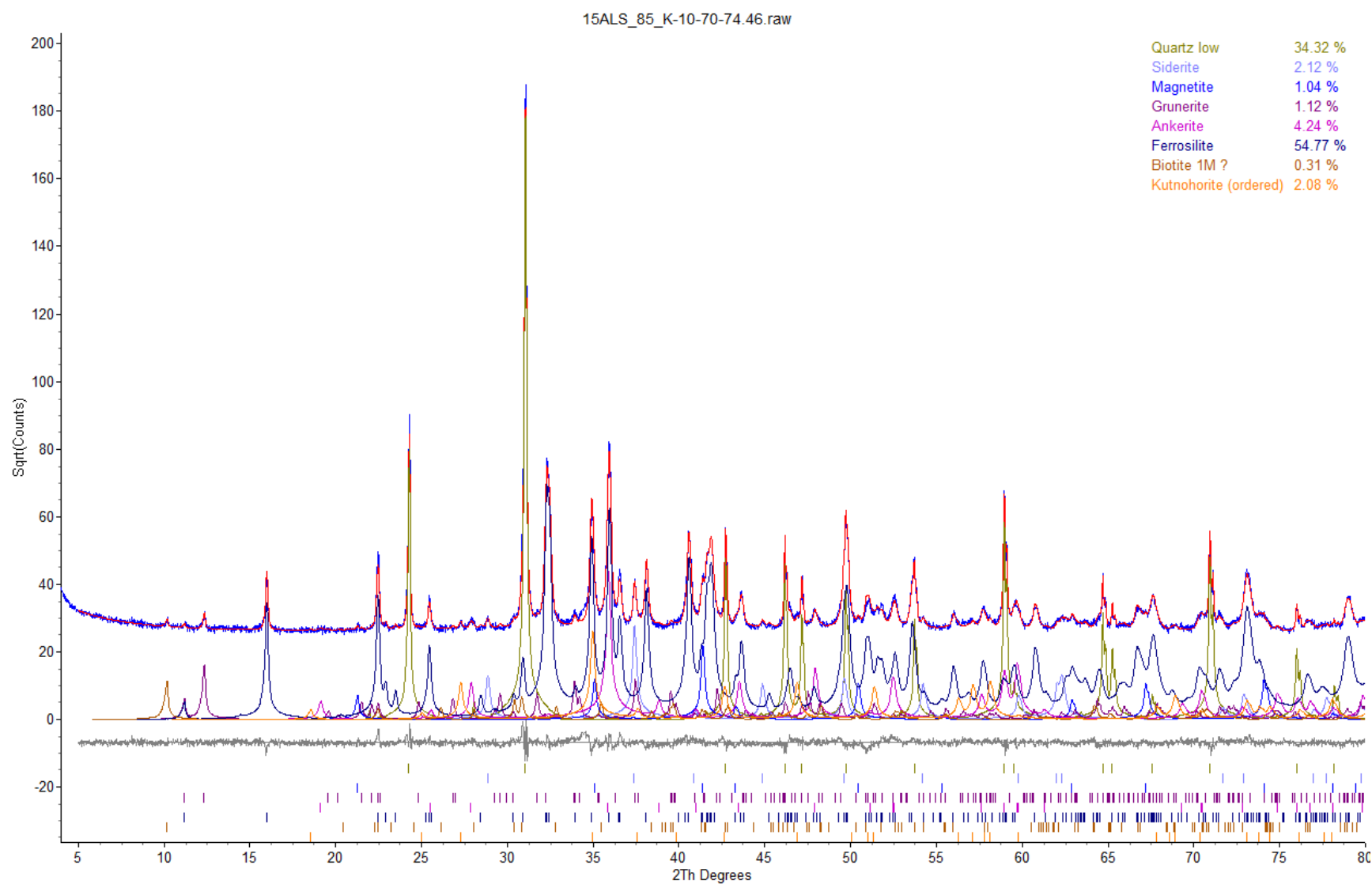


Figure 15. Rietveld refinement plot of sample **ALS Geochemistry - 85_K-10-70-74.46** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

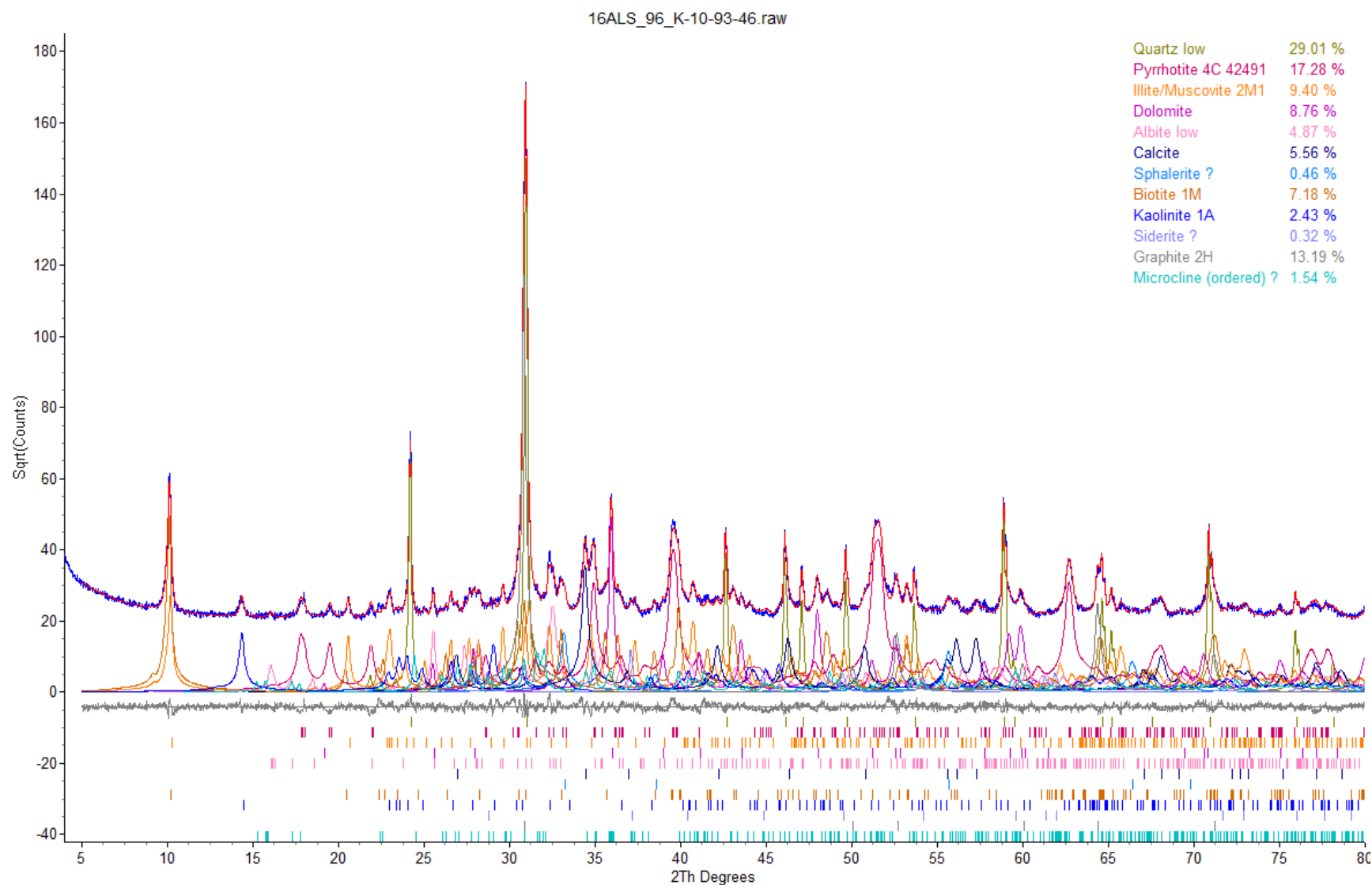


Figure 16. Rietveld refinement plot of sample **ALS Geochemistry - 96_K-10-93-46** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

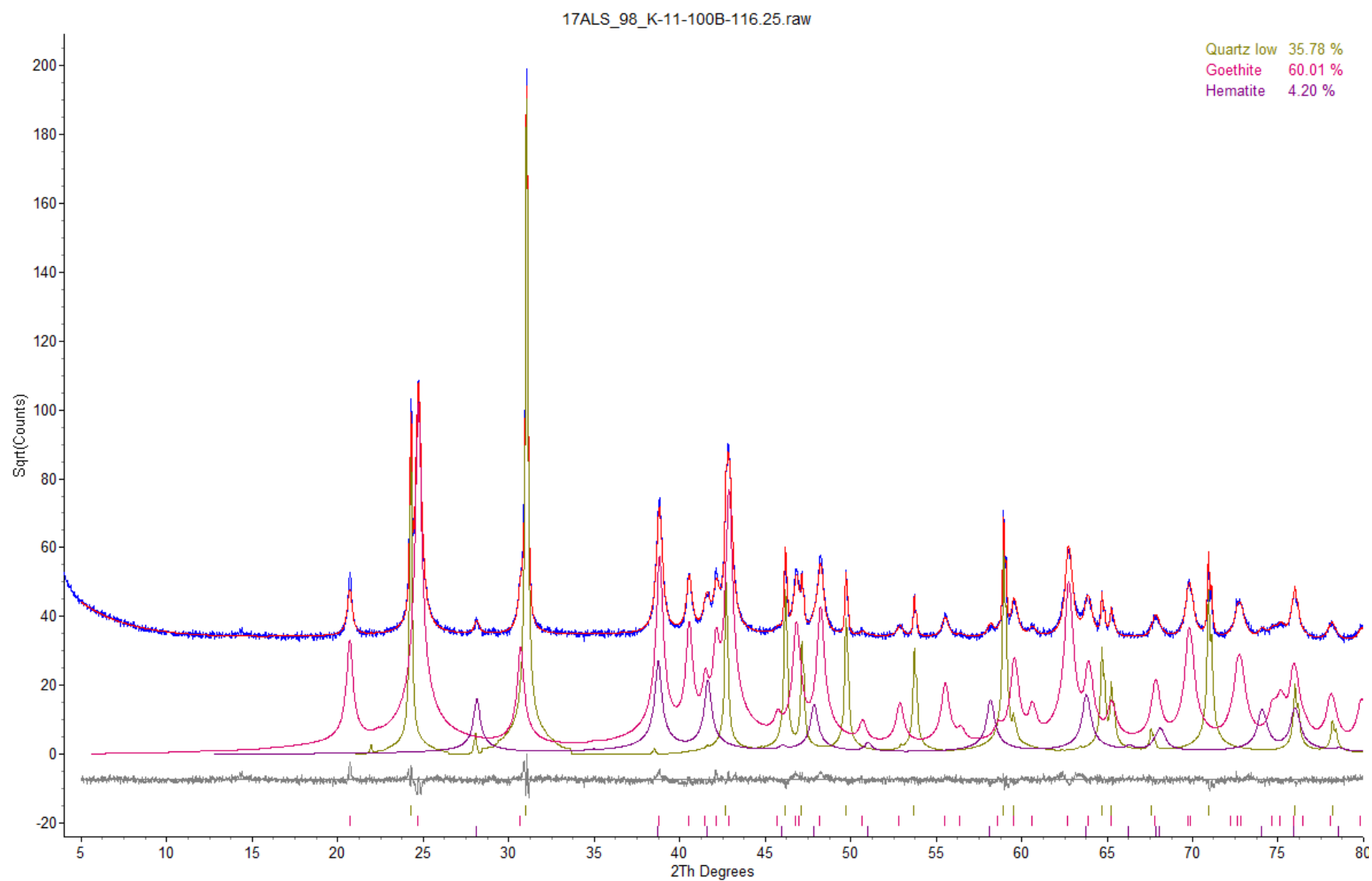


Figure 17. Rietveld refinement plot of sample **ALS Geochemistry - 98_K-11-100B-116.25** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

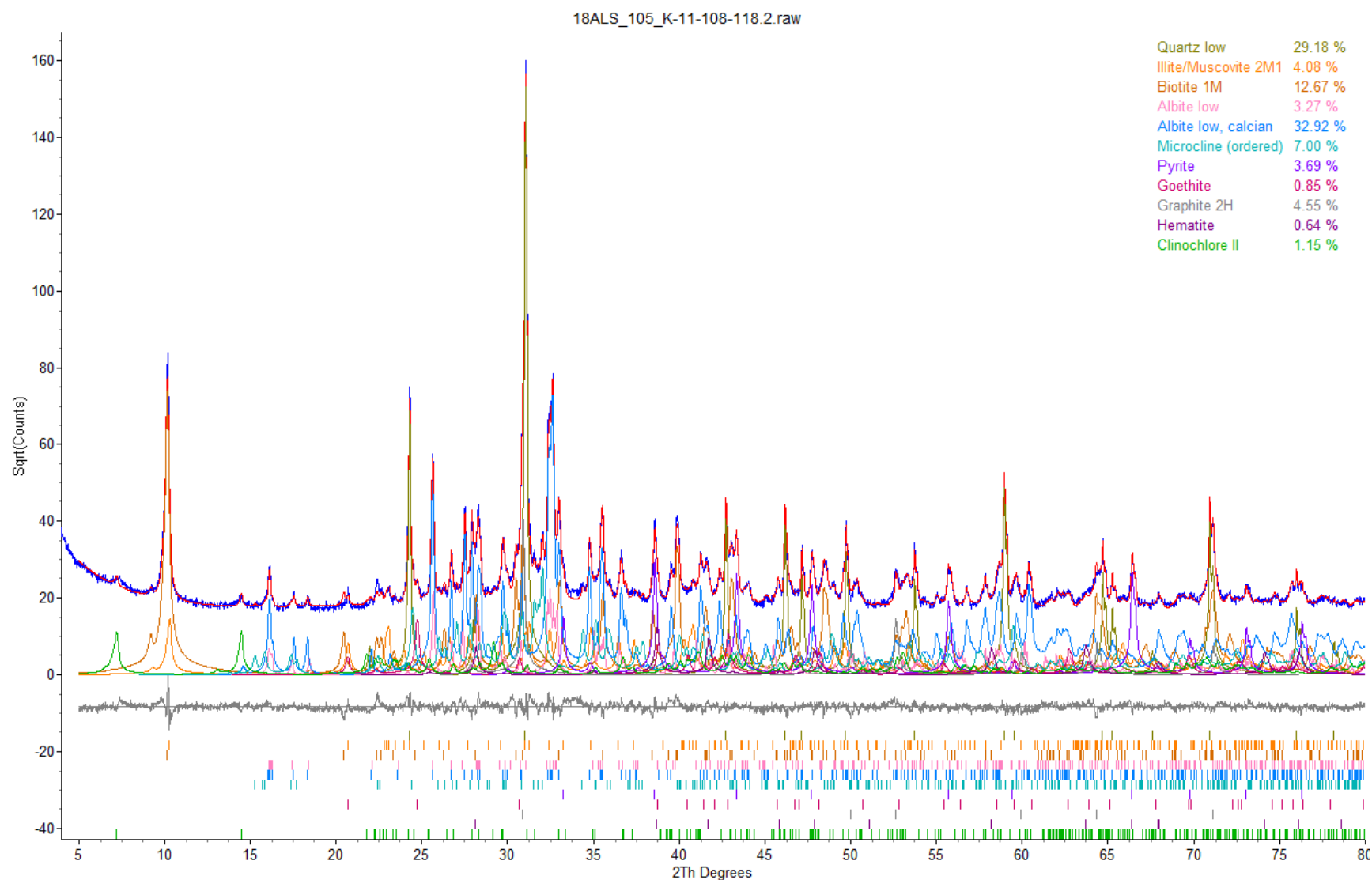


Figure 18. Rietveld refinement plot of sample **ALS Geochemistry - 105_K-11-108-118.2** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

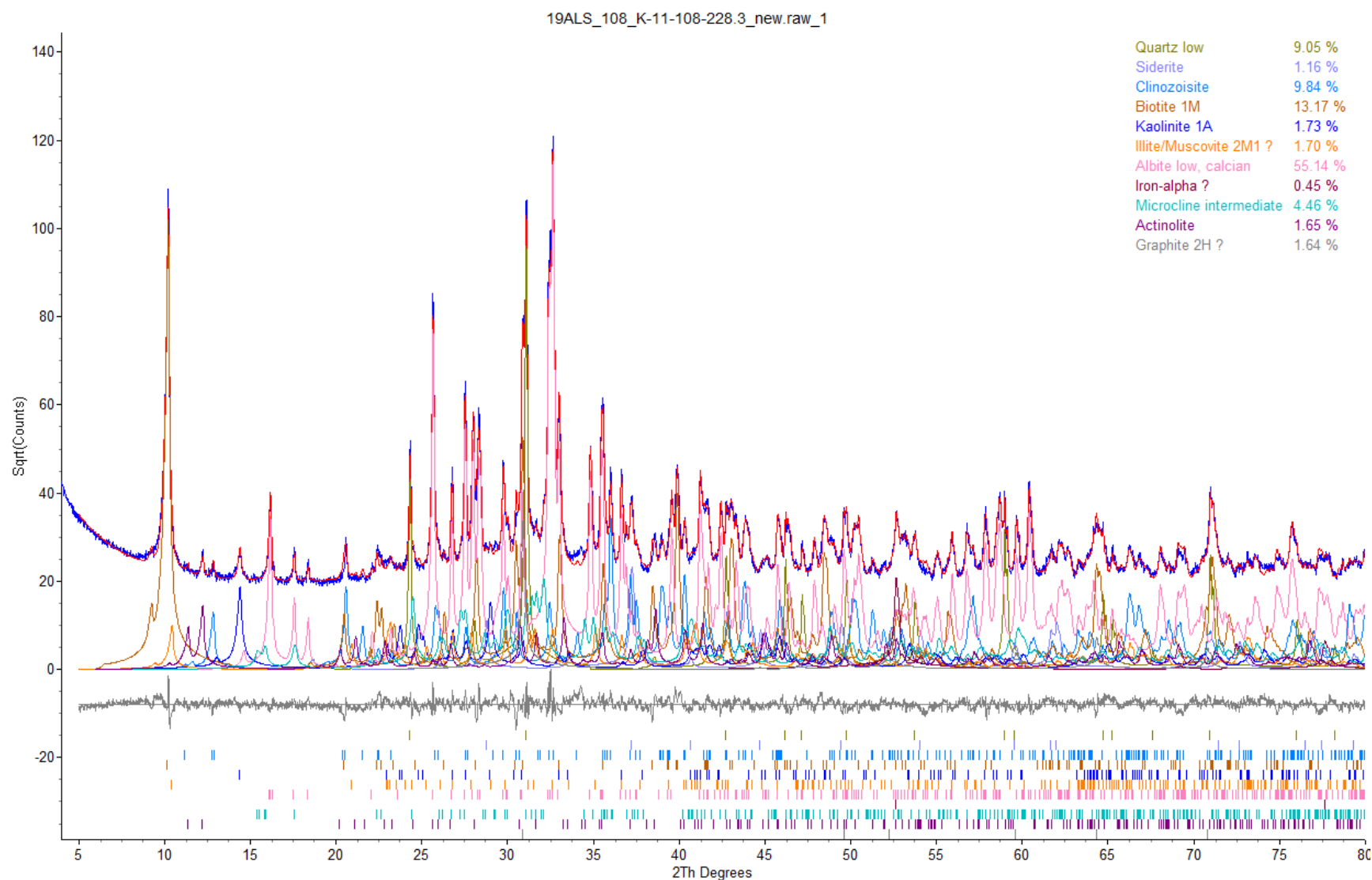


Figure 19. Rietveld refinement plot of sample **ALS Geochemistry - 108_K-11-108-228.3** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

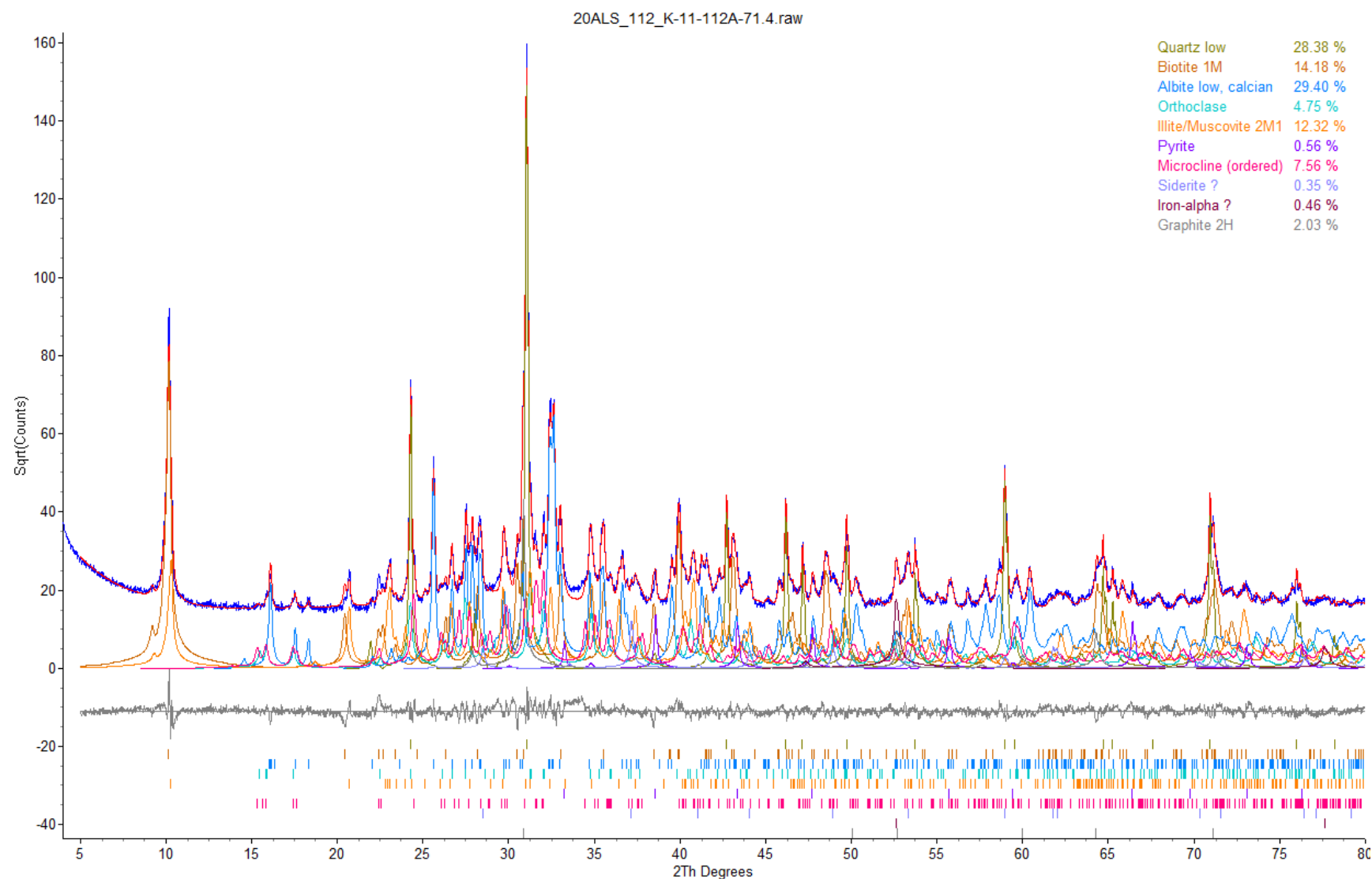


Figure 20. Rietveld refinement plot of sample **ALS Geochemistry - 112K-11-112A-71.4** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

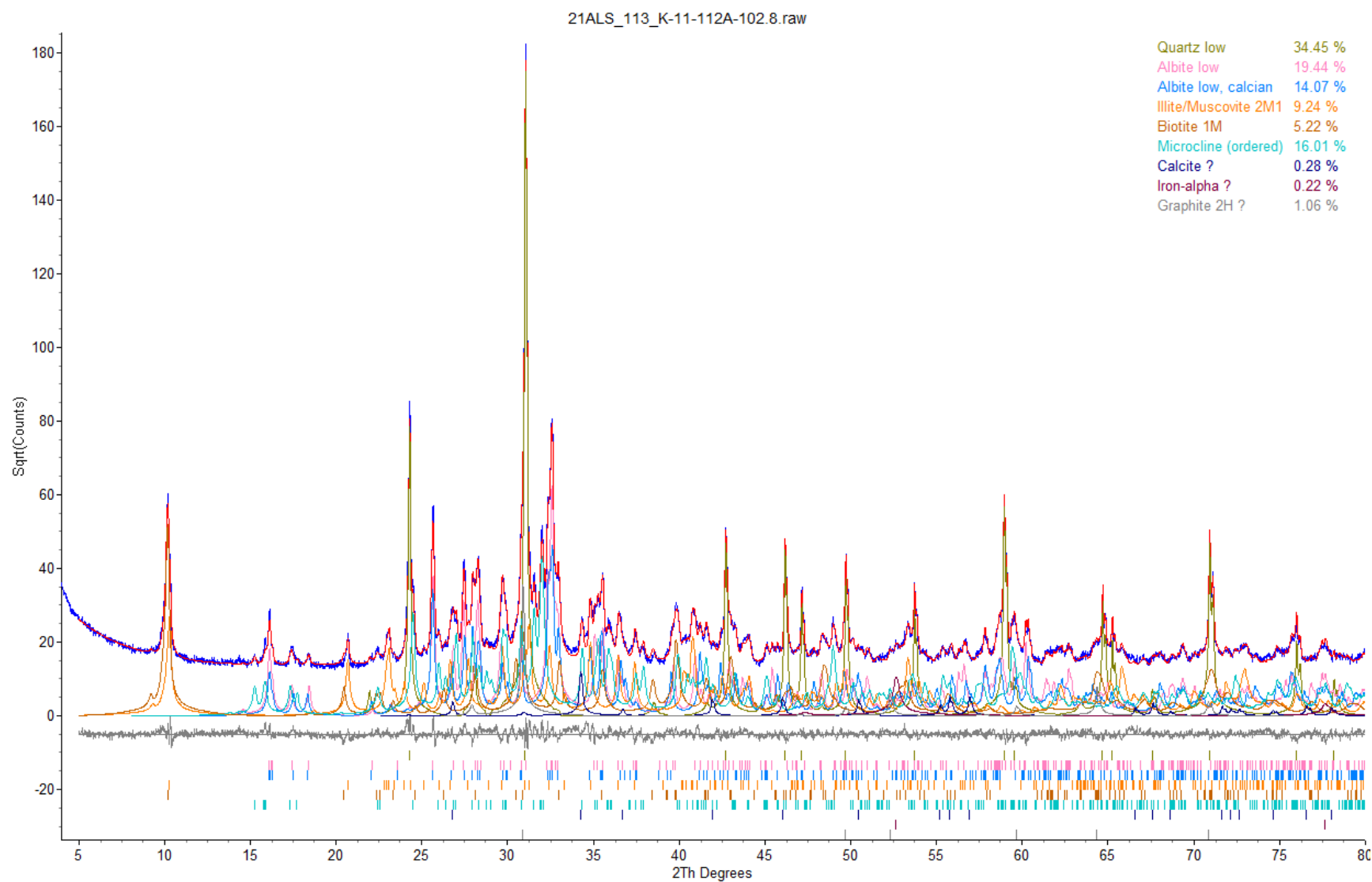


Figure 21. Rietveld refinement plot of sample **ALS Geochemistry - 113_K-11-112A-102.8** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

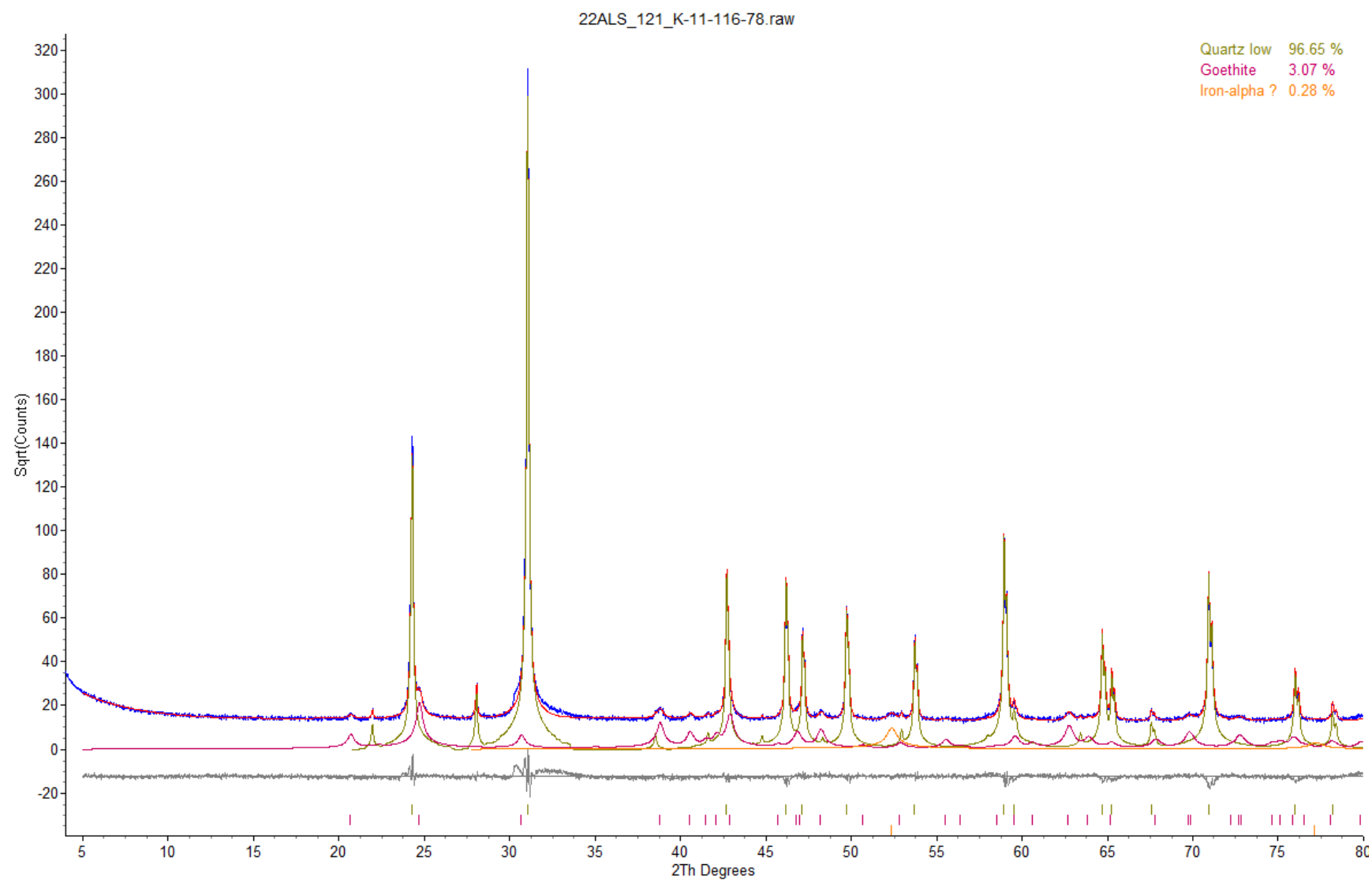


Figure 22. Rietveld refinement plot of sample **ALS Geochemistry - 121_K-11-116-78** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.



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Page: 1
Total # Pages: 5 (A - D)
Plus Appendix Pages
Finalized Date: 30-SEP-2023
Account: KANECO

CERTIFICATE ML23212726

Project: Champion Iron Ore

P.O. No.: 5497

This report is for 133 samples of Rock submitted to our lab in Montreal, QC, Canada on 28-JUL-2023.

The following have access to data associated with this certificate:

GILLIAN ALLEN

KATHERINE RAYMOND

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SOR-01	Additional sorting of samples
CRU-QC	Crushing QC Test
CRU-31	Fine crushing - 70% <2mm
PUL-QC	Pulverizing QC Test
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
S-GRA06a	Sulfate Sulfur (HCl leachable)	WST-SEQ
C-GAS05	Inorganic Carbon (CO2)	
ME-MS61	48 element four acid ICP-MS	
OA-VOL08m	Modified NP	
S-IR08	Total Sulphur (IR Spectroscopy)	LECO
OA-ELE07	Paste pH	
S-CAL06a	Sulfide Sulfur (calculated*)	

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Saa Traxler, Director, North Vancouver Operations



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Page: 2 - A
Total # Pages: 5 (A - D)
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Finalized Date: 30-SEP-2023
Account: KANECO

Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg	OA-VOL08m FIZZ RAT Unity	OA-VOL08m MPA tCaCO3/1Kt	OA-VOL08m NNP tCaCO3/1Kt	OA-VOL08m NP tCaCO3/1Kt	OA-VOL08m Ratio (N) Unity	OA-ELE07 pH Unity	S-IR08 S %	S-CAL06a S %	C-GAS05 C %	C-GAS05 CO2 %	S-GRA06a S %	ME-MS61 Ag ppm	ME-MS61 Al %	ME-MS61 As ppm
		0.02	1	0.3	1	1	0.01	0.1	0.01	0.01	0.05	0.2	0.01	0.01	0.01	0.2
K-11-142-431.5		1.74	3	0.3	178	178	569.60	8.9	0.01	<0.01	2.41	8.8	0.01			
K-11-142-76.47		1.19	3	19.1	139	158	8.29	8.0	0.61	0.60	2.47	9.1	0.01	0.08	0.12	6.0
K-11-143-293.82		2.20	3	0.6	143	144	230.40	8.8	0.02	0.01	1.96	7.2	0.01			
K-11-143-297.1		1.88	3	0.3	159	159	508.80	8.9	0.01	<0.01	1.95	7.1	0.02	0.07	0.01	1.2
K-11-145-155		4.19	1	10.3	6	16	1.55	9.5	0.33	0.31	0.13	0.5	0.02			
K-11-145-159.4		4.38	1	9.7	5	15	1.55	9.4	0.31	0.31	0.12	0.5	<0.01	0.31	7.65	0.6
K-11-145-201.8		4.61	2	15.3	66	81	5.29	8.8	0.49	0.48	1.51	5.5	0.01	0.11	0.03	7.3
K-11-145-355.5		2.59	2	0.3	86	86	275.20	8.7	0.01	<0.01	1.08	4.0	0.02			
K-11-147-161.4		0.95	3	87.8	31	119	1.36	7.9	2.81	2.78	1.17	4.3	0.03	1.29	6.78	1.5
K-11-147-303.2		2.38	2	11.3	19	30	2.67	8.7	0.36	0.34	1.29	4.7	0.02			
K-11-147-306.45		2.38	2	1.6	71	73	46.72	9.1	0.05	0.03	0.82	3.0	0.02			
K-11-147-308		4.24	1	6.3	17	23	3.68	9.2	0.20	0.18	0.20	0.7	0.02	0.03	7.94	0.3
K-11-147-355.9		4.11	1	3.4	7	10	2.91	9.6	0.11	0.10	0.08	0.3	0.01			
K-11-147-362.3		4.42	1	4.1	11	15	3.69	9.6	0.13	0.12	0.13	0.5	0.01	0.04	7.03	<0.2
K-11-148-314.5		2.48	3	0.3	256	256	819.20	8.8	0.01	<0.01	4.52	16.6	0.02			
K-11-149-211.5		2.76	2	12.2	28	40	3.28	8.5	0.39	0.38	4.31	15.8	0.01	0.09	0.75	1.0
K-11-152-68		3.37	1	180.5	-172	8	0.04	4.3	5.77	5.16	0.20	0.7	0.61	1.09	5.63	5.1
K-11-153-181.8		2.49	3	39.1	129	168	4.30	8.6	1.25	1.24	2.66	9.8	0.01			
K-11-153-49.5		4.35	3	9.1	641	650	71.72	8.8	0.29	0.28	7.72	28.3	0.01			
K-11-154-27.1		2.29	3	0.9	166	167	178.13	8.6	0.03	0.01	2.22	8.1	0.02			
K-11-156-135		2.38	3	36.3	78	114	3.14	8.4	1.16	1.14	1.38	5.1	0.02	0.26	0.74	4.1
K-11-158-50.5		1.56	1	4.7	8	13	2.77	8.5	0.15	0.13	0.05	0.2	0.02	0.02	7.96	0.2
K-11-158-53.5		1.56	1	5.6	4	10	1.78	7.8	0.18	0.16	2.24	8.2	0.02			
K-11-158-57.6		1.06	1	0.3	2	2	6.40	6.7	0.01	<0.01	0.10	0.4	0.02	0.13	0.22	4.4
K-11-159-291		3.06	1	5.0	-1	4	0.80	9.0	0.16	0.14	0.06	0.2	0.02	0.12	4.87	3.8
K-11-159-297.2		3.87	2	35.0	1	36	1.03	9.0	1.12	1.11	0.35	1.3	0.01			
K-11-159-442.42		2.89	2	0.6	43	44	70.40	8.5	0.02	0.01	0.72	2.6	0.01			
K-11-159-478.5		2.42	2	0.6	70	71	113.60	8.7	0.02	0.01	1.20	4.4	0.01	0.05	0.04	9.8
K-11-160-273.2		2.33	2	0.6	40	41	65.60	8.6	0.02	0.01	0.76	2.8	0.01			
K-11-161-181.5		0.98	1	219	-199	20	0.09	6.8	7.01	6.73	0.26	1.0	0.28	3.54	4.67	9.6
K-11-161-59.1		2.20	2	5.9	61	67	11.28	8.7	0.19	0.18	0.98	3.6	0.01			
K-11-161-89.4		2.42	2	11.3	62	73	6.49	8.4	0.36	0.35	1.10	4.0	0.01			
K-11-163-23.5		2.25	3	0.6	181	182	291.20	8.8	0.02	0.01	2.58	9.5	0.01	0.01	0.05	6.0
K-11-163-28.5		2.14	2	0.6	30	31	49.60	8.4	0.02	0.01	0.51	1.9	0.01	0.01	0.08	0.2
K-11-163-38.4		1.94	2	7.2	25	32	4.45	7.7	0.23	0.21	0.65	2.4	0.02			
K-11-163-41.4		1.34	1	69.1	-67	2	0.03	4.8	2.21	2.01	0.21	0.8	0.20	0.75	4.60	6.6
K-11-163-43		1.71	2	3.1	39	42	13.44	8.1	0.10	0.09	0.76	2.8	0.01	0.04	0.10	0.3
K-11-163-114.4		2.01	1	41.9	-29	13	0.31	8.0	1.34	1.33	0.12	0.4	0.01			
K-11-163-120.3		2.35	2	5.3	40	45	8.47	8.4	0.17	0.16	0.67	2.5	0.01			
K-11-163-123.4		4.03	1	32.5	-27	6	0.18	8.2	1.04	1.02	<0.05	<0.2	0.02			



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CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005
K-11-142-431.5 K-11-142-76.47 K-11-143-293.82 K-11-143-297.1 K-11-145-155		20	0.91	0.07	4.27	0.64	9.73	6.6	7	0.07	11.5	21.6	1.44	0.19	0.1	0.019
K-11-145-159.4 K-11-145-201.8 K-11-145-355.5 K-11-147-161.4 K-11-147-303.2		20	0.07	0.01	3.35	<0.02	4.43	6.2	20	<0.05	1.9	7.19	0.67	0.08	<0.1	<0.005
K-11-147-306.45 K-11-147-308 K-11-147-355.9 K-11-147-362.3 K-11-148-314.5		810 10 710	2.35 0.45 4.05	0.32 0.04 0.30	1.37 2.05 4.05	1.74 0.29 0.40	86.9 2.37 61.2	11.8 2.6 13.5	124 7 90	4.14 0.05 3.94	86.3 12.6 101.5	3.12 15.80 8.13	19.60 0.49 16.45	0.15 0.12 0.16	3.8 <0.1 3.7	0.088 0.010 0.055
K-11-149-211.5 K-11-152-68 K-11-153-181.8 K-11-153-49.5 K-11-154-27.1		540 1100	1.99 0.81	0.03 0.04	0.77 0.55	0.02 <0.02	61.1 83.1	20.6 4.0	67 44	11.95 1.63	7.8 7.2	7.09 0.80	16.20 14.65	0.16 0.15	2.6 5.6	0.018 0.015
K-11-156-135 K-11-158-50.5 K-11-158-53.5 K-11-158-57.6 K-11-159-291		40 60	0.46 1.63	0.03 0.40	1.20 2.20	0.12 1.58	24.9 71.4	15.0 34.1	13 73	0.26 3.45	22.4 150.0	33.5 11.05	2.92 17.50	0.26 0.18	1.0 1.9	0.029 0.102
K-11-159-297.2 K-11-159-442.42 K-11-159-478.5 K-11-160-273.2 K-11-161-181.5		40 610 90 890	0.52 1.01 3.31 0.66	0.11 0.02 0.04 0.03	3.15 5.86 0.08 0.19	0.07 0.05 4.02 0.03	10.30 51.5 8.83 36.2	8.4 58.3 18.4 1.9	27 113 4 21	0.27 0.65 <0.05 0.77	9.6 65.0 33.2 5.6	30.1 12.20 42.3 0.74	2.75 25.2 1.06 9.22	0.41 0.16 0.31 0.08	0.2 0.9 0.1 3.0	0.013 0.094 0.006 0.007
K-11-161-59.1 K-11-161-89.4 K-11-163-23.5 K-11-163-28.5 K-11-163-38.4		10 100	0.84 2.30	0.04 0.62	2.13 1.38	0.02 6.50	5.24 68.6	11.6 34.0	4 91	0.19 2.22	3.2 514	26.8 9.90	0.59 13.30	0.14 0.20	<0.1 3.3	<0.005 0.056
K-11-163-41.4 K-11-163-43 K-11-163-114.4 K-11-163-120.3 K-11-163-123.4		20 40	0.35 2.68	0.01 0.02	4.38 1.53	0.07 <0.02	3.82 12.10	3.7 15.4	4 2	0.26 <0.05	1.3 1.0	24.2 36.3	0.36 1.44	0.12 0.77	<0.1 0.2	<0.005 0.006
		520 40	3.51 1.50	0.79 0.04	0.62 2.14	1.32 0.10	65.3 7.48	27.1 9.5	67 4	5.27 0.17	172.0 5.3	13.40 28.8	12.15 1.48	0.15 0.13	2.8 0.1	0.059 0.006



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CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	ME-MS61 K %	ME-MS61 La ppm	ME-MS61 Li ppm	ME-MS61 Mg %	ME-MS61 Mn ppm	ME-MS61 Mo ppm	ME-MS61 Na %	ME-MS61 Nb ppm	ME-MS61 Ni ppm	ME-MS61 P ppm	ME-MS61 Pb ppm	ME-MS61 Rb ppm	ME-MS61 Re ppm	ME-MS61 S %	ME-MS61 Sb ppm
K-11-142-431.5 K-11-142-76.47 K-11-143-293.82 K-11-143-297.1 K-11-145-155		0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05
K-11-145-159.4 K-11-145-201.8 K-11-145-355.5 K-11-147-161.4 K-11-147-303.2		0.01	3.9	1.4	1.87	3970	0.84	<0.01	1.1	6.8	70	3.0	0.4	0.003	0.56	0.16
K-11-147-306.45 K-11-147-308 K-11-147-355.9 K-11-147-362.3 K-11-148-314.5		<0.01	4.1	<0.2	1.07	11250	0.31	<0.01	1.2	1.5	20	0.6	0.1	<0.002	0.01	<0.05
K-11-149-211.5 K-11-152-68 K-11-153-181.8 K-11-153-49.5 K-11-154-27.1		3.01	47.4	33.5	1.77	523	7.44	1.60	15.6	60.3	640	25.5	129.5	0.008	0.33	0.12
K-11-156-135 K-11-158-50.5 K-11-158-53.5 K-11-158-57.6 K-11-159-291		0.01	1.0	2.3	2.09	757	0.38	0.01	0.3	3.9	70	1.6	0.5	<0.002	0.41	0.13
K-11-159-297.2 K-11-159-442.42 K-11-159-478.5 K-11-160-273.2 K-11-161-181.5		2.34	33.8	39.8	3.83	1190	68.6	0.73	8.8	45.1	900	18.3	85.9	0.007	2.77	0.06
K-11-161-59.1 K-11-161-89.4 K-11-163-23.5 K-11-163-28.5 K-11-163-38.4		5.80	31.9	36.4	3.23	736	0.52	0.17	4.4	28.7	740	5.4	243	<0.002	0.23	0.13
K-11-163-41.4 K-11-163-43 K-11-163-114.4 K-11-163-120.3 K-11-163-123.4		4.49	35.7	8.3	0.35	67	0.33	0.20	3.5	9.5	1040	17.8	90.9	<0.002	0.13	<0.05
		0.08	15.6	4.3	4.22	19600	0.45	0.01	10.1	10.6	790	1.7	3.1	<0.002	0.36	<0.05
		1.79	36.3	32.1	1.69	878	94.7	0.89	12.4	138.5	2630	18.4	71.1	0.043	5.78	0.26
		0.05	5.6	4.1	1.80	9390	0.92	0.01	1.3	10.5	250	3.3	5.4	<0.002	1.15	0.15
		0.83	21.9	20.9	3.47	2140	0.93	2.24	7.5	61.4	1740	0.9	21.1	<0.002	0.16	0.11
		0.01	6.0	0.8	0.03	823	3.73	0.01	1.4	68.7	5480	7.9	0.3	<0.002	0.01	0.10
		5.36	18.1	4.0	0.19	122	1.08	0.13	1.2	9.1	350	13.3	109.5	0.003	0.18	<0.05
		0.01	3.3	0.9	3.04	9240	0.56	0.01	0.8	1.5	170	3.5	0.5	<0.002	0.02	0.05
		1.90	36.4	20.9	1.20	1125	136.5	0.25	11.0	215	1120	111.0	70.3	0.068	7.15	2.46
		0.02	1.5	6.5	3.74	1955	0.31	0.01	1.1	1.8	50	2.0	1.1	<0.002	0.02	0.10
		0.01	4.3	9.4	1.21	9550	0.39	0.42	3.0	3.1	140	4.8	0.4	<0.002	0.01	0.41
		2.23	36.5	35.3	1.52	3360	85.5	0.52	9.1	138.5	1040	15.6	87.7	0.046	2.37	0.21
		0.01	2.6	4.9	0.66	4460	0.50	0.17	3.0	9.1	100	3.6	0.9	<0.002	0.11	0.25



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CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
K-11-142-431.5 K-11-142-76.47 K-11-143-293.82 K-11-143-297.1 K-11-145-155		0.5	1	0.3	58.4	<0.05	0.09	0.11	0.008	<0.02	0.6	16	0.3	5.3	115	5.7
K-11-145-159.4 K-11-145-201.8 K-11-145-355.5 K-11-147-161.4 K-11-147-303.2		0.1	<1	<0.2	11.3	<0.05	0.16	0.02	<0.005	<0.02	<0.1	6	0.6	2.9	22	2.6
K-11-147-306.45 K-11-147-308 K-11-147-355.9 K-11-147-362.3 K-11-148-314.5		14.9	2	2.6	120.5	0.98	0.08	15.50	0.361	1.00	7.9	130	1.7	22.4	280	144.5
		0.1	1	<0.2	24.5	<0.05	0.13	0.09	<0.005	<0.02	0.1	4	0.3	1.4	34	1.7
		12.9	2	1.9	85.9	0.50	0.53	11.80	0.305	0.76	6.9	448	6.6	21.1	79	148.5
K-11-149-211.5 K-11-152-68 K-11-153-181.8 K-11-153-49.5 K-11-154-27.1		16.6	1	1.1	26.9	0.22	<0.05	8.88	0.357	1.71	1.2	136	0.6	7.8	36	99.5
		4.5	<1	0.6	103.5	0.28	<0.05	19.75	0.169	0.89	2.7	26	0.2	12.5	9	203
K-11-156-135 K-11-158-50.5 K-11-158-53.5 K-11-158-57.6 K-11-159-291		1.9	<1	0.3	16.4	0.44	0.16	1.38	0.117	0.03	0.5	51	0.7	11.8	67	47.6
		18.4	4	1.8	121.5	0.72	0.25	5.50	1.035	0.85	30.6	711	2.9	49.6	319	72.2
K-11-159-297.2 K-11-159-442.42 K-11-159-478.5 K-11-160-273.2 K-11-161-181.5		2.1	<1	0.3	55.5	0.06	0.34	0.39	0.040	0.35	0.6	26	0.3	9.1	20	11.2
		33.3	<1	1.3	254	0.41	<0.05	2.35	1.500	0.23	0.4	270	0.2	39.8	165	26.2
		0.5	<1	<0.2	4.4	0.05	<0.05	0.13	0.007	0.20	5.0	18	0.9	19.1	426	6.6
		1.3	<1	0.2	76.7	0.10	<0.05	9.06	0.064	0.67	0.8	10	0.2	3.5	10	105.0
K-11-161-59.1 K-11-161-89.4 K-11-163-23.5 K-11-163-28.5 K-11-163-38.4		0.3	<1	<0.2	5.8	<0.05	<0.05	0.06	<0.005	<0.02	0.1	8	3.0	5.8	7	2.9
		10.6	14	1.9	39.0	0.58	0.43	9.36	0.234	1.63	53.4	1270	15.2	51.6	927	136.5
K-11-163-41.4 K-11-163-43 K-11-163-114.4 K-11-163-120.3 K-11-163-123.4		0.1	<1	<0.2	28.7	0.06	<0.05	0.12	<0.005	<0.02	0.1	4	0.4	2.1	9	2.3
		0.3	<1	<0.2	19.2	0.11	<0.05	0.22	0.006	<0.02	0.1	9	2.5	8.4	16	9.4
		8.7	4	1.8	51.4	0.57	0.26	6.25	0.229	1.08	32.9	596	3.8	40.2	315	109.0
		0.2	<1	<0.2	22.5	0.10	<0.05	0.19	0.005	<0.02	0.2	8	0.3	4.0	36	9.4



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CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	OA-VOL08m FIZZ RAT Unity 1	OA-VOL08m MPA tCaCO ₃ /1Kt 0.3	OA-VOL08m NNP tCaCO ₃ /1Kt 1	OA-VOL08m NP tCaCO ₃ /1Kt 1	OA-VOL08m Ratio (N) Unity 0.01	OA-ELE07 pH Unity 0.1	S-IR08 S % 0.01	S-CAL06a S % 0.01	C-GAS05 C % 0.05	C-GAS05 CO ₂ % 0.2	S-GRA06a S % 0.01	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2
K-11-164-127.5		2.35	3	0.6	162	163	260.80	8.4	0.02	0.01	2.57	9.4	0.01	0.02	0.02	3.3
K-11-165-288.8		2.28	3	0.6	177	178	284.80	8.8	0.02	0.01	2.60	9.5	0.01	0.03	0.02	4.2
K-11-166-117.5		2.11	3	93.4	41	134	1.43	7.7	2.99	2.95	1.28	4.7	0.04	0.52	2.10	4.3
K-11-166-251.1		4.44	4	<0.3	1020	1020	6528.0	9.4	<0.01	<0.01	12.45	45.6	0.01	<0.01	0.02	0.2
K-11-166-271		4.42	4	<0.3	917	917	5868.8	9.4	<0.01	<0.01	12.45	45.6	0.01			
K-11-166-54.8		4.04	1	18.1	-5	13	0.72	9.2	0.58	0.56	0.07	0.3	0.02			
K-11-168-138.5		1.04	2	1.9	28	30	16.00	8.5	0.06	0.05	1.88	6.9	0.01	0.06	0.64	3.7
K-11-168-276.7		2.83	2	0.9	95	96	102.40	8.6	0.03	0.03	1.38	5.1	<0.01			
K-11-168-291.5		2.78	1	30.9	-24	7	0.23	8.0	0.99	0.97	<0.05	<0.2	0.02	0.70	8.24	5.1
K-11-169-76.8		3.51	1	2.8	5	8	2.84	7.4	0.09	0.07	<0.05	<0.2	0.02	0.12	4.04	4.0
K-11-172-18.4		3.57	3	22.5	212	234	10.40	8.0	0.72	0.71	3.36	12.3	0.01			
K-11-172-268.2		2.06	2	0.9	84	85	90.67	8.5	0.03	0.02	1.49	5.5	0.01			
K-11-99-158.5		0.89	1	0.3	1	1	3.20	7.5	0.01	<0.01	<0.05	<0.2	0.01	0.03	0.11	1.3
K-11-99-169		1.07	1	0.3	3	3	9.60	7.2	0.01	<0.01	<0.05	<0.2	0.01			
K-12-173-197.5		2.78	1	11.9	-8	4	0.34	6.8	0.38	0.35	0.73	2.7	0.03	0.19	5.94	4.0
K-12-173-199.2		1.33	1	2.5	5	7	2.80	7.6	0.08	0.07	2.34	8.6	0.01			
K-12-173-199.7		1.18	1	5.3	-1	4	0.75	7.6	0.17	0.07	1.28	4.7	0.10	0.02	0.46	1.8
K-12-174-175.9		1.50	4	<0.3	898	898	5747.2	9.4	<0.01	<0.01	11.45	42.0	0.01			
K-12-175-16.9		1.15	1	2.5	2	4	1.60	6.8	0.08	0.07	<0.05	<0.2	0.01	1.07	1.20	2.5
K-12-175-20.3		2.53	1	5.0	-1	4	0.80	7.6	0.16	0.15	<0.05	<0.2	0.01	0.43	0.64	80.3
K-12-175-67.5		1.17	1	21.6	-16	6	0.28	7.0	0.69	0.68	<0.05	<0.2	0.01			
K-12-175-79.3		1.98	2	54.7	-28	27	0.49	7.4	1.75	1.70	0.54	2.0	0.05	0.67	4.50	10.8
K-12-175-86.6		2.10	2	64.1	8	72	1.12	7.9	2.05	2.04	1.37	5.0	0.01	0.48	0.45	2.2
K-12-175-176.9		4.27	1	30.3	-25	5	0.16	6.4	0.97	0.96	<0.05	<0.2	0.01			
K-12-175-178.4		1.41	1	10.0	-1	9	0.90	8.1	0.32	0.31	0.19	0.7	0.01			
K-12-175-187.5		Not Recvd														
K-12-177-233.47		1.56	1	1.6	-1	1	0.64	7.0	0.05	0.04	0.06	0.2	0.01	0.08	0.16	1.7
K-12-177-244		1.29	1	0.6	1	2	3.20	7.0	0.02	0.01	<0.05	<0.2	0.01			
K-12-177-272.5		0.80	3	0.9	112	113	120.53	7.5	0.03	0.02	5.56	20.4	0.01	0.25	0.21	25.2
K-12-177-551.5		0.91	1	0.6	1	2	3.20	6.4	0.02	0.02	0.10	0.4	<0.01			
K-12-179-168.5		2.49	1	46.6	-43	4	0.09	4.4	1.49	1.26	<0.05	<0.2	0.23			
K-12-179-171.6		0.92	1	31.9	-29	3	0.09	7.4	1.02	0.95	1.56	5.7	0.07	0.45	4.44	8.2
K-12-179-172.1		0.99	1	15.3	-9	6	0.39	6.1	0.49	0.43	2.56	9.4	0.06			
K-12-180-11.3		2.13	1	0.6	0	1	1.60	6.6	0.02	0.01	<0.05	<0.2	0.01	0.04	0.04	0.3
K-12-180-13		2.16	1	0.3	1	1	3.20	7.0	0.01	<0.01	<0.05	<0.2	0.01			
K-12-180-18.2		1.66	1	<0.3	1	1	6.40	7.1	<0.01	<0.01	<0.05	<0.2	<0.01	0.05	0.15	0.2
K-12-180-21.5		3.00	1	<0.3	1	1	6.40	7.2	<0.01	<0.01	<0.05	<0.2	0.01			
K-12-180-28.1		1.50	1	<0.3	0	0	0.00	6.9	<0.01	<0.01	<0.05	<0.2	0.01	0.30	0.06	0.3
K-12-182-131.5		4.84	3	<0.3	181	181	1158.40	8.9	<0.01	<0.01	2.93	10.7	<0.01	0.01	0.01	5.6
K-12-182-435.8		0.94	1	<0.3	1	1	6.40	7.3	<0.01	<0.01	<0.05	<0.2	<0.01	0.02	0.05	0.7



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 112-112 RESEARCH DRIVE
 SASKATOON SK S7N 3R3

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Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005
K-11-164-127.5		20	0.85	0.01	4.27	0.02	6.69	3.3	7	0.05	1.3	20.8	0.32	0.10	<0.1	<0.005
K-11-165-288.8		10	1.91	0.01	4.37	0.02	5.97	3.3	6	<0.05	1.9	22.9	0.54	0.10	<0.1	<0.005
K-11-166-117.5		140	1.97	0.49	4.80	0.22	30.4	15.1	47	2.38	99.6	12.70	6.64	0.11	1.7	0.025
K-11-166-251.1		10	<0.05	0.01	21.1	0.09	0.62	1.5	<1	<0.05	1.1	1.00	0.08	<0.05	<0.1	<0.005
K-11-166-271																
K-11-166-54.8																
K-11-168-138.5		210	1.40	0.02	0.94	0.05	17.55	17.4	8	2.38	3.8	31.8	2.76	0.14	0.9	0.017
K-11-168-276.7																
K-11-168-291.5		750	2.66	0.49	0.46	3.32	84.6	13.3	93	5.03	107.0	4.04	22.2	0.14	3.6	0.078
K-11-169-76.8		190	1.11	0.03	1.13	2.05	53.5	8.1	54	8.41	8.3	25.0	11.15	0.57	2.6	0.040
K-11-172-18.4																
K-11-172-268.2																
K-11-99-158.5		20	0.79	0.03	0.03	0.07	3.12	8.3	7	0.08	5.1	22.6	0.72	0.36	0.1	<0.005
K-11-99-169																
K-12-173-197.5		540	2.31	0.15	0.91	0.92	91.4	15.7	72	5.54	51.9	9.49	15.20	0.14	2.6	0.066
K-12-173-199.2																
K-12-173-199.7		20	1.18	0.01	0.78	1.13	9.30	12.4	3	1.31	14.8	28.1	2.14	0.12	0.2	0.007
K-12-174-175.9																
K-12-175-16.9		120	2.79	0.04	0.27	0.38	15.40	12.4	19	0.73	35.8	26.9	3.84	0.14	0.6	0.017
K-12-175-20.3		40	1.88	0.16	0.13	0.45	8.60	5.9	21	1.23	48.9	14.85	2.12	0.08	0.3	0.018
K-12-175-67.5																
K-12-175-79.3		360	1.70	0.32	1.75	2.01	47.9	19.0	59	3.71	121.5	13.05	11.00	0.11	2.7	0.050
K-12-175-86.6		30	0.70	0.22	2.05	1.09	16.30	17.9	9	0.41	64.3	24.8	3.39	0.11	0.5	0.031
K-12-175-176.9																
K-12-175-178.4																
K-12-175-187.5																
K-12-177-233.47		20	0.71	0.03	0.03	0.02	6.22	4.8	6	0.10	3.7	27.4	1.20	0.12	0.1	0.005
K-12-177-244																
K-12-177-272.5		40	1.50	0.01	0.56	0.09	5.72	9.6	2	0.21	2.5	27.5	1.19	0.11	0.2	0.005
K-12-177-551.5																
K-12-179-168.5																
K-12-179-171.6		460	1.94	0.17	0.85	0.74	47.7	17.2	63	4.50	62.7	15.95	11.45	0.13	2.7	0.043
K-12-179-172.1																
K-12-180-11.3		<10	<0.05	0.01	0.01	<0.02	0.78	0.3	18	<0.05	3.0	0.62	0.23	<0.05	<0.1	<0.005
K-12-180-13																
K-12-180-18.2		20	0.07	0.01	0.02	<0.02	0.87	0.7	10	<0.05	3.9	0.47	0.51	<0.05	0.1	<0.005
K-12-180-21.5																
K-12-180-28.1		10	<0.05	0.01	0.01	<0.02	0.77	0.5	13	<0.05	2.9	0.40	0.26	<0.05	<0.1	<0.005
K-12-182-131.5		<10	0.95	0.01	4.95	<0.02	4.95	3.9	7	<0.05	2.2	22.7	0.34	0.10	<0.1	<0.005
K-12-182-435.8		10	0.25	0.01	0.03	0.03	0.95	1.4	19	<0.05	4.9	1.61	0.32	<0.05	<0.1	<0.005



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CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	ME-MS61 K %	ME-MS61 La ppm	ME-MS61 Li ppm	ME-MS61 Mg %	ME-MS61 Mn ppm	ME-MS61 Mo ppm	ME-MS61 Na %	ME-MS61 Nb ppm	ME-MS61 Ni ppm	ME-MS61 P ppm	ME-MS61 Pb ppm	ME-MS61 Rb ppm	ME-MS61 Re ppm	ME-MS61 S %	ME-MS61 Sb ppm
K-11-164-127.5		0.01	2.3	1.1	3.21	1875	0.19	0.01	0.4	1.3	30	0.5	0.4	<0.002	0.01	<0.05
K-11-165-288.8		<0.01	2.0	0.7	1.65	1745	0.63	0.01	0.7	1.2	40	1.1	0.2	<0.002	0.02	0.05
K-11-166-117.5		0.61	14.8	18.8	1.53	2320	73.8	0.03	11.1	100.5	850	7.3	36.1	0.033	2.91	0.13
K-11-166-251.1		0.01	<0.5	1.0	12.55	919	0.18	<0.01	<0.1	0.7	20	<0.5	0.3	<0.002	0.01	<0.05
K-11-166-271																
K-11-166-54.8																
K-11-168-138.5		0.24	9.7	10.9	3.49	26900	0.25	0.05	10.6	4.7	690	0.8	14.7	<0.002	0.06	<0.05
K-11-168-276.7																
K-11-168-291.5		3.51	44.1	36.5	1.59	543	13.70	1.38	12.2	78.8	750	41.2	141.5	0.011	1.12	0.06
K-11-169-76.8		0.83	24.6	15.1	1.23	1865	8.13	0.02	13.7	19.3	580	3.9	87.5	0.002	0.09	<0.05
K-11-172-18.4																
K-11-172-268.2																
K-11-99-158.5		0.02	2.9	1.2	0.02	1020	2.96	0.01	1.3	12.2	180	1.1	1.0	<0.002	0.01	0.14
K-11-99-169																
K-12-173-197.5		2.28	44.0	36.8	1.64	2060	3.34	1.22	11.4	42.6	710	18.2	101.0	0.005	0.41	0.09
K-12-173-199.2																
K-12-173-199.7		0.05	3.2	2.9	0.50	4190	0.84	0.03	3.0	15.2	170	6.9	5.7	<0.002	0.19	0.11
K-12-174-175.9																
K-12-175-16.9		0.40	6.7	5.4	0.35	442	2.10	0.21	2.8	31.5	520	6.3	19.2	<0.002	0.08	0.09
K-12-175-20.3		0.14	6.8	2.8	0.12	314	2.67	0.01	1.9	24.9	560	6.1	7.2	<0.002	0.18	0.06
K-12-175-67.5																
K-12-175-79.3		0.88	24.6	23.4	1.35	2850	4.37	0.08	8.3	63.4	390	6.4	53.3	0.004	1.84	0.13
K-12-175-86.6		0.07	6.3	2.6	1.09	7090	7.82	0.02	6.3	27.4	210	3.0	4.7	0.003	2.05	0.16
K-12-175-176.9																
K-12-175-178.4																
K-12-175-187.5																
K-12-177-233.47		0.03	2.4	1.7	0.06	861	1.25	0.01	3.4	2.3	50	1.4	1.5	<0.002	0.05	0.09
K-12-177-244																
K-12-177-272.5		0.04	2.9	1.2	1.23	11050	0.33	0.02	3.0	4.8	170	1.4	1.8	<0.002	0.03	<0.05
K-12-177-551.5																
K-12-179-168.5																
K-12-179-171.6		2.00	25.3	26.7	1.00	3010	5.57	0.79	8.1	40.3	1060	19.9	69.5	0.005	1.09	0.11
K-12-179-172.1																
K-12-180-11.3		0.02	<0.5	0.6	0.01	89	0.45	0.01	0.1	1.4	10	0.5	0.6	<0.002	0.01	<0.05
K-12-180-13																
K-12-180-18.2		0.07	<0.5	0.9	0.03	67	0.24	0.01	0.2	1.7	10	0.8	2.1	<0.002	<0.01	<0.05
K-12-180-21.5																
K-12-180-28.1		0.02	<0.5	0.4	0.02	61	0.19	0.01	0.1	1.4	10	0.9	0.9	<0.002	<0.01	<0.05
K-12-182-131.5		<0.01	1.4	1.9	3.73	2000	0.12	0.01	0.7	0.8	30	1.0	0.1	<0.002	0.01	<0.05
K-12-182-435.8		0.02	0.6	0.5	0.02	363	0.38	0.01	0.3	2.8	40	0.6	0.5	<0.002	0.01	<0.05



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Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
K-11-164-127.5		<0.1	<1	<0.2	9.3	<0.05	<0.05	0.05	<0.005	<0.02	0.1	3	0.3	3.4	6	0.7
K-11-165-288.8		<0.1	<1	<0.2	16.4	<0.05	<0.05	0.07	<0.005	<0.02	0.1	3	0.3	3.3	4	1.2
K-11-166-117.5		4.6	4	0.8	26.9	0.62	0.26	3.79	0.161	0.76	27.7	396	2.5	22.8	85	69.1
K-11-166-251.1		0.1	<1	<0.2	61.2	<0.05	<0.05	0.03	<0.005	<0.02	0.2	1	<0.1	0.5	3	<0.5
K-11-166-271																
K-11-166-54.8		1.2	<1	<0.2	5.3	0.49	0.05	1.02	0.097	0.06	0.5	43	1.0	10.8	17	41.6
K-11-168-138.5																
K-11-168-276.7		15.8	1	2.8	84.1	0.81	0.08	17.05	0.375	1.68	8.9	201	2.6	18.8	476	138.0
K-11-168-291.5		8.9	<1	1.0	6.2	0.69	<0.05	7.06	0.225	1.64	7.6	170	2.5	24.1	453	106.0
K-11-169-76.8																
K-11-172-18.4		0.2	<1	<0.2	1.4	<0.05	<0.05	0.19	0.005	0.03	1.6	15	1.5	8.3	27	3.2
K-11-172-268.2																
K-11-99-158.5		11.6	<1	2.2	85.8	0.78	0.05	12.10	0.292	1.20	13.4	96	2.4	28.5	248	97.4
K-11-99-169																
K-12-173-197.5																
K-12-173-199.2		1.4	<1	0.3	12.8	0.14	<0.05	0.42	0.022	0.07	4.8	17	0.2	5.6	64	11.8
K-12-173-199.7																
K-12-174-175.9		2.1	<1	0.5	31.8	0.15	<0.05	1.76	0.059	0.15	10.4	30	5.2	8.3	143	19.6
K-12-175-16.9		1.2	<1	0.4	2.2	0.11	<0.05	0.97	0.030	0.16	3.0	74	0.9	11.6	106	14.3
K-12-175-20.3																
K-12-175-67.5		9.5	1	1.2	30.3	0.57	0.85	8.26	0.189	0.65	5.3	134	2.6	18.4	161	101.0
K-12-175-79.3		0.8	1	0.5	139.0	0.20	0.22	0.99	0.018	0.06	0.8	21	0.9	7.8	179	24.9
K-12-175-86.6																
K-12-175-176.9																
K-12-175-178.4																
K-12-175-187.5		0.1	<1	<0.2	1.6	0.18	<0.05	0.40	0.005	<0.02	0.1	6	0.9	2.1	10	4.8
K-12-177-233.47																
K-12-177-244		0.1	<1	<0.2	3.5	0.19	<0.05	0.35	0.005	0.23	0.2	6	3.0	4.2	18	8.0
K-12-177-272.5																
K-12-177-551.5																
K-12-179-168.5		8.8	<1	1.5	59.5	0.51	<0.05	7.89	0.241	0.66	8.6	146	3.6	17.8	107	107.0
K-12-179-171.6																
K-12-179-172.1		0.1	<1	<0.2	0.8	<0.05	<0.05	0.13	<0.005	<0.02	0.1	1	0.3	0.2	3	1.1
K-12-180-11.3																
K-12-180-13																
K-12-180-18.2		0.4	<1	<0.2	1.4	<0.05	<0.05	0.16	0.007	0.02	0.1	3	0.4	0.5	5	2.3
K-12-180-21.5																
K-12-180-28.1		0.2	<1	<0.2	1.2	<0.05	<0.05	0.10	<0.005	<0.02	0.1	1	2.1	0.4	3	1.6
K-12-182-131.5		<0.1	<1	<0.2	10.4	<0.05	<0.05	0.03	<0.005	<0.02	<0.1	1	0.3	2.0	7	1.0
K-12-182-435.8		0.2	<1	0.2	0.7	<0.05	<0.05	0.06	<0.005	0.02	0.1	4	0.2	0.7	7	2.7



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Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	OA-VOL08m FIZZ RAT Unity 1	OA-VOL08m MPA tCaCO3/1Kt 0.3	OA-VOL08m NNP tCaCO3/1Kt 1	OA-VOL08m NP tCaCO3/1Kt 1	OA-VOL08m Ratio (N) Unity 0.01	OA-ELE07 pH Unity 0.1	S-IR08 S % 0.01	S-CAL06a S % 0.01	C-GAS05 C % 0.05	C-GAS05 CO2 % 0.2	S-GRA06a S % 0.01	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2
K-12-184-448.5		1.25	1	<0.3	2	2	12.80	8.3	<0.01	<0.01	<0.05	<0.2	<0.01			
K-12-185-59.1		4.13	1	0.3	13	13	41.60	9.6	0.01	0.01	0.10	0.4	<0.01	0.04	6.51	0.4
K-12-185-62.2		3.99	3	1.3	137	138	110.40	8.8	0.04	0.04	2.07	7.6	<0.01			
K-12-185-66.3		3.13	1	37.5	-21	17	0.45	7.2	1.20	1.14	0.14	0.5	0.06			
K-12-185A-265.5		2.46	3	<0.3	157	157	1004.80	9.2	<0.01	<0.01	2.24	8.2	<0.01			
K-12-186-109.4		2.30	3	0.6	131	132	211.20	8.4	0.02	0.02	3.05	11.2	<0.01			
K-12-186-413.5		0.26	1	0.3	3	3	9.60	7.0	0.01	0.01	<0.05	<0.2	<0.01	0.15	0.92	7.3
K-12-187-50.5		4.53	3	<0.3	160	160	1024.00	8.9	<0.01	<0.01	2.96	10.9	0.01	<0.01	0.06	1.9
K-12-187-122.5		4.87	3	0.6	182	183	292.80	8.9	0.02	0.02	3.45	12.6	<0.01			
K-12-187-132.9		1.86	1	3.1	11	14	4.48	7.6	0.10	0.10	1.84	6.7	<0.01			
K-12-187-141		2.28	3	1.3	161	162	129.60	8.6	0.04	0.04	2.46	9.0	<0.01			
K-12-187-500.5		1.32	1	44.7	-45	0	0.00	5.2	1.43	1.40	<0.05	<0.2	0.03	0.38	0.12	1.9
K-12-187-70.6		2.46	2	20.3	27	47	2.31	8.2	0.65	0.65	0.68	2.5	<0.01			
K-12-187-74		3.42	1	38.1	-31	7	0.18	8.8	1.22	1.22	<0.05	<0.2	<0.01	0.84	7.88	1.0
K-12-192-249.4		0.72	1	0.3	1	1	3.20	8.1	0.01	0.01	<0.05	<0.2	<0.01	0.09	0.07	0.2
K-12-193-277.5		2.19	1	<0.3	2	2	12.80	6.3	<0.01	<0.01	<0.05	<0.2	<0.01	0.02	0.12	<0.2
K-12-193-287.5		1.41	1	0.3	2	2	6.40	6.3	0.01	0.01	<0.05	<0.2	<0.01	0.21	2.24	6.9
K-12-194-38.1		4.11	3	90.9	68	159	1.75	7.8	2.91	2.89	2.21	8.1	0.02			
K-12-194-41.5		2.89	1	30.0	-21	9	0.30	6.9	0.96	0.95	0.17	0.6	0.01			
K-12-194-54		4.74	1	7.2	15	22	3.06	8.8	0.23	0.23	<0.05	<0.2	<0.01	0.06	7.71	<0.2
K-12-194-85		4.38	1	5.6	1	7	1.24	9.0	0.18	0.18	<0.05	<0.2	<0.01	0.10	8.46	<0.2
K-12-194-101.5		1.43	1	22.2	-16	6	0.27	6.9	0.71	0.69	0.06	0.2	0.02			
K-12-194-122.4		3.87	2	33.1	60	93	2.81	8.7	1.06	1.06	1.24	4.5	<0.01	0.50	5.15	4.6
K-12-194-132.7		4.23	1	30.6	-20	11	0.36	8.7	0.98	0.97	0.07	0.3	0.01			
K-12-194-199.7		2.26	1	7.8	9	17	2.18	7.5	0.25	0.23	<0.05	<0.2	0.02			
K-12-194-213.5		3.67	1	25.9	-24	2	0.08	4.3	0.83	0.74	<0.05	<0.2	0.09			
K-12-194-214.1		3.98	1	17.2	-17	0	0.00	4.0	0.55	0.52	<0.05	<0.2	0.03	0.14	0.22	1.6
K-12-196A-115.5		2.11	3	<0.3	96	96	614.40	8.1	<0.01	<0.01	2.35	8.6	<0.01			
K-12-197-236.2		1.00	1	0.6	1	2	3.20	6.5	0.02	0.01	<0.05	<0.2	0.01			
K-12-198-117.5		1.93	1	0.3	0	0	0.00	7.0	0.01	0.01	<0.05	<0.2	<0.01			
K-12-199-128.5		0.48	1	<0.3	1	1	6.40	6.6	<0.01	<0.01	<0.05	<0.2	0.01			
K-12-199-131.5		0.47	1	<0.3	1	1	6.40	6.8	<0.01	<0.01	<0.05	<0.2	<0.01	0.09	2.09	0.2
K-12-204-85.9		1.23	1	<0.3	2	2	12.80	6.6	<0.01	<0.01	<0.05	<0.2	0.01			
K-12-206-411.6		0.99	1	0.3	2	2	6.40	6.6	0.01	<0.01	<0.05	<0.2	0.01			
K-12-206-58.4		4.80	3	1.3	157	158	126.40	8.6	0.04	0.04	2.51	9.2	<0.01	0.02	0.15	1.9
K-12-206-97.5		1.91	3	3.1	229	232	74.24	8.9	0.10	0.10	3.16	11.6	<0.01	0.01	0.03	1.1
K-12-208-140		0.55	1	<0.3	1	1	6.40	7.0	<0.01	<0.01	<0.05	<0.2	<0.01			
K-12-208-154.5		0.90	1	0.3	1	1	3.20	7.0	0.01	0.01	<0.05	<0.2	<0.01			
K-12-209-101.3		1.87	1	2.8	13	16	5.69	9.4	0.09	0.09	0.17	0.6	<0.01	<0.01	6.49	<0.2
K-12-209-219.3		2.12	3	0.9	107	108	115.20	8.5	0.03	0.01	1.62	5.9	0.02	0.01	0.10	9.6



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CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005
K-12-184-448.5 K-12-185-59.1 K-12-185-62.2 K-12-185-66.3 K-12-185A-265.5		210	0.61	0.02	1.00	<0.02	22.3	1.3	7	0.92	2.9	0.81	13.50	0.08	1.1	0.011
K-12-186-109.4 K-12-186-413.5 K-12-187-50.5 K-12-187-122.5 K-12-187-132.9		100 20	6.95 0.37	0.02 0.01	0.09 4.20	2.15 0.05	49.3 2.21	51.6 1.5	11 13	0.17 0.31	49.1 3.4	45.6 13.30	5.10 0.50	2.36 0.11	1.3 0.2	0.031 <0.005
K-12-187-141 K-12-187-500.5 K-12-187-70.6 K-12-187-74 K-12-192-249.4		10 630 20	1.42 2.58 0.17	0.17 0.56 0.02	0.03 1.18 0.03	0.05 2.73 0.04	3.89 93.6 1.47	15.0 15.6 0.9	12 98 10	0.19 6.26 0.05	45.2 138.5 5.6	11.35 4.26 0.88	0.89 22.3 0.46	0.11 0.16 <0.05	0.1 3.5 <0.1	0.007 0.094 <0.005
K-12-193-277.5 K-12-193-287.5 K-12-194-38.1 K-12-194-41.5 K-12-194-54		10 1010 650	0.68 1.15 1.63	0.01 0.10 0.07	0.01 0.09 5.20	0.04 3.07 0.24	5.41 181.5 94.0	10.3 46.8 49.0	9 43 78	<0.05 3.57 1.32	3.0 46.8 37.1	29.2 32.7 11.45	1.63 11.30 24.7	0.23 0.61 0.22	<0.1 3.4 1.1	0.008 0.081 0.119
K-12-194-85 K-12-194-101.5 K-12-194-122.4 K-12-194-132.7 K-12-194-199.7		790 520	2.40 1.61	0.04 0.15	0.77 4.32	0.39 0.44	76.0 56.4	19.7 13.4	104 65	7.98 4.09	29.0 71.7	5.88 5.85	23.3 13.80	0.16 0.14	3.9 2.8	0.073 0.074
K-12-194-213.5 K-12-194-214.1 K-12-196A-115.5 K-12-197-236.2 K-12-198-117.5		20	0.34	0.13	0.06	1.48	4.36	7.1	22	0.20	24.6	8.03	1.27	0.11	0.1	0.010
K-12-199-128.5 K-12-199-131.5 K-12-204-85.9 K-12-206-411.6 K-12-206-58.4		120 30	1.12 0.42	0.02 0.01	0.03 4.02	0.03 0.19	36.9 3.41	2.1 3.3	24 7	0.24 0.37	5.4 4.2	2.78 21.3	4.99 0.70	0.09 0.16	1.3 0.1	0.014 0.009
K-12-206-97.5 K-12-208-140 K-12-208-154.5 K-12-209-101.3 K-12-209-219.3		30 1010 20	0.20 0.86 1.75	<0.01 0.03 0.01	5.21 0.54 3.39	0.03 <0.02 0.93	1.06 92.8 11.00	1.2 1.8 12.4	7 28 5	0.07 1.20 0.09	1.4 1.3 2.9	6.57 0.75 29.0	0.38 12.70 2.26	0.05 0.11 0.21	<0.1 6.4 0.1	0.005 0.016 0.006



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CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	ME-MS61 K %	ME-MS61 La ppm	ME-MS61 Li ppm	ME-MS61 Mg %	ME-MS61 Mn ppm	ME-MS61 Mo ppm	ME-MS61 Na %	ME-MS61 Nb ppm	ME-MS61 Ni ppm	ME-MS61 P ppm	ME-MS61 Pb ppm	ME-MS61 Rb ppm	ME-MS61 Re ppm	ME-MS61 S %	ME-MS61 Sb ppm
K-12-184-448.5 K-12-185-59.1 K-12-185-62.2 K-12-185-66.3 K-12-185A-265.5		0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	<0.05
K-12-186-109.4 K-12-186-413.5 K-12-187-50.5 K-12-187-122.5 K-12-187-132.9		0.04 0.02	28.8 1.1	50.9 1.7	0.04 2.47	8890 2050	2.74 0.18	0.05 0.01	17.0 1.1	93.1 1.1	990 80	2.2 1.5	1.2 1.2	<0.002 <0.002	0.01 <0.01	0.14 0.07
K-12-187-141 K-12-187-500.5 K-12-187-70.6 K-12-187-74 K-12-192-249.4		0.01 2.71 0.02	2.1 47.6 0.6	0.8 40.2 1.5	0.02 1.56 0.02	623 478 407	10.70 11.05 0.32	0.01 1.81 0.01	0.7 6.9 0.2	16.5 84.1 2.0	670 740 30	3.6 36.3 0.6	2.0 131.0 0.9	0.004 0.008 <0.002	1.40 1.16 0.01	<0.05 0.07 <0.05
K-12-193-277.5 K-12-193-287.5 K-12-194-38.1 K-12-194-41.5 K-12-194-54		0.03 0.12	2.9 78.6	1.0 4.3	0.04 0.03	9390 30800	0.35 4.90	0.01 0.02	1.0 33.9	3.2 52.8	170 860	0.5 6.1	0.9 10.6	<0.002 <0.002	0.01 0.02	<0.05 0.09
K-12-194-85 K-12-194-101.5 K-12-194-122.4 K-12-194-132.7 K-12-194-199.7		3.41 2.49	36.6 27.9	51.1 28.3	1.91 2.82	860 1025	1.05 6.14	1.73 0.65	12.9 9.4	59.8 38.6	860 1130	13.5 9.8	135.5 98.5	0.003 0.006	0.18 1.02	0.06 0.10
K-12-194-213.5 K-12-194-214.1 K-12-196A-115.5 K-12-197-236.2 K-12-198-117.5		0.04	2.0	1.6	0.12	200	3.38	0.01	1.1	16.4	310	10.7	3.0	0.006	0.58	<0.05
K-12-199-128.5 K-12-199-131.5 K-12-204-85.9 K-12-206-411.6 K-12-206-58.4		0.65 0.02	22.2 1.4	5.0 2.1	0.10 3.06	192 1450	0.59 0.56	0.03 0.02	2.3 0.8	5.3 2.5	120 50	1.2 1.1	16.7 1.1	<0.002 <0.002	0.01 0.04	0.05 0.09
K-12-206-97.5 K-12-208-140 K-12-208-154.5 K-12-209-101.3 K-12-209-219.3		0.01 4.80 0.01	<0.5 42.6 4.5	0.5 7.1 1.2	2.19 0.40 1.66	1725 119 12650	0.39 0.26 1.12	<0.01 0.12 0.01	0.4 2.5 2.6	1.2 6.1 1.4	20 580 80	0.6 11.8 1.6	0.4 92.4 0.6	<0.002 <0.002	0.11 0.11 0.04	<0.05 <0.05 0.10



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CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
K-12-184-448.5 K-12-185-59.1 K-12-185-62.2 K-12-185-66.3 K-12-185A-265.5		1.4	<1	0.6	113.5	0.12	<0.05	22.3	0.034	0.63	43.8	2	0.2	19.0	13	28.4
K-12-186-109.4 K-12-186-413.5 K-12-187-50.5 K-12-187-122.5 K-12-187-132.9		2.6 0.1	<1 <1	0.3 <0.2	19.9 27.3	0.62 0.06	0.42 <0.05	1.69 0.11	0.185 <0.005	1.58 0.02	2.4 0.1	73 3	1.6 0.3	31.9 0.9	202 6	65.0 3.8
K-12-187-141 K-12-187-500.5 K-12-187-70.6 K-12-187-74 K-12-192-249.4		0.6 16.8 0.2	<1 2 <1	0.2 2.4 <0.2	1.3 171.0 1.6	<0.05 0.33 <0.05	0.24 0.09 <0.05	0.11 16.05 0.13	0.007 0.322 <0.005	0.05 1.47 0.07	1.0 7.0 0.2	48 187 6	1.6 1.4 0.2	3.1 22.5 0.5	23 410 8	4.8 138.0 2.4
K-12-193-277.5 K-12-193-287.5 K-12-194-38.1 K-12-194-41.5 K-12-194-54		0.3 5.6	<1 <1	<0.2 1.5	8.9 68.0	<0.05 1.79	<0.05 0.44	0.25 6.23	0.010 0.381	<0.02 2.68	0.1 4.3	17 243	0.2 2.4	4.3 29.2	9 55	2.6 159.5
K-12-194-85 K-12-194-101.5 K-12-194-122.4 K-12-194-132.7 K-12-194-199.7		29.6	<1	2.1	262	0.80	<0.05	4.17	2.04	0.24	0.8	209	0.2	48.9	156	39.1
K-12-194-85 K-12-194-101.5 K-12-194-122.4 K-12-194-132.7 K-12-194-199.7		19.4 12.2	<1 <1	2.1 1.9	100.5 95.3	0.78 0.60	<0.05 0.06	9.95 9.44	0.453 0.411	1.17 0.97	3.8 8.2	143 152	1.5 2.7	22.2 18.1	236 183	155.5 119.0
K-12-194-213.5 K-12-194-214.1 K-12-196A-115.5 K-12-197-236.2 K-12-198-117.5		0.6	17	<0.2	1.5	<0.05	0.06	0.29	0.012	0.08	2.0	20	0.5	2.6	36	8.1
K-12-199-128.5 K-12-199-131.5 K-12-204-85.9 K-12-206-411.6 K-12-206-58.4		2.3 0.4	<1 <1	0.4 <0.2	4.8 63.7	0.16 0.06	0.09 <0.05	5.61 0.16	0.081 <0.005	0.09 0.02	1.4 0.2	15 7	1.6 0.2	15.6 2.6	8 30	51.8 3.5
K-12-206-97.5 K-12-208-140 K-12-208-154.5 K-12-209-101.3 K-12-209-219.3		<0.1 3.0 0.4	<1 <1	<0.2 0.3 0.2	17.5 78.1 44.5	<0.05 0.21 <0.05	<0.05 <0.05	0.04 23.1 0.15	<0.005 0.127 0.006	<0.02 0.69 <0.02	0.3 2.1 0.1	2 17 11	0.2 0.2 0.5	0.6 8.4 6.5	6 6 77	1.2 248 7.8



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Sample Description	Method Analyte Units LOD	WEI-21	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-ELE07	S-IR08	S-CAL06a	C-GAS05	C-GAS05	S-GRA06a	ME-MS61	ME-MS61	ME-MS61
		Recvd Wt.	FIZZ RAT	MPA	NNP	NP	Ratio (N	pH	S	S	C	CO2	S	Ag	Al	As
		kg	Unity	tCaCO3/1Kt	tCaCO3/1Kt	tCaCO3/1Kt	Unity	Unity	%	%	%	%	%	ppm	%	ppm
		0.02	1	0.3	1	1	0.01	0.1	0.01	0.01	0.05	0.2	0.01	0.01	0.01	0.2
K-12-209-235.74		1.95	2	9.1	28	37	4.08	8.8	0.29	0.28	0.50	1.8	0.01			
K-12-210-127.5		0.45	1	<0.3	1	1	6.40	6.9	<0.01	<0.01	<0.05	<0.2	0.02			
K-12-211-122.7		1.77	2	2.5	83	85	34.00	8.5	0.08	0.02	1.38	5.0	0.06			
K-12-211-33.8		1.50	1	1.3	23	24	19.20	8.2	0.04	0.04	0.21	0.8	<0.01			
K-12-211-36.7		1.05	3	25.6	100	126	4.92	8.3	0.82	0.80	1.53	5.6	0.02	0.07	3.01	<0.2
K-12-212-205.5		3.87	3	0.6	153	154	246.40	8.6	0.02	<0.01	2.41	8.8	0.03	0.02	0.07	4.6
K-12-213-10.7		1.18	2	29.7	17	47	1.58	7.9	0.95	0.89	0.54	2.0	0.06	0.06	3.36	<0.2
K-12-213-14.2		0.44	1	0.3	4	4	12.80	8.1	0.01	<0.01	<0.05	<0.2	0.02	0.03	0.16	0.8
K-12-213-113.9		1.89	2	0.6	78	79	126.40	8.5	0.02	<0.01	1.21	4.4	0.02	0.01	0.22	1.3
K-12-213-116.5		1.15	2	20.9	21	42	2.01	8.8	0.67	0.67	0.41	1.5	<0.01			
K-12-213-119		1.06	2	11.3	58	69	6.13	9.3	0.36	0.34	0.82	3.0	0.02			
K-12-213-132.5		0.98	3	2.5	125	127	50.80	8.7	0.08	0.08	1.78	6.5	<0.01			
K-12-213-135.2		1.70	1	32.2	-22	10	0.31	8.1	1.03	1.00	0.05	0.2	0.03	0.47	8.63	1.6



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Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In
		ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
		10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005
K-12-209-235.74 K-12-210-127.5 K-12-211-122.7 K-12-211-33.8 K-12-211-36.7		500	1.73	0.09	4.10	0.03	38.1	13.4	29	0.88	13.2	3.61	6.28	0.08	2.1	0.017
K-12-212-205.5 K-12-213-10.7 K-12-213-14.2 K-12-213-113.9 K-12-213-116.5		30 430 10 20	0.96 1.91 0.21 1.16	0.01 0.09 0.01 0.02	4.06 1.77 0.13 2.93	0.14 <0.02 0.02 0.33	7.69 38.5 1.64 11.20	3.4 20.5 4.2 7.0	2 42 10 3	0.38 0.61 0.08 0.53	0.8 10.1 7.7 1.6	27.6 3.43 2.96 26.3	0.50 7.76 0.68 1.56	0.20 0.09 <0.05 0.21	0.1 1.8 0.1 0.2	<0.005 0.024 0.009 0.008
K-12-213-119 K-12-213-132.5 K-12-213-135.2		790	2.67	0.37	1.14	1.58	92.2	16.0	106	6.92	124.5	4.40	22.7	0.17	3.2	0.078



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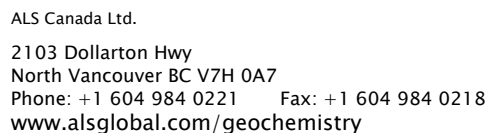
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Finalized Date: 30-SEP-2023
Account: KANECO

Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23212726

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S
		%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%
		0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01
K-12-209-235.74 K-12-210-127.5 K-12-211-122.7 K-12-211-33.8 K-12-211-36.7		2.35	16.4	14.5	2.34	1305	0.68	0.04	2.4	10.7	1050	11.2	60.6	0.002	0.78
K-12-212-205.5 K-12-213-10.7 K-12-213-14.2 K-12-213-113.9 K-12-213-116.5		0.02	2.7	2.9	3.54	1675	0.25	0.01	1.2	1.6	110	1.3	1.8	<0.002	0.02
		2.00	16.8	14.3	1.25	889	0.73	0.04	3.2	14.4	890	3.1	54.2	<0.002	0.91
		0.04	0.7	1.3	0.48	1960	0.88	0.01	0.5	3.6	90	0.7	1.9	<0.002	0.01
		0.05	3.6	4.2	2.31	4000	0.30	0.02	5.1	0.9	80	3.6	2.7	<0.002	0.02
K-12-213-119 K-12-213-132.5 K-12-213-135.2		3.28	47.4	42.3	1.71	485	13.50	1.74	9.4	85.9	840	22.9	147.5	0.011	0.95



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Project: Champion Iron Ore

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	
		Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
		0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1	1	0.1	0.1	2	0.5
K-12-209-235.74 K-12-210-127.5 K-12-211-122.7 K-12-211-33.8 K-12-211-36.7		3.3	<1	0.4	48.5	0.20	<0.05	7.68	0.098	0.25	1.4	18	0.7	10.0	12	78.4
K-12-212-205.5 K-12-213-10.7 K-12-213-14.2 K-12-213-113.9 K-12-213-116.5		0.1 4.5 1.2 0.2	<1 <1 <1 <1	<0.2 0.6 0.5 0.3	30.7 24.8 3.9 46.4	<0.05 0.26 <0.05 0.27	<0.05 <0.05 <0.05 <0.05	0.32 8.37 0.19 0.48	<0.005 0.133 0.007 0.006	<0.02 0.17 0.02 0.08	0.2 1.4 0.3 0.2	6 29 13 7	0.7 1.0 0.2 0.2	4.3 8.3 3.4 3.6	9 11 11 15	4.0 72.9 4.4 13.4
K-12-213-119 K-12-213-132.5 K-12-213-135.2		17.1	1	2.6	89.2	0.54	0.07	17.70	0.388	1.50	7.2	227	2.1	21.7	376	121.5

***** See Appendix Page for comments regarding this certificate *****



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Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23212726

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method: REEs may not be totally soluble in this method.
ME-MS61

LABORATORY ADDRESSES

Applies to Method:	Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.		
	C-GAS05	ME-MS61	OA-ELE07
	S-CAL06a	S-GRA06a	S-IR08
			OA-VOL08m
Applies to Method:	Processed at ALS Geochemistry at 1650 50e Avenue, Lachine, Quebec, Canada, H8T 2V5		
	CRU-31	CRU-QC	LOG-22
	PUL-QC	SOR-01	SPL-21
			PUL-31
			WEI-21



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Account: KANECO

CERTIFICATE ML23246024

Project: Champion Iron Ore

P.O. No.: 5497

This report is for 3 samples of Rock submitted to our lab in Montreal, QC, Canada on 31-AUG-2023.

The following have access to data associated with this certificate:

KATHERINE RAYMOND

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
S-GRA06a	Sulfate Sulfur (HCl leachable)	WST-SEQ
C-GAS05	Inorganic Carbon (CO2)	
ME-MS61	48 element four acid ICP-MS	
OA-VOL08m	Modified NP	
S-IR08	Total Sulphur (IR Spectroscopy)	LECO
OA-ELE07	Paste pH	
S-CAL06a	Sulfide Sulfur (calculated*)	

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Saa Traxler, Director, North Vancouver Operations



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Account: KANECO

Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23246024

Sample Description	Method Analyte Units LOD	WEI-21	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-ELE07	S-IR08	S-CAL06a	C-GAS05	C-GAS05	S-GRA06a	ME-MS61	ME-MS61	ME-MS61
		Recvd Wt.	FIZZ RAT	MPA	NNP	NP	Ratio (N	pH	S	S	C	CO2	S	Ag	Al	As
		kg	Unity	tCaCO3/1Kt	tCaCO3/1Kt	tCaCO3/1Kt	Unity	Unity	%	%	%	%	%	ppm	%	ppm
		0.02	1	0.3	1	1	0.01	0.1	0.01	0.01	0.05	0.2	0.01	0.01	0.01	0.2
K-10-30-145.42		0.88	3	5.9	99	105	17.68	8.5	0.19	0.19	1.64	6.0	<0.01			
K-10-37A-31		1.20	1	39.1	-27	12	0.31	5.5	1.25	1.21	0.07	0.3	0.04	0.30	7.46	6.1
K-12-175-176.2		2.12	1	94.4	-84	10	0.11	6.0	3.02	3.02	0.23	0.9	<0.01			



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CERTIFICATE OF ANALYSIS ML23246024

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf
		ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
		10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1
K-10-30-145.42 K-10-37A-31 K-12-175-176.2		500	2.87	0.18	2.39	1.11	92.0	45.1	76	15.70	70.3	14.10	21.9	0.26	3.1
															0.088

***** See Appendix Page for comments regarding this certificate *****



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CERTIFICATE OF ANALYSIS ML23246024

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm
		0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1	1	0.1	0.1	2
K-10-30-145.42 K-10-37A-31 K-12-175-176.2		26.1	2	1.3	113.0	0.17	0.09	4.98	0.926	2.87	7.1	236	1.7	50.3	684
															137.5



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Account: KANECO

Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23246024

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method: REEs may not be totally soluble in this method.
ME-MS61

LABORATORY ADDRESSES

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.
C-GAS05 ME-MS61 OA-ELE07 OA-VOL08m
S-CAL06a S-GRA06a S-IR08

Applies to Method: Processed at ALS Geochemistry at 1650 50e Avenue, Lachine, Quebec, Canada, H8T 2V5
CRU-31 LOG-22 PUL-31 SPL-21
WEI-21



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Account: KANECO

CERTIFICATE ML23210925

Project: Champion Iron Ore

P.O. No.: 5497

This report is for 134 samples of Rock submitted to our lab in Montreal, QC, Canada on 28-JUL-2023.

The following have access to data associated with this certificate:

GILLIAN ALLEN

KATHERINE RAYMOND

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login – Rcd w/o BarCode
SOR-01	Additional sorting of samples
CRU-QC	Crushing QC Test
CRU-31	Fine crushing – 70% <2mm
PUL-QC	Pulverizing QC Test
SPL-21	Split sample – riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
S-GRA06a	Sulfate Sulfur (HCl leachable)	WST-SEQ
C-GAS05	Inorganic Carbon (CO2)	
ME-MS61	48 element four acid ICP-MS	
OA-VOL08m	Modified NP	
S-IR08	Total Sulphur (IR Spectroscopy)	LECO
OA-ELE07	Paste pH	
S-CAL06a	Sulfide Sulfur (calculated*)	

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Saa Traxler, Director, North Vancouver Operations



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Account: KANECO

Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg	OA-VOL08m FIZZ RAT Unity	OA-VOL08m MPA tCaCO3/1Kt	OA-VOL08m NNP tCaCO3/1Kt	OA-VOL08m NP tCaCO3/1Kt	OA-VOL08m Ratio (N) Unity	OA-ELE07 pH Unity	S-IR08 S %	S-CAL06a S %	C-GAS05 C %	C-GAS05 CO2 %	S-GRA06a S %	ME-MS61 Ag ppm	ME-MS61 Al %	ME-MS61 As ppm
		0.02	1	0.3	1	1	0.01	0.1	0.01	0.01	0.05	0.2	0.01	0.01	0.01	0.2
K-08-08-31		0.86	1	24.7	-9	16	0.65	8.7	0.79	0.77	0.23	0.9	0.02			
K-08-08-122		0.95	3	0.3	215	215	688.00	8.7	0.01	0.01	2.70	9.9	<0.01	0.02	6.05	0.7
K-08-10-228.46		2.91	1	26.6	0	27	1.02	8.7	0.85	0.85	0.16	0.6	<0.01	0.21	7.69	2.4
K-08-11-21.4		1.72	1	0.9	27	28	29.87	8.4	0.03	<0.01	0.36	1.3	0.04			
K-08-11-28		2.66	3	<0.3	153	153	979.20	8.6	<0.01	<0.01	2.54	9.3	<0.01	0.01	0.06	3.8
K-08-11A-27		1.32	1	0.9	28	29	30.93	8.2	0.03	<0.01	0.31	1.1	0.04	0.40	3.32	4.4
K-08-11A-47.3		1.39	2	66.6	-18	49	0.74	7.1	2.13	2.10	1.65	6.0	0.03			
K-08-11A-62.48		1.52	1	0.9	10	11	11.73	7.8	0.03	0.02	<0.05	<0.2	0.01			
K-08-11A-139.8		1.10	1	63.4	-57	6	0.09	7.4	2.03	2.02	<0.05	<0.2	0.01	0.44	5.46	1.9
K-08-11A-171.25		1.19	1	30.6	-4	27	0.88	8.3	0.98	0.97	0.22	0.8	0.01			
K-08-12-27.35		0.75	2	0.9	69	70	74.67	7.4	0.03	0.01	1.53	5.6	0.02			
K-08-12-49.48		0.72	1	73.8	-71	3	0.04	4.8	2.36	2.36	0.35	1.3	<0.01			
K-08-12-137.93		1.46	1	1.3	4	5	4.00	8.4	0.04	0.01	<0.05	<0.2	0.03			
K-08-12-140.79		1.19	1	15.3	-12	3	0.20	6.5	0.49	0.47	<0.05	<0.2	0.02	0.13	8.54	1.6
K-08-17-131		1.02	1	46.3	-42	4	0.09	6.2	1.48	1.46	0.08	0.3	0.02	0.42	7.96	1.9
K-08-17-135.8		0.77	1	10.3	3	13	1.26	7.4	0.33	0.30	0.84	3.1	0.03	0.55	1.54	2.2
K-08-17-138		1.76	1	83.1	-80	3	0.04	4.7	2.66	2.66	0.10	0.4	<0.01	0.65	5.96	34.6
K-08-18-325.18		0.88	2	81.9	-61	21	0.26	8.2	2.62	2.62	0.15	0.6	<0.01	0.58	2.94	0.9
K-10-25-447.35		2.24	1	3.8	12	16	4.27	8.5	0.12	0.11	<0.05	<0.2	0.01	0.02	7.75	2.7
K-10-26-248.2		2.39	1	129.5	-121	8	0.06	8.3	4.14	4.12	<0.05	<0.2	0.02			
K-10-26-253		2.14	1	131.0	-124	7	0.05	8.2	4.19	4.19	<0.05	<0.2	<0.01	1.19	6.55	2.0
K-10-28-23		1.13	1	1.9	6	8	4.27	8.0	0.06	0.06	<0.05	<0.2	<0.01			
K-10-30-145.42	Not Recvd															
K-10-30-164.46	Not Recvd															
K-10-32-13.7		0.82	1	2.2	12	14	6.40	9.2	0.07	0.07	<0.05	<0.2	<0.01	0.08	8.07	<0.2
K-10-35-187.8		1.22	2	0.9	89	90	96.00	8.8	0.03	0.02	1.48	5.4	0.01	0.02	0.15	0.9
K-10-37A-81	Not Recvd															
K-10-39A-445		1.48	1	21.9	3	25	1.14	9.4	0.70	0.69	0.34	1.3	0.01	0.21	6.76	1.8
K-10-40-210.18		2.03	2	1.6	74	76	48.64	8.5	0.05	0.04	1.29	4.7	0.01	0.03	0.07	1.2
K-10-45-191.5		1.11	1	129.5	-116	13	0.10	8.2	4.14	4.13	0.06	0.2	0.01			
K-10-48-25.8		0.99	1	8.8	0	9	1.03	8.6	0.28	0.26	0.05	0.2	0.02	0.15	8.01	0.8
K-10-48-205.7		1.32	1	18.8	-8	11	0.59	8.8	0.60	0.59	0.06	0.2	0.01			
K-10-48-350.1		2.42	3	25.6	121	147	5.74	8.6	0.82	0.82	1.88	6.9	<0.01			
K-10-48-384.5		1.48	1	40.3	-34	6	0.15	8.0	1.29	1.27	<0.05	<0.2	0.02	0.39	6.80	2.9
K-10-49-294.5		2.80	3	10.6	403	414	38.96	8.8	0.34	0.34	6.17	22.6	<0.01	0.03	0.10	17.4
K-10-49-69.8		0.72	2	118.5	-77	41	0.35	6.9	3.79	3.79	1.29	4.7	<0.01			
K-10-50-70.1		0.53	1	3.1	8	11	3.52	8.5	0.10	0.08	0.17	0.6	0.02			
K-10-51-268.25		0.55	1	0.6	0	1	1.60	6.3	0.02	0.02	<0.05	<0.2	<0.01	0.09	0.14	8.0
K-10-52-308.3		1.27	1	5.6	1	7	1.24	8.5	0.18	0.16	<0.05	<0.2	0.02	0.14	7.79	0.8
K-10-52-444.26		2.04	2	2.8	71	74	26.31	8.5	0.09	0.09	1.09	4.0	<0.01			



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Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005
K-08-08-31																
K-08-08-122		650	0.92	0.02	6.52	0.07	44.2	8.6	98	1.32	14.2	2.58	14.60	0.10	2.8	0.027
K-08-10-228.46		700	2.49	0.17	2.52	0.86	98.3	30.6	88	4.19	77.0	8.98	22.4	0.16	3.2	0.087
K-08-11-21.4																
K-08-11-28		40	0.76	<0.01	4.66	0.02	7.40	7.4	11	0.10	0.9	13.00	1.11	0.08	0.1	<0.005
K-08-11A-27		360	1.65	0.02	1.70	0.09	36.7	15.2	44	0.55	17.2	20.3	8.37	0.17	0.9	0.018
K-08-11A-47.3																
K-08-11A-62.48																
K-08-11A-139.8		110	0.66	0.13	1.60	2.57	53.0	11.0	61	2.28	107.0	16.35	8.34	0.16	2.8	0.030
K-08-11A-171.25																
K-08-12-27.35																
K-08-12-49.48																
K-08-12-137.93																
K-08-12-140.79		830	1.81	0.01	3.15	2.45	63.8	9.9	86	1.76	3.3	17.10	10.85	0.17	4.9	0.053
K-08-17-131		660	2.74	0.41	0.62	1.59	102.0	18.9	102	7.01	93.0	5.73	21.7	0.15	2.9	0.076
K-08-17-135.8		180	1.96	0.05	0.63	0.15	35.7	13.0	19	1.59	28.0	28.3	5.69	0.20	1.3	0.016
K-08-17-138		330	3.48	0.33	0.83	1.08	128.0	19.1	91	9.74	164.0	6.21	17.35	0.18	5.1	0.073
K-08-18-325.18		460	1.52	0.49	0.83	0.03	92.8	20.5	51	9.14	86.4	14.45	10.15	0.22	3.8	0.020
K-10-25-447.35		590	1.19	0.03	4.99	0.05	52.6	47.5	82	3.14	56.4	11.85	24.1	0.13	0.7	0.095
K-10-26-248.2																
K-10-26-253		200	1.90	0.48	1.28	5.57	74.9	21.3	91	4.15	180.5	7.50	20.1	0.15	3.8	0.095
K-10-28-23																
K-10-30-145.42																
K-10-30-164.46																
K-10-32-13.7		880	1.84	0.01	2.94	0.10	60.3	16.0	126	1.15	17.0	4.08	20.2	0.11	2.3	0.048
K-10-35-187.8		20	0.34	0.01	2.82	0.06	5.02	6.7	9	0.09	1.7	28.3	1.18	0.15	0.1	0.005
K-10-37A-81																
K-10-39A-445		990	4.74	0.05	1.68	0.64	71.5	8.7	106	7.14	29.5	12.20	18.85	0.16	4.5	0.051
K-10-40-210.18		20	0.35	0.01	1.66	0.06	19.45	15.8	3	0.07	13.2	37.1	2.06	0.23	0.1	<0.005
K-10-45-191.5																
K-10-48-25.8		780	3.30	0.15	0.65	0.15	82.1	11.9	81	7.37	66.4	3.77	20.8	0.12	4.5	0.068
K-10-48-205.7																
K-10-48-350.1																
K-10-48-384.5		750	2.99	0.17	0.63	2.36	59.8	14.7	73	6.23	97.4	7.73	19.80	0.13	3.9	0.099
K-10-49-294.5		20	0.55	0.02	10.90	0.08	4.16	2.3	13	0.26	1.9	9.96	0.62	0.07	0.1	<0.005
K-10-49-69.8																
K-10-50-70.1																
K-10-51-268.25		80	1.11	0.01	0.04	0.43	4.91	6.4	13	0.06	8.1	15.00	0.82	0.09	0.1	<0.005
K-10-52-308.3		690	2.53	0.16	1.02	0.66	88.5	18.2	97	7.87	58.8	4.94	21.3	0.13	3.1	0.074
K-10-52-444.26																



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CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	ME-MS61 K %	ME-MS61 La ppm	ME-MS61 Li ppm	ME-MS61 Mg %	ME-MS61 Mn ppm	ME-MS61 Mo ppm	ME-MS61 Na %	ME-MS61 Nb ppm	ME-MS61 Ni ppm	ME-MS61 P ppm	ME-MS61 Pb ppm	ME-MS61 Rb ppm	ME-MS61 Re ppm	ME-MS61 S %	ME-MS61 Sb ppm
K-08-08-31		0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	<0.05
K-08-08-122		4.44	22.3	18.6	3.31	501	0.36	0.24	5.2	30.9	350	10.8	113.0	<0.002	0.01	<0.05
K-08-10-228.46		1.92	46.5	35.8	2.59	1450	14.10	2.24	12.0	68.3	2660	15.2	73.4	0.010	0.87	0.08
K-08-11-21.4																
K-08-11-28		0.02	4.1	<0.2	2.31	10350	0.54	0.01	1.3	1.6	150	<0.5	1.1	<0.002	0.01	<0.05
K-08-11A-27		0.91	18.1	8.2	1.09	4260	0.89	1.18	3.0	20.7	530	7.6	32.0	<0.002	0.03	0.15
K-08-11A-47.3																
K-08-11A-62.48																
K-08-11A-139.8		0.33	28.4	14.0	1.00	2840	24.1	0.01	8.2	71.7	670	2.5	20.4	0.025	2.02	<0.05
K-08-11A-171.25																
K-08-12-27.35																
K-08-12-49.48																
K-08-12-137.93																
K-08-12-140.79		0.73	32.2	13.8	1.37	8780	16.90	0.05	6.0	30.0	640	3.5	35.8	0.007	0.52	0.05
K-08-17-131		3.04	50.4	43.0	1.72	910	4.95	1.06	14.6	57.0	780	26.0	134.0	0.007	1.55	0.18
K-08-17-135.8		0.47	17.1	6.8	0.67	12700	4.88	0.44	3.7	16.8	380	9.2	22.4	0.007	0.35	0.12
K-08-17-138		2.25	64.7	30.9	1.25	1300	37.5	0.94	9.5	103.0	1280	24.8	105.5	0.036	2.85	0.39
K-08-18-325.18		2.40	49.2	15.0	2.41	2730	45.8	<0.01	27.6	25.0	2600	3.5	123.0	0.013	2.16	<0.05
K-10-25-447.35		0.92	23.3	25.5	4.05	2290	1.18	2.09	4.6	91.9	1570	1.4	27.3	0.002	0.13	0.10
K-10-26-248.2																
K-10-26-253		2.94	39.2	24.2	1.45	899	86.0	0.98	11.0	152.5	1050	23.0	115.5	0.040	3.93	<0.05
K-10-28-23																
K-10-30-145.42																
K-10-30-164.46																
K-10-32-13.7		1.85	27.3	17.8	1.73	564	1.09	2.96	5.3	44.5	1030	13.6	75.1	<0.002	0.08	<0.05
K-10-35-187.8		0.03	2.9	0.8	1.38	9470	3.44	0.01	1.1	2.3	160	2.2	1.8	<0.002	0.03	0.05
K-10-37A-81																
K-10-39A-445		3.20	36.1	36.4	1.71	3130	6.81	0.78	13.2	32.8	950	9.8	104.0	0.005	0.71	0.05
K-10-40-210.18		0.01	13.2	1.0	2.08	42100	3.96	0.01	1.8	1.3	90	1.7	0.8	<0.002	0.05	<0.05
K-10-45-191.5																
K-10-48-25.8		3.48	42.0	33.4	1.54	391	16.05	1.54	19.2	60.3	930	29.2	139.0	0.011	0.31	<0.05
K-10-48-205.7																
K-10-48-350.1																
K-10-48-384.5		2.95	27.8	27.6	1.88	2120	14.35	0.07	13.0	71.5	940	5.6	106.0	0.018	1.36	0.07
K-10-49-294.5		0.03	2.2	0.5	4.51	1580	0.91	0.01	0.9	3.8	520	1.7	1.7	<0.002	0.34	<0.05
K-10-49-69.8																
K-10-50-70.1																
K-10-51-268.25		0.02	4.4	<0.2	0.05	652	1.91	0.02	1.2	16.0	410	7.2	0.9	<0.002	0.03	0.07
K-10-52-308.3		3.11	42.3	41.7	1.99	1145	5.77	1.59	14.4	58.3	830	16.5	136.5	0.005	0.20	<0.05
K-10-52-444.26																



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CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
K-08-08-31		8.9	<1	0.9	107.0	0.37	<0.05	8.31	0.243	0.51	1.0	57	0.8	8.5	31	103.0
K-08-08-122		23.6	1	1.9	138.5	0.72	0.09	8.72	1.175	0.75	8.4	242	1.0	38.3	212	131.5
K-08-10-228.46																
K-08-11-21.4		0.2	<1	<0.2	13.5	<0.05	<0.05	0.11	0.006	<0.02	0.2	8	0.6	5.0	5	6.2
K-08-11-28																
K-08-11A-27		5.0	<1	1.3	187.5	0.15	<0.05	2.87	0.159	0.19	0.7	48	3.2	10.9	41	38.5
K-08-11A-47.3																
K-08-11A-62.48		7.9	4	0.8	4.7	0.40	0.18	8.00	0.184	0.36	14.2	354	1.3	37.2	136	108.5
K-08-11A-139.8																
K-08-11A-171.25																
K-08-12-27.35																
K-08-12-49.48																
K-08-12-137.93		24.6	<1	0.5	5.4	0.41	<0.05	8.34	0.184	0.33	13.8	369	3.0	98.9	329	182.0
K-08-12-140.79		15.7	2	3.1	68.6	1.00	0.08	16.30	0.398	1.09	5.4	137	3.3	27.3	231	113.0
K-08-17-131																
K-08-17-135.8		2.9	<1	0.4	42.4	0.18	<0.05	3.38	0.061	0.21	2.9	54	6.4	16.4	35	53.4
K-08-17-138		11.2	5	2.1	132.0	0.52	0.23	16.20	0.315	2.04	21.1	314	2.6	53.1	380	208
K-08-18-325.18		5.9	2	0.5	29.6	1.64	0.73	7.50	0.542	0.88	5.5	191	2.4	12.6	60	173.0
K-10-25-447.35		26.0	1	1.2	244	0.27	<0.05	2.32	1.275	0.24	0.5	228	0.2	37.8	145	21.7
K-10-26-248.2																
K-10-26-253		12.8	7	2.6	110.5	0.67	0.35	9.75	0.311	1.68	38.0	678	7.5	43.5	617	151.5
K-10-28-23																
K-10-30-145.42																
K-10-30-164.46																
K-10-32-13.7		16.9	<1	1.2	613	0.42	<0.05	6.01	0.325	0.47	2.4	88	0.2	17.4	73	86.7
K-10-35-187.8		0.4	<1	0.2	47.3	0.06	0.05	0.23	0.008	0.04	0.3	10	0.1	4.3	16	5.4
K-10-37A-81																
K-10-39A-445		12.0	<1	2.1	73.4	0.90	<0.05	10.70	0.455	1.03	8.9	239	4.8	23.4	54	171.5
K-10-40-210.18		0.2	<1	0.2	13.0	0.05	0.09	0.21	<0.005	<0.02	0.2	11	0.5	12.0	9	7.7
K-10-45-191.5																
K-10-48-25.8		13.1	1	2.5	161.5	1.12	<0.05	13.80	0.392	1.46	11.5	193	4.4	21.7	122	174.5
K-10-48-205.7																
K-10-48-350.1																
K-10-48-384.5		12.4	2	2.7	34.1	0.77	0.15	10.40	0.323	1.58	10.3	201	13.5	33.4	551	151.5
K-10-49-294.5		0.2	<1	<0.2	60.4	<0.05	<0.05	0.22	0.005	0.03	2.3	9	0.2	2.5	10	3.8
K-10-49-69.8																
K-10-50-70.1																
K-10-51-268.25		0.3	<1	0.2	2.1	<0.05	<0.05	0.17	0.007	0.03	3.0	11	0.8	7.1	50	5.9
K-10-52-308.3		15.4	1	2.6	99.6	0.99	0.05	15.30	0.387	1.42	6.6	137	2.7	26.6	249	120.0
K-10-52-444.26																



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Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	OA-VOL08m FIZZ RAT Unity 1	OA-VOL08m MPA tCaCO3/1Kt 0.3	OA-VOL08m NNP tCaCO3/1Kt 1	OA-VOL08m NP tCaCO3/1Kt 1	OA-VOL08m Ratio (N) Unity 0.01	OA-ELE07 pH Unity 0.1	S-IR08 S % 0.01	S-CAL06a S % 0.01	C-GAS05 C % 0.05	C-GAS05 CO2 % 0.2	S-GRA06a S % 0.01	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2
K-10-52-477.46		3.44	2	0.3	76	76	243.20	8.7	0.01	<0.01	3.43	12.6	0.03	<0.01	0.08	3.4
K-10-53-303.1		1.83	1	123.0	-108	15	0.12	8.2	3.93	3.91	0.15	0.6	0.02			
K-10-53-306.8		1.87	2	17.5	32	49	2.80	8.3	0.56	0.55	0.92	3.4	0.01			
K-10-53-77.8		2.76	1	31.3	-24	7	0.22	8.8	1.00	0.99	<0.05	<0.2	0.01	0.41	8.30	1.1
K-10-54-118.5		2.12	1	6.9	-2	5	0.73	7.3	0.22	0.20	1.09	4.0	0.02			
K-10-54-122.7		1.00	1	40.9	-40	1	0.02	4.9	1.31	1.17	0.50	1.8	0.14	0.44	4.53	8.6
K-10-54-125.7		2.16	1	79.1	-77	2	0.03	4.7	2.53	2.41	0.13	0.5	0.12	0.56	6.20	6.8
K-10-54-160.5		0.98	1	0.3	0	0	0.00	6.4	0.01	0.01	<0.05	<0.2	<0.01	0.16	0.05	1.4
K-10-56-241.8		2.45	3	0.3	253	253	809.60	8.7	0.01	<0.01	3.97	14.6	0.01			
K-10-57-107.4		1.87	1	0.6	17	18	28.80	8.3	0.02	0.02	0.25	0.9	<0.01	0.01	0.79	2.9
K-10-58-17.5		1.75	1	0.3	4	4	12.80	8.4	0.01	<0.01	<0.05	<0.2	0.01	0.04	1.31	1.5
K-10-58-18.45		2.53	1	<0.3	1	1	6.40	7.4	<0.01	<0.01	<0.05	<0.2	0.02	0.01	0.15	0.7
K-10-58-20.43		2.44	2	<0.3	52	52	332.80	8.3	<0.01	<0.01	0.62	2.3	<0.01			
K-10-58-21.97		2.47	3	<0.3	161	161	1030.40	9.0	<0.01	<0.01	2.04	7.5	<0.01	0.01	0.04	0.3
K-10-58-24.28		2.49	1	0.3	1	1	3.20	7.9	0.01	<0.01	<0.05	<0.2	0.01	0.01	0.22	0.8
K-10-58-26.3		2.45	1	<0.3	1	1	6.40	7.7	<0.01	<0.01	<0.05	<0.2	<0.01			
K-10-58-30.48		1.62	1	<0.3	3	3	19.20	7.9	<0.01	<0.01	<0.05	<0.2	<0.01	0.01	0.13	1.0
K-10-58-32.5		1.93	1	<0.3	2	2	12.80	7.9	<0.01	<0.01	<0.05	<0.2	<0.01			
K-10-58-36.5		1.85	1	<0.3	1	1	6.40	7.1	<0.01	<0.01	<0.05	<0.2	<0.01	0.01	0.05	0.3
K-10-58-38.5		1.84	1	<0.3	0	0	0.00	6.6	<0.01	<0.01	<0.05	<0.2	<0.01			
K-10-58-46.5		1.87	1	<0.3	1	1	6.40	6.7	<0.01	<0.01	<0.05	<0.2	<0.01	<0.01	0.12	0.3
K-10-58-53.4		2.21	1	<0.3	1	1	6.40	6.7	<0.01	<0.01	<0.05	<0.2	<0.01			
K-10-58-57		1.84	1	<0.3	1	1	6.40	7.5	<0.01	<0.01	<0.05	<0.2	0.01	<0.01	0.03	0.3
K-10-58-62		0.61	1	<0.3	1	1	6.40	6.9	<0.01	<0.01	<0.05	<0.2	<0.01			
K-10-59-175.4		1.10	1	9.7	-3	7	0.72	7.4	0.31	0.28	0.40	1.5	0.03	0.12	1.54	76.4
K-10-59-182.2		0.84	3	26.6	397	424	15.96	7.7	0.85	0.81	6.17	22.6	0.04			
K-10-59-182.98		1.44	3	3.1	269	272	87.04	7.8	0.10	0.10	3.20	11.7	<0.01	0.02	0.07	0.8
K-10-59-213.6		1.34	3	1.9	205	207	110.40	8.4	0.06	0.06	2.66	9.7	<0.01			
K-10-61-34		2.46	4	<0.3	840	840	5376.0	9.2	<0.01	<0.01	10.20	37.5	<0.01	<0.01	0.01	<0.2
K-10-61-258.7		1.37	1	65.9	-56	10	0.15	7.9	2.11	2.11	<0.05	0.2	<0.01	0.55	3.99	2.6
K-10-61-260.5		1.35	1	65.9	-52	14	0.21	8.7	2.11	2.10	0.13	0.5	0.01			
K-10-61-263.24		1.61	3	8.4	106	114	13.51	8.2	0.27	0.25	1.50	5.5	0.02	0.07	0.12	0.9
K-10-61-266.85		1.36	3	9.7	309	319	32.93	8.2	0.31	0.30	5.10	18.7	0.01			
K-10-61-306.5		1.97	3	3.1	249	252	80.64	8.2	0.10	0.08	4.05	14.9	0.02	0.02	0.09	3.4
K-10-61-320.1		1.21	3	1.6	134	136	87.04	8.2	0.05	0.05	1.84	6.8	<0.01			
K-10-61-323.5		0.78	1	4.1	3	7	1.72	8.0	0.13	0.13	<0.05	<0.2	<0.01	0.30	7.40	0.7
K-10-63-108.5		1.11	3	0.3	162	162	518.40	8.7	0.01	0.01	2.21	8.1	<0.01			
K-10-63-117.5		2.36	1	0.9	15	16	17.07	9.4	0.03	0.02	0.09	0.3	0.01	0.03	5.61	<0.2
K-10-63-124.4		1.08	3	26.3	195	221	8.42	8.7	0.84	0.84	3.13	11.5	<0.01	0.21	0.19	6.0
K-10-70-184.57		1.34	2	15.0	31	46	3.07	8.1	0.48	0.48	0.69	2.5	<0.01			



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CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005
K-10-52-477.46 K-10-53-303.1 K-10-53-306.8 K-10-53-77.8 K-10-54-118.5		40	0.79	0.01	2.30	0.04	4.40	3.7	10	0.25	1.3	22.5	0.79	0.10	0.1	<0.005
K-10-54-122.7 K-10-54-125.7 K-10-54-160.5 K-10-56-241.8 K-10-57-107.4		400 310 10 280	2.78 2.99 0.81 1.32	0.19 0.27 <0.01 0.04	0.76 0.58 0.02 1.00	0.32 0.59 0.12 0.06	103.5 92.2 2.35 14.80	19.1 13.4 3.0 11.2	62 63 15 7	4.81 9.79 0.06 2.87	91.8 141.5 3.6 1.1	10.75 5.73 8.67 32.0	13.30 17.20 0.46 3.40	0.18 0.15 0.05 0.16	3.9 5.0 0.1 1.3	0.054 0.072 <0.005 0.018
K-10-58-17.5 K-10-58-18.45 K-10-58-20.43 K-10-58-21.97 K-10-58-24.28		100 20 10 30	0.46 0.08 <0.05 0.10	0.03 0.01 0.01 0.01	0.33 0.04 4.07 0.03	0.02 0.02 <0.02 0.02	14.10 1.14 0.63 1.65	4.0 1.6 1.2 1.3	30 30 20 31	0.44 0.05 <0.05 0.06	3.8 2.0 2.4 2.8	0.90 0.97 1.24 0.55	3.30 0.47 0.24 0.48	<0.05 <0.05 <0.05 <0.05	0.7 0.1 <0.1 0.1	0.009 <0.005 <0.005 <0.005
K-10-58-26.3 K-10-58-30.48 K-10-58-32.5 K-10-58-36.5 K-10-58-38.5		20 10	0.10 <0.05	<0.01 <0.01	0.46 0.03	0.04 0.02	1.66 0.20	6.8 1.6	16 17	0.12 <0.05	14.0 1.5	0.95 0.48	0.33 0.20	<0.05 <0.05	0.1 <0.1	<0.005 <0.005
K-10-58-46.5 K-10-58-53.4 K-10-58-57 K-10-58-62 K-10-59-175.4		10 10 190	0.08 <0.05 2.15	0.01 <0.01 0.06	0.02 0.04 0.38	<0.02 <0.02 0.69	0.56 0.12 31.3	1.7 1.0 9.9	23 17 27	<0.05 <0.05 1.68	1.6 0.9 24.6	0.40 0.33 27.1	0.48 0.24 5.09	<0.05 <0.05 0.18	0.1 <0.1 1.1	<0.005 <0.005 0.020
K-10-59-182.2 K-10-59-182.98 K-10-59-213.6 K-10-61-34 K-10-61-258.7		30 10 370	0.42 0.08 1.75	0.03 0.02 0.42	8.08 17.05 0.81	0.16 0.15 0.70	8.62 1.04 48.3	2.3 3.3 24.6	7 2 63	0.14 <0.05 4.11	3.9 1.8 90.9	13.60 0.91 5.60	0.57 0.13 10.45	0.07 <0.05 0.10	0.1 <0.1 2.7	0.006 <0.005 0.038
K-10-61-260.5 K-10-61-263.24 K-10-61-266.85 K-10-61-306.5 K-10-61-320.1		30 20	1.27 0.74	0.06 0.02	4.22 7.83	0.30 0.22	11.75 6.72	7.4 3.9	13 4	0.07 0.24	11.0 10.5	24.8 14.10	1.45 0.38	0.12 0.07	0.1 <0.1	0.012 0.009
K-10-61-323.5 K-10-63-108.5 K-10-63-117.5 K-10-63-124.4 K-10-70-184.57		670 580 120	3.72 1.27 0.84	0.14 0.02 0.06	0.38 0.35 5.99	0.19 <0.02 0.06	82.8 84.0 15.55	8.4 3.4 9.2	100 38 8	5.76 3.61 0.27	36.5 1.8 48.7	5.26 5.44 4.50	19.75 11.20 1.24	0.16 0.14 0.06	4.6 6.4 <0.1	0.067 0.007 0.006



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CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	ME-MS61 K %	ME-MS61 La ppm	ME-MS61 Li ppm	ME-MS61 Mg %	ME-MS61 Mn ppm	ME-MS61 Mo ppm	ME-MS61 Na %	ME-MS61 Nb ppm	ME-MS61 Ni ppm	ME-MS61 P ppm	ME-MS61 Pb ppm	ME-MS61 Rb ppm	ME-MS61 Re ppm	ME-MS61 S %	ME-MS61 Sb ppm
K-10-52-477.46 K-10-53-303.1 K-10-53-306.8 K-10-53-77.8 K-10-54-118.5		0.02	1.8	1.2	3.26	1670	0.46	0.01	1.6	2.4	70	<0.5	1.4	<0.002	0.01	0.08
K-10-54-122.7 K-10-54-125.7 K-10-54-160.5 K-10-56-241.8 K-10-57-107.4		3.86	46.5	41.6	1.46	342	21.0	1.53	14.2	77.2	730	20.0	146.0	0.011	1.05	0.05
K-10-58-17.5 K-10-58-18.45 K-10-58-20.43 K-10-58-21.97 K-10-58-24.28		1.72	51.6	21.8	0.81	2490	12.15	1.25	6.3	52.6	880	19.8	76.1	0.019	1.35	0.20
K-10-58-26.3 K-10-58-30.48 K-10-58-32.5 K-10-58-36.5 K-10-58-38.5		2.50	48.6	30.0	1.10	850	20.8	0.82	10.4	77.8	930	25.4	111.5	0.032	2.62	0.36
K-10-59-175.4		0.02	2.9	<0.2	0.02	245	0.44	0.01	0.3	4.3	50	0.8	0.8	<0.002	0.01	<0.05
K-10-59-182.2 K-10-59-182.98 K-10-59-213.6 K-10-61-34 K-10-61-258.7		0.47	7.3	8.8	3.37	23200	0.11	0.03	12.3	4.8	830	2.1	22.6	<0.002	0.02	0.05
K-10-61-260.5 K-10-61-263.24 K-10-61-266.85 K-10-61-306.5 K-10-61-320.1		0.56	6.8	3.7	0.26	251	0.40	0.26	1.0	6.6	150	2.1	19.0	<0.002	0.01	0.06
K-10-61-323.5 K-10-63-108.5 K-10-63-117.5 K-10-63-124.4 K-10-70-184.57		0.06	0.6	<0.2	0.08	511	0.42	0.01	0.2	3.4	70	0.6	2.0	<0.002	<0.01	<0.05
		0.01	<0.5	<0.2	1.89	684	0.23	<0.01	0.1	1.5	30	<0.5	0.4	<0.002	<0.01	<0.05
		0.08	0.9	<0.2	0.09	114	0.27	0.01	0.3	3.3	30	<0.5	2.6	<0.002	<0.01	<0.05
		0.04	0.8	<0.2	0.55	158	0.29	0.01	0.3	6.4	540	7.8	2.4	<0.002	<0.01	<0.05
		0.01	<0.5	<0.2	0.04	113	0.23	<0.01	0.1	2.7	20	<0.5	0.5	<0.002	<0.01	<0.05
		0.03	<0.5	<0.2	0.05	46	0.22	<0.01	0.1	3.0	20	<0.5	1.2	<0.002	<0.01	<0.05
		0.01	<0.5	<0.2	0.03	47	0.20	<0.01	<0.1	1.3	10	<0.5	0.3	<0.002	<0.01	<0.05
		0.57	15.5	6.9	0.49	4800	3.34	0.31	4.1	16.0	240	6.7	26.7	0.003	0.33	<0.05
		0.02	3.5	2.7	3.07	2060	0.31	0.01	1.1	1.9	120	1.5	1.1	<0.002	0.11	0.05
		<0.01	0.5	<0.2	10.60	929	0.10	<0.01	<0.1	2.4	460	0.6	0.2	<0.002	<0.01	<0.05
		1.36	21.5	20.9	1.09	1350	16.20	0.77	9.6	40.9	1870	11.4	64.2	0.015	2.19	0.30
		0.02	4.5	1.6	1.26	4040	1.01	0.03	2.9	7.2	100	10.0	0.8	<0.002	0.27	0.06
		0.01	2.9	0.5	2.69	3010	0.11	<0.01	0.4	2.7	60	3.7	1.0	<0.002	0.10	0.11
		3.17	41.4	38.4	1.93	478	9.66	0.30	13.5	42.4	770	8.0	131.0	0.008	0.15	0.10
		4.08	40.5	21.6	2.67	243	0.25	0.11	2.9	6.8	360	3.5	132.5	<0.002	0.03	<0.05
		0.10	7.0	1.3	2.09	5640	0.98	<0.01	0.9	4.9	60	2.6	4.2	<0.002	0.76	0.10



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CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
K-10-52-477.46 K-10-53-303.1 K-10-53-306.8 K-10-53-77.8 K-10-54-118.5		0.1	<1	<0.2	8.2	0.08	<0.05	0.28	<0.005	0.02	0.1	6	0.1	2.1	5	4.2
K-10-54-122.7 K-10-54-125.7 K-10-54-160.5 K-10-56-241.8 K-10-57-107.4		8.3 10.6 0.1 1.6	1 4 <1 <1	1.6 2.5 0.2 <0.2	106.5 110.5 1.0 8.0	0.38 0.64 <0.05 0.49	0.12 0.18 <0.05 <0.05	12.60 14.10 0.15 0.13	0.206 0.275 <0.005 0.134	0.77 2.40 0.02 0.13	11.5 16.1 0.3 0.4	148 258 3 50	1.1 3.3 0.7 1.7	29.8 36.7 4.1 11.5	108 305 13 22	150.5 186.5 2.8 62.7
K-10-58-17.5 K-10-58-18.45 K-10-58-20.43 K-10-58-21.97 K-10-58-24.28		2.5 0.2 0.2 0.2	<1 <1 <1 <1	0.2 <0.2 <0.2 <0.2	46.0 1.2 12.6 1.2	0.07 <0.05 <0.05 <0.05	0.05 <0.05 <0.05 <0.05	2.04 0.23 0.05 0.35	0.045 0.005 <0.005 0.009	0.09 0.02 <0.02 0.02	0.4 0.4 0.2 0.3	16 5 28 8	0.4 0.1 <0.1 0.1	3.0 1.1 2.2 0.9	9 3 3 6	28.1 2.6 0.7 3.4
K-10-58-26.3 K-10-58-30.48 K-10-58-32.5 K-10-58-36.5 K-10-58-38.5		0.3 0.1	<1 <1	<0.2 <0.2	1.0 0.4	<0.05 <0.05	0.07 <0.05	0.18 0.04	0.007 <0.005	0.04 <0.02	0.7 0.1	9 4	0.2 <0.1	2.2 0.5	14 5	2.7 0.7
K-10-58-46.5 K-10-58-53.4 K-10-58-57 K-10-58-62 K-10-59-175.4		0.1 <0.1 2.8	<1 <1 <1	<0.2 <0.2 0.7	0.5 0.5 17.0	<0.05 <0.05 0.22	<0.05 <0.05 0.05	0.19 0.02 2.72	<0.005 <0.005 0.061	<0.02 <0.02 0.28	0.1 <0.1 2.4	2 1 41	0.1 <0.1 1.0	0.5 0.2 10.8	4 2 69	3.7 0.6 45.4
K-10-59-182.2 K-10-59-182.98 K-10-59-213.6 K-10-61-34 K-10-61-258.7		0.1 0.2 7.4	<1 <1 3	<0.2 <0.2 1.3	84.0 49.5 65.2	0.05 <0.05 0.45	<0.05 <0.05 0.15	0.18 0.03 6.45	<0.005 <0.005 0.204	0.02 <0.02 1.19	0.4 0.2 8.4	5 1 164	<0.1 <0.1 1.5	3.3 2.0 28.5	22 5 165	3.4 <0.5 101.5
K-10-61-260.5 K-10-61-263.24 K-10-61-266.85 K-10-61-306.5 K-10-61-320.1		0.2 0.5	1 1	0.2 <0.2	90.8 90.7	0.10 <0.05	<0.05 <0.05	0.21 0.05	0.008 0.014	0.02 <0.02	0.2 <0.1	9 4	0.1 0.2	4.4 4.1	45 5	8.3 2.1
K-10-61-323.5 K-10-63-108.5 K-10-63-117.5 K-10-63-124.4 K-10-70-184.57		14.1 2.9 1.0	1 <1 <1	2.4 0.4 <0.2	30.7 26.3 59.2	0.91 0.24 <0.05	<0.05 <0.05 0.07	13.85 20.2 0.22	0.394 0.138 0.005	1.06 0.73 0.04	8.7 1.7 0.1	192 19 11	4.1 0.7 0.6	26.0 8.4 11.9	163 20 8	169.0 224 2.8



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CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	OA-VOL08m FIZZ RAT Unity 1	OA-VOL08m MPA tCaCO3/1Kt 0.3	OA-VOL08m NNP tCaCO3/1Kt 1	OA-VOL08m NP tCaCO3/1Kt 1	OA-VOL08m Ratio (N) Unity 0.01	OA-ELE07 pH Unity 0.1	S-IR08 S % 0.01	S-CAL06a S % 0.01	C-GAS05 C % 0.05	C-GAS05 CO2 % 0.2	S-GRA06a S % 0.01	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2
K-10-70-189		2.60	1	50.6	-45	6	0.12	8.9	1.62	1.62	<0.05	<0.2	<0.01	0.42	7.89	1.9
K-10-70-462.95		2.50	1	29.7	-23	7	0.24	9.1	0.95	0.95	<0.05	<0.2	<0.01			
K-10-70-466.35		1.66	2	9.1	54	63	6.95	8.3	0.29	0.29	0.98	3.6	<0.01			
K-10-70-543.5		2.58	2	0.3	83	83	265.60	8.5	0.01	0.01	1.56	5.7	<0.01			
K-10-70-74.46		1.54	2	0.3	73	73	233.60	8.3	0.01	0.01	1.24	4.6	<0.01	0.01	0.10	3.2
K-10-71-93.8		2.36	3	3.8	404	408	108.80	8.7	0.12	0.12	6.28	23.0	<0.01			
K-10-78-29.9		1.11	1	0.3	2	2	6.40	7.5	0.01	0.01	<0.05	<0.2	<0.01	0.03	0.12	0.6
K-10-83-277.5		2.56	1	3.1	19	22	7.04	9.1	0.10	0.10	0.32	1.2	<0.01			
K-10-83-39.5		1.45	2	0.3	72	72	230.40	8.7	0.01	0.01	0.92	3.4	<0.01	0.01	0.14	1.1
K-10-83-657.9		2.25	1	103.0	-73	30	0.29	8.2	3.30	3.30	0.35	1.3	<0.01			
K-10-83-658.8		2.42	1	134.5	-124	11	0.08	8.5	4.31	4.31	<0.05	<0.2	<0.01	1.11	4.91	5.1
K-10-83-659.7		2.59	1	153.5	-138	15	0.10	8.3	4.91	4.91	0.10	0.4	<0.01			
K-10-83-660.6		2.41	1	103.5	-77	26	0.25	8.6	3.31	3.31	0.27	1.0	<0.01	0.96	5.23	2.4
K-10-83-661.7		2.48	1	86.9	-78	9	0.10	8.6	2.78	2.78	<0.05	<0.2	<0.01			
K-10-84-182.8		2.18	3	0.9	294	295	314.67	9.0	0.03	0.03	4.38	16.0	<0.01			
K-10-93-46		1.07	3	174.5	-62	112	0.64	8.1	5.58	5.58	1.42	5.2	<0.01	1.52	3.99	4.0
K-10-93-114.3		1.18	3	122.0	-17	105	0.86	8.1	3.91	3.91	1.85	6.8	<0.01			
K-11-100B-116.25		1.49	1	0.6	1	2	3.20	6.9	0.02	0.02	<0.05	<0.2	<0.01	0.07	0.74	6.8
K-11-107-155.5		0.97	1	0.3	1	1	3.20	7.0	0.01	0.01	<0.05	<0.2	<0.01			
K-11-107-158.5		0.58	1	0.3	1	1	3.20	6.6	0.01	0.01	<0.05	<0.2	<0.01			
K-11-108-87.6		1.13	1	0.3	4	4	12.80	9.5	0.01	0.01	<0.05	<0.2	<0.01	0.06	8.20	0.4
K-11-108-89		1.68	1	4.7	8	13	2.77	8.4	0.15	0.15	0.06	0.2	<0.01			
K-11-108-93.2		2.02	1	2.5	8	10	4.00	9.7	0.08	0.08	<0.05	<0.2	<0.01	0.06	7.87	0.9
K-11-108-103.5		2.10	1	8.8	-1	8	0.91	9.7	0.28	0.28	<0.05	<0.2	<0.01			
K-11-108-118.2		1.67	1	59.7	-54	6	0.10	6.0	1.91	1.86	<0.05	<0.2	0.05	0.60	7.36	0.5
K-11-108-180.3		1.70	1	0.3	4	4	12.80	9.6	0.01	<0.01	<0.05	<0.2	0.01			
K-11-108-218		1.05	1	10.3	-3	7	0.68	8.9	0.33	0.31	<0.05	<0.2	0.02			
K-11-108-228.3		1.49	1	2.5	10	12	4.80	8.4	0.08	0.07	0.05	0.2	0.01	0.31	9.02	0.4
K-11-110-87.5		1.04	1	0.3	13	13	41.60	7.9	0.01	0.01	5.77	21.2	<0.01			
K-11-111-43.1		1.63	1	1.6	9	11	7.04	9.0	0.05	0.04	0.41	1.5	0.01	0.11	6.83	0.5
K-11-112A-43.1		3.48	1	0.6	5	6	9.60	9.3	0.02	0.01	0.06	0.2	0.01	0.06	7.38	0.7
K-11-112A-71.4		3.13	1	11.3	-2	9	0.80	8.2	0.36	0.36	<0.05	<0.2	<0.01	0.14	7.94	1.0
K-11-112A-102.8		4.12	1	3.1	5	8	2.56	9.5	0.10	0.10	<0.05	<0.2	<0.01			
K-11-112A-113.8		4.07	1	7.2	0	7	0.97	8.7	0.23	0.23	<0.05	<0.2	<0.01			
K-11-112A-147.3		4.05	1	0.6	2	3	4.80	8.5	0.02	<0.01	<0.05	<0.2	0.02	0.06	6.86	0.5
K-11-112A-166.8		1.53	1	4.4	0	4	0.91	7.3	0.14	0.08	<0.05	<0.2	0.06			
K-11-112A-174.5		1.41	1	0.3	1	1	3.20	7.8	0.01	<0.01	<0.05	<0.2	0.03	0.11	1.47	1.6
K-11-112A-188.5		0.92	1	0.3	4	4	12.80	7.3	0.01	0.01	<0.05	<0.2	<0.01			
K-11-112A-217.5		0.35	1	0.3	2	2	6.40	6.5	0.01	<0.01	<0.05	<0.2	0.01	0.16	1.14	3.3
K-11-115-389.2		2.16	1	0.3	1	1	3.20	6.4	0.01	<0.01	<0.05	<0.2	0.02			



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CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005
K-10-70-189 K-10-70-462.95 K-10-70-466.35 K-10-70-543.5 K-10-70-74.46		810	2.92	0.35	1.05	0.33	91.1	18.1	100	7.47	110.5	5.37	22.0	0.17	5.2	0.091
		20	0.62	0.01	2.25	0.03	3.49	3.6	9	0.21	2.1	20.2	0.57	0.10	0.1	<0.005
K-10-71-93.8 K-10-78-29.9 K-10-83-277.5 K-10-83-39.5 K-10-83-657.9		30	0.65	0.01	0.05	0.08	7.03	6.9	10	<0.05	4.8	31.3	0.89	0.16	<0.1	<0.005
		50	1.16	0.01	1.62	<0.02	13.75	20.7	4	0.33	5.2	31.5	0.96	0.42	<0.1	<0.005
K-10-83-658.8 K-10-83-659.7 K-10-83-660.6 K-10-83-661.7 K-10-84-182.8		180	2.86	1.52	0.93	1.39	73.6	26.8	80	4.79	247	9.71	12.60	0.16	3.5	0.059
		230	4.11	1.10	1.85	1.46	70.1	24.6	76	4.71	263	8.28	13.65	0.16	3.7	0.070
K-10-93-46 K-10-93-114.3 K-11-100B-116.25 K-11-107-155.5 K-11-107-158.5		130	2.41	0.75	4.31	24.6	55.6	27.4	86	1.86	245	11.05	10.65	0.17	2.8	0.098
		60	6.54	0.02	0.05	0.40	28.0	19.5	15	<0.05	28.2	41.5	2.38	1.06	0.7	0.015
K-11-108-87.6 K-11-108-89 K-11-108-93.2 K-11-108-103.5 K-11-108-118.2		580	0.57	0.03	0.66	0.02	16.05	2.2	8	0.86	6.7	1.17	13.70	0.06	0.8	0.010
		470	1.92	0.05	1.60	0.04	27.3	15.6	73	2.74	29.9	3.16	20.8	0.14	0.8	0.028
		340	1.95	0.21	1.32	0.16	59.7	13.6	136	4.60	90.1	5.92	20.9	0.13	2.9	0.035
K-11-108-180.3 K-11-108-218 K-11-108-228.3 K-11-110-87.5 K-11-111-43.1		900	3.17	0.33	3.85	0.11	89.6	21.0	46	2.73	183.0	4.12	25.8	0.17	0.4	0.062
		700	1.30	0.01	1.60	0.04	37.4	11.0	81	0.67	18.6	4.04	16.40	0.11	2.3	0.022
K-11-112A-43.1 K-11-112A-71.4 K-11-112A-102.8 K-11-112A-113.8 K-11-112A-147.3		530	0.91	0.02	0.75	0.08	30.9	5.3	43	2.03	8.8	1.77	16.15	0.11	6.2	0.018
		570	2.36	0.02	1.24	0.05	44.2	22.9	114	5.68	81.5	3.05	20.1	0.12	2.7	0.043
		340	1.00	0.01	0.70	0.02	9.67	0.7	8	0.53	5.9	0.48	14.20	0.06	2.4	0.006
K-11-112A-166.8 K-11-112A-174.5 K-11-112A-188.5 K-11-112A-217.5 K-11-115-389.2		150	1.20	0.03	0.01	0.12	11.00	6.6	20	0.25	8.6	1.59	3.47	0.05	0.9	<0.005
		80	3.42	0.02	0.08	0.30	21.3	22.8	44	0.14	44.2	11.20	3.20	0.09	0.4	0.009



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CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	ME-MS61 K %	ME-MS61 La ppm	ME-MS61 Li ppm	ME-MS61 Mg %	ME-MS61 Mn ppm	ME-MS61 Mo ppm	ME-MS61 Na %	ME-MS61 Nb ppm	ME-MS61 Ni ppm	ME-MS61 P ppm	ME-MS61 Pb ppm	ME-MS61 Rb ppm	ME-MS61 Re ppm	ME-MS61 S %	ME-MS61 Sb ppm
K-10-70-189 K-10-70-462.95 K-10-70-466.35 K-10-70-543.5 K-10-70-74.46		3.33	45.6	24.0	1.55	989	42.9	1.38	15.1	92.6	890	13.8	143.5	0.022	1.65	0.05
		0.04	2.1	2.0	2.65	6290	0.34	0.01	0.8	1.5	100	0.7	1.7	<0.002	0.01	<0.05
K-10-71-93.8 K-10-78-29.9 K-10-83-277.5 K-10-83-39.5 K-10-83-657.9		0.01	3.6	0.4	0.12	2320	1.09	<0.01	2.5	2.0	40	0.8	0.3	<0.002	<0.01	0.07
		0.04	9.1	6.8	1.71	12950	0.82	0.02	1.1	2.6	140	3.7	2.0	<0.002	<0.01	0.38
K-10-83-658.8 K-10-83-659.7 K-10-83-660.6 K-10-83-661.7 K-10-84-182.8		2.13	36.3	20.5	1.14	1845	82.9	0.94	10.8	152.5	1230	17.2	93.3	0.043	4.00	<0.05
		2.60	34.9	20.9	1.20	1895	65.9	0.66	12.1	138.0	960	12.6	107.5	0.033	3.33	<0.05
K-10-93-46 K-10-93-114.3 K-11-1008-116.25 K-11-107-155.5 K-11-107-158.5		1.95	31.4	21.1	2.44	1770	181.0	0.33	9.5	258	1130	18.9	70.2	0.066	5.31	0.11
		0.03	16.8	2.7	0.11	3890	4.02	0.01	11.7	49.2	1550	1.5	0.9	<0.002	0.02	0.07
K-11-108-87.6 K-11-108-89 K-11-108-93.2 K-11-108-103.5 K-11-108-118.2		6.29	8.4	5.2	0.27	219	0.30	2.55	0.9	3.0	260	66.6	99.5	<0.002	0.01	<0.05
		2.54	12.0	32.1	2.04	527	3.92	3.28	4.9	50.5	1120	12.4	95.3	<0.002	0.10	<0.05
		2.78	29.9	24.5	1.95	578	1.49	2.42	8.9	48.9	630	20.1	130.5	<0.002	2.02	<0.05
K-11-108-180.3 K-11-108-218 K-11-108-228.3 K-11-110-87.5 K-11-111-43.1		1.86	37.5	25.3	1.82	1340	0.20	3.69	10.3	34.8	1850	22.0	35.4	<0.002	0.09	<0.05
		2.62	18.0	17.2	1.21	677	0.37	2.31	3.4	29.8	650	10.4	119.0	<0.002	0.05	<0.05
K-11-112A-43.1 K-11-112A-71.4 K-11-112A-102.8 K-11-112A-113.8 K-11-112A-147.3		3.46	15.4	15.6	0.59	350	0.77	2.84	2.3	21.8	260	58.0	126.5	<0.002	0.02	<0.05
		3.93	21.0	32.4	2.52	282	2.41	1.92	5.5	97.6	880	6.0	123.5	0.004	0.40	<0.05
		3.27	5.2	6.6	0.14	57	0.19	3.17	0.8	1.4	150	36.3	87.5	<0.002	0.02	<0.05
K-11-112A-166.8 K-11-112A-174.5 K-11-112A-188.5 K-11-112A-217.5 K-11-115-389.2		0.81	5.6	4.3	0.16	331	0.55	0.03	0.5	9.7	160	4.0	23.6	<0.002	0.01	0.06
		0.32	6.7	1.8	0.10	633	1.62	0.08	0.5	35.9	770	26.8	7.9	<0.002	<0.01	0.13



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CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
K-10-70-189 K-10-70-462.95 K-10-70-466.35 K-10-70-543.5 K-10-70-74.46		15.0	4	2.9	159.0	0.95	0.18	15.10	0.367	1.89	20.7	363	5.9	33.0	348	179.5
		0.2	<1	<0.2	14.8	<0.05	<0.05	0.20	0.005	0.02	0.1	7	0.2	2.3	12	3.7
K-10-71-93.8 K-10-78-29.9 K-10-83-277.5 K-10-83-39.5 K-10-83-657.9		0.1	1	0.3	1.8	0.13	<0.05	0.28	<0.005	<0.02	0.3	5	0.4	5.5	16	2.3
		0.3	<1	<0.2	24.6	<0.05	<0.05	0.21	0.005	<0.02	0.1	10	2.0	12.0	6	3.5
K-10-83-658.8 K-10-83-659.7 K-10-83-660.6 K-10-83-661.7 K-10-84-182.8		9.2	9	1.6	85.4	0.65	0.63	8.10	0.225	1.23	37.2	472	4.0	45.0	335	132.5
		10.3	8	1.7	62.2	0.70	0.70	8.31	0.259	1.32	23.5	309	6.3	39.1	350	143.0
K-10-93-46 K-10-93-114.3 K-11-100B-116.25 K-11-107-155.5 K-11-107-158.5		8.9	12	1.7	148.5	0.55	0.39	5.97	0.202	0.88	60.4	1025	7.6	39.7	2420	112.0
		1.5	<1	0.3	8.4	0.47	0.05	1.52	0.088	0.04	9.4	48	1.2	33.8	132	33.1
K-11-108-87.6 K-11-108-89 K-11-108-93.2 K-11-108-103.5 K-11-108-118.2		2.5	1	0.3	251	0.09	<0.05	5.10	0.075	0.54	2.6	14	0.3	5.5	21	20.6
		12.1	4	1.7	388	0.32	<0.05	1.52	0.250	0.54	2.6	78	0.3	10.6	72	30.4
		12.6	1	1.4	246	0.86	<0.05	9.92	0.305	1.07	3.5	93	0.3	29.6	67	100.0
K-11-108-180.3 K-11-108-218 K-11-108-228.3 K-11-110-87.5 K-11-111-43.1		17.5	1	1.5	1280	0.35	<0.05	4.24	0.205	0.30	1.7	98	0.8	18.7	69	15.5
		6.9	1	0.9	388	0.25	<0.05	9.60	0.177	0.59	1.2	52	2.1	10.8	49	71.2
K-11-112A-43.1 K-11-112A-71.4 K-11-112A-102.8 K-11-112A-113.8 K-11-112A-147.3		4.7	1	0.7	221	0.16	<0.05	17.00	0.079	0.64	52.2	26	0.4	28.8	28	129.5
		10.5	2	2.8	182.0	0.79	<0.05	4.06	0.289	0.92	3.0	81	0.7	10.2	45	97.6
		0.6	1	0.5	195.0	0.06	<0.05	2.25	0.016	0.42	1.7	2	0.1	7.5	8	50.4
K-11-112A-166.8 K-11-112A-174.5 K-11-112A-188.5 K-11-112A-217.5 K-11-115-389.2		1.0	1	0.2	4.0	<0.05	<0.05	1.54	0.024	0.24	1.0	14	0.9	4.1	16	31.4
		2.9	1	0.3	15.0	<0.05	0.06	1.44	0.030	0.08	7.9	73	2.2	17.0	102	15.2



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Sample Description	Method Analyte Units LOD	WEI-21	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-ELE07	S-IR08	S-CAL06a	C-GAS05	C-GAS05	S-GRA06a	ME-MS61	ME-MS61	ME-MS61
		Recvd Wt.	FIZZ RAT	MPA	NNP	NP	Ratio (N	pH	S	S	C	CO2	S	Ag	Al	As
		kg	Unity	tCaCO3/1Kt	tCaCO3/1Kt	tCaCO3/1Kt	Unity	Unity	%	%	%	%	%	ppm	%	ppm
		0.02	1	0.3	1	1	0.01	0.1	0.01	0.01	0.05	0.2	0.01	0.01	0.01	0.2
K-11-116-78		0.81	1	0.3	1	1	3.20	6.5	0.01	<0.01	<0.05	<0.2	0.01	0.08	0.06	0.7
K-11-117-331		1.97	1	117.0	-103	14	0.12	7.3	3.75	3.71	0.23	0.9	0.04	0.26	0.14	2.1
K-11-123-153.1		2.59	2	0.3	89	89	284.80	8.9	0.01	<0.01	1.28	4.7	0.03			
K-11-123-153.8		2.16	2	6.6	35	42	6.40	8.6	0.21	0.07	0.55	2.0	0.14	0.05	5.09	0.4
K-11-128-103.5		1.17	1	0.3	21	21	67.20	8.6	0.01	<0.01	0.32	1.2	0.01	0.03	0.16	0.5
K-11-130-231.03		2.57	2	27.8	37	65	2.34	8.4	0.89	0.85	2.92	10.7	0.04			
K-11-130-448.5		2.28	2	2.8	21	24	8.53	7.8	0.09	0.09	3.67	13.5	<0.01	0.04	0.63	1.5
K-11-131-105		0.80	1	11.9	-6	6	0.51	7.3	0.38	0.37	0.32	1.2	0.01	0.40	2.43	1.2
K-11-133-51.1		4.87	2	5.0	36	41	8.20	8.2	0.16	0.16	0.67	2.5	<0.01	0.04	0.10	4.5
K-11-135-182.5		2.25	2	5.6	39	45	8.00	7.8	0.18	0.15	2.02	7.4	0.03			
K-11-135-48.5		1.83	1	37.2	-29	8	0.22	8.6	1.19	1.15	0.05	0.2	0.04			
K-11-137-115.5		4.82	3	0.9	267	268	285.87	8.5	0.03	0.03	4.29	15.7	<0.01			
K-11-137-289.1		1.54	1	15.3	-9	6	0.39	7.8	0.49	0.49	<0.05	<0.2	<0.01			
K-11-137-291.5		1.69	1	19.1	-13	6	0.31	8.5	0.61	0.61	0.05	0.2	<0.01	0.14	7.64	1.1



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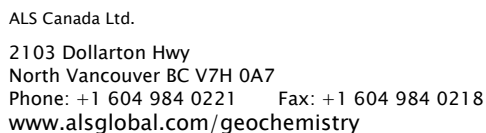
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Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In
		ppm 10	ppm 0.05	ppm 0.01	% 0.01	ppm 0.02	ppm 0.01	ppm 0.1	ppm 1	ppm 0.05	ppm 0.2	% 0.01	ppm 0.05	ppm 0.05	ppm 0.1	ppm 0.005
K-11-116-78		10	0.45	<0.01	0.03	0.02	1.84	3.1	4	<0.05	12.4	2.64	0.56	<0.05	<0.1	<0.005
K-11-117-331		40	0.30	0.35	0.44	<0.02	0.54	19.2	20	0.14	114.5	6.08	1.50	<0.05	0.1	<0.005
K-11-123-153.1																
K-11-123-153.8		3170	5.31	0.02	1.43	0.67	22.5	24.2	63	17.00	22.4	18.95	11.30	0.16	0.4	0.021
K-11-128-103.5		20	3.21	0.01	0.85	0.02	14.80	8.3	6	0.07	1.8	35.0	1.32	0.66	0.1	0.006
K-11-130-231.03																
K-11-130-448.5		50	0.78	0.03	1.20	0.03	21.2	9.4	10	0.55	6.9	23.7	2.29	0.14	0.7	0.014
K-11-131-105		240	0.89	0.08	0.51	1.02	23.4	5.2	35	2.93	35.8	5.30	6.45	0.06	1.6	0.030
K-11-133-51.1		20	1.01	0.01	1.60	0.13	4.16	2.7	7	0.14	5.9	24.6	0.78	0.11	0.1	<0.005
K-11-135-182.5																
K-11-135-48.5																
K-11-137-115.5																
K-11-137-289.1																
K-11-137-291.5		590	4.31	0.10	0.15	<0.02	74.6	12.2	106	1.62	21.1	3.68	21.3	0.13	4.5	0.049



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Plus Appendix Pages
Finalized Date: 12–OCT–2023
Account: KANECO

Project: Champion Iron Ore

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb
		%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm
		0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05
K-11-116-78		0.01	0.8	2.5	0.02	194	0.51	<0.01	0.1	3.5	160	2.6	0.6	<0.002	<0.01	<0.05
K-11-117-331		0.08	<0.5	<0.2	0.20	445	23.8	<0.01	0.5	26.1	20	2.4	2.9	0.009	3.43	<0.05
K-11-123-153.1																
K-11-123-153.8		3.09	11.0	17.8	3.68	11800	9.28	0.59	6.4	24.8	830	72.2	171.5	0.004	0.26	0.06
K-11-128-103.5		0.02	7.4	3.7	1.78	8430	2.33	0.02	2.9	2.5	230	1.3	0.8	<0.002	<0.01	<0.05
K-11-130-231.03																
K-11-130-448.5		0.10	11.6	0.6	2.36	15800	0.29	0.01	7.6	4.3	810	2.1	4.7	<0.002	0.10	<0.05
K-11-131-105		0.98	12.0	16.4	1.22	1630	6.33	0.09	4.5	21.6	460	4.5	45.3	0.009	0.41	<0.05
K-11-133-51.1		0.02	1.7	4.9	2.65	1120	0.24	0.01	1.3	1.6	90	1.1	0.8	<0.002	0.16	0.07
K-11-135-182.5																
K-11-135-48.5																
K-11-137-115.5																
K-11-137-289.1																
K-11-137-291.5		5.45	37.3	19.8	1.04	143	1.21	0.10	10.3	34.8	330	10.3	148.5	<0.002	0.59	<0.05

***** See Appendix Page for comments regarding this certificate *****



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To: OKANE CONSULTANTS
 112-112 RESEARCH DRIVE
 SASKATOON SK S7N 3R3

Page: 5 - D
 Total # Pages: 5 (A - D)
 Plus Appendix Pages
 Finalized Date: 12-OCT-2023
 Account: KANECO

Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23210925

Sample Description	Method Analyte Units LOD	ME-MS61 Sc ppm 0.1	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.01	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
K-11-116-78		0.1	1	0.2	0.8	<0.05	<0.05	0.06	<0.005	0.02	2.5	13	0.7	2.6	19	0.7
K-11-117-331		1.1	2	0.2	3.9	<0.05	0.21	0.13	0.007	0.04	3.3	114	0.5	0.3	4	6.8
K-11-123-153.1																
K-11-123-153.8		13.2	1	0.4	103.5	0.24	0.05	0.62	0.277	0.87	0.2	148	1.6	13.8	225	14.8
K-11-128-103.5		0.5	1	0.4	9.6	0.08	<0.05	0.37	0.021	<0.02	0.1	21	0.4	10.3	11	8.4
K-11-130-231.03																
K-11-130-448.5		1.4	1	0.3	15.5	0.33	0.08	0.59	0.093	0.04	0.3	40	0.8	11.9	12	33.2
K-11-131-105		4.6	2	0.9	21.1	0.32	<0.05	4.31	0.118	0.72	4.8	93	3.1	14.9	176	58.3
K-11-133-51.1		0.1	1	<0.2	22.8	0.08	0.05	0.19	<0.005	<0.02	0.1	7	0.3	2.6	19	6.1
K-11-135-182.5																
K-11-135-48.5																
K-11-137-115.5																
K-11-137-289.1																
K-11-137-291.5		11.9	1	1.5	42.0	0.74	<0.05	17.05	0.373	0.55	2.3	73	1.3	12.1	36	154.5



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To: OKANE CONSULTANTS
112-112 RESEARCH DRIVE
SASKATOON SK S7N 3R3

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Finalized Date: 12-OCT-2023
Account: KANECO

Project: Champion Iron Ore

CERTIFICATE OF ANALYSIS ML23210925

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method: REEs may not be totally soluble in this method.
ME-MS61

LABORATORY ADDRESSES

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.
C-GAS05 ME-MS61 OA-ELE07 OA-VOL08m
S-CAL06a S-GRA06a S-IR08

Applies to Method: Processed at ALS Geochemistry at 1650 50e Avenue, Lachine, Quebec, Canada, H8T 2V5
CRU-31 CRU-QC LOG-22 PUL-31
PUL-QC SOR-01 SPL-21 WEI-21

CERTIFICATE OF ANALYSIS

Work Order : **VA24A1528**
Client : **O'Kane Consultants Inc.**
Contact : Katherine Raymond
Address : 112 - 112 Research Drive
Saskatoon SK Canada S7N 3R3
Telephone : ----
Project : ----
PO : ----
C-O-C number : ----
Sampler : ----
Site : Atlantic Mine Rock Sample Program Analysis
Quote number : VA23-OKCI100-003
No. of samples received : 53
No. of samples analysed : 53

Page : 1 of 29
Laboratory : ALS Environmental - Vancouver
Account Manager : Tasnia Tarannum
Address : 8081 Lougheed Highway
Burnaby BC Canada V5A 1W9
Telephone : +1 604 253 4188
Date Samples Received : 24-Jan-2024 12:00
Date Analysis Commenced : 29-Jan-2024
Issue Date : 08-Feb-2024 17:22

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

[illegible]

[illegible][illegible][illegible]

Tracy Harley
Tracy Harley
Tracy Harley
Tracy Harley

Supervisor - Water Quality Instrumentation
Supervisor - Water Quality Instrumentation
Supervisor - Water Quality Instrumentation
Supervisor - Water Quality Instrumentation

Inorganics, Burnaby, British Columbia
Inorganics, Burnaby, British Columbia
Inorganics, Burnaby, British Columbia
Inorganics, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
%	percent
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
mV	millivolts
pH units	pH units

<: less than.

>: greater than.

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

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

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

Qualifiers

Qualifier	Description
DLA	Detection Limit adjusted for required dilution.
DLCI	Detection Limit Raised: Chromatographic interference due to co-elution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).



Analytical Results

Sub-Matrix: Soil/Solid				Client sample ID	K-08-08-122	K-08-10-228.46	K-08-11-21.4	K-08-11-28	K-08-11A-139.8
(Matrix: Soil/Solid)									
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-001	VA24A1528-002	VA24A1528-003	VA24A1528-004	VA24A1528-005
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	----	E285/VA	4.0	mg/L	<4.0	<4.0	<4.0	<4.0	6.0
Conductivity, leachable	----	E103/VA	2.0	µS/cm	98.2	127	119	92.3	115
Moisture	----	E144/VA	0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	----	E127/VA	0.10	mV	194	209	204	215	198
pH	----	E116/VA	0.10	pH units	8.84	8.34	7.86	8.80	5.38
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	----	E294/VA	2.0	mg/L	33.2	29.7	37.1	45.7	<2.0
Ammonia, total, leachable (as N)	7664-41-7	E300/VA	0.005	mg/L	0.069	0.031	0.105	0.010	0.038
Bromide, leachable	24959-67-9	E243.Br/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0	E381/VA	0.0020	mg/L	0.0140	0.0108	0.0210	0.0030	<0.0020
Chloride, leachable	16887-00-6	E243.Cl/VA	0.50	mg/L	0.69	1.21	0.56	1.05	<0.50
Fluoride, leachable	16984-48-8	E243.F/VA	0.020	mg/L	0.040	0.108	0.028	<0.020	0.066
Nitrite (as N), leachable	14797-65-0	E243.NO2/VA	0.0010	mg/L	0.0034	<0.0010	0.0048	0.0023	<0.0010
Nitrate (as N), leachable	14797-55-8	E243.NO3/VA	0.005	mg/L	0.055	0.027	0.073	0.023	0.025
Sulfate, leachable	14808-79-8	E243.SO4/VA	0.50	mg/L	5.79	24.4	7.10	1.87	43.6
Leachable Metals									
Aluminum, leachable	7429-90-5	E446/VA	0.0050	mg/L	0.205	0.490	0.0975	<0.0050	0.0290
Antimony, leachable	7440-36-0	E446/VA	0.00010	mg/L	0.00028	0.00045	0.00023	0.00010	<0.00010
Arsenic, leachable	7440-38-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3	E446/VA	0.0010	mg/L	0.0046	0.0207	0.0770	0.0657	0.0598
Beryllium, leachable	7440-41-7	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	0.027	<0.010
Cadmium, leachable	7440-43-9	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000066
Calcium, leachable	7440-70-2	E446/VA	0.10	mg/L	9.58	10.7	16.9	11.3	6.33
Chromium, leachable	7440-47-3	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, leachable	7440-48-4	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.0134
Copper, leachable	7440-50-8	E446/VA	0.0010	mg/L	<0.0010	<0.0010	0.0014	<0.0010	<0.0010
Hardness (as CaCO3), dissolved	----	E446/VA	0.60	mg/L	40.6	36.6	56.8	50.0	40.5



Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	K-08-08-122	K-08-10-228.46	K-08-11-21.4	K-08-11-28	K-08-11A-139.8
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-001	VA24A1528-002	VA24A1528-003	VA24A1528-004	VA24A1528-005	
					Result	Result	Result	Result	Result	
Leachable Metals										
Iron, leachable	7439-89-6	E446/VA	0.030	mg/L	<0.030	0.044	0.071	<0.030	2.14	
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	0.0050	0.0061	<0.0050	0.0075	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	4.04	2.39	3.56	5.29	5.99	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.00140	0.00241	0.147	0.0385	0.576	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00152	0.00344	0.00131	0.00152	<0.00010	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.0931	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	7.30	11.7	4.27	0.356	4.10	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	0.00087	0.00226	0.00054	<0.00050	0.00094	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.39	2.01	2.93	1.87	2.15	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.491	3.40	0.948	0.198	0.246	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0209	0.0298	0.0430	0.0121	0.0170	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	2.18	10.4	2.33	0.53	18.3	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000039	0.000287	0.000335	0.000398	0.000630	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	0.0053	<0.0010	<0.0010	<0.0010	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	0.025	

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-08-11A-27	K-08-12-140.79	K-08-17-131	K-08-17-135.8	K-08-17-138
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-006	VA24A1528-007	VA24A1528-008	VA24A1528-009	VA24A1528-010
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	4.9	16.6	<4.0	166
Conductivity, leachable	---E103/VA		2.0	µS/cm	218	158	323	458	524
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	0.30	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	172	208	271	153	360
pH	---E116/VA		0.10	pH units	7.76	5.36	4.77	8.01	3.52
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	62.3	<2.0	<2.0	110	<2.0
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.005	0.115	0.335	0.069	0.119
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.160 ^{DLO}	<0.050	<0.050	0.136	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0098	<0.0020	0.0020	0.0086	<0.0020
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	0.50	<0.50	<0.50	0.68	<0.50
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	0.046	<0.020	0.030	<0.020	0.246
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	0.0034	<0.0010	<0.0010	0.0015	<0.0010
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.073	0.064	0.131	0.312	0.020
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	8.96	63.2	136	80.6	230
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	0.0600	0.0271	0.192	0.0059	5.32
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00038	<0.00010	0.00016	0.00035	<0.00010
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0050
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.183	0.0350	0.0931	0.0350	0.0654
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	0.00139	<0.00050	0.00692
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	0.00210	0.00447	<0.000050	0.00514
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	31.4	13.2	31.4	52.1	10.1
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00492
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	0.00014	0.117	0.143	0.00031	0.117
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	0.0033	<0.0010	0.0140	<0.0010	0.200
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	112	63.0	140	278	67.2
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	0.082	1.04	4.60	<0.030	59.8



Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	K-08-11A-27	K-08-12-140.79	K-08-17-131	K-08-17-135.8	K-08-17-138
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-006	VA24A1528-007	VA24A1528-008	VA24A1528-009	VA24A1528-010	
					Result	Result	Result	Result	Result	
Leachable Metals										
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	0.00395	<0.00010	0.00155	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	0.0098	0.0055	0.0124	<0.0050	0.0294	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	8.15	7.29	15.1	35.8	10.2	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.619	1.13	0.338	0.155	1.70	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00121	<0.00010	<0.00010	0.00077	<0.00010	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	0.217	0.313	0.00200	0.630	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	7.07	2.99	10.1	1.47	8.32	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	0.00078	0.00230	0.00401	0.00091	0.00226	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	4.42	2.02	4.40	2.86	3.85	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	1.70	0.280	1.23	0.097	1.13	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0885	0.00813	0.0535	0.0582	0.0274	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	3.13	22.3	49.4	35.4	76.4	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00025	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000597	0.00113	0.00474	0.00292	0.162	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	0.417	0.124	<0.010	1.68	

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-08-18-325.18	K-10-25-447.35	K-10-26-253	K-10-30-145.42	K-10-32-13.7
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-011	VA24A1528-012	VA24A1528-013	VA24A1528-014	VA24A1528-015
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	208	70.4	133	72.4	75.2
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	199	206	222	222	215
pH	---E116/VA		0.10	pH units	7.72	8.14	7.87	8.57	8.60
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	42.0	28.4	28.5	31.3	26.3
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.038	0.043	0.022	0.029	0.024
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0060	0.0226	0.0042	0.0061	0.0400
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	1.02	<0.50	<0.50	<0.50	1.22
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	0.084	0.047	0.182	<0.020	0.066
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	<0.0010	0.0022	<0.0010	<0.0010	0.0012
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.086	0.036	0.014	0.026	0.044
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	46.9	4.05	30.5	4.29	7.28
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	0.0324	0.438	0.406	0.0096	0.959
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00030	0.00017	0.00012	0.00026	0.00030
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	0.0012	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0827	0.0695	0.0052	0.0092	0.0162
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	0.021	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	10.7	4.96	17.2	9.50	5.40
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00082
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	0.00032	0.00011	<0.00010	<0.00010	0.00015
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0011
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	77.0	22.4	50.5	33.6	16.9
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	0.052	0.180	<0.030	0.034	0.250



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-08-18-325.18	K-10-25-447.35	K-10-26-253	K-10-30-145.42	K-10-32-13.7
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-011	VA24A1528-012	VA24A1528-013	VA24A1528-014	VA24A1528-015
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00027
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	0.0085	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	12.2	2.42	1.83	2.40	0.836
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.239	0.00224	0.0775	0.0770	0.00881
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00071	0.00046	0.00828	0.00078	0.00250
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.00078	0.00056	<0.00050	<0.00050	0.00098
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	24.2	6.68	9.16	2.10	10.3
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	0.00194	<0.00050	<0.00050
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	1.54	3.10	1.88	2.04	3.65
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.610	2.65	1.20	0.198	3.63
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0350	0.00973	0.0177	0.0153	0.0205
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	20.6	1.61	12.3	1.80	2.84
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	0.012	<0.010	<0.010	0.017
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000368	0.000030	0.0164	0.000032	0.000367
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	0.0117	0.0061	<0.0010	0.0032
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-35-187.8	K-10-37A-31	K-10-39A-445	K-10-40-210.18	K-10-48-25.8
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-016	VA24A1528-017	VA24A1528-018	VA24A1528-019	VA24A1528-020
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	265	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	84.6	1010	86.6	59.3	101
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	214	310	193	208	222
pH	---E116/VA		0.10	pH units	8.77	3.95	8.82	8.15	7.48
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	36.6	<2.0	35.3	28.9	19.7
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.031	0.215	0.010	0.008	0.047
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.250 DLDS	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0091	0.0058	0.0105	0.0061	0.0034
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	<0.50	<2.50 DLDS	0.61	<0.50	<0.50
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	<0.020	0.103	0.137	<0.020	0.065
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	0.0021	<0.0050 DLDS	0.0015	0.0042	<0.0010
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.024	0.072	0.038	0.023	0.020
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	3.56	580	4.12	1.27	23.6
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	0.0258	1.73	0.801	<0.0050	0.0935
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00020	<0.00010	0.00036	0.00011	0.00015
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	0.0015	0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0527	0.0875	0.0043	0.0474	0.0043
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	0.00162	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	0.107	<0.010	<0.010	0.017	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	0.00887	<0.000050	<0.000050	<0.000050
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	8.81	60.2	7.66	6.22	7.13
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	0.00066	<0.00050	<0.00050	<0.00050
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	<0.00010	0.724	<0.00010	<0.00010	0.00201
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	<0.0010	0.0735	<0.0010	<0.0010	<0.0010
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	41.4	310	23.1	30.3	33.9
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	0.032	129	0.037	<0.030	<0.030



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-35-187.8	K-10-37A-31	K-10-39A-445	K-10-40-210.18	K-10-48-25.8
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-016	VA24A1528-017	VA24A1528-018	VA24A1528-019	VA24A1528-020
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	0.00060	<0.00010	<0.00010	<0.00010
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	0.0454	<0.0050	<0.0050	<0.0050
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	4.70	38.9	0.972	3.59	3.90
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.0397	4.27	0.00397	0.234	0.207
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00239	<0.00010	0.00253	0.00227	0.00066
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	2.22	<0.00050	<0.00050	0.0194
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	3.22	24.7	12.5	0.422	9.18
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	0.00196	0.00465	<0.00050	<0.00050	0.00143
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.37	5.98	2.11	1.88	1.53
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.354	2.10	1.13	0.128	1.58
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0173	0.0909	0.0158	0.00880	0.0108
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	1.89	201	2.18	<0.50	9.37
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	0.00040	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000436	0.0338	0.00108	0.000016	0.000304
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	0.0051	<0.0010	<0.0010
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	2.26	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-48-205.7	K-10-48-384.5	K-10-49-294.5	K-10-51-268.25	K-10-52-308.3
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-021	VA24A1528-022	VA24A1528-023	VA24A1528-024	VA24A1528-025
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	82.1	81.8	110	126	69.6
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	210	235	186	204	205
pH	---E116/VA		0.10	pH units	7.78	7.27	7.98	6.95	7.51
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	24.9	13.6	53.7	29.1	19.0
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.043	0.046	0.014	0.182	0.046
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0145	0.0066	<0.0020	<0.0020	0.0190
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	0.96	<0.50	1.72	<0.50	1.23
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	0.137	0.049	<0.020	<0.020	0.158
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0122	0.0023
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.028	0.047	0.010	0.124	0.060
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	10.4	17.6	1.77	1.44	8.03
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	0.903	0.289	0.0239	<0.0050	0.739
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00029	0.00019	0.00012	<0.00010	0.00038
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0012
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0048	0.0051	0.0068	0.974	0.0079
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	0.000115	<0.000050
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	7.08	4.43	8.89	13.6	2.80
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	<0.00010	0.00019	<0.00010	0.00024	<0.00010
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	21.7	23.6	60.2	59.8	12.6
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	0.052	0.133	<0.030	<0.030	0.123



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-48-205.7	K-10-48-384.5	K-10-49-294.5	K-10-51-268.25	K-10-52-308.3
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-021	VA24A1528-022	VA24A1528-023	VA24A1528-024	VA24A1528-025
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	0.00018	<0.00010	<0.00010	0.00010	0.00019
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0053
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	0.969	3.04	9.24	6.27	1.37
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.00242	0.0200	0.00193	0.620	0.00432
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00265	0.00655	0.00063	<0.00010	0.00195
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.00056	<0.00050	<0.00050	0.00107	0.00065
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	9.36	8.94	0.802	1.70	10.5
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	0.00188	0.00164	<0.00050	<0.00050	0.00213
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.59	1.64	1.14	2.00	2.69
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	1.79	0.513	0.310	0.825	2.69
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.00948	0.00992	0.0112	0.0675	0.00681
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	4.44	7.22	1.01	0.55	3.35
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000615	0.000170	0.00195	<0.000010	0.000226
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	0.0036	<0.0010	<0.0010	<0.0010	0.0022
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-52-477.46	K-10-53-77.8	K-10-54-122.7	K-10-54-125.7	K-10-54-160.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-026	VA24A1528-027	VA24A1528-028	VA24A1528-029	VA24A1528-030
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	249	180
Conductivity, leachable	---E103/VA		2.0	µS/cm	122	84.3	1240	545	71.3
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	190	188	337	352	212
pH	---E116/VA		0.10	pH units	8.06	7.80	3.71	3.58	6.70
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	61.8	25.6	<2.0	<2.0	12.0
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.010	0.021	0.291	0.143	0.033
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.250 ^{DLDS}	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0026	0.0113	<0.0020	<0.0033 ^{DLM}	0.0023
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	1.30	1.09	<2.50 ^{DLDS}	<0.50	<0.50
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	<0.020	0.152	0.165	0.255	<0.020
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0050 ^{DLDS}	<0.0010	0.0082
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.007	0.020	0.076	0.011	0.162
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	<0.50	10.4	669	247	5.35
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	<0.0050	1.20	<0.0050	3.14	5.87
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00015	0.00056	<0.00010	<0.00050 ^{DLA}	<0.00010
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	0.0032	<0.0010	<0.0050 ^{DLA}	0.0016
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0406	0.0039	0.0083	0.106	0.0332
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00752	0.00558
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00250 ^{DLA}	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.050 ^{DLA}	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	0.00625	0.00471
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	12.5	6.62	6.02	112	7.86
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00270	0.00342
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	<0.00010	<0.00010	0.00022	0.755	0.0937
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0956	0.537
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	60.8	19.8	23.1	470	58.3
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	<0.030	0.096	<0.030	109	66.4



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID	K-10-52-477.46	K-10-53-77.8	K-10-54-122.7	K-10-54-125.7	K-10-54-160.5
(Matrix: Soil/Solid)										
					Client sampling date / time	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-026	VA24A1528-027	VA24A1528-028	VA24A1528-029	VA24A1528-030	
					Result	Result	Result	Result	Result	
Leachable Metals										
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	0.00028	<0.00010	0.00368	0.00155	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	0.0268	0.0266	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	7.19	0.782	1.95	46.3	9.40	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.00253	0.00533	0.108	16.3	1.80	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00054	0.00392	<0.00010	<0.00050 DLA	<0.00010	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	<0.00050	0.00097	0.980	0.541	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<1.50 DLA	<0.30	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	3.01	11.8	5.90	10.9	7.38	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	0.00112	<0.00050	0.00579	0.00187	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	1.40	3.55	3.77	6.95	4.26	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000250 DLA	<0.000050	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.184	2.07	1.43	2.50	1.12	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0104	0.0100	0.00966	0.166	0.0215	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	<0.50	4.61	1.35	238	80.5	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	0.00015	<0.00050 DLA	0.00030	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00250 DLA	<0.00050	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	0.013	<0.010	<0.050 DLA	<0.010	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000043	0.00176	<0.000010	0.122	0.418	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	0.0080	<0.0010	<0.0050 DLA	<0.0010	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	0.820	1.91	

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-57-107.4	K-10-58-17.5	K-10-58-18.45	K-10-58-21.97	K-10-58-24.28
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-031	VA24A1528-032	VA24A1528-033	VA24A1528-034	VA24A1528-035
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	----	E285/VA	4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	----	E103/VA	2.0	µS/cm	86.5	26.7	28.6	79.7	37.8
Moisture	----	E144/VA	0.25	%	0.36	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	----	E127/VA	0.10	mV	195	230	246	160	234
pH	----	E116/VA	0.10	pH units	7.79	7.23	7.08	7.92	7.26
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	----	E294/VA	2.0	mg/L	40.2	10.7	10.0	41.2	13.0
Ammonia, total, leachable (as N)	7664-41-7	E300/VA	0.005	mg/L	0.012	0.007	0.039	0.014	0.098
Bromide, leachable	24959-67-9	E243.Br/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0	E381/VA	0.0020	mg/L	0.0044	0.0255	0.0126	0.0028	0.0717
Chloride, leachable	16887-00-6	E243.Cl/VA	0.50	mg/L	2.08	0.88	1.61	1.66	2.83
Fluoride, leachable	16984-48-8	E243.F/VA	0.020	mg/L	0.046	0.021	<0.020	<0.020	<0.030 ^{DLO}
Nitrite (as N), leachable	14797-65-0	E243.NO2/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0022	<0.0010
Nitrate (as N), leachable	14797-55-8	E243.NO3/VA	0.005	mg/L	<0.005	0.032	0.025	0.012	0.054
Sulfate, leachable	14808-79-8	E243.SO4/VA	0.50	mg/L	1.07	<0.50	<0.50	<0.50	<0.50
Leachable Metals									
Aluminum, leachable	7429-90-5	E446/VA	0.0050	mg/L	0.0570	0.337	0.0529	<0.0050	0.112
Antimony, leachable	7440-36-0	E446/VA	0.00010	mg/L	<0.00010	0.00052	0.00026	0.00025	0.00067
Arsenic, leachable	7440-38-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3	E446/VA	0.0010	mg/L	0.0213	0.0054	0.0017	0.0025	0.0156
Beryllium, leachable	7440-41-7	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8	E446/VA	0.010	mg/L	0.012	<0.010	<0.010	<0.010	0.010
Cadmium, leachable	7440-43-9	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium, leachable	7440-70-2	E446/VA	0.10	mg/L	10.0	1.83	3.02	6.88	3.51
Chromium, leachable	7440-47-3	E446/VA	0.00050	mg/L	<0.00050	0.00054	<0.00050	<0.00050	<0.00050
Cobalt, leachable	7440-48-4	E446/VA	0.00010	mg/L	<0.00010	0.00051	0.00028	<0.00010	0.00020
Copper, leachable	7440-50-8	E446/VA	0.0010	mg/L	<0.0010	0.0013	0.0100	<0.0010	<0.0010
Hardness (as CaCO3), dissolved	----	E446/VA	0.60	mg/L	39.0	7.39	12.3	44.1	14.9
Iron, leachable	7439-89-6	E446/VA	0.030	mg/L	0.128	0.530	0.675	<0.030	0.241



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-57-107.4	K-10-58-17.5	K-10-58-18.45	K-10-58-21.97	K-10-58-24.28
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-031	VA24A1528-032	VA24A1528-033	VA24A1528-034	VA24A1528-035
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	0.00044	0.00025	<0.00010	<0.00010
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	3.41	0.684	1.16	6.53	1.50
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.0880	0.0371	0.0650	0.00105	0.0314
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00056	0.00233	0.00327	0.00046	0.00245
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	0.00089	<0.00050	<0.00050	0.00058
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	2.89	3.48	1.22	0.695	1.15
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.26	4.27	4.96	4.44	7.79
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.383	0.696	0.609	0.381	0.894
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0105	0.00278	0.00438	0.00641	0.00788
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	0.013	<0.010	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000035	0.000115	0.000053	0.000025	0.000090
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	0.0013	<0.0010	0.0048	0.0019
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-58-30.48	K-10-58-36.5	K-10-58-46.5	K-10-58-57	K-10-59-175.4
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-036	VA24A1528-037	VA24A1528-038	VA24A1528-039	VA24A1528-040
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	--- E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	--- E103/VA		2.0	µS/cm	39.1	23.3	19.5	22.1	507
Moisture	--- E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	0.30
Oxidation-reduction potential [ORP], leachable	--- E127/VA		0.10	mV	252	265	271	272	200
pH	--- E116/VA		0.10	pH units	7.22	7.19	7.05	7.11	8.19
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	--- E294/VA		2.0	mg/L	15.1	9.9	7.4	8.4	104
Ammonia, total, leachable (as N)	7664-41-7 E300/VA		0.005	mg/L	0.301	0.048	0.046	0.032	0.023
Bromide, leachable	24959-67-9 E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0 E381/VA		0.0020	mg/L	0.0587	0.0238	0.0330	0.0468	0.0038
Chloride, leachable	16887-00-6 E243.Cl/VA		0.50	mg/L	1.63	0.64	1.03	1.48	<0.50
Fluoride, leachable	16984-48-8 E243.F/VA		0.020	mg/L	<0.030 ^{DLO}	<0.020	<0.020	<0.020	<0.020
Nitrite (as N), leachable	14797-65-0 E243.NO2/VA		0.0010	mg/L	0.0018	<0.0010	<0.0010	<0.0010	<0.0010
Nitrate (as N), leachable	14797-55-8 E243.NO3/VA		0.005	mg/L	0.126	<0.005	0.031	<0.005	0.071
Sulfate, leachable	14808-79-8 E243.SO4/VA		0.50	mg/L	0.62	<0.50	<0.50	<0.50	141
Leachable Metals									
Aluminum, leachable	7429-90-5 E446/VA		0.0050	mg/L	0.179	0.131	0.0707	0.150	<0.0050
Antimony, leachable	7440-36-0 E446/VA		0.00010	mg/L	0.00103	0.00074	0.00033	0.00044	<0.00010
Arsenic, leachable	7440-38-2 E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0017
Barium, leachable	7440-39-3 E446/VA		0.0010	mg/L	0.0040	0.0056	0.0032	0.0140	0.0516
Beryllium, leachable	7440-41-7 E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9 E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8 E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	0.013
Cadmium, leachable	7440-43-9 E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000267
Calcium, leachable	7440-70-2 E446/VA		0.10	mg/L	3.94	2.58	1.86	2.32	58.0
Chromium, leachable	7440-47-3 E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00059	<0.00050
Cobalt, leachable	7440-48-4 E446/VA		0.00010	mg/L	0.00093	0.00072	0.00066	0.00204	0.00176
Copper, leachable	7440-50-8 E446/VA		0.0010	mg/L	0.0034	<0.0010	<0.0010	<0.0010	<0.0010
Hardness (as CaCO3), dissolved	--- E446/VA		0.60	mg/L	17.8	11.3	8.07	9.59	291
Iron, leachable	7439-89-6 E446/VA		0.030	mg/L	0.706	0.656	0.168	0.246	<0.030



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID	K-10-58-30.48	K-10-58-36.5	K-10-58-46.5	K-10-58-57	K-10-59-175.4
(Matrix: Soil/Solid)										
					Client sampling date / time	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24A1528-036	VA24A1528-037	VA24A1528-038	VA24A1528-039	VA24A1528-040
						Result	Result	Result	Result	Result
Leachable Metals										
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L		0.00172	0.00015	<0.00010	0.00046	<0.00010
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L		1.93	1.17	0.833	0.922	35.5
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L		0.0724	0.0698	0.0612	0.0607	0.374
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L		0.00197	0.00178	0.00049	0.00054	0.00032
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L		0.00123	0.00126	0.00107	0.00127	0.0131
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L		0.975	0.370	0.652	0.360	2.32
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	0.00081
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L		3.57	5.40	2.84	12.8	3.27
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L		0.707	0.166	0.308	0.397	0.177
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L		0.00575	0.00521	0.00415	0.00858	0.0454
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	57.2
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L		0.000108	0.000053	0.000016	0.000046	0.00289
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L		0.0013	0.0013	<0.0010	<0.0010	<0.0010
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-59-182.98	K-10-61-258.7	K-10-61-263.24	K-10-61-266.85	K-10-61-306.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-041	VA24A1528-042	VA24A1528-043	VA24A1528-044	VA24A1528-045
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	309	255	116	130	244
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	1.07
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	174	197	209	204	202
pH	---E116/VA		0.10	pH units	8.12	7.57	7.90	8.03	8.29
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	92.4	32.8	50.8	63.2	116
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.061	0.239	0.015	0.009	<0.005
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	0.082	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0061	0.0057	0.0051	0.0100	0.0136
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	3.96	1.54	2.87	2.58	6.56
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	<0.020	0.085	<0.020	<0.020	0.156
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	0.0023	<0.0010	0.0016	0.0028	0.0046
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.054	0.123	0.040	0.053	0.076
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	42.3	82.8	3.44	0.90	2.17
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	<0.0050	0.0199	0.0066	<0.0050	<0.0050
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00012	0.00074	0.00017	0.00014	0.00028
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0986	0.0196	0.0079	0.0084	0.0053
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	0.030	0.371
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	42.4	21.2	16.7	16.8	18.7
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	<0.00010	0.00573	<0.00010	<0.00010	<0.00010
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	176	112	61.2	73.2	142
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-59-182.98	K-10-61-258.7	K-10-61-263.24	K-10-61-266.85	K-10-61-306.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-041	VA24A1528-042	VA24A1528-043	VA24A1528-044	VA24A1528-045
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	0.0072	<0.0050	<0.0050	<0.0050
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	17.0	14.3	4.73	7.58	23.2
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.0474	0.220	0.0261	0.0150	0.0551
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00064	0.0117	0.00227	0.00052	0.00036
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	0.0484	<0.00050	<0.00050	<0.00050
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	2.06	11.2	0.712	0.616	0.158
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	0.00364	<0.00050	<0.00050	<0.00050
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	5.64	2.57	3.30	1.14	6.76
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	0.000053	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.384	2.75	0.394	0.346	0.180
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0992	0.0317	0.0438	0.0873	0.0380
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	18.0	31.6	1.57	<0.50	0.78
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	0.00013	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000795	0.000472	0.000352	0.000027	0.000012
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-61-323.5	K-10-61-34	K-10-63-117.5	K-10-63-124.4	K-10-70-189
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-046	VA24A1528-047	VA24A1528-048	VA24A1528-049	VA24A1528-050
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	183	79.0	81.7	88.2	78.0
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	213	138	152	166	250
pH	---E116/VA		0.10	pH units	7.66	8.10	7.97	7.73	6.90
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	38.0	35.7	35.1	35.2	6.5
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.073	0.010	0.019	0.013	0.042
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0167	0.0103	0.0183	0.0076	0.0038
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	<0.50	4.51	1.19	2.85	<0.50
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	<0.050 ^{DLCI}	<0.020	0.106	<0.020	0.111
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	0.0013	<0.0010	0.0049	<0.0010	<0.0010
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.181	0.011	0.027	0.032	0.025
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	36.0	<0.50	1.68	3.61	22.2
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	0.0889	<0.0050	1.62	0.0376	0.210
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00055	0.00010	0.00076	0.00080	0.00020
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0013	<0.0010
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0096	0.0084	0.0116	0.195	0.0062
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	0.014	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	16.8	6.23	3.96	8.43	2.83
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00050	0.00057	<0.00050	<0.00050
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	0.00030	<0.00010	<0.00010	<0.00010	0.00019
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	79.4	37.9	13.6	40.4	13.5
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	0.032	<0.030	0.970	<0.030	0.091



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-61-323.5	K-10-61-34	K-10-63-117.5	K-10-63-124.4	K-10-70-189
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-046	VA24A1528-047	VA24A1528-048	VA24A1528-049	VA24A1528-050
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	0.00022	<0.00010	0.00012
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	0.0067	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	9.09	5.43	0.907	4.70	1.57
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.104	<0.00050	0.00738	0.0164	0.0544
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.0299	0.00015	0.00058	0.0139	0.00242
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.00489	<0.00050	<0.00050	<0.00050	0.00147
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	9.14	0.360	21.1	3.13	11.4
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	0.00302	<0.00050	<0.00050	<0.00050	0.00102
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.26	0.780	5.62	1.92	2.41
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.860	1.69	0.558	0.652	1.74
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0304	0.00900	0.00561	0.0373	0.00630
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	11.4	<0.50	0.74	1.64	8.43
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	0.022	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.00140	0.000011	0.000302	0.000061	0.000589
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	0.0012	<0.0010	0.0014
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID	K-10-70-74.46	K-10-78-29.9	K-10-83-39.5	----	----
(Matrix: Soil/Solid)										
					Client sampling date / time	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	----	----
Analyte		CAS Number	Method/Lab	LOR	Unit	VA24A1528-051	VA24A1528-052	VA24A1528-053	-----	-----
						Result	Result	Result	----	----
Physical Tests										
Acidity, leachable (as CaCO3)		----	E285/VA	4.0	mg/L	<4.0	<4.0	<4.0	----	----
Conductivity, leachable		----	E103/VA	2.0	µS/cm	85.5	92.2	62.8	----	----
Moisture		----	E144/VA	0.25	%	<0.25	<0.25	<0.25	----	----
Oxidation-reduction potential [ORP], leachable		----	E127/VA	0.10	mV	194	224	168	----	----
pH		----	E116/VA	0.10	pH units	7.97	7.64	7.87	----	----
Leachable Anions & Nutrients										
Alkalinity, total (as CaCO3), leachable		----	E294/VA	2.0	mg/L	44.2	39.3	31.3	----	----
Ammonia, total, leachable (as N)		7664-41-7	E300/VA	0.005	mg/L	0.010	0.150	0.023	----	----
Bromide, leachable		24959-67-9	E243.Br/VA	0.050	mg/L	<0.050	<0.050	<0.050	----	----
Phosphorus, total dissolved		7723-14-0	E381/VA	0.0020	mg/L	0.0075	0.0095	0.0097	----	----
Chloride, leachable		16887-00-6	E243.Cl/VA	0.50	mg/L	0.94	<0.50	<0.50	----	----
Fluoride, leachable		16984-48-8	E243.F/VA	0.020	mg/L	<0.020	<0.020	<0.070 ^{DLCI}	----	----
Nitrite (as N), leachable		14797-65-0	E243.NO2/VA	0.0010	mg/L	0.0026	0.0113	0.0027	----	----
Nitrate (as N), leachable		14797-55-8	E243.NO3/VA	0.005	mg/L	0.019	0.104	0.028	----	----
Sulfate, leachable		14808-79-8	E243.SO4/VA	0.50	mg/L	<0.50	0.83	<0.50	----	----
Leachable Metals										
Aluminum, leachable		7429-90-5	E446/VA	0.0050	mg/L	<0.0050	0.0055	0.0225	----	----
Antimony, leachable		7440-36-0	E446/VA	0.00010	mg/L	<0.00010	0.00086	0.00013	----	----
Arsenic, leachable		7440-38-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----
Barium, leachable		7440-39-3	E446/VA	0.0010	mg/L	0.0046	<0.0010	0.0216	----	----
Beryllium, leachable		7440-41-7	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
Bismuth, leachable		7440-69-9	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
Boron, leachable		7440-42-8	E446/VA	0.010	mg/L	0.013	<0.010	<0.010	----	----
Cadmium, leachable		7440-43-9	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----
Calcium, leachable		7440-70-2	E446/VA	0.10	mg/L	10.7	12.8	6.96	----	----
Chromium, leachable		7440-47-3	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
Cobalt, leachable		7440-48-4	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----
Copper, leachable		7440-50-8	E446/VA	0.0010	mg/L	<0.0010	<0.0010	0.0013	----	----
Hardness (as CaCO3), dissolved		----	E446/VA	0.60	mg/L	43.0	48.6	30.3	----	----
Iron, leachable		7439-89-6	E446/VA	0.030	mg/L	<0.030	<0.030	<0.030	----	----



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID	K-10-70-74.46	K-10-78-29.9	K-10-83-39.5	----	----
(Matrix: Soil/Solid)										
					Client sampling date / time	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1528-051	VA24A1528-052	VA24A1528-053	-----	-----	
					Result	Result	Result	----	----	
Leachable Metals										
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	----	----	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	3.96	4.05	3.13	----	----	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.0179	0.00605	0.0108	----	----	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00129	0.0111	0.00094	----	----	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	----	----	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	1.60	1.06	1.99	----	----	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.35	2.42	3.27	----	----	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.294	0.602	0.248	----	----	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.00926	0.0181	0.0119	----	----	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	<0.50	<0.50	<0.50	----	----	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	----	----	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000024	0.000134	0.000043	----	----	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	----	----	

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

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA24A1528	Page	: 1 of 102
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 24-Jan-2024 12:00
PO	: ----	Issue Date	: 08-Feb-2024 17:22
C-O-C number	: ----		
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKC1100-003		
No. of samples received	: 53		
No. of samples analysed	: 53		

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

Key

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

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Leachable Anions & Nutrients	VA24A1528-041	K-10-59-182.98	Ammonia, total, leachable (as N)	7664-41-7	E300	0.026 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Leachable Metals	VA24A1528-041	K-10-59-182.98	Manganese, leachable	7439-96-5	E446	50.9 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	VA24A1528-001	K-08-08-122	Molybdenum, leachable	7439-98-7	E446	41.9 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	VA24A1528-041	K-10-59-182.98	Molybdenum, leachable	7439-98-7	E446	0.00034 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Leachable Metals	VA24A1528-041	K-10-59-182.98	Potassium, leachable	7440-09-7	E446	70.4 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	VA24A1528-041	K-10-59-182.98	Sulfur, leachable	7704-34-9	E446	31.8 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	VA24A1528-041	K-10-59-182.98	Uranium, leachable	7440-61-1	E446	54.7 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Soil/Solid**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✔	06-Feb-2024	30 days	13 days	✔
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✔	06-Feb-2024	30 days	13 days	✔
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✔	06-Feb-2024	30 days	13 days	✔
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✔	06-Feb-2024	30 days	13 days	✔
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✔	06-Feb-2024	30 days	13 days	✔
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✔	06-Feb-2024	30 days	13 days	✔
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✔	06-Feb-2024	30 days	13 days	✔



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E285	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E285	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E294	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E294	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E300	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	03-Feb-2024	3 days	10 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E300	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	05-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E243.Br	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E243.Br	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

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Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E243.Cl	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	01-Feb-2024	30 days	9 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E243.Cl	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E243.F	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E243.F	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✓



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	12 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E243.NO3	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E243.NO3	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E243.NO2	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	01-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis				
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-58-46.5	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-58-57	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-59-175.4	E243.NO2	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-59-182.98	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-61-258.7	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-61-263.24	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-61-266.85	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-61-306.5	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-61-323.5	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E243.SO4	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E243.SO4	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E381	24-Jan-2024	31-Jan-2024	3 days	7 days	✖ EHT	02-Feb-2024	3 days	9 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E381	24-Jan-2024	01-Feb-2024	3 days	8 days	✖ EHT	06-Feb-2024	3 days	13 days	✖ EHT
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E515	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	01-Feb-2024	28 days	9 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E515	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	03-Feb-2024	28 days	10 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E446	24-Jan-2024	31-Jan-2024	180 days	7 days	✓	02-Feb-2024	180 days	9 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E446	24-Jan-2024	01-Feb-2024	180 days	8 days	✓	04-Feb-2024	180 days	11 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E103	24-Jan-2024	31-Jan-2024	28 days	7 days	✓	02-Feb-2024	28 days	9 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E103	24-Jan-2024	01-Feb-2024	28 days	8 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-08-08-122	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-08-10-228.46	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-08-11-21.4	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-08-11-28	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-08-11A-139.8	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-08-11A-27	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-08-12-140.79	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-08-17-131	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-08-17-135.8	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-08-17-138	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-08-18-325.18	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-25-447.35	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-26-253	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-30-145.42	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-32-13.7	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-35-187.8	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-37A-31	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-39A-445	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-40-210.18	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-48-205.7	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-48-25.8	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-48-384.5	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-49-294.5	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-51-268.25	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-52-308.3	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-52-477.46	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-53-77.8	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-54-122.7	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-54-125.7	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-54-160.5	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-57-107.4	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-58-17.5	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-58-18.45	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-58-21.97	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-58-24.28	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-58-30.48	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-58-36.5	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-58-46.5	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-58-57	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-59-175.4	E144	24-Jan-2024	----	----	----		29-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-59-182.98	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-61-258.7	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-61-263.24	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-61-266.85	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-61-306.5	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-61-323.5	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-61-34	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-63-117.5	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-63-124.4	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-70-189	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-70-74.46	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-78-29.9	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-83-39.5	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	14 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E127	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	04-Feb-2024	30 days	11 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E127	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	05-Feb-2024	30 days	12 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-182.98	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-258.7	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-263.24	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-266.85	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-306.5	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-323.5	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-61-34	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-117.5	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-63-124.4	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-189	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-70-74.46	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-78-29.9	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-39.5	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-08-122	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-10-228.46	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-21.4	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11-28	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-139.8	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-11A-27	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-12-140.79	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-131	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-135.8	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-17-138	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-08-18-325.18	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-25-447.35	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-26-253	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-30-145.42	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-32-13.7	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-35-187.8	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-37A-31	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-39A-445	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-40-210.18	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-25.8	E116	24-Jan-2024	31-Jan-2024	30 days	7 days	✓	02-Feb-2024	30 days	9 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-205.7	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-48-384.5	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-49-294.5	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-51-268.25	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-308.3	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-52-477.46	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-53-77.8	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-122.7	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-125.7	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-54-160.5	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-57-107.4	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-17.5	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-18.45	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-21.97	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-24.28	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-30.48	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-36.5	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-46.5	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-58-57	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-59-175.4	E116	24-Jan-2024	01-Feb-2024	30 days	8 days	✓	06-Feb-2024	30 days	13 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

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

Matrix: **Soil/Solid**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1317445	3	60	5.0	5.0	✔
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1317446	3	60	5.0	5.0	✔
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300	1317456	3	60	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1317453	3	60	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1317452	3	60	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1317451	3	60	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1317455	3	60	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1317454	3	60	5.0	5.0	✔
Moisture Content by Gravimetry	E144	1316469	3	60	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1317449	3	60	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1317450	3	60	5.0	5.0	✔
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127	1317444	3	53	5.6	5.0	✔
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	1317443	3	60	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1317448	3	60	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1317447	3	60	5.0	5.0	✔
Laboratory Control Samples (LCS)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1317445	3	60	5.0	5.0	✔
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1317446	3	60	5.0	5.0	✔
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300	1317456	3	60	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1317453	3	60	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1317452	3	60	5.0	5.0	✔
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	1317442	3	60	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1317451	3	60	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1317455	3	60	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1317454	3	60	5.0	5.0	✔
Moisture Content by Gravimetry	E144	1316469	3	60	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1317449	3	60	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1317450	3	60	5.0	5.0	✔
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127	1317444	3	53	5.6	5.0	✔
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	1317443	3	60	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1317448	3	60	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1317447	3	60	5.0	5.0	✔
Method Blanks (MB)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1317445	3	60	5.0	5.0	✔



Matrix: Soil/Solid

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1317446	3	60	5.0	5.0	✔
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300	1317456	3	60	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1317453	3	60	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1317452	3	60	5.0	5.0	✔
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	1317442	3	60	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1317451	3	60	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1317455	3	60	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1317454	3	60	5.0	5.0	✔
Moisture Content by Gravimetry	E144	1316469	3	60	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1317449	3	60	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1317450	3	60	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1317448	3	60	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1317447	3	60	5.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300	1317456	3	60	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1317453	3	60	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1317452	3	60	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1317451	3	60	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1317455	3	60	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1317454	3	60	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1317449	3	60	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1317450	3	60	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1317448	3	60	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1317447	3	60	5.0	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. Conductivity measurements are temperature-compensated to 25°C.
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^\circ\text{C}$) on an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. The pH is then measured by a standard pH probe.
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/ASTM D1498 (mod)	Oxidation reduction potential is reported as the oxidation-reduction potential (measured in mV) of the platinum metal-reference electrode employed in the analysis of an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.S04 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 2310 B (mod)	Acidity is determined by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by potentiometric titration to a specified endpoint.
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by autotitration
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia is analyzed by flow-injection analysis with fluorescence detection by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis.
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381 ALS Environmental - Vancouver	Soil/Solid	MEND/APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer on an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered and digested prior to analysis.
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES/EPA 6020B (mod)	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by Collision/Reaction Cell ICPMS. This extraction is an empirical procedure with pre-defined characteristics. Recovery of some elements (Ag, Bi, and Sn) by this method can be variable due to the neutral pH of the extraction fluid, and therefore the LCS DQOs has been established at 50-130% for these elements.
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES/EPA 1631E (mod)	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by CVAAS. This extraction is an empirical procedure with pre-defined characteristics. Recovery of mercury can be variable due to the neutral pH of the extraction fluid, and therefore the LCS DQO has been established at 50-130%.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Shakeflask Leachate Preparation (3:1 Ratio with Water)	EP446 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES	A sample is extracted with water at a 3:1 liquid to solids ratio for 24 hours, then filtered through a 0.45 micron membrane filter.

QUALITY CONTROL REPORT

Work Order	: VA24A1528	Page	: 1 of 25
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 24-Jan-2024 12:00
PO	: ----	Date Analysis Commenced	: 29-Jan-2024
C-O-C number	: ----	Issue Date	: 08-Feb-2024 17:22
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKCI100-003		
No. of samples received	: 53		
No. of samples analysed	: 53		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	Position	Laboratory Department
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Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
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Tracy Harley	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia



General Comments

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

Key :

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

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

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

Workorder Comments

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



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1316469)											
VA24A1528-001	K-08-08-122	Moisture	----	E144	0.25	%	<0.25	<0.25	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1316535)											
VA24A1528-021	K-10-48-205.7	Moisture	----	E144	0.25	%	<0.25	<0.25	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1317337)											
VA24A1528-041	K-10-59-182.98	Moisture	----	E144	0.25	%	<0.25	<0.25	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1317443)											
VA24A1528-001	K-08-08-122	pH	----	E116	0.10	pH units	8.84	8.64	2.29%	5%	----
Physical Tests (QC Lot: 1317444)											
VA24A1528-001	K-08-08-122	Oxidation-reduction potential [ORP], leachable	----	E127	0.10	mV	194	195	0.257%	30%	----
Physical Tests (QC Lot: 1318654)											
VA24A1528-021	K-10-48-205.7	pH	----	E116	0.10	pH units	7.78	7.68	1.29%	5%	----
Physical Tests (QC Lot: 1318655)											
VA24A1528-021	K-10-48-205.7	Oxidation-reduction potential [ORP], leachable	----	E127	0.10	mV	210	211	0.856%	30%	----
Physical Tests (QC Lot: 1318980)											
VA24A1528-041	K-10-59-182.98	pH	----	E116	0.10	pH units	8.12	8.02	1.24%	5%	----
Physical Tests (QC Lot: 1318981)											
VA24A1528-041	K-10-59-182.98	Oxidation-reduction potential [ORP], leachable	----	E127	0.10	mV	174	176	1.03%	30%	----
Leachable Anions & Nutrients (QC Lot: 1317445)											
VA24A1528-001	K-08-08-122	Acidity, leachable (as CaCO3)	----	E285	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1317446)											
VA24A1528-001	K-08-08-122	Alkalinity, total (as CaCO3), leachable	----	E294	2.0	mg/L	33.2	32.0	3.68%	25%	----
Leachable Anions & Nutrients (QC Lot: 1317447)											
VA24A1528-001	K-08-08-122	Phosphorus, total dissolved	7723-14-0	E381	0.0020	mg/L	0.0140	0.0116	0.0023	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1317448)											
VA24A1528-001	K-08-08-122	Sulfate, leachable	14808-79-8	E243.SO4	0.50	mg/L	5.79	5.39	7.21%	30%	----
Leachable Anions & Nutrients (QC Lot: 1317449)											
VA24A1528-001	K-08-08-122	Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.055	0.048	11.9%	30%	----
Leachable Anions & Nutrients (QC Lot: 1317450)											

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 Work Order : VA24A1528
 Client : O'Kane Consultants Inc.
 Project : ----



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Anions & Nutrients (QC Lot: 1317450) - continued											
VA24A1528-001	K-08-08-122	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.0010	mg/L	0.0034	0.0027	0.0007	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1317451)											
VA24A1528-001	K-08-08-122	Fluoride, leachable	16984-48-8	E243.F	0.020	mg/L	0.040	0.035	0.005	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1317452)											
VA24A1528-001	K-08-08-122	Chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L	0.69	0.63	0.06	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1317453)											
VA24A1528-001	K-08-08-122	Bromide, leachable	24959-67-9	E243.Br	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1317456)											
VA24A1528-001	K-08-08-122	Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.069	0.064	8.27%	20%	----
Leachable Anions & Nutrients (QC Lot: 1318652)											
VA24A1528-021	K-10-48-205.7	Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.043	0.046	0.002	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318656)											
VA24A1528-021	K-10-48-205.7	Acidity, leachable (as CaCO3)	----	E285	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318657)											
VA24A1528-021	K-10-48-205.7	Alkalinity, total (as CaCO3), leachable	----	E294	2.0	mg/L	24.9	24.2	2.85%	25%	----
Leachable Anions & Nutrients (QC Lot: 1318658)											
VA24A1528-021	K-10-48-205.7	Phosphorus, total dissolved	7723-14-0	E381	0.0020	mg/L	0.0145	0.0137	5.18%	30%	----
Leachable Anions & Nutrients (QC Lot: 1318659)											
VA24A1528-021	K-10-48-205.7	Sulfate, leachable	14808-79-8	E243.SO4	0.50	mg/L	10.4	11.7	12.0%	30%	----
Leachable Anions & Nutrients (QC Lot: 1318660)											
VA24A1528-021	K-10-48-205.7	Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.028	0.031	0.003	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318661)											
VA24A1528-021	K-10-48-205.7	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318662)											
VA24A1528-021	K-10-48-205.7	Fluoride, leachable	16984-48-8	E243.F	0.020	mg/L	0.137	0.134	2.00%	30%	----
Leachable Anions & Nutrients (QC Lot: 1318663)											
VA24A1528-021	K-10-48-205.7	Chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L	0.96	1.00	0.04	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318664)											
VA24A1528-021	K-10-48-205.7	Bromide, leachable	24959-67-9	E243.Br	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318978)											
VA24A1528-041	K-10-59-182.98	Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.061	# 0.036	0.026	Diff <2x LOR	DUP-H
Leachable Anions & Nutrients (QC Lot: 1318982)											
VA24A1528-041	K-10-59-182.98	Acidity, leachable (as CaCO3)	----	E285	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Anions & Nutrients (QC Lot: 1318983)											
VA24A1528-041	K-10-59-182.98	Alkalinity, total (as CaCO3), leachable	----	E294	2.0	mg/L	92.4	73.2	23.2%	25%	----
Leachable Anions & Nutrients (QC Lot: 1318984)											
VA24A1528-041	K-10-59-182.98	Phosphorus, total dissolved	7723-14-0	E381	0.0020	mg/L	0.0061	0.0068	0.0006	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318985)											
VA24A1528-041	K-10-59-182.98	Sulfate, leachable	14808-79-8	E243.SO4	0.50	mg/L	42.3	35.0	19.0%	30%	----
Leachable Anions & Nutrients (QC Lot: 1318986)											
VA24A1528-041	K-10-59-182.98	Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.054	0.049	8.73%	30%	----
Leachable Anions & Nutrients (QC Lot: 1318987)											
VA24A1528-041	K-10-59-182.98	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.0010	mg/L	0.0023	<0.0010	0.0013	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318988)											
VA24A1528-041	K-10-59-182.98	Fluoride, leachable	16984-48-8	E243.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318989)											
VA24A1528-041	K-10-59-182.98	Chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L	3.96	3.69	7.06%	30%	----
Leachable Anions & Nutrients (QC Lot: 1318990)											
VA24A1528-041	K-10-59-182.98	Bromide, leachable	24959-67-9	E243.Br	0.050	mg/L	0.082	0.115	0.033	Diff <2x LOR	----
Leachable Metals (QC Lot: 1317454)											
VA24A1528-001	K-08-08-122	Aluminum, leachable	7429-90-5	E446	0.0050	mg/L	0.205	0.222	8.01%	30%	----
		Antimony, leachable	7440-36-0	E446	0.00010	mg/L	0.00028	0.00021	0.00007	Diff <2x LOR	----
		Arsenic, leachable	7440-38-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0046	0.0046	0.00001	Diff <2x LOR	----
		Beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, leachable	7440-43-9	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Calcium, leachable	7440-70-2	E446	0.10	mg/L	9.58	9.65	0.762%	30%	----
		Chromium, leachable	7440-47-3	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, leachable	7440-48-4	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, leachable	7440-50-8	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Iron, leachable	7439-89-6	E446	0.030	mg/L	<0.030	<0.030	0	Diff <2x LOR	----
		Lead, leachable	7439-92-1	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, leachable	7439-93-2	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Magnesium, leachable	7439-95-4	E446	0.050	mg/L	4.04	3.58	11.9%	30%	----
		Manganese, leachable	7439-96-5	E446	0.00050	mg/L	0.00140	0.00194	0.00054	Diff <2x LOR	----



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Metals (QC Lot: 1317454) - continued											
VA24A1528-001	K-08-08-122	Molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00152	0.00099	41.9%	30%	DUP-H
		Nickel, leachable	7440-02-0	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Potassium, leachable	7440-09-7	E446	0.050	mg/L	7.30	6.40	13.3%	30%	----
		Selenium, leachable	7782-49-2	E446	0.00050	mg/L	0.00087	0.00073	0.00014	Diff <2x LOR	----
		Silicon, leachable	7440-21-3	E446	0.050	mg/L	2.39	2.27	5.23%	40%	----
		Silver, leachable	7440-22-4	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Sodium, leachable	7440-23-5	E446	0.050	mg/L	0.491	0.449	8.94%	30%	----
		Strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.0209	0.0204	2.54%	30%	----
		Sulfur, leachable	7704-34-9	E446	0.50	mg/L	2.18	1.94	0.24	Diff <2x LOR	----
		Thallium, leachable	7440-28-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, leachable	7440-32-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Uranium, leachable	7440-61-1	E446	0.000010	mg/L	0.000039	0.000034	0.000005	Diff <2x LOR	----
		Vanadium, leachable	7440-62-2	E446	0.0010	mg/L	<0.0010	0.0010	0.00003	Diff <2x LOR	----
		Zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1317455)											
VA24A1528-001	K-08-08-122	Mercury, leachable	7439-97-6	E515	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1318665)											
VA24A1528-021	K-10-48-205.7	Aluminum, leachable	7429-90-5	E446	0.0050	mg/L	0.903	0.849	6.17%	30%	----
		Antimony, leachable	7440-36-0	E446	0.00010	mg/L	0.00029	0.00030	0.000004	Diff <2x LOR	----
		Arsenic, leachable	7440-38-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0048	0.0045	0.0003	Diff <2x LOR	----
		Beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, leachable	7440-43-9	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Calcium, leachable	7440-70-2	E446	0.10	mg/L	7.08	7.13	0.774%	30%	----
		Chromium, leachable	7440-47-3	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, leachable	7440-48-4	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, leachable	7440-50-8	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Iron, leachable	7439-89-6	E446	0.030	mg/L	0.052	0.049	0.004	Diff <2x LOR	----
		Lead, leachable	7439-92-1	E446	0.00010	mg/L	0.00018	0.00014	0.00004	Diff <2x LOR	----
		Lithium, leachable	7439-93-2	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----



Sub-Matrix: Soil/Solid

Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Metals (QC Lot: 1318665) - continued											
VA24A1528-021	K-10-48-205.7	Magnesium, leachable	7439-95-4	E446	0.050	mg/L	0.969	1.06	8.93%	30%	----
		Manganese, leachable	7439-96-5	E446	0.00050	mg/L	0.00242	0.00228	0.00013	Diff <2x LOR	----
		Molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00265	0.00277	4.37%	30%	----
		Nickel, leachable	7440-02-0	E446	0.00050	mg/L	0.00056	0.00060	0.00004	Diff <2x LOR	----
		Phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Potassium, leachable	7440-09-7	E446	0.050	mg/L	9.36	9.91	5.68%	30%	----
		Selenium, leachable	7782-49-2	E446	0.00050	mg/L	0.00188	0.00215	0.00027	Diff <2x LOR	----
		Silicon, leachable	7440-21-3	E446	0.050	mg/L	2.59	2.53	2.14%	40%	----
		Silver, leachable	7440-22-4	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Sodium, leachable	7440-23-5	E446	0.050	mg/L	1.79	1.89	5.48%	30%	----
		Strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.00948	0.00995	4.89%	30%	----
		Sulfur, leachable	7704-34-9	E446	0.50	mg/L	4.44	4.86	9.00%	30%	----
		Thallium, leachable	7440-28-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, leachable	7440-32-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Uranium, leachable	7440-61-1	E446	0.000010	mg/L	0.000615	0.000627	1.99%	30%	----
		Vanadium, leachable	7440-62-2	E446	0.0010	mg/L	0.0036	0.0036	0.00007	Diff <2x LOR	----
		Zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1318666)											
VA24A1528-021	K-10-48-205.7	Mercury, leachable	7439-97-6	E515	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1318991)											
VA24A1528-041	K-10-59-182.98	Aluminum, leachable	7429-90-5	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Antimony, leachable	7440-36-0	E446	0.00010	mg/L	0.00012	<0.00010	0.00002	Diff <2x LOR	----
		Arsenic, leachable	7440-38-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0986	0.116	16.3%	30%	----
		Beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, leachable	7440-43-9	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Calcium, leachable	7440-70-2	E446	0.10	mg/L	42.4	34.6	20.3%	30%	----
		Chromium, leachable	7440-47-3	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, leachable	7440-48-4	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, leachable	7440-50-8	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Iron, leachable	7439-89-6	E446	0.030	mg/L	<0.030	<0.030	0	Diff <2x LOR	----



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Metals (QC Lot: 1318991) - continued											
VA24A1528-041	K-10-59-182.98	Lead, leachable	7439-92-1	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, leachable	7439-93-2	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Magnesium, leachable	7439-95-4	E446	0.050	mg/L	17.0	13.4	23.4%	30%	----
		Manganese, leachable	7439-96-5	E446	0.00050	mg/L	0.0474	0.0281	50.9%	30%	DUP-H
		Molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00064	# 0.00030	0.00034	Diff <2x LOR	DUP-H
		Nickel, leachable	7440-02-0	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Potassium, leachable	7440-09-7	E446	0.050	mg/L	2.06	0.985	70.4%	30%	DUP-H
		Selenium, leachable	7782-49-2	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silicon, leachable	7440-21-3	E446	0.050	mg/L	5.64	3.85	37.6%	40%	----
		Silver, leachable	7440-22-4	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Sodium, leachable	7440-23-5	E446	0.050	mg/L	0.384	0.310	21.3%	30%	----
		Strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.0992	0.0850	15.4%	30%	----
		Sulfur, leachable	7704-34-9	E446	0.50	mg/L	18.0	13.1	31.8%	30%	DUP-H
		Thallium, leachable	7440-28-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, leachable	7440-32-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Uranium, leachable	7440-61-1	E446	0.000010	mg/L	0.000795	0.000454	54.7%	30%	DUP-H
		Vanadium, leachable	7440-62-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1318992)											
VA24A1528-041	K-10-59-182.98	Mercury, leachable	7439-97-6	E515	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----

Qualifiers

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.



Method Blank (MB) Report

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

Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1316469)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1316535)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1317337)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1317442)						
Conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Physical Tests (QCLot: 1318653)						
Conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Physical Tests (QCLot: 1318979)						
Conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Leachable Anions & Nutrients (QCLot: 1317445)						
Acidity, leachable (as CaCO ₃)	----	E285	4	mg/L	<4.0	----
Leachable Anions & Nutrients (QCLot: 1317446)						
Alkalinity, total (as CaCO ₃), leachable	----	E294	2	mg/L	<2.0	----
Leachable Anions & Nutrients (QCLot: 1317447)						
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	<0.0020	----
Leachable Anions & Nutrients (QCLot: 1317448)						
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1317449)						
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	<0.005	----
Leachable Anions & Nutrients (QCLot: 1317450)						
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	<0.0010	----
Leachable Anions & Nutrients (QCLot: 1317451)						
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	<0.020	----
Leachable Anions & Nutrients (QCLot: 1317452)						
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1317453)						
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	<0.050	----
Leachable Anions & Nutrients (QCLot: 1317456)						
Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	<0.005	----
Leachable Anions & Nutrients (QCLot: 1318652)						



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Anions & Nutrients (QCLot: 1318652) - continued						
Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	<0.005	----
Leachable Anions & Nutrients (QCLot: 1318656)						
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	<4.0	----
Leachable Anions & Nutrients (QCLot: 1318657)						
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	<2.0	----
Leachable Anions & Nutrients (QCLot: 1318658)						
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	<0.0020	----
Leachable Anions & Nutrients (QCLot: 1318659)						
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1318660)						
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	<0.005	----
Leachable Anions & Nutrients (QCLot: 1318661)						
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	<0.0010	----
Leachable Anions & Nutrients (QCLot: 1318662)						
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	<0.020	----
Leachable Anions & Nutrients (QCLot: 1318663)						
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1318664)						
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	<0.050	----
Leachable Anions & Nutrients (QCLot: 1318978)						
Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	<0.005	----
Leachable Anions & Nutrients (QCLot: 1318982)						
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	<4.0	----
Leachable Anions & Nutrients (QCLot: 1318983)						
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	<2.0	----
Leachable Anions & Nutrients (QCLot: 1318984)						
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	<0.0020	----
Leachable Anions & Nutrients (QCLot: 1318985)						
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1318986)						
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	<0.005	----
Leachable Anions & Nutrients (QCLot: 1318987)						
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	<0.0010	----
Leachable Anions & Nutrients (QCLot: 1318988)						
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	<0.020	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Anions & Nutrients (QCLot: 1318989)						
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1318990)						
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	<0.050	----
Leachable Metals (QCLot: 1317454)						
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	<0.0010	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	<0.00010	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 1317454) - continued						
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	<0.010	----
Leachable Metals (QCLot: 1317455)						
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	<0.000050	----
Leachable Metals (QCLot: 1318665)						
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	<0.0010	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	<0.00010	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 1318665) - continued						
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	<0.010	----
Leachable Metals (QCLot: 1318666)						
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	<0.000050	----
Leachable Metals (QCLot: 1318991)						
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	<0.0010	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	<0.00010	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 1318991) - continued						
Titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	<0.010	----
Leachable Metals (QCLot: 1318992)						
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	<0.000050	----



Laboratory Control Sample (LCS) Report

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

Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1316469)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 1316535)									
Moisture	----	E144	0.25	%	50 %	99.9	90.0	110	----
Physical Tests (QCLot: 1317337)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 1317442)									
Conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	102	90.0	110	----
Physical Tests (QCLot: 1317443)									
pH	----	E116	----	pH units	7.04 pH units	99.6	95.0	105	----
Physical Tests (QCLot: 1317444)									
Oxidation-reduction potential [ORP], leachable	----	E127	----	mV	220 mV	100	95.0	105	----
Physical Tests (QCLot: 1318653)									
Conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	100	90.0	110	----
Physical Tests (QCLot: 1318654)									
pH	----	E116	----	pH units	7.04 pH units	99.4	95.0	105	----
Physical Tests (QCLot: 1318655)									
Oxidation-reduction potential [ORP], leachable	----	E127	----	mV	220 mV	100	95.0	105	----
Physical Tests (QCLot: 1318979)									
Conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	98.6	90.0	110	----
Physical Tests (QCLot: 1318980)									
pH	----	E116	----	pH units	7.04 pH units	99.4	95.0	105	----
Physical Tests (QCLot: 1318981)									
Oxidation-reduction potential [ORP], leachable	----	E127	----	mV	220 mV	100	95.0	105	----
Leachable Anions & Nutrients (QCLot: 1317445)									
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	50 mg/L	95.8	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1317446)									
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	500 mg/L	107	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1317447)									
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	0.05 mg/L	84.7	80.0	120	----
Leachable Anions & Nutrients (QCLot: 1317448)									
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	25 mg/L	101	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit					
Leachable Anions & Nutrients (QCLot: 1317449)									
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.625 mg/L	98.6	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1317450)									
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	0.125 mg/L	94.4	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1317451)									
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	0.25 mg/L	96.7	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1317452)									
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	25 mg/L	97.6	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1317453)									
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	0.125 mg/L	86.8	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1317456)									
Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.2 mg/L	95.6	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1318652)									
Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.2 mg/L	93.2	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1318656)									
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	50 mg/L	99.4	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1318657)									
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	500 mg/L	109	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1318658)									
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	0.05 mg/L	88.0	80.0	120	----
Leachable Anions & Nutrients (QCLot: 1318659)									
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	25 mg/L	104	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318660)									
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.625 mg/L	103	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318661)									
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	0.125 mg/L	95.8	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318662)									
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	0.25 mg/L	90.6	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318663)									
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	25 mg/L	102	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318664)									
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	0.125 mg/L	92.2	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318978)									
Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.2 mg/L	97.2	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1318982)									
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	50 mg/L	99.8	85.0	115	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit					
Leachable Anions & Nutrients (QCLot: 1318983)									
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	500 mg/L	109	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1318984)									
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	0.05 mg/L	88.8	80.0	120	----
Leachable Anions & Nutrients (QCLot: 1318985)									
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	25 mg/L	104	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318986)									
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.625 mg/L	102	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318987)									
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	0.125 mg/L	95.9	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318988)									
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	0.25 mg/L	94.9	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318989)									
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	25 mg/L	101	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318990)									
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	0.125 mg/L	101	70.0	130	----
Leachable Metals (QCLot: 1317454)									
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	97.8	70.0	130	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	105	70.0	130	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	106	70.0	130	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	96.6	70.0	130	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	99.6	70.0	130	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	84.4	50.0	130	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	103	70.0	130	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	99.7	70.0	130	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	94.5	70.0	130	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	97.0	70.0	130	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	96.4	70.0	130	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	0.025 mg/L	96.2	70.0	130	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	87.3	70.0	130	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	0.05 mg/L	97.5	70.0	130	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	97.8	70.0	130	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	106	70.0	130	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	97.7	70.0	130	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	101	70.0	130	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	95.8	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Leachable Metals (QCLot: 1317454) - continued									
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	103	70.0	130	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	99.2	70.0	130	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	95.0	70.0	130	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	102	70.0	130	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	86.7	50.0	130	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	103	70.0	130	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	102	70.0	130	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	93.5	70.0	130	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	92.0	70.0	130	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	99.0	50.0	130	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	96.5	50.0	130	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	93.4	70.0	130	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	99.7	70.0	130	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	0.05 mg/L	101	70.0	130	----
Leachable Metals (QCLot: 1317455)									
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	0.0005 mg/L	96.0	50.0	130	----
Leachable Metals (QCLot: 1318665)									
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	97.2	70.0	130	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	99.6	70.0	130	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	100	70.0	130	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	100	70.0	130	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	94.6	70.0	130	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	94.8	50.0	130	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	96.2	70.0	130	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	100	70.0	130	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	96.2	70.0	130	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	93.3	70.0	130	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	94.4	70.0	130	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	0.025 mg/L	92.7	70.0	130	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	95.1	70.0	130	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	0.05 mg/L	97.8	70.0	130	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	93.6	70.0	130	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	103	70.0	130	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	95.6	70.0	130	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	97.2	70.0	130	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	94.9	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Leachable Metals (QCLot: 1318665) - continued									
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	103	70.0	130	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	97.1	70.0	130	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	107	70.0	130	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	104	70.0	130	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	83.3	50.0	130	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	101	70.0	130	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	99.4	70.0	130	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	89.6	70.0	130	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	89.1	70.0	130	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	96.0	50.0	130	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	98.0	50.0	130	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	90.8	70.0	130	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	96.5	70.0	130	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	0.05 mg/L	92.4	70.0	130	----
Leachable Metals (QCLot: 1318666)									
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	0.0005 mg/L	93.3	50.0	130	----
Leachable Metals (QCLot: 1318991)									
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	100	70.0	130	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	100	70.0	130	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	107	70.0	130	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	100	70.0	130	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	87.9	70.0	130	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	68.5	50.0	130	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	87.6	70.0	130	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	102	70.0	130	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	94.9	70.0	130	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	96.3	70.0	130	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	97.3	70.0	130	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	0.025 mg/L	95.4	70.0	130	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	93.9	70.0	130	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	0.05 mg/L	98.9	70.0	130	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	86.1	70.0	130	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	107	70.0	130	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	98.2	70.0	130	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	98.7	70.0	130	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	95.4	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Leachable Metals (QCLot: 1318991) - continued									
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	101	70.0	130	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	107	70.0	130	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	100	70.0	130	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	102	70.0	130	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	85.7	50.0	130	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	98.0	70.0	130	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	102	70.0	130	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	90.5	70.0	130	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	90.6	70.0	130	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	100	50.0	130	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	96.9	50.0	130	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	95.1	70.0	130	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	101	70.0	130	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	0.05 mg/L	102	70.0	130	----
Leachable Metals (QCLot: 1318992)									
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	0.0005 mg/L	94.6	50.0	130	----



Matrix Spike (MS) Report

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

Sub-Matrix: Soil/Solid

					Matrix Spike (MS) Report				
					Spike		Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High
Leachable Anions & Nutrients (QCLot: 1317447)									
VA24A1528-002	K-08-10-228.46	Phosphorus, total dissolved	7723-14-0	E381	0.0428 mg/L	0.05 mg/L	85.6	70.0	130
Leachable Anions & Nutrients (QCLot: 1317448)									
VA24A1528-002	K-08-10-228.46	Sulfate, leachable	14808-79-8	E243.SO4	94.0 mg/L	100 mg/L	94.0	60.0	140
Leachable Anions & Nutrients (QCLot: 1317449)									
VA24A1528-002	K-08-10-228.46	Nitrate (as N), leachable	14797-55-8	E243.NO3	2.37 mg/L	2.5 mg/L	94.8	60.0	140
Leachable Anions & Nutrients (QCLot: 1317450)									
VA24A1528-002	K-08-10-228.46	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.473 mg/L	0.5 mg/L	94.6	60.0	140
Leachable Anions & Nutrients (QCLot: 1317451)									
VA24A1528-002	K-08-10-228.46	Fluoride, leachable	16984-48-8	E243.F	1.05 mg/L	1 mg/L	105	60.0	140
Leachable Anions & Nutrients (QCLot: 1317452)									
VA24A1528-002	K-08-10-228.46	Chloride, leachable	16887-00-6	E243.Cl	95.4 mg/L	100 mg/L	95.4	60.0	140
Leachable Anions & Nutrients (QCLot: 1317453)									
VA24A1528-002	K-08-10-228.46	Bromide, leachable	24959-67-9	E243.Br	0.448 mg/L	0.5 mg/L	89.5	60.0	140
Leachable Anions & Nutrients (QCLot: 1317456)									
VA24A1528-002	K-08-10-228.46	Ammonia, total, leachable (as N)	7664-41-7	E300	0.094 mg/L	0.1 mg/L	94.3	60.0	140
Leachable Anions & Nutrients (QCLot: 1318652)									
VA24A1528-022	K-10-48-384.5	Ammonia, total, leachable (as N)	7664-41-7	E300	0.094 mg/L	0.1 mg/L	94.4	60.0	140
Leachable Anions & Nutrients (QCLot: 1318658)									
VA24A1528-022	K-10-48-384.5	Phosphorus, total dissolved	7723-14-0	E381	0.0445 mg/L	0.05 mg/L	89.1	70.0	130
Leachable Anions & Nutrients (QCLot: 1318659)									
VA24A1528-022	K-10-48-384.5	Sulfate, leachable	14808-79-8	E243.SO4	101 mg/L	100 mg/L	101	60.0	140
Leachable Anions & Nutrients (QCLot: 1318660)									
VA24A1528-022	K-10-48-384.5	Nitrate (as N), leachable	14797-55-8	E243.NO3	2.53 mg/L	2.5 mg/L	101	60.0	140
Leachable Anions & Nutrients (QCLot: 1318661)									
VA24A1528-022	K-10-48-384.5	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.501 mg/L	0.5 mg/L	100	60.0	140
Leachable Anions & Nutrients (QCLot: 1318662)									
VA24A1528-022	K-10-48-384.5	Fluoride, leachable	16984-48-8	E243.F	1.15 mg/L	1 mg/L	115	60.0	140



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Anions & Nutrients (QCLot: 1318663)										
VA24A1528-022	K-10-48-384.5	Chloride, leachable	16887-00-6	E243.Cl	104 mg/L	100 mg/L	104	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1318664)										
VA24A1528-022	K-10-48-384.5	Bromide, leachable	24959-67-9	E243.Br	0.449 mg/L	0.5 mg/L	89.8	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1318978)										
VA24A1528-042	K-10-61-258.7	Ammonia, total, leachable (as N)	7664-41-7	E300	ND mg/L	0.1 mg/L	ND	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1318984)										
VA24A1528-042	K-10-61-258.7	Phosphorus, total dissolved	7723-14-0	E381	0.0464 mg/L	0.05 mg/L	92.7	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318985)										
VA24A1528-042	K-10-61-258.7	Sulfate, leachable	14808-79-8	E243.SO4	104 mg/L	100 mg/L	104	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1318986)										
VA24A1528-042	K-10-61-258.7	Nitrate (as N), leachable	14797-55-8	E243.NO3	2.61 mg/L	2.5 mg/L	104	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1318987)										
VA24A1528-042	K-10-61-258.7	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.481 mg/L	0.5 mg/L	96.2	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1318988)										
VA24A1528-042	K-10-61-258.7	Fluoride, leachable	16984-48-8	E243.F	0.799 mg/L	1 mg/L	79.9	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1318989)										
VA24A1528-042	K-10-61-258.7	Chloride, leachable	16887-00-6	E243.Cl	99.8 mg/L	100 mg/L	99.8	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1318990)										
VA24A1528-042	K-10-61-258.7	Bromide, leachable	24959-67-9	E243.Br	0.445 mg/L	0.5 mg/L	89.1	60.0	140	----
Leachable Metals (QCLot: 1317454)										
VA24A1528-002	K-08-10-228.46	Aluminum, leachable	7429-90-5	E446	ND mg/L	0.2 mg/L	ND	70.0	130	----
		Antimony, leachable	7440-36-0	E446	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	----
		Arsenic, leachable	7440-38-2	E446	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Barium, leachable	7440-39-3	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Beryllium, leachable	7440-41-7	E446	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Bismuth, leachable	7440-69-9	E446	0.00925 mg/L	0.01 mg/L	92.5	70.0	130	----
		Boron, leachable	7440-42-8	E446	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Cadmium, leachable	7440-43-9	E446	0.00385 mg/L	0.004 mg/L	96.2	70.0	130	----
		Calcium, leachable	7440-70-2	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, leachable	7440-47-3	E446	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Cobalt, leachable	7440-48-4	E446	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Copper, leachable	7440-50-8	E446	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	----



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 1317454) - continued										
VA24A1528-002	K-08-10-228.46	Iron, leachable	7439-89-6	E446	1.90 mg/L	2 mg/L	94.8	70.0	130	----
		Lead, leachable	7439-92-1	E446	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Lithium, leachable	7439-93-2	E446	0.103 mg/L	0.1 mg/L	103	70.0	130	----
		Magnesium, leachable	7439-95-4	E446	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, leachable	7439-96-5	E446	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Molybdenum, leachable	7439-98-7	E446	0.0194 mg/L	0.02 mg/L	96.9	70.0	130	----
		Nickel, leachable	7440-02-0	E446	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		Phosphorus, leachable	7723-14-0	E446	9.96 mg/L	10 mg/L	99.6	70.0	130	----
		Potassium, leachable	7440-09-7	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Selenium, leachable	7782-49-2	E446	0.0366 mg/L	0.04 mg/L	91.5	70.0	130	----
		Silicon, leachable	7440-21-3	E446	9.87 mg/L	10 mg/L	98.7	70.0	130	----
		Silver, leachable	7440-22-4	E446	0.00377 mg/L	0.004 mg/L	94.2	70.0	130	----
		Sodium, leachable	7440-23-5	E446	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, leachable	7440-24-6	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, leachable	7704-34-9	E446	18.5 mg/L	20 mg/L	92.6	70.0	130	----
		Thallium, leachable	7440-28-0	E446	0.00368 mg/L	0.004 mg/L	92.1	70.0	130	----
		Tin, leachable	7440-31-5	E446	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Titanium, leachable	7440-32-6	E446	0.040 mg/L	0.04 mg/L	99.8	70.0	130	----
		Uranium, leachable	7440-61-1	E446	0.00367 mg/L	0.004 mg/L	91.8	70.0	130	----
		Vanadium, leachable	7440-62-2	E446	0.0990 mg/L	0.1 mg/L	99.0	70.0	130	----
		Zinc, leachable	7440-66-6	E446	0.410 mg/L	0.4 mg/L	102	70.0	130	----
Leachable Metals (QCLot: 1317455)										
VA24A1528-002	K-08-10-228.46	Mercury, leachable	7439-97-6	E515	0.000097 mg/L	0.0001 mg/L	97.2	70.0	130	----
Leachable Metals (QCLot: 1318665)										
VA24A1528-022	K-10-48-384.5	Aluminum, leachable	7429-90-5	E446	ND mg/L	0.2 mg/L	ND	70.0	130	----
		Antimony, leachable	7440-36-0	E446	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Arsenic, leachable	7440-38-2	E446	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Barium, leachable	7440-39-3	E446	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		Beryllium, leachable	7440-41-7	E446	0.0393 mg/L	0.04 mg/L	98.3	70.0	130	----
		Bismuth, leachable	7440-69-9	E446	0.00917 mg/L	0.01 mg/L	91.7	70.0	130	----
		Boron, leachable	7440-42-8	E446	0.098 mg/L	0.1 mg/L	98.2	70.0	130	----
		Cadmium, leachable	7440-43-9	E446	0.00394 mg/L	0.004 mg/L	98.4	70.0	130	----
		Calcium, leachable	7440-70-2	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, leachable	7440-47-3	E446	0.0384 mg/L	0.04 mg/L	96.0	70.0	130	----
		Cobalt, leachable	7440-48-4	E446	0.0199 mg/L	0.02 mg/L	99.6	70.0	130	----



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Leachable Metals (QCLot: 1318665) - continued										
VA24A1528-022	K-10-48-384.5	Copper, leachable	7440-50-8	E446	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Iron, leachable	7439-89-6	E446	1.97 mg/L	2 mg/L	98.4	70.0	130	----
		Lead, leachable	7439-92-1	E446	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Lithium, leachable	7439-93-2	E446	0.0990 mg/L	0.1 mg/L	99.0	70.0	130	----
		Magnesium, leachable	7439-95-4	E446	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, leachable	7439-96-5	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Molybdenum, leachable	7439-98-7	E446	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	----
		Nickel, leachable	7440-02-0	E446	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Phosphorus, leachable	7723-14-0	E446	9.52 mg/L	10 mg/L	95.2	70.0	130	----
		Potassium, leachable	7440-09-7	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Selenium, leachable	7782-49-2	E446	0.0408 mg/L	0.04 mg/L	102	70.0	130	----
		Silicon, leachable	7440-21-3	E446	9.86 mg/L	10 mg/L	98.6	70.0	130	----
		Silver, leachable	7440-22-4	E446	0.00372 mg/L	0.004 mg/L	93.1	70.0	130	----
		Sodium, leachable	7440-23-5	E446	2.04 mg/L	2 mg/L	102	70.0	130	----
		Strontium, leachable	7440-24-6	E446	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Sulfur, leachable	7704-34-9	E446	19.6 mg/L	20 mg/L	97.9	70.0	130	----
		Thallium, leachable	7440-28-0	E446	0.00367 mg/L	0.004 mg/L	91.8	70.0	130	----
		Tin, leachable	7440-31-5	E446	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Titanium, leachable	7440-32-6	E446	0.041 mg/L	0.04 mg/L	102	70.0	130	----
		Uranium, leachable	7440-61-1	E446	0.00356 mg/L	0.004 mg/L	89.0	70.0	130	----
		Vanadium, leachable	7440-62-2	E446	0.0986 mg/L	0.1 mg/L	98.6	70.0	130	----
		Zinc, leachable	7440-66-6	E446	0.384 mg/L	0.4 mg/L	96.1	70.0	130	----
Leachable Metals (QCLot: 1318666)										
VA24A1528-022	K-10-48-384.5	Mercury, leachable	7439-97-6	E515	0.000089 mg/L	0.0001 mg/L	89.2	70.0	130	----
Leachable Metals (QCLot: 1318991)										
VA24A1528-042	K-10-61-258.7	Aluminum, leachable	7429-90-5	E446	0.184 mg/L	0.2 mg/L	92.2	70.0	130	----
		Antimony, leachable	7440-36-0	E446	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Arsenic, leachable	7440-38-2	E446	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
		Barium, leachable	7440-39-3	E446	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Beryllium, leachable	7440-41-7	E446	0.0366 mg/L	0.04 mg/L	91.6	70.0	130	----
		Bismuth, leachable	7440-69-9	E446	0.00867 mg/L	0.01 mg/L	86.7	70.0	130	----
		Boron, leachable	7440-42-8	E446	0.092 mg/L	0.1 mg/L	92.3	70.0	130	----
		Cadmium, leachable	7440-43-9	E446	0.00391 mg/L	0.004 mg/L	97.7	70.0	130	----
		Calcium, leachable	7440-70-2	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, leachable	7440-47-3	E446	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----



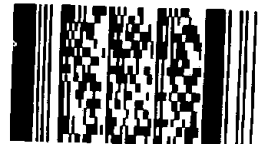
Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 1318991) - continued										
VA24A1528-042	K-10-61-258.7	Cobalt, leachable	7440-48-4	E446	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	----
		Copper, leachable	7440-50-8	E446	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Iron, leachable	7439-89-6	E446	1.90 mg/L	2 mg/L	95.3	70.0	130	----
		Lead, leachable	7439-92-1	E446	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	----
		Lithium, leachable	7439-93-2	E446	0.0847 mg/L	0.1 mg/L	84.7	70.0	130	----
		Magnesium, leachable	7439-95-4	E446	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, leachable	7439-96-5	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Molybdenum, leachable	7439-98-7	E446	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Nickel, leachable	7440-02-0	E446	ND mg/L	0.04 mg/L	ND	70.0	130	----
		Phosphorus, leachable	7723-14-0	E446	9.68 mg/L	10 mg/L	96.8	70.0	130	----
		Potassium, leachable	7440-09-7	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Selenium, leachable	7782-49-2	E446	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Silicon, leachable	7440-21-3	E446	9.68 mg/L	10 mg/L	96.8	70.0	130	----
		Silver, leachable	7440-22-4	E446	0.00376 mg/L	0.004 mg/L	93.9	70.0	130	----
		Sodium, leachable	7440-23-5	E446	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, leachable	7440-24-6	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, leachable	7704-34-9	E446	ND mg/L	20 mg/L	ND	70.0	130	----
		Thallium, leachable	7440-28-0	E446	0.00360 mg/L	0.004 mg/L	90.1	70.0	130	----
		Tin, leachable	7440-31-5	E446	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Titanium, leachable	7440-32-6	E446	0.039 mg/L	0.04 mg/L	96.5	70.0	130	----
		Uranium, leachable	7440-61-1	E446	0.00354 mg/L	0.004 mg/L	88.5	70.0	130	----
		Vanadium, leachable	7440-62-2	E446	0.0975 mg/L	0.1 mg/L	97.5	70.0	130	----
		Zinc, leachable	7440-66-6	E446	0.399 mg/L	0.4 mg/L	99.7	70.0	130	----
Leachable Metals (QCLot: 1318992)										
VA24A1528-042	K-10-61-258.7	Mercury, leachable	7439-97-6	E515	0.000096 mg/L	0.0001 mg/L	96.6	70.0	130	----

Quote No. VA23-OKCI100-003

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Sample ID	Analysis			
	Shakeflask Metals	Shakeflask Anions, Ammonia, TDP	Shakeflask ORP	Shakeflask Acidity, Alkalinity, pH, EC
Totals	142	142	142	142
K-08-08-122	X	X	X	X
K-08-10-228.46	X	X	X	X
K-08-11-21.4	X	X	X	X
K-08-11-28	X	X	X	X
K-08-11A-139.8	X	X	X	X
K-08-11A-27	X	X	X	X
K-08-12-140.79	X	X	X	X
K-08-17-131	X	X	X	X
K-08-17-135.8	X	X	X	X
K-08-17-138	X	X	X	X
K-08-18-325.18	X	X	X	X
K-10-25-447.35	X	X	X	X
K-10-26-253	X	X	X	X
K-10-30-145.42	X	X	X	X
K-10-32-13.7	X	X	X	X
K-10-35-187.8	X	X	X	X
K-10-37A-31	X	X	X	X
K-10-39A-445	X	X	X	X
K-10-40-210.18	X	X	X	X
K-10-48-25.8	X	X	X	X
K-10-48-205.7	X	X	X	X
K-10-48-384.5	X	X	X	X
K-10-49-294.5	X	X	X	X
K-10-51-268.25	X	X	X	X
K-10-52-308.3	X	X	X	X
K-10-52-477.46	X	X	X	X
K-10-53-77.8	X	X	X	X
K-10-54-122.7	X	X	X	X
K-10-54-125.7	X	X	X	X
K-10-54-160.5	X	X	X	X
K-10-57-107.4	X	X	X	X
K-10-58-17.5	X	X	X	X
K-10-58-18.45	X	X	X	X
K-10-58-21.97	X	X	X	X
K-10-58-24.28	X	X	X	X
K-10-58-30.48	X	X	X	X
K-10-58-36.5	X	X	X	X
K-10-58-46.5	X	X	X	X
K-10-58-57	X	X	X	X
K-10-59-175.4	X	X	X	X
K-10-59-182.98	X	X	X	X
K-10-61-258.7	X	X	X	X
K-10-61-263.24	X	X	X	X
K-10-61-266.85	X	X	X	X
K-10-61-306.5	X	X	X	X
K-10-61-323.5	X	X	X	X
K-10-61-34	X	X	X	X
K-10-63-117.5	X	X	X	X
K-10-63-124.4	X	X	X	X
K-10-70-189	X	X	X	X
K-10-70-74.46	X	X	X	X
K-10-78-29.9	X	X	X	X
K-10-83-39.5	X	X	X	X

Environmental Division
Vancouver
Work Order Reference
VA24A1528



Telephone : +1 604 253 4188

CERTIFICATE OF ANALYSIS

Work Order	: VA24A1530	Page	: 1 of 24
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 24-Jan-2024 12:00
PO	: ----	Date Analysis Commenced	: 30-Jan-2024
C-O-C number	: ----	Issue Date	: 29-Feb-2024 17:01
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKCI100-003		
No. of samples received	: 54		
No. of samples analysed	: 54		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	Position	Laboratory Department
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
%	percent
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
mV	millivolts
pH units	pH units

<: less than.

>: greater than.

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

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

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

Qualifiers

Qualifier	Description
DLA	Detection Limit adjusted for required dilution.
DLCI	Detection Limit Raised: Chromatographic interference due to co-elution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-83-658.8	K-10-83-660.6	K-10-93-46	K-11-100B-116.25	K-11-108-118.2
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-001	VA24A1530-002	VA24A1530-003	VA24A1530-004	VA24A1530-005
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	----	E285/VA	4.0	mg/L	<4.0	<4.0	<4.0	<4.0	77.5
Conductivity, leachable	----	E103/VA	2.0	µS/cm	135	130	177	35.4	534
Moisture	----	E144/VA	0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	----	E127/VA	0.10	mV	232	221	218	250	344
pH	----	E116/VA	0.10	pH units	7.68	7.62	7.60	7.18	3.96
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	----	E294/VA	2.0	mg/L	26.1	26.3	27.7	12.8	<2.0
Ammonia, total, leachable (as N)	7664-41-7	E300/VA	0.005	mg/L	0.017	0.012	0.052	<0.005	0.078
Bromide, leachable	24959-67-9	E243.Br/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0	E381/VA	0.0020	mg/L	0.0051	0.0030	0.0035	0.0199	<0.0020
Chloride, leachable	16887-00-6	E243.Cl/VA	0.50	mg/L	1.47	1.07	<0.50	<0.50	0.86
Fluoride, leachable	16984-48-8	E243.F/VA	0.020	mg/L	0.155	0.117	0.054	0.097	0.233
Nitrite (as N), leachable	14797-65-0	E243.NO2/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nitrate (as N), leachable	14797-55-8	E243.NO3/VA	0.005	mg/L	0.022	0.015	0.074	0.006	0.014
Sulfate, leachable	14808-79-8	E243.SO4/VA	0.50	mg/L	32.1	29.2	49.1	2.45	268
Leachable Metals									
Aluminum, leachable	7429-90-5	E446/VA	0.0050	mg/L	0.530	0.390	0.332	0.0612	4.00
Antimony, leachable	7440-36-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	0.00046	0.00018	<0.00010
Arsenic, leachable	7440-38-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3	E446/VA	0.0010	mg/L	0.0122	0.0072	0.0203	0.0015	0.0083
Beryllium, leachable	7440-41-7	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00092
Bismuth, leachable	7440-69-9	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.0103
Calcium, leachable	7440-70-2	E446/VA	0.10	mg/L	13.8	16.1	23.0	3.87	21.7
Chromium, leachable	7440-47-3	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.0137
Cobalt, leachable	7440-48-4	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.192
Copper, leachable	7440-50-8	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.718
Hardness (as CaCO3), dissolved	----	E446/VA	0.60	mg/L	44.4	49.2	76.2	13.4	165



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-10-83-658.8	K-10-83-660.6	K-10-93-46	K-11-100B-116.25	K-11-108-118.2
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-001	VA24A1530-002	VA24A1530-003	VA24A1530-004	VA24A1530-005
					Result	Result	Result	Result	Result
Leachable Metals									
Iron, leachable	7439-89-6	E446/VA	0.030	mg/L	<0.030	<0.030	<0.030	0.572	23.8
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	0.00033	<0.00010	<0.00010
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0380
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	2.42	2.18	4.56	0.912	26.9
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.00183	0.00638	0.00187	0.0401	4.22
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00706	0.00780	0.0214	0.00160	<0.00010
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.959
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	11.0	9.71	9.68	2.27	22.2
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	0.00226	0.00195	0.00263	<0.00050	<0.00050
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.29	2.12	1.82	2.67	3.57
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	2.53	1.21	0.983	0.392	2.46
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0364	0.0303	0.0447	0.00907	0.0279
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	12.6	11.6	20.0	<0.50	86.2
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00023
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.00156	0.00375	0.00180	0.000053	0.0859
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	0.0165	0.0057	0.0149	<0.0010	<0.0010
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	0.195

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-108-228.3	K-11-108-87.6	K-11-111-43.1	K-11-112A-147.3	K-11-112A-174.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-006	VA24A1530-007	VA24A1530-009	VA24A1530-010	VA24A1530-011
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	130	47.0	73.0	50.2	18.2
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	0.26	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	210	191	280	320	338
pH	---E116/VA		0.10	pH units	7.70	7.51	7.89	6.90	6.75
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	38.7	17.4	28.3	4.4	4.5
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.017	<0.005	<0.005	0.006	0.010
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	0.059	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0610	0.0711	0.0319	0.0433	0.0749
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	3.63	1.65	1.86	7.94	0.51
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	<0.080 ^{DLCI}	0.081	0.072	0.031	0.046
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	0.0032	<0.0010	0.0024	<0.0010	0.0010
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.395	0.033	0.020	0.033	0.026
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	14.8	1.95	3.32	3.55	1.48
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	1.11	1.65	1.05	1.18	0.609
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	<0.00010	0.00064	0.00054	0.00021	0.00030
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0375	0.0095	0.0112	0.0069	0.0127
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	10.0	3.55	4.72	0.72	1.00
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	0.00056	<0.00050	0.00124	<0.00050	0.00476
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	0.00056	0.00027	0.00029	<0.00010	0.00250
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	0.0018	0.0030	0.0026	<0.0010	0.0040
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	48.4	11.8	14.5	2.65	3.77
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	0.742	1.47	0.747	0.144	2.76



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-108-228.3	K-11-108-87.6	K-11-111-43.1	K-11-112A-147.3	K-11-112A-174.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-006	VA24A1530-007	VA24A1530-009	VA24A1530-010	VA24A1530-011
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	0.00053	0.0114	0.00058	0.00318	0.00098
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	5.69	0.705	0.655	0.206	0.309
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.0104	0.0433	0.0176	0.00443	0.156
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00151	0.00086	0.00137	0.00076	0.00148
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.00288	0.00074	0.00132	<0.00050	0.00753
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	12.0	6.56	11.0	5.08	2.81
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	9.36	7.34	4.18	5.28	2.91
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	0.000085	0.000094	0.000059	0.000058	0.000082
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	3.31	2.66	3.73	6.22	0.337
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0949	0.00961	0.0162	0.00506	0.00292
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	4.59	<0.50	1.30	0.87	<0.50
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00012
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	0.010	<0.010	0.018	<0.010	0.033
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000267	0.00291	0.000706	0.00158	0.000722
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	0.0067	0.0013	0.0022	<0.0010	0.0034
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-112A-217.5	K-11-112A-43.1	K-11-112A-71.4	K-11-112A-102.8	K-11-116-78
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-012	VA24A1530-013	VA24A1530-014	VA24A1530-015	VA24A1530-016
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	37.8	52.8	154	101	29.0
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	325	312	338	281	332
pH	---E116/VA		0.10	pH units	7.03	7.60	6.22	7.75	6.72
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	10.3	14.0	<2.0	22.9	4.0
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.085	0.010	0.015	0.024	0.005
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.234	0.0584	0.0113	0.0075	0.100
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	1.98	1.60	0.83	1.66	1.48
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	0.075	0.039	0.028	0.046	0.027
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	0.0088	0.0020	<0.0010	<0.0010	<0.0010
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.066	0.044	0.024	0.046	0.046
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	1.96	5.72	58.4	19.2	3.05
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	1.09	1.88	0.148	0.789	0.309
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00031	0.00019	0.00019	0.00032	0.00016
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	0.0025	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0279	0.0093	0.0073	0.0033	0.0095
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	0.000109	0.000250	<0.000050	<0.000050
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	3.33	2.61	10.3	9.31	2.75
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	0.00490	0.00320	0.00058	<0.00050	0.00105
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	0.00206	0.00076	0.0299	0.00014	0.00214
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	0.0068	0.0014	0.0054	<0.0010	0.0165
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	12.7	9.43	42.4	26.9	9.29
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	6.23	0.842	0.096	0.297	8.71



Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	K-11-112A-217.5	K-11-112A-43.1	K-11-112A-71.4	K-11-112A-102.8	K-11-116-78
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-012	VA24A1530-013	VA24A1530-014	VA24A1530-015	VA24A1530-016	
					Result	Result	Result	Result	Result	
Leachable Metals										
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	0.00153	0.00848	<0.00010	0.00095	0.00077	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	0.0056	<0.0050	<0.0050	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	1.06	0.707	4.05	0.895	0.588	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.460	0.0243	0.431	0.0140	0.389	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00070	0.0135	0.0422	0.00169	0.00082	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.00563	0.00506	0.590	0.00092	0.00527	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	1.92	7.30	12.7	9.07	0.872	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	0.00078	0.00356	<0.00050	<0.00050	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.82	6.74	2.32	3.24	1.88	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	0.000050	<0.000050	<0.000050	0.000125	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.976	3.77	2.69	3.28	1.17	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.00784	0.00867	0.0266	0.0214	0.00590	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	0.71	1.71	19.0	7.31	0.71	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	0.00015	<0.00010	<0.00010	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	0.022	0.033	<0.010	0.011	<0.010	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000585	0.115	0.00227	0.0636	0.00244	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	0.0105	0.0034	<0.0010	0.0013	0.0074	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	0.012	<0.010	<0.010	<0.010	0.015	



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-117-331	K-11-123-153.8	K-11-128-103.5	K-11-130-448.5	K-11-131-105
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-017	VA24A1530-018	VA24A1530-019	VA24A1530-020	VA24A1530-021
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	419	921	72.7	81.2	413
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	248	279	313	297	318
pH	---E116/VA		0.10	pH units	7.67	7.40	7.77	7.75	6.85
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	43.8	11.8	26.7	34.9	7.8
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.051	0.015	0.006	0.013	0.082
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	<0.0020	0.0053	0.0115	0.0068	<0.0020
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	3.59	0.60	0.54	1.66	2.72
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	<0.020	0.104	0.025	0.038	<0.048 ^{DLCL}
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	<0.0010	0.0036	<0.0010	0.0016	<0.0010
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.061	0.012	0.027	0.035	0.199
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	149	471	7.35	3.20	177
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	<0.0050	0.205	0.0182	0.0122	0.0354
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	<0.00010	0.00010	0.00029	0.00019	<0.00050 ^{DLA}
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050 ^{DLA}
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.112	0.0591	0.0157	0.0742	0.0427
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00250 ^{DLA}
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00250 ^{DLA}
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.050 ^{DLA}
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.0184
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	47.4	190	11.4	8.14	35.6
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00250 ^{DLA}
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	0.00830	<0.00010	<0.00010	<0.00010	0.0802
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050 ^{DLA}
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	188	491	35.0	37.0	165
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	<0.030	<0.030	0.115	0.133	<0.150 ^{DLA}



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)									
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-017	VA24A1530-018	VA24A1530-019	VA24A1530-020	VA24A1530-021
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00050 ^{DLA}
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0250 ^{DLA}
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	16.9	3.97	1.60	4.06	18.4
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	3.59	0.179	0.0362	0.116	12.5
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00013	0.00177	0.00149	0.00028	<0.00050 ^{DLA}
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.0134	<0.00050	<0.00050	<0.00050	0.357
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<1.50 ^{DLA}
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	9.85	13.8	0.801	1.77	9.90
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00433
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	1.92	1.52	2.69	1.23	1.47
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000250 ^{DLA}
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	1.04	2.02	0.187	0.766	1.63
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0510	1.12	0.0272	0.0216	0.0737
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	54.7	169	2.35	1.05	61.4
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00050 ^{DLA}
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00250 ^{DLA}
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.050 ^{DLA}
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000509	0.000094	0.000172	0.000025	0.00266
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050 ^{DLA}
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	1.06

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-133-51.1	K-11-137-291.5	K-11-142-76.47	K-11-143-297.1	K-11-145-159.4
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-022	VA24A1530-023	VA24A1530-024	VA24A1530-025	VA24A1530-026
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	72.8	76.4	352	91.9	129
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	287	302	256	232	269
pH	---E116/VA		0.10	pH units	8.02	7.40	8.13	8.40	8.29
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	35.4	15.4	80.2	38.6	38.1
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.008	0.036	0.008	0.013	0.093
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.050	0.071	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0043	0.0068	0.0032	0.0204	0.0179
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	<0.50	0.63	0.98	4.34	1.96
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	<0.020	0.099	<0.020	<0.020	0.522
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	0.0011	<0.0010	<0.0010	<0.0010	0.0026
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.010	0.025	0.024	0.016	0.064
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	1.30	12.7	92.2	1.24	15.0
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	<0.0050	0.661	<0.0050	<0.0050	2.46
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00040	0.00010	<0.00010	<0.00010	0.00162
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0031
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0114	0.0060	0.0164	0.363	0.0166
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000186
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	10.5	5.61	54.7	10.8	5.21
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	0.00120	<0.00050	<0.00050	0.00276
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	<0.00010	0.00074	0.00012	<0.00010	0.00067
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	<0.0010	0.0013	<0.0010	<0.0010	0.0050
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	34.7	23.9	176	45.2	17.2
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	0.044	0.579	<0.030	<0.030	0.706



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-133-51.1	K-11-137-291.5	K-11-142-76.47	K-11-143-297.1	K-11-145-159.4
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-022	VA24A1530-023	VA24A1530-024	VA24A1530-025	VA24A1530-026
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	0.00064	<0.00010	<0.00010	0.00123
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0088
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	2.06	2.40	9.61	4.44	1.02
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.00228	0.125	0.139	0.0504	0.0140
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00042	0.00238	0.00096	0.00394	0.00814
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	0.00337	0.00060	<0.00050	0.00241
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	1.22	8.52	0.778	0.354	23.2
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	0.00072	<0.00050	0.00426
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.18	2.29	1.88	7.10	7.43
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.194	0.384	0.222	0.698	6.29
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0232	0.00856	0.0908	0.0255	0.0154
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	<0.50	5.10	33.5	<0.50	6.31
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	0.018	<0.010	<0.010	0.074
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000199	0.000325	0.000990	0.000057	0.00446
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0152
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-145-201.8	K-11-147-161.4	K-11-147-308	K-11-147-362.3	K-11-149-211.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-027	VA24A1530-028	VA24A1530-029	VA24A1530-030	VA24A1530-031
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	81.3	505	154	76.8	92.2
Moisture	---E144/VA		0.25	%	<0.25	0.66	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	270	260	239	250	254
pH	---E116/VA		0.10	pH units	7.96	7.91	7.66	7.79	7.53
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	38.8	55.8	25.8	24.8	34.4
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.006	0.122	0.028	0.016	0.007
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	0.139	<0.050	<0.050	0.067
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0028	0.0098	0.0026	0.0213	0.0025
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	<0.50	10.8	1.57	1.61	1.52
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	<0.020	0.121	0.146	0.097	0.023
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	<0.0010	<0.0010	0.0014	0.0013	0.0022
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.012	0.864	0.072	0.058	0.044
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	2.54	170	37.6	7.49	8.27
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	<0.0050	0.0443	0.579	1.61	0.0185
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00049	0.00013	0.00015	0.00018	<0.00010
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0092	0.0066	0.0127	0.0168	0.0955
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	0.013	<0.010	<0.010	0.017
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	10.4	67.8	11.2	6.71	8.60
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00083	<0.00050
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	<0.00010	0.00016	<0.00010	0.00039	<0.00010
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	<0.0010	0.0010	<0.0010	<0.0010	<0.0010
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	41.5	234	41.7	20.2	41.2
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	0.032	<0.030	0.077	0.119	<0.030



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-145-201.8	K-11-147-161.4	K-11-147-308	K-11-147-362.3	K-11-149-211.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-027	VA24A1530-028	VA24A1530-029	VA24A1530-030	VA24A1530-031
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00048	<0.00010
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	0.0067	<0.0050	<0.0050	<0.0050
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	3.78	15.6	3.33	0.838	4.79
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.00179	0.170	0.00339	0.00462	0.0456
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00042	0.170	0.00100	0.00038	0.00031
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	0.00246	<0.00050	0.00099	<0.00050
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	0.731	5.69	18.5	12.0	1.54
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	0.00361	<0.00050	<0.00050	<0.00050
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	1.81	2.62	2.12	5.00	0.623
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.208	5.60	1.04	0.528	0.435
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0193	0.230	0.0371	0.0117	0.0197
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	0.95	56.6	14.3	3.01	3.50
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	0.020	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000063	0.00725	0.000275	0.00133	0.000031
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	0.0021	0.0012	0.0012	<0.0010
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)									
Client sampling date / time									
Analyte					CAS Number				
					Method/Lab				
					LOR				
					Unit				
					Result				
Physical Tests									
Acidity, leachable (as CaCO3)	---	E285/VA	4.0	mg/L	726	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---	E103/VA	2.0	µS/cm	1980	209	218	41.4	132
Moisture	---	E144/VA	0.25	%	0.60	0.40	<0.25	0.50	<0.25
Oxidation-reduction potential [ORP], leachable	---	E127/VA	0.10	mV	381	187	253	252	232
pH	---	E116/VA	0.10	pH units	3.32	7.51	6.43	6.98	7.50
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---	E294/VA	2.0	mg/L	<2.0	36.9	2.7	8.7	22.9
Ammonia, total, leachable (as N)	7664-41-7	E300/VA	0.005	mg/L	0.130	0.014	0.041	0.017	0.023
Bromide, leachable	24959-67-9	E243.Br/VA	0.050	mg/L	<0.250 DLDS	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0	E381/VA	0.0020	mg/L	0.0075	0.0032	<0.0020	0.0389	0.0057
Chloride, leachable	16887-00-6	E243.Cl/VA	0.50	mg/L	<2.50 DLDS	7.06	0.77	1.07	2.81
Fluoride, leachable	16984-48-8	E243.F/VA	0.020	mg/L	1.86	0.090	0.022	0.077	0.057
Nitrite (as N), leachable	14797-65-0	E243.NO2/VA	0.0010	mg/L	<0.0050 DLDS	0.0034	<0.0010	0.0108	<0.0010
Nitrate (as N), leachable	14797-55-8	E243.NO3/VA	0.005	mg/L	0.046	0.306	0.016	0.086	0.071
Sulfate, leachable	14808-79-8	E243.SO4/VA	0.50	mg/L	1310	48.9	91.7	7.02	32.3
Leachable Metals									
Aluminum, leachable	7429-90-5	E446/VA	0.0050	mg/L	33.3	0.0084	0.0058	0.0246	0.463
Antimony, leachable	7440-36-0	E446/VA	0.00010	mg/L	<0.00020 DLA	<0.00010	<0.00010	<0.00010	0.00018
Arsenic, leachable	7440-38-2	E446/VA	0.0010	mg/L	0.0043	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3	E446/VA	0.0010	mg/L	0.0262	0.0047	0.106	0.0850	0.0062
Beryllium, leachable	7440-41-7	E446/VA	0.00050	mg/L	0.0150	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9	E446/VA	0.00050	mg/L	<0.00100 DLA	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8	E446/VA	0.010	mg/L	<0.020 DLA	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9	E446/VA	0.000050	mg/L	0.0608	<0.000050	<0.000050	0.000056	<0.000050
Calcium, leachable	7440-70-2	E446/VA	0.10	mg/L	89.2	24.2	12.0	4.52	12.0
Chromium, leachable	7440-47-3	E446/VA	0.00050	mg/L	0.0183	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, leachable	7440-48-4	E446/VA	0.00010	mg/L	0.409	<0.00010	0.0813	0.00027	<0.00010
Copper, leachable	7440-50-8	E446/VA	0.0010	mg/L	3.48	<0.0010	<0.0010	0.0014	<0.0010
Hardness (as CaCO3), dissolved	---	E446/VA	0.60	mg/L	574	96.9	73.2	15.2	41.4
Iron, leachable	7439-89-6	E446/VA	0.030	mg/L	239	<0.030	<0.030	1.23	0.060



Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	K-11-152-68	K-11-156-135	K-11-158-50.5	K-11-158-57.6	K-11-159-291
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-032	VA24A1530-033	VA24A1530-034	VA24A1530-035	VA24A1530-036	
					Result	Result	Result	Result	Result	
Leachable Metals										
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00020 ^{DLA}	<0.00010	<0.00010	<0.00010	0.00015	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	0.116	<0.0050	0.0156	<0.0050	<0.0050	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	85.4	8.85	10.5	0.945	2.78	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	4.16	0.0604	1.39	0.0344	0.0187	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	<0.00020 ^{DLA}	0.00297	<0.00010	0.00036	0.00120	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	1.37	<0.00050	0.187	0.00075	0.00117	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.60 ^{DLA}	<0.30	<0.30	<0.30	<0.30	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	20.2	2.91	9.48	1.10	11.3	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	0.00408	0.00715	<0.00050	0.00097	<0.00050	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	7.51	2.38	2.03	2.88	3.18	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000100 ^{DLA}	<0.000050	<0.000050	<0.000050	<0.000050	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	1.19	1.02	2.95	0.814	1.02	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.192	0.0314	0.0190	0.0182	0.0140	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	443	18.5	31.1	2.06	10.7	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	0.00056	<0.00010	0.00018	0.00084	<0.00010	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00100 ^{DLA}	<0.00050	<0.00050	<0.00050	<0.00050	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.020 ^{DLA}	<0.010	<0.010	<0.010	<0.010	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	2.04	0.000614	<0.000010	0.000050	0.000107	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	0.175	<0.0010	<0.0010	<0.0010	<0.0010	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	2.26	<0.010	<0.010	<0.010	<0.010	



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-159-478.5	K-11-161-181.5	K-11-163-23.5	K-11-163-28.5	K-11-163-41.4
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-037	VA24A1530-038	VA24A1530-039	VA24A1530-040	VA24A1530-041
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	12.2	<4.0	<4.0	110
Conductivity, leachable	---E103/VA		2.0	µS/cm	99.8	1550	95.8	111	779
Moisture	---E144/VA		0.25	%	<0.25	0.53	<0.25	<0.25	0.32
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	250	250	229	271	369
pH	---E116/VA		0.10	pH units	8.12	7.60	8.11	7.62	3.93
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	46.3	105	51.2	28.9	<2.0
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.006	0.088	<0.005	0.005	0.119
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	0.081	<0.250 ^{DLDS}	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0042	<0.0020	0.0033	0.0027	<0.0020
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	3.57	2.53	<0.50	0.50	1.92
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	<0.020	<0.100 ^{DLDS}	<0.020	<0.040 ^{DLCl}	0.095
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	<0.0010	<0.0050 ^{DLDS}	0.0026	0.0043	<0.0010
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.018	0.218	0.018	0.029	0.172
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	1.51	904	1.24	23.5	408
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	<0.0050	<0.0250 ^{DLA}	<0.0050	0.0090	1.06
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	<0.00010	<0.00050 ^{DLA}	<0.00010	0.00020	<0.00100 ^{DLA}
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0050 ^{DLA}	<0.0010	<0.0010	<0.0100 ^{DLA}
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0320	0.0094	0.0175	0.0063	0.0583
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00250 ^{DLA}	<0.00050	<0.00050	<0.00500 ^{DLA}
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00250 ^{DLA}	<0.00050	<0.00050	<0.00500 ^{DLA}
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.050 ^{DLA}	<0.010	<0.010	<0.100 ^{DLA}
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	0.0149	<0.000050	<0.000050	0.0194
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	12.0	308	11.6	13.7	39.3
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00250 ^{DLA}	<0.00050	<0.00050	<0.00500 ^{DLA}
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	<0.00010	0.00842	<0.00010	<0.00010	0.593
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	<0.0010	0.0066	<0.0010	0.0097	0.0466
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	49.3	930	49.0	50.6	231
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	<0.030	<0.150 ^{DLA}	<0.030	0.154	37.2



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-159-478.5	K-11-161-181.5	K-11-163-23.5	K-11-163-28.5	K-11-163-41.4
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-037	VA24A1530-038	VA24A1530-039	VA24A1530-040	VA24A1530-041
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00050 ^{DLA}	<0.00010	0.00034	0.00135
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0250 ^{DLA}	<0.0050	<0.0050	<0.0500 ^{DLA}
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	4.70	39.0	4.86	3.99	32.3
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.0286	20.8	0.00511	0.110	41.3
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00068	0.00458	0.00028	0.00044	<0.00100 ^{DLA}
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	0.559	<0.00050	<0.00050	2.56
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<1.50 ^{DLA}	<0.30	<0.30	<3.00 ^{DLA}
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	0.326	3.24	0.913	0.392	6.91
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	0.0218	<0.00050	<0.00050	0.0110
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.25	3.22	1.41	1.98	4.10
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000250 ^{DLA}	<0.000050	<0.000050	<0.000500 ^{DLA}
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.486	0.630	0.122	0.282	0.999
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0124	0.322	0.0133	0.0155	0.0349
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	<0.50	312	<0.50	7.63	133
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00050 ^{DLA}	<0.00010	<0.00010	<0.00100 ^{DLA}
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00250 ^{DLA}	<0.00050	<0.00050	<0.00500 ^{DLA}
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.050 ^{DLA}	<0.010	<0.010	<0.100 ^{DLA}
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000073	0.0250	0.000098	0.000374	0.128
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0050 ^{DLA}	<0.0010	<0.0010	<0.0100 ^{DLA}
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	0.458	<0.010	<0.010	1.56

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-163-43	K-11-164-127.5	K-11-165-288.8	K-11-166-54.8	K-11-166-117.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-042	VA24A1530-043	VA24A1530-044	VA24A1530-045	VA24A1530-046
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	214	108	97.0	121	360
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	0.29
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	228	254	273	273	221
pH	---E116/VA		0.10	pH units	7.85	8.10	8.06	7.72	7.93
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	48.3	57.4	40.8	24.7	62.6
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.018	0.009	0.009	0.057	0.020
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0033	<0.0020	0.0034	0.0039	<0.0020
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	2.15	<0.50	3.73	1.29	3.41
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	0.044	<0.020	0.024	0.277	0.043
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	0.0027	0.0045	0.0012	<0.0010	<0.0010
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.161	0.028	0.062	0.037	0.058
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	50.6	1.07	3.50	25.6	106
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	<0.0050	<0.0050	<0.0050	0.647	0.0226
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00021	<0.00010	<0.00010	0.00014	<0.00010
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0126	0.0027	<0.0010	0.0074	0.0105
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	29.4	13.2	11.1	9.06	54.9
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	0.00011	<0.00010	<0.00010	<0.00010	0.00017
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	0.0276	<0.0010	<0.0010	<0.0010	<0.0010
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	99.6	56.5	45.9	30.7	170
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	<0.030	<0.030	<0.030	0.058	<0.030



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)									
					Client sampling date / time				
Analyte					CAS Number				
					Method/Lab				
					LOR				
					Unit				
					Result				
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	0.00096	<0.00010	<0.00010	0.00019	<0.00010
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0059
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	6.35	5.71	4.41	1.96	8.09
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.240	0.00354	0.00597	0.00547	0.178
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00027	0.00020	0.00061	0.00235	0.00227
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.00082	<0.00050	<0.00050	<0.00050	0.00330
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	1.43	0.459	0.303	13.6	7.81
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00191	0.00226
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.80	2.38	1.96	2.26	1.81
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000069
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.438	0.201	1.34	2.41	0.794
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0238	0.00462	0.00692	0.0148	0.0458
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	19.3	<0.50	1.13	10.6	43.9
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000668	0.000080	0.000072	0.00111	0.00912
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0017	<0.0010
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	0.017	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-166-251.1	K-11-168-138.5	K-11-168-291.5	K-11-169-76.8	K-11-99-158.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-047	VA24A1530-048	VA24A1530-049	VA24A1530-050	VA24A1530-051
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	----	E285/VA	4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	----	E103/VA	2.0	µS/cm	73.2	79.6	161	565	47.2
Moisture	----	E144/VA	0.25	%	<0.25	0.75	<0.25	1.10	<0.25
Oxidation-reduction potential [ORP], leachable	----	E127/VA	0.10	mV	217	268	264	244	272
pH	----	E116/VA	0.10	pH units	8.35	7.72	7.39	8.00	7.40
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	----	E294/VA	2.0	mg/L	33.4	36.8	14.4	60.6	14.7
Ammonia, total, leachable (as N)	7664-41-7	E300/VA	0.005	mg/L	0.007	<0.005	0.120	0.014	<0.005
Bromide, leachable	24959-67-9	E243.Br/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0	E381/VA	0.0020	mg/L	0.0021	0.0152	<0.0020	0.0035	0.0240
Chloride, leachable	16887-00-6	E243.Cl/VA	0.50	mg/L	2.66	0.71	1.53	0.76	0.72
Fluoride, leachable	16984-48-8	E243.F/VA	0.020	mg/L	<0.020	0.073	0.234	0.080	0.071
Nitrite (as N), leachable	14797-65-0	E243.NO2/VA	0.0010	mg/L	<0.0010	0.0012	<0.0010	<0.0010	0.0093
Nitrate (as N), leachable	14797-55-8	E243.NO3/VA	0.005	mg/L	0.006	0.016	0.054	0.019	0.040
Sulfate, leachable	14808-79-8	E243.SO4/VA	0.50	mg/L	1.12	3.15	47.4	227	3.66
Leachable Metals									
Aluminum, leachable	7429-90-5	E446/VA	0.0050	mg/L	0.0335	0.0634	0.139	0.0072	0.0741
Antimony, leachable	7440-36-0	E446/VA	0.00010	mg/L	<0.00010	0.00015	0.00015	<0.00010	0.00012
Arsenic, leachable	7440-38-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3	E446/VA	0.0010	mg/L	0.0039	0.0087	0.0215	0.0627	0.0205
Beryllium, leachable	7440-41-7	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8	E446/VA	0.010	mg/L	<0.010	0.019	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9	E446/VA	0.000050	mg/L	<0.000050	<0.000050	0.000372	0.000185	<0.000050
Calcium, leachable	7440-70-2	E446/VA	0.10	mg/L	6.63	7.60	10.4	53.5	5.34
Chromium, leachable	7440-47-3	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, leachable	7440-48-4	E446/VA	0.00010	mg/L	<0.00010	0.00015	0.00161	0.00074	0.00043
Copper, leachable	7440-50-8	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0019
Hardness (as CaCO3), dissolved	----	E446/VA	0.60	mg/L	35.9	38.7	47.5	278	20.2
Iron, leachable	7439-89-6	E446/VA	0.030	mg/L	<0.030	1.19	0.031	<0.030	2.41



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-11-166-251.1	K-11-168-138.5	K-11-168-291.5	K-11-169-76.8	K-11-99-158.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-047	VA24A1530-048	VA24A1530-049	VA24A1530-050	VA24A1530-051
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	0.00018	<0.00010	<0.00010
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	0.0073	0.0063	<0.0050
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	4.70	4.79	5.23	35.1	1.68
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	<0.00050	0.259	0.328	0.177	0.222
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00028	0.00045	0.00772	0.00042	0.00110
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	<0.00050	0.0490	0.00137	0.00125
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	0.501	0.870	11.2	7.46	0.986
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	0.00365	0.0109	<0.00050
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	0.225	4.33	2.52	3.88	1.68
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.777	0.347	2.36	0.634	0.411
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.00875	0.00475	0.0245	0.0641	0.0147
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	0.57	1.18	16.2	78.6	1.27
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	0.00012	0.00019	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000134	0.00140	0.000352	0.00175	0.000161
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-12-173-197.5	K-12-173-199.7	K-12-175-16.9	K-12-175-20.3	----
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-052	VA24A1530-053	VA24A1530-054	VA24A1530-055	-----
					Result	Result	Result	Result	----
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	8.4	<4.0	<4.0	<4.0	----
Conductivity, leachable	---E103/VA		2.0	µS/cm	412	899	478	122	----
Moisture	---E144/VA		0.25	%	<0.25	1.58	0.62	<0.25	----
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	267	239	263	325	----
pH	---E116/VA		0.10	pH units	4.94	7.80	7.72	6.38	----
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	<2.0	43.1	34.9	<2.0	----
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.083	<0.005	0.011	0.048	----
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	<0.0020	0.0048	0.0048	<0.0020	----
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	2.77	5.94	4.38	5.71	----
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	0.044	0.138	0.190	0.024	----
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	<0.0010	0.0047	0.0011	<0.0010	----
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.063	0.189	0.131	0.087	----
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	183	442	194	40.7	----
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	0.145	0.0191	0.0146	<0.0050	----
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	<0.00010	0.00027	<0.00010	<0.00010	----
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0443	0.0271	0.0495	0.0033	----
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	0.00771	0.000076	0.000446	0.000352	----
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	25.7	87.9	47.8	9.72	----
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	0.141	0.00029	0.00306	0.00489	----
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	0.0061	0.0011	0.0033	0.0013	----
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	154	496	231	40.7	----
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	1.66	<0.030	<0.030	<0.030	----



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID	K-12-173-197.5	K-12-173-199.7	K-12-175-16.9	K-12-175-20.3	----
(Matrix: Soil/Solid)										
					Client sampling date / time	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1530-052	VA24A1530-053	VA24A1530-054	VA24A1530-055	-----	
					Result	Result	Result	Result	----	
Leachable Metals										
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	0.00015	<0.00010	<0.00010	<0.00010	----	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	0.0224	0.0059	0.0083	0.0058	----	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	21.9	67.1	27.1	3.98	----	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	4.82	0.0203	0.572	0.533	----	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	<0.00010	0.00067	0.00212	<0.00010	----	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.477	0.00170	0.0211	0.0342	----	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	----	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	13.6	1.74	6.39	1.66	----	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	0.00260	0.00368	0.00886	0.00275	----	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	4.28	1.31	3.92	2.38	----	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	3.47	0.402	1.64	2.73	----	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0509	0.178	0.0342	0.0123	----	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	61.2	151	66.5	13.4	----	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	0.00010	<0.00010	<0.00010	0.00035	----	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.0216	0.0286	0.00389	0.000028	----	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	0.592	<0.010	<0.010	<0.010	----	

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

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA24A1530	Page	: 1 of 104
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 24-Jan-2024 12:00
PO	: ----	Issue Date	: 29-Feb-2024 17:06
C-O-C number	: ----		
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKC1100-003		
No. of samples received	: 54		
No. of samples analysed	: 54		

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

Key

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

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Leachable Anions & Nutrients	Anonymous	Anonymous	Ammonia, total, leachable (as N)	7664-41-7	E300	0.026 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Leachable Metals	VA24A1530-049	K-11-168-291.5	Aluminum, leachable	7429-90-5	E446	54.7 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	Anonymous	Anonymous	Manganese, leachable	7439-96-5	E446	50.9 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	Anonymous	Anonymous	Molybdenum, leachable	7439-98-7	E446	0.00034 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Leachable Metals	Anonymous	Anonymous	Potassium, leachable	7440-09-7	E446	70.4 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	Anonymous	Anonymous	Sulfur, leachable	7704-34-9	E446	31.8 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	Anonymous	Anonymous	Uranium, leachable	7440-61-1	E446	54.7 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Soil/Solid**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E285	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E285	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E285	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E294	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓



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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E294	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E294	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✓
Leachable Anions & Nutrients : Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✓
Leachable Anions & Nutrients : Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✓
Leachable Anions & Nutrients : Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✓
Leachable Anions & Nutrients : Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✓
Leachable Anions & Nutrients : Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✓
Leachable Anions & Nutrients : Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E300	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	07-Feb-2024	3 days	14 days	✓



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E300	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E300	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✓
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E243.Br	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E243.Br	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E243.Br	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E243.Cl	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	07-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E243.Cl	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E243.Cl	24-Jan-2024	04-Feb-2024	30 days	34 days	✖ EHT	06-Feb-2024	30 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E243.F	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E243.F	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E243.F	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis				
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-175-16.9	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-175-20.3	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-83-658.8	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-83-660.6	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-93-46	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-100B-116.25	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-108-118.2	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-108-228.3	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-108-87.6	E243.NO3	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓	



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✓



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E243.NO3	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis				
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-159-291	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-159-478.5	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-161-181.5	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-163-23.5	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-163-28.5	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-163-41.4	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-163-43	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-164-127.5	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-165-288.8	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔	



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E243.NO3	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E243.NO2	24-Jan-2024	04-Feb-2024	3 days	11 days	✖ EHT	06-Feb-2024	3 days	13 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E243.NO2	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	07-Feb-2024	3 days	15 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E243.NO2	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E243.SO4	24-Jan-2024	04-Feb-2024	28 days	11 days	✔	06-Feb-2024	28 days	13 days	✔



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E243.SO4	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	07-Feb-2024	28 days	15 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E243.SO4	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E381	24-Jan-2024	04-Feb-2024	3 days	11 days	✗ EHT	06-Feb-2024	3 days	13 days	✓



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis				
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-123-153.8	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-128-103.5	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-130-448.5	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-131-105	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-133-51.1	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-137-291.5	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-142-76.47	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-143-297.1	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-145-159.4	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔	



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E381	24-Jan-2024	06-Feb-2024	3 days	13 days	✖ EHT	08-Feb-2024	3 days	16 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E381	24-Jan-2024	13-Feb-2024	3 days	20 days	✖ EHT	15-Feb-2024	3 days	22 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-175-16.9	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✓	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-175-20.3	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✓	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-83-658.8	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-83-660.6	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-10-93-46	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-100B-116.25	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-108-118.2	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-108-228.3	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-11-108-87.6	E515	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E515	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E515	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	22 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E446	24-Jan-2024	04-Feb-2024	180 days	11 days	✓	06-Feb-2024	180 days	13 days	✓



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E446	24-Jan-2024	06-Feb-2024	180 days	13 days	✓	08-Feb-2024	180 days	15 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓



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Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E446	24-Jan-2024	13-Feb-2024	180 days	20 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E103	24-Jan-2024	04-Feb-2024	28 days	11 days	✓	06-Feb-2024	28 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E103	24-Jan-2024	06-Feb-2024	28 days	13 days	✓	08-Feb-2024	28 days	15 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E103	24-Jan-2024	13-Feb-2024	28 days	20 days	✓	15-Feb-2024	28 days	23 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✖ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✖ EHT
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-111-43.1	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-112A-102.8	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-112A-147.3	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-112A-174.5	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-112A-217.5	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-112A-43.1	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-112A-71.4	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-116-78	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-117-331	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-123-153.8	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-128-103.5	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-130-448.5	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-131-105	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-133-51.1	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-137-291.5	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-142-76.47	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-143-297.1	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-145-159.4	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-145-201.8	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-147-161.4	E144	24-Jan-2024	----	----	----		02-Feb-2024	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-147-308	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-147-362.3	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-149-211.5	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-152-68	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-156-135	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-158-50.5	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-158-57.6	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-159-291	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-159-478.5	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-161-181.5	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-163-23.5	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-163-28.5	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-163-41.4	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-163-43	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-164-127.5	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-165-288.8	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-166-117.5	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-166-251.1	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-166-54.8	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-168-138.5	E144	24-Jan-2024	----	----	----		06-Feb-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-168-291.5	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-169-76.8	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-99-158.5	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-173-197.5	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-173-199.7	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-175-16.9	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-175-20.3	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-83-658.8	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-83-660.6	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-10-93-46	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-100B-116.25	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-108-118.2	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-108-228.3	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-11-108-87.6	E144	24-Jan-2024	----	----	----		30-Jan-2024	----	6 days	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	27-Feb-2024	30 days	34 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	27-Feb-2024	30 days	34 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	27-Feb-2024	30 days	34 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	27-Feb-2024	30 days	34 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	27-Feb-2024	30 days	34 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	27-Feb-2024	30 days	34 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E127	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	27-Feb-2024	30 days	34 days	✖ EHT



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E127	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	23-Feb-2024	30 days	30 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✗ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✗ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✗ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✗ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✗ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✗ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✗ EHT



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E127	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	25-Feb-2024	30 days	32 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-658.8	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-83-660.6	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-10-93-46	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-100B-116.25	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-118.2	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-228.3	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-108-87.6	E116	24-Jan-2024	04-Feb-2024	30 days	11 days	✓	06-Feb-2024	30 days	13 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-111-43.1	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-102.8	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-147.3	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-174.5	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-217.5	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-43.1	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-112A-71.4	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-116-78	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-117-331	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-123-153.8	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-128-103.5	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-130-448.5	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-131-105	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-133-51.1	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-137-291.5	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-142-76.47	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-143-297.1	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-159.4	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓



Matrix: Soil/Solid

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Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-145-201.8	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-161.4	E116	24-Jan-2024	06-Feb-2024	30 days	13 days	✓	08-Feb-2024	30 days	15 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-308	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-147-362.3	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-149-211.5	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-152-68	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-156-135	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-50.5	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-158-57.6	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-291	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-159-478.5	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-161-181.5	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-23.5	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-28.5	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-41.4	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-163-43	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-164-127.5	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-165-288.8	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-117.5	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-251.1	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-166-54.8	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-138.5	E116	24-Jan-2024	13-Feb-2024	30 days	20 days	✓	15-Feb-2024	30 days	23 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-168-291.5	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-169-76.8	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-11-99-158.5	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-197.5	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-173-199.7	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-16.9	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-20.3	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

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

Matrix: **Soil/Solid**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1318982	4	80	5.0	5.0	✔
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1318983	4	80	5.0	5.0	✔
Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)	E300	1318978	4	80	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1318990	4	80	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1318989	4	80	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1318988	4	80	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1318992	4	80	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1318991	4	80	5.0	5.0	✔
Moisture Content by Gravimetry	E144	1317337	4	80	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1318986	4	80	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1318987	4	80	5.0	5.0	✔
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127	1318981	5	80	6.2	5.0	✔
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	1318980	4	80	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1318985	4	80	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1318984	4	80	5.0	5.0	✔
Laboratory Control Samples (LCS)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1318982	4	80	5.0	5.0	✔
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1318983	4	80	5.0	5.0	✔
Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)	E300	1318978	4	80	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1318990	4	80	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1318989	4	80	5.0	5.0	✔
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	1318979	4	80	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1318988	4	80	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1318992	4	80	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1318991	4	80	5.0	5.0	✔
Moisture Content by Gravimetry	E144	1317337	4	80	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1318986	4	80	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1318987	4	80	5.0	5.0	✔
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127	1318981	5	80	6.2	5.0	✔
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	1318980	4	80	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1318985	4	80	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1318984	4	80	5.0	5.0	✔
Method Blanks (MB)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1318982	4	80	5.0	5.0	✔



Matrix: Soil/Solid

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1318983	4	80	5.0	5.0	✔
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300	1318978	4	80	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1318990	4	80	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1318989	4	80	5.0	5.0	✔
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	1318979	4	80	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1318988	4	80	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1318992	4	80	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1318991	4	80	5.0	5.0	✔
Moisture Content by Gravimetry	E144	1317337	4	80	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1318986	4	80	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1318987	4	80	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1318985	4	80	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1318984	4	80	5.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300	1318978	4	80	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1318990	4	80	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1318989	4	80	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1318988	4	80	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1318992	4	80	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1318991	4	80	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1318986	4	80	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1318987	4	80	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1318985	4	80	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1318984	4	80	5.0	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. Conductivity measurements are temperature-compensated to 25°C.
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^\circ\text{C}$) on an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. The pH is then measured by a standard pH probe.
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/ASTM D1498 (mod)	Oxidation reduction potential is reported as the oxidation-reduction potential (measured in mV) of the platinum metal-reference electrode employed in the analysis of an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.S04 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 2310 B (mod)	Acidity is determined by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by potentiometric titration to a specified endpoint.
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by autotitration
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia is analyzed by flow-injection analysis with fluorescence detection by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis.
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381 ALS Environmental - Vancouver	Soil/Solid	MEND/APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer on an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered and digested prior to analysis.
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES/EPA 6020B (mod)	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by Collision/Reaction Cell ICPMS. This extraction is an empirical procedure with pre-defined characteristics. Recovery of some elements (Ag, Bi, and Sn) by this method can be variable due to the neutral pH of the extraction fluid, and therefore the LCS DQOs has been established at 50-130% for these elements.
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES/EPA 1631E (mod)	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by CVAAS. This extraction is an empirical procedure with pre-defined characteristics. Recovery of mercury can be variable due to the neutral pH of the extraction fluid, and therefore the LCS DQO has been established at 50-130%.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Shakeflask Leachate Preparation (3:1 Ratio with Water)	EP446 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES	A sample is extracted with water at a 3:1 liquid to solids ratio for 24 hours, then filtered through a 0.45 micron membrane filter.

QUALITY CONTROL REPORT

Work Order	: VA24A1530	Page	: 1 of 32
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 24-Jan-2024 12:00
PO	: ----	Date Analysis Commenced	: 30-Jan-2024
C-O-C number	: ----	Issue Date	: 29-Feb-2024 17:01
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKCI100-003		
No. of samples received	: 54		
No. of samples analysed	: 54		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	Position	Laboratory Department
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia



General Comments

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

Key :

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

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

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

Workorder Comments

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

Page : 3 of 32
 Work Order : VA24A1530
 Client : O'Kane Consultants Inc.
 Project : ----



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: Soil/Solid

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1317337)											
VA24A1528-041	Anonymous	Moisture	----	E144	0.25	%	<0.25	<0.25	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1318980)											
VA24A1528-041	Anonymous	pH	----	E116	0.10	pH units	8.12	8.02	1.24%	5%	----
Physical Tests (QC Lot: 1318981)											
VA24A1528-041	Anonymous	Oxidation-reduction potential [ORP], leachable	----	E127	0.10	mV	174	176	1.03%	30%	----
Physical Tests (QC Lot: 1321318)											
VA24A1530-009	K-11-111-43.1	pH	----	E116	0.10	pH units	7.89	7.90	0.127%	5%	----
Physical Tests (QC Lot: 1321319)											
VA24A1530-009	K-11-111-43.1	Oxidation-reduction potential [ORP], leachable	----	E127	0.10	mV	280	281	0.357%	30%	----
Physical Tests (QC Lot: 1321548)											
VA24A1530-009	K-11-111-43.1	Moisture	----	E144	0.25	%	<0.25	<0.25	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1323764)											
VA24A1530-029	K-11-147-308	Moisture	----	E144	0.25	%	<0.25	<0.25	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1324223)											
VA24A1530-029	K-11-147-308	pH	----	E116	0.10	pH units	7.66	7.65	0.131%	5%	----
Physical Tests (QC Lot: 1324224)											
VA24A1530-029	K-11-147-308	Oxidation-reduction potential [ORP], leachable	----	E127	0.10	mV	239	237	0.672%	30%	----
Physical Tests (QC Lot: 1328763)											
VA24A1530-049	K-11-168-291.5	Moisture	----	E144	0.25	%	<0.25	<0.25	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1330527)											
VA24A1530-049	K-11-168-291.5	pH	----	E116	0.10	pH units	7.39	7.35	0.543%	5%	----
Physical Tests (QC Lot: 1330528)											
VA24A1530-049	K-11-168-291.5	Oxidation-reduction potential [ORP], leachable	----	E127	0.10	mV	264	262	0.646%	30%	----
Physical Tests (QC Lot: 1346896)											
VA24A1530-001	K-10-83-658.8	Oxidation-reduction potential [ORP], leachable	----	E127	0.10	mV	232	228	1.48%	30%	----
Leachable Anions & Nutrients (QC Lot: 1318978)											
VA24A1528-041	Anonymous	Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.061	# 0.036	0.026	Diff <2x LOR	DUP-H
Leachable Anions & Nutrients (QC Lot: 1318982)											

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Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Anions & Nutrients (QC Lot: 1318982) - continued											
VA24A1528-041	Anonymous	Acidity, leachable (as CaCO3)	----	E285	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318983)											
VA24A1528-041	Anonymous	Alkalinity, total (as CaCO3), leachable	----	E294	2.0	mg/L	92.4	73.2	23.2%	25%	----
Leachable Anions & Nutrients (QC Lot: 1318984)											
VA24A1528-041	Anonymous	Phosphorus, total dissolved	7723-14-0	E381	0.0020	mg/L	0.0061	0.0068	0.0006	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318985)											
VA24A1528-041	Anonymous	Sulfate, leachable	14808-79-8	E243.SO4	0.50	mg/L	42.3	35.0	19.0%	30%	----
Leachable Anions & Nutrients (QC Lot: 1318986)											
VA24A1528-041	Anonymous	Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.054	0.049	8.73%	30%	----
Leachable Anions & Nutrients (QC Lot: 1318987)											
VA24A1528-041	Anonymous	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.0010	mg/L	0.0023	<0.0010	0.0013	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318988)											
VA24A1528-041	Anonymous	Fluoride, leachable	16984-48-8	E243.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1318989)											
VA24A1528-041	Anonymous	Chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L	3.96	3.69	7.06%	30%	----
Leachable Anions & Nutrients (QC Lot: 1318990)											
VA24A1528-041	Anonymous	Bromide, leachable	24959-67-9	E243.Br	0.050	mg/L	0.082	0.115	0.033	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1321316)											
VA24A1530-009	K-11-111-43.1	Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	<0.005	<0.005	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1321320)											
VA24A1530-009	K-11-111-43.1	Acidity, leachable (as CaCO3)	----	E285	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1321321)											
VA24A1530-009	K-11-111-43.1	Alkalinity, total (as CaCO3), leachable	----	E294	2.0	mg/L	28.3	29.8	5.22%	25%	----
Leachable Anions & Nutrients (QC Lot: 1321322)											
VA24A1530-009	K-11-111-43.1	Phosphorus, total dissolved	7723-14-0	E381	0.0020	mg/L	0.0319	0.0351	9.64%	30%	----
Leachable Anions & Nutrients (QC Lot: 1321323)											
VA24A1530-009	K-11-111-43.1	Sulfate, leachable	14808-79-8	E243.SO4	0.50	mg/L	3.32	3.56	6.89%	30%	----
Leachable Anions & Nutrients (QC Lot: 1321324)											
VA24A1530-009	K-11-111-43.1	Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.020	0.019	0.001	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1321325)											
VA24A1530-009	K-11-111-43.1	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.0010	mg/L	0.0024	0.0025	0.00007	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1321326)											

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 Client : O'Kane Consultants Inc.
 Project : ----



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Anions & Nutrients (QC Lot: 1321326) - continued											
VA24A1530-009	K-11-111-43.1	Fluoride, leachable	16984-48-8	E243.F	0.020	mg/L	0.072	0.078	0.006	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1321327)											
VA24A1530-009	K-11-111-43.1	Chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L	1.86	1.82	0.05	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1321328)											
VA24A1530-009	K-11-111-43.1	Bromide, leachable	24959-67-9	E243.Br	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1324221)											
VA24A1530-029	K-11-147-308	Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.028	0.025	0.003	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1324225)											
VA24A1530-029	K-11-147-308	Acidity, leachable (as CaCO ₃)	----	E285	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1324226)											
VA24A1530-029	K-11-147-308	Alkalinity, total (as CaCO ₃), leachable	----	E294	2.0	mg/L	25.8	25.4	1.56%	25%	----
Leachable Anions & Nutrients (QC Lot: 1324227)											
VA24A1530-029	K-11-147-308	Phosphorus, total dissolved	7723-14-0	E381	0.0020	mg/L	0.0026	0.0028	0.0002	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1324228)											
VA24A1530-029	K-11-147-308	Sulfate, leachable	14808-79-8	E243.SO ₄	0.50	mg/L	37.6	34.0	10.0%	30%	----
Leachable Anions & Nutrients (QC Lot: 1324229)											
VA24A1530-029	K-11-147-308	Nitrate (as N), leachable	14797-55-8	E243.NO ₃	0.005	mg/L	0.072	0.066	9.31%	30%	----
Leachable Anions & Nutrients (QC Lot: 1324230)											
VA24A1530-029	K-11-147-308	Nitrite (as N), leachable	14797-65-0	E243.NO ₂	0.0010	mg/L	0.0014	0.0013	0.0001	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1324231)											
VA24A1530-029	K-11-147-308	Fluoride, leachable	16984-48-8	E243.F	0.020	mg/L	0.146	0.144	1.47%	30%	----
Leachable Anions & Nutrients (QC Lot: 1324232)											
VA24A1530-029	K-11-147-308	Chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L	1.57	1.57	0.0007	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1324233)											
VA24A1530-029	K-11-147-308	Bromide, leachable	24959-67-9	E243.Br	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330525)											
VA24A1530-049	K-11-168-291.5	Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.120	0.123	2.48%	20%	----
Leachable Anions & Nutrients (QC Lot: 1330529)											
VA24A1530-049	K-11-168-291.5	Acidity, leachable (as CaCO ₃)	----	E285	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330530)											
VA24A1530-049	K-11-168-291.5	Alkalinity, total (as CaCO ₃), leachable	----	E294	2.0	mg/L	14.4	13.2	1.2	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330531)											

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 Client : O'Kane Consultants Inc.
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Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Anions & Nutrients (QC Lot: 1330531) - continued											
VA24A1530-049	K-11-168-291.5	Phosphorus, total dissolved	7723-14-0	E381	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330532)											
VA24A1530-049	K-11-168-291.5	Sulfate, leachable	14808-79-8	E243.SO4	0.50	mg/L	47.4	50.5	6.31%	30%	----
Leachable Anions & Nutrients (QC Lot: 1330533)											
VA24A1530-049	K-11-168-291.5	Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.054	0.054	0.0355%	30%	----
Leachable Anions & Nutrients (QC Lot: 1330534)											
VA24A1530-049	K-11-168-291.5	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330535)											
VA24A1530-049	K-11-168-291.5	Fluoride, leachable	16984-48-8	E243.F	0.020	mg/L	0.234	0.219	6.72%	30%	----
Leachable Anions & Nutrients (QC Lot: 1330536)											
VA24A1530-049	K-11-168-291.5	Chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L	1.53	1.48	0.05	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330537)											
VA24A1530-049	K-11-168-291.5	Bromide, leachable	24959-67-9	E243.Br	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1318991)											
VA24A1528-041	Anonymous	Aluminum, leachable	7429-90-5	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Antimony, leachable	7440-36-0	E446	0.00010	mg/L	0.00012	<0.00010	0.00002	Diff <2x LOR	----
		Arsenic, leachable	7440-38-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0986	0.116	16.3%	30%	----
		Beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, leachable	7440-43-9	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Calcium, leachable	7440-70-2	E446	0.10	mg/L	42.4	34.6	20.3%	30%	----
		Chromium, leachable	7440-47-3	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, leachable	7440-48-4	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, leachable	7440-50-8	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Iron, leachable	7439-89-6	E446	0.030	mg/L	<0.030	<0.030	0	Diff <2x LOR	----
		Lead, leachable	7439-92-1	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, leachable	7439-93-2	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Magnesium, leachable	7439-95-4	E446	0.050	mg/L	17.0	13.4	23.4%	30%	----
		Manganese, leachable	7439-96-5	E446	0.00050	mg/L	0.0474	0.0281	50.9%	30%	DUP-H
		Molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00064	# 0.00030	0.00034	Diff <2x LOR	DUP-H
		Nickel, leachable	7440-02-0	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Metals (QC Lot: 1318991) - continued											
VA24A1528-041	Anonymous	Potassium, leachable	7440-09-7	E446	0.050	mg/L	2.06	0.985	70.4%	30%	DUP-H
		Selenium, leachable	7782-49-2	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silicon, leachable	7440-21-3	E446	0.050	mg/L	5.64	3.85	37.6%	40%	----
		Silver, leachable	7440-22-4	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Sodium, leachable	7440-23-5	E446	0.050	mg/L	0.384	0.310	21.3%	30%	----
		Strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.0992	0.0850	15.4%	30%	----
		Sulfur, leachable	7704-34-9	E446	0.50	mg/L	18.0	13.1	31.8%	30%	DUP-H
		Thallium, leachable	7440-28-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, leachable	7440-32-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Uranium, leachable	7440-61-1	E446	0.000010	mg/L	0.000795	0.000454	54.7%	30%	DUP-H
		Vanadium, leachable	7440-62-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1318992)											
VA24A1528-041	Anonymous	Mercury, leachable	7439-97-6	E515	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1321329)											
VA24A1530-009	K-11-111-43.1	Aluminum, leachable	7429-90-5	E446	0.0050	mg/L	1.05	0.964	8.33%	30%	----
		Antimony, leachable	7440-36-0	E446	0.00010	mg/L	0.00054	0.00045	0.00009	Diff <2x LOR	----
		Arsenic, leachable	7440-38-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0112	0.0106	5.63%	30%	----
		Beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, leachable	7440-43-9	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Calcium, leachable	7440-70-2	E446	0.10	mg/L	4.72	4.84	2.48%	30%	----
		Chromium, leachable	7440-47-3	E446	0.00050	mg/L	0.00124	0.00110	0.00014	Diff <2x LOR	----
		Cobalt, leachable	7440-48-4	E446	0.00010	mg/L	0.00029	0.00025	0.00004	Diff <2x LOR	----
		Copper, leachable	7440-50-8	E446	0.0010	mg/L	0.0026	0.0026	0.00007	Diff <2x LOR	----
		Iron, leachable	7439-89-6	E446	0.030	mg/L	0.747	0.688	8.28%	40%	----
		Lead, leachable	7439-92-1	E446	0.00010	mg/L	0.00058	0.00049	0.00009	Diff <2x LOR	----
		Lithium, leachable	7439-93-2	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Magnesium, leachable	7439-95-4	E446	0.050	mg/L	0.655	0.654	0.0446%	30%	----
		Manganese, leachable	7439-96-5	E446	0.00050	mg/L	0.0176	0.0164	7.13%	30%	----
		Molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00137	0.00140	2.40%	30%	----



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Metals (QC Lot: 1321329) - continued											
VA24A1530-009	K-11-111-43.1	Nickel, leachable	7440-02-0	E446	0.00050	mg/L	0.00132	0.00125	0.00007	Diff <2x LOR	----
		Phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Potassium, leachable	7440-09-7	E446	0.050	mg/L	11.0	11.4	2.97%	30%	----
		Selenium, leachable	7782-49-2	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silicon, leachable	7440-21-3	E446	0.050	mg/L	4.18	4.17	0.0192%	40%	----
		Silver, leachable	7440-22-4	E446	0.000050	mg/L	0.000059	0.000059	0.0000004	Diff <2x LOR	----
		Sodium, leachable	7440-23-5	E446	0.050	mg/L	3.73	4.00	6.90%	30%	----
		Strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.0162	0.0164	1.22%	30%	----
		Sulfur, leachable	7704-34-9	E446	0.50	mg/L	1.30	1.18	0.11	Diff <2x LOR	----
		Thallium, leachable	7440-28-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, leachable	7440-32-6	E446	0.010	mg/L	0.018	0.016	0.002	Diff <2x LOR	----
		Uranium, leachable	7440-61-1	E446	0.000010	mg/L	0.000706	0.000637	10.2%	30%	----
		Vanadium, leachable	7440-62-2	E446	0.0010	mg/L	0.0022	0.0022	0.00001	Diff <2x LOR	----
		Zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1321330)											
VA24A1530-009	K-11-111-43.1	Mercury, leachable	7439-97-6	E515	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1324234)											
VA24A1530-029	K-11-147-308	Aluminum, leachable	7429-90-5	E446	0.0050	mg/L	0.579	0.568	1.97%	30%	----
		Antimony, leachable	7440-36-0	E446	0.00010	mg/L	0.00015	0.00015	0.000006	Diff <2x LOR	----
		Arsenic, leachable	7440-38-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0127	0.0124	2.49%	30%	----
		Beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, leachable	7440-43-9	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Calcium, leachable	7440-70-2	E446	0.10	mg/L	11.2	10.2	9.00%	30%	----
		Chromium, leachable	7440-47-3	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, leachable	7440-48-4	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, leachable	7440-50-8	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Iron, leachable	7439-89-6	E446	0.030	mg/L	0.077	0.074	0.002	Diff <2x LOR	----
		Lead, leachable	7439-92-1	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, leachable	7439-93-2	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Magnesium, leachable	7439-95-4	E446	0.050	mg/L	3.33	3.04	9.03%	30%	----



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Metals (QC Lot: 1324234) - continued											
VA24A1530-029	K-11-147-308	Manganese, leachable	7439-96-5	E446	0.00050	mg/L	0.00339	0.00322	0.00017	Diff <2x LOR	----
		Molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00100	0.00106	6.46%	30%	----
		Nickel, leachable	7440-02-0	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Potassium, leachable	7440-09-7	E446	0.050	mg/L	18.5	17.2	7.23%	30%	----
		Selenium, leachable	7782-49-2	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silicon, leachable	7440-21-3	E446	0.050	mg/L	2.12	1.94	8.93%	40%	----
		Silver, leachable	7440-22-4	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Sodium, leachable	7440-23-5	E446	0.050	mg/L	1.04	0.985	5.00%	30%	----
		Strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.0371	0.0358	3.49%	30%	----
		Sulfur, leachable	7704-34-9	E446	0.50	mg/L	14.3	12.3	15.1%	30%	----
		Thallium, leachable	7440-28-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, leachable	7440-32-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Uranium, leachable	7440-61-1	E446	0.000010	mg/L	0.000275	0.000226	19.6%	30%	----
		Vanadium, leachable	7440-62-2	E446	0.0010	mg/L	0.0012	0.0012	0.000007	Diff <2x LOR	----
		Zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1324235)											
VA24A1530-029	K-11-147-308	Mercury, leachable	7439-97-6	E515	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1330538)											
VA24A1530-049	K-11-168-291.5	Aluminum, leachable	7429-90-5	E446	0.0050	mg/L	0.139	0.0793	54.7%	30%	DUP-H
		Antimony, leachable	7440-36-0	E446	0.00010	mg/L	0.00015	0.00011	0.00004	Diff <2x LOR	----
		Arsenic, leachable	7440-38-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0215	0.0221	2.85%	30%	----
		Beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, leachable	7440-43-9	E446	0.000050	mg/L	0.000372	0.000396	6.22%	30%	----
		Calcium, leachable	7440-70-2	E446	0.10	mg/L	10.4	10.6	1.61%	30%	----
		Chromium, leachable	7440-47-3	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, leachable	7440-48-4	E446	0.00010	mg/L	0.00161	0.00172	6.91%	30%	----
		Copper, leachable	7440-50-8	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Iron, leachable	7439-89-6	E446	0.030	mg/L	0.031	<0.030	0.001	Diff <2x LOR	----
		Lead, leachable	7439-92-1	E446	0.00010	mg/L	0.00018	0.00012	0.00006	Diff <2x LOR	----



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Metals (QC Lot: 1330538) - continued											
VA24A1530-049	K-11-168-291.5	Lithium, leachable	7439-93-2	E446	0.0050	mg/L	0.0073	0.0080	0.0007	Diff <2x LOR	----
		Magnesium, leachable	7439-95-4	E446	0.050	mg/L	5.23	5.46	4.30%	30%	----
		Manganese, leachable	7439-96-5	E446	0.00050	mg/L	0.328	0.359	8.97%	30%	----
		Molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00772	0.00691	11.0%	30%	----
		Nickel, leachable	7440-02-0	E446	0.00050	mg/L	0.0490	0.0543	10.2%	30%	----
		Phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Potassium, leachable	7440-09-7	E446	0.050	mg/L	11.2	11.5	2.97%	30%	----
		Selenium, leachable	7782-49-2	E446	0.00050	mg/L	0.00365	0.00362	0.780%	30%	----
		Silicon, leachable	7440-21-3	E446	0.050	mg/L	2.52	2.27	10.4%	40%	----
		Silver, leachable	7440-22-4	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Sodium, leachable	7440-23-5	E446	0.050	mg/L	2.36	2.33	1.38%	30%	----
		Strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.0245	0.0246	0.446%	30%	----
		Sulfur, leachable	7704-34-9	E446	0.50	mg/L	16.2	17.7	8.40%	30%	----
		Thallium, leachable	7440-28-0	E446	0.00010	mg/L	0.00012	0.00012	0.000003	Diff <2x LOR	----
		Tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, leachable	7440-32-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Uranium, leachable	7440-61-1	E446	0.000010	mg/L	0.000352	0.000336	4.62%	30%	----
		Vanadium, leachable	7440-62-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1330539)											
VA24A1530-049	K-11-168-291.5	Mercury, leachable	7439-97-6	E515	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----

Qualifiers

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.



Method Blank (MB) Report

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

Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1317337)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1318979)						
Conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Physical Tests (QCLot: 1321317)						
Conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Physical Tests (QCLot: 1321548)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1323764)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1324222)						
Conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Physical Tests (QCLot: 1328763)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1330526)						
Conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Leachable Anions & Nutrients (QCLot: 1318978)						
Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	<0.005	----
Leachable Anions & Nutrients (QCLot: 1318982)						
Acidity, leachable (as CaCO ₃)	----	E285	4	mg/L	<4.0	----
Leachable Anions & Nutrients (QCLot: 1318983)						
Alkalinity, total (as CaCO ₃), leachable	----	E294	2	mg/L	<2.0	----
Leachable Anions & Nutrients (QCLot: 1318984)						
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	<0.0020	----
Leachable Anions & Nutrients (QCLot: 1318985)						
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1318986)						
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	<0.005	----
Leachable Anions & Nutrients (QCLot: 1318987)						
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	<0.0010	----
Leachable Anions & Nutrients (QCLot: 1318988)						
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	<0.020	----
Leachable Anions & Nutrients (QCLot: 1318989)						



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Anions & Nutrients (QCLot: 1318989) - continued						
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1318990)						
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	<0.050	----
Leachable Anions & Nutrients (QCLot: 1321316)						
Ammonia, total, leachable (as N)	7664-41-7	E300	0.01	mg/L	<0.010	----
Leachable Anions & Nutrients (QCLot: 1321320)						
Acidity, leachable (as CaCO ₃)	----	E285	4	mg/L	<4.0	----
Leachable Anions & Nutrients (QCLot: 1321321)						
Alkalinity, total (as CaCO ₃), leachable	----	E294	2	mg/L	<2.0	----
Leachable Anions & Nutrients (QCLot: 1321322)						
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	<0.0020	----
Leachable Anions & Nutrients (QCLot: 1321323)						
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1321324)						
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.01	mg/L	<0.010	----
Leachable Anions & Nutrients (QCLot: 1321325)						
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	<0.0010	----
Leachable Anions & Nutrients (QCLot: 1321326)						
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	<0.020	----
Leachable Anions & Nutrients (QCLot: 1321327)						
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1321328)						
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	<0.050	----
Leachable Anions & Nutrients (QCLot: 1324221)						
Ammonia, total, leachable (as N)	7664-41-7	E300	0.01	mg/L	<0.010	----
Leachable Anions & Nutrients (QCLot: 1324225)						
Acidity, leachable (as CaCO ₃)	----	E285	4	mg/L	<4.0	----
Leachable Anions & Nutrients (QCLot: 1324226)						
Alkalinity, total (as CaCO ₃), leachable	----	E294	2	mg/L	<2.0	----
Leachable Anions & Nutrients (QCLot: 1324227)						
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	<0.0020	----
Leachable Anions & Nutrients (QCLot: 1324228)						
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1324229)						
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.01	mg/L	<0.010	----



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Anions & Nutrients (QCLot: 1324230)						
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	<0.0010	----
Leachable Anions & Nutrients (QCLot: 1324231)						
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	<0.020	----
Leachable Anions & Nutrients (QCLot: 1324232)						
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1324233)						
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	<0.050	----
Leachable Anions & Nutrients (QCLot: 1330525)						
Ammonia, total, leachable (as N)	7664-41-7	E300	0.01	mg/L	<0.010	----
Leachable Anions & Nutrients (QCLot: 1330529)						
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	<4.0	----
Leachable Anions & Nutrients (QCLot: 1330530)						
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	<2.0	----
Leachable Anions & Nutrients (QCLot: 1330531)						
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	<0.0020	----
Leachable Anions & Nutrients (QCLot: 1330532)						
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1330533)						
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.01	mg/L	<0.010	----
Leachable Anions & Nutrients (QCLot: 1330534)						
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	<0.0010	----
Leachable Anions & Nutrients (QCLot: 1330535)						
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	<0.020	----
Leachable Anions & Nutrients (QCLot: 1330536)						
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1330537)						
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	<0.050	----
Leachable Metals (QCLot: 1318991)						
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 1318991) - continued						
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	<0.0010	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	<0.00010	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	<0.010	----
Leachable Metals (QCLot: 1318992)						
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	<0.000050	----
Leachable Metals (QCLot: 1321329)						
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 1321329) - continued						
Boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	<0.0010	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	<0.00010	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	<0.010	----
Leachable Metals (QCLot: 1321330)						
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	<0.000050	----
Leachable Metals (QCLot: 1324234)						
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 1324234) - continued						
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	<0.0010	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	<0.00010	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	<0.010	----
Leachable Metals (QCLot: 1324235)						
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	<0.000050	----
Leachable Metals (QCLot: 1330538)						
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 1330538) - continued						
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	<0.0010	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	<0.00010	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	<0.010	----
Leachable Metals (QCLot: 1330539)						
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	<0.000050	----



Laboratory Control Sample (LCS) Report

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

Sub-Matrix: Soil/Solid

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1317337)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 1318979)									
Conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	98.6	90.0	110	----
Physical Tests (QCLot: 1318980)									
pH	----	E116	----	pH units	7.04 pH units	99.4	95.0	105	----
Physical Tests (QCLot: 1318981)									
Oxidation-reduction potential [ORP], leachable	----	E127	----	mV	220 mV	100	95.0	105	----
Physical Tests (QCLot: 1321317)									
Conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	102	90.0	110	----
Physical Tests (QCLot: 1321318)									
pH	----	E116	----	pH units	7.04 pH units	99.4	95.0	105	----
Physical Tests (QCLot: 1321319)									
Oxidation-reduction potential [ORP], leachable	----	E127	----	mV	220 mV	99.8	95.0	105	----
Physical Tests (QCLot: 1321548)									
Moisture	----	E144	0.25	%	50 %	99.9	90.0	110	----
Physical Tests (QCLot: 1323764)									
Moisture	----	E144	0.25	%	50 %	99.0	90.0	110	----
Physical Tests (QCLot: 1324222)									
Conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	99.3	90.0	110	----
Physical Tests (QCLot: 1324223)									
pH	----	E116	----	pH units	7.04 pH units	99.4	95.0	105	----
Physical Tests (QCLot: 1324224)									
Oxidation-reduction potential [ORP], leachable	----	E127	----	mV	220 mV	100.0	95.0	105	----
Physical Tests (QCLot: 1328763)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 1330526)									
Conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 1330527)									
pH	----	E116	----	pH units	7.04 pH units	99.1	95.0	105	----
Physical Tests (QCLot: 1330528)									
Oxidation-reduction potential [ORP], leachable	----	E127	----	mV	220 mV	99.9	95.0	105	----
Physical Tests (QCLot: 1346896)									



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit					
Physical Tests (QCLot: 1346896) - continued									
Oxidation-reduction potential [ORP], leachable	----	E127	----	mV	220 mV	100	95.0	105	----
Leachable Anions & Nutrients (QCLot: 1318978)									
Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.2 mg/L	97.2	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1318982)									
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	50 mg/L	99.8	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1318983)									
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	500 mg/L	109	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1318984)									
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	0.05 mg/L	88.8	80.0	120	----
Leachable Anions & Nutrients (QCLot: 1318985)									
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	25 mg/L	104	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318986)									
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.625 mg/L	102	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318987)									
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	0.125 mg/L	95.9	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318988)									
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	0.25 mg/L	94.9	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318989)									
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	25 mg/L	101	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1318990)									
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	0.125 mg/L	101	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1321316)									
Ammonia, total, leachable (as N)	7664-41-7	E300	0.01	mg/L	0.2 mg/L	90.8	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1321320)									
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	50 mg/L	98.0	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1321321)									
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	500 mg/L	89.3	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1321322)									
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	0.05 mg/L	104	80.0	120	----
Leachable Anions & Nutrients (QCLot: 1321323)									
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	25 mg/L	100	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1321324)									
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.01	mg/L	0.625 mg/L	100	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1321325)									



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit					
Leachable Anions & Nutrients (QCLot: 1321325) - continued									
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	0.125 mg/L	91.3	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1321326)									
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	0.25 mg/L	89.6	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1321327)									
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	25 mg/L	99.0	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1321328)									
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	0.125 mg/L	104	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1324221)									
Ammonia, total, leachable (as N)	7664-41-7	E300	0.01	mg/L	0.2 mg/L	90.3	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1324225)									
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	50 mg/L	101	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1324226)									
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	500 mg/L	106	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1324227)									
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	0.05 mg/L	100	80.0	120	----
Leachable Anions & Nutrients (QCLot: 1324228)									
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	25 mg/L	101	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1324229)									
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.01	mg/L	0.625 mg/L	100	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1324230)									
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	0.125 mg/L	104	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1324231)									
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	0.25 mg/L	94.4	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1324232)									
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	25 mg/L	99.7	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1324233)									
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	0.125 mg/L	96.9	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330525)									
Ammonia, total, leachable (as N)	7664-41-7	E300	0.01	mg/L	0.2 mg/L	104	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1330529)									
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	50 mg/L	97.8	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1330530)									
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	500 mg/L	109	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1330531)									
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	0.05 mg/L	101	80.0	120	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit					
Leachable Anions & Nutrients (QCLot: 1330532)									
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	25 mg/L	99.7	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330533)									
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.01	mg/L	0.625 mg/L	100.0	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330534)									
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	0.125 mg/L	95.6	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330535)									
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	0.25 mg/L	90.4	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330536)									
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	25 mg/L	98.6	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330537)									
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	0.125 mg/L	92.8	70.0	130	----
Leachable Metals (QCLot: 1318991)									
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	100	70.0	130	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	100	70.0	130	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	107	70.0	130	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	100	70.0	130	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	87.9	70.0	130	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	68.5	50.0	130	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	87.6	70.0	130	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	102	70.0	130	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	94.9	70.0	130	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	96.3	70.0	130	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	97.3	70.0	130	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	0.025 mg/L	95.4	70.0	130	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	93.9	70.0	130	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	0.05 mg/L	98.9	70.0	130	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	86.1	70.0	130	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	107	70.0	130	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	98.2	70.0	130	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	98.7	70.0	130	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	95.4	70.0	130	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	101	70.0	130	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	107	70.0	130	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	100	70.0	130	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	102	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Leachable Metals (QCLot: 1318991) - continued									
Silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	85.7	50.0	130	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	98.0	70.0	130	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	102	70.0	130	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	90.5	70.0	130	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	90.6	70.0	130	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	100	50.0	130	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	96.9	50.0	130	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	95.1	70.0	130	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	101	70.0	130	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	0.05 mg/L	102	70.0	130	----
Leachable Metals (QCLot: 1318992)									
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	0.0005 mg/L	94.6	50.0	130	----
Leachable Metals (QCLot: 1321329)									
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	107	70.0	130	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	100	70.0	130	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	107	70.0	130	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	100	70.0	130	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	102	70.0	130	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	93.0	50.0	130	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	97.4	70.0	130	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	101	70.0	130	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	97.4	70.0	130	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	99.1	70.0	130	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	99.9	70.0	130	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	0.025 mg/L	96.5	70.0	130	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	102	70.0	130	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	0.05 mg/L	99.1	70.0	130	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	100	70.0	130	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	97.8	70.0	130	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	98.9	70.0	130	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	101	70.0	130	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	98.4	70.0	130	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	104	70.0	130	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	100	70.0	130	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	99.3	70.0	130	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	105	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Leachable Metals (QCLot: 1321329) - continued									
Silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	91.4	50.0	130	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	103	70.0	130	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	102	70.0	130	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	91.6	70.0	130	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	90.9	70.0	130	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	102	50.0	130	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	100.0	50.0	130	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	100	70.0	130	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	102	70.0	130	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	0.05 mg/L	104	70.0	130	----
Leachable Metals (QCLot: 1321330)									
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	0.0005 mg/L	95.7	50.0	130	----
Leachable Metals (QCLot: 1324234)									
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	96.2	70.0	130	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	96.4	70.0	130	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	99.3	70.0	130	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	103	70.0	130	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	91.2	70.0	130	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	97.5	50.0	130	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	92.4	70.0	130	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	95.8	70.0	130	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	92.3	70.0	130	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	94.0	70.0	130	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	92.5	70.0	130	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	0.025 mg/L	90.7	70.0	130	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	103	70.0	130	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	0.05 mg/L	97.3	70.0	130	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	91.0	70.0	130	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	101	70.0	130	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	96.1	70.0	130	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	98.9	70.0	130	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	92.2	70.0	130	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	103	70.0	130	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	98.4	70.0	130	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	89.1	70.0	130	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	96.8	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Leachable Metals (QCLot: 1324234) - continued									
Silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	87.6	50.0	130	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	93.9	70.0	130	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	97.7	70.0	130	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	95.2	70.0	130	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	88.9	70.0	130	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	98.2	50.0	130	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	92.8	50.0	130	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	100	70.0	130	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	93.8	70.0	130	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	0.05 mg/L	100	70.0	130	----
Leachable Metals (QCLot: 1324235)									
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	0.0005 mg/L	95.6	50.0	130	----
Leachable Metals (QCLot: 1330538)									
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	99.0	70.0	130	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	97.9	70.0	130	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	100.0	70.0	130	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	100	70.0	130	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	94.2	70.0	130	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	101	50.0	130	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	97.7	70.0	130	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	95.9	70.0	130	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	93.8	70.0	130	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	93.2	70.0	130	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	93.2	70.0	130	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	0.025 mg/L	91.3	70.0	130	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	96.8	70.0	130	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	0.05 mg/L	101	70.0	130	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	97.7	70.0	130	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	100	70.0	130	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	98.7	70.0	130	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	100	70.0	130	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	95.3	70.0	130	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	104	70.0	130	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	99.5	70.0	130	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	92.8	70.0	130	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	102	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Analyte	CAS Number	Method	LOR	Unit					
Leachable Metals (QCLot: 1330538) - continued									
Silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	89.7	50.0	130	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	94.5	70.0	130	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	98.9	70.0	130	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	97.7	70.0	130	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	92.6	70.0	130	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	98.3	50.0	130	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	94.8	50.0	130	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	105	70.0	130	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	95.4	70.0	130	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	0.05 mg/L	95.8	70.0	130	----
Leachable Metals (QCLot: 1330539)									
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	0.0005 mg/L	92.9	50.0	130	----



Matrix Spike (MS) Report

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

Sub-Matrix: Soil/Solid

					Matrix Spike (MS) Report				
					Spike		Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High
Leachable Anions & Nutrients (QCLot: 1318978)									
VA24A1528-042	Anonymous	Ammonia, total, leachable (as N)	7664-41-7	E300	ND mg/L	0.1 mg/L	ND	60.0	140
Leachable Anions & Nutrients (QCLot: 1318984)									
VA24A1528-042	Anonymous	Phosphorus, total dissolved	7723-14-0	E381	0.0464 mg/L	0.05 mg/L	92.7	70.0	130
Leachable Anions & Nutrients (QCLot: 1318985)									
VA24A1528-042	Anonymous	Sulfate, leachable	14808-79-8	E243.SO4	104 mg/L	100 mg/L	104	60.0	140
Leachable Anions & Nutrients (QCLot: 1318986)									
VA24A1528-042	Anonymous	Nitrate (as N), leachable	14797-55-8	E243.NO3	2.61 mg/L	2.5 mg/L	104	60.0	140
Leachable Anions & Nutrients (QCLot: 1318987)									
VA24A1528-042	Anonymous	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.481 mg/L	0.5 mg/L	96.2	60.0	140
Leachable Anions & Nutrients (QCLot: 1318988)									
VA24A1528-042	Anonymous	Fluoride, leachable	16984-48-8	E243.F	0.799 mg/L	1 mg/L	79.9	60.0	140
Leachable Anions & Nutrients (QCLot: 1318989)									
VA24A1528-042	Anonymous	Chloride, leachable	16887-00-6	E243.Cl	99.8 mg/L	100 mg/L	99.8	60.0	140
Leachable Anions & Nutrients (QCLot: 1318990)									
VA24A1528-042	Anonymous	Bromide, leachable	24959-67-9	E243.Br	0.445 mg/L	0.5 mg/L	89.1	60.0	140
Leachable Anions & Nutrients (QCLot: 1321316)									
VA24A1530-010	K-11-112A-147.3	Ammonia, total, leachable (as N)	7664-41-7	E300	0.095 mg/L	0.1 mg/L	94.6	60.0	140
Leachable Anions & Nutrients (QCLot: 1321322)									
VA24A1530-010	K-11-112A-147.3	Phosphorus, total dissolved	7723-14-0	E381	0.0445 mg/L	0.05 mg/L	88.9	70.0	130
Leachable Anions & Nutrients (QCLot: 1321323)									
VA24A1530-010	K-11-112A-147.3	Sulfate, leachable	14808-79-8	E243.SO4	102 mg/L	100 mg/L	102	60.0	140
Leachable Anions & Nutrients (QCLot: 1321324)									
VA24A1530-010	K-11-112A-147.3	Nitrate (as N), leachable	14797-55-8	E243.NO3	2.54 mg/L	2.5 mg/L	102	60.0	140
Leachable Anions & Nutrients (QCLot: 1321325)									
VA24A1530-010	K-11-112A-147.3	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.488 mg/L	0.5 mg/L	97.7	60.0	140
Leachable Anions & Nutrients (QCLot: 1321326)									
VA24A1530-010	K-11-112A-147.3	Fluoride, leachable	16984-48-8	E243.F	1.01 mg/L	1 mg/L	101	60.0	140



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Anions & Nutrients (QCLot: 1321327)										
VA24A1530-010	K-11-112A-147.3	Chloride, leachable	16887-00-6	E243.Cl	101 mg/L	100 mg/L	101	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1321328)										
VA24A1530-010	K-11-112A-147.3	Bromide, leachable	24959-67-9	E243.Br	0.510 mg/L	0.5 mg/L	102	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1324221)										
VA24A1530-030	K-11-147-362.3	Ammonia, total, leachable (as N)	7664-41-7	E300	0.086 mg/L	0.1 mg/L	86.4	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1324227)										
VA24A1530-030	K-11-147-362.3	Phosphorus, total dissolved	7723-14-0	E381	0.0507 mg/L	0.05 mg/L	101	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1324228)										
VA24A1530-030	K-11-147-362.3	Sulfate, leachable	14808-79-8	E243.SO4	100 mg/L	100 mg/L	100	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1324229)										
VA24A1530-030	K-11-147-362.3	Nitrate (as N), leachable	14797-55-8	E243.NO3	2.50 mg/L	2.5 mg/L	100	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1324230)										
VA24A1530-030	K-11-147-362.3	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.506 mg/L	0.5 mg/L	101	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1324231)										
VA24A1530-030	K-11-147-362.3	Fluoride, leachable	16984-48-8	E243.F	1.12 mg/L	1 mg/L	112	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1324232)										
VA24A1530-030	K-11-147-362.3	Chloride, leachable	16887-00-6	E243.Cl	100 mg/L	100 mg/L	100	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1324233)										
VA24A1530-030	K-11-147-362.3	Bromide, leachable	24959-67-9	E243.Br	0.534 mg/L	0.5 mg/L	107	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1330525)										
VA24A1530-050	K-11-169-76.8	Ammonia, total, leachable (as N)	7664-41-7	E300	0.103 mg/L	0.1 mg/L	103	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1330531)										
VA24A1530-050	K-11-169-76.8	Phosphorus, total dissolved	7723-14-0	E381	0.0491 mg/L	0.05 mg/L	98.2	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330532)										
VA24A1530-050	K-11-169-76.8	Sulfate, leachable	14808-79-8	E243.SO4	ND mg/L	100 mg/L	ND	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1330533)										
VA24A1530-050	K-11-169-76.8	Nitrate (as N), leachable	14797-55-8	E243.NO3	2.56 mg/L	2.5 mg/L	102	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1330534)										
VA24A1530-050	K-11-169-76.8	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.492 mg/L	0.5 mg/L	98.4	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1330535)										
VA24A1530-050	K-11-169-76.8									



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Anions & Nutrients (QCLot: 1330535) - continued										
VA24A1530-050	K-11-169-76.8	Fluoride, leachable	16984-48-8	E243.F	0.969 mg/L	1 mg/L	96.9	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1330536)										
VA24A1530-050	K-11-169-76.8	Chloride, leachable	16887-00-6	E243.Cl	102 mg/L	100 mg/L	102	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1330537)										
VA24A1530-050	K-11-169-76.8	Bromide, leachable	24959-67-9	E243.Br	0.475 mg/L	0.5 mg/L	95.0	60.0	140	----
Leachable Metals (QCLot: 1318991)										
VA24A1528-042	Anonymous	Aluminum, leachable	7429-90-5	E446	0.184 mg/L	0.2 mg/L	92.2	70.0	130	----
		Antimony, leachable	7440-36-0	E446	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Arsenic, leachable	7440-38-2	E446	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
		Barium, leachable	7440-39-3	E446	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Beryllium, leachable	7440-41-7	E446	0.0366 mg/L	0.04 mg/L	91.6	70.0	130	----
		Bismuth, leachable	7440-69-9	E446	0.00867 mg/L	0.01 mg/L	86.7	70.0	130	----
		Boron, leachable	7440-42-8	E446	0.092 mg/L	0.1 mg/L	92.3	70.0	130	----
		Cadmium, leachable	7440-43-9	E446	0.00391 mg/L	0.004 mg/L	97.7	70.0	130	----
		Calcium, leachable	7440-70-2	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, leachable	7440-47-3	E446	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		Cobalt, leachable	7440-48-4	E446	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	----
		Copper, leachable	7440-50-8	E446	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Iron, leachable	7439-89-6	E446	1.90 mg/L	2 mg/L	95.3	70.0	130	----
		Lead, leachable	7439-92-1	E446	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	----
		Lithium, leachable	7439-93-2	E446	0.0847 mg/L	0.1 mg/L	84.7	70.0	130	----
		Magnesium, leachable	7439-95-4	E446	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, leachable	7439-96-5	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Molybdenum, leachable	7439-98-7	E446	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Nickel, leachable	7440-02-0	E446	ND mg/L	0.04 mg/L	ND	70.0	130	----
		Phosphorus, leachable	7723-14-0	E446	9.68 mg/L	10 mg/L	96.8	70.0	130	----
		Potassium, leachable	7440-09-7	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Selenium, leachable	7782-49-2	E446	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Silicon, leachable	7440-21-3	E446	9.68 mg/L	10 mg/L	96.8	70.0	130	----
		Silver, leachable	7440-22-4	E446	0.00376 mg/L	0.004 mg/L	93.9	70.0	130	----
		Sodium, leachable	7440-23-5	E446	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, leachable	7440-24-6	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, leachable	7704-34-9	E446	ND mg/L	20 mg/L	ND	70.0	130	----
		Thallium, leachable	7440-28-0	E446	0.00360 mg/L	0.004 mg/L	90.1	70.0	130	----



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 1318991) - continued										
VA24A1528-042	Anonymous	Tin, leachable	7440-31-5	E446	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Titanium, leachable	7440-32-6	E446	0.039 mg/L	0.04 mg/L	96.5	70.0	130	----
		Uranium, leachable	7440-61-1	E446	0.00354 mg/L	0.004 mg/L	88.5	70.0	130	----
		Vanadium, leachable	7440-62-2	E446	0.0975 mg/L	0.1 mg/L	97.5	70.0	130	----
		Zinc, leachable	7440-66-6	E446	0.399 mg/L	0.4 mg/L	99.7	70.0	130	----
Leachable Metals (QCLot: 1318992)										
VA24A1528-042	Anonymous	Mercury, leachable	7439-97-6	E515	0.000096 mg/L	0.0001 mg/L	96.6	70.0	130	----
Leachable Metals (QCLot: 1321329)										
VA24A1530-010	K-11-112A-147.3	Aluminum, leachable	7429-90-5	E446	ND mg/L	0.2 mg/L	ND	70.0	130	----
		Antimony, leachable	7440-36-0	E446	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Arsenic, leachable	7440-38-2	E446	0.0199 mg/L	0.02 mg/L	99.6	70.0	130	----
		Barium, leachable	7440-39-3	E446	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Beryllium, leachable	7440-41-7	E446	0.0445 mg/L	0.04 mg/L	111	70.0	130	----
		Bismuth, leachable	7440-69-9	E446	0.00988 mg/L	0.01 mg/L	98.8	70.0	130	----
		Boron, leachable	7440-42-8	E446	0.107 mg/L	0.1 mg/L	107	70.0	130	----
		Cadmium, leachable	7440-43-9	E446	0.00400 mg/L	0.004 mg/L	100.0	70.0	130	----
		Calcium, leachable	7440-70-2	E446	4.04 mg/L	4 mg/L	101	70.0	130	----
		Chromium, leachable	7440-47-3	E446	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		Cobalt, leachable	7440-48-4	E446	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Copper, leachable	7440-50-8	E446	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	----
		Iron, leachable	7439-89-6	E446	2.02 mg/L	2 mg/L	101	70.0	130	----
		Lead, leachable	7439-92-1	E446	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Lithium, leachable	7439-93-2	E446	0.110 mg/L	0.1 mg/L	110	70.0	130	----
		Magnesium, leachable	7439-95-4	E446	0.994 mg/L	1 mg/L	99.4	70.0	130	----
		Manganese, leachable	7439-96-5	E446	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Molybdenum, leachable	7439-98-7	E446	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Nickel, leachable	7440-02-0	E446	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		Phosphorus, leachable	7723-14-0	E446	9.44 mg/L	10 mg/L	94.4	70.0	130	----
		Potassium, leachable	7440-09-7	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Selenium, leachable	7782-49-2	E446	0.0388 mg/L	0.04 mg/L	96.9	70.0	130	----
		Silicon, leachable	7440-21-3	E446	9.82 mg/L	10 mg/L	98.2	70.0	130	----
		Silver, leachable	7440-22-4	E446	0.00388 mg/L	0.004 mg/L	97.0	70.0	130	----
		Sodium, leachable	7440-23-5	E446	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, leachable	7440-24-6	E446	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Sulfur, leachable	7704-34-9	E446	19.8 mg/L	20 mg/L	99.1	70.0	130	----



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 1321329) - continued										
VA24A1530-010	K-11-112A-147.3	Thallium, leachable	7440-28-0	E446	0.00385 mg/L	0.004 mg/L	96.3	70.0	130	----
		Tin, leachable	7440-31-5	E446	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Titanium, leachable	7440-32-6	E446	0.040 mg/L	0.04 mg/L	99.0	70.0	130	----
		Uranium, leachable	7440-61-1	E446	0.00401 mg/L	0.004 mg/L	100	70.0	130	----
		Vanadium, leachable	7440-62-2	E446	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Zinc, leachable	7440-66-6	E446	0.405 mg/L	0.4 mg/L	101	70.0	130	----
Leachable Metals (QCLot: 1321330)										
VA24A1530-010	K-11-112A-147.3	Mercury, leachable	7439-97-6	E515	0.000096 mg/L	0.0001 mg/L	95.6	70.0	130	----
Leachable Metals (QCLot: 1324234)										
VA24A1530-030	K-11-147-362.3	Aluminum, leachable	7429-90-5	E446	ND mg/L	0.2 mg/L	ND	70.0	130	----
		Antimony, leachable	7440-36-0	E446	0.0195 mg/L	0.02 mg/L	97.7	70.0	130	----
		Arsenic, leachable	7440-38-2	E446	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	----
		Barium, leachable	7440-39-3	E446	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Beryllium, leachable	7440-41-7	E446	0.0384 mg/L	0.04 mg/L	95.9	70.0	130	----
		Bismuth, leachable	7440-69-9	E446	0.00998 mg/L	0.01 mg/L	99.8	70.0	130	----
		Boron, leachable	7440-42-8	E446	0.095 mg/L	0.1 mg/L	95.4	70.0	130	----
		Cadmium, leachable	7440-43-9	E446	0.00391 mg/L	0.004 mg/L	97.8	70.0	130	----
		Calcium, leachable	7440-70-2	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, leachable	7440-47-3	E446	0.0376 mg/L	0.04 mg/L	94.1	70.0	130	----
		Cobalt, leachable	7440-48-4	E446	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		Copper, leachable	7440-50-8	E446	0.0183 mg/L	0.02 mg/L	91.4	70.0	130	----
		Iron, leachable	7439-89-6	E446	1.88 mg/L	2 mg/L	94.0	70.0	130	----
		Lead, leachable	7439-92-1	E446	0.0196 mg/L	0.02 mg/L	98.3	70.0	130	----
		Lithium, leachable	7439-93-2	E446	0.0950 mg/L	0.1 mg/L	95.0	70.0	130	----
		Magnesium, leachable	7439-95-4	E446	0.919 mg/L	1 mg/L	91.9	70.0	130	----
		Manganese, leachable	7439-96-5	E446	0.0186 mg/L	0.02 mg/L	93.3	70.0	130	----
		Molybdenum, leachable	7439-98-7	E446	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Nickel, leachable	7440-02-0	E446	0.0380 mg/L	0.04 mg/L	95.1	70.0	130	----
		Phosphorus, leachable	7723-14-0	E446	10.3 mg/L	10 mg/L	103	70.0	130	----
		Potassium, leachable	7440-09-7	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Selenium, leachable	7782-49-2	E446	0.0354 mg/L	0.04 mg/L	88.5	70.0	130	----
		Silicon, leachable	7440-21-3	E446	9.69 mg/L	10 mg/L	96.9	70.0	130	----
		Silver, leachable	7440-22-4	E446	0.00404 mg/L	0.004 mg/L	101	70.0	130	----
		Sodium, leachable	7440-23-5	E446	1.92 mg/L	2 mg/L	95.8	70.0	130	----
		Strontium, leachable	7440-24-6	E446	0.0223 mg/L	0.02 mg/L	111	70.0	130	----



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 1324234) - continued										
VA24A1530-030	K-11-147-362.3	Sulfur, leachable	7704-34-9	E446	19.2 mg/L	20 mg/L	96.2	70.0	130	----
		Thallium, leachable	7440-28-0	E446	0.00395 mg/L	0.004 mg/L	98.8	70.0	130	----
		Tin, leachable	7440-31-5	E446	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		Titanium, leachable	7440-32-6	E446	0.039 mg/L	0.04 mg/L	97.7	70.0	130	----
		Uranium, leachable	7440-61-1	E446	0.00417 mg/L	0.004 mg/L	104	70.0	130	----
		Vanadium, leachable	7440-62-2	E446	0.0946 mg/L	0.1 mg/L	94.6	70.0	130	----
		Zinc, leachable	7440-66-6	E446	0.398 mg/L	0.4 mg/L	99.5	70.0	130	----
Leachable Metals (QCLot: 1324235)										
VA24A1530-030	K-11-147-362.3	Mercury, leachable	7439-97-6	E515	0.000097 mg/L	0.0001 mg/L	96.9	70.0	130	----
Leachable Metals (QCLot: 1330538)										
VA24A1530-050	K-11-169-76.8	Aluminum, leachable	7429-90-5	E446	0.193 mg/L	0.2 mg/L	96.5	70.0	130	----
		Antimony, leachable	7440-36-0	E446	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Arsenic, leachable	7440-38-2	E446	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		Barium, leachable	7440-39-3	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Beryllium, leachable	7440-41-7	E446	0.0364 mg/L	0.04 mg/L	91.0	70.0	130	----
		Bismuth, leachable	7440-69-9	E446	0.00948 mg/L	0.01 mg/L	94.8	70.0	130	----
		Boron, leachable	7440-42-8	E446	0.092 mg/L	0.1 mg/L	92.1	70.0	130	----
		Cadmium, leachable	7440-43-9	E446	0.00376 mg/L	0.004 mg/L	94.0	70.0	130	----
		Calcium, leachable	7440-70-2	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, leachable	7440-47-3	E446	0.0372 mg/L	0.04 mg/L	93.1	70.0	130	----
		Cobalt, leachable	7440-48-4	E446	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	----
		Copper, leachable	7440-50-8	E446	0.0178 mg/L	0.02 mg/L	88.8	70.0	130	----
		Iron, leachable	7439-89-6	E446	1.89 mg/L	2 mg/L	94.4	70.0	130	----
		Lead, leachable	7439-92-1	E446	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Lithium, leachable	7439-93-2	E446	0.0946 mg/L	0.1 mg/L	94.6	70.0	130	----
		Magnesium, leachable	7439-95-4	E446	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, leachable	7439-96-5	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Molybdenum, leachable	7439-98-7	E446	0.0205 mg/L	0.02 mg/L	103	70.0	130	----
		Nickel, leachable	7440-02-0	E446	0.0375 mg/L	0.04 mg/L	93.8	70.0	130	----
		Phosphorus, leachable	7723-14-0	E446	10.0 mg/L	10 mg/L	100	70.0	130	----
		Potassium, leachable	7440-09-7	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Selenium, leachable	7782-49-2	E446	0.0366 mg/L	0.04 mg/L	91.6	70.0	130	----
		Silicon, leachable	7440-21-3	E446	9.45 mg/L	10 mg/L	94.5	70.0	130	----
		Silver, leachable	7440-22-4	E446	0.00392 mg/L	0.004 mg/L	97.9	70.0	130	----
		Sodium, leachable	7440-23-5	E446	1.90 mg/L	2 mg/L	94.9	70.0	130	----



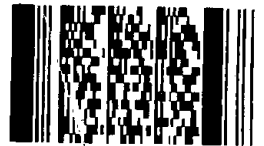
Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 1330538) - continued										
VA24A1530-050	K-11-169-76.8	Strontium, leachable	7440-24-6	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, leachable	7704-34-9	E446	ND mg/L	20 mg/L	ND	70.0	130	----
		Thallium, leachable	7440-28-0	E446	0.00378 mg/L	0.004 mg/L	94.5	70.0	130	----
		Tin, leachable	7440-31-5	E446	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Titanium, leachable	7440-32-6	E446	0.038 mg/L	0.04 mg/L	96.2	70.0	130	----
		Uranium, leachable	7440-61-1	E446	0.00410 mg/L	0.004 mg/L	102	70.0	130	----
		Vanadium, leachable	7440-62-2	E446	0.0950 mg/L	0.1 mg/L	95.0	70.0	130	----
		Zinc, leachable	7440-66-6	E446	0.368 mg/L	0.4 mg/L	92.0	70.0	130	----
Leachable Metals (QCLot: 1330539)										
VA24A1530-050	K-11-169-76.8	Mercury, leachable	7439-97-6	E515	0.000097 mg/L	0.0001 mg/L	96.6	70.0	130	----

Sample ID	Analysis			
	Shakeflask Metals	Shakeflask Anions, Ammonia, TDP	Shakeflask ORP	Shakeflask Acidity, Alkalinity, pH, EC
K-10-83-658.8	X	X	X	X
K-10-83-660.6	X	X	X	X
K-10-93-46	X	X	X	X
K-11-100B-116.25	X	X	X	X
K-11-108-118.2	X	X	X	X
K-11-108-228.3	X	X	X	X
K-11-108-87.6	X	X	X	X
K-11-108-92.7	X	X	X	X
K-11-111-43.1	X	X	X	X
K-11-112A-147.3	X	X	X	X
K-11-112A-174.5	X	X	X	X
K-11-112A-217.5	X	X	X	X
K-11-112A-43.1	X	X	X	X
K-11-112A-71.4	X	X	X	X
K-11-112A-102.8	X	X	X	X
K-11-116-78	X	X	X	X
K-11-117-331	X	X	X	X
K-11-123-153.8	X	X	X	X
K-11-128-103.5	X	X	X	X
K-11-130-448.5	X	X	X	X
K-11-131-105	X	X	X	X
K-11-133-51.1	X	X	X	X
K-11-137-291.5	X	X	X	X
K-11-142-76.47	X	X	X	X
K-11-143-297.1	X	X	X	X
K-11-145-159.4	X	X	X	X
K-11-145-201.8	X	X	X	X
K-11-147-161.4	X	X	X	X
K-11-147-308	X	X	X	X
K-11-147-362.3	X	X	X	X
K-11-149-211.5	X	X	X	X
K-11-152-68	X	X	X	X
K-11-156-135	X	X	X	X
K-11-158-50.5	X	X	X	X
K-11-158-57.6	X	X	X	X
K-11-159-291	X	X	X	X
K-11-159-478.5	X	X	X	X
K-11-161-181.5	X	X	X	X
K-11-163-23.5	X	X	X	X
K-11-163-28.5	X	X	X	X
K-11-163-41.4	X	X	X	X
K-11-163-43	X	X	X	X
K-11-164-127.5	X	X	X	X
K-11-165-288.8	X	X	X	X
K-11-166-54.8	X	X	X	X
K-11-166-117.5	X	X	X	X
K-11-166-251.1	X	X	X	X
K-11-168-138.5	X	X	X	X
K-11-168-291.5	X	X	X	X
K-11-169-76.8	X	X	X	X
K-11-99-158.5	X	X	X	X
K-12-173-197.5	X	X	X	X
K-12-173-199.7	X	X	X	X
K-12-175-16.9	X	X	X	X
K-12-175-20.3	X	X	X	X

Environmental Division
Vancouver

Work Order Reference

VA24A1530



Telephone : +1 604 253 4188

CERTIFICATE OF ANALYSIS

Work Order	: VA24A1531	Page	: 1 of 16
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 24-Jan-2024 12:00
PO	: ----	Date Analysis Commenced	: 09-Feb-2024
C-O-C number	: ----	Issue Date	: 27-Feb-2024 10:04
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKCI100-003		
No. of samples received	: 33		
No. of samples analysed	: 33		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	Position	Laboratory Department
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
%	percent
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
mV	millivolts
pH units	pH units

<: less than.

>: greater than.

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

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

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

Qualifiers

Qualifier	Description
DLA	Detection Limit adjusted for required dilution.
DLCI	Detection Limit Raised: Chromatographic interference due to co-elution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.



Analytical Results

Sub-Matrix: Soil/Solid				Client sample ID	K-12-175-79.3	K-12-175-86.6	K-12-177-233.4 7	K-12-177-272.5	K-12-179-171.6
(Matrix: Soil/Solid)									
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-001	VA24A1531-002	VA24A1531-003	VA24A1531-004	VA24A1531-005
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	----	E285/VA	4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	----	E103/VA	2.0	µS/cm	557	297	29.4	118	923
Moisture	----	E144/VA	0.25	%	<0.25	<0.25	<0.25	<0.25	0.37
Oxidation-reduction potential [ORP], leachable	----	E127/VA	0.10	mV	224	228	295	275	255
pH	----	E116/VA	0.10	pH units	8.10	7.93	6.88	7.65	8.03
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	----	E294/VA	2.0	mg/L	81.1	50.7	4.5	27.8	71.0
Ammonia, total, leachable (as N)	7664-41-7	E300/VA	0.005	mg/L	0.021	0.013 ^{HTD}	0.059	0.009	0.062
Bromide, leachable	24959-67-9	E243.Br/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.075 ^{DLCI}
Phosphorus, total dissolved	7723-14-0	E381/VA	0.0020	mg/L	<0.0020	<0.0020	0.0120	0.0108	<0.0020
Chloride, leachable	16887-00-6	E243.Cl/VA	0.50	mg/L	1.66	4.95	1.15	4.76	58.9
Fluoride, leachable	16984-48-8	E243.F/VA	0.020	mg/L	0.051	0.023	0.044	0.129	<0.040 ^{DLCI}
Nitrite (as N), leachable	14797-65-0	E243.NO2/VA	0.0010	mg/L	<0.0010	<0.0010	0.0026	0.0124	0.0060
Nitrate (as N), leachable	14797-55-8	E243.NO3/VA	0.005	mg/L	0.025	0.036	0.050	0.116	0.363
Sulfate, leachable	14808-79-8	E243.SO4/VA	0.50	mg/L	199	80.3	4.47	18.7	330
Leachable Metals									
Aluminum, leachable	7429-90-5	E446/VA	0.0050	mg/L	0.0080	<0.0050	0.265	0.0561	0.0058
Antimony, leachable	7440-36-0	E446/VA	0.00010	mg/L	<0.00010	0.00011	<0.00010	0.00020	0.00014
Arsenic, leachable	7440-38-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3	E446/VA	0.0010	mg/L	0.0138	0.0198	0.0055	0.0050	0.0244
Beryllium, leachable	7440-41-7	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9	E446/VA	0.000050	mg/L	0.000254	0.000060	<0.000050	<0.000050	0.000502
Calcium, leachable	7440-70-2	E446/VA	0.10	mg/L	84.8	37.1	2.16	9.58	89.1
Chromium, leachable	7440-47-3	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, leachable	7440-48-4	E446/VA	0.00010	mg/L	0.00207	0.00141	0.00084	0.00115	0.00635
Copper, leachable	7440-50-8	E446/VA	0.0010	mg/L	<0.0010	<0.0010	0.0018	0.0026	0.0033
Hardness (as CaCO3), dissolved	----	E446/VA	0.60	mg/L	267	127	8.54	43.7	424



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID	K-12-175-79.3	K-12-175-86.6	K-12-177-233.4	K-12-177-272.5	K-12-179-171.6
(Matrix: Soil/Solid)										
					Client sampling date / time	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-001	VA24A1531-002	VA24A1531-003	VA24A1531-004	VA24A1531-005	
					Result	Result	Result	Result	Result	
Leachable Metals										
Iron, leachable	7439-89-6	E446/VA	0.030	mg/L	<0.030	<0.030	1.93	2.29	<0.030	
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00014	<0.00010	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	0.0052	<0.0050	<0.0050	<0.0050	0.0096	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	13.4	8.43	0.763	4.81	48.9	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	2.91	2.68	0.544	0.431	1.27	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00018	0.00024	0.00028	0.00032	0.00140	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.0151	0.00689	0.00285	0.00339	0.0178	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	5.38	3.09	1.32	3.49	8.22	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	0.00181	<0.00050	0.00066	<0.00050	0.00473	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	1.57	1.67	2.69	1.68	2.70	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	0.000055	<0.000050	<0.000050	0.000081	<0.000050	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.919	1.47	0.455	2.26	25.2	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0919	0.244	0.00554	0.0149	0.155	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	74.2	31.2	1.64	6.18	116	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.00130	0.000164	0.000031	0.000020	0.0176	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-12-180-11.3	K-12-180-18.2	K-12-180-28.1	K-12-182-131.5	K-12-182-435.8
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-006	VA24A1531-007	VA24A1531-008	VA24A1531-009	VA24A1531-010
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	32.0	57.9	36.1	91.4	114
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	319	324	326	222	288
pH	---E116/VA		0.10	pH units	6.29	6.50	6.05	7.95	7.37
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	<2.0	2.8	<2.0	44.5	13.6
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.089	0.052	0.034	0.010	0.026
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.075 ^{DLOI}	<0.100 ^{DLOI}	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0082	0.0253	0.0325	0.0027	0.0241
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	2.34	6.53	2.52	<0.50	22.2
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	0.024	<0.080 ^{DLOI}	<0.040 ^{DLOI}	<0.020	0.025
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0010	<0.0010
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.113	0.103	0.086	0.017	0.047
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	5.99	7.93	7.29	2.20	2.93
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	0.152	0.220	0.430	<0.0050	0.0470
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00023	0.00023	0.00019	0.00039	0.00013
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0075	0.0120	0.0131	<0.0010	0.0059
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	0.000055	0.000074	0.000144	<0.000050	<0.000050
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	1.97	2.83	2.01	11.0	5.53
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	0.00076	0.00094	0.00188	<0.00050	<0.00050
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	0.00254	0.00659	0.00600	<0.00010	0.00018
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	0.0678	0.0102	0.0246	<0.0010	<0.0010
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	7.88	12.6	8.75	48.0	19.4
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	0.243	0.278	0.468	<0.030	0.107



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-12-180-11.3	K-12-180-18.2	K-12-180-28.1	K-12-182-131.5	K-12-182-435.8
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-006	VA24A1531-007	VA24A1531-008	VA24A1531-009	VA24A1531-010
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	0.00052	0.00024	0.00067	<0.00010	<0.00010
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	0.719	1.35	0.907	4.98	1.35
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.487	0.843	0.649	0.00235	0.0922
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00067	0.00042	0.00057	0.00056	0.00106
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.00588	0.00690	0.00772	<0.00050	<0.00050
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	1.14	1.30	1.06	0.155	0.839
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	5.83	1.33	2.35	0.945	2.91
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	0.000087	<0.000050	0.000955	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	1.25	4.07	1.81	0.176	13.6
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0112	0.00975	0.00756	0.00336	0.0110
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	1.61	2.52	2.07	0.75	0.86
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	0.011	0.011	0.023	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000063	0.000104	0.000132	0.000071	<0.000010
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	0.127	0.036	0.057	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-12-185-59.1	K-12-185-62.2	K-12-187-50.5	K-12-187-500.5	K-12-187-74
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-011	VA24A1531-012	VA24A1531-014	VA24A1531-015	VA24A1531-016
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	----	E285/VA	4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	----	E103/VA	2.0	µS/cm	70.2	126	96.2	194	146
Moisture	----	E144/VA	0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	----	E127/VA	0.10	mV	277	287	253	253	248
pH	----	E116/VA	0.10	pH units	7.70	7.78	7.95	7.06	7.67
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	----	E294/VA	2.0	mg/L	22.9	35.8	46.4	16.0	25.7
Ammonia, total, leachable (as N)	7664-41-7	E300/VA	0.005	mg/L	0.014	0.015 ^{HTD}	0.013	0.060	0.130
Bromide, leachable	24959-67-9	E243.Br/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0	E381/VA	0.0020	mg/L	0.0095	0.0038	<0.0020	<0.0020	0.0086
Chloride, leachable	16887-00-6	E243.Cl/VA	0.50	mg/L	3.82	2.10	0.77	2.72	1.02
Fluoride, leachable	16984-48-8	E243.F/VA	0.020	mg/L	0.027	0.031	<0.020	<0.020	0.158
Nitrite (as N), leachable	14797-65-0	E243.NO2/VA	0.0010	mg/L	<0.0010	0.0023	0.0013	0.0010	<0.0010
Nitrate (as N), leachable	14797-55-8	E243.NO3/VA	0.005	mg/L	0.074	0.125	0.036	0.198	0.050
Sulfate, leachable	14808-79-8	E243.SO4/VA	0.50	mg/L	4.63	20.2	1.62	66.0	37.9
Leachable Metals									
Aluminum, leachable	7429-90-5	E446/VA	0.0050	mg/L	1.06	0.0262	<0.0050	<0.0050	0.487
Antimony, leachable	7440-36-0	E446/VA	0.00010	mg/L	0.00049	<0.00010	<0.00010	<0.00010	0.00048
Arsenic, leachable	7440-38-2	E446/VA	0.0010	mg/L	0.0011	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3	E446/VA	0.0010	mg/L	0.0068	0.0502	0.0124	0.0034	0.0037
Beryllium, leachable	7440-41-7	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	0.000063	<0.000050
Calcium, leachable	7440-70-2	E446/VA	0.10	mg/L	6.35	13.6	10.6	23.0	12.2
Chromium, leachable	7440-47-3	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, leachable	7440-48-4	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.0143	<0.00010
Copper, leachable	7440-50-8	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0010	<0.0010
Hardness (as CaCO3), dissolved	----	E446/VA	0.60	mg/L	18.0	55.0	44.9	77.1	40.1
Iron, leachable	7439-89-6	E446/VA	0.030	mg/L	0.068	<0.030	<0.030	0.051	0.046



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)									
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-011	VA24A1531-012	VA24A1531-014	VA24A1531-015	VA24A1531-016
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	0.00164	<0.00010	<0.00010	<0.00010	0.00012
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0079
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	0.535	5.12	4.48	4.77	2.34
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.00525	0.0184	0.00395	3.32	0.0112
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00058	0.00292	0.00040	0.00011	0.00161
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.0138	<0.00050
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	4.80	1.23	2.43	1.51	13.7
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00440	0.00199
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	5.46	1.24	1.85	2.77	2.69
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	3.94	0.874	0.286	4.34	4.06
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0157	0.0205	0.00786	0.0565	0.0178
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	1.57	6.82	<0.50	23.9	14.8
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.0747	0.000281	0.000048	0.000014	0.000838
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0023
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-12-192-249.4	K-12-193-277.5	K-12-193-287.5	K-12-194-122.4	K-12-194-214.1
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-017	VA24A1531-018	VA24A1531-019	VA24A1531-020	VA24A1531-021
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	272
Conductivity, leachable	---E103/VA		2.0	µS/cm	30.3	43.5	67.0	236	797
Moisture	---E144/VA		0.25	%	<0.25	<0.25	0.83	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	301	317	280	254	388
pH	---E116/VA		0.10	pH units	6.77	6.79	7.23	7.91	3.32
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	5.6	6.7	17.2	44.2	<2.0
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.006	<0.005	0.006	0.063	0.104
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.250 ^{DLDS}
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0512	0.0705	0.0072	0.0026	<0.0020
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	1.94	2.48	2.83	2.24	<2.50 ^{DLDS}
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	0.113	0.100	0.121	0.152	<0.100 ^{DLDS}
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	<0.0010	0.0033	0.0019	<0.0010	0.0115
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.020	0.026	0.199	0.084	0.031
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	1.89	5.65	8.15	63.2	410
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	0.306	0.627	0.412	0.256	2.28
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00023	<0.00010	<0.00010	0.00040	<0.00010
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0011
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0101	0.0015	<0.0010	0.0041	0.0540
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00161
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.0904
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	3.09	4.34	5.78	25.1	16.5
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	0.00154	0.00129	0.00087	<0.00050	0.0301
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	0.00106	0.00099	<0.00010	<0.00010	0.454
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	0.0035	0.0020	<0.0010	<0.0010	0.394
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	10.5	15.2	21.1	94.7	113
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	7.72	15.5	0.256	<0.030	130



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-12-192-249.4	K-12-193-277.5	K-12-193-287.5	K-12-194-122.4	K-12-194-214.1
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-017	VA24A1531-018	VA24A1531-019	VA24A1531-020	VA24A1531-021
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	0.00041	0.00015	<0.00010	<0.00010	0.0272
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0082
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	0.669	1.06	1.62	7.78	17.5
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.359	0.828	0.0258	0.0458	4.91
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00118	0.00016	0.00024	0.00208	<0.00010
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.00309	0.00095	0.00059	0.00072	0.918
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	1.34	1.30	5.33	14.6	1.55
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00112	0.0434
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	6.47	6.31	6.10	2.31	3.28
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	0.000105	0.000056	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.899	1.50	1.92	2.43	0.401
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0113	0.0144	0.0236	0.0302	0.0261
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	0.72	1.78	2.80	24.5	131
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00089
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	0.011	0.011	<0.010	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000260	0.000040	0.000016	0.00429	0.0498
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	0.0063	<0.0010	<0.0010	<0.0010	<0.0010
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	0.016	<0.010	<0.010	<0.010	0.412

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)									
Client sampling date / time									
Analyte					CAS Number				
					Method/Lab				
					LOR				
					Unit				
					Result				
Physical Tests									
Acidity, leachable (as CaCO3)	---	E285/VA	4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---	E103/VA	2.0	µS/cm	104	79.5	163	86.7	174
Moisture	---	E144/VA	0.25	%	<0.25	<0.25	0.30	<0.25	<0.25
Oxidation-reduction potential [ORP], leachable	---	E127/VA	0.10	mV	214	266	256	313	245
pH	---	E116/VA	0.10	pH units	8.92	6.81	7.95	6.63	8.32
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---	E294/VA	2.0	mg/L	48.8	5.0	60.7	5.7	77.6
Ammonia, total, leachable (as N)	7664-41-7	E300/VA	0.005	mg/L	0.011	0.070	0.010	0.102	0.033
Bromide, leachable	24959-67-9	E243.Br/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0	E381/VA	0.0020	mg/L	0.0050	0.0209	0.0028	0.0660	0.0023
Chloride, leachable	16887-00-6	E243.Cl/VA	0.50	mg/L	0.84	2.59	5.11	6.82	1.04
Fluoride, leachable	16984-48-8	E243.F/VA	0.020	mg/L	<0.020	0.108	<0.040 ^{DLO}	0.139	<0.020
Nitrite (as N), leachable	14797-65-0	E243.NO2/VA	0.0010	mg/L	0.0016	0.0012	0.0089	0.0028	0.0019
Nitrate (as N), leachable	14797-55-8	E243.NO3/VA	0.005	mg/L	0.024	0.059	0.318	0.400	0.044
Sulfate, leachable	14808-79-8	E243.SO4/VA	0.50	mg/L	3.84	19.4	8.89	13.6	11.3
Leachable Metals									
Aluminum, leachable	7429-90-5	E446/VA	0.0050	mg/L	<0.0050	1.15	<0.0050	0.0980	<0.0050
Antimony, leachable	7440-36-0	E446/VA	0.00010	mg/L	0.00015	0.00026	0.00023	0.00044	0.00027
Arsenic, leachable	7440-38-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3	E446/VA	0.0010	mg/L	0.0030	0.0091	<0.0010	0.0054	0.0755
Beryllium, leachable	7440-41-7	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, leachable	7440-43-9	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium, leachable	7440-70-2	E446/VA	0.10	mg/L	12.1	1.13	18.8	4.90	19.4
Chromium, leachable	7440-47-3	E446/VA	0.00050	mg/L	<0.00050	0.00178	<0.00050	0.00079	<0.00050
Cobalt, leachable	7440-48-4	E446/VA	0.00010	mg/L	<0.00010	0.00113	<0.00010	0.00095	<0.00010
Copper, leachable	7440-50-8	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0048	<0.0010
Hardness (as CaCO3), dissolved	---	E446/VA	0.60	mg/L	52.6	8.63	83.8	20.2	82.4
Iron, leachable	7439-89-6	E446/VA	0.030	mg/L	<0.030	1.23	0.080	0.221	<0.030



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID	K-12-194-54	K-12-194-85	K-12-196A-115.5	K-12-199-131.5	K-12-206-58.4
(Matrix: Soil/Solid)										
					Client sampling date / time	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-022	VA24A1531-023	VA24A1531-024	VA24A1531-025	VA24A1531-026	
					Result	Result	Result	Result	Result	
Leachable Metals										
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	0.00037	<0.00010	<0.00010	<0.00010	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	0.0070	<0.0050	<0.0050	<0.0050	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	5.45	1.41	8.96	1.93	8.26	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.00456	0.00986	0.0208	0.243	0.00627	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00046	0.00030	0.00172	0.00112	0.00045	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	0.00549	<0.00050	0.00879	<0.00050	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	0.463	12.6	0.773	7.55	7.96	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	0.00087	<0.00050	<0.00050	<0.00050	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	3.30	3.83	3.64	1.30	2.89	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.348	4.06	0.836	3.54	0.930	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.00671	0.00290	0.0196	0.0132	0.0345	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	1.51	7.26	3.04	4.50	5.09	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	0.063	<0.010	0.012	<0.010	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000650	0.000140	0.000360	0.000143	0.00182	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	0.0031	<0.0010	<0.0010	<0.0010	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	0.011	<0.010	



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-12-206-97.5	K-12-209-101.3	K-12-209-219.3	K-12-211-36.7	K-12-212-205.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-027	VA24A1531-028	VA24A1531-029	VA24A1531-030	VA24A1531-031
					Result	Result	Result	Result	Result
Physical Tests									
Acidity, leachable (as CaCO3)	---E285/VA		4.0	mg/L	<4.0	<4.0	<4.0	<4.0	<4.0
Conductivity, leachable	---E103/VA		2.0	µS/cm	91.5	71.7	68.8	418	118
Moisture	---E144/VA		0.25	%	<0.25	<0.25	<0.25	<0.25	0.66
Oxidation-reduction potential [ORP], leachable	---E127/VA		0.10	mV	226	265	252	261	249
pH	---E116/VA		0.10	pH units	8.75	8.00	8.35	7.76	8.39
Leachable Anions & Nutrients									
Alkalinity, total (as CaCO3), leachable	---E294/VA		2.0	mg/L	43.5	25.1	33.6	39.7	58.3
Ammonia, total, leachable (as N)	7664-41-7E300/VA		0.005	mg/L	0.011	0.019	<0.005	0.028	<0.005
Bromide, leachable	24959-67-9E243.Br/VA		0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Phosphorus, total dissolved	7723-14-0E381/VA		0.0020	mg/L	0.0026	0.0176	<0.0020	0.0037	<0.0020
Chloride, leachable	16887-00-6E243.Cl/VA		0.50	mg/L	0.73	1.47	<0.50	4.38	0.54
Fluoride, leachable	16984-48-8E243.F/VA		0.020	mg/L	<0.020	<0.050 ^{DLCI}	<0.020	0.083	0.056
Nitrite (as N), leachable	14797-65-0E243.NO2/VA		0.0010	mg/L	0.0018	<0.0010	0.0035	<0.0010	0.0044
Nitrate (as N), leachable	14797-55-8E243.NO3/VA		0.005	mg/L	0.022	0.054	0.016	0.083	0.022
Sulfate, leachable	14808-79-8E243.SO4/VA		0.50	mg/L	3.44	5.73	1.43	162	2.91
Leachable Metals									
Aluminum, leachable	7429-90-5E446/VA		0.0050	mg/L	<0.0050	0.879	0.0185	0.0954	<0.0050
Antimony, leachable	7440-36-0E446/VA		0.00010	mg/L	0.00013	0.00027	0.00017	0.00023	0.00011
Arsenic, leachable	7440-38-2E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Barium, leachable	7440-39-3E446/VA		0.0010	mg/L	0.0022	0.0048	0.0307	0.0124	0.0751
Beryllium, leachable	7440-41-7E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bismuth, leachable	7440-69-9E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Boron, leachable	7440-42-8E446/VA		0.010	mg/L	<0.010	<0.010	0.017	<0.010	0.032
Cadmium, leachable	7440-43-9E446/VA		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium, leachable	7440-70-2E446/VA		0.10	mg/L	11.7	7.08	9.94	56.1	14.1
Chromium, leachable	7440-47-3E446/VA		0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, leachable	7440-48-4E446/VA		0.00010	mg/L	<0.00010	0.00012	<0.00010	0.00020	<0.00010
Copper, leachable	7440-50-8E446/VA		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Hardness (as CaCO3), dissolved	---E446/VA		0.60	mg/L	49.4	22.9	33.7	196	64.3
Iron, leachable	7439-89-6E446/VA		0.030	mg/L	<0.030	0.139	<0.030	<0.030	<0.030



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID				
(Matrix: Soil/Solid)					K-12-206-97.5	K-12-209-101.3	K-12-209-219.3	K-12-211-36.7	K-12-212-205.5
Client sampling date / time					24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-027	VA24A1531-028	VA24A1531-029	VA24A1531-030	VA24A1531-031
					Result	Result	Result	Result	Result
Leachable Metals									
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	0.00022	<0.00010	<0.00010	<0.00010
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	4.91	1.27	2.16	13.5	7.07
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.00494	0.00991	0.0452	0.264	0.00603
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00047	0.00044	0.00059	0.00066	0.00032
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	0.00057	<0.00050	0.00088	<0.00050
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	0.393	8.11	0.173	13.3	0.137
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00219	<0.00050
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	2.70	3.18	1.95	1.94	3.22
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.325	0.720	0.096	1.27	0.065
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.00582	0.00563	0.0195	0.0952	0.0292
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	1.17	2.48	<0.50	57.2	1.07
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000535	0.00238	0.000072	0.00162	0.000387
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010

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

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



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID	K-12-213-10.7	K-12-213-113.9	K-12-213-14.2	----	----
(Matrix: Soil/Solid)										
					Client sampling date / time	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-032	VA24A1531-033	VA24A1531-034	-----	-----	
					Result	Result	Result	----	----	
Physical Tests										
Acidity, leachable (as CaCO3)	----	E285/VA	4.0	mg/L	<4.0	<4.0	<4.0	----	----	
Conductivity, leachable	----	E103/VA	2.0	µS/cm	922	143	65.0	----	----	
Moisture	----	E144/VA	0.25	%	<0.25	<0.25	<0.25	----	----	
Oxidation-reduction potential [ORP], leachable	----	E127/VA	0.10	mV	256	279	317	----	----	
pH	----	E116/VA	0.10	pH units	7.72	8.26	7.15	----	----	
Leachable Anions & Nutrients										
Alkalinity, total (as CaCO3), leachable	----	E294/VA	2.0	mg/L	94.3	64.5	13.8	----	----	
Ammonia, total, leachable (as N)	7664-41-7	E300/VA	0.005	mg/L	0.057	0.030	0.008	----	----	
Bromide, leachable	24959-67-9	E243.Br/VA	0.050	mg/L	<0.250 ^{DLDS}	<0.050	<0.050	----	----	
Phosphorus, total dissolved	7723-14-0	E381/VA	0.0020	mg/L	<0.0020	0.0028	0.0429	----	----	
Chloride, leachable	16887-00-6	E243.Cl/VA	0.50	mg/L	<2.50 ^{DLDS}	0.67	2.36	----	----	
Fluoride, leachable	16984-48-8	E243.F/VA	0.020	mg/L	<0.100 ^{DLDS}	0.038	0.051	----	----	
Nitrite (as N), leachable	14797-65-0	E243.NO2/VA	0.0010	mg/L	<0.0050 ^{DLDS}	0.0040	0.0015	----	----	
Nitrate (as N), leachable	14797-55-8	E243.NO3/VA	0.005	mg/L	0.031	0.069	0.072	----	----	
Sulfate, leachable	14808-79-8	E243.SO4/VA	0.50	mg/L	436	5.15	9.86	----	----	
Leachable Metals										
Aluminum, leachable	7429-90-5	E446/VA	0.0050	mg/L	<0.0100 ^{DLA}	0.0078	0.0910	----	----	
Antimony, leachable	7440-36-0	E446/VA	0.00010	mg/L	<0.00020 ^{DLA}	0.00018	<0.00010	----	----	
Arsenic, leachable	7440-38-2	E446/VA	0.0010	mg/L	<0.0020 ^{DLA}	<0.0010	<0.0010	----	----	
Barium, leachable	7440-39-3	E446/VA	0.0010	mg/L	0.0199	0.0349	0.0021	----	----	
Beryllium, leachable	7440-41-7	E446/VA	0.00050	mg/L	<0.00100 ^{DLA}	<0.00050	<0.00050	----	----	
Bismuth, leachable	7440-69-9	E446/VA	0.00050	mg/L	<0.00100 ^{DLA}	<0.00050	<0.00050	----	----	
Boron, leachable	7440-42-8	E446/VA	0.010	mg/L	<0.020 ^{DLA}	0.017	<0.010	----	----	
Cadmium, leachable	7440-43-9	E446/VA	0.000050	mg/L	<0.000100 ^{DLA}	<0.000050	<0.000050	----	----	
Calcium, leachable	7440-70-2	E446/VA	0.10	mg/L	177	17.1	6.52	----	----	
Chromium, leachable	7440-47-3	E446/VA	0.00050	mg/L	<0.00100 ^{DLA}	<0.00050	<0.00050	----	----	
Cobalt, leachable	7440-48-4	E446/VA	0.00010	mg/L	0.0217	<0.00010	0.00084	----	----	
Copper, leachable	7440-50-8	E446/VA	0.0010	mg/L	<0.0020 ^{DLA}	<0.0010	0.0039	----	----	
Hardness (as CaCO3), dissolved	----	E446/VA	0.60	mg/L	514	61.7	24.6	----	----	
Iron, leachable	7439-89-6	E446/VA	0.030	mg/L	<0.060 ^{DLA}	<0.030	1.70	----	----	



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID	K-12-213-10.7	K-12-213-113.9	K-12-213-14.2	----	----
(Matrix: Soil/Solid)										
					Client sampling date / time	24-Jan-2024 00:00	24-Jan-2024 00:00	24-Jan-2024 00:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A1531-032	VA24A1531-033	VA24A1531-034	-----	-----	
					Result	Result	Result	----	----	
Leachable Metals										
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00020 ^{DLA}	<0.00010	0.00031	----	----	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0100 ^{DLA}	<0.0050	<0.0050	----	----	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	17.4	4.61	2.01	----	----	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	10.4	0.0231	0.355	----	----	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00026	0.00078	0.00360	----	----	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	0.0277	<0.00050	0.00074	----	----	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.60 ^{DLA}	<0.30	<0.30	----	----	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	12.0	11.0	2.57	----	----	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00100 ^{DLA}	<0.00050	<0.00050	----	----	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	3.27	5.03	4.62	----	----	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000100 ^{DLA}	<0.000050	<0.000050	----	----	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.768	0.484	1.24	----	----	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.206	0.0254	0.00983	----	----	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	158	1.90	3.06	----	----	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00020 ^{DLA}	<0.00010	<0.00010	----	----	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00100 ^{DLA}	<0.00050	<0.00050	----	----	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.020 ^{DLA}	<0.010	<0.010	----	----	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.00116	0.00247	0.000059	----	----	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0020 ^{DLA}	<0.0010	<0.0010	----	----	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.020 ^{DLA}	<0.010	<0.010	----	----	

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

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA24A1531	Page	: 1 of 66
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 24-Jan-2024 12:00
PO	: ----	Issue Date	: 27-Feb-2024 10:03
C-O-C number	: ----		
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKC1100-003		
No. of samples received	: 33		
No. of samples analysed	: 33		

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

Key

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

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Leachable Metals	Anonymous	Anonymous	Aluminum, leachable	7429-90-5	E446	54.7 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Soil/Solid**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E285	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E285	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	27 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E294	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E294	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Leachable Anions & Nutrients : Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	16-Feb-2024	3 days	23 days	✓
Leachable Anions & Nutrients : Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	16-Feb-2024	3 days	23 days	✓
Leachable Anions & Nutrients : Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	16-Feb-2024	3 days	23 days	✓
Leachable Anions & Nutrients : Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	16-Feb-2024	3 days	23 days	✓



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E300	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	23 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E300	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	21-Feb-2024	3 days	28 days	✖ EHT
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	17-Feb-2024	28 days	24 days	✔
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	17-Feb-2024	28 days	24 days	✔
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	17-Feb-2024	28 days	24 days	✔
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	17-Feb-2024	28 days	24 days	✔
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	17-Feb-2024	28 days	24 days	✔
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	17-Feb-2024	28 days	24 days	✔
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	17-Feb-2024	28 days	24 days	✔



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E243.Br	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E243.Br	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E243.Cl	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	17-Feb-2024	30 days	24 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E243.Cl	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	19-Feb-2024	30 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E243.F	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E243.F	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	17-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	17-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	17-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	17-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	17-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	17-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	17-Feb-2024	3 days	24 days	✓



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E243.NO3	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E243.NO3	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-185-59.1	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-185-62.2	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-187-50.5	E243.NO2	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	17-Feb-2024	3 days	24 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-187-500.5	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-187-74	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-192-249.4	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-193-277.5	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-193-287.5	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-194-122.4	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis				
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-194-214.1	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-194-54	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-194-85	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-196A-115.5	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-199-131.5	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-206-58.4	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-206-97.5	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-209-101.3	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)											
LDPE bag K-12-209-219.3	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E243.NO2	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	19-Feb-2024	3 days	26 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	17-Feb-2024	28 days	24 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	17-Feb-2024	28 days	24 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	17-Feb-2024	28 days	24 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	17-Feb-2024	28 days	24 days	✔



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E243.SO4	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	17-Feb-2024	28 days	24 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E243.SO4	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	19-Feb-2024	28 days	26 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	16-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	16-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	16-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	16-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	16-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	16-Feb-2024	3 days	24 days	✓
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✗ EHT	16-Feb-2024	3 days	24 days	✓



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E381	24-Jan-2024	14-Feb-2024	3 days	21 days	✖ EHT	16-Feb-2024	3 days	24 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E381	24-Jan-2024	16-Feb-2024	3 days	23 days	✖ EHT	20-Feb-2024	3 days	27 days	✖ EHT
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✔	15-Feb-2024	28 days	23 days	✔



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E515	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	15-Feb-2024	28 days	23 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E515	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	27 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E446	24-Jan-2024	14-Feb-2024	180 days	21 days	✓	16-Feb-2024	180 days	23 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E446	24-Jan-2024	16-Feb-2024	180 days	23 days	✓	21-Feb-2024	180 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✗ EHT



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✖ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✖ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✖ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✖ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✖ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E103	24-Jan-2024	14-Feb-2024	28 days	21 days	✓	22-Feb-2024	28 days	29 days	✖ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E103	24-Jan-2024	16-Feb-2024	28 days	23 days	✓	20-Feb-2024	28 days	28 days	✓
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-175-79.3	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-175-86.6	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-177-233.47	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-177-272.5	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-179-171.6	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-180-11.3	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-180-18.2	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-180-28.1	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-182-131.5	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-182-435.8	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-185-59.1	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-185-62.2	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-187-50.5	E144	24-Jan-2024	----	----	----		09-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-187-500.5	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-187-74	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-192-249.4	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-193-277.5	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-193-287.5	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-194-122.4	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-194-214.1	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-194-54	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-194-85	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-196A-115.5	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-199-131.5	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-206-58.4	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-206-97.5	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-209-101.3	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-209-219.3	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-211-36.7	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-212-205.5	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-213-10.7	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-213-113.9	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag K-12-213-14.2	E144	24-Jan-2024	----	----	----		10-Feb-2024	----	17 days	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E127	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	26-Feb-2024	30 days	33 days	✖ EHT



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E127	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	21-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-79.3	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-175-86.6	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-233.47	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-177-272.5	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-179-171.6	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-11.3	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-18.2	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-180-28.1	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-131.5	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-182-435.8	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-59.1	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-185-62.2	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-50.5	E116	24-Jan-2024	14-Feb-2024	30 days	21 days	✓	22-Feb-2024	30 days	29 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-500.5	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-187-74	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-192-249.4	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-277.5	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-193-287.5	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-122.4	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-214.1	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-54	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-194-85	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-196A-115.5	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-199-131.5	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-58.4	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-206-97.5	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-101.3	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-209-219.3	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-211-36.7	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-212-205.5	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-10.7	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-113.9	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag K-12-213-14.2	E116	24-Jan-2024	16-Feb-2024	30 days	23 days	✓	20-Feb-2024	30 days	28 days	✓

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

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

Matrix: **Soil/Solid**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1330529	2	40	5.0	5.0	✔
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1330530	2	40	5.0	5.0	✔
Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)	E300	1330525	2	40	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1330537	2	40	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1330536	2	40	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1330535	2	40	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1330539	2	40	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1330538	2	40	5.0	5.0	✔
Moisture Content by Gravimetry	E144	1328763	2	40	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1330533	2	40	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1330534	2	40	5.0	5.0	✔
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127	1330528	2	40	5.0	5.0	✔
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	1330527	2	40	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1330532	2	40	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1330531	2	40	5.0	5.0	✔
Laboratory Control Samples (LCS)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1330529	2	40	5.0	5.0	✔
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1330530	2	40	5.0	5.0	✔
Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)	E300	1330525	2	40	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1330537	2	40	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1330536	2	40	5.0	5.0	✔
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	1330526	2	40	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1330535	2	40	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1330539	2	40	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1330538	2	40	5.0	5.0	✔
Moisture Content by Gravimetry	E144	1328763	2	40	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1330533	2	40	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1330534	2	40	5.0	5.0	✔
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127	1330528	2	40	5.0	5.0	✔
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	1330527	2	40	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1330532	2	40	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1330531	2	40	5.0	5.0	✔
Method Blanks (MB)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1330529	2	40	5.0	5.0	✔



Matrix: Soil/Solid

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1330530	2	40	5.0	5.0	✔
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300	1330525	2	40	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1330537	2	40	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1330536	2	40	5.0	5.0	✔
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	1330526	2	40	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1330535	2	40	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1330539	2	40	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1330538	2	40	5.0	5.0	✔
Moisture Content by Gravimetry	E144	1328763	2	40	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1330533	2	40	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1330534	2	40	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1330532	2	40	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1330531	2	40	5.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300	1330525	2	40	5.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1330537	2	40	5.0	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1330536	2	40	5.0	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1330535	2	40	5.0	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1330539	2	40	5.0	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1330538	2	40	5.0	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1330533	2	40	5.0	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1330534	2	40	5.0	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1330532	2	40	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1330531	2	40	5.0	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. Conductivity measurements are temperature-compensated to 25°C.
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^\circ\text{C}$) on an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. The pH is then measured by a standard pH probe.
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/ASTM D1498 (mod)	Oxidation reduction potential is reported as the oxidation-reduction potential (measured in mV) of the platinum metal-reference electrode employed in the analysis of an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.S04 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 2310 B (mod)	Acidity is determined by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by potentiometric titration to a specified endpoint.
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by autotitration
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia is analyzed by flow-injection analysis with fluorescence detection by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis.
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381 ALS Environmental - Vancouver	Soil/Solid	MEND/APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer on an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered and digested prior to analysis.
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES/EPA 6020B (mod)	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by Collision/Reaction Cell ICPMS. This extraction is an empirical procedure with pre-defined characteristics. Recovery of some elements (Ag, Bi, and Sn) by this method can be variable due to the neutral pH of the extraction fluid, and therefore the LCS DQOs has been established at 50-130% for these elements.
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES/EPA 1631E (mod)	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by CVAAS. This extraction is an empirical procedure with pre-defined characteristics. Recovery of mercury can be variable due to the neutral pH of the extraction fluid, and therefore the LCS DQO has been established at 50-130%.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Shakeflask Leachate Preparation (3:1 Ratio with Water)	EP446 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES	A sample is extracted with water at a 3:1 liquid to solids ratio for 24 hours, then filtered through a 0.45 micron membrane filter.

QUALITY CONTROL REPORT

Work Order	: VA24A1531	Page	: 1 of 18
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 24-Jan-2024 12:00
PO	: ----	Date Analysis Commenced	: 09-Feb-2024
C-O-C number	: ----	Issue Date	: 27-Feb-2024 10:04
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKCI100-003		
No. of samples received	: 33		
No. of samples analysed	: 33		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	Position	Laboratory Department
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General Comments

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

Key :

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

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

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

Workorder Comments

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



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1328763)											
VA24A1530-049	Anonymous	Moisture	----	E144	0.25	%	<0.25	<0.25	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1328817)											
VA24A1531-015	K-12-187-500.5	Moisture	----	E144	0.25	%	<0.25	<0.25	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1330527)											
VA24A1530-049	Anonymous	pH	----	E116	0.10	pH units	7.39	7.35	0.543%	5%	----
Physical Tests (QC Lot: 1330528)											
VA24A1530-049	Anonymous	Oxidation-reduction potential [ORP], leachable	----	E127	0.10	mV	264	262	0.646%	30%	----
Physical Tests (QC Lot: 1330542)											
VA24A1531-015	K-12-187-500.5	pH	----	E116	0.10	pH units	7.06	7.05	0.142%	5%	----
Physical Tests (QC Lot: 1330543)											
VA24A1531-015	K-12-187-500.5	Oxidation-reduction potential [ORP], leachable	----	E127	0.10	mV	253	260	2.92%	30%	----
Leachable Anions & Nutrients (QC Lot: 1330525)											
VA24A1530-049	Anonymous	Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.120	0.123	2.48%	20%	----
Leachable Anions & Nutrients (QC Lot: 1330529)											
VA24A1530-049	Anonymous	Acidity, leachable (as CaCO3)	----	E285	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330530)											
VA24A1530-049	Anonymous	Alkalinity, total (as CaCO3), leachable	----	E294	2.0	mg/L	14.4	13.2	1.2	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330531)											
VA24A1530-049	Anonymous	Phosphorus, total dissolved	7723-14-0	E381	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330532)											
VA24A1530-049	Anonymous	Sulfate, leachable	14808-79-8	E243.SO4	0.50	mg/L	47.4	50.5	6.31%	30%	----
Leachable Anions & Nutrients (QC Lot: 1330533)											
VA24A1530-049	Anonymous	Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.054	0.054	0.0355%	30%	----
Leachable Anions & Nutrients (QC Lot: 1330534)											
VA24A1530-049	Anonymous	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330535)											
VA24A1530-049	Anonymous	Fluoride, leachable	16984-48-8	E243.F	0.020	mg/L	0.234	0.219	6.72%	30%	----
Leachable Anions & Nutrients (QC Lot: 1330536)											



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Anions & Nutrients (QC Lot: 1330536) - continued											
VA24A1530-049	Anonymous	Chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L	1.53	1.48	0.05	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330537)											
VA24A1530-049	Anonymous	Bromide, leachable	24959-67-9	E243.Br	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330540)											
VA24A1531-015	K-12-187-500.5	Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.060	0.062	4.00%	20%	----
Leachable Anions & Nutrients (QC Lot: 1330544)											
VA24A1531-015	K-12-187-500.5	Acidity, leachable (as CaCO3)	----	E285	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330545)											
VA24A1531-015	K-12-187-500.5	Alkalinity, total (as CaCO3), leachable	----	E294	2.0	mg/L	16.0	16.5	3.08%	25%	----
Leachable Anions & Nutrients (QC Lot: 1330546)											
VA24A1531-015	K-12-187-500.5	Phosphorus, total dissolved	7723-14-0	E381	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330547)											
VA24A1531-015	K-12-187-500.5	Sulfate, leachable	14808-79-8	E243.SO4	0.50	mg/L	66.0	64.6	2.19%	30%	----
Leachable Anions & Nutrients (QC Lot: 1330548)											
VA24A1531-015	K-12-187-500.5	Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.198	0.204	3.18%	30%	----
Leachable Anions & Nutrients (QC Lot: 1330549)											
VA24A1531-015	K-12-187-500.5	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.0010	mg/L	0.0010	<0.0010	0.00005	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330550)											
VA24A1531-015	K-12-187-500.5	Fluoride, leachable	16984-48-8	E243.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330551)											
VA24A1531-015	K-12-187-500.5	Chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L	2.72	2.97	0.25	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1330552)											
VA24A1531-015	K-12-187-500.5	Bromide, leachable	24959-67-9	E243.Br	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1330538)											
VA24A1530-049	Anonymous	Aluminum, leachable	7429-90-5	E446	0.0050	mg/L	0.139	0.0793	54.7%	30%	DUP-H
		Antimony, leachable	7440-36-0	E446	0.00010	mg/L	0.00015	0.00011	0.00004	Diff <2x LOR	----
		Arsenic, leachable	7440-38-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0215	0.0221	2.85%	30%	----
		Beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, leachable	7440-43-9	E446	0.000050	mg/L	0.000372	0.000396	6.22%	30%	----
		Calcium, leachable	7440-70-2	E446	0.10	mg/L	10.4	10.6	1.61%	30%	----



Sub-Matrix: Soil/Solid

Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Metals (QC Lot: 1330538) - continued											
VA24A1530-049	Anonymous	Chromium, leachable	7440-47-3	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, leachable	7440-48-4	E446	0.00010	mg/L	0.00161	0.00172	6.91%	30%	----
		Copper, leachable	7440-50-8	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Iron, leachable	7439-89-6	E446	0.030	mg/L	0.031	<0.030	0.001	Diff <2x LOR	----
		Lead, leachable	7439-92-1	E446	0.00010	mg/L	0.00018	0.00012	0.00006	Diff <2x LOR	----
		Lithium, leachable	7439-93-2	E446	0.0050	mg/L	0.0073	0.0080	0.0007	Diff <2x LOR	----
		Magnesium, leachable	7439-95-4	E446	0.050	mg/L	5.23	5.46	4.30%	30%	----
		Manganese, leachable	7439-96-5	E446	0.00050	mg/L	0.328	0.359	8.97%	30%	----
		Molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00772	0.00691	11.0%	30%	----
		Nickel, leachable	7440-02-0	E446	0.00050	mg/L	0.0490	0.0543	10.2%	30%	----
		Phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Potassium, leachable	7440-09-7	E446	0.050	mg/L	11.2	11.5	2.97%	30%	----
		Selenium, leachable	7782-49-2	E446	0.00050	mg/L	0.00365	0.00362	0.780%	30%	----
		Silicon, leachable	7440-21-3	E446	0.050	mg/L	2.52	2.27	10.4%	40%	----
		Silver, leachable	7440-22-4	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Sodium, leachable	7440-23-5	E446	0.050	mg/L	2.36	2.33	1.38%	30%	----
		Strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.0245	0.0246	0.446%	30%	----
		Sulfur, leachable	7704-34-9	E446	0.50	mg/L	16.2	17.7	8.40%	30%	----
		Thallium, leachable	7440-28-0	E446	0.00010	mg/L	0.00012	0.00012	0.000003	Diff <2x LOR	----
		Tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, leachable	7440-32-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Uranium, leachable	7440-61-1	E446	0.000010	mg/L	0.000352	0.000336	4.62%	30%	----
		Vanadium, leachable	7440-62-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1330539)											
VA24A1530-049	Anonymous	Mercury, leachable	7439-97-6	E515	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1330553)											
VA24A1531-015	K-12-187-500.5	Aluminum, leachable	7429-90-5	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Antimony, leachable	7440-36-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, leachable	7440-38-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0034	0.0033	0.00006	Diff <2x LOR	----
		Beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Metals (QC Lot: 1330553) - continued											
VA24A1531-015	K-12-187-500.5	Cadmium, leachable	7440-43-9	E446	0.000050	mg/L	0.000063	0.000058	0.000005	Diff <2x LOR	----
		Calcium, leachable	7440-70-2	E446	0.10	mg/L	23.0	20.6	11.0%	30%	----
		Chromium, leachable	7440-47-3	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, leachable	7440-48-4	E446	0.00010	mg/L	0.0143	0.0124	14.3%	30%	----
		Copper, leachable	7440-50-8	E446	0.0010	mg/L	0.0010	<0.0010	0.00002	Diff <2x LOR	----
		Iron, leachable	7439-89-6	E446	0.030	mg/L	0.051	0.074	0.022	Diff <2x LOR	----
		Lead, leachable	7439-92-1	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, leachable	7439-93-2	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Magnesium, leachable	7439-95-4	E446	0.050	mg/L	4.77	4.20	12.6%	30%	----
		Manganese, leachable	7439-96-5	E446	0.00050	mg/L	3.32	3.18	4.20%	30%	----
		Molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00011	<0.00010	0.000010	Diff <2x LOR	----
		Nickel, leachable	7440-02-0	E446	0.00050	mg/L	0.0138	0.0116	17.2%	30%	----
		Phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Potassium, leachable	7440-09-7	E446	0.050	mg/L	1.51	1.36	10.5%	30%	----
		Selenium, leachable	7782-49-2	E446	0.00050	mg/L	0.00440	0.00375	16.1%	30%	----
		Silicon, leachable	7440-21-3	E446	0.050	mg/L	2.77	2.41	14.0%	40%	----
		Silver, leachable	7440-22-4	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Sodium, leachable	7440-23-5	E446	0.050	mg/L	4.34	3.77	13.9%	30%	----
		Strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.0565	0.0469	18.7%	30%	----
		Sulfur, leachable	7704-34-9	E446	0.50	mg/L	23.9	22.7	4.96%	30%	----
		Thallium, leachable	7440-28-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, leachable	7440-32-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Uranium, leachable	7440-61-1	E446	0.000010	mg/L	0.000014	0.000012	0.000002	Diff <2x LOR	----
		Vanadium, leachable	7440-62-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1330554)											
VA24A1531-015	K-12-187-500.5	Mercury, leachable	7439-97-6	E515	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----

Qualifiers

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.



Method Blank (MB) Report

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

Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1328763)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1328817)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1330526)						
Conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Physical Tests (QCLot: 1330541)						
Conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Leachable Anions & Nutrients (QCLot: 1330525)						
Ammonia, total, leachable (as N)	7664-41-7	E300	0.01	mg/L	<0.010	----
Leachable Anions & Nutrients (QCLot: 1330529)						
Acidity, leachable (as CaCO ₃)	----	E285	4	mg/L	<4.0	----
Leachable Anions & Nutrients (QCLot: 1330530)						
Alkalinity, total (as CaCO ₃), leachable	----	E294	2	mg/L	<2.0	----
Leachable Anions & Nutrients (QCLot: 1330531)						
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	<0.0020	----
Leachable Anions & Nutrients (QCLot: 1330532)						
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1330533)						
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.01	mg/L	<0.010	----
Leachable Anions & Nutrients (QCLot: 1330534)						
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	<0.0010	----
Leachable Anions & Nutrients (QCLot: 1330535)						
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	<0.020	----
Leachable Anions & Nutrients (QCLot: 1330536)						
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1330537)						
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	<0.050	----
Leachable Anions & Nutrients (QCLot: 1330540)						
Ammonia, total, leachable (as N)	7664-41-7	E300	0.01	mg/L	<0.010	----
Leachable Anions & Nutrients (QCLot: 1330544)						
Acidity, leachable (as CaCO ₃)	----	E285	4	mg/L	<4.0	----
Leachable Anions & Nutrients (QCLot: 1330545)						



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Anions & Nutrients (QCLot: 1330545) - continued						
Alkalinity, total (as CaCO ₃), leachable	----	E294	2	mg/L	<2.0	----
Leachable Anions & Nutrients (QCLot: 1330546)						
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	<0.0020	----
Leachable Anions & Nutrients (QCLot: 1330547)						
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1330548)						
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.01	mg/L	<0.010	----
Leachable Anions & Nutrients (QCLot: 1330549)						
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	<0.0010	----
Leachable Anions & Nutrients (QCLot: 1330550)						
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	<0.020	----
Leachable Anions & Nutrients (QCLot: 1330551)						
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1330552)						
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	<0.050	----
Leachable Metals (QCLot: 1330538)						
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	<0.0010	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	<0.00010	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----



Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 1330538) - continued						
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	<0.010	----
Leachable Metals (QCLot: 1330539)						
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	<0.000050	----
Leachable Metals (QCLot: 1330553)						
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	<0.0010	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	<0.00010	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 1330553) - continued						
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	<0.010	----
Leachable Metals (QCLot: 1330554)						
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	<0.000050	----



Laboratory Control Sample (LCS) Report

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

Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1328763)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 1328817)									
Moisture	----	E144	0.25	%	50 %	99.9	90.0	110	----
Physical Tests (QCLot: 1330526)									
Conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 1330527)									
pH	----	E116	----	pH units	7.04 pH units	99.1	95.0	105	----
Physical Tests (QCLot: 1330528)									
Oxidation-reduction potential [ORP], leachable	----	E127	----	mV	220 mV	99.9	95.0	105	----
Physical Tests (QCLot: 1330541)									
Conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	98.2	90.0	110	----
Physical Tests (QCLot: 1330542)									
pH	----	E116	----	pH units	7.04 pH units	99.3	95.0	105	----
Physical Tests (QCLot: 1330543)									
Oxidation-reduction potential [ORP], leachable	----	E127	----	mV	220 mV	99.8	95.0	105	----
Leachable Anions & Nutrients (QCLot: 1330525)									
Ammonia, total, leachable (as N)	7664-41-7	E300	0.01	mg/L	0.2 mg/L	104	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1330529)									
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	50 mg/L	97.8	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1330530)									
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	500 mg/L	109	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1330531)									
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	0.05 mg/L	101	80.0	120	----
Leachable Anions & Nutrients (QCLot: 1330532)									
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	25 mg/L	99.7	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330533)									
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.01	mg/L	0.625 mg/L	100.0	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330534)									
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	0.125 mg/L	95.6	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330535)									
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	0.25 mg/L	90.4	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit					
Leachable Anions & Nutrients (QCLot: 1330536)									
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	25 mg/L	98.6	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330537)									
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	0.125 mg/L	92.8	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330540)									
Ammonia, total, leachable (as N)	7664-41-7	E300	0.01	mg/L	0.2 mg/L	94.6	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1330544)									
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	50 mg/L	99.4	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1330545)									
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	500 mg/L	107	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1330546)									
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	0.05 mg/L	107	80.0	120	----
Leachable Anions & Nutrients (QCLot: 1330547)									
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	25 mg/L	100	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330548)									
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.01	mg/L	0.625 mg/L	98.9	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330549)									
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	0.125 mg/L	94.7	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330550)									
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	0.25 mg/L	95.1	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330551)									
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	25 mg/L	97.8	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1330552)									
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	0.125 mg/L	89.5	70.0	130	----
Leachable Metals (QCLot: 1330538)									
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	99.0	70.0	130	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	97.9	70.0	130	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	100.0	70.0	130	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	100	70.0	130	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	94.2	70.0	130	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	101	50.0	130	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	97.7	70.0	130	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	95.9	70.0	130	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	93.8	70.0	130	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	93.2	70.0	130	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	93.2	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit					
Leachable Metals (QCLot: 1330538) - continued									
Copper, leachable	7440-50-8	E446	0.001	mg/L	0.025 mg/L	91.3	70.0	130	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	96.8	70.0	130	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	0.05 mg/L	101	70.0	130	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	97.7	70.0	130	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	100	70.0	130	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	98.7	70.0	130	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	100	70.0	130	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	95.3	70.0	130	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	104	70.0	130	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	99.5	70.0	130	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	92.8	70.0	130	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	102	70.0	130	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	89.7	50.0	130	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	94.5	70.0	130	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	98.9	70.0	130	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	97.7	70.0	130	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	92.6	70.0	130	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	98.3	50.0	130	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	94.8	50.0	130	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	105	70.0	130	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	95.4	70.0	130	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	0.05 mg/L	95.8	70.0	130	----
Leachable Metals (QCLot: 1330539)									
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	0.0005 mg/L	92.9	50.0	130	----
Leachable Metals (QCLot: 1330553)									
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	93.2	70.0	130	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	94.6	70.0	130	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	103	70.0	130	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	91.4	70.0	130	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	98.0	70.0	130	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	93.5	50.0	130	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	97.2	70.0	130	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	96.0	70.0	130	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	97.4	70.0	130	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	93.6	70.0	130	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	91.4	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Leachable Metals (QCLot: 1330553) - continued									
Copper, leachable	7440-50-8	E446	0.001	mg/L	0.025 mg/L	90.0	70.0	130	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	92.2	70.0	130	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	0.05 mg/L	94.2	70.0	130	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	98.3	70.0	130	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	98.7	70.0	130	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	91.3	70.0	130	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	95.3	70.0	130	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	92.9	70.0	130	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	112	70.0	130	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	87.4	70.0	130	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	100	70.0	130	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	109	70.0	130	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	84.6	50.0	130	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	92.8	70.0	130	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	93.4	70.0	130	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	99.7	70.0	130	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	84.5	70.0	130	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	98.0	50.0	130	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	92.2	50.0	130	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	103	70.0	130	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	94.8	70.0	130	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	0.05 mg/L	94.0	70.0	130	----
Leachable Metals (QCLot: 1330554)									
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	0.0005 mg/L	95.4	50.0	130	----



Matrix Spike (MS) Report

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

Sub-Matrix: Soil/Solid

					Matrix Spike (MS) Report				
					Spike		Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High
Leachable Anions & Nutrients (QCLot: 1330525)									
VA24A1530-050	Anonymous	Ammonia, total, leachable (as N)	7664-41-7	E300	0.103 mg/L	0.1 mg/L	103	60.0	140
Leachable Anions & Nutrients (QCLot: 1330531)									
VA24A1530-050	Anonymous	Phosphorus, total dissolved	7723-14-0	E381	0.0491 mg/L	0.05 mg/L	98.2	70.0	130
Leachable Anions & Nutrients (QCLot: 1330532)									
VA24A1530-050	Anonymous	Sulfate, leachable	14808-79-8	E243.SO4	ND mg/L	100 mg/L	ND	60.0	140
Leachable Anions & Nutrients (QCLot: 1330533)									
VA24A1530-050	Anonymous	Nitrate (as N), leachable	14797-55-8	E243.NO3	2.56 mg/L	2.5 mg/L	102	60.0	140
Leachable Anions & Nutrients (QCLot: 1330534)									
VA24A1530-050	Anonymous	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.492 mg/L	0.5 mg/L	98.4	60.0	140
Leachable Anions & Nutrients (QCLot: 1330535)									
VA24A1530-050	Anonymous	Fluoride, leachable	16984-48-8	E243.F	0.969 mg/L	1 mg/L	96.9	60.0	140
Leachable Anions & Nutrients (QCLot: 1330536)									
VA24A1530-050	Anonymous	Chloride, leachable	16887-00-6	E243.Cl	102 mg/L	100 mg/L	102	60.0	140
Leachable Anions & Nutrients (QCLot: 1330537)									
VA24A1530-050	Anonymous	Bromide, leachable	24959-67-9	E243.Br	0.475 mg/L	0.5 mg/L	95.0	60.0	140
Leachable Anions & Nutrients (QCLot: 1330540)									
VA24A1531-016	K-12-187-74	Ammonia, total, leachable (as N)	7664-41-7	E300	ND mg/L	0.1 mg/L	ND	60.0	140
Leachable Anions & Nutrients (QCLot: 1330546)									
VA24A1531-016	K-12-187-74	Phosphorus, total dissolved	7723-14-0	E381	0.0526 mg/L	0.05 mg/L	105	70.0	130
Leachable Anions & Nutrients (QCLot: 1330547)									
VA24A1531-016	K-12-187-74	Sulfate, leachable	14808-79-8	E243.SO4	100 mg/L	100 mg/L	100	60.0	140
Leachable Anions & Nutrients (QCLot: 1330548)									
VA24A1531-016	K-12-187-74	Nitrate (as N), leachable	14797-55-8	E243.NO3	2.53 mg/L	2.5 mg/L	101	60.0	140
Leachable Anions & Nutrients (QCLot: 1330549)									
VA24A1531-016	K-12-187-74	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.455 mg/L	0.5 mg/L	91.1	60.0	140
Leachable Anions & Nutrients (QCLot: 1330550)									
VA24A1531-016	K-12-187-74	Fluoride, leachable	16984-48-8	E243.F	1.05 mg/L	1 mg/L	105	60.0	140



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Anions & Nutrients (QCLot: 1330551)										
VA24A1531-016	K-12-187-74	Chloride, leachable	16887-00-6	E243.Cl	101 mg/L	100 mg/L	101	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1330552)										
VA24A1531-016	K-12-187-74	Bromide, leachable	24959-67-9	E243.Br	0.508 mg/L	0.5 mg/L	102	60.0	140	----
Leachable Metals (QCLot: 1330538)										
VA24A1530-050	Anonymous	Aluminum, leachable	7429-90-5	E446	0.193 mg/L	0.2 mg/L	96.5	70.0	130	----
		Antimony, leachable	7440-36-0	E446	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Arsenic, leachable	7440-38-2	E446	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		Barium, leachable	7440-39-3	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Beryllium, leachable	7440-41-7	E446	0.0364 mg/L	0.04 mg/L	91.0	70.0	130	----
		Bismuth, leachable	7440-69-9	E446	0.00948 mg/L	0.01 mg/L	94.8	70.0	130	----
		Boron, leachable	7440-42-8	E446	0.092 mg/L	0.1 mg/L	92.1	70.0	130	----
		Cadmium, leachable	7440-43-9	E446	0.00376 mg/L	0.004 mg/L	94.0	70.0	130	----
		Calcium, leachable	7440-70-2	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, leachable	7440-47-3	E446	0.0372 mg/L	0.04 mg/L	93.1	70.0	130	----
		Cobalt, leachable	7440-48-4	E446	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	----
		Copper, leachable	7440-50-8	E446	0.0178 mg/L	0.02 mg/L	88.8	70.0	130	----
		Iron, leachable	7439-89-6	E446	1.89 mg/L	2 mg/L	94.4	70.0	130	----
		Lead, leachable	7439-92-1	E446	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Lithium, leachable	7439-93-2	E446	0.0946 mg/L	0.1 mg/L	94.6	70.0	130	----
		Magnesium, leachable	7439-95-4	E446	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, leachable	7439-96-5	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Molybdenum, leachable	7439-98-7	E446	0.0205 mg/L	0.02 mg/L	103	70.0	130	----
		Nickel, leachable	7440-02-0	E446	0.0375 mg/L	0.04 mg/L	93.8	70.0	130	----
		Phosphorus, leachable	7723-14-0	E446	10.0 mg/L	10 mg/L	100	70.0	130	----
		Potassium, leachable	7440-09-7	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Selenium, leachable	7782-49-2	E446	0.0366 mg/L	0.04 mg/L	91.6	70.0	130	----
		Silicon, leachable	7440-21-3	E446	9.45 mg/L	10 mg/L	94.5	70.0	130	----
		Silver, leachable	7440-22-4	E446	0.00392 mg/L	0.004 mg/L	97.9	70.0	130	----
		Sodium, leachable	7440-23-5	E446	1.90 mg/L	2 mg/L	94.9	70.0	130	----
		Strontium, leachable	7440-24-6	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, leachable	7704-34-9	E446	ND mg/L	20 mg/L	ND	70.0	130	----
		Thallium, leachable	7440-28-0	E446	0.00378 mg/L	0.004 mg/L	94.5	70.0	130	----
		Tin, leachable	7440-31-5	E446	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Titanium, leachable	7440-32-6	E446	0.038 mg/L	0.04 mg/L	96.2	70.0	130	----
		Uranium, leachable	7440-61-1	E446	0.00410 mg/L	0.004 mg/L	102	70.0	130	----



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 1330538) - continued										
VA24A1530-050	Anonymous	Vanadium, leachable	7440-62-2	E446	0.0950 mg/L	0.1 mg/L	95.0	70.0	130	----
		Zinc, leachable	7440-66-6	E446	0.368 mg/L	0.4 mg/L	92.0	70.0	130	----
Leachable Metals (QCLot: 1330539)										
VA24A1530-050	Anonymous	Mercury, leachable	7439-97-6	E515	0.000097 mg/L	0.0001 mg/L	96.6	70.0	130	----
Leachable Metals (QCLot: 1330553)										
VA24A1531-016	K-12-187-74	Aluminum, leachable	7429-90-5	E446	ND mg/L	0.2 mg/L	ND	70.0	130	----
		Antimony, leachable	7440-36-0	E446	0.0194 mg/L	0.02 mg/L	96.8	70.0	130	----
		Arsenic, leachable	7440-38-2	E446	0.0190 mg/L	0.02 mg/L	94.9	70.0	130	----
		Barium, leachable	7440-39-3	E446	0.0189 mg/L	0.02 mg/L	94.7	70.0	130	----
		Beryllium, leachable	7440-41-7	E446	0.0381 mg/L	0.04 mg/L	95.3	70.0	130	----
		Bismuth, leachable	7440-69-9	E446	0.00948 mg/L	0.01 mg/L	94.8	70.0	130	----
		Boron, leachable	7440-42-8	E446	0.091 mg/L	0.1 mg/L	91.3	70.0	130	----
		Cadmium, leachable	7440-43-9	E446	0.00390 mg/L	0.004 mg/L	97.5	70.0	130	----
		Calcium, leachable	7440-70-2	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, leachable	7440-47-3	E446	0.0390 mg/L	0.04 mg/L	97.5	70.0	130	----
		Cobalt, leachable	7440-48-4	E446	0.0191 mg/L	0.02 mg/L	95.5	70.0	130	----
		Copper, leachable	7440-50-8	E446	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	----
		Iron, leachable	7439-89-6	E446	1.89 mg/L	2 mg/L	94.4	70.0	130	----
		Lead, leachable	7439-92-1	E446	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	----
		Lithium, leachable	7439-93-2	E446	0.0940 mg/L	0.1 mg/L	94.0	70.0	130	----
		Magnesium, leachable	7439-95-4	E446	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, leachable	7439-96-5	E446	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	----
		Molybdenum, leachable	7439-98-7	E446	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Nickel, leachable	7440-02-0	E446	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
		Phosphorus, leachable	7723-14-0	E446	9.74 mg/L	10 mg/L	97.4	70.0	130	----
		Potassium, leachable	7440-09-7	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Selenium, leachable	7782-49-2	E446	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		Silicon, leachable	7440-21-3	E446	10.2 mg/L	10 mg/L	102	70.0	130	----
		Silver, leachable	7440-22-4	E446	0.00396 mg/L	0.004 mg/L	99.1	70.0	130	----
		Sodium, leachable	7440-23-5	E446	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, leachable	7440-24-6	E446	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	----
		Sulfur, leachable	7704-34-9	E446	19.0 mg/L	20 mg/L	95.2	70.0	130	----
		Thallium, leachable	7440-28-0	E446	0.00374 mg/L	0.004 mg/L	93.6	70.0	130	----
		Tin, leachable	7440-31-5	E446	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
				Titanium, leachable	7440-32-6	E446	0.038 mg/L	0.04 mg/L	95.3	70.0



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 1330553) - continued										
VA24A1531-016	K-12-187-74	Uranium, leachable	7440-61-1	E446	0.00393 mg/L	0.004 mg/L	98.2	70.0	130	----
		Vanadium, leachable	7440-62-2	E446	0.0960 mg/L	0.1 mg/L	96.0	70.0	130	----
		Zinc, leachable	7440-66-6	E446	0.384 mg/L	0.4 mg/L	96.1	70.0	130	----
Leachable Metals (QCLot: 1330554)										
VA24A1531-016	K-12-187-74	Mercury, leachable	7439-97-6	E515	0.000100 mg/L	0.0001 mg/L	100	70.0	130	----

Sample ID	Analysis			
	Shakeflask Metals	Shakeflask Anions, Ammonia, TDP	Shakeflask ORP	Shakeflask Acidity, Alkalinity, pH, EC
K-12-175-79.3	X	X	X	X
K-12-175-86.6	X	X	X	X
K-12-177-233.47	X	X	X	X
K-12-177-272.5	X	X	X	X
K-12-179-171.6	X	X	X	X
K-12-180-11.3	X	X	X	X
K-12-180-18.2	X	X	X	X
K-12-180-28.1	X	X	X	X
K-12-182-131.5	X	X	X	X
K-12-182-435.8	X	X	X	X
K-12-185-59.1	X	X	X	X
K-12-185-62.2	X	X	X	X
K-12-186-413.5	X	X	X	X
K-12-187-50.5	X	X	X	X
K-12-187-500.5	X	X	X	X
K-12-187-74	X	X	X	X
K-12-192-249.4	X	X	X	X
K-12-193-277.5	X	X	X	X
K-12-193-287.5	X	X	X	X
K-12-194-122.4	X	X	X	X
K-12-194-214.1	X	X	X	X
K-12-194-54	X	X	X	X
K-12-194-85	X	X	X	X
K-12-196A-115.5	X	X	X	X
K-12-199-131.5	X	X	X	X
K-12-206-58.4	X	X	X	X
K-12-206-97.5	X	X	X	X
K-12-209-101.3	X	X	X	X
K-12-209-219.3	X	X	X	X
K-12-211-36.7	X	X	X	X
K-12-212-205.5	X	X	X	X
K-12-213-10.7	X	X	X	X
K-12-213-113.9	X	X	X	X
K-12-213-14.2	X	X	X	X

Environmental Division
Vancouver
Work Order Reference
VA24A1531



Telephone : +1 604 253 4188

QUANTITATIVE PHASE ANALYSIS OF TWO POWDER SAMPLES USING THE RIETVELD METHOD AND X-RAY POWDER DIFFRACTION DATA.

ALS WO#: ML23315091
Project: Quebec Iron Ore

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Dept. of Earth, Ocean & Atmospheric Sciences
The University of British Columbia
6339 Stores Road
Vancouver, BC V6T 1Z4

November 24, 2023

METHOD

The two samples of **WO#: ML23315091, Project: Quebec Iron Ore** were reduced to the optimum grain-size range for quantitative X-ray analysis ($<10\ \mu\text{m}$) by grinding under ethanol in a vibratory McCrone XRD Mill (Retsch GmbH, Germany) for 10 minutes. Continuous-scan X-ray powder-diffraction data were collected over a range of $4\text{--}80^\circ 2\theta$ with $\text{CoK}\alpha$ radiation on a Bruker D8 Advance Bragg-Brentano diffractometer equipped with an Fe filter foil, $0.6\ \text{mm}$ (0.3°) divergence slit, 4.0° incident- and diffracted-beam Soller slits and a LynxEye-XE detector. The long fine-focus Co X-ray tube was operated at 35 kV and 40 mA, using a take-off angle of 6° .

RESULTS

The X-ray diffractograms were analyzed using the International Centre for Diffraction Database PDF-4 and Search-Match software by Bruker. X-ray powder-diffraction data of the samples were refined with Rietveld program Topas 4.2 (Bruker AXS). The results of quantitative phase analysis by Rietveld refinements are given in Table 1. These amounts represent the relative amounts of crystalline phases normalized to 100%. The Rietveld refinement plots are shown in Figures 1 – 2.

Table 1. Results of quantitative phase analysis (wt.%)*, ALS WO#: ML23315091, Project: Quebec Iron Ore

Mineral	Ideal Formula	#6: High RN - Gravity Flotation Tails	#7: High RC - Cobber Tails
Ankerite – Dolomite	$\text{Ca}(\text{Fe}^{2+}, \text{Mg}, \text{Mn})(\text{CO}_3)_2 - \text{CaMg}(\text{CO}_3)_2$	0.9	17.1
Biotite	$\text{K}(\text{Mg}, \text{Fe})_3(\text{AlSi}_3\text{O}_{10})(\text{OH})_2$		1.0
Calcite, magnesian	$(\text{Ca}, \text{Mg})\text{CO}_3$		0.8
Cummingtonite	$(\text{Mg}, \text{Fe})_7\text{Si}_8\text{O}_{22}(\text{OH})_2$	1.0	2.2
Esseneite	$\text{CaFe}^{3+}[\text{AlSiO}_6]$		1.3 (?)
Ferrosilite	FeSiO_3	1.6	3.5
Goethite	$\alpha\text{-Fe}^{3+}\text{O}(\text{OH})$	3.7	
Hematite	$\alpha\text{-Fe}_2\text{O}_3$	22.2	1.6
Kutnohorite	$\text{Ca}(\text{Mn}, \text{Mg}, \text{Fe})(\text{CO}_3)_2$		0.5 (?)
Magnetite	$\text{Fe}^{2+}\text{Fe}^{3+}_2\text{O}_4$	30.7	
Pargasite	$\text{NaCa}_2(\text{Mg}_4\text{Al})\text{Si}_6\text{Al}_2\text{O}_{22}(\text{OH})_2$		1.1
Plagioclase (andesine)	$\text{NaAlSi}_3\text{O}_8 - \text{CaAl}_2\text{Si}_2\text{O}_8$	1.0	1.7
Pyrite	FeS_2	0.4	0.3
Quartz	SiO_2	36.0	66.6
Siderite	$\text{Fe}^{2+}\text{CO}_3$	2.5	1.6
Talc	$\text{Mg}_3\text{Si}_4\text{O}_{10}(\text{OH})_2$		0.7
Total		100.0	100.0

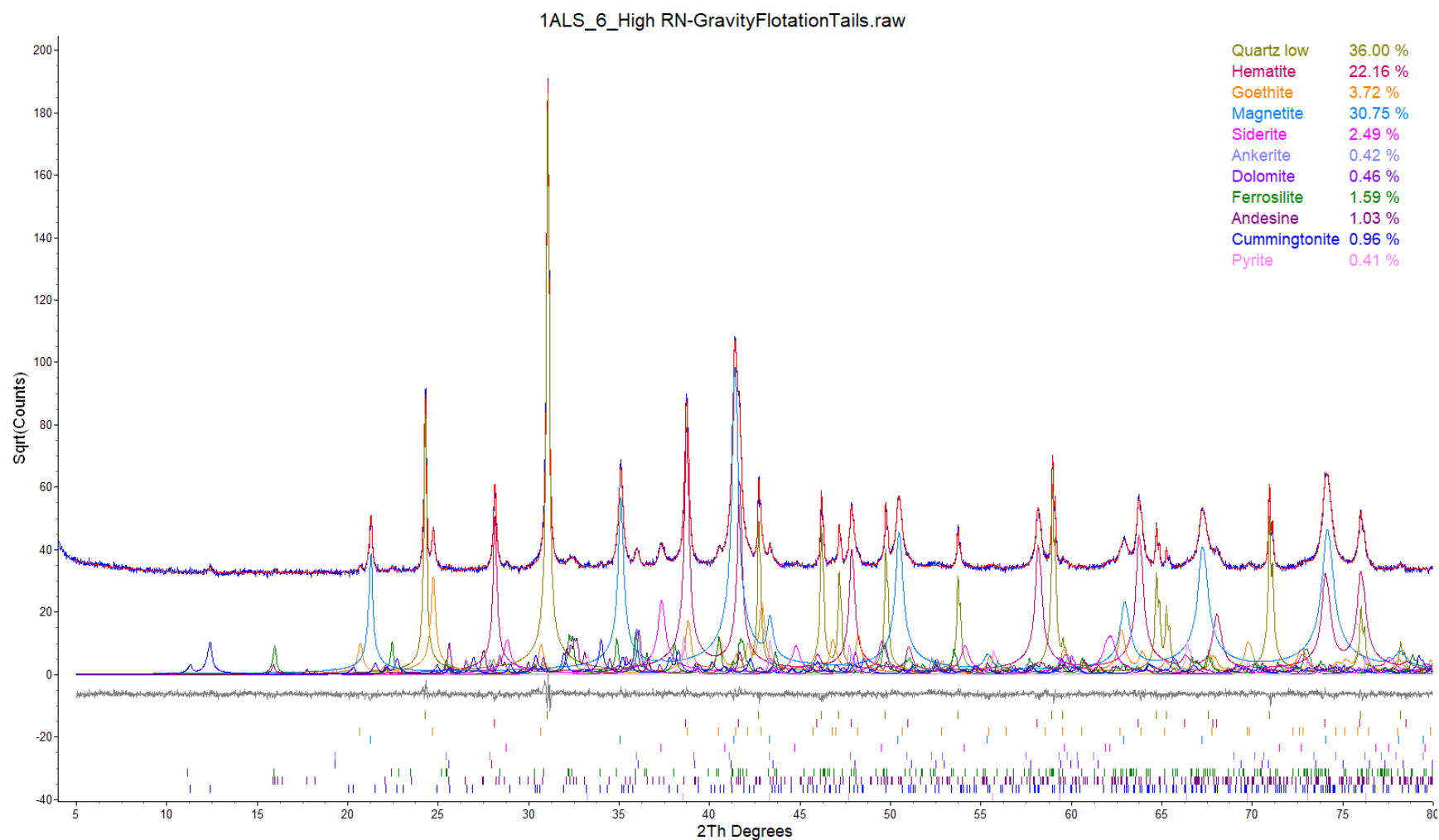


Figure 1. Rietveld refinement plot of sample **ALS Geochemistry – #6: High RN - Gravity Flotation Tails** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.

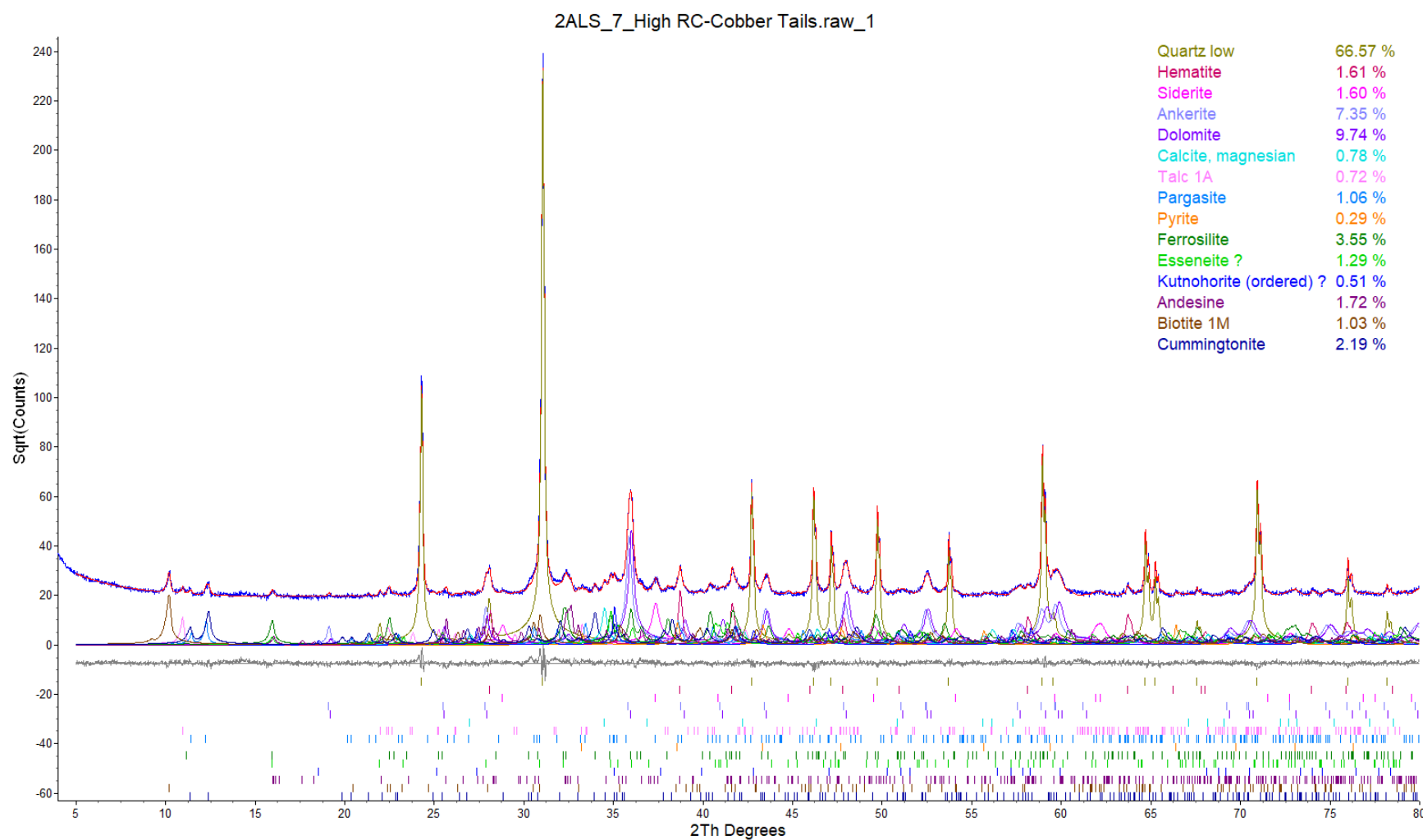


Figure 2. Rietveld refinement plot of sample **ALS Geochemistry – #7: High RC - Cobber Tails** (blue line - observed intensity at each step; red line - calculated pattern; solid grey line below - difference between observed and calculated intensities; vertical bars - positions of all Bragg reflections). Coloured lines are individual diffraction patterns of all phases.



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To: OKANE CONSULTANTS
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Plus Appendix Pages
Finalized Date: 13-OCT-2023
Account: KANECO

CERTIFICATE ML23254554

Project: Quebec Iron Ore

P.O. No.: 5496

This report is for 9 samples of Other submitted to our lab in Montreal, QC, Canada on 8-SEP-2023.

The following have access to data associated with this certificate:

GILLIAN ALLEN

KATHERINE RAYMOND

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-21	Sample logging - ClientBarCode
PUL-QC	Pulverizing QC Test
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um
SPL-21X	Addnl Crush Split w No Analysis
SND-01	Send samples to external laboratory

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
OA-VOL08m	Modified NP	
S-IR08	Total Sulphur (IR Spectroscopy)	LECO
OA-ELE07	Paste pH	
S-CAL06a	Sulfide Sulfur (calculated*)	
S-GRA06a	Sulfate Sulfur (HCl leachable)	WST-SEQ
C-GAS05	Inorganic Carbon (CO2)	
ME-MS61	48 element four acid ICP-MS	

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Saa Traxler, Director, North Vancouver Operations



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CERTIFICATE OF ANALYSIS ML23254554

Sample Description	Method Analyte Units LOD	WEI-21	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Recvd Wt.	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe
		kg	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%
		0.02	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01
Year 1@5 – Cobber Tails		0.98	0.01	0.16	4.4	130	2.23	0.02	1.62	0.06	9.42	6.3	4	0.32	9.7	7.64
Year 1@5 – Finisher Tails		0.99	0.02	0.07	3.6	40	1.65	0.02	1.46	0.02	7.09	5.0	174	0.22	27.0	7.55
Year 1@5 – Gravity Flotation Tails		0.89	0.04	0.15	23.5	150	0.79	0.02	0.33	0.03	21.1	16.5	34	0.07	24.0	45.4
High RN – Cobber Tails		1.21	0.02	0.11	4.2	110	1.43	0.02	1.02	0.05	7.81	5.3	5	0.24	6.8	8.13
High RN – Finisher Tails		1.21	0.01	0.07	3.3	30	1.52	0.02	0.85	0.02	6.71	4.5	251	0.25	23.1	6.93
High RN – Gravity Flotation Tails		0.96	0.03	0.17	31.0	100	1.18	0.03	0.27	0.02	16.05	13.6	71	0.13	38.4	38.2
High RC – Cobber Tails		1.00	0.01	0.29	11.2	240	2.38	0.05	3.76	0.04	13.45	7.8	5	0.61	4.3	6.32
High RC – Finisher Tails		1.01	0.01	0.06	3.9	50	1.79	0.07	2.18	0.02	8.19	4.4	166	0.17	15.2	6.58
High RC – Gravity Flotation Tails		0.95	0.03	0.17	47.1	380	1.02	0.04	0.61	0.02	27.6	18.9	69	0.13	36.4	45.2



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Finalized Date: 13-OCT-2023
Account: KANECO

Project: Quebec Iron Ore

CERTIFICATE OF ANALYSIS ML23254554

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P
		ppm 0.05	ppm 0.05	ppm 0.1	ppm 0.005	% 0.01	ppm 0.5	ppm 0.2	% 0.01	ppm 5	ppm 0.05	% 0.01	ppm 0.1	ppm 0.2	ppm 10
Year 1@5 – Cobber Tails		0.70	<0.05	0.1	<0.005	0.06	5.0	6.1	0.88	9840	0.86	0.07	0.9	5.1	130
Year 1@5 – Finisher Tails		0.52	<0.05	0.1	0.005	0.02	3.0	4.0	1.07	7940	3.60	0.02	2.0	71.9	110
Year 1@5 – Gravity Flotation Tails		2.21	0.45	0.1	<0.005	0.01	10.7	3.6	0.39	9210	4.28	0.02	3.3	8.3	200
High RN – Cobber Tails		0.59	0.05	0.1	<0.005	0.03	4.0	2.6	0.69	5810	0.96	0.03	1.1	5.1	130
High RN – Finisher Tails		0.40	<0.05	0.1	<0.005	0.02	2.7	2.9	0.91	5250	3.73	0.02	3.9	69.0	100
High RN – Gravity Flotation Tails		1.56	0.24	0.1	<0.005	0.02	7.8	3.3	0.48	6960	3.37	0.02	3.0	11.0	220
High RC – Cobber Tails		1.16	<0.05	0.1	<0.005	0.12	6.7	14.5	1.79	19850	1.18	0.15	1.1	3.3	160
High RC – Finisher Tails		0.50	<0.05	0.1	<0.005	0.02	3.7	3.0	1.24	10600	2.52	0.02	1.6	56.5	110
High RC – Gravity Flotation Tails		2.34	0.70	0.1	<0.005	0.02	15.3	6.7	0.55	12750	4.94	0.05	2.9	13.8	300



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To: OKANE CONSULTANTS
112-112 RESEARCH DRIVE
SASKATOON SK S7N 3R3

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Total # Pages: 2 (A - D)
Plus Appendix Pages
Finalized Date: 13-OCT-2023
Account: KANECO

Project: Quebec Iron Ore

CERTIFICATE OF ANALYSIS ML23254554

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U
		ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
		0.1	0.002	0.01	0.05	0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1
Year 1@5 - Cobber Tails		2.5	<0.002	0.01	0.08	0.4	1	0.5	15.7	<0.05	<0.05	0.14	0.009	0.03	0.2
Year 1@5 - Finisher Tails		1.2	<0.002	0.01	0.16	0.3	1	4.4	12.0	0.06	<0.05	0.15	0.005	<0.02	0.1
Year 1@5 - Gravity Flotation Tails		0.5	<0.002	0.06	0.34	0.6	<1	3.7	5.1	0.10	<0.05	0.38	0.017	<0.02	0.2
High RN - Cobber Tails		1.4	<0.002	0.01	0.09	0.3	1	0.5	10.1	<0.05	<0.05	0.13	0.007	0.03	0.2
High RN - Finisher Tails		1.1	<0.002	0.01	0.18	0.2	1	3.6	6.2	0.09	<0.05	0.20	<0.005	<0.02	0.1
High RN - Gravity Flotation Tails		0.8	<0.002	0.06	0.26	0.5	1	6.9	4.4	0.11	0.05	0.32	0.016	0.02	0.2
High RC - Cobber Tails		5.6	<0.002	0.02	0.10	0.7	1	0.3	38.2	<0.05	<0.05	0.24	0.019	0.04	0.3
High RC - Finisher Tails		1.1	<0.002	0.01	0.17	0.3	1	1.2	16.7	<0.05	<0.05	0.11	0.016	<0.02	0.1
High RC - Gravity Flotation Tails		1.1	0.002	0.14	0.40	0.6	1	4.9	9.2	0.07	0.05	0.42	0.019	<0.02	0.2



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112-112 RESEARCH DRIVE
SASKATOON SK S7N 3R3

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Total # Pages: 2 (A - D)
Plus Appendix Pages
Finalized Date: 13-OCT-2023
Account: KANECO

Project: Quebec Iron Ore

CERTIFICATE OF ANALYSIS ML23254554

Sample Description	Method Analyte Units LOD	ME-MS61	ME-MS61	ME-MS61	ME-MS61	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-ELE07	S-IR08	S-CAL06a	C-GAS05	C-GAS05	S-GRA06a
		W	Y	Zn	Zr	FIZZ RAT	MPA	NNP	NP	Ratio (N	pH	S	S	C	CO2	S
		ppm	ppm	ppm	ppm	Unity	tCaCO3/1Kt	tCaCO3/1Kt	tCaCO3/1Kt	Unity	Unity	%	%	%	%	%
		0.1	0.1	2	0.5	1	0.3	1	1	0.01	0.1	0.01	0.01	0.05	0.2	0.01
Year 1@5 - Cobber Tails		0.7	6.7	13	3.2	2	<0.3	57	57	364.80	8.5	<0.01	<0.01	0.92	3.4	0.02
Year 1@5 - Finisher Tails		1.0	4.5	14	4.1	2	<0.3	54	54	345.60	8.6	<0.01	<0.01	1.07	3.9	<0.01
Year 1@5 - Gravity Flotation Tails		2.6	6.0	13	7.1	1	1.6	12	14	8.96	8.3	0.05	0.02	0.26	1.0	0.03
High RN - Cobber Tails		0.8	5.4	13	2.8	2	<0.3	40	40	256.00	8.5	<0.01	<0.01	0.71	2.6	0.02
High RN - Finisher Tails		0.8	3.0	13	4.1	2	<0.3	36	36	230.40	8.5	<0.01	<0.01	0.90	3.3	<0.01
High RN - Gravity Flotation Tails		2.2	5.8	16	6.2	1	1.6	12	14	8.96	8.2	0.05	0.03	0.31	1.1	0.02
High RC - Cobber Tails		0.7	9.8	13	5.8	3	<0.3	134	134	857.60	8.7	<0.01	<0.01	2.20	8.1	<0.01
High RC - Finisher Tails		1.0	5.7	11	4.1	2	<0.3	79	79	505.60	8.5	<0.01	<0.01	1.26	4.6	<0.01
High RC - Gravity Flotation Tails		2.7	7.3	18	8.6	1	3.8	18	22	5.87	8.5	0.12	0.08	0.37	1.4	0.04



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Page: Appendix 1
Total # Appendix Pages: 1
Finalized Date: 13-OCT-2023
Account: KANECO

Project: Quebec Iron Ore

CERTIFICATE OF ANALYSIS ML23254554

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method: REEs may not be totally soluble in this method.
ME-MS61

LABORATORY ADDRESSES

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.
C-GAS05 ME-MS61 OA-ELE07 OA-VOL08m
S-CAL06a S-GRA06a S-IR08

Applies to Method: Processed at ALS Geochemistry at 1650 50e Avenue, Lachine, Quebec, Canada, H8T 2V5
LOG-21 PUL-31 PUL-QC SND-01
SPL-21 SPL-21X WEI-21

CERTIFICATE OF ANALYSIS

Work Order	: VA24B7587	Page	: 1 of 5
Client	: Lorax Environmental Services Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Patrick Mueller	Account Manager	: Dean Watt
Address	: 305 - 1770 West 7th Ave Vancouver BC Canada V6J 4Y6	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 604 688 7173	Telephone	: +1 604 253 4188
Project	: A712-1 High RN Blend Saturated Column Test	Date Samples Received	: 18-Jul-2024 14:50
PO	: A712-1 High RN Blend Saturated Column Test	Date Analysis Commenced	: 23-Jul-2024
C-O-C number	: ----	Issue Date	: 06-Aug-2024 09:05
Sampler	: ----		
Site	: Column Test Water Analysis Program		
Quote number	: VA24-LORX100-003/Q66672		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	Position	Laboratory Department
Courtney Cox	Analyst- General	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Leon Yang	Analyst	Inorganics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
-	no units
mg/L	milligrams per litre

<: less than.

>: greater than.

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

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

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

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLIS	Detection Limit Adjusted due to insufficient sample.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).



Analytical Results

Sub-Matrix: Water					Client sample ID	HighRN_Blend	HighRN_Blend_Lakewater	----	----	----
(Matrix: Water)										
					Client sampling date / time	18-Jul-2024 12:00	18-Jul-2024 12:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24B7587-001	VA24B7587-002	-----	-----	-----	
					Result	Result	----	----	----	
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	168 ^{DLIS}	9.5 ^{DLIS}	----	----	----	
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	<5.0 ^{DLIS}	<5.0 ^{DLIS}	----	----	----	
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<5.0 ^{DLIS}	<5.0 ^{DLIS}	----	----	----	
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	<5.0 ^{DLIS}	<5.0 ^{DLIS}	----	----	----	
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	168 ^{DLIS}	9.5 ^{DLIS}	----	----	----	
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L	354	10.0	----	----	----	
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	694	30	----	----	----	
Anions and Nutrients										
Ammonia, total dissolved (as N)	7664-41-7	E309/VA	0.0050	mg/L	0.0112	<0.0050	----	----	----	
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.250 ^{DLDS}	<0.050	----	----	----	
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	32.7	0.70	----	----	----	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.641	<0.020	----	----	----	
Kjeldahl nitrogen, dissolved [DKN]	----	E322/VA	0.050	mg/L	0.495	<0.250 ^{DLIS}	----	----	----	
Nitrate (as N)	14797-55-8	E235.NO3-L/V A	0.0050	mg/L	<0.0250 ^{DLDS}	0.180	----	----	----	
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	0.0010	mg/L	<0.0050 ^{DLDS}	0.0012	----	----	----	
Nitrogen, total dissolved	----	E368/VA	0.030	mg/L	0.535	0.376	----	----	----	
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	<0.0010	<0.0010	----	----	----	
Phosphorus, total dissolved	7723-14-0	E375-T/VA	0.0020	mg/L	0.0132	0.0102	----	----	----	
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	280	1.01	----	----	----	
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	17.8	7.55	----	----	----	
Dissolved Sulfides										
Sulfide, dissolved (as S)	18496-25-8	E397/VA	0.0015	mg/L	0.0083	0.0016	----	----	----	
Sulfide, dissolved (as H2S)	7783-06-4	E397/VA	0.0016	mg/L	0.0088	0.0017	----	----	----	
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E471/VA	0.0010	mg/L	<0.0010	0.0563	----	----	----	
Antimony, dissolved	7440-36-0	E471/VA	0.000020	mg/L	0.000236	0.000021	----	----	----	
Arsenic, dissolved	7440-38-2	E471/VA	0.000020	mg/L	0.000467	0.000065	----	----	----	



Analytical Results

Sub-Matrix: Water					Client sample ID	HighRN_Blend	HighRN_Blend_Lakewater	----	----	----
(Matrix: Water)										
Client sampling date / time					18-Jul-2024 12:00	18-Jul-2024 12:00	----	----	----	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24B7587-001	VA24B7587-002	-----	-----	-----	
					Result	Result	----	----	----	
Dissolved Metals										
Barium, dissolved	7440-39-3	E471/VA	0.000020	mg/L	0.0107	0.00816	----	----	----	
Beryllium, dissolved	7440-41-7	E471/VA	0.0000050	mg/L	<0.0000050	<0.0000050	----	----	----	
Bismuth, dissolved	7440-69-9	E471/VA	0.0000050	mg/L	<0.0000050	<0.0000050	----	----	----	
Boron, dissolved	7440-42-8	E471/VA	0.0050	mg/L	0.0397	0.0051	----	----	----	
Cadmium, dissolved	7440-43-9	E471/VA	0.0000050	mg/L	0.0000058	<0.0000050	----	----	----	
Calcium, dissolved	7440-70-2	E471/VA	0.010	mg/L	94.6	2.68	----	----	----	
Cesium, dissolved	7440-46-2	E471/VA	0.0000050	mg/L	0.0000689	0.0000065	----	----	----	
Chromium, dissolved	7440-47-3	E471/VA	0.00010	mg/L	0.00027	0.00029	----	----	----	
Cobalt, dissolved	7440-48-4	E471/VA	0.0000050	mg/L	0.000832	0.0000111	----	----	----	
Copper, dissolved	7440-50-8	E471/VA	0.000050	mg/L	0.0100	0.000702	----	----	----	
Gallium, dissolved	7440-55-3	E471/VA	0.000050	mg/L	<0.000050	<0.000050	----	----	----	
Iron, dissolved	7439-89-6	E471/VA	0.0010	mg/L	0.0025	0.0210	----	----	----	
Lanthanum, dissolved	7439-91-0	E471/VA	0.000010	mg/L	<0.000010	0.000089	----	----	----	
Lead, dissolved	7439-92-1	E471/VA	0.000010	mg/L	<0.000010	<0.000010	----	----	----	
Lithium, dissolved	7439-93-2	E471/VA	0.00050	mg/L	0.0268	<0.00050	----	----	----	
Magnesium, dissolved	7439-95-4	E471/VA	0.0040	mg/L	28.6	0.814	----	----	----	
Manganese, dissolved	7439-96-5	E471/VA	0.000050	mg/L	0.266	0.000121	----	----	----	
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L	<0.0000050	<0.0000050	----	----	----	
Molybdenum, dissolved	7439-98-7	E471/VA	0.000050	mg/L	0.0454	0.000331	----	----	----	
Nickel, dissolved	7440-02-0	E471/VA	0.000050	mg/L	0.00626	0.000468	----	----	----	
Niobium, dissolved	7440-03-1	E471/VA	0.00010	mg/L	<0.00010	<0.00010	----	----	----	
Phosphorus, dissolved	7723-14-0	E471/VA	0.050	mg/L	<0.050	<0.050	----	----	----	
Potassium, dissolved	7440-09-7	E471/VA	0.020	mg/L	30.6	1.09	----	----	----	
Rhenium, dissolved	7440-15-5	E471/VA	0.0000050	mg/L	0.0000658	<0.0000050	----	----	----	
Rubidium, dissolved	7440-17-7	E471/VA	0.0000050	mg/L	0.0212	0.00171	----	----	----	
Selenium, dissolved	7782-49-2	E471/VA	0.000040	mg/L	0.00186	<0.000040	----	----	----	
Silicon, dissolved	7440-21-3	E471/VA	0.050	mg/L	10.4	1.16	----	----	----	
Silver, dissolved	7440-22-4	E471/VA	0.0000050	mg/L	<0.0000050	<0.0000050	----	----	----	
Sodium, dissolved	7440-23-5	E471/VA	0.020	mg/L	60.2	0.684	----	----	----	
Strontium, dissolved	7440-24-6	E471/VA	0.000020	mg/L	0.194	0.0135	----	----	----	
Sulfur, dissolved	7704-34-9	E471/VA	0.50	mg/L	94.9	<0.50	----	----	----	



Analytical Results

Sub-Matrix: Water					Client sample ID	HighRN_Blend	HighRN_Blend_Lakewater	----	----	----
(Matrix: Water)										
					Client sampling date / time	18-Jul-2024 12:00	18-Jul-2024 12:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24B7587-001	VA24B7587-002	-----	-----	-----	
					Result	Result	----	----	----	
Dissolved Metals										
Tantalum, dissolved	7440-25-7	E471/VA	0.00010	mg/L	<0.00010	<0.00010	----	----	----	
Tellurium, dissolved	13494-80-9	E471/VA	0.000020	mg/L	<0.000020	<0.000020	----	----	----	
Thallium, dissolved	7440-28-0	E471/VA	0.0000050	mg/L	0.0000187	<0.0000050	----	----	----	
Thorium, dissolved	7440-29-1	E471/VA	0.0000050	mg/L	<0.0000100 ^{DLM}	<0.0000200 ^{DLM}	----	----	----	
Tin, dissolved	7440-31-5	E471/VA	0.000020	mg/L	0.00104	<0.000020	----	----	----	
Titanium, dissolved	7440-32-6	E471/VA	0.000050	mg/L	<0.000050	0.000249	----	----	----	
Tungsten, dissolved	7440-33-7	E471/VA	0.000010	mg/L	0.000136	<0.000010	----	----	----	
Uranium, dissolved	7440-61-1	E471/VA	0.0000010	mg/L	0.00307	0.0000335	----	----	----	
Vanadium, dissolved	7440-62-2	E471/VA	0.000050	mg/L	0.000359	0.000075	----	----	----	
Yttrium, dissolved	7440-65-5	E471/VA	0.000010	mg/L	0.000011	0.000053	----	----	----	
Zinc, dissolved	7440-66-6	E471/VA	0.00050	mg/L	0.00170	0.00420	----	----	----	
Zirconium, dissolved	7440-67-7	E471/VA	0.000010	mg/L	<0.000010	0.000036	----	----	----	
Dissolved mercury filtration location	----	EP509/VA	-	-	Field	Field	----	----	----	
Dissolved metals filtration location	----	EP471/VA	-	-	Field	Field	----	----	----	

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

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA24B7587	Page	: 1 of 13
Client	: Lorax Environmental Services Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Patrick Mueller	Account Manager	: Dean Watt
Address	: 305 - 1770 West 7th Ave Vancouver BC Canada V6J 4Y6	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 688 7173	Telephone	: +1 604 253 4188
Project	: A712-1 High RN Blend Saturated Column Test	Date Samples Received	: 18-Jul-2024 14:50
PO	: A712-1 High RN Blend Saturated Column Test	Issue Date	: 06-Aug-2024 09:05
C-O-C number	: ----		
Sampler	: ----		
Site	: Column Test Water Analysis Program		
Quote number	: VA24-LORX100-003/Q66672		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Matrix Spike outliers occur.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

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Work Order : VA24B7587
Client : Lorax Environmental Services Ltd.
Project : A712-1 High RN Blend Saturated Column Test



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Dissolved Metals	QC-1558327-002	----	Silicon, dissolved	7440-21-3	E471	122 % ^{MES}	80.0-120%	Recovery greater than upper control limit

Result Qualifiers

Qualifier	Description

MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE HighRN_Blend	E235.Br-L	18-Jul-2024	24-Jul-2024	28 days	6 days	✓	24-Jul-2024	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE HighRN_Blend_Lakewater	E235.Br-L	18-Jul-2024	24-Jul-2024	28 days	6 days	✓	24-Jul-2024	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE HighRN_Blend	E235.Cl	18-Jul-2024	24-Jul-2024	28 days	6 days	✓	24-Jul-2024	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE HighRN_Blend_Lakewater	E235.Cl	18-Jul-2024	24-Jul-2024	28 days	6 days	✓	24-Jul-2024	28 days	6 days	✓
Anions and Nutrients : Dissolved Ammonia by Fluorescence										
Amber glass dissolved (sulfuric acid) HighRN_Blend	E309	18-Jul-2024	26-Jul-2024	28 days	8 days	✓	27-Jul-2024	28 days	9 days	✓
Anions and Nutrients : Dissolved Ammonia by Fluorescence										
Amber glass dissolved (sulfuric acid) HighRN_Blend_Lakewater	E309	18-Jul-2024	26-Jul-2024	28 days	8 days	✓	27-Jul-2024	28 days	9 days	✓
Anions and Nutrients : Dissolved Kjeldahl Nitrogen by Fluorescence										
Amber glass dissolved (sulfuric acid) HighRN_Blend	E322	18-Jul-2024	27-Jul-2024	28 days	9 days	✓	29-Jul-2024	28 days	11 days	✓



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Kjeldahl Nitrogen by Fluorescence										
Amber glass dissolved (sulfuric acid) HighRN_Blend_Lakewater	E322	18-Jul-2024	27-Jul-2024	28 days	9 days	✓	29-Jul-2024	28 days	11 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE HighRN_Blend	E378-U	18-Jul-2024	24-Jul-2024	3 days	5 days	✖ EHT	25-Jul-2024	3 days	6 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE HighRN_Blend_Lakewater	E378-U	18-Jul-2024	24-Jul-2024	3 days	5 days	✖ EHT	25-Jul-2024	3 days	6 days	✖ EHT
Anions and Nutrients : Fluoride in Water by IC										
HDPE HighRN_Blend	E235.F	18-Jul-2024	24-Jul-2024	28 days	6 days	✓	24-Jul-2024	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE HighRN_Blend_Lakewater	E235.F	18-Jul-2024	24-Jul-2024	28 days	6 days	✓	24-Jul-2024	28 days	6 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE HighRN_Blend	E235.NO3-L	18-Jul-2024	24-Jul-2024	3 days	5 days	✖ EHT	24-Jul-2024	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE HighRN_Blend_Lakewater	E235.NO3-L	18-Jul-2024	24-Jul-2024	3 days	5 days	✖ EHT	24-Jul-2024	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE HighRN_Blend	E235.NO2-L	18-Jul-2024	24-Jul-2024	3 days	5 days	✖ EHT	24-Jul-2024	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE HighRN_Blend_Lakewater	E235.NO2-L	18-Jul-2024	24-Jul-2024	3 days	5 days	✖ EHT	24-Jul-2024	3 days	5 days	✖ EHT



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE HighRN_Blend	E235.SO4	18-Jul-2024	24-Jul-2024	28 days	6 days	✓	24-Jul-2024	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE HighRN_Blend_Lakewater	E235.SO4	18-Jul-2024	24-Jul-2024	28 days	6 days	✓	24-Jul-2024	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (sulfuric acid) HighRN_Blend	E375-T	18-Jul-2024	25-Jul-2024	28 days	7 days	✓	27-Jul-2024	28 days	9 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass dissolved (sulfuric acid) HighRN_Blend_Lakewater	E375-T	18-Jul-2024	25-Jul-2024	28 days	7 days	✓	27-Jul-2024	28 days	9 days	✓
Anions and Nutrients : Total Dissolved Nitrogen by Colourimetry										
Amber glass dissolved (sulfuric acid) HighRN_Blend	E368	18-Jul-2024	27-Jul-2024	28 days	9 days	✓	30-Jul-2024	28 days	12 days	✓
Anions and Nutrients : Total Dissolved Nitrogen by Colourimetry										
Amber glass dissolved (sulfuric acid) HighRN_Blend_Lakewater	E368	18-Jul-2024	27-Jul-2024	28 days	9 days	✓	30-Jul-2024	28 days	12 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) HighRN_Blend	E509	18-Jul-2024	28-Jul-2024	28 days	10 days	✓	28-Jul-2024	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) HighRN_Blend_Lakewater	E509	18-Jul-2024	28-Jul-2024	28 days	10 days	✓	28-Jul-2024	28 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by CRC ICPMS (Pristine Samples)										
HDPE dissolved (nitric acid) HighRN_Blend	E471	18-Jul-2024	23-Jul-2024	180 days	5 days	✓	23-Jul-2024	180 days	5 days	✓



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by CRC ICPMS (Pristine Samples)										
HDPE dissolved (nitric acid) HighRN_Blend_Lakewater	E471	18-Jul-2024	23-Jul-2024	180 days	5 days	✓	23-Jul-2024	180 days	5 days	✓
Dissolved Sulfides : Dissolved Sulfide by Colourimetry (Automated Flow)										
HDPE dissolved (zinc acetate+sodium hydroxide) HighRN_Blend	E397	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Dissolved Sulfides : Dissolved Sulfide by Colourimetry (Automated Flow)										
HDPE dissolved (zinc acetate+sodium hydroxide) HighRN_Blend_Lakewater	E397	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) HighRN_Blend	E358-L	18-Jul-2024	25-Jul-2024	28 days	7 days	✓	25-Jul-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) HighRN_Blend_Lakewater	E358-L	18-Jul-2024	25-Jul-2024	28 days	7 days	✓	25-Jul-2024	28 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE HighRN_Blend	E290	18-Jul-2024	24-Jul-2024	14 days	6 days	✓	25-Jul-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE HighRN_Blend_Lakewater	E290	18-Jul-2024	24-Jul-2024	14 days	6 days	✓	25-Jul-2024	14 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE HighRN_Blend	E162	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE HighRN_Blend_Lakewater	E162	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓

[Legend & Qualifier Definitions](#)

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Work Order : VA24B7587
Client : Lorax Environmental Services Ltd.
Project : A712-1 High RN Blend Saturated Column Test



EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

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

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1561525	1	13	7.6	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1561520	1	6	16.6	5.0	✔
Chloride in Water by IC	E235.Cl	1561516	1	14	7.1	5.0	✔
Dissolved Ammonia by Fluorescence	E309	1566507	1	12	8.3	5.0	✔
Dissolved Kjeldahl Nitrogen by Fluorescence	E322	1568179	1	2	50.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1568700	1	20	5.0	5.0	✔
Dissolved Metals (Field Filtered) in Water by CRC ICPMS (Pristine Samples)	E471	1558327	1	15	6.6	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1564322	1	20	5.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1561527	1	19	5.2	5.0	✔
Dissolved Sulfide by Colourimetry (Automated Flow)	E397	1563439	1	19	5.2	5.0	✔
Fluoride in Water by IC	E235.F	1561519	1	13	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1561517	1	8	12.5	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1561518	1	16	6.2	5.0	✔
Sulfate in Water by IC	E235.SO4	1561515	1	16	6.2	5.0	✔
TDS by Gravimetry	E162	1563488	1	20	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1564327	1	12	8.3	5.0	✔
Total Dissolved Nitrogen by Colourimetry	E368	1567837	1	4	25.0	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1561525	1	13	7.6	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1561520	1	6	16.6	5.0	✔
Chloride in Water by IC	E235.Cl	1561516	1	14	7.1	5.0	✔
Dissolved Ammonia by Fluorescence	E309	1566507	1	12	8.3	5.0	✔
Dissolved Kjeldahl Nitrogen by Fluorescence	E322	1568179	1	2	50.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1568700	1	20	5.0	5.0	✔
Dissolved Metals (Field Filtered) in Water by CRC ICPMS (Pristine Samples)	E471	1558327	1	15	6.6	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1564322	1	20	5.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1561527	1	19	5.2	5.0	✔
Dissolved Sulfide by Colourimetry (Automated Flow)	E397	1563439	1	19	5.2	5.0	✔
Fluoride in Water by IC	E235.F	1561519	1	13	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1561517	1	8	12.5	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1561518	1	16	6.2	5.0	✔
Sulfate in Water by IC	E235.SO4	1561515	1	16	6.2	5.0	✔
TDS by Gravimetry	E162	1563488	1	20	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1564327	1	12	8.3	5.0	✔
Total Dissolved Nitrogen by Colourimetry	E368	1567837	1	4	25.0	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1561525	1	13	7.6	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1561520	1	6	16.6	5.0	✔
Chloride in Water by IC	E235.Cl	1561516	1	14	7.1	5.0	✔
Dissolved Ammonia by Fluorescence	E309	1566507	1	12	8.3	5.0	✔
Dissolved Kjeldahl Nitrogen by Fluorescence	E322	1568179	1	2	50.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1568700	1	20	5.0	5.0	✔
Dissolved Metals (Field Filtered) in Water by CRC ICPMS (Pristine Samples)	E471	1558327	1	15	6.6	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1564322	1	20	5.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1561527	1	19	5.2	5.0	✔
Dissolved Sulfide by Colourimetry (Automated Flow)	E397	1563439	1	19	5.2	5.0	✔
Fluoride in Water by IC	E235.F	1561519	1	13	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1561517	1	8	12.5	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1561518	1	16	6.2	5.0	✔
Sulfate in Water by IC	E235.SO4	1561515	1	16	6.2	5.0	✔
TDS by Gravimetry	E162	1563488	1	20	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1564327	1	12	8.3	5.0	✔
Total Dissolved Nitrogen by Colourimetry	E368	1567837	1	4	25.0	5.0	✔
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	1561520	1	6	16.6	5.0	✔
Chloride in Water by IC	E235.Cl	1561516	1	14	7.1	5.0	✔
Dissolved Ammonia by Fluorescence	E309	1566507	1	12	8.3	5.0	✔
Dissolved Kjeldahl Nitrogen by Fluorescence	E322	1568179	1	2	50.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1568700	1	20	5.0	5.0	✔
Dissolved Metals (Field Filtered) in Water by CRC ICPMS (Pristine Samples)	E471	1558327	1	15	6.6	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1564322	1	20	5.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1561527	1	19	5.2	5.0	✔
Dissolved Sulfide by Colourimetry (Automated Flow)	E397	1563439	1	19	5.2	5.0	✔
Fluoride in Water by IC	E235.F	1561519	1	13	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1561517	1	8	12.5	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1561518	1	16	6.2	5.0	✔
Sulfate in Water by IC	E235.SO4	1561515	1	16	6.2	5.0	✔
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T	1564327	1	12	8.3	5.0	✔
Total Dissolved Nitrogen by Colourimetry	E368	1567837	1	4	25.0	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^{\circ}\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Dissolved Ammonia by Fluorescence	E309 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Dissolved ammonia in water is determined on a filtered (0.45 μm) and preserved sample by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Dissolved Kjeldahl Nitrogen by Fluorescence	E322 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	DKN in water is determined on a sample which is filtered (0.45 μm) prior to preservation by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Dissolved Nitrogen by Colourimetry	E368 ALS Environmental - Vancouver	Water	APHA 4500-P J (mod)	Total Dissolved Nitrogen is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.002 mg/L)	E375-T ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Dissolved Sulfide by Colourimetry (Automated Flow)	E397 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Dissolved Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. This analysis must be conducted on a sample that has had suspended solids removed by flocculation and settling in the field, prior to sample preservation. ALS provides field sampling kits to conduct the flocculation process. Filtration is not valid for dissolved sulfide due to its reactivity and volatility. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the dissolved sulfide concentration in the sample. The H ₂ S calculation converts dissolved Sulphide as (S ₂ -) and reports it as Sulphide, dissolved as (H ₂ S)
Dissolved Metals (Field Filtered) in Water by CRC ICPMS (Pristine Samples)	E471 ALS Environmental - Vancouver	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. Due to the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Dissolved Ammonia	EP309 ALS Environmental - Vancouver	Water		Preparation for Dissolved Ammonia
Digestion for DKN in water	EP322 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are filtered (0.45 um) prior to preservation and digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Dissolved Nitrogen in water	EP368 ALS Environmental - Vancouver	Water	APHA 4500-P J (mod)	Samples are filtration through a 0.45 micron filter and then heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Preparation for Low Level Analysis	EP471 ALS Environmental - Vancouver	Water	APHA 3030B	Low level metals in water are analyzed by Collision/Reaction Cell ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: VA24B7587	Page	: 1 of 14
Client	: Lorax Environmental Services Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Patrick Mueller	Account Manager	: Dean Watt
Address	: 305 - 1770 West 7th Ave Vancouver BC Canada V6J 4Y6	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 688 7173	Telephone	: +1 604 253 4188
Project	: A712-1 High RN Blend Saturated Column Test	Date Samples Received	: 18-Jul-2024 14:50
PO	: A712-1 High RN Blend Saturated Column Test	Date Analysis Commenced	: 23-Jul-2024
C-O-C number	: ----	Issue Date	: 06-Aug-2024 09:05
Sampler	: ----		
Site	: Column Test Water Analysis Program		
Quote number	: VA24-LORX100-003/Q66672		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	Position	Laboratory Department
Courtney Cox	Analyst- General	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Leon Yang	Analyst	Vancouver Inorganics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia

Page : 2 of 14
Work Order : VA24B7587
Client : Lorax Environmental Services Ltd.
Project : A712-1 High RN Blend Saturated Column Test



General Comments

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

Key :

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

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

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

Workorder Comments

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



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1561525)											
VA24B7894-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	54.7	54.6	0.183%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	54.7	54.6	0.183%	20%	----
Physical Tests (QC Lot: 1563488)											
KS2402801-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	2740	2680	2.08%	20%	----
Anions and Nutrients (QC Lot: 1561515)											
VA24B7587-001	HighRN_Blend	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	280	279	0.0963%	20%	----
Anions and Nutrients (QC Lot: 1561516)											
VA24B7587-001	HighRN_Blend	Chloride	16887-00-6	E235.Cl	2.50	mg/L	32.7	32.6	0.207%	20%	----
Anions and Nutrients (QC Lot: 1561517)											
VA24B7587-001	HighRN_Blend	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1561518)											
VA24B7587-001	HighRN_Blend	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1561519)											
VA24B7587-001	HighRN_Blend	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.641	0.640	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1561520)											
VA24B7587-001	HighRN_Blend	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1561527)											
KS2402818-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0079	0.0082	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1564327)											
VA24B7683-003	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	0.0109	0.0120	0.0011	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1566507)											
VA24B7583-001	Anonymous	Ammonia, total dissolved (as N)	7664-41-7	E309	0.0050	mg/L	0.198	0.197	0.226%	20%	----
Anions and Nutrients (QC Lot: 1567837)											
KS2402813-001	Anonymous	Nitrogen, total dissolved	----	E368	0.030	mg/L	0.556	0.548	1.38%	20%	----
Anions and Nutrients (QC Lot: 1568179)											
VA24B7587-001	HighRN_Blend	Kjeldahl nitrogen, dissolved [DKN]	----	E322	0.050	mg/L	0.495	0.484	0.011	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Organic / Inorganic Carbon (QC Lot: 1564322)											
VA24B7683-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	5.71	5.60	1.87%	20%	----
Dissolved Sulfides (QC Lot: 1563439)											
CG2410077-008	Anonymous	Sulfide, dissolved (as S)	18496-25-8	E397	0.0015	mg/L	0.0034	0.0027	0.0007	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1558327)											
VA24B7581-001	Anonymous	Aluminum, dissolved	7429-90-5	E471	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E471	0.000020	mg/L	0.000231	0.000229	0.877%	20%	----
		Arsenic, dissolved	7440-38-2	E471	0.000020	mg/L	0.000093	0.000082	0.000011	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E471	0.000020	mg/L	0.110	0.108	1.30%	20%	----
		Beryllium, dissolved	7440-41-7	E471	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E471	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E471	0.0050	mg/L	0.0168	0.0174	0.0006	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E471	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E471	0.010	mg/L	1.22	1.22	0.278%	20%	----
		Cesium, dissolved	7440-46-2	E471	0.0000050	mg/L	0.000103	0.000104	0.403%	20%	----
		Chromium, dissolved	7440-47-3	E471	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E471	0.0000050	mg/L	0.0000094	0.0000083	0.0000011	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E471	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Gallium, dissolved	7440-55-3	E471	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E471	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Lanthanum, dissolved	7439-91-0	E471	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E471	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E471	0.00050	mg/L	0.00090	0.00090	0.000006	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E471	0.0040	mg/L	21.2	21.2	0.201%	20%	----
		Manganese, dissolved	7439-96-5	E471	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E471	0.000050	mg/L	0.000675	0.000686	1.60%	20%	----
		Nickel, dissolved	7440-02-0	E471	0.000050	mg/L	0.000883	0.000885	0.262%	20%	----
		Niobium, dissolved	7440-03-1	E471	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E471	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E471	0.020	mg/L	3.14	3.13	0.201%	20%	----
		Rhenium, dissolved	7440-15-5	E471	0.0000050	mg/L	0.0000150	0.0000161	0.0000011	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E471	0.0000050	mg/L	0.00377	0.00372	1.32%	20%	----
		Selenium, dissolved	7782-49-2	E471	0.000040	mg/L	0.000443	0.000400	10.3%	20%	----
		Silicon, dissolved	7440-21-3	E471	0.050	mg/L	0.175	0.168	0.007	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E471	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 1558327) - continued											
VA24B7581-001	Anonymous	Sodium, dissolved	7440-23-5	E471	0.020	mg/L	52.5	52.1	0.812%	20%	----
		Strontium, dissolved	7440-24-6	E471	0.000020	mg/L	0.00216	0.00213	1.75%	20%	----
		Sulfur, dissolved	7704-34-9	E471	0.50	mg/L	2.57	2.51	0.06	Diff <2x LOR	----
		Tantalum, dissolved	7440-25-7	E471	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E471	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E471	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E471	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E471	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E471	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E471	0.000010	mg/L	0.000734	0.000724	1.38%	20%	----
		Uranium, dissolved	7440-61-1	E471	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E471	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E471	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E471	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E471	0.000010	mg/L	0.000012	<0.000010	0.000002	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1568700)											
VA24B7587-001	HighRN_Blend	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----



Method Blank (MB) Report

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

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1561525)						
Alkalinity, bicarbonate (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1563488)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1561515)						
Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1561516)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1561517)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1561518)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1561519)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1561520)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1561527)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1564327)						
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1566507)						
Ammonia, total dissolved (as N)	7664-41-7	E309	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1567837)						
Nitrogen, total dissolved	----	E368	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1568179)						
Kjeldahl nitrogen, dissolved [DKN]	----	E322	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 1564322)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Dissolved Sulfides (QCLot: 1563439)						



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Sulfides (QCLot: 1563439) - continued						
Sulfide, dissolved (as S)	18496-25-8	E397	0.0015	mg/L	<0.0015	----
Dissolved Metals (QCLot: 1558327)						
Aluminum, dissolved	7429-90-5	E471	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E471	0.00002	mg/L	<0.000020	----
Arsenic, dissolved	7440-38-2	E471	0.00002	mg/L	<0.000020	----
Barium, dissolved	7440-39-3	E471	0.00002	mg/L	<0.000020	----
Beryllium, dissolved	7440-41-7	E471	0.000005	mg/L	<0.0000050	----
Bismuth, dissolved	7440-69-9	E471	0.000005	mg/L	<0.0000050	----
Boron, dissolved	7440-42-8	E471	0.005	mg/L	<0.0050	----
Cadmium, dissolved	7440-43-9	E471	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E471	0.01	mg/L	<0.010	----
Cesium, dissolved	7440-46-2	E471	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E471	0.0001	mg/L	<0.00010	----
Cobalt, dissolved	7440-48-4	E471	0.000005	mg/L	<0.0000050	----
Copper, dissolved	7440-50-8	E471	0.00005	mg/L	<0.000050	----
Gallium, dissolved	7440-55-3	E471	0.00005	mg/L	<0.000050	----
Iron, dissolved	7439-89-6	E471	0.001	mg/L	<0.0010	----
Lanthanum, dissolved	7439-91-0	E471	0.00001	mg/L	<0.000010	----
Lead, dissolved	7439-92-1	E471	0.00001	mg/L	<0.000010	----
Lithium, dissolved	7439-93-2	E471	0.0005	mg/L	<0.00050	----
Magnesium, dissolved	7439-95-4	E471	0.004	mg/L	<0.0040	----
Manganese, dissolved	7439-96-5	E471	0.00005	mg/L	<0.000050	----
Molybdenum, dissolved	7439-98-7	E471	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E471	0.00005	mg/L	<0.000050	----
Niobium, dissolved	7440-03-1	E471	0.0001	mg/L	<0.00010	----
Phosphorus, dissolved	7723-14-0	E471	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E471	0.02	mg/L	<0.020	----
Rhenium, dissolved	7440-15-5	E471	0.000005	mg/L	<0.0000050	----
Rubidium, dissolved	7440-17-7	E471	0.000005	mg/L	<0.0000050	----
Selenium, dissolved	7782-49-2	E471	0.00004	mg/L	<0.000040	----
Silicon, dissolved	7440-21-3	E471	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E471	0.000005	mg/L	<0.0000050	----
Sodium, dissolved	7440-23-5	E471	0.02	mg/L	<0.020	----
Strontium, dissolved	7440-24-6	E471	0.00002	mg/L	<0.000020	----
Sulfur, dissolved	7704-34-9	E471	0.5	mg/L	<0.50	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1558327) - continued						
Tantalum, dissolved	7440-25-7	E471	0.0001	mg/L	<0.00010	----
Tellurium, dissolved	13494-80-9	E471	0.00002	mg/L	<0.000020	----
Thallium, dissolved	7440-28-0	E471	0.000005	mg/L	<0.0000050	----
Thorium, dissolved	7440-29-1	E471	0.000005	mg/L	<0.0000050	----
Tin, dissolved	7440-31-5	E471	0.00002	mg/L	<0.000020	----
Titanium, dissolved	7440-32-6	E471	0.00005	mg/L	<0.000050	----
Tungsten, dissolved	7440-33-7	E471	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E471	0.000001	mg/L	<0.0000010	----
Vanadium, dissolved	7440-62-2	E471	0.00005	mg/L	<0.000050	----
Yttrium, dissolved	7440-65-5	E471	0.00001	mg/L	<0.000010	----
Zinc, dissolved	7440-66-6	E471	0.0005	mg/L	<0.00050	----
Zirconium, dissolved	7440-67-7	E471	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 1568700)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----



Laboratory Control Sample (LCS) Report

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

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1561525)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	110	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1563488)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	88.1	85.0	115	----
Anions and Nutrients (QCLot: 1561515)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1561516)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1561517)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1561518)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1561519)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1561520)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1561527)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	90.9	80.0	120	----
Anions and Nutrients (QCLot: 1564327)									
Phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	94.0	80.0	120	----
Anions and Nutrients (QCLot: 1566507)									
Ammonia, total dissolved (as N)	7664-41-7	E309	0.005	mg/L	0.2 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1567837)									
Nitrogen, total dissolved	----	E368	0.03	mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1568179)									
Kjeldahl nitrogen, dissolved [DKN]	----	E322	0.05	mg/L	4 mg/L	96.6	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1564322)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	97.5	80.0	120	----
Dissolved Sulfides (QCLot: 1563439)									



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Target Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Sulfides (QCLot: 1563439) - continued									
Sulfide, dissolved (as S)	18496-25-8	E397	0.0015	mg/L	0.08 mg/L	108	80.0	120	----
Dissolved Metals (QCLot: 1558327)									
Aluminum, dissolved	7429-90-5	E471	0.001	mg/L	2 mg/L	108	80.0	120	----
Antimony, dissolved	7440-36-0	E471	0.00002	mg/L	1 mg/L	109	80.0	120	----
Arsenic, dissolved	7440-38-2	E471	0.00002	mg/L	1 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E471	0.00002	mg/L	0.25 mg/L	110	80.0	120	----
Beryllium, dissolved	7440-41-7	E471	0.000005	mg/L	0.1 mg/L	92.4	80.0	120	----
Bismuth, dissolved	7440-69-9	E471	0.000005	mg/L	1 mg/L	107	80.0	120	----
Boron, dissolved	7440-42-8	E471	0.005	mg/L	1 mg/L	92.0	80.0	120	----
Cadmium, dissolved	7440-43-9	E471	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, dissolved	7440-70-2	E471	0.01	mg/L	50 mg/L	105	80.0	120	----
Cesium, dissolved	7440-46-2	E471	0.000005	mg/L	0.05 mg/L	102	80.0	120	----
Chromium, dissolved	7440-47-3	E471	0.0001	mg/L	0.25 mg/L	108	80.0	120	----
Cobalt, dissolved	7440-48-4	E471	0.000005	mg/L	0.25 mg/L	102	80.0	120	----
Copper, dissolved	7440-50-8	E471	0.00005	mg/L	0.25 mg/L	101	80.0	120	----
Gallium, dissolved	7440-55-3	E471	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Iron, dissolved	7439-89-6	E471	0.001	mg/L	1 mg/L	106	80.0	120	----
Lanthanum, dissolved	7439-91-0	E471	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
Lead, dissolved	7439-92-1	E471	0.00001	mg/L	0.5 mg/L	107	80.0	120	----
Lithium, dissolved	7439-93-2	E471	0.0005	mg/L	0.25 mg/L	98.2	80.0	120	----
Magnesium, dissolved	7439-95-4	E471	0.004	mg/L	50 mg/L	108	80.0	120	----
Manganese, dissolved	7439-96-5	E471	0.00005	mg/L	0.25 mg/L	109	80.0	120	----
Molybdenum, dissolved	7439-98-7	E471	0.00005	mg/L	0.25 mg/L	105	80.0	120	----
Nickel, dissolved	7440-02-0	E471	0.00005	mg/L	0.5 mg/L	103	80.0	120	----
Niobium, dissolved	7440-03-1	E471	0.0001	mg/L	0.05 mg/L	96.6	80.0	120	----
Phosphorus, dissolved	7723-14-0	E471	0.05	mg/L	10 mg/L	103	80.0	120	----
Potassium, dissolved	7440-09-7	E471	0.02	mg/L	50 mg/L	107	80.0	120	----
Rhenium, dissolved	7440-15-5	E471	0.000005	mg/L	0.1 mg/L	104	80.0	120	----
Rubidium, dissolved	7440-17-7	E471	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, dissolved	7782-49-2	E471	0.00004	mg/L	1 mg/L	107	80.0	120	----
Silicon, dissolved	7440-21-3	E471	0.05	mg/L	10 mg/L	# 122	80.0	120	MES
Silver, dissolved	7440-22-4	E471	0.000005	mg/L	0.1 mg/L	94.6	80.0	120	----
Sodium, dissolved	7440-23-5	E471	0.02	mg/L	50 mg/L	108	80.0	120	----
Strontium, dissolved	7440-24-6	E471	0.00002	mg/L	0.25 mg/L	107	80.0	120	----
Sulfur, dissolved	7704-34-9	E471	0.5	mg/L	50 mg/L	108	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Target Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1558327) - continued									
Tantalum, dissolved	7440-25-7	E471	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Tellurium, dissolved	13494-80-9	E471	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
Thallium, dissolved	7440-28-0	E471	0.000005	mg/L	1 mg/L	107	80.0	120	----
Thorium, dissolved	7440-29-1	E471	0.000005	mg/L	0.1 mg/L	91.2	80.0	120	----
Tin, dissolved	7440-31-5	E471	0.00002	mg/L	0.5 mg/L	103	80.0	120	----
Titanium, dissolved	7440-32-6	E471	0.00005	mg/L	0.25 mg/L	101	80.0	120	----
Tungsten, dissolved	7440-33-7	E471	0.00001	mg/L	0.1 mg/L	106	80.0	120	----
Uranium, dissolved	7440-61-1	E471	0.000001	mg/L	0.005 mg/L	110	80.0	120	----
Vanadium, dissolved	7440-62-2	E471	0.00005	mg/L	0.5 mg/L	107	80.0	120	----
Yttrium, dissolved	7440-65-5	E471	0.00001	mg/L	0.1 mg/L	101	80.0	120	----
Zinc, dissolved	7440-66-6	E471	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
Zirconium, dissolved	7440-67-7	E471	0.00001	mg/L	0.1 mg/L	94.6	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	108	80.0	120	----

Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



Matrix Spike (MS) Report

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

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target	MS	Low	High	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1561515)										
VA24B7587-002	HighRN_Blend_Lakewater	Sulfate (as SO4)	14808-79-8	E235.SO4	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1561516)										
VA24B7587-002	HighRN_Blend_Lakewater	Chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1561517)										
VA24B7587-002	HighRN_Blend_Lakewater	Nitrate (as N)	14797-55-8	E235.NO3-L	2.53 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1561518)										
VA24B7587-002	HighRN_Blend_Lakewater	Nitrite (as N)	14797-65-0	E235.NO2-L	0.512 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1561519)										
VA24B7587-002	HighRN_Blend_Lakewater	Fluoride	16984-48-8	E235.F	1.00 mg/L	1 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1561520)										
VA24B7587-002	HighRN_Blend_Lakewater	Bromide	24959-67-9	E235.Br-L	0.510 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1561527)										
VA24B7924-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0273 mg/L	0.03 mg/L	90.9	70.0	130	----
Anions and Nutrients (QCLot: 1564327)										
VA24B7683-004	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-T	0.0468 mg/L	0.05 mg/L	93.6	70.0	130	----
Anions and Nutrients (QCLot: 1566507)										
VA24B7583-002	Anonymous	Ammonia, total dissolved (as N)	7664-41-7	E309	0.101 mg/L	0.1 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1567837)										
KS2402813-002	Anonymous	Nitrogen, total dissolved	----	E368	0.366 mg/L	0.4 mg/L	91.6	70.0	130	----
Anions and Nutrients (QCLot: 1568179)										
VA24B7587-002	HighRN_Blend_Lakewater	Kjeldahl nitrogen, dissolved [DKN]	----	E322	12.5 mg/L	12.5 mg/L	99.7	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1564322)										
VA24B7683-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Dissolved Sulfides (QCLot: 1563439)										
CG2410157-001	Anonymous	Sulfide, dissolved (as S)	18496-25-8	E397	10.3 mg/L	10 mg/L	103	75.0	125	----
Dissolved Metals (QCLot: 1558327)										
VA24B7581-002	Anonymous	Aluminum, dissolved	7429-90-5	E471	0.185 mg/L	0.2 mg/L	92.6	70.0	130	----
		Antimony, dissolved	7440-36-0	E471	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	----
		Arsenic, dissolved	7440-38-2	E471	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, dissolved	7440-39-3	E471	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E471	0.0362 mg/L	0.04 mg/L	90.6	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Dissolved Metals (QCLot: 1558327) - continued										
VA24B7581-002	Anonymous	Bismuth, dissolved	7440-69-9	E471	0.00791 mg/L	0.01 mg/L	79.1	70.0	130	----
		Boron, dissolved	7440-42-8	E471	0.0944 mg/L	0.1 mg/L	94.4	70.0	130	----
		Cadmium, dissolved	7440-43-9	E471	0.00384 mg/L	0.004 mg/L	96.1	70.0	130	----
		Calcium, dissolved	7440-70-2	E471	3.94 mg/L	4 mg/L	98.4	70.0	130	----
		Cesium, dissolved	7440-46-2	E471	0.00987 mg/L	0.01 mg/L	98.7	70.0	130	----
		Chromium, dissolved	7440-47-3	E471	0.0414 mg/L	0.04 mg/L	103	70.0	130	----
		Cobalt, dissolved	7440-48-4	E471	0.0197 mg/L	0.02 mg/L	98.3	70.0	130	----
		Copper, dissolved	7440-50-8	E471	0.0186 mg/L	0.02 mg/L	92.9	70.0	130	----
		Gallium, dissolved	7440-55-3	E471	0.00238 mg/L	0.002 mg/L	95.2	70.0	130	----
		Iron, dissolved	7439-89-6	E471	1.93 mg/L	2 mg/L	96.5	70.0	130	----
		Lanthanum, dissolved	7439-91-0	E471	0.00245 mg/L	0.002 mg/L	97.9	70.0	130	----
		Lead, dissolved	7439-92-1	E471	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Lithium, dissolved	7439-93-2	E471	0.0934 mg/L	0.1 mg/L	93.4	70.0	130	----
		Magnesium, dissolved	7439-95-4	E471	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E471	0.0199 mg/L	0.02 mg/L	99.7	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E471	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	----
		Nickel, dissolved	7440-02-0	E471	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		Niobium, dissolved	7440-03-1	E471	0.00243 mg/L	0.002 mg/L	97.4	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E471	9.82 mg/L	10 mg/L	98.2	70.0	130	----
		Potassium, dissolved	7440-09-7	E471	3.88 mg/L	4 mg/L	96.9	70.0	130	----
		Rhenium, dissolved	7440-15-5	E471	0.00245 mg/L	0.002 mg/L	98.0	70.0	130	----
		Rubidium, dissolved	7440-17-7	E471	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Selenium, dissolved	7782-49-2	E471	0.0427 mg/L	0.04 mg/L	107	70.0	130	----
		Silicon, dissolved	7440-21-3	E471	8.57 mg/L	10 mg/L	85.7	70.0	130	----
		Silver, dissolved	7440-22-4	E471	0.00385 mg/L	0.004 mg/L	96.2	70.0	130	----
		Sodium, dissolved	7440-23-5	E471	1.77 mg/L	2 mg/L	88.4	70.0	130	----
		Strontium, dissolved	7440-24-6	E471	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Sulfur, dissolved	7704-34-9	E471	18.5 mg/L	20 mg/L	92.5	70.0	130	----
		Tantalum, dissolved	7440-25-7	E471	0.00252 mg/L	0.002 mg/L	101	70.0	130	----
		Tellurium, dissolved	13494-80-9	E471	0.0416 mg/L	0.04 mg/L	104	70.0	130	----
		Thallium, dissolved	7440-28-0	E471	0.00370 mg/L	0.004 mg/L	92.6	70.0	130	----
		Thorium, dissolved	7440-29-1	E471	0.0214 mg/L	0.02 mg/L	107	70.0	130	----
		Tin, dissolved	7440-31-5	E471	0.0188 mg/L	0.02 mg/L	93.9	70.0	130	----
		Titanium, dissolved	7440-32-6	E471	0.0367 mg/L	0.04 mg/L	91.7	70.0	130	----
		Tungsten, dissolved	7440-33-7	E471	0.0191 mg/L	0.02 mg/L	95.3	70.0	130	----
		Uranium, dissolved	7440-61-1	E471	0.00376 mg/L	0.004 mg/L	94.0	70.0	130	----
		Vanadium, dissolved	7440-62-2	E471	0.107 mg/L	0.1 mg/L	107	70.0	130	----
		Yttrium, dissolved	7440-65-5	E471	0.00243 mg/L	0.002 mg/L	97.1	70.0	130	----
		Zinc, dissolved	7440-66-6	E471	0.409 mg/L	0.4 mg/L	102	70.0	130	----
		Zirconium, dissolved	7440-67-7	E471	0.0369 mg/L	0.04 mg/L	92.4	70.0	130	----
Dissolved Metals (QCLot: 1568700)										
VA24B7587-002	HighRN_Blend_Lakewater	Mercury, dissolved	7439-97-6	E509	0.000107 mg/L	0 mg/L	107	70.0	130	----





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Chain of Custody (COC) / Analytical Request Form

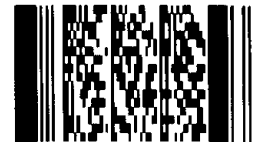
COC Number: 22 -

Canada Toll Free: 1 800 668 9878

Page 1 of 1

Environmental Division
Vancouver

Work Order Reference
VA24B7587



Telephone: +1 604 253 4188

Report To				Reports / Recipients				Turnaround Time (TAT) Requested																											
Contact and company name below will appear on the final report				Select Report Format: ☒ PDF ☒ EXCEL ☒ EDD (DIGITAL)				☒ Routine [R] if received by 3pm M-F - no surcharges apply																											
Company: Lorax Environmental Services Ltd.				Merge QC/QCI Reports with COA ☒ YES ☐ NO ☐ N/A				☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum																											
Contact: Patrick Mueller				☐ Compare Results to Criteria on Report - provide details below if box checked				☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum																											
Phone: 604-668-7173				Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX				☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum																											
Company address below will appear on the final report				Email 1 or Fax: holly.pelletier@lorax.ca				☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum																											
Street: 305 - 1770 West 7 Ave				Email 2: justin.stockwell@lorax.ca				☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.																											
City/Province: Vancouver, BC				Email 3: kraymond@oko-sk.com; ana.julia.oliveira@lorax.ca				Additional fees may apply to rush requests on weekends, s																											
Postal Code: V6J 4Y6								Date and Time Required for all E&P TATs:																											
Invoice To: Same as Report To ☒ YES ☐ NO				Invoice Recipients				For all tests with rush TATs requested, please con:																											
Copy of Invoice with Report ☐ YES ☒ NO				Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX				Analysis Requ																											
Company: Lorax Environmental Services Ltd.				Email 1 or Fax: Aida.Piaseczny@lorax.ca				Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																											
Contact: Aida Piaseczny				Email 2:																															
Project Information				Oil and Gas Required Fields (client use)				NUMBER OF CONTAINERS																											
ALS Client Code / QUOTE #: Q66672				AFE/Cost Center: PO#																															
Job / Project #: A712-1 High RN Blend Saturated Column Test				Major/Minor Code: Routing Code:				F/P F F/P F/P F/P F/P F/P F/P F F F																											
PO / AFE: A712-1 High RN Blend Saturated Column Test				Requisitioner:																															
LSD:				Location:				D-metals (E471) Pristine Samples																											
ALS Lab Work Order # (ALS use only): 7587				ALS Contact: Dean Watt Sampler: H. Pelletier																															
ALS Sample # (ALS use only)				Sample Identification and/or Coordinates (This description will appear on the report)				Date (dd-mmm-yy)				Time (hh:mm)				Sample Type				D-metals (E471) Pristine Samples															
				HighRN_Blend				18-Jul-24				12:00				Water																			
				HighRN_Blend_Lakewater				18-Jul-24				12:00				Water				Anions															
																				TD-P by colourimetry															
																				DOC, DKN															
																				D-Hg															
																				D-Ammonia															
																				Total dissolved N															
																				D-PO4 by colourimetry															
																				D-Sulphide															
																				TDS, Alkalinity Species															
																				Hardness															

CERTIFICATE OF ANALYSIS

Work Order : **VA23B6695**
Client : **O'Kane Consultants Inc.**
Contact : Katherine Raymond
Address : 112 - 112 Research Drive
Saskatoon SK Canada S7N 3R3
Telephone : ----
Project : Water/supernatant portion - SFE from solids w/ ALS
Geochemistry
PO : 5497
C-O-C number : 22-
Sampler : ----
Site : Atlantic Mine Rock Sample Program Analysis
Quote number : VA23-OKCI100-003
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 6
Laboratory : ALS Environmental - Vancouver
Account Manager : Tasnia Tarannum
Address : 8081 Lougheed Highway
Burnaby BC Canada V5A 1W9
Telephone : +1 604 253 4188
Date Samples Received : 20-Jul-2023 08:25
Date Analysis Commenced : 21-Jul-2023
Issue Date : 28-Jul-2023 15:21

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Anshim Anshim	Lab Assistant	Metals, Burnaby, British Columbia
Brieanna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia
Kate Dimitrova	Analyst	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

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

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

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

Sample Comments

Sample	Client Id	Comment
VA23B6695-001	High RC flott	Water sample for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

Qualifiers

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	High RC flott	----	----	----	----
Client sampling date / time					18-Jul-2023 00:00	----	----	----	----	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B6695-001	-----	-----	-----	-----	
					Result	----	----	----	----	
Physical Tests										
Conductivity	----	E100/VA	2.0	µS/cm	229	----	----	----	----	
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	56.7	----	----	----	----	
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	54.5	----	----	----	----	
pH	----	E108/VA	0.10	pH units	8.97	----	----	----	----	
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	150	----	----	----	----	
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	4.4	----	----	----	----	
Turbidity	----	E121/VA	0.10	NTU	26.3	----	----	----	----	
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	69.8	----	----	----	----	
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0542	----	----	----	----	
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	----	----	----	----	
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	13.0	----	----	----	----	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.050	----	----	----	----	
Nitrate (as N)	14797-55-8	E235.NO3-L/V A	0.0050	mg/L	0.129	----	----	----	----	
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	0.0010	mg/L	0.0094	----	----	----	----	
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L	4.99	----	----	----	----	
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	0.0076	----	----	----	----	
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0338	----	----	----	----	
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	34.4	----	----	----	----	
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	23.4	----	----	----	----	
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	21.4	----	----	----	----	
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L	<0.011	----	----	----	----	
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L	<0.010	----	----	----	----	
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0704	----	----	----	----	
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00012	----	----	----	----	



Analytical Results

Sub-Matrix: Water					Client sample ID	High RC flott	----	----	----	----
(Matrix: Water)										
					Client sampling date / time	18-Jul-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B6695-001	-----	-----	-----	-----	-----
					Result	----	----	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00192	----	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0921	----	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	----	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	----	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	<0.0000050	----	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	18.4	----	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000075	----	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	0.00126	----	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00018	----	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.0121	----	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.776	----	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000098	----	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0014	----	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	2.08	----	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.164	----	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00621	----	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.00062	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	----	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	1.10	----	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00264	----	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.000122	----	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	2.86	----	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	21.1	----	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.0671	----	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	12.7	----	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----	----



Analytical Results

Sub-Matrix: Water					Client sample ID	High RC flott	----	----	----	----
(Matrix: Water)										
					Client sampling date / time	18-Jul-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B6695-001	-----	-----	-----	-----	-----
					Result	----	----	----	----	----
Total Metals										
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	0.00020	----	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	0.00090	----	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	0.00026	----	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.000070	----	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	0.00070	----	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0045	----	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0439	----	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	0.00010	----	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00177	----	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.0691	----	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L	<0.000100	----	----	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L	<0.000050	----	----	----	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L	<0.010	----	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000050	----	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	19.5	----	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	0.000072	----	----	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050	----	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	----	----	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	0.00934	----	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	0.070	----	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L	<0.000050	----	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L	0.0014	----	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	1.95	----	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.0300	----	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L	<0.0000500 ^{DLM}	----	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L	0.00600	----	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	<0.00050	----	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L	<0.050	----	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L	1.11	----	----	----	----	----



Analytical Results

Sub-Matrix: Water					Client sample ID	High RC flott	----	----	----	----
(Matrix: Water)										
					Client sampling date / time	18-Jul-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B6695-001	-----	-----	-----	-----	-----
					Result	----	----	----	----	----
Dissolved Metals										
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	0.00240	----	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	0.000153	----	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	2.76	----	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L	<0.000010	----	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L	21.2	----	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0711	----	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	12.1	----	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L	<0.00020	----	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	<0.000010	----	----	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L	<0.00010	----	----	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L	0.00049 ^{DTC}	----	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L	0.00031	----	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L	0.00025	----	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	0.000053	----	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	0.00053	----	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0017	----	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L	<0.00020	----	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-	Laboratory	----	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-	Laboratory	----	----	----	----	----

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

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA23B6695	Page	: 1 of 13
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Water/supernatant portion - SFE from solids w/ ALS Geochemistry	Date Samples Received	: 20-Jul-2023 08:25
PO	: 5497	Issue Date	: 28-Jul-2023 15:23
C-O-C number	: 22-		
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKC1100-003		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Key

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

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) High RC flott	E298	18-Jul-2023	21-Jul-2023	28 days	4 days	✓	24-Jul-2023	24 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE High RC flott	E235.Br-L	18-Jul-2023	21-Jul-2023	28 days	4 days	✓	21-Jul-2023	24 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE High RC flott	E235.Cl	18-Jul-2023	21-Jul-2023	28 days	4 days	✓	21-Jul-2023	24 days	0 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE High RC flott	E378-U	18-Jul-2023	26-Jul-2023	3 days	9 days	✖ EHT	26-Jul-2023	-6 days	0 days	✖ UCP
Anions and Nutrients : Fluoride in Water by IC										
HDPE High RC flott	E235.F	18-Jul-2023	21-Jul-2023	28 days	4 days	✓	21-Jul-2023	24 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE High RC flott	E235.NO3-L	18-Jul-2023	21-Jul-2023	3 days	4 days	✓	21-Jul-2023	-1 days	0 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE High RC flott	E235.NO2-L	18-Jul-2023	21-Jul-2023	3 days	4 days	✓	21-Jul-2023	-1 days	0 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE High RC flott	E235.SO4	18-Jul-2023	21-Jul-2023	28 days	4 days	✓	21-Jul-2023	24 days	0 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) High RC flott	E366	18-Jul-2023	21-Jul-2023	28 days	4 days	✓	24-Jul-2023	24 days	3 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) High RC flott	E372-U	18-Jul-2023	21-Jul-2023	28 days	4 days	✓	24-Jul-2023	24 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
HDPE - dissolved (lab preserved) High RC flott	E509	18-Jul-2023	27-Jul-2023	0.04 hrs	0 hrs	✗ EHTR-FM	27-Jul-2023	-216.99 hrs	0.04 hrs	✗ UCP
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) High RC flott	E421	18-Jul-2023	24-Jul-2023	180 days	6 days	✓	25-Jul-2023	174 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) High RC flott	E358-L	18-Jul-2023	21-Jul-2023	3 days	4 days	✗ EHT	22-Jul-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) High RC flott	E355-L	18-Jul-2023	21-Jul-2023	28 days	4 days	✓	21-Jul-2023	24 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE High RC flott	E290	18-Jul-2023	21-Jul-2023	14 days	3 days	✓	21-Jul-2023	11 days	0 days	✓



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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE High RC flott	E100	18-Jul-2023	21-Jul-2023	28 days	3 days	✓	21-Jul-2023	25 days	0 days	✓
Physical Tests : pH by Meter										
HDPE High RC flott	E108	18-Jul-2023	21-Jul-2023	0.94 hrs	0.25 hrs	✖ EHTR-FM	21-Jul-2023	-83.66 hrs	0.94 hrs	✖ UCP
Physical Tests : TDS by Gravimetry										
HDPE High RC flott	E162	18-Jul-2023	----	----	----		23-Jul-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE High RC flott	E160	18-Jul-2023	----	----	----		23-Jul-2023	7 days	5 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE High RC flott	E121	18-Jul-2023	----	----	----		21-Jul-2023	3 days	4 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) High RC flott	E508	18-Jul-2023	25-Jul-2023	28 days	8 days	✓	25-Jul-2023	20 days	0 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) High RC flott	E420	18-Jul-2023	22-Jul-2023	180 days	5 days	✓	24-Jul-2023	175 days	2 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) High RC flott	E395-H	18-Jul-2023	----	----	----		21-Jul-2023	7 days	4 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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Work Order : VA23B6695
Client : O'Kane Consultants Inc.
Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.



Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1050097	0	1	0.0	5.0	✖
Ammonia by Fluorescence	E298	1050604	1	16	6.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1050082	1	1	100.0	5.0	✔
Chloride in Water by IC	E235.Cl	1050081	1	1	100.0	5.0	✔
Conductivity in Water	E100	1050098	1	1	100.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1058088	1	3	33.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1051055	1	16	6.2	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1051034	1	10	10.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1055820	1	9	11.1	5.0	✔
Fluoride in Water by IC	E235.F	1050080	1	1	100.0	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1050083	1	1	100.0	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1050078	1	20	5.0	5.0	✔
pH by Meter	E108	1050096	1	13	7.6	5.0	✔
Sulfate in Water by IC	E235.SO4	1050084	1	1	100.0	5.0	✔
TDS by Gravimetry	E162	1051960	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1055516	1	11	9.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	1050675	1	20	5.0	5.0	✔
Total Nitrogen by Colourimetry	E366	1050602	1	6	16.6	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1050601	1	3	33.3	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1050603	1	6	16.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1050539	1	11	9.0	5.0	✔
TSS by Gravimetry	E160	1051954	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	1050259	1	20	5.0	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1050097	1	1	100.0	5.0	✔
Ammonia by Fluorescence	E298	1050604	1	16	6.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1050082	1	1	100.0	5.0	✔
Chloride in Water by IC	E235.Cl	1050081	1	1	100.0	5.0	✔
Conductivity in Water	E100	1050098	1	1	100.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1058088	1	3	33.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1051055	1	16	6.2	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1051034	1	10	10.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1055820	1	9	11.1	5.0	✔
Fluoride in Water by IC	E235.F	1050080	1	1	100.0	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1050083	1	1	100.0	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1050078	1	20	5.0	5.0	✔



Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
pH by Meter	E108	1050096	1	13	7.6	5.0	✔
Sulfate in Water by IC	E235.SO4	1050084	1	1	100.0	5.0	✔
TDS by Gravimetry	E162	1051960	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1055516	1	11	9.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	1050675	1	20	5.0	5.0	✔
Total Nitrogen by Colourimetry	E366	1050602	1	6	16.6	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1050601	1	3	33.3	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1050603	1	6	16.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1050539	1	11	9.0	5.0	✔
TSS by Gravimetry	E160	1051954	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	1050259	1	20	5.0	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1050097	1	1	100.0	5.0	✔
Ammonia by Fluorescence	E298	1050604	1	16	6.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1050082	1	1	100.0	5.0	✔
Chloride in Water by IC	E235.Cl	1050081	1	1	100.0	5.0	✔
Conductivity in Water	E100	1050098	1	1	100.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1058088	1	3	33.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1051055	1	16	6.2	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1051034	1	10	10.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1055820	1	9	11.1	5.0	✔
Fluoride in Water by IC	E235.F	1050080	1	1	100.0	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1050083	1	1	100.0	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1050078	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1050084	1	1	100.0	5.0	✔
TDS by Gravimetry	E162	1051960	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1055516	1	11	9.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	1050675	1	20	5.0	5.0	✔
Total Nitrogen by Colourimetry	E366	1050602	1	6	16.6	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1050601	1	3	33.3	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1050603	1	6	16.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1050539	1	11	9.0	5.0	✔
TSS by Gravimetry	E160	1051954	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	1050259	1	20	5.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1050604	1	16	6.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1050082	0	1	0.0	5.0	✖
Chloride in Water by IC	E235.Cl	1050081	0	1	0.0	5.0	✖
Dissolved Mercury in Water by CVAAS	E509	1058088	1	3	33.3	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Matrix Spikes (MS) - Continued							
Dissolved Metals in Water by CRC ICPMS	E421	1051055	1	16	6.2	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1051034	1	10	10.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1055820	1	9	11.1	5.0	✔
Fluoride in Water by IC	E235.F	1050080	0	1	0.0	5.0	✖
Nitrate in Water by IC (Low Level)	E235.NO3-L	1050083	0	1	0.0	5.0	✖
Nitrite in Water by IC (Low Level)	E235.NO2-L	1050078	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1050084	0	1	0.0	5.0	✖
Total Mercury in Water by CVAAS	E508	1055516	1	11	9.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	1050675	1	20	5.0	5.0	✔
Total Nitrogen by Colourimetry	E366	1050602	1	6	16.6	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1050601	1	3	33.3	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1050603	1	6	16.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1050539	1	11	9.0	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^\circ\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at $104 \pm 1^\circ\text{C}$, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^\circ\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Nitrogen by Colourimetry	E366 ALS Environmental - Vancouver	Water	APHA 4500-P J (mod)	Total Nitrogen is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the total sulfide concentration in the sample. The H ₂ S calculation converts Total Sulphide as (S ₂ ⁻) and reports it as Total Sulphide as (H ₂ S)
Total metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO ₃), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion

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 Work Order : VA23B6695
 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Nitrogen in water	EP366 ALS Environmental - Vancouver	Water	APHA 4500-P J (mod)	Samples are heated with a persulfate digestion reagent.
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO ₃ .
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: VA23B6695	Page	: 1 of 18
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: Water/supernatant portion - SFE from solids w/ ALS Geochemistry	Date Samples Received	: 20-Jul-2023 08:25
PO	: 5497	Date Analysis Commenced	: 21-Jul-2023
C-O-C number	: 22-	Issue Date	: 28-Jul-2023 15:21
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKCI100-003		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	Position	Laboratory Department
Angelo Salandanan	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Anshim Anshim	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Brieanna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia
Kate Dimitrova	Analyst	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia

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Work Order : VA23B6695
Client : O'Kane Consultants Inc.
Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



General Comments

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

Key :

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

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

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

Workorder Comments

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



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1050096)											
VA23B6695-001	High RC flott	pH	----	E108	0.10	pH units	8.97	8.98	0.111%	4%	----
Physical Tests (QC Lot: 1050098)											
VA23B6695-001	High RC flott	Conductivity	----	E100	2.0	µS/cm	229	226	1.32%	10%	----
Physical Tests (QC Lot: 1050259)											
VA23B6662-015	Anonymous	Turbidity	----	E121	0.10	NTU	104	105	1.15%	15%	----
Physical Tests (QC Lot: 1051954)											
VA23B6488-024	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1051960)											
VA23B6488-024	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	328	324	1.22%	20%	----
Anions and Nutrients (QC Lot: 1050078)											
VA23B6492-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0023	0.0022	0.00002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1050080)											
VA23B6695-001	High RC flott	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.050	0.052	0.001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1050081)											
VA23B6695-001	High RC flott	Chloride	16887-00-6	E235.Cl	0.50	mg/L	13.0	13.0	0.274%	20%	----
Anions and Nutrients (QC Lot: 1050082)											
VA23B6695-001	High RC flott	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1050083)											
VA23B6695-001	High RC flott	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.129	0.129	0.104%	20%	----
Anions and Nutrients (QC Lot: 1050084)											
VA23B6695-001	High RC flott	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	34.4	34.6	0.435%	20%	----
Anions and Nutrients (QC Lot: 1050602)											
KS2302612-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.343	0.352	2.74%	20%	----
Anions and Nutrients (QC Lot: 1050603)											
FJ2301781-005	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1050604)											
FJ2301781-005	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1055820)											
FJ2301822-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1050601)											



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Organic / Inorganic Carbon (QC Lot: 1050601) - continued											
FJ2301781-005	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1051034)											
VA23B6450-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.70	2.85	0.15	Diff <2x LOR	----
Total Sulfides (QC Lot: 1050539)											
FJ2301784-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 1050675)											
BU2300025-005	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----

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 Work Order : VA23B6695
 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 1050675) - continued											
BU2300025-005	Anonymous	Sulfur, total	7704-34-9	E420	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1055516)											
VA23B6669-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1051055)											
KS2302654-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0116	0.0114	2.10%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00012	0.00012	0.000003	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00902	0.00921	2.04%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	13.1	13.1	0.0920%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000012	<0.000010	0.000002	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00044	0.00043	0.0000008	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	2.14	2.18	1.46%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	<0.00010	0.00010	0.0000002	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000643	0.000652	1.30%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 1051055) - continued											
KS2302654-001	Anonymous	Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	2.00	mg/L	<2.00	<2.00	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00154	0.00156	0.00002	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000132	0.000114	0.000018	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.46	2.34	5.23%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	2.00	mg/L	<2.00	<2.00	0	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0792	0.0782	1.38%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	2.34	2.30	0.04	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000251	0.000252	0.580%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1058088)											
VA23B6412-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000500	mg/L	<0.0000500	<0.0000500	0	Diff <2x LOR	----



Method Blank (MB) Report

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

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1050097)						
Alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1050098)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1050259)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1051954)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1051960)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1050078)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1050080)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1050081)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1050082)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1050083)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1050084)						
Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1050602)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1050603)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1050604)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1055820)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Organic / Inorganic Carbon (QCLot: 1050601)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1051034)						

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 Work Order : VA23B6695
 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1051034) - continued						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1050539)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 1050675)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1050675) - continued						
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1055516)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1051055)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1051055) - continued						
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1058088)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----



Laboratory Control Sample (LCS) Report

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

Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1050096)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1050097)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	108	85.0	115	----
Physical Tests (QCLot: 1050098)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	102	90.0	110	----
Physical Tests (QCLot: 1050259)									
Turbidity	----	E121	0.1	NTU	200 NTU	98.0	85.0	115	----
Physical Tests (QCLot: 1051954)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	99.0	85.0	115	----
Physical Tests (QCLot: 1051960)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 1050078)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1050080)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1050081)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1050082)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	95.7	85.0	115	----
Anions and Nutrients (QCLot: 1050083)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1050084)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1050602)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	95.3	75.0	125	----
Anions and Nutrients (QCLot: 1050603)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	85.0	80.0	120	----
Anions and Nutrients (QCLot: 1050604)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 1055820)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	112	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit					
Organic / Inorganic Carbon (QCLot: 1050601)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	94.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1051034)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	95.8	80.0	120	----
Total Sulfides (QCLot: 1050539)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	97.6	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	97.4	80.0	120	----
Total Metals (QCLot: 1050675)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	106	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	102	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	109	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	109	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	95.2	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	103	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	94.9	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	104	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	103	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	109	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	118	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	110	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	92.8	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	105	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	108	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	101	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	116	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	108	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	105	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	107	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	96.8	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1050675) - continued									
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	108	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.5	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	108	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	102	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	108	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	103	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	103	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Total Metals (QCLot: 1055516)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	95.4	80.0	120	----
Dissolved Metals (QCLot: 1051055)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	101	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	102	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	106	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	108	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	97.5	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	104	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	105	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	99.8	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.4	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	96.3	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	102	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	106	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	100	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.7	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	100	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1051055) - continued									
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	98.4	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	106	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	107	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.6	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	102	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	110	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	92.7	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	107	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	104	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	98.3	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	105	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	92.3	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	94.5	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	99.2	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	92.2	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	94.7	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	95.9	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	94.0	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	96.8	80.0	120	----



Matrix Spike (MS) Report

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

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1050078)										
VA23B6492-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.516 mg/L	0.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1050602)										
KS2302612-002	Anonymous	Nitrogen, total	7727-37-9	E366	0.377 mg/L	0.4 mg/L	94.2	70.0	130	----
Anions and Nutrients (QCLot: 1050603)										
KS2302612-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0462 mg/L	0.05 mg/L	92.5	70.0	130	----
Anions and Nutrients (QCLot: 1050604)										
KS2302612-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.110 mg/L	0.1 mg/L	110	75.0	125	----
Anions and Nutrients (QCLot: 1055820)										
FJ2301822-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0320 mg/L	0.03 mg/L	107	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1050601)										
VA23B6662-025	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.80 mg/L	5 mg/L	116	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1051034)										
VA23B6450-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	4.98 mg/L	5 mg/L	99.6	70.0	130	----
Total Sulfides (QCLot: 1050539)										
VA23B6634-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.812 mg/L	1 mg/L	81.2	75.0	125	----
Total Metals (QCLot: 1050675)										
BU2300025-006	Anonymous	Aluminum, total	7429-90-5	E420	0.199 mg/L	0.2 mg/L	99.6	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----
		Barium, total	7440-39-3	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0104 mg/L	0.01 mg/L	104	70.0	130	----
		Boron, total	7440-42-8	E420	0.097 mg/L	0.1 mg/L	97.2	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00417 mg/L	0.004 mg/L	104	70.0	130	----
		Calcium, total	7440-70-2	E420	4.06 mg/L	4 mg/L	101	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00999 mg/L	0.01 mg/L	99.9	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0423 mg/L	0.04 mg/L	106	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Copper, total	7440-50-8	E420	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Total Metals (QCLot: 1050675) - continued										
BU2300025-006	Anonymous	Iron, total	7439-89-6	E420	2.00 mg/L	2 mg/L	100	70.0	130	----
		Lead, total	7439-92-1	E420	0.0205 mg/L	0.02 mg/L	103	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0935 mg/L	0.1 mg/L	93.5	70.0	130	----
		Magnesium, total	7439-95-4	E420	0.978 mg/L	1 mg/L	97.8	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.94 mg/L	10 mg/L	99.4	70.0	130	----
		Potassium, total	7440-09-7	E420	4.15 mg/L	4 mg/L	104	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0210 mg/L	0.02 mg/L	105	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		Silicon, total	7440-21-3	E420	10.1 mg/L	10 mg/L	101	70.0	130	----
		Silver, total	7440-22-4	E420	0.00404 mg/L	0.004 mg/L	101	70.0	130	----
		Sodium, total	7440-23-5	E420	2.01 mg/L	2 mg/L	100	70.0	130	----
		Strontium, total	7440-24-6	E420	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Sulfur, total	7704-34-9	E420	21.0 mg/L	20 mg/L	105	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00412 mg/L	0.004 mg/L	103	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Tin, total	7440-31-5	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0361 mg/L	0.04 mg/L	90.3	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00389 mg/L	0.004 mg/L	97.4	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Zinc, total	7440-66-6	E420	0.414 mg/L	0.4 mg/L	103	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0399 mg/L	0.04 mg/L	99.7	70.0	130	----
Total Metals (QCLot: 1055516)										
VA23B6669-003	Anonymous	Mercury, total	7439-97-6	E508	0.0000933 mg/L	0.0001 mg/L	93.3	70.0	130	----
Dissolved Metals (QCLot: 1051055)										
KS2302656-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.190 mg/L	0.2 mg/L	95.1	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0187 mg/L	0.02 mg/L	93.7	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0197 mg/L	0.02 mg/L	98.3	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0417 mg/L	0.04 mg/L	104	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00872 mg/L	0.01 mg/L	87.2	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Dissolved Metals (QCLot: 1051055) - continued										
KS2302656-001	Anonymous	Boron, dissolved	7440-42-8	E421	0.100 mg/L	0.1 mg/L	100.0	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00406 mg/L	0.004 mg/L	102	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	4.09 mg/L	4 mg/L	102	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00969 mg/L	0.01 mg/L	96.9	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.94 mg/L	2 mg/L	96.8	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.104 mg/L	0.1 mg/L	104	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	0.945 mg/L	1 mg/L	94.5	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0384 mg/L	0.04 mg/L	96.0	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.85 mg/L	10 mg/L	98.5	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	4.00 mg/L	4 mg/L	100	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.64 mg/L	10 mg/L	96.4	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00394 mg/L	0.004 mg/L	98.6	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	2.04 mg/L	2 mg/L	102	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	0.0194 mg/L	0.02 mg/L	96.9	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	20.2 mg/L	20 mg/L	101	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00395 mg/L	0.004 mg/L	98.8	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0211 mg/L	0.02 mg/L	105	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0369 mg/L	0.04 mg/L	92.2	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0180 mg/L	0.02 mg/L	90.0	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00384 mg/L	0.004 mg/L	95.9	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0964 mg/L	0.1 mg/L	96.4	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.395 mg/L	0.4 mg/L	98.7	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0398 mg/L	0.04 mg/L	99.5	70.0	130	----
Dissolved Metals (QCLot: 1058088)										
VA23B6695-001	High RC flott	Mercury, dissolved	7439-97-6	E509	0.000857 mg/L	0.001 mg/L	85.7	70.0	130	----

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Work Order : VA23B6695
Client : O'Kane Consultants Inc.
Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



COC Number: **22 -**

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MAY 2023 FROM

CERTIFICATE OF ANALYSIS

Work Order	: SK2402701	Page	: 1 of 7
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Saskatoon
Contact	: Katherine Raymond	Account Manager	: Brian Morgan
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 819 58 Street East Saskatoon SK Canada S7K 6X5
Telephone	: ----	Telephone	: 1 306 221 7147
Project	: 923-224	Date Samples Received	: 07-Jun-2024 12:30
PO	: ----	Date Analysis Commenced	: 07-Jun-2024
C-O-C number	: ----	Issue Date	: 14-Jun-2024 18:09
Sampler	: client		
Site	: ----		
Quote number	: 2024 Water Analysis Quote		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	Position	Laboratory Department
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Colby Bingham	Laboratory Supervisor	Inorganics, Saskatoon, Saskatchewan
Colby Bingham	Laboratory Supervisor	Metals, Saskatoon, Saskatchewan
Hannah Phung	Lab Assistant	Inorganics, Calgary, Alberta
Harpreet Chawla	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Kevin Baxter	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Kimberly Hanson	Laboratory Analyst	Metals, Saskatoon, Saskatchewan
Milad Khani	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan
Milad Khani	Laboratory Analyst	Metals, Saskatoon, Saskatchewan
Ruth Islas	Laboratory Assistant	Metals, Saskatoon, Saskatchewan



General Comments

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

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

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

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

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

Unit	Description
-	no units
%	percent
µS/cm	microsiemens per centimetre
meq/L	milliequivalents per litre
mg/L	milligrams per litre
pH units	pH units

<: less than.

>: greater than.

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

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

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

Accreditation

Accreditation	Description	Laboratory	Address
A	CALA ISO/IEC 17025:2017	SK ALS Environmental - Saskatoon	819 58 Street East, Saskatoon, SK
B	CALA ISO/IEC 17025:2017	VA ALS Environmental - Vancouver	8081 Lougheed Highway, Burnaby, BC

Applicable accreditations are indicated in the Method/Lab column as superscripts.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTDC	Hold time exceeded for dilution or re-analysis. Reported results are consistent with initial results (tested within hold time), and are valid and defensible.

Page : 3 of 7
Work Order : SK2402701
Client : O'Kane Consultants Inc.
Project : 923-224



IB:INT	<i>Ion Balance Reviewed: Imbalance is due to interference or non-measured component.</i>
RRV	<i>Reported result verified by repeat analysis.</i>



Analytical Results

Sub-Matrix: Leachate (Matrix: Water)					Client sample ID	High RN Blend	High RN Blend-Dup	SL-Blank	----	----
Client sampling date / time						06-Jun-2024 00:00	06-Jun-2024 00:00	06-Jun-2024 00:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	SK2402701-001	SK2402701-002	SK2402701-003	-----	-----	-----
					Result	Result	Result	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/SK	0.50	mg/L	66.7	66.9	9.33	----	----	----
Conductivity	----	E100/SK	2.0	µS/cm	240	244	23.0	----	----	----
pH	----	E108/SK	0.10	pH units	7.61	7.79	7.06	----	----	----
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/SK	1.0	mg/L	77.5	108	10.1	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/SK	1.0	mg/L	<1.0	<1.0	<1.0	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/SK	1.0	mg/L	<1.0	<1.0	<1.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/SK	2.0	mg/L	63.5	88.9	8.3	----	----	----
Solids, total dissolved [TDS], calculated	----	EC103/SK	1.0	mg/L	156	172	14.6	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/CG	0.0050	mg/L	0.0523	0.0490	<0.0050	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/CG	0.050	mg/L	0.466	0.480	0.185	----	----	----
Phosphorus, total	7723-14-0	E372-U/CG	0.0020	mg/L	0.0171	0.0169	0.0086 ^{RRV}	----	----	----
Chloride	16887-00-6	E235.Cl/SK	0.50	mg/L	7.75	7.85	0.55	----	----	----
Fluoride	16984-48-8	E235.F/SK	0.020	mg/L	0.272	0.275	<0.020	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/SK	0.020	mg/L	0.033	0.024	0.043	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/SK	0.010	mg/L	0.020	0.013	<0.010	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/SK	0.30	mg/L	53.1	53.9	0.89	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/S K	0.0500	mg/L	0.0530	<0.0500	<0.0500	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/CG	0.50	mg/L	2.49	2.49	6.90	----	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	B	0.0015	mg/L	<0.0150 ^{DLM HTDC}	<0.0150 ^{DLM HTDC}	<0.0015	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	B	0.0016	mg/L	<0.0160	<0.0160	<0.0016	----	----
Ion Balance										
Anion sum	----	EC101/SK	0.10	meq/L	2.61	3.14	0.20	----	----	----
Cation sum	----	EC101/SK	0.10	meq/L	2.21	2.22	0.24	----	----	----
Ion balance (APHA)	----	EC101/SK	0.01	%	-8.30	-17.2 ^{IB:INT}	9.09	----	----	----
Ion balance (cations/anions)	----	EC101/SK	0.010	%	84.7	70.7 ^{IB:INT}	120	----	----	----



Analytical Results

Sub-Matrix: Leachate

Client sample ID

(Matrix: Water)

					High RN Blend	High RN Blend-Dup	SL-Blank	----	----
Client sampling date / time					06-Jun-2024 00:00	06-Jun-2024 00:00	06-Jun-2024 00:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	SK2402701-001	SK2402701-002	SK2402701-003	-----	-----
					Result	Result	Result	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/SK	0.0030	mg/L	1.61	21.0	0.0825	----	----
Antimony, total	7440-36-0	E420/SK	0.00010	mg/L	0.00069	<0.00200 ^{DLDS}	<0.00010	----	----
Arsenic, total	7440-38-2	E420/SK	0.00010	mg/L	0.0115	0.0301	0.00010	----	----
Barium, total	7440-39-3	E420/SK	0.00010	mg/L	0.290	2.83	0.0100	----	----
Beryllium, total	7440-41-7	E420/SK	0.000020	mg/L	0.00117	0.0114	<0.000020	----	----
Bismuth, total	7440-69-9	E420/SK	0.000050	mg/L	<0.000250 ^{DLDS}	0.00131	<0.000050	----	----
Boron, total	7440-42-8	E420/SK	0.010	mg/L	<0.050 ^{DLDS}	<0.200 ^{DLDS}	<0.010	----	----
Cadmium, total	7440-43-9	E420/SK	0.0000050	mg/L	0.000219	0.00222	<0.0000050	----	----
Calcium, total	7440-70-2	E420/SK	0.050	mg/L	65.8	492	3.15	----	----
Cesium, total	7440-46-2	E420/SK	0.000010	mg/L	0.000857	0.0104	<0.000010	----	----
Chromium, total	7440-47-3	E420/SK	0.00050	mg/L	0.173	2.17	<0.00050	----	----
Cobalt, total	7440-48-4	E420/SK	0.00010	mg/L	0.0269	0.256	<0.00010	----	----
Copper, total	7440-50-8	E420/SK	0.00050	mg/L	0.179	1.68	0.00096	----	----
Iron, total	7439-89-6	E420/SK	0.010	mg/L	108	1080	0.058	----	----
Lead, total	7439-92-1	E420/SK	0.000050	mg/L	0.00716	0.0713	<0.000050	----	----
Lithium, total	7439-93-2	E420/SK	0.0010	mg/L	0.0083	0.0464	<0.0010	----	----
Magnesium, total	7439-95-4	E420/SK	0.0050	mg/L	30.7	303	0.974	----	----
Manganese, total	7439-96-5	E420/SK	0.00010	mg/L	27.9	268	0.00208	----	----
Mercury, total	7439-97-6	E508/SK	0.0000050	mg/L	0.0000180	0.0000174	<0.0000050	----	----
Molybdenum, total	7439-98-7	E420/SK	0.000050	mg/L	0.0192	0.0206	0.000094	----	----
Nickel, total	7440-02-0	E420/SK	0.00050	mg/L	0.0758	0.846	0.00059	----	----
Phosphorus, total	7723-14-0	E420/SK	0.050	mg/L	0.660	3.35	<0.050	----	----
Potassium, total	7440-09-7	E420/SK	0.050	mg/L	9.26	18.2	2.08	----	----
Rubidium, total	7440-17-7	E420/SK	0.00020	mg/L	0.0103	0.0664	0.00227	----	----
Selenium, total	7782-49-2	E420/SK	0.000050	mg/L	0.000368	<0.00100 ^{DLDS}	<0.000050	----	----
Silicon, total	7440-21-3	E420/SK	0.10	mg/L	11.1	73.6	1.30	----	----
Silver, total	7440-22-4	E420/SK	0.000010	mg/L	0.000186	0.00142	<0.000010	----	----
Sodium, total	7440-23-5	E420/SK	0.050	mg/L	16.7	18.0	0.815	----	----
Strontium, total	7440-24-6	E420/SK	0.00020	mg/L	0.0923	0.597	0.0239	----	----
Sulfur, total	7704-34-9	E420/SK	0.50	mg/L	18.6	18.0	<0.50	----	----



Analytical Results

Sub-Matrix: Leachate

Client sample ID

(Matrix: Water)

					High RN Blend	High RN Blend-Dup	SL-Blank	----	----
Client sampling date / time					06-Jun-2024 00:00	06-Jun-2024 00:00	06-Jun-2024 00:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	SK2402701-001	SK2402701-002	SK2402701-003	-----	-----
					Result	Result	Result	----	----
Total Metals									
Tellurium, total	13494-80-9	E420/SK	0.00020	mg/L	<0.00100 ^{DLDS}	<0.00400 ^{DLDS}	<0.00020	----	----
Thallium, total	7440-28-0	E420/SK	0.000010	mg/L	0.000092	0.000951	<0.000010	----	----
Thorium, total	7440-29-1	E420/SK	0.00010	mg/L	0.00109	0.00752	<0.00010	----	----
Tin, total	7440-31-5	E420/SK	0.00010	mg/L	0.0109	0.0345	<0.00010	----	----
Titanium, total	7440-32-6	E420/SK	0.00030	mg/L	0.0423	0.398	0.00072	----	----
Tungsten, total	7440-33-7	E420/SK	0.00010	mg/L	<0.00050 ^{DLDS}	<0.00200 ^{DLDS}	<0.00010	----	----
Uranium, total	7440-61-1	E420/SK	0.000010	mg/L	0.000765	0.00539	0.000031	----	----
Vanadium, total	7440-62-2	E420/SK	0.00050	mg/L	0.0206	0.336	<0.00050	----	----
Zinc, total	7440-66-6	E420/SK	0.0030	mg/L	0.0888	0.902	0.0089	----	----
Zirconium, total	7440-67-7	E420/SK	0.00020	mg/L	0.00130	0.00975	<0.00020	----	----
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421/SK	0.0010	mg/L	0.0050	0.0049	0.0742	----	----
Antimony, dissolved	7440-36-0	E421/SK	0.00010	mg/L	0.00015	0.00015	<0.00010	----	----
Arsenic, dissolved	7440-38-2	E421/SK	0.00010	mg/L	0.00036	0.00033	<0.00010	----	----
Barium, dissolved	7440-39-3	E421/SK	0.00010	mg/L	0.00347	0.00328	0.00726	----	----
Beryllium, dissolved	7440-41-7	E421/SK	0.000020	mg/L	<0.000020	<0.000020	<0.000020	----	----
Bismuth, dissolved	7440-69-9	E421/SK	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----
Boron, dissolved	7440-42-8	E421/SK	0.010	mg/L	<0.010	<0.010	<0.010	----	----
Cadmium, dissolved	7440-43-9	E421/SK	0.0000050	mg/L	0.0000055	0.0000056	<0.0000050	----	----
Calcium, dissolved	7440-70-2	E421/SK	0.050	mg/L	18.0	18.1	2.41	----	----
Cesium, dissolved	7440-46-2	E421/SK	0.000010	mg/L	0.000018	0.000020	<0.000010	----	----
Chromium, dissolved	7440-47-3	E421/SK	0.00050	mg/L	0.00139	0.00142	<0.00050	----	----
Cobalt, dissolved	7440-48-4	E421/SK	0.00010	mg/L	0.00035	0.00035	<0.00010	----	----
Copper, dissolved	7440-50-8	E421/SK	0.00020	mg/L	0.00696	0.00692	0.00073	----	----
Iron, dissolved	7439-89-6	E421/SK	0.010	mg/L	0.106	0.114	0.047	----	----
Lead, dissolved	7439-92-1	E421/SK	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----
Lithium, dissolved	7439-93-2	E421/SK	0.0010	mg/L	0.0042	0.0042	<0.0010	----	----
Magnesium, dissolved	7439-95-4	E421/SK	0.0050	mg/L	5.29	5.27	0.805	----	----
Manganese, dissolved	7439-96-5	E421/SK	0.00010	mg/L	0.0532	0.0525	0.00047	----	----
Mercury, dissolved	7439-97-6	E509/SK	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	----	----

A



Analytical Results

Sub-Matrix: Leachate (Matrix: Water)					Client sample ID	High RN Blend	High RN Blend-Dup	SL-Blank	----	----
Client sampling date / time						06-Jun-2024 00:00	06-Jun-2024 00:00	06-Jun-2024 00:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	SK2402701-001	SK2402701-002	SK2402701-003	-----	-----	
					Result	Result	Result	----	----	
Dissolved Metals										
Molybdenum, dissolved	7439-98-7	E421/SK	0.000050	mg/L	0.0281	0.0286	0.000077	----	----	
Nickel, dissolved	7440-02-0	E421/SK	0.00050	mg/L	0.00227	0.00230	<0.00050	----	----	
Phosphorus, dissolved	7723-14-0	E421/SK	0.050	mg/L	<0.050	<0.050	<0.050	----	----	
Potassium, dissolved	7440-09-7	E421/SK	0.050	mg/L	8.12	8.30	0.804	----	----	
Rubidium, dissolved	7440-17-7	E421/SK	0.00020	mg/L	0.00564	0.00554	0.00154	----	----	
Selenium, dissolved	7782-49-2	E421/SK	0.000050	mg/L	0.000342	0.000390	<0.000050	----	----	
Silicon, dissolved	7440-21-3	E421/SK	0.050	mg/L	3.49	3.55	1.18	----	----	
Silver, dissolved	7440-22-4	E421/SK	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Sodium, dissolved	7440-23-5	E421/SK	0.050	mg/L	15.1	15.1	0.628	----	----	
Strontium, dissolved	7440-24-6	E421/SK	0.00020	mg/L	0.0370	0.0385	0.00945	----	----	
Sulfur, dissolved	7704-34-9	E421/SK	0.50	mg/L	20.4	20.4	<0.50	----	----	
Tellurium, dissolved	13494-80-9	E421/SK	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----	
Thallium, dissolved	7440-28-0	E421/SK	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Thorium, dissolved	7440-29-1	E421/SK	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Tin, dissolved	7440-31-5	E421/SK	0.00010	mg/L	0.00089	0.00093	<0.00010	----	----	
Titanium, dissolved	7440-32-6	E421/SK	0.00030	mg/L	<0.00030	<0.00030	0.00044	----	----	
Tungsten, dissolved	7440-33-7	E421/SK	0.00010	mg/L	0.00013	0.00013	<0.00010	----	----	
Uranium, dissolved	7440-61-1	E421/SK	0.000010	mg/L	0.000227	0.000223	0.000035	----	----	
Vanadium, dissolved	7440-62-2	E421/SK	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Zinc, dissolved	7440-66-6	E421/SK	0.0010	mg/L	<0.0010	<0.0010	0.0020	----	----	
Zirconium, dissolved	7440-67-7	E421/SK	0.00030	mg/L	<0.00030	<0.00030	<0.00030	----	----	
Dissolved mercury filtration location	----	EP509/SK	-	-	Field	Field	Field	----	----	
Dissolved metals filtration location	----	EP421/SK	-	-	Field	Field	Field	----	----	

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

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: SK2402701	Page	: 1 of 13
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Saskatoon
Contact	: Katherine Raymond	Account Manager	: Brian Morgan
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 819 58 Street East Saskatoon, Saskatchewan Canada S7K 6X5
Telephone	: ----	Telephone	: 1 306 221 7147
Project	: 923-224	Date Samples Received	: 07-Jun-2024 12:30
PO	: ----	Issue Date	: 14-Jun-2024 15:54
C-O-C number	: ----		
Sampler	: client		
Site	: ----		
Quote number	: 2024 Water Analysis Quote		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

Key

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

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) High RN Blend	E298	06-Jun-2024	12-Jun-2024	28 days	6 days	✓	12-Jun-2024	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) High RN Blend-Dup	E298	06-Jun-2024	12-Jun-2024	28 days	6 days	✓	12-Jun-2024	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SL-Blank	E298	06-Jun-2024	12-Jun-2024	28 days	6 days	✓	12-Jun-2024	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE High RN Blend	E235.Cl	06-Jun-2024	08-Jun-2024	28 days	3 days	✓	08-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE High RN Blend-Dup	E235.Cl	06-Jun-2024	08-Jun-2024	28 days	3 days	✓	08-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SL-Blank	E235.Cl	06-Jun-2024	08-Jun-2024	28 days	3 days	✓	08-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE High RN Blend	E235.F	06-Jun-2024	08-Jun-2024	28 days	3 days	✓	08-Jun-2024	28 days	3 days	✓



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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE High RN Blend-Dup	E235.F	06-Jun-2024	08-Jun-2024	28 days	3 days	✓	08-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SL-Blank	E235.F	06-Jun-2024	08-Jun-2024	28 days	3 days	✓	08-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE High RN Blend	E235.NO3	06-Jun-2024	08-Jun-2024	3 days	3 days	✓	08-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE High RN Blend-Dup	E235.NO3	06-Jun-2024	08-Jun-2024	3 days	3 days	✓	08-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE SL-Blank	E235.NO3	06-Jun-2024	08-Jun-2024	3 days	3 days	✓	08-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE High RN Blend	E235.NO2	06-Jun-2024	08-Jun-2024	3 days	3 days	✓	08-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE High RN Blend-Dup	E235.NO2	06-Jun-2024	08-Jun-2024	3 days	3 days	✓	08-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE SL-Blank	E235.NO2	06-Jun-2024	08-Jun-2024	3 days	3 days	✓	08-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE High RN Blend	E235.SO4	06-Jun-2024	08-Jun-2024	28 days	3 days	✓	08-Jun-2024	28 days	3 days	✓



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE High RN Blend-Dup	E235.SO4	06-Jun-2024	08-Jun-2024	28 days	3 days	✓	08-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SL-Blank	E235.SO4	06-Jun-2024	08-Jun-2024	28 days	3 days	✓	08-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) High RN Blend	E318	06-Jun-2024	11-Jun-2024	28 days	5 days	✓	12-Jun-2024	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) High RN Blend-Dup	E318	06-Jun-2024	11-Jun-2024	28 days	5 days	✓	12-Jun-2024	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) SL-Blank	E318	06-Jun-2024	11-Jun-2024	28 days	5 days	✓	12-Jun-2024	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) High RN Blend	E372-U	06-Jun-2024	11-Jun-2024	28 days	5 days	✓	13-Jun-2024	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) High RN Blend-Dup	E372-U	06-Jun-2024	11-Jun-2024	28 days	5 days	✓	13-Jun-2024	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SL-Blank	E372-U	06-Jun-2024	11-Jun-2024	28 days	5 days	✓	13-Jun-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) High RN Blend	E509	06-Jun-2024	13-Jun-2024	28 days	8 days	✓	13-Jun-2024	28 days	8 days	✓



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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) High RN Blend-Dup	E509	06-Jun-2024	13-Jun-2024	28 days	8 days	✓	13-Jun-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) SL-Blank	E509	06-Jun-2024	14-Jun-2024	28 days	8 days	✓	14-Jun-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) High RN Blend	E421	06-Jun-2024	13-Jun-2024	180 days	7 days	✓	13-Jun-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) High RN Blend-Dup	E421	06-Jun-2024	13-Jun-2024	180 days	7 days	✓	13-Jun-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) SL-Blank	E421	06-Jun-2024	13-Jun-2024	180 days	7 days	✓	13-Jun-2024	180 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) High RN Blend	E355-L	06-Jun-2024	11-Jun-2024	28 days	6 days	✓	13-Jun-2024	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) High RN Blend-Dup	E355-L	06-Jun-2024	11-Jun-2024	28 days	6 days	✓	13-Jun-2024	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) SL-Blank	E355-L	06-Jun-2024	11-Jun-2024	28 days	6 days	✓	13-Jun-2024	28 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE High RN Blend	E290	06-Jun-2024	07-Jun-2024	14 days	2 days	✓	07-Jun-2024	14 days	2 days	✓



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

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE High RN Blend-Dup	E290	06-Jun-2024	07-Jun-2024	14 days	2 days	✓	07-Jun-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SL-Blank	E290	06-Jun-2024	07-Jun-2024	14 days	2 days	✓	07-Jun-2024	14 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE High RN Blend	E100	06-Jun-2024	07-Jun-2024	28 days	2 days	✓	07-Jun-2024	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE High RN Blend-Dup	E100	06-Jun-2024	07-Jun-2024	28 days	2 days	✓	07-Jun-2024	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE SL-Blank	E100	06-Jun-2024	07-Jun-2024	28 days	2 days	✓	07-Jun-2024	28 days	2 days	✓
Physical Tests : pH by Meter										
HDPE High RN Blend	E108	06-Jun-2024	07-Jun-2024	0.25 hrs	39 hrs	✖ EHTR-FM	07-Jun-2024	0.25 hrs	39 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE High RN Blend-Dup	E108	06-Jun-2024	07-Jun-2024	0.25 hrs	39 hrs	✖ EHTR-FM	07-Jun-2024	0.25 hrs	39 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE SL-Blank	E108	06-Jun-2024	07-Jun-2024	0.25 hrs	39 hrs	✖ EHTR-FM	07-Jun-2024	0.25 hrs	39 hrs	✖ EHTR-FM
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) High RN Blend	E508	06-Jun-2024	14-Jun-2024	28 days	8 days	✓	14-Jun-2024	28 days	8 days	✓



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

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) High RN Blend-Dup	E508	06-Jun-2024	14-Jun-2024	28 days	8 days	✓	14-Jun-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) SL-Blank	E508	06-Jun-2024	14-Jun-2024	28 days	8 days	✓	14-Jun-2024	28 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) High RN Blend	E420	06-Jun-2024	12-Jun-2024	180 days	6 days	✓	12-Jun-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) High RN Blend-Dup	E420	06-Jun-2024	12-Jun-2024	180 days	6 days	✓	12-Jun-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) SL-Blank	E420	06-Jun-2024	12-Jun-2024	180 days	6 days	✓	12-Jun-2024	180 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) High RN Blend	E395	06-Jun-2024	----	----	----		12-Jun-2024	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) High RN Blend-Dup	E395	06-Jun-2024	----	----	----		12-Jun-2024	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) SL-Blank	E395	06-Jun-2024	----	----	----		12-Jun-2024	7 days	7 days	✓

Legend & Qualifier Definitions

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



Quality Control Parameter Frequency Compliance

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

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1482164	1	20	5.0	5.0	✔
Ammonia by Fluorescence	E298	1489482	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	1483528	1	19	5.2	5.0	✔
Conductivity in Water	E100	1482163	1	20	5.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1490626	2	23	8.7	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1485138	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	1483525	1	19	5.2	5.0	✔
Nitrate in Water by IC	E235.NO3	1483529	1	20	5.0	5.0	✔
Nitrite in Water by IC	E235.NO2	1483526	1	20	5.0	5.0	✔
pH by Meter	E108	1482162	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1483527	1	19	5.2	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1485745	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1493974	1	6	16.6	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1485621	1	20	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1488469	1	18	5.5	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1487099	1	6	16.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395	1490062	1	18	5.5	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1482164	1	20	5.0	5.0	✔
Ammonia by Fluorescence	E298	1489482	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	1483528	1	19	5.2	5.0	✔
Conductivity in Water	E100	1482163	1	20	5.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1490626	2	23	8.7	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1485138	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	1483525	1	19	5.2	5.0	✔
Nitrate in Water by IC	E235.NO3	1483529	1	20	5.0	5.0	✔
Nitrite in Water by IC	E235.NO2	1483526	1	20	5.0	5.0	✔
pH by Meter	E108	1482162	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1483527	1	19	5.2	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1485745	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1493974	1	6	16.6	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1485621	1	20	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1488469	1	18	5.5	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1487099	1	6	16.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395	1490062	1	18	5.5	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1482164	1	20	5.0	5.0	✔
Ammonia by Fluorescence	E298	1489482	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	1483528	1	19	5.2	5.0	✔
Conductivity in Water	E100	1482163	1	20	5.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1490626	2	23	8.7	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1485138	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	1483525	1	19	5.2	5.0	✔
Nitrate in Water by IC	E235.NO3	1483529	1	20	5.0	5.0	✔
Nitrite in Water by IC	E235.NO2	1483526	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1483527	1	19	5.2	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1485745	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1493974	1	6	16.6	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1485621	1	20	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1488469	1	18	5.5	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1487099	1	6	16.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395	1490062	1	18	5.5	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1489482	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	1483528	1	19	5.2	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1490626	2	23	8.7	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1485138	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	1483525	1	19	5.2	5.0	✔
Nitrate in Water by IC	E235.NO3	1483529	1	20	5.0	5.0	✔
Nitrite in Water by IC	E235.NO2	1483526	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1483527	1	19	5.2	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1485745	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1493974	1	6	16.6	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1485621	1	20	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1488469	1	18	5.5	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1487099	1	6	16.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395	1490062	1	18	5.5	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Saskatoon	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Saskatoon	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^{\circ}\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Chloride in Water by IC	E235.Cl ALS Environmental - Saskatoon	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Saskatoon	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Saskatoon	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Saskatoon	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Saskatoon	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Saskatoon	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Calgary	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Calgary	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Calgary	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Calgary	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the total sulfide concentration in the sample. The H ₂ S calculation converts Total Sulphide as (S ₂ ⁻) and reports it as Total Sulphide as (H ₂ S)
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Saskatoon	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Saskatoon	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Saskatoon	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Saskatoon	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Saskatoon	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Ion Balance using Dissolved Metals	EC101 ALS Environmental - Saskatoon	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
TDS in Water (Calculation)	EC103 ALS Environmental - Saskatoon	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Saskatoon	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Calgary	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Calgary	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Calgary	Water		Preparation for Total Organic Carbon by Combustion
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Calgary	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Saskatoon	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO ₃ .
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Saskatoon	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: SK2402701	Page	: 1 of 17
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Saskatoon
Contact	: Katherine Raymond	Account Manager	: Brian Morgan
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 819 58 Street East Saskatoon, Saskatchewan Canada S7K 6X5
Telephone	: ----	Telephone	: 1 306 221 7147
Project	: 923-224	Date Samples Received	: 07-Jun-2024 12:30
PO	: ----	Date Analysis Commenced	: 07-Jun-2024
C-O-C number	: ----	Issue Date	: 14-Jun-2024 15:56
Sampler	: client		
Site	: ----		
Quote number	: 2024 Water Analysis Quote		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	Position	Laboratory Department
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Milad Khani	Laboratory Analyst	Saskatoon Inorganics, Saskatoon, Saskatchewan
Milad Khani	Laboratory Analyst	Saskatoon Metals, Saskatoon, Saskatchewan
Ruth Islas	Laboratory Assistant	Saskatoon Metals, Saskatoon, Saskatchewan



General Comments

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

Key :

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

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

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

Workorder Comments

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



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1482162)											
SK2402694-005	Anonymous	pH	----	E108	0.10	pH units	7.41	7.37	0.541%	3%	----
Physical Tests (QC Lot: 1482163)											
SK2402694-005	Anonymous	Conductivity	----	E100	2.0	µS/cm	3740	3580	4.37%	10%	----
Physical Tests (QC Lot: 1482164)											
SK2402694-005	Anonymous	Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	2150	2510	15.3%	20%	----
Anions and Nutrients (QC Lot: 1483525)											
SK2402701-001	High RN Blend	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.272	0.274	0.542%	20%	----
Anions and Nutrients (QC Lot: 1483526)											
SK2402701-001	High RN Blend	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	0.020	0.020	0.0003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1483527)											
SK2402701-001	High RN Blend	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	53.1	53.3	0.318%	20%	----
Anions and Nutrients (QC Lot: 1483528)											
SK2402701-001	High RN Blend	Chloride	16887-00-6	E235.Cl	0.50	mg/L	7.75	7.75	0.0358%	20%	----
Anions and Nutrients (QC Lot: 1483529)											
SK2402701-001	High RN Blend	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.033	0.033	0.0004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1485745)											
CG2407756-002	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1487099)											
SK2402686-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0200	mg/L	0.914	0.899	1.68%	20%	----
Anions and Nutrients (QC Lot: 1489482)											
RG2400868-004	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0738	0.0730	1.09%	20%	----
Organic / Inorganic Carbon (QC Lot: 1488469)											
CG2407736-013	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	7.52	7.34	2.47%	20%	----
Total Sulfides (QC Lot: 1490062)											
CG2407552-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1485621)											
SK2402694-002	Anonymous	Aluminum, total	7429-90-5	E420	0.0060	mg/L	1.51	1.82	18.9%	20%	----
		Antimony, total	7440-36-0	E420	0.00020	mg/L	0.00026	0.00026	0.000003	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00020	mg/L	0.00219	0.00226	2.99%	20%	----
		Barium, total	7440-39-3	E420	0.00020	mg/L	0.0584	0.0624	6.61%	20%	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 1485621) - continued											
SK2402694-002	Anonymous	Beryllium, total	7440-41-7	E420	0.000040	mg/L	0.000050	0.000056	0.000006	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.020	mg/L	0.405	0.401	0.810%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000100	mg/L	0.0000938	0.000107	12.8%	20%	----
		Calcium, total	7440-70-2	E420	0.100	mg/L	231	231	0.117%	20%	----
		Cesium, total	7440-46-2	E420	0.000020	mg/L	0.000229	0.000279	19.6%	20%	----
		Chromium, total	7440-47-3	E420	0.00100	mg/L	0.00362	0.00441	0.00079	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00020	mg/L	0.00153	0.00155	0.00002	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00100	mg/L	0.00395	0.00404	0.00010	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.020	mg/L	2.97	3.32	11.1%	20%	----
		Lead, total	7439-92-1	E420	0.000100	mg/L	0.00156	0.00162	3.96%	20%	----
		Lithium, total	7439-93-2	E420	0.0020	mg/L	0.171	0.168	1.78%	20%	----
		Magnesium, total	7439-95-4	E420	0.0100	mg/L	213	203	4.82%	20%	----
		Manganese, total	7439-96-5	E420	0.00020	mg/L	0.136	0.129	4.76%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000100	mg/L	0.0202	0.0199	1.51%	20%	----
		Nickel, total	7440-02-0	E420	0.00100	mg/L	0.00608	0.00610	0.00002	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.100	mg/L	0.100	<0.100	0.00010	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.100	mg/L	10.8	10.6	2.11%	20%	----
		Rubidium, total	7440-17-7	E420	0.00040	mg/L	0.00357	0.00405	0.00047	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000100	mg/L	0.0103	0.0101	1.62%	20%	----
		Silicon, total	7440-21-3	E420	0.20	mg/L	16.6	18.7	11.6%	20%	----
		Silver, total	7440-22-4	E420	0.000020	mg/L	<0.000020	0.000022	0.000002	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.100	mg/L	180	176	2.56%	20%	----
		Strontium, total	7440-24-6	E420	0.00040	mg/L	1.43	1.45	1.61%	20%	----
		Sulfur, total	7704-34-9	E420	1.00	mg/L	503	501	0.383%	20%	----
		Tellurium, total	13494-80-9	E420	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000020	mg/L	0.000045	0.000053	0.000008	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00020	mg/L	0.00086	0.00091	0.00004	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00020	mg/L	0.0139	0.0142	1.62%	20%	----
		Titanium, total	7440-32-6	E420	0.00060	mg/L	0.0575	0.0626	8.52%	20%	----
		Tungsten, total	7440-33-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000020	mg/L	0.0109	0.0113	3.87%	20%	----
		Vanadium, total	7440-62-2	E420	0.00100	mg/L	0.00669	0.00802	0.00134	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0060	mg/L	0.0132	0.0135	0.0003	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 1485621) - continued											
SK2402694-002	Anonymous	Zirconium, total	7440-67-7	E420	0.00040	mg/L	0.00162	0.00208	0.00046	Diff <2x LOR	----
Total Metals (QC Lot: 1493974)											
SK2402696-004	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000204	0.0000229	0.0000026	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1485138)											
SK2402689-004	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0200	mg/L	0.0263	0.0290	0.0027	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00200	mg/L	0.00380	0.00360	0.00021	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00200	mg/L	0.0150	0.0142	0.00081	Diff <2x LOR	----
		Beryllium, dissolved	7440-41-7	E421	0.000400	mg/L	<0.000400	<0.000400	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.200	mg/L	0.531	0.518	0.013	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.000100	mg/L	0.000185	0.000240	0.0000548	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	1.00	mg/L	390	394	0.815%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00200	mg/L	0.00363	0.00332	0.00031	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00400	mg/L	0.00573	0.00530	0.00043	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.200	mg/L	<0.200	<0.200	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0200	mg/L	2.65	2.78	4.79%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	1030	1030	0.202%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00200	mg/L	4.72	4.68	0.816%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.00100	mg/L	0.0105	0.0104	0.0918%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.0100	mg/L	0.0385	0.0400	0.00145	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	1.00	mg/L	39.1	38.3	2.21%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00400	mg/L	0.0131	0.0129	0.00020	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.00100	mg/L	0.00128	0.00122	0.000063	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	1.00	mg/L	10.6	10.7	1.43%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	1.00	mg/L	4050	4050	0.0920%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00400	mg/L	9.59	9.27	3.44%	20%	----
		Sulfur, dissolved	7704-34-9	E421	10.0	mg/L	4070	4110	0.820%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00400	mg/L	<0.00400	<0.00400	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 1485138) - continued											
SK2402689-004	Anonymous	Thallium, dissolved	7440-28-0	E421	0.000200	mg/L	0.000261	0.000304	0.000043	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00600	mg/L	<0.00600	<0.00600	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000200	mg/L	0.167	0.172	2.83%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0200	mg/L	<0.0200	<0.0200	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00400	mg/L	<0.00400	<0.00400	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1490626)											
SK2402685-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1493940)											
SK2402701-003	SL-Blank	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----



Method Blank (MB) Report

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

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1482163)						
Conductivity	----	E100	1	µS/cm	1.6	----
Physical Tests (QCLot: 1482164)						
Alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 1483525)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1483526)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1483527)						
Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1483528)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1483529)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1485745)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1487099)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1489482)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1488469)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1490062)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1485621)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1485621) - continued						
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1493974)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1485138)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1485138) - continued						
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1485138) - continued						
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1490626)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1493940)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----



Laboratory Control Sample (LCS) Report

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

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1482162)									
pH	----	E108	----	pH units	7 pH units	100	98.6	101	----
Physical Tests (QCLot: 1482163)									
Conductivity	----	E100	1	µS/cm	1000 µS/cm	97.4	90.0	110	----
Physical Tests (QCLot: 1482164)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	98.1	85.0	115	----
Anions and Nutrients (QCLot: 1483525)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1483526)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1483527)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1483528)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1483529)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1485745)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1487099)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.03 mg/L	108	80.0	120	----
Anions and Nutrients (QCLot: 1489482)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	95.4	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1488469)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	97.3	80.0	120	----
Total Sulfides (QCLot: 1490062)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	100	80.0	120	----
Total Metals (QCLot: 1485621)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	108	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	108	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1485621) - continued									
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	108	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	99.8	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	106	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	104	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	109	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	106	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	110	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	103	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	104	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	108	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	107	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	108	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	109	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	108	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	112	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	110	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	98.2	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	110	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	105	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	103	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	106	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	108	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	99.9	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	94.1	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	108	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	103	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Target Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1485621) - continued									
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Total Metals (QCLot: 1493974)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	101	80.0	120	----
Dissolved Metals (QCLot: 1485138)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	110	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	108	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	108	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	103	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	101	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	98.3	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	104	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	108	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	103	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	106	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	108	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	111	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	105	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	105	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	103	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	108	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	108	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	107	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	112	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	108	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	98.6	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	105	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	103	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	108	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	102	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1485138) - continued									
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	106	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	107	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	100	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	107	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	109	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	95.3	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	101	80.0	120	----



Matrix Spike (MS) Report

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

Laboratory sample ID					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target	MS	Low	High	
Client sample ID	Analyte	CAS Number	Method							
Anions and Nutrients (QCLot: 1483525)										
SK2402701-001	High RN Blend	Fluoride	16984-48-8	E235.F	0.976 mg/L	1 mg/L	97.6	75.0	125	----
Anions and Nutrients (QCLot: 1483526)										
SK2402701-001	High RN Blend	Nitrite (as N)	14797-65-0	E235.NO2	0.502 mg/L	0.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1483527)										
SK2402701-001	High RN Blend	Sulfate (as SO4)	14808-79-8	E235.SO4	100 mg/L	100 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1483528)										
SK2402701-001	High RN Blend	Chloride	16887-00-6	E235.Cl	101 mg/L	100 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1483529)										
SK2402701-001	High RN Blend	Nitrate (as N)	14797-55-8	E235.NO3	2.52 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1485745)										
RG2400868-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.50 mg/L	2.5 mg/L	100	70.0	130	----
Anions and Nutrients (QCLot: 1487099)										
SK2402686-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1489482)										
RG2400868-005	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1488469)										
CG2407736-013	Anonymous	Carbon, total organic [TOC]	----	E355-L	ND mg/L	----	ND	70.0	130	----
Total Sulfides (QCLot: 1490062)										
CG2407552-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.232 mg/L	0.2 mg/L	116	75.0	125	----
Total Metals (QCLot: 1485621)										
SK2402694-003	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	----	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0219 mg/L	0.02 mg/L	109	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00925 mg/L	0.01 mg/L	92.5	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00423 mg/L	0.004 mg/L	106	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0103 mg/L	0.01 mg/L	103	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Copper, total	7440-50-8	E420	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1485621) - continued										
SK2402694-003	Anonymous	Iron, total	7439-89-6	E420	ND mg/L	----	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
		Lithium, total	7439-93-2	E420	ND mg/L	----	ND	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	ND mg/L	----	ND	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		Phosphorus, total	7723-14-0	E420	11.0 mg/L	10 mg/L	110	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0454 mg/L	0.04 mg/L	113	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.00414 mg/L	0.004 mg/L	103	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0405 mg/L	0.04 mg/L	101	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00369 mg/L	0.004 mg/L	92.3	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0228 mg/L	0.02 mg/L	114	70.0	130	----
		Tin, total	7440-31-5	E420	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Titanium, total	7440-32-6	E420	ND mg/L	----	ND	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		Uranium, total	7440-61-1	E420	ND mg/L	----	ND	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.108 mg/L	0.1 mg/L	108	70.0	130	----
		Zinc, total	7440-66-6	E420	0.394 mg/L	0.4 mg/L	98.6	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0410 mg/L	0.04 mg/L	102	70.0	130	----
Total Metals (QCLot: 1493974)										
SK2402701-003	SL-Blank	Mercury, total	7439-97-6	E508	0.000102 mg/L	0 mg/L	102	70.0	130	----
Dissolved Metals (QCLot: 1485138)										
SK2402689-005	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.190 mg/L	0.2 mg/L	94.8	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0227 mg/L	0.02 mg/L	114	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0211 mg/L	0.02 mg/L	106	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00935 mg/L	0.01 mg/L	93.5	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00421 mg/L	0.004 mg/L	105	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0111 mg/L	0.01 mg/L	111	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0429 mg/L	0.04 mg/L	107	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Iron, dissolved	7439-89-6	E421	2.11 mg/L	2 mg/L	105	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1485138) - continued										
SK2402689-005	Anonymous	Lead, dissolved	7439-92-1	E421	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	ND mg/L	----	ND	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	ND mg/L	----	ND	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0444 mg/L	0.04 mg/L	111	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.2 mg/L	10 mg/L	102	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	ND mg/L	----	ND	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0454 mg/L	0.04 mg/L	113	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	10.7 mg/L	10 mg/L	107	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00435 mg/L	0.004 mg/L	109	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0512 mg/L	0.04 mg/L	128	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0179 mg/L	0.02 mg/L	89.6	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0217 mg/L	0.02 mg/L	109	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0509 mg/L	0.04 mg/L	127	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	ND mg/L	----	ND	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.114 mg/L	0.1 mg/L	114	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.404 mg/L	0.4 mg/L	101	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	----
Dissolved Metals (QCLot: 1490626)										
SK2402685-004	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000981 mg/L	0 mg/L	98.1	70.0	130	----
Dissolved Metals (QCLot: 1493940)										
SK2402708-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000101 mg/L	0 mg/L	101	70.0	130	----

CERTIFICATE OF ANALYSIS

Work Order : **VA23B5989**
Client : **O'Kane Consultants Inc.**
Contact : Katherine Raymond
Address : 112 - 112 Research Drive
Saskatoon SK Canada S7N 3R3
Telephone : ----
Project : Water/supernatant portion - SFE from solids w/ ALS
Geochemistry
PO : 5497
C-O-C number : ----
Sampler : ----
Site : Atlantic Mine Rock Sample Program Analysis
Quote number : VA23-OKCI100-003
No. of samples received : 2
No. of samples analysed : 2

Page : 1 of 6
Laboratory : ALS Environmental - Vancouver
Account Manager : Tasnia Tarannum
Address : 8081 Lougheed Highway
Burnaby BC Canada V5A 1W9
Telephone : +1 604 253 4188
Date Samples Received : 13-Jul-2023 08:35
Date Analysis Commenced : 14-Jul-2023
Issue Date : 20-Jul-2023 17:37

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Anshim Anshim	Lab Assistant	Metals, Burnaby, British Columbia
Brieanna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia
Erin Sanchez		Metals, Burnaby, British Columbia
Kate Dimitrova	Analyst	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia
Sukhman Khosa	Lab Assistant	Metals, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

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

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

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

Sample Comments

Sample	Client Id	Comment
VA23B5989-001	Tail Year 01-05	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
VA23B5989-002	Eau Ville	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

Qualifiers

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.



Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	Tail Year 01-05	Eau Ville	----	----	----
Client sampling date / time					12-Jul-2023 00:00	12-Jul-2023 00:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B5989-001	VA23B5989-002	-----	-----	-----
					Result	Result	----	----	----
Physical Tests									
Conductivity	----	E100/VA	2.0	µS/cm	261	172	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	45.7	44.6	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	47.2	48.6	----	----	----
pH	----	E108/VA	0.10	pH units	9.36	7.55	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	188	100	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	18.1	<3.0	----	----	----
Turbidity	----	E121/VA	0.10	NTU	28.2	0.64	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	99.1	23.3	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.112	0.0071	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	<0.050	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	20.6	19.7	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.143	0.044	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/V A	0.0050	mg/L	0.148	0.122	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	0.0010	mg/L	0.0053	<0.0010	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L	8.86	0.219	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	0.0237	0.0400	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0604	0.0849	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	24.4	22.9	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	<0.50	3.07	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	30.1	2.75	----	----	----
Total Sulfides									
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L	<0.011	<0.011	----	----	----
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L	<0.010	<0.010	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0677	0.147	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	0.00019	----	----	----



Analytical Results

Sub-Matrix: Water					Client sample ID	Tail Year 01-05	Eau Ville	----	----	----
(Matrix: Water)										
					Client sampling date / time	12-Jul-2023 00:00	12-Jul-2023 00:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B5989-001	VA23B5989-002	-----	-----	-----	
					Result	Result	----	----	----	
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00030	0.00258	----	----	----	
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00972	0.0260	----	----	----	
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	----	----	----	
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	----	----	----	
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	<0.010	----	----	----	
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000110	0.0000100	----	----	----	
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	16.2	16.4	----	----	----	
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	<0.000010	0.000052	----	----	----	
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	0.00440	----	----	----	
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	0.00069	----	----	----	
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.0832	0.0240	----	----	----	
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.204	2.91	----	----	----	
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.00195	0.000212	----	----	----	
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	<0.0010	0.0018	----	----	----	
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	1.64	1.85	----	----	----	
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00840	0.418	----	----	----	
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	<0.0000050	----	----	----	
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.000292	0.00618	----	----	----	
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.00070	0.00223	----	----	----	
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	0.091	0.053	----	----	----	
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	0.846	1.87	----	----	----	
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00148	0.00259	----	----	----	
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	<0.000050	0.000171	----	----	----	
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	2.32	2.64	----	----	----	
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	0.000038	0.000082	----	----	----	
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	12.6	34.2	----	----	----	
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.0746	0.0604	----	----	----	
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	7.86	9.44	----	----	----	
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	<0.00020	----	----	----	
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	<0.000010	<0.000010	----	----	----	
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	<0.00010	----	----	----	



Analytical Results

Sub-Matrix: Water					Client sample ID	Tail Year 01-05	Eau Ville	----	----	----
(Matrix: Water)										
Client sampling date / time					12-Jul-2023 00:00	12-Jul-2023 00:00	----	----	----	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B5989-001	VA23B5989-002	-----	-----	-----	
					Result	Result	----	----	----	
Total Metals										
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	0.00049	----	----	----	
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	<0.00030	0.00195	----	----	----	
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	0.00019	----	----	----	
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.000010	0.000100	----	----	----	
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	<0.00050	0.00160	----	----	----	
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0187	0.0052	----	----	----	
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	<0.00020	----	----	----	
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0994 ^{DTC}	0.0376	----	----	----	
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	0.00010	<0.00010	----	----	----	
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00196 ^{DTC}	0.00024	----	----	----	
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00981	0.0103	----	----	----	
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L	<0.000100	<0.000100	----	----	----	
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L	<0.000050	<0.000050	----	----	----	
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L	<0.010	<0.010	----	----	----	
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000100 ^{DLM}	0.0000099	----	----	----	
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	15.2	14.9	----	----	----	
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	0.000052 ^{DTC}	<0.000010	----	----	----	
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	0.00056	<0.00050	----	----	----	
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	0.00014	<0.00010	----	----	----	
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	0.0225	0.0630 ^{DTC}	----	----	----	
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	0.195	0.077	----	----	----	
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L	<0.000050	0.000740 ^{DTC}	----	----	----	
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L	0.0018	<0.0010	----	----	----	
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	1.89	1.81	----	----	----	
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.0245 ^{DTC}	0.00568	----	----	----	
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L	<0.0000250 ^{DLM}	<0.0000050	----	----	----	
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L	0.00706 ^{DTC}	0.000301	----	----	----	
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	0.00103	0.00064	----	----	----	
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L	0.057	0.062	----	----	----	
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L	2.31 ^{DTC}	0.976	----	----	----	



Analytical Results

Sub-Matrix: Water					Client sample ID	Tail Year 01-05	Eau Ville	----	----	----
(Matrix: Water)										
					Client sampling date / time	12-Jul-2023 00:00	12-Jul-2023 00:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B5989-001	VA23B5989-002	-----	-----	-----	
					Result	Result	----	----	----	
Dissolved Metals										
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	0.00284 ^{DTC}	0.00153	----	----	----	
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	0.000201 ^{DTC}	<0.000050	----	----	----	
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	2.32	2.26	----	----	----	
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L	<0.000010	<0.000010	----	----	----	
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L	37.6 ^{DTC}	13.9	----	----	----	
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0594	0.0751	----	----	----	
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	8.28	8.20	----	----	----	
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L	<0.00020	<0.00020	----	----	----	
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	<0.000010	<0.000010	----	----	----	
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L	<0.00010	<0.00010	----	----	----	
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L	0.00045 ^{DTC}	<0.00010	----	----	----	
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L	<0.00030	<0.00030	----	----	----	
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L	0.00029 ^{DTC}	<0.00010	----	----	----	
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	0.000095 ^{DTC}	<0.000010	----	----	----	
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	0.00129 ^{DTC}	<0.00050	----	----	----	
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0010	0.0172 ^{DTC}	----	----	----	
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L	<0.00020	<0.00020	----	----	----	
Dissolved mercury filtration location	----	EP509/VA	-	-	Laboratory	Laboratory	----	----	----	
Dissolved metals filtration location	----	EP421/VA	-	-	Laboratory	Laboratory	----	----	----	

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

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA23B5989	Page	: 1 of 15
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Water/supernatant portion - SFE from solids w/ ALS Geochemistry	Date Samples Received	: 13-Jul-2023 08:35
PO	: 5497	Issue Date	: 20-Jul-2023 17:37
C-O-C number	: ----		
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKC1100-003		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Eau Ville	E298	12-Jul-2023	17-Jul-2023	28 days	6 days	✓	19-Jul-2023	22 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Tail Year 01-05	E298	12-Jul-2023	17-Jul-2023	28 days	6 days	✓	19-Jul-2023	22 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Eau Ville	E235.Br-L	12-Jul-2023	15-Jul-2023	28 days	3 days	✓	15-Jul-2023	25 days	0 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Tail Year 01-05	E235.Br-L	12-Jul-2023	15-Jul-2023	28 days	3 days	✓	15-Jul-2023	25 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Eau Ville	E235.Cl	12-Jul-2023	15-Jul-2023	28 days	3 days	✓	15-Jul-2023	25 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Tail Year 01-05	E235.Cl	12-Jul-2023	15-Jul-2023	28 days	3 days	✓	15-Jul-2023	25 days	0 days	✓



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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001)										
HDPE Eau Ville	E378-U	12-Jul-2023	15-Jul-2023	3 days	3 days	✓	15-Jul-2023	0 days	0 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001)										
HDPE Tail Year 01-05	E378-U	12-Jul-2023	15-Jul-2023	3 days	3 days	✓	15-Jul-2023	0 days	0 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Eau Ville	E235.F	12-Jul-2023	15-Jul-2023	28 days	3 days	✓	15-Jul-2023	25 days	0 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Tail Year 01-05	E235.F	12-Jul-2023	15-Jul-2023	28 days	3 days	✓	15-Jul-2023	25 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Eau Ville	E235.NO3-L	12-Jul-2023	15-Jul-2023	3 days	3 days	✓	15-Jul-2023	0 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Tail Year 01-05	E235.NO3-L	12-Jul-2023	15-Jul-2023	3 days	3 days	✓	15-Jul-2023	0 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Eau Ville	E235.NO2-L	12-Jul-2023	15-Jul-2023	3 days	3 days	✓	15-Jul-2023	0 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Tail Year 01-05	E235.NO2-L	12-Jul-2023	15-Jul-2023	3 days	3 days	✓	15-Jul-2023	0 days	0 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Eau Ville	E235.SO4	12-Jul-2023	15-Jul-2023	28 days	3 days	✓	15-Jul-2023	25 days	0 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE Tail Year 01-05	E235.SO4	12-Jul-2023	15-Jul-2023	28 days	3 days	✓	15-Jul-2023	25 days	0 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) Eau Ville	E366	12-Jul-2023	17-Jul-2023	28 days	6 days	✓	18-Jul-2023	22 days	1 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) Tail Year 01-05	E366	12-Jul-2023	17-Jul-2023	28 days	6 days	✓	18-Jul-2023	22 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) Eau Ville	E372-U	12-Jul-2023	17-Jul-2023	28 days	6 days	✓	19-Jul-2023	22 days	2 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) Tail Year 01-05	E372-U	12-Jul-2023	17-Jul-2023	28 days	6 days	✓	19-Jul-2023	22 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
HDPE - dissolved (lab preserved) Eau Ville	E509	12-Jul-2023	20-Jul-2023	0.10 hrs	0 hrs	✖ EHTR-FM	20-Jul-2023	-195.90 hrs	0.10 hrs	✖ UCP
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
HDPE - dissolved (lab preserved) Tail Year 01-05	E509	12-Jul-2023	20-Jul-2023	0.10 hrs	0 hrs	✖ EHTR-FM	20-Jul-2023	-195.90 hrs	0.10 hrs	✖ UCP
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Eau Ville	E421	12-Jul-2023	17-Jul-2023	180 days	6 days	✓	18-Jul-2023	174 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Tail Year 01-05	E421	12-Jul-2023	17-Jul-2023	180 days	6 days	✓	18-Jul-2023	174 days	1 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) Eau Ville	E358-L	12-Jul-2023	17-Jul-2023	28 days	6 days	✓	17-Jul-2023	22 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) Tail Year 01-05	E358-L	12-Jul-2023	17-Jul-2023	28 days	6 days	✓	17-Jul-2023	22 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) Eau Ville	E355-L	12-Jul-2023	17-Jul-2023	28 days	6 days	✓	17-Jul-2023	22 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) Tail Year 01-05	E355-L	12-Jul-2023	17-Jul-2023	28 days	6 days	✓	17-Jul-2023	22 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Eau Ville	E290	12-Jul-2023	15-Jul-2023	14 days	3 days	✓	15-Jul-2023	11 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Tail Year 01-05	E290	12-Jul-2023	15-Jul-2023	14 days	3 days	✓	15-Jul-2023	11 days	0 days	✓
Physical Tests : Conductivity in Water										
HDPE Eau Ville	E100	12-Jul-2023	15-Jul-2023	28 days	3 days	✓	15-Jul-2023	25 days	0 days	✓
Physical Tests : Conductivity in Water										
HDPE Tail Year 01-05	E100	12-Jul-2023	15-Jul-2023	28 days	3 days	✓	15-Jul-2023	25 days	0 days	✓
Physical Tests : pH by Meter										
HDPE Eau Ville	E108	12-Jul-2023	15-Jul-2023	7 hrs	0.25 hrs	✖ EHTR-FM	15-Jul-2023	-74.28 hrs	7 hrs	✖ UCP



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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE Tail Year 01-05	E108	12-Jul-2023	15-Jul-2023	7 hrs	0.25 hrs	✖ EHTR-FM	15-Jul-2023	-74.28 hrs	7 hrs	✖ UCP
Physical Tests : TDS by Gravimetry										
HDPE Eau Ville	E162	12-Jul-2023	----	----	----		18-Jul-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Tail Year 01-05	E162	12-Jul-2023	----	----	----		18-Jul-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Eau Ville	E160	12-Jul-2023	----	----	----		19-Jul-2023	7 days	8 days	✖ EHT
Physical Tests : TSS by Gravimetry										
HDPE Tail Year 01-05	E160	12-Jul-2023	----	----	----		19-Jul-2023	7 days	8 days	✖ EHT
Physical Tests : Turbidity by Nephelometry										
HDPE Eau Ville	E121	12-Jul-2023	----	----	----		14-Jul-2023	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE Tail Year 01-05	E121	12-Jul-2023	----	----	----		14-Jul-2023	3 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Tail Year 01-05	E508	12-Jul-2023	16-Jul-2023	28 days	5 days	✓	16-Jul-2023	23 days	0 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Eau Ville	E508	12-Jul-2023	19-Jul-2023	28 days	7 days	✓	19-Jul-2023	21 days	0 days	✓

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 Work Order : VA23B5989
 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) Eau Ville	E420	12-Jul-2023	15-Jul-2023	180 days	4 days	✓	17-Jul-2023	176 days	2 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) Tail Year 01-05	E420	12-Jul-2023	15-Jul-2023	180 days	4 days	✓	17-Jul-2023	176 days	2 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Eau Ville	E395-H	12-Jul-2023	----	----	----		14-Jul-2023	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Tail Year 01-05	E395-H	12-Jul-2023	----	----	----		14-Jul-2023	7 days	3 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.



Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1040114	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1042796	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1040110	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1040109	1	19	5.2	5.0	✓
Conductivity in Water	E100	1040115	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1047281	1	3	33.3	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1042427	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1042797	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1040117	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	1040107	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1040112	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1040111	1	19	5.2	5.0	✓
pH by Meter	E108	1040113	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1040108	1	19	5.2	5.0	✓
TDS by Gravimetry	E162	1045087	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1041270	2	40	5.0	5.0	✓
Total metals in Water by CRC ICPMS	E420	1039908	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1042794	1	19	5.2	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1042793	1	14	7.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1042795	1	19	5.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1039772	1	7	14.2	5.0	✓
TSS by Gravimetry	E160	1045089	1	12	8.3	5.0	✓
Turbidity by Nephelometry	E121	1039860	1	17	5.8	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1040114	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1042796	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1040110	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1040109	1	19	5.2	5.0	✓
Conductivity in Water	E100	1040115	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1047281	1	3	33.3	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1042427	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1042797	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1040117	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	1040107	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1040112	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1040111	1	19	5.2	5.0	✓



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
pH by Meter	E108	1040113	1	17	5.8	5.0	✔
Sulfate in Water by IC	E235.SO4	1040108	1	19	5.2	5.0	✔
TDS by Gravimetry	E162	1045087	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1041270	2	40	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	1039908	1	20	5.0	5.0	✔
Total Nitrogen by Colourimetry	E366	1042794	1	19	5.2	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1042793	1	14	7.1	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1042795	1	19	5.2	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1039772	1	7	14.2	5.0	✔
TSS by Gravimetry	E160	1045089	1	12	8.3	5.0	✔
Turbidity by Nephelometry	E121	1039860	1	17	5.8	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1040114	1	12	8.3	5.0	✔
Ammonia by Fluorescence	E298	1042796	1	19	5.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1040110	1	19	5.2	5.0	✔
Chloride in Water by IC	E235.Cl	1040109	1	19	5.2	5.0	✔
Conductivity in Water	E100	1040115	1	17	5.8	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1047281	1	3	33.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1042427	1	20	5.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1042797	1	15	6.6	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1040117	1	12	8.3	5.0	✔
Fluoride in Water by IC	E235.F	1040107	1	19	5.2	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1040112	1	19	5.2	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1040111	1	19	5.2	5.0	✔
Sulfate in Water by IC	E235.SO4	1040108	1	19	5.2	5.0	✔
TDS by Gravimetry	E162	1045087	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1041270	2	40	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	1039908	1	20	5.0	5.0	✔
Total Nitrogen by Colourimetry	E366	1042794	1	19	5.2	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1042793	1	14	7.1	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1042795	1	19	5.2	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1039772	1	7	14.2	5.0	✔
TSS by Gravimetry	E160	1045089	1	12	8.3	5.0	✔
Turbidity by Nephelometry	E121	1039860	1	17	5.8	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1042796	1	19	5.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1040110	1	19	5.2	5.0	✔
Chloride in Water by IC	E235.Cl	1040109	1	19	5.2	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1047281	1	3	33.3	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Matrix Spikes (MS) - Continued							
Dissolved Metals in Water by CRC ICPMS	E421	1042427	1	20	5.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1042797	1	15	6.6	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1040117	1	12	8.3	5.0	✔
Fluoride in Water by IC	E235.F	1040107	1	19	5.2	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1040112	1	19	5.2	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1040111	1	19	5.2	5.0	✔
Sulfate in Water by IC	E235.SO4	1040108	1	19	5.2	5.0	✔
Total Mercury in Water by CVAAS	E508	1041270	2	40	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	1039908	1	20	5.0	5.0	✔
Total Nitrogen by Colourimetry	E366	1042794	1	19	5.2	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1042793	1	14	7.1	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1042795	1	19	5.2	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1039772	1	7	14.2	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^\circ\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at $104 \pm 1^\circ\text{C}$, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^\circ\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Nitrogen by Colourimetry	E366 ALS Environmental - Vancouver	Water	APHA 4500-P J (mod)	Total Nitrogen is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the total sulfide concentration in the sample. The H ₂ S calculation converts Total Sulphide as (S ₂ -) and reports it as Total Sulphide as (H ₂ S)
Total metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO ₃), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion

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 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Nitrogen in water	EP366 ALS Environmental - Vancouver	Water	APHA 4500-P J (mod)	Samples are heated with a persulfate digestion reagent.
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO ₃ .
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: VA23B5989	Page	: 1 of 18
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: Water/supernatant portion - SFE from solids w/ ALS Geochemistry	Date Samples Received	: 13-Jul-2023 08:35
PO	: 5497	Date Analysis Commenced	: 14-Jul-2023
C-O-C number	: ----	Issue Date	: 20-Jul-2023 17:37
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKCI100-003		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Alex Thornton	Analyst	Vancouver Metals, Burnaby, British Columbia
Anshim Anshim	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Brieanna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia
Erin Sanchez		Vancouver Metals, Burnaby, British Columbia
Kate Dimitrova	Analyst	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Sukhman Khosa	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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Client : O'Kane Consultants Inc.
Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



General Comments

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

Key :

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

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

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

Workorder Comments

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



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1039860)											
FJ2301719-006	Anonymous	Turbidity	----	E121	0.10	NTU	0.28	0.25	0.03	Diff <2x LOR	----
Physical Tests (QC Lot: 1040113)											
KS2302504-003	Anonymous	pH	----	E108	0.10	pH units	7.96	7.98	0.251%	4%	----
Physical Tests (QC Lot: 1040114)											
KS2302504-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	1150	1170	2.09%	20%	----
Physical Tests (QC Lot: 1040115)											
KS2302504-003	Anonymous	Conductivity	----	E100	2.0	µS/cm	8650	8630	0.231%	10%	----
Physical Tests (QC Lot: 1045087)											
KS2302498-001	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	32	38	6	Diff <2x LOR	----
Physical Tests (QC Lot: 1045089)											
VA23B5989-001	Tail Year 01-05	Solids, total suspended [TSS]	----	E160	3.0	mg/L	18.1	18.7	0.6	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1040107)											
KS2302503-001	Anonymous	Fluoride	16984-48-8	E235.F	0.400	mg/L	<0.400	<0.400	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1040108)											
KS2302503-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	6.00	mg/L	2410	2400	0.565%	20%	----
Anions and Nutrients (QC Lot: 1040109)											
KS2302503-001	Anonymous	Chloride	16887-00-6	E235.Cl	10.0	mg/L	101	99.8	1.11%	20%	----
Anions and Nutrients (QC Lot: 1040110)											
KS2302503-001	Anonymous	Bromide	24959-67-9	E235.Br-L	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1040111)											
KS2302503-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0200	mg/L	<0.0200	<0.0200	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1040112)											
KS2302503-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1040117)											
KS2302504-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0430	0.0393	8.93%	20%	----
Anions and Nutrients (QC Lot: 1042794)											
VA23B5989-001	Tail Year 01-05	Nitrogen, total	7727-37-9	E366	0.300	mg/L	8.86	8.63	2.66%	20%	----
Anions and Nutrients (QC Lot: 1042795)											
VA23B5989-001	Tail Year 01-05	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0604	0.0598	0.981%	20%	----
Anions and Nutrients (QC Lot: 1042796)											



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Anions and Nutrients (QC Lot: 1042796) - continued											
VA23B5989-001	Tail Year 01-05	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.112	0.101	10.7%	20%	----
Organic / Inorganic Carbon (QC Lot: 1042793)											
VA23B5989-001	Tail Year 01-05	Carbon, total organic [TOC]	----	E355-L	2.50	mg/L	30.1	29.2	2.92%	20%	----
Organic / Inorganic Carbon (QC Lot: 1042797)											
VA23B5989-001	Tail Year 01-05	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Total Sulfides (QC Lot: 1039772)											
VA23B5989-001	Tail Year 01-05	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 1039908)											
FJ2301707-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0172	0.0164	0.0008	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00011	<0.00010	0.000009	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00124	0.00122	0.752%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.458	0.472	2.96%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.017	0.017	0.00009	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000328	0.0000352	0.0000024	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	81.4	81.2	0.272%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00103	0.00105	1.49%	20%	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.376	0.362	3.73%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0049	0.0048	0.00009	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	19.6	19.4	1.03%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.126	0.128	1.62%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00220	0.00227	3.12%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00240	0.00248	0.00009	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.05	1.05	0.215%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00047	0.00043	0.00003	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000077	0.000060	0.000017	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	5.38	5.38	0.125%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----

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 Work Order : VA23B5989
 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 1039908) - continued											
FJ2301707-001	Anonymous	Sodium, total	7440-23-5	E420	0.050	mg/L	1.54	1.56	1.20%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.189	0.195	3.12%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	6.90	6.65	3.77%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000011	<0.000010	0.0000008	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	0.00012	<0.00010	0.00002	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	0.00086	0.00056	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00100	0.00104	4.03%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1041270)											
KS2302506-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1045627)											
FJ2301705-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1042427)											
KS2302505-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0020	mg/L	0.0113	0.0117	0.0005	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00020	mg/L	0.00099	0.00099	0.000004	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00020	mg/L	0.00040	0.00045	0.00005	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00020	mg/L	0.0845	0.0848	0.280%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000040	mg/L	<0.000040	<0.000040	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.020	mg/L	0.111	0.113	0.002	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000100	mg/L	<0.0000100	<0.0000100	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.100	mg/L	18.2	18.2	0.345%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000020	mg/L	0.000141	0.000140	0.000001	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.020	mg/L	0.115	0.101	0.014	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0020	mg/L	0.0168	0.0169	0.00008	Diff <2x LOR	----

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 Work Order : VA23B5989
 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 1042427) - continued											
KS2302505-001	Anonymous	Magnesium, dissolved	7439-95-4	E421	0.0100	mg/L	28.6	28.6	0.146%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00020	mg/L	0.0819	0.0826	0.748%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000100	mg/L	0.0481	0.0489	1.68%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.100	mg/L	7.31	7.24	0.886%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00040	mg/L	0.00624	0.00626	0.407%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.100	mg/L	12.0	11.6	3.39%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.100	mg/L	375	372	0.833%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00040	mg/L	1.39	1.38	0.373%	20%	----
		Sulfur, dissolved	7704-34-9	E421	1.00	mg/L	9.07	8.02	1.05	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00020	mg/L	0.00554	0.00566	2.10%	20%	----
		Uranium, dissolved	7440-61-1	E421	0.000020	mg/L	0.00178	0.00180	1.11%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1047281)											
VA23B6541-006	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----



Method Blank (MB) Report

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

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1039860)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1040114)						
Alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1040115)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1045087)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1045089)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1040107)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1040108)						
Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1040109)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1040110)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1040111)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1040112)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1040117)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1042794)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1042795)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1042796)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1042793)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1042797)						

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 Work Order : VA23B5989
 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1042797) - continued						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1039772)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 1039908)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1039908) - continued						
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1041270)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1045627)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1042427)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----

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 Work Order : VA23B5989
 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1042427) - continued						
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1047281)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----



Laboratory Control Sample (LCS) Report

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

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1039860)									
Turbidity	----	E121	0.1	NTU	200 NTU	101	85.0	115	----
Physical Tests (QCLot: 1040113)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1040114)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	107	85.0	115	----
Physical Tests (QCLot: 1040115)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	99.5	90.0	110	----
Physical Tests (QCLot: 1045087)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	108	85.0	115	----
Physical Tests (QCLot: 1045089)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	90.8	85.0	115	----
Anions and Nutrients (QCLot: 1040107)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1040108)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1040109)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1040110)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	93.4	85.0	115	----
Anions and Nutrients (QCLot: 1040111)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 1040112)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1040117)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	104	80.0	120	----
Anions and Nutrients (QCLot: 1042794)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1042795)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	90.3	80.0	120	----
Anions and Nutrients (QCLot: 1042796)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	101	85.0	115	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit					
Organic / Inorganic Carbon (QCLot: 1042793)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	109	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1042797)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	104	80.0	120	----
Total Sulfides (QCLot: 1039772)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	105	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	106	80.0	120	----
Total Metals (QCLot: 1039908)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	106	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	106	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	110	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	110	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	97.6	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	107	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	101	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	102	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	105	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	114	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	108	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	95.7	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	106	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	98.0	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	105	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	108	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	108	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	112	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	98.4	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1039908) - continued									
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	100	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	104	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	96.8	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	103	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	96.9	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	98.4	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	107	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	99.4	80.0	120	----
Total Metals (QCLot: 1041270)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	107	80.0	120	----
Total Metals (QCLot: 1045627)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	98.6	80.0	120	----
Dissolved Metals (QCLot: 1042427)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.3	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	102	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	106	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	103	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	102	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	96.5	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	98.8	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	105	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	103	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	98.2	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	98.4	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	105	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	101	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1042427) - continued									
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	103	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	102	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	108	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.6	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	103	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	97.7	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	95.7	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	102	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	99.9	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	97.2	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.8	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	95.6	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	103	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	92.7	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	97.2	80.0	120	----



Matrix Spike (MS) Report

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

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target	MS	Low	High	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method						
Anions and Nutrients (QCLot: 1040107)										
KS2302503-002	Anonymous	Fluoride	16984-48-8	E235.F	19.9 mg/L	20 mg/L	99.4	75.0	125	----
Anions and Nutrients (QCLot: 1040108)										
KS2302503-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	2000 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 1040109)										
KS2302503-002	Anonymous	Chloride	16887-00-6	E235.Cl	2040 mg/L	2000 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1040110)										
KS2302503-002	Anonymous	Bromide	24959-67-9	E235.Br-L	9.95 mg/L	10 mg/L	99.5	75.0	125	----
Anions and Nutrients (QCLot: 1040111)										
KS2302503-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	10.0 mg/L	10 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1040112)										
KS2302503-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	51.2 mg/L	50 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1040117)										
KS2302504-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0331 mg/L	0.03 mg/L	110	70.0	130	----
Anions and Nutrients (QCLot: 1042794)										
VA23B5989-002	Eau Ville	Nitrogen, total	7727-37-9	E366	0.389 mg/L	0.4 mg/L	97.2	70.0	130	----
Anions and Nutrients (QCLot: 1042795)										
VA23B5989-002	Eau Ville	Phosphorus, total	7723-14-0	E372-U	ND mg/L	0.05 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 1042796)										
VA23B5989-002	Eau Ville	Ammonia, total (as N)	7664-41-7	E298	0.104 mg/L	0.1 mg/L	104	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1042793)										
VA23B5989-002	Eau Ville	Carbon, total organic [TOC]	----	E355-L	5.55 mg/L	5 mg/L	111	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1042797)										
VA23B5989-002	Eau Ville	Carbon, dissolved organic [DOC]	----	E358-L	4.95 mg/L	5 mg/L	99.1	70.0	130	----
Total Sulfides (QCLot: 1039772)										
VA23B5989-002	Eau Ville	Sulfide, total (as S)	18496-25-8	E395-H	0.911 mg/L	1 mg/L	91.1	75.0	125	----
Total Metals (QCLot: 1039908)										
FJ2301707-002	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	0.2 mg/L	ND	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1039908) - continued										
FJ2301707-002	Anonymous	Antimony, total	7440-36-0	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00971 mg/L	0.01 mg/L	97.1	70.0	130	----
		Boron, total	7440-42-8	E420	0.093 mg/L	0.1 mg/L	93.2	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00407 mg/L	0.004 mg/L	102	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0105 mg/L	0.01 mg/L	105	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0406 mg/L	0.04 mg/L	101	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0181 mg/L	0.02 mg/L	90.7	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0952 mg/L	0.1 mg/L	95.2	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0211 mg/L	0.02 mg/L	105	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0382 mg/L	0.04 mg/L	95.4	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.80 mg/L	10 mg/L	98.0	70.0	130	----
		Potassium, total	7440-09-7	E420	3.96 mg/L	4 mg/L	98.9	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0427 mg/L	0.04 mg/L	107	70.0	130	----
		Silicon, total	7440-21-3	E420	9.55 mg/L	10 mg/L	95.5	70.0	130	----
		Silver, total	7440-22-4	E420	0.00414 mg/L	0.004 mg/L	104	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	19.6 mg/L	20 mg/L	97.8	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0417 mg/L	0.04 mg/L	104	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00393 mg/L	0.004 mg/L	98.2	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0230 mg/L	0.02 mg/L	115	70.0	130	----
		Tin, total	7440-31-5	E420	0.0205 mg/L	0.02 mg/L	103	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0382 mg/L	0.04 mg/L	95.4	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00388 mg/L	0.004 mg/L	97.0	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1039908) - continued										
FJ2301707-002	Anonymous	Vanadium, total	7440-62-2	E420	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Zinc, total	7440-66-6	E420	0.381 mg/L	0.4 mg/L	95.3	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0451 mg/L	0.04 mg/L	113	70.0	130	----
Total Metals (QCLot: 1041270)										
KS2302507-001	Anonymous	Mercury, total	7439-97-6	E508	0.000105 mg/L	0.0001 mg/L	105	70.0	130	----
Total Metals (QCLot: 1045627)										
FJ2301705-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000905 mg/L	0.0001 mg/L	90.5	70.0	130	----
Dissolved Metals (QCLot: 1042427)										
VA23B6110-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.197 mg/L	0.2 mg/L	98.5	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0199 mg/L	0.02 mg/L	99.7	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0421 mg/L	0.04 mg/L	105	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00870 mg/L	0.01 mg/L	87.0	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.095 mg/L	0.1 mg/L	95.4	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00396 mg/L	0.004 mg/L	99.0	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0101 mg/L	0.01 mg/L	101	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0399 mg/L	0.04 mg/L	99.7	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.92 mg/L	2 mg/L	96.0	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0199 mg/L	0.02 mg/L	99.5	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.2 mg/L	10 mg/L	102	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.91 mg/L	4 mg/L	97.7	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.94 mg/L	10 mg/L	99.4	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00400 mg/L	0.004 mg/L	100	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1042427) - continued										
VA23B6110-001	Anonymous	Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	20.5 mg/L	20 mg/L	103	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0397 mg/L	0.04 mg/L	99.2	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00370 mg/L	0.004 mg/L	92.5	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0210 mg/L	0.02 mg/L	105	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0381 mg/L	0.04 mg/L	95.3	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0182 mg/L	0.02 mg/L	91.2	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00389 mg/L	0.004 mg/L	97.2	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.409 mg/L	0.4 mg/L	102	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
Dissolved Metals (QCLot: 1047281)										
VA23B5989-002	Eau Ville	Mercury, dissolved	7439-97-6	E509	0.0000968 mg/L	0.0001 mg/L	96.8	70.0	130	----

COC Number: **22 -**

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Canada Toll Free: 1 800 668 9878

Work Order Reference

VA23B5989



Telephone : + 1 604 253 4188

Report To			Contact and company name below will appear on the final report			Reports / Recipients			Turnaround Time (TAT) Requested														
Company:			O'Kane Consultants			Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)			☒ Routine [R] if received by 3pm M-F - no surcharges apply														
Contact:			Katherine Raymond			Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A			☒ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum														
Phone:			1 437 684 4071			☐ Compare Results to Criteria on Report - provide details below if box checked			☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum														
Company address below will appear on the final report						Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX			☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum														
Street:			112 - 112 Research Drive			Email 1 or Fax kraymond@okc-sk.com			☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum														
City/Province:			Saskatoon, SK			Email 2 gallen@okc-sk.com			☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.														
Postal Code:			S7N 3R3			Email 3			Additional fees may apply to rush requests on weekends.														
Invoice To			Same as Report To ☒ YES ☐ NO			Invoice Recipients			Date and Time Required for all E&P TATs:														
			Copy of Invoice with Report ☒ YES ☐ NO			Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX			For all tests with rush TATs requested, please contact your AM to confirm availability.														
Company:			Gillian Allen			Email 1 or Fax gallen@okc-sk.com			Analysis Request														
Contact:			O'Kane Consultants			Email 2			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below														
Project Information						Oil and Gas Required Fields (client use)						NUMBER OF CONTAINERS											
ALS Client Code / QUOTE #: VA23-OKCI100-003						AFE/Cost Center: PO#																	
Job / Project #: Water/supernatant portion - SFE from solids w/ ALS Geochemistry						Major/Minor Code: Routing Code:																	
PO / AFE: 5497						Requisitioner:																	
LSD:						Location:						SAMPLES ON HOLD											
ALS Lab Work Order # (ALS use only): 5989						ALS Contact: Tasnia Tarannum																	
						Sampler:																	
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		EXTENDED STORAGE REQUIRED											
		Tail Year 01-05								Water													
		Eau Ville								Water													
												SUSPECTED HAZARD (see notes)											
Drinking Water (DW) Samples¹ (client use)						Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)						SAMPLE RECEIPT DETAILS (ALS use only)											
Are samples taken from a Regulated DW System? ☐ YES ☒ NO												Cooling Method: ☐ NONE ☐ ICE ☒ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED											
Are samples for human consumption/ use? ☐ YES ☒ NO												Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A											
												INITIAL COOLER TEMPERATURES °C: 9 FINAL COOLER TEMPERATURES °C: 9											
SHIPMENT RELEASE (client use)						INITIAL SHIPMENT RECEPTION (ALS use only)						FINAL SHIPMENT RECEPTION (ALS use only)											
Released by:		Date:		Time:		Received by:		Date:		Time:		Received by:		Date:		Time:							
												JC		13/7/23		835AM							

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

MAY 2023 FRON

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**.

CERTIFICATE OF ANALYSIS

Work Order : **VA23B6412**
Client : **O'Kane Consultants Inc.**
Contact : Katherine Raymond
Address : 112 - 112 Research Drive
Saskatoon SK Canada S7N 3R3
Telephone : ----
Project : Water/supernatant portion - SFE from solids w/ ALS
Geochemistry
PO : 5497
C-O-C number : ----
Sampler : ----
Site : Atlantic Mine Rock Sample Program Analysis
Quote number : VA23-OKCI100-003
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 7
Laboratory : ALS Environmental - Vancouver
Account Manager : Tasnia Tarannum
Address : 8081 Lougheed Highway
Burnaby BC Canada V5A 1W9
Telephone : +1 604 253 4188
Date Samples Received : 19-Jul-2023 08:35
Date Analysis Commenced : 20-Jul-2023
Issue Date : 27-Jul-2023 11:48

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia
Erin Sanchez		Metals, Burnaby, British Columbia
Kate Dimitrova	Analyst	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

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

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

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

Workorder Comments

In the turnaroud time column both routine and 4 days rush column were checked out and in the analysis request column samples were marked as R that represents regular turnaround time,samples will be logged in under regular turnaround time,Please contact if you want to processed them as Rush.

Dissolve metal and Hg were requested on the submitted chain of custody but the containers not received for them,sub sample will be taken from the general bottle provided to carry out requested analysis.

Sample Comments

Sample	Client Id	Comment
VA23B6412-001	High RN Flott	Water sample for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.



Qualifiers

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.



Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	High RN Flott	----	----	----	----
Client sampling date / time					18-Jul-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B6412-001	-----	-----	-----	-----
					Result	----	----	----	----
Physical Tests									
Conductivity	----	E100/VA	2.0	µS/cm	229	----	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	51.1	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	53.2	----	----	----	----
pH	----	E108/VA	0.10	pH units	8.83	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	140	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	7.2	----	----	----	----
Turbidity	----	E121/VA	0.10	NTU	37.8	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	66.9	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0642	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	14.2	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.051	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/V A	0.0050	mg/L	0.143	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	0.0010	mg/L	0.0142	----	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L	5.78	----	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	0.0232	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0398	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	33.5	----	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	<0.50	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	25.2	----	----	----	----
Total Sulfides									
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L	<0.011	----	----	----	----
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L	<0.010	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0953	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00013	----	----	----	----



Analytical Results

Sub-Matrix: Water					Client sample ID	High RN Flott	----	----	----	----
(Matrix: Water)										
					Client sampling date / time	18-Jul-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B6412-001	-----	-----	-----	-----	-----
					Result	----	----	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00129	----	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00973	----	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	----	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	----	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	<0.0000100 ^{DLM}	----	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	18.5	----	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000084	----	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	0.00207	----	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00033	----	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.0138	----	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	1.16	----	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000097	----	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0020	----	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	1.71	----	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.241	----	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00742	----	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.00093	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	----	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	1.03	----	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00223	----	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.000128	----	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	2.40	----	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	22.5	----	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.0527	----	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	12.3	----	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	0.000011	----	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----	----



Analytical Results

Sub-Matrix: Water					Client sample ID	High RN Flott	----	----	----	----
(Matrix: Water)										
					Client sampling date / time	18-Jul-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B6412-001	-----	-----	-----	-----	-----
					Result	----	----	----	----	----
Total Metals										
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	0.00037	----	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	0.00080	----	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	0.00023	----	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.000115	----	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	0.00052	----	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0053	----	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0756	----	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	----	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00109	----	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00489	----	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L	<0.000100	----	----	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L	<0.000050	----	----	----	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L	<0.010	----	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000050	----	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	17.6	----	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	0.000076	----	----	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	0.00106	----	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	----	----	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	0.0118	----	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	0.183	----	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L	<0.000050	----	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L	0.0013	----	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	1.74	----	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.0236	----	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L	<0.0000500 ^{DLM}	----	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L	0.00785	----	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	0.00050	----	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L	<0.050	----	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L	1.09	----	----	----	----	----



Analytical Results

Sub-Matrix: Water					Client sample ID	High RN Flott	----	----	----	----
(Matrix: Water)										
					Client sampling date / time	18-Jul-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B6412-001	-----	-----	-----	-----	-----
					Result	----	----	----	----	----
Dissolved Metals										
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	0.00235	----	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	0.000156	----	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	2.36	----	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L	<0.000010	----	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L	24.2	----	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0528	----	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	11.8	----	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L	<0.00020	----	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	<0.000010	----	----	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L	<0.00010	----	----	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L	0.00067 ^{DTC}	----	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L	<0.00030	----	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L	0.00024	----	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	0.000089	----	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	<0.00050	----	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0016	----	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L	<0.00020	----	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-	Laboratory	----	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-	Laboratory	----	----	----	----	----

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

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA23B6412	Page	: 1 of 12
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Water/supernatant portion - SFE from solids w/ ALS Geochemistry	Date Samples Received	: 19-Jul-2023 08:35
PO	: 5497	Issue Date	: 27-Jul-2023 11:48
C-O-C number	: ----		
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKC1100-003		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Key

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

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) High RN Flott	E298	18-Jul-2023	20-Jul-2023	28 days	2 days	✓	20-Jul-2023	26 days	0 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE High RN Flott	E235.Br-L	18-Jul-2023	20-Jul-2023	28 days	2 days	✓	20-Jul-2023	26 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE High RN Flott	E235.Cl	18-Jul-2023	20-Jul-2023	28 days	2 days	✓	20-Jul-2023	26 days	0 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE High RN Flott	E378-U	18-Jul-2023	20-Jul-2023	3 days	2 days	✓	20-Jul-2023	1 days	0 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE High RN Flott	E235.F	18-Jul-2023	20-Jul-2023	28 days	2 days	✓	20-Jul-2023	26 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE High RN Flott	E235.NO3-L	18-Jul-2023	20-Jul-2023	3 days	2 days	✓	20-Jul-2023	1 days	0 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE High RN Flott	E235.NO2-L	18-Jul-2023	20-Jul-2023	3 days	2 days	✓	20-Jul-2023	1 days	0 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE High RN Flott	E235.SO4	18-Jul-2023	20-Jul-2023	28 days	2 days	✓	20-Jul-2023	26 days	0 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) High RN Flott	E366	18-Jul-2023	20-Jul-2023	28 days	2 days	✓	21-Jul-2023	26 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) High RN Flott	E372-U	18-Jul-2023	20-Jul-2023	28 days	2 days	✓	21-Jul-2023	26 days	1 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
HDPE - dissolved (lab preserved) High RN Flott	E509	18-Jul-2023	27-Jul-2023	0.04 hrs	0 hrs	✖ EHTR-FM	27-Jul-2023	-216.99 hrs	0.04 hrs	✖ UCP
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) High RN Flott	E421	18-Jul-2023	20-Jul-2023	180 days	2 days	✓	21-Jul-2023	178 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) High RN Flott	E358-L	18-Jul-2023	20-Jul-2023	3 days	2 days	✓	20-Jul-2023	28 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) High RN Flott	E355-L	18-Jul-2023	20-Jul-2023	28 days	2 days	✓	20-Jul-2023	26 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE High RN Flott	E290	18-Jul-2023	20-Jul-2023	14 days	2 days	✓	20-Jul-2023	12 days	0 days	✓



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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE High RN Flott	E100	18-Jul-2023	20-Jul-2023	28 days	2 days	✓	20-Jul-2023	26 days	0 days	✓
Physical Tests : pH by Meter										
HDPE High RN Flott	E108	18-Jul-2023	20-Jul-2023	3 hrs	0.25 hrs	✖ EHTR-FM	20-Jul-2023	-59.33 hrs	3 hrs	✖ UCP
Physical Tests : TDS by Gravimetry										
HDPE High RN Flott	E162	18-Jul-2023	----	----	----		23-Jul-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE High RN Flott	E160	18-Jul-2023	----	----	----		23-Jul-2023	7 days	5 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE High RN Flott	E121	18-Jul-2023	----	----	----		20-Jul-2023	3 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) High RN Flott	E508	18-Jul-2023	20-Jul-2023	28 days	3 days	✓	20-Jul-2023	25 days	0 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) High RN Flott	E420	18-Jul-2023	20-Jul-2023	180 days	2 days	✓	21-Jul-2023	178 days	1 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) High RN Flott	E395-H	18-Jul-2023	----	----	----		20-Jul-2023	7 days	3 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.



Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1047883	1	16	6.2	5.0	✔
Ammonia by Fluorescence	E298	1047213	1	19	5.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1047890	1	14	7.1	5.0	✔
Chloride in Water by IC	E235.Cl	1047889	1	16	6.2	5.0	✔
Conductivity in Water	E100	1047881	1	20	5.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1058088	1	3	33.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1047160	1	15	6.6	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1047209	1	3	33.3	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1047892	1	13	7.6	5.0	✔
Fluoride in Water by IC	E235.F	1047888	1	16	6.2	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1047886	1	20	5.0	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1047887	1	20	5.0	5.0	✔
pH by Meter	E108	1047882	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1047885	1	16	6.2	5.0	✔
TDS by Gravimetry	E162	1051959	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1048945	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	1046386	2	19	10.5	5.0	✔
Total Nitrogen by Colourimetry	E366	1047211	1	5	20.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1047210	1	11	9.0	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1047212	1	8	12.5	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1048678	1	12	8.3	5.0	✔
TSS by Gravimetry	E160	1051953	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	1048984	1	20	5.0	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1047883	1	16	6.2	5.0	✔
Ammonia by Fluorescence	E298	1047213	1	19	5.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1047890	1	14	7.1	5.0	✔
Chloride in Water by IC	E235.Cl	1047889	1	16	6.2	5.0	✔
Conductivity in Water	E100	1047881	1	20	5.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1058088	1	3	33.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1047160	1	15	6.6	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1047209	1	3	33.3	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1047892	1	13	7.6	5.0	✔
Fluoride in Water by IC	E235.F	1047888	1	16	6.2	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1047886	1	20	5.0	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1047887	1	20	5.0	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
pH by Meter	E108	1047882	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1047885	1	16	6.2	5.0	✔
TDS by Gravimetry	E162	1051959	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1048945	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	1046386	1	19	5.2	5.0	✔
Total Nitrogen by Colourimetry	E366	1047211	1	5	20.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1047210	1	11	9.0	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1047212	1	8	12.5	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1048678	1	12	8.3	5.0	✔
TSS by Gravimetry	E160	1051953	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	1048984	1	20	5.0	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1047883	1	16	6.2	5.0	✔
Ammonia by Fluorescence	E298	1047213	1	19	5.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1047890	1	14	7.1	5.0	✔
Chloride in Water by IC	E235.Cl	1047889	1	16	6.2	5.0	✔
Conductivity in Water	E100	1047881	1	20	5.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1058088	1	3	33.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1047160	1	15	6.6	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1047209	1	3	33.3	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1047892	1	13	7.6	5.0	✔
Fluoride in Water by IC	E235.F	1047888	1	16	6.2	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1047886	1	20	5.0	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1047887	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1047885	1	16	6.2	5.0	✔
TDS by Gravimetry	E162	1051959	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	1048945	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	1046386	1	19	5.2	5.0	✔
Total Nitrogen by Colourimetry	E366	1047211	1	5	20.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1047210	1	11	9.0	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1047212	1	8	12.5	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1048678	1	12	8.3	5.0	✔
TSS by Gravimetry	E160	1051953	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	1048984	1	20	5.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1047213	1	19	5.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1047890	1	14	7.1	5.0	✔
Chloride in Water by IC	E235.Cl	1047889	1	16	6.2	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1058088	1	3	33.3	5.0	✔



Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Matrix Spikes (MS) - Continued							
Dissolved Metals in Water by CRC ICPMS	E421	1047160	1	15	6.6	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1047209	1	3	33.3	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1047892	1	13	7.6	5.0	✔
Fluoride in Water by IC	E235.F	1047888	1	16	6.2	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1047886	1	20	5.0	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1047887	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1047885	1	16	6.2	5.0	✔
Total Mercury in Water by CVAAS	E508	1048945	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	1046386	1	19	5.2	5.0	✔
Total Nitrogen by Colourimetry	E366	1047211	1	5	20.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1047210	1	11	9.0	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1047212	1	8	12.5	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1048678	1	12	8.3	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^\circ\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at $104 \pm 1^\circ\text{C}$, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^\circ\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Nitrogen by Colourimetry	E366 ALS Environmental - Vancouver	Water	APHA 4500-P J (mod)	Total Nitrogen is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the total sulfide concentration in the sample. The H ₂ S calculation converts Total Sulphide as (S ₂ ⁻) and reports it as Total Sulphide as (H ₂ S)
Total metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO ₃), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion

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<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Nitrogen in water	EP366 ALS Environmental - Vancouver	Water	APHA 4500-P J (mod)	Samples are heated with a persulfate digestion reagent.
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO ₃ .
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: VA23B6412	Page	: 1 of 18
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: Water/supernatant portion - SFE from solids w/ ALS Geochemistry	Date Samples Received	: 19-Jul-2023 08:35
PO	: 5497	Date Analysis Commenced	: 20-Jul-2023
C-O-C number	: ----	Issue Date	: 27-Jul-2023 11:48
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKCI100-003		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	Position	Laboratory Department
Delson Resende	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Erin Sanchez		Vancouver Metals, Burnaby, British Columbia
Kate Dimitrova	Analyst	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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General Comments

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

Key :

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

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

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

Workorder Comments

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



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1047881)											
KS2302587-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	486	493	1.43%	10%	----
Physical Tests (QC Lot: 1047882)											
KS2302587-001	Anonymous	pH	----	E108	0.10	pH units	8.15	8.15	0.00%	4%	----
Physical Tests (QC Lot: 1047883)											
KS2302587-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	266	266	0.263%	20%	----
Physical Tests (QC Lot: 1048984)											
FJ2301784-001	Anonymous	Turbidity	----	E121	0.10	NTU	12.0	12.4	2.46%	15%	----
Physical Tests (QC Lot: 1051953)											
FJ2301780-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1051959)											
FJ2301780-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	242	242	0.206%	20%	----
Anions and Nutrients (QC Lot: 1047211)											
KS2302594-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.150	mg/L	5.30	5.26	0.655%	20%	----
Anions and Nutrients (QC Lot: 1047212)											
KS2302594-003	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0200	mg/L	0.991	0.994	0.349%	20%	----
Anions and Nutrients (QC Lot: 1047213)											
FJ2301768-008	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1047885)											
FJ2301770-004	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	268	274	2.46%	20%	----
Anions and Nutrients (QC Lot: 1047886)											
FJ2301770-004	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1047887)											
FJ2301770-004	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1047888)											
FJ2301770-004	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.106	0.112	0.005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1047889)											
FJ2301770-004	Anonymous	Chloride	16887-00-6	E235.Cl	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1047890)											
FJ2301770-004	Anonymous	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1047892)											

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Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Anions and Nutrients (QC Lot: 1047892) - continued											
FJ2301770-004	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1047209)											
VA23B6412-001	High RN Flott	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1047210)											
VA23B6465-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	19.3	18.9	2.16%	20%	----
Total Sulfides (QC Lot: 1048678)											
VA23B6251-026	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.200	mg/L	<0.200	<0.200	0	Diff <2x LOR	----
Total Metals (QC Lot: 1046386)											
VA23B6397-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0254	0.0220	0.0034	Diff <2x LOR	----
VA23B6397-001	Anonymous	Antimony, total	7440-36-0	E420	0.00010	mg/L	0.0276	0.0274	0.671%	20%	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00132	0.00131	1.02%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0286	0.0288	1.01%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	0.000067	0.000064	0.000003	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.469	0.470	0.263%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000150	mg/L	<0.0000150	<0.0000150	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	63.7	63.0	1.13%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.0111	0.0111	0.176%	20%	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00051	0.00050	0.00001	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.139	0.138	0.413%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000214	0.000225	0.000011	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.436	0.430	1.40%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	7.23	7.44	2.87%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0428	0.0426	0.506%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0379	0.0380	0.292%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00096	0.00096	0.000003	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	53.8	52.2	2.98%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.0802	0.0798	0.497%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.00486	0.00475	2.38%	20%	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	1.78	1.77	0.807%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	0.000030	0.000030	0.0000003	Diff <2x LOR	----

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Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 1046386) - continued											
VA23B6397-001	Anonymous	Sodium, total	7440-23-5	E420	0.050	mg/L	177	179	1.18%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	1.22	1.23	0.876%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	170	169	0.559%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000235	0.000243	3.64%	20%	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00090	mg/L	<0.00090	<0.00090	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.00585	0.00594	1.53%	20%	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000689	0.000686	0.300%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1048945)											
FJ2301757-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1047160)											
YL2300824-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0042	0.0044	0.0002	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00017	0.00018	0.00001	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0137	0.0138	0.590%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.064	0.065	0.001	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	10.3	10.2	1.49%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000014	0.000015	0.000001	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	0.00106	0.00056	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00036	0.00038	0.00002	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.011	0.015	0.004	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0028	0.0028	0.00004	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	3.44	3.48	1.07%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00016	0.00015	0.000010	Diff <2x LOR	----

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 Work Order : VA23B6412
 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 1047160) - continued											
YL2300824-001	Anonymous	Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000056	0.000083	0.000026	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00054	0.00060	0.00006	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	2.30	2.37	2.86%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00333	0.00342	2.83%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	7.91	8.13	2.75%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.118	0.120	1.34%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	2.44	2.51	0.07	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	0.000010	0.0000005	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1058088)											
VA23B6412-001	High RN Flott	Mercury, dissolved	7439-97-6	E509	0.0000500	mg/L	<0.0000500	<0.0000500	0	Diff <2x LOR	----



Method Blank (MB) Report

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

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1047881)						
Conductivity	----	E100	1	µS/cm	1.1	----
Physical Tests (QCLot: 1047883)						
Alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1048984)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1051953)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1051959)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1047211)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1047212)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1047213)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1047885)						
Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1047886)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1047887)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1047888)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1047889)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1047890)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1047892)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Organic / Inorganic Carbon (QCLot: 1047209)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1047210)						

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 Work Order : VA23B6412
 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1047210) - continued						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1048678)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 1046386)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1046386) - continued						
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1048945)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1047160)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----

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 Work Order : VA23B6412
 Client : O'Kane Consultants Inc.
 Project : Water/supernatant portion - SFE from solids w/ ALS Geochemistry



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1047160) - continued						
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1058088)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----



Laboratory Control Sample (LCS) Report

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

Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1047881)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	98.4	90.0	110	----
Physical Tests (QCLot: 1047882)									
pH	----	E108	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 1047883)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	109	85.0	115	----
Physical Tests (QCLot: 1048984)									
Turbidity	----	E121	0.1	NTU	200 NTU	100	85.0	115	----
Physical Tests (QCLot: 1051953)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	94.7	85.0	115	----
Physical Tests (QCLot: 1051959)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	93.0	85.0	115	----
Anions and Nutrients (QCLot: 1047211)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	99.0	75.0	125	----
Anions and Nutrients (QCLot: 1047212)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	91.8	80.0	120	----
Anions and Nutrients (QCLot: 1047213)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	98.5	85.0	115	----
Anions and Nutrients (QCLot: 1047885)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 1047886)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 1047887)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1047888)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1047889)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1047890)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	96.7	85.0	115	----
Anions and Nutrients (QCLot: 1047892)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	106	80.0	120	----

CERTIFICATE OF ANALYSIS

Work Order	: VA24B4246	Page	: 1 of 3
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Virginia Smith
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: water/supernatant portion	Date Samples Received	: 14-Jun-2024 11:50
PO	: 5496	Date Analysis Commenced	: 22-Jun-2024
C-O-C number	: ----	Issue Date	: 22-Jul-2024 12:37
Sampler	: ----		
Site	:		
Quote number	: VA24-OKCI100-003 2024 Humidity Cell Testing		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	Position	Laboratory Department
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Paolo Obillo	Account Manager Assistant	Internal Subcontracting, North Vancouver, British Columbia



General Comments

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

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

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

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

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

Unit	Description
-	no units
%	percent
g	grams
kg	kilograms
pH units	pH units
tCaCO /kt	tons CaCO per kiloton

<: less than.

>: greater than.

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

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

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

Workorder Comments

Total Kjeldahl Nitrogen (TKN) prepped and run as a humidity cell leachate



Analytical Results

Sub-Matrix: Soil/Solid					Client sample ID	High RN Blend	----	----	----	----
(Matrix: Soil/Solid)										
					Client sampling date / time	13-Jun-2024 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24B4246-001	-----	-----	-----	-----	
					Result	----	----	----	----	
Physical Tests										
Weight, initial (humidity cell)	----	E098/VA	1.0	g	1000	----	----	----	----	
Acid Base Accounting										
Carbon dioxide	124-38-9	C-GAS05/1L	0.2	%	2.7	----	----	----	----	
Carbon, total inorganic [TIC]	----	C-GAS05/1L	0.05	%	0.73	----	----	----	----	
Fizz rating	----	OA-VOL08m/ 1L	1	-	2	----	----	----	----	
Maximum potential acidity [MPA]	----	OA-VOL08m/ 1L	0.3	tCaCO /kt	0.9	----	----	----	----	
Net neutralization potential [NNP]	----	OA-VOL08m/ 1L	1	tCaCO /kt	41	----	----	----	----	
Neutralization potential [NP]	----	OA-VOL08m/ 1L	1	tCaCO /kt	42	----	----	----	----	
Neutralization potential ratio [NPR], (NP/MPA)	----	OA-VOL08m/ 1L	0.01	-	44.80	----	----	----	----	
pH (1:1 soil:water)	----	OA-ELE07/1L	0.10	pH units	8.90	----	----	----	----	
Sulfate (as S), HCl leach	14808-79-8	S-GRA06A/1L	0.01	%	0.01	----	----	----	----	
Sulfide (as S), total minus HCl leach	18496-25-8	S-CAL06a/1L	0.01	%	0.02	----	----	----	----	
Sulfur, total	7704-34-9	S-IR08/1L	0.01	%	0.03	----	----	----	----	
Weight, sample received	n/a	WEI-21/1L	0.02	kg	0.38	----	----	----	----	

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

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA24B4246	Page	: 1 of 6
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Virginia Smith
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: water/supernatant portion	Date Samples Received	: 14-Jun-2024 11:50
PO	: 5496	Issue Date	: 22-Jul-2024 12:36
C-O-C number	: ----		
Sampler	: ----		
Site	:		
Quote number	: VA24-OKC1100-003 2024 Humidity Cell Testing		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Key

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

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Soil/Solid**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Acid Base Accounting : Acid Base Accounting (Modified Sobek)										
Glass soil jar/Teflon lined cap High RN Blend	OA-VOL08m	13-Jun-2024	----	----	----		21-Jul-2024	----	39 days	
Acid Base Accounting : Inorganic Carbon by Coulometer										
Glass soil jar/Teflon lined cap High RN Blend	C-GAS05	13-Jun-2024	----	----	----		21-Jul-2024	----	39 days	
Acid Base Accounting : Sulfates by HCl Leaching and Gravimetry										
Glass soil jar/Teflon lined cap High RN Blend	S-GRA06A	13-Jun-2024	----	----	----		21-Jul-2024	----	39 days	
Acid Base Accounting : Sulfide S (as S) Calc. (Total-S - SO4-S)										
Glass soil jar/Teflon lined cap High RN Blend	S-CAL06a	13-Jun-2024	----	----	----		21-Jul-2024	----	39 days	
Acid Base Accounting : Total Sulfur by Combustion and IR										
Glass soil jar/Teflon lined cap High RN Blend	S-IR08	13-Jun-2024	----	----	----		21-Jul-2024	----	39 days	
Physical Tests : Saturated Paste pH										
Glass soil jar/Teflon lined cap High RN Blend	OA-ELE07	13-Jun-2024	----	----	----		21-Jul-2024	----	39 days	
Physical Tests : Weight Final/Initial (Humidity Cells)										
LDPE bag High RN Blend	E098	13-Jun-2024	----	----	----		22-Jun-2024	----	10 days	

Page : 3 of 6
 Work Order : VA24B4246
 Client : O'Kane Consultants Inc.
 Project : water/supernatant portion



Matrix: **Soil/Solid**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method		Method	Sampling Date	Extraction / Preparation			Analysis				
Container / Client Sample ID(s)				Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
					Rec	Actual			Rec	Actual	
Sample Preparation : Received Sample Weight											
Glass soil jar/Teflon lined cap High RN Blend		WEI-21	13-Jun-2024	----	----	----		21-Jul-2024	180 days	39 days	✔

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

- No Quality Control data available for this section.



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Inorganic Carbon by Coulometer	C-GAS05 ALS Minerals (North Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals C-GAS05	Determine Total Inorganic Carbon (TIC) by using diluted perchloric acid to react with metal carbonate and yield carbon dioxide. Concentration of CO ₂ is determined by coulometer.
Weight Final/Initial (Humidity Cells)	E098 ALS Environmental - Vancouver	Soil/Solid		A soil sample is weighed before and/or after leaching in humidity cell.
Saturated Paste pH	OA-ELE07 ALS Minerals (North Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals OA-ELE07	Sample mix with water in 1:1 ratio to make a paste, pH is then determined.
Acid Base Accounting (Modified Sobek)	OA-VOL08m ALS Minerals (North Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals OA-VOL08m	Determine the acid generation power of a sample as tonne CaCO ₃ per kilo-tonne using modified Sobek method
Sulfide S (as S) Calc. (Total-S - SO ₄ -S)	S-CAL06a ALS Minerals (North Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals:S-CAL06a	Sulfide Sulfur (as S) is calculated by subtracting the HCL Leachable Sulfate Sulfur (as S) from the Total Sulfur (as S) obtained from combustion.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfates by HCl Leaching and Gravimetry	S-GRA06A ALS Minerals (North Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals S-GRA06A	A prepared sample is heated with dilute HCl and then filtered. The sulfate in the filtrate is precipitated with BaCl ₂ in a dilute HCl. The BaSO ₄ precipitate is filtered, ignited, weighed and the Sulfate Sulfur is determined (as S).
Total Sulfur by Combustion and IR	S-IR08 ALS Minerals (North Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals S-IR08	A prepared sample is heated to approximately 1350°C in an induction furnace with oxygen stream. Sulfur dioxide released from the sample are measured by IR (Leco analyzer) and the Total Sulfur result is provided.
Received Sample Weight	WEI-21 ALS Minerals (North Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals WEI-21	Weigh out sample received.

QUALITY CONTROL REPORT

Work Order	: VA24B4246	Page	: 1 of 2
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Virginia Smith
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: water/supernatant portion	Date Samples Received	: 14-Jun-2024 11:50
PO	: 5496	Date Analysis Commenced	: 22-Jun-2024
C-O-C number	: ----	Issue Date	: 22-Jul-2024 12:36
Sampler	: ----		
Site	:		
Quote number	: VA24-OKCI100-003 2024 Humidity Cell Testing		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Signatories

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

Signatories	Position	Laboratory Department
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Paolo Obillo	Account Manager Assistant	ALS Minerals (North Vancouver) Internal Subcontracting, North Vancouver, British Columbia



General Comments

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

Key :

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

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

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

Workorder Comments

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



ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 604 984 0221 Fax: +1 604 984 0218
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To: **ALS ENVIRONMENTAL**
100 – 8081 LOUGHEED HWY.
BURNABY BC V5A 1W9

Page: 1
Total # Pages: 2 (A)
Plus Appendix Pages
Finalized Date: 22-JUL-2024
Account: APN

CERTIFICATE VA24164391

Project: VA24B4246

This report is for 1 sample of Crushed Rock submitted to our lab in Vancouver, BC, Canada on 19-JUN-2024.

The following have access to data associated with this certificate:

ALSE VANCOUVER WEBTRIEVE
SOFTWARE DEVELOPMENT GROUP

ALSEV DATASUBLET

VIRGINIA SMITH

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
DISP-01	Disposal of all sample fractions
LOG-21	Sample logging – ClientBarCode
CRU-31	Fine crushing – 70% <2mm
SPL-21	Split sample – riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
S-CAL06a	Sulfide Sulfur (calculated*)	WST-SEQ
S-GRA06a	Sulfate Sulfur (HCl leachable)	
C-GAS05	Inorganic Carbon (CO2)	
OA-VOL08m	Modified NP	LECO
S-IR08	Total Sulphur (IR Spectroscopy)	
OA-ELE07	Paste pH	

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Saa Traxler, Director, North Vancouver Operations



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To: ALS ENVIRONMENTAL
100 – 8081 LOUGHEED HWY.
BURNABY BC V5A 1W9

Page: 2 – A
Total # Pages: 2 (A)
Plus Appendix Pages
Finalized Date: 22-JUL-2024
Account: APN

Project: VA24B4246

CERTIFICATE OF ANALYSIS VA24164391

Sample Description	Method Analyte Units LOD	WEI-21	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-ELE07	S-IR08	S-CAL06a	C-GAS05	C-GAS05	S-GRA06a
		Recvd Wt.	FIZZ RAT	MPA	NNP	NP	Ratio (N	pH	S	S	C	CO2	S
		kg	Unity	tCaCO3/1Kt	tCaCO3/1Kt	tCaCO3/1Kt	Unity	Unity	%	%	%	%	%
		0.02	1	0.3	1	1	0.01	0.1	0.01	0.01	0.05	0.2	0.01
VA24B4246-001		0.38	2	0.9	41	42	44.80	8.9	0.03	0.02	0.73	2.7	0.01



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To: ALS ENVIRONMENTAL
100 – 8081 LOUGHEED HWY.
BURNABY BC V5A 1W9

Page: Appendix 1
Total # Appendix Pages: 1
Finalized Date: 22-JUL-2024
Account: APN

Project: VA24B4246

CERTIFICATE OF ANALYSIS	VA24164391

	CERTIFICATE COMMENTS												
Applies to Method:	LABORATORY ADDRESSES Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada. <table><tr><td>C-GAS05</td><td>CRU-31</td><td>DISP-01</td><td>LOG-21</td></tr><tr><td>OA-ELE07</td><td>OA-VOL08m</td><td>PUL-31</td><td>S-CAL06a</td></tr><tr><td>S-GRA06a</td><td>S-IR08</td><td>SPL-21</td><td>WEI-21</td></tr></table>	C-GAS05	CRU-31	DISP-01	LOG-21	OA-ELE07	OA-VOL08m	PUL-31	S-CAL06a	S-GRA06a	S-IR08	SPL-21	WEI-21
C-GAS05	CRU-31	DISP-01	LOG-21										
OA-ELE07	OA-VOL08m	PUL-31	S-CAL06a										
S-GRA06a	S-IR08	SPL-21	WEI-21										

MAY 2025 ETC

Sample Submittal Form

Client Code:



right solutions.
right partner.

INTERNAL USE ONLY

Workorder #

Received Date

WORKORDER DETAILS

Company Name: Okane Consultants

Submitted by: Katherine Raymond

Contact Number: 1-(437)-684-4071

Courier/Waybill:

Date Shipped:

Project ID: Champion Iron Ore

PO Number: 5496

Dispatch #:

ALS Quote #: 1030781

SAMPLE AND ANALYSIS DETAILS

Sample Type:

- ☐ R-Rock ☐ SD-Sediment
☐ P-Pulp ☐ PC-Percussion
☐ S-Soil ☐ DC-Drill core
☐ A-Solution (contact the lab)
☒ Other

Overlimit Requirements:

- ☐ Report > no overlimit assay
☐ Report via overlimit method (charges will apply)
☐ Other:

Special Instructions:

Dried/filtered tailings

HAZARDOUS MATERIAL IDENTIFIED? (fees may apply)

It is critical to identify hazardous samples such that safety risks can be mitigated.

☐ None ☐ Fibrous ☐ Radioactive ☐ Massive Sulphides ☐ Other:

Sample ID

Start #

Finish #

Sample Preparation
(Prep Code)

Analytical
(Elements or Method Code)

TYPE ORE
(R.S. etc.) GRADE QTY

High RN Blend

ABA-PKG04M

O

1

☐ Check here for RUSH - PREMIUM SERVICE. CONTACT LAB TO CONFIRM AVAILABILITY

TOTAL
SAMPLES

REPORTING DETAILS

Name

E-mail

1 Katherine Raymond

☐ on file kraymond@okc-sk.com

☒ ☒ ☒ ☒

2 Gillian Allen

☐ on file gallen@okc-sk.com

☒ ☐ ☒ ☐

3

☐ on file

☐ ☐ ☐ ☐

SAMPLE RESIDUE ARCHIVE AND RETURN DETAILS

Sample Return

IMMEDIATELY

Return Discard

AFTER FREE STORAGE PERIOD

Return Discard

Paid storage

Pulps - The <250g Master Pulp retained by the lab.

☐ ☐

☐ ☐

☐

Bulks - The remainder of large Pulp samples.

☐ ☐

☐ ☐

☐

Rejects - Any remaining coarse unpulverised rejects.

☐ ☐

☐ ☐

☐

Screen - Any screen reject fractions.

☐ ☐

☐ ☐

☐

All shipments received are subject to inspection upon layout all services are rendered in accordance with ALS Minerals Terms & Conditions (see the current Schedule of Services & Fees).

Return address:

Attention:

Authorised by:

Position Geochemist

Name Katherine Raymond

Signature



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit					
Organic / Inorganic Carbon (QCLot: 1047209)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	101	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1047210)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	105	80.0	120	----
Total Sulfides (QCLot: 1048678)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	93.8	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	94.1	80.0	120	----
Total Metals (QCLot: 1046386)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	107	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	106	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	108	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	106	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	106	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	90.5	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	104	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	104	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	105	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	109	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	108	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	106	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	113	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	104	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	103	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	108	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	98.0	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1046386) - continued									
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	109	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	120	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.3	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	105	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	93.2	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	96.1	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	109	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	104	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Total Metals (QCLot: 1048945)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	100	80.0	120	----
Dissolved Metals (QCLot: 1047160)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	102	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	97.9	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	109	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	99.8	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	99.6	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	102	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	92.0	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	106	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	102	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	107	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	104	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	106	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	110	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	98.9	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1047160) - continued									
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	110	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	104	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	104	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	106	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.0	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	110	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	105	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	84.5	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	95.2	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	103	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	99.2	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	98.7	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	99.3	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	93.1	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	104	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	107	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	99.4	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	96.8	80.0	120	----



Matrix Spike (MS) Report

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

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target	MS	Low	High	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method						
Anions and Nutrients (QCLot: 1047211)										
KS2302594-002	Anonymous	Nitrogen, total	7727-37-9	E366	ND mg/L	0.4 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 1047212)										
KS2302594-004	Anonymous	Phosphorus, total	7723-14-0	E372-U	ND mg/L	0.05 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 1047213)										
KS2302594-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0875 mg/L	0.1 mg/L	87.5	75.0	125	----
Anions and Nutrients (QCLot: 1047885)										
FJ2301770-005	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1047886)										
FJ2301770-005	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.60 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1047887)										
FJ2301770-005	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.508 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1047888)										
FJ2301770-005	Anonymous	Fluoride	16984-48-8	E235.F	1.03 mg/L	1 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1047889)										
FJ2301770-005	Anonymous	Chloride	16887-00-6	E235.Cl	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1047890)										
FJ2301770-005	Anonymous	Bromide	24959-67-9	E235.Br-L	0.490 mg/L	0.5 mg/L	98.0	75.0	125	----
Anions and Nutrients (QCLot: 1047892)										
FJ2301770-005	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0308 mg/L	0.03 mg/L	103	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1047209)										
VA23B6465-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	5 mg/L	ND	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1047210)										
VA23B6412-001	High RN Flott	Carbon, total organic [TOC]	----	E355-L	ND mg/L	5 mg/L	ND	70.0	130	----
Total Sulfides (QCLot: 1048678)										
VA23B6410-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.926 mg/L	1 mg/L	92.6	75.0	125	----
Total Metals (QCLot: 1046386)										
VA23B6397-002	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	0.2 mg/L	ND	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Total Metals (QCLot: 1046386) - continued										
VA23B6397-002	Anonymous	Antimony, total	7440-36-0	E420	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00947 mg/L	0.01 mg/L	94.7	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	0.1 mg/L	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00389 mg/L	0.004 mg/L	97.2	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0101 mg/L	0.01 mg/L	101	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0193 mg/L	0.02 mg/L	96.6	70.0	130	----
		Copper, total	7440-50-8	E420	0.0188 mg/L	0.02 mg/L	94.0	70.0	130	----
		Iron, total	7439-89-6	E420	1.93 mg/L	2 mg/L	96.5	70.0	130	----
		Lead, total	7439-92-1	E420	0.0184 mg/L	0.02 mg/L	91.9	70.0	130	----
		Lithium, total	7439-93-2	E420	ND mg/L	0.1 mg/L	ND	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.7 mg/L	10 mg/L	107	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0407 mg/L	0.04 mg/L	102	70.0	130	----
		Silicon, total	7440-21-3	E420	9.64 mg/L	10 mg/L	96.4	70.0	130	----
		Silver, total	7440-22-4	E420	0.00367 mg/L	0.004 mg/L	91.7	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	20 mg/L	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0376 mg/L	0.04 mg/L	94.1	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00372 mg/L	0.004 mg/L	93.1	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0211 mg/L	0.02 mg/L	105	70.0	130	----
		Tin, total	7440-31-5	E420	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0364 mg/L	0.04 mg/L	91.0	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0181 mg/L	0.02 mg/L	90.6	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00401 mg/L	0.004 mg/L	100	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1046386) - continued										
VA23B6397-002	Anonymous	Vanadium, total	7440-62-2	E420	0.0988 mg/L	0.1 mg/L	98.8	70.0	130	----
		Zinc, total	7440-66-6	E420	0.389 mg/L	0.4 mg/L	97.4	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
Total Metals (QCLot: 1048945)										
FJ2301757-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000956 mg/L	0.0001 mg/L	95.6	70.0	130	----
Dissolved Metals (QCLot: 1047160)										
VA23B6465-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.211 mg/L	0.2 mg/L	105	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0225 mg/L	0.02 mg/L	113	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0415 mg/L	0.04 mg/L	104	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00917 mg/L	0.01 mg/L	91.7	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	0.1 mg/L	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00409 mg/L	0.004 mg/L	102	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0105 mg/L	0.01 mg/L	105	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0415 mg/L	0.04 mg/L	104	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0188 mg/L	0.02 mg/L	94.2	70.0	130	----
		Iron, dissolved	7439-89-6	E421	2.02 mg/L	2 mg/L	101	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0396 mg/L	0.04 mg/L	99.1	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	11.8 mg/L	10 mg/L	118	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0501 mg/L	0.04 mg/L	125	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.91 mg/L	10 mg/L	99.1	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00380 mg/L	0.004 mg/L	95.1	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	20 mg/L	ND	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1047160) - continued										
VA23B6465-002	Anonymous	Tellurium, dissolved	13494-80-9	E421	0.0431 mg/L	0.04 mg/L	108	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00375 mg/L	0.004 mg/L	93.8	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0220 mg/L	0.02 mg/L	110	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0396 mg/L	0.04 mg/L	99.1	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0189 mg/L	0.02 mg/L	94.3	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00414 mg/L	0.004 mg/L	104	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.106 mg/L	0.1 mg/L	106	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.408 mg/L	0.4 mg/L	102	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0426 mg/L	0.04 mg/L	106	70.0	130	----
Dissolved Metals (QCLot: 1058088)										
VA23B6695-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000857 mg/L	0.001 mg/L	85.7	70.0	130	----

COC Number: **22 -**

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MAY 2023 FROM

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.

CERTIFICATE OF ANALYSIS

Work Order	: VA23C6784	Page	: 1 of 6
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Shake flask and water/supernatant portion	Date Samples Received	: 16-Oct-2023 15:20
PO	: ----	Date Analysis Commenced	: 08-Nov-2023
C-O-C number	: ----	Issue Date	: 21-Nov-2023 16:26
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKCI100-003		
No. of samples received	: 9		
No. of samples analysed	: 9		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	Position	Laboratory Department
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Rebecca Sit	Supervisor - Organics Extractions	Organics, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
%	percent
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
mV	millivolts
pH units	pH units

<: less than.

>: greater than.

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

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

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

Qualifiers

Qualifier	Description
DLB	Detection Limit Raised. Analyte detected at comparable level in Method Blank.



Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	Year 1@5 - Cobber Tails	Year 1@5 - Finisher Tails	Year 1@5 - Gravity Flotation Tails	High RN - Cobber Tails	High RN - Finisher Tails
Client sampling date / time					16-Oct-2023 00:00	16-Oct-2023 00:00	16-Oct-2023 00:00	16-Oct-2023 00:00	16-Oct-2023 00:00	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C6784-001	VA23C6784-002	VA23C6784-003	VA23C6784-004	VA23C6784-005	
					Result	Result	Result	Result	Result	
Physical Tests										
Acidity, leachable (as CaCO3)	----	E285/VA	4.0	mg/L	4.4	<4.0	<4.0	<4.0	<4.0	
Conductivity, leachable	----	E103/VA	2.0	µS/cm	77.4	110	46.6	73.3	75.4	
Moisture	----	E144/VA	0.25	%	<0.25	<0.25	<0.25	<0.25	<0.25	
Oxidation-reduction potential [ORP], leachable	----	E127/VA	0.10	mV	281	294	159	224	238	
pH	----	E116/VA	0.10	pH units	7.79	7.95	7.70	7.57	7.75	
Leachable Anions & Nutrients										
Alkalinity, total (as CaCO3), leachable	----	E294/VA	2.0	mg/L	28.6	44.3	22.1	25.8	30.2	
Ammonia, total, leachable (as N)	7664-41-7	E300/VA	0.0050	mg/L	0.0958	<0.0075 ^{DLB}	0.0561	<0.0072 ^{DLB}	<0.0065 ^{DLB}	
Bromide, leachable	24959-67-9	E243.Br/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Phosphorus, total dissolved	7723-14-0	E381/VA	0.0020	mg/L	0.0190	0.121	0.0149	0.0096	0.0720	
Chloride, leachable	16887-00-6	E243.Cl/VA	0.50	mg/L	0.56	4.60	0.62	1.63	3.28	
Fluoride, leachable	16984-48-8	E243.F/VA	0.020	mg/L	0.028	0.068	0.045	0.091	0.081	
Nitrite (as N), leachable	14797-65-0	E243.NO2/VA	0.0010	mg/L	0.0117	<0.0010	0.0156	0.0017	0.0023	
Nitrate (as N), leachable	14797-55-8	E243.NO3/VA	0.0050	mg/L	0.0308	<0.0100 ^{DLB}	<0.0250 ^{DLB}	<0.0250 ^{DLB}	<0.0200 ^{DLB}	
Sulfate, leachable	14808-79-8	E243.SO4/VA	0.50	mg/L	2.72	5.28	1.85	8.00	4.19	
Leachable Metals										
Aluminum, leachable	7429-90-5	E446/VA	0.0050	mg/L	0.0340	0.0475	0.0312	0.0106	0.0324	
Antimony, leachable	7440-36-0	E446/VA	0.00010	mg/L	<0.00010	0.00027	0.00010	<0.00010	0.00017	
Arsenic, leachable	7440-38-2	E446/VA	0.0010	mg/L	<0.0010	0.0020	<0.0010	<0.0010	0.0014	
Barium, leachable	7440-39-3	E446/VA	0.0010	mg/L	0.0104	0.0138	0.0982	<0.0010	0.0025	
Beryllium, leachable	7440-41-7	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Bismuth, leachable	7440-69-9	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Boron, leachable	7440-42-8	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium, leachable	7440-43-9	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Calcium, leachable	7440-70-2	E446/VA	0.10	mg/L	9.71	13.9	5.73	9.20	8.02	
Chromium, leachable	7440-47-3	E446/VA	0.00050	mg/L	0.00052	0.00932	<0.00050	<0.00050	0.0102	
Cobalt, leachable	7440-48-4	E446/VA	0.00010	mg/L	<0.00010	0.00035	<0.00010	<0.00010	0.00028	
Copper, leachable	7440-50-8	E446/VA	0.0010	mg/L	<0.0010	0.0079	0.0292	0.0019	0.0059	



Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	Year 1@5 - Cobber Tails	Year 1@5 - Finisher Tails	Year 1@5 - Gravity Flotation Tails	High RN - Cobber Tails	High RN - Finisher Tails
Client sampling date / time					16-Oct-2023 00:00	16-Oct-2023 00:00	16-Oct-2023 00:00	16-Oct-2023 00:00	16-Oct-2023 00:00	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C6784-001	VA23C6784-002	VA23C6784-003	VA23C6784-004	VA23C6784-005	
					Result	Result	Result	Result	Result	
Leachable Metals										
Hardness (as CaCO3), dissolved	----	E446/VA	0.60	mg/L	32.4	47.4	18.1	30.6	31.5	
Iron, leachable	7439-89-6	E446/VA	0.030	mg/L	0.102	1.72	<0.030	0.097	1.59	
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	0.00014	<0.00010	<0.00010	0.00014	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	0.0068	<0.0050	<0.0050	<0.0050	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	1.99	3.08	0.917	1.86	2.79	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.0196	0.132	0.0119	0.0199	0.0802	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.0158	0.0403	0.00284	0.0105	0.0258	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	0.00361	<0.00050	0.00108	0.00237	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	1.08	1.87	0.520	1.18	0.957	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	1.76	10.9	0.512	1.60	6.83	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	1.51	3.93	0.576	1.35	2.02	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0158	0.0337	0.0254	0.00935	0.0158	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	2.10	1.90	0.62	2.64	1.46	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	0.000116	0.000073	<0.000010	0.000066	0.000022	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	0.0036	<0.0010	<0.0010	0.0028	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	

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

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



Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	High RN - Gravity Flotation Tails	High RC - Cobber Tails	High RC - Finisher Tails	High RC - Gravity Flotation Tails	----
Client sampling date / time					16-Oct-2023 00:00	16-Oct-2023 00:00	16-Oct-2023 00:00	16-Oct-2023 00:00	----	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C6784-006	VA23C6784-007	VA23C6784-008	VA23C6784-009	-----	
					Result	Result	Result	Result	----	
Physical Tests										
Acidity, leachable (as CaCO3)	----	E285/VA	4.0	mg/L	<4.0	<4.0	<4.0	<4.0	----	
Conductivity, leachable	----	E103/VA	2.0	µS/cm	42.5	74.2	75.0	48.1	----	
Moisture	----	E144/VA	0.25	%	<0.25	<0.25	<0.25	<0.25	----	
Oxidation-reduction potential [ORP], leachable	----	E127/VA	0.10	mV	185	215	212	226	----	
pH	----	E116/VA	0.10	pH units	7.49	7.68	7.82	7.61	----	
Leachable Anions & Nutrients										
Alkalinity, total (as CaCO3), leachable	----	E294/VA	2.0	mg/L	15.6	28.3	30.8	19.4	----	
Ammonia, total, leachable (as N)	7664-41-7	E300/VA	0.0050	mg/L	0.0654	<0.0058 ^{DLB}	<0.0092 ^{DLB}	0.0698	----	
Bromide, leachable	24959-67-9	E243.Br/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----	
Phosphorus, total dissolved	7723-14-0	E381/VA	0.0020	mg/L	0.0627	0.0029	0.0280	0.0099	----	
Chloride, leachable	16887-00-6	E243.Cl/VA	0.50	mg/L	0.56	1.92	2.47	0.58	----	
Fluoride, leachable	16984-48-8	E243.F/VA	0.020	mg/L	0.028	0.111	0.029	0.024	----	
Nitrite (as N), leachable	14797-65-0	E243.NO2/VA	0.0010	mg/L	0.0108	<0.0010	0.0027	0.0148	----	
Nitrate (as N), leachable	14797-55-8	E243.NO3/VA	0.0050	mg/L	0.0266	<0.0150 ^{DLB}	<0.0150 ^{DLB}	<0.0250 ^{DLB}	----	
Sulfate, leachable	14808-79-8	E243.SO4/VA	0.50	mg/L	1.86	5.93	4.10	2.69	----	
Leachable Metals										
Aluminum, leachable	7429-90-5	E446/VA	0.0050	mg/L	0.0202	0.0320	0.0109	0.0198	----	
Antimony, leachable	7440-36-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	0.00017	<0.00010	----	
Arsenic, leachable	7440-38-2	E446/VA	0.0010	mg/L	<0.0010	0.0011	0.0027	<0.0010	----	
Barium, leachable	7440-39-3	E446/VA	0.0010	mg/L	0.0095	0.0519	0.0264	0.389	----	
Beryllium, leachable	7440-41-7	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
Bismuth, leachable	7440-69-9	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
Boron, leachable	7440-42-8	E446/VA	0.010	mg/L	<0.010	0.011	<0.010	<0.010	----	
Cadmium, leachable	7440-43-9	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----	
Calcium, leachable	7440-70-2	E446/VA	0.10	mg/L	5.23	7.88	9.17	6.66	----	
Chromium, leachable	7440-47-3	E446/VA	0.00050	mg/L	<0.00050	<0.00050	0.00485	<0.00050	----	
Cobalt, leachable	7440-48-4	E446/VA	0.00010	mg/L	0.00016	<0.00010	0.00010	<0.00010	----	
Copper, leachable	7440-50-8	E446/VA	0.0010	mg/L	0.0276	<0.0010	0.0042	0.0169	----	
Hardness (as CaCO3), dissolved	----	E446/VA	0.60	mg/L	17.5	28.2	31.8	19.9	----	



Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	High RN - Gravity Flotation Tails	High RC - Cobber Tails	High RC - Finisher Tails	High RC - Gravity Flotation Tails	----
Client sampling date / time					16-Oct-2023 00:00	16-Oct-2023 00:00	16-Oct-2023 00:00	16-Oct-2023 00:00	----	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C6784-006	VA23C6784-007	VA23C6784-008	VA23C6784-009	-----	
					Result	Result	Result	Result	----	
Leachable Metals										
Iron, leachable	7439-89-6	E446/VA	0.030	mg/L	<0.030	0.071	0.513	<0.030	----	
Lead, leachable	7439-92-1	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----	
Lithium, leachable	7439-93-2	E446/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----	
Magnesium, leachable	7439-95-4	E446/VA	0.050	mg/L	1.07	2.06	2.17	0.795	----	
Manganese, leachable	7439-96-5	E446/VA	0.00050	mg/L	0.0120	0.0600	0.0873	0.0444	----	
Mercury, leachable	7439-97-6	E515/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----	
Molybdenum, leachable	7439-98-7	E446/VA	0.00010	mg/L	0.00364	0.0127	0.0193	0.00268	----	
Nickel, leachable	7440-02-0	E446/VA	0.00050	mg/L	<0.00050	<0.00050	0.00199	<0.00050	----	
Phosphorus, leachable	7723-14-0	E446/VA	0.30	mg/L	<0.30	<0.30	<0.30	<0.30	----	
Potassium, leachable	7440-09-7	E446/VA	0.050	mg/L	0.366	1.74	1.24	0.450	----	
Selenium, leachable	7782-49-2	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
Silicon, leachable	7440-21-3	E446/VA	0.050	mg/L	0.402	2.18	7.37	0.554	----	
Silver, leachable	7440-22-4	E446/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----	
Sodium, leachable	7440-23-5	E446/VA	0.050	mg/L	0.477	2.22	1.79	0.505	----	
Strontium, leachable	7440-24-6	E446/VA	0.00050	mg/L	0.0120	0.0220	0.0267	0.0227	----	
Sulfur, leachable	7704-34-9	E446/VA	0.50	mg/L	0.62	1.98	1.47	1.03	----	
Thallium, leachable	7440-28-0	E446/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----	
Tin, leachable	7440-31-5	E446/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
Titanium, leachable	7440-32-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----	
Uranium, leachable	7440-61-1	E446/VA	0.000010	mg/L	<0.000010	0.000138	0.000035	0.000012	----	
Vanadium, leachable	7440-62-2	E446/VA	0.0010	mg/L	<0.0010	<0.0010	0.0048	<0.0010	----	
Zinc, leachable	7440-66-6	E446/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----	

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

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA23C6784	Page	: 1 of 24
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: Shake flask and water/supernatant portion	Date Samples Received	: 16-Oct-2023 15:20
PO	: ----	Issue Date	: 21-Nov-2023 16:30
C-O-C number	: ----		
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKC1100-003		
No. of samples received	: 9		
No. of samples analysed	: 9		

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

Key

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

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: Soil/Solid

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Leachable Anions & Nutrients	QC-MRG13-123105 2001	----	Nitrate (as N), leachable	14797-55-8	E243.NO3	0.0050 ^B mg/L	0.005 mg/L	Blank result exceeds permitted value
Leachable Anions & Nutrients	QC-MRG13-123105 2001	----	Ammonia, total, leachable (as N)	7664-41-7	E300	0.0062 ^{MB-LOR} mg/L	0.005 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.

Duplicate (DUP) RPDs								
Leachable Anions & Nutrients	VA23C6784-006	High RN - Gravity Flotation Tails	Alkalinity, total (as CaCO ₃), leachable	----	E294	43.6 % ^{DUP-H}	25%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	VA23C6784-006	High RN - Gravity Flotation Tails	Barium, leachable	7440-39-3	E446	43.8 % ^{DUP-H}	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	VA23C6784-006	High RN - Gravity Flotation Tails	Calcium, leachable	7440-70-2	E446	33.1 % ^{DUP-H}	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	VA23C6784-006	High RN - Gravity Flotation Tails	Copper, leachable	7440-50-8	E446	47.3 % ^{DUP-H}	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	VA23C6784-006	High RN - Gravity Flotation Tails	Manganese, leachable	7439-96-5	E446	62.5 % ^{DUP-H}	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	VA23C6784-006	High RN - Gravity Flotation Tails	Molybdenum, leachable	7439-98-7	E446	55.2 % ^{DUP-H}	30%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	VA23C6784-006	High RN - Gravity Flotation Tails	Silicon, leachable	7440-21-3	E446	64.2 % ^{DUP-H}	40%	Duplicate RPD does not meet the DQO for this test.
Leachable Metals	VA23C6784-006	High RN - Gravity Flotation Tails	Strontium, leachable	7440-24-6	E446	47.0 % ^{DUP-H}	30%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Soil/Solid**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E285	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E285	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E285	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E285	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E285	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E285	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E285	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)											
Paper Bag (Brown) Year 1@5 - Finisher Tails	E285	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT	
Leachable Anions & Nutrients : Acidity by titration (Shakeflask, 3:1 Ratio with Water)											
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E285	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)											
Paper Bag (Brown) High RC - Cobber Tails	E294	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)											
Paper Bag (Brown) High RC - Finisher Tails	E294	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)											
Paper Bag (Brown) High RC - Gravity Flotation Tails	E294	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)											
Paper Bag (Brown) High RN - Cobber Tails	E294	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)											
Paper Bag (Brown) High RN - Finisher Tails	E294	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)											
Paper Bag (Brown) High RN - Gravity Flotation Tails	E294	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)											
Paper Bag (Brown) Year 1@5 - Cobber Tails	E294	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E294	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E294	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E300	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✓
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E300	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✓
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E300	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✓
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E300	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✓
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E300	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✓
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E300	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✓
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E300	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✓



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E300	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✔
Leachable Anions & Nutrients : Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E300	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✔
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E243.Br	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E243.Br	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E243.Br	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E243.Br	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E243.Br	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E243.Br	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E243.Br	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E243.Br	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E243.Br	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E243.Cl	16-Oct-2023	14-Nov-2023	30 days	30 days	✔	15-Nov-2023	28 days	1 days	✔
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E243.Cl	16-Oct-2023	14-Nov-2023	30 days	30 days	✔	15-Nov-2023	28 days	1 days	✔
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E243.Cl	16-Oct-2023	14-Nov-2023	30 days	30 days	✔	15-Nov-2023	28 days	1 days	✔
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E243.Cl	16-Oct-2023	14-Nov-2023	30 days	30 days	✔	15-Nov-2023	28 days	1 days	✔
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E243.Cl	16-Oct-2023	14-Nov-2023	30 days	30 days	✔	15-Nov-2023	28 days	1 days	✔
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E243.Cl	16-Oct-2023	14-Nov-2023	30 days	30 days	✔	15-Nov-2023	28 days	1 days	✔
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E243.Cl	16-Oct-2023	14-Nov-2023	30 days	30 days	✔	15-Nov-2023	28 days	1 days	✔



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E243.Cl	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	15-Nov-2023	28 days	1 days	✓
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E243.Cl	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	15-Nov-2023	28 days	1 days	✓
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E243.F	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	15-Nov-2023	28 days	30 days	✗ EHT
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E243.F	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	15-Nov-2023	28 days	30 days	✗ EHT
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E243.F	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	15-Nov-2023	28 days	30 days	✗ EHT
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E243.F	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	15-Nov-2023	28 days	30 days	✗ EHT
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E243.F	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	15-Nov-2023	28 days	30 days	✗ EHT
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E243.F	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	15-Nov-2023	28 days	30 days	✗ EHT
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E243.F	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	15-Nov-2023	28 days	30 days	✗ EHT



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E243.F	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E243.F	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E243.NO3	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E243.NO3	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E243.NO3	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E243.NO3	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E243.NO3	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E243.NO3	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E243.NO3	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E243.NO3	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E243.NO3	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E243.NO2	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E243.NO2	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E243.NO2	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E243.NO2	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E243.NO2	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E243.NO2	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E243.NO2	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E243.NO2	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E243.NO2	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	15-Nov-2023	3 days	1 days	✔
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E243.SO4	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E243.SO4	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E243.SO4	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E243.SO4	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E243.SO4	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E243.SO4	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E243.SO4	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT

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 Work Order : VA23C6784
 Client : O'Kane Consultants Inc.
 Project : Shake flask and water/supernatant portion



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E243.SO4	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E243.SO4	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E381	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E381	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E381	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E381	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E381	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E381	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E381	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✔



Matrix: Soil/Solid

Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E381	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✔
Leachable Anions & Nutrients : Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E381	16-Oct-2023	14-Nov-2023	3 days	29 days	✖ EHT	16-Nov-2023	3 days	2 days	✔
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E515	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E515	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E515	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E515	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E515	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E515	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E515	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E515	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E515	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	15-Nov-2023	28 days	30 days	✖ EHT
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E446	16-Oct-2023	14-Nov-2023	180 days	30 days	✓	15-Nov-2023	180 days	31 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E446	16-Oct-2023	14-Nov-2023	180 days	30 days	✓	15-Nov-2023	180 days	31 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E446	16-Oct-2023	14-Nov-2023	180 days	30 days	✓	15-Nov-2023	180 days	31 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E446	16-Oct-2023	14-Nov-2023	180 days	30 days	✓	15-Nov-2023	180 days	31 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E446	16-Oct-2023	14-Nov-2023	180 days	30 days	✓	15-Nov-2023	180 days	31 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E446	16-Oct-2023	14-Nov-2023	180 days	30 days	✓	15-Nov-2023	180 days	31 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E446	16-Oct-2023	14-Nov-2023	180 days	30 days	✓	15-Nov-2023	180 days	31 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E446	16-Oct-2023	14-Nov-2023	180 days	30 days	✓	15-Nov-2023	180 days	31 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E446	16-Oct-2023	14-Nov-2023	180 days	30 days	✓	15-Nov-2023	180 days	31 days	✓
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E103	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	16-Nov-2023	28 days	31 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E103	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	16-Nov-2023	28 days	31 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E103	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	16-Nov-2023	28 days	31 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E103	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	16-Nov-2023	28 days	31 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E103	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	16-Nov-2023	28 days	31 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E103	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	16-Nov-2023	28 days	31 days	✗ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E103	16-Oct-2023	14-Nov-2023	28 days	29 days	✗ EHT	16-Nov-2023	28 days	31 days	✗ EHT



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E103	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	16-Nov-2023	28 days	31 days	✖ EHT
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E103	16-Oct-2023	14-Nov-2023	28 days	29 days	✖ EHT	16-Nov-2023	28 days	31 days	✖ EHT
Physical Tests : Moisture Content by Gravimetry										
Paper Bag (Brown) High RC - Cobber Tails	E144	16-Oct-2023	----	----	----		08-Nov-2023	----	24 days	
Physical Tests : Moisture Content by Gravimetry										
Paper Bag (Brown) High RC - Finisher Tails	E144	16-Oct-2023	----	----	----		08-Nov-2023	----	24 days	
Physical Tests : Moisture Content by Gravimetry										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E144	16-Oct-2023	----	----	----		08-Nov-2023	----	24 days	
Physical Tests : Moisture Content by Gravimetry										
Paper Bag (Brown) High RN - Cobber Tails	E144	16-Oct-2023	----	----	----		08-Nov-2023	----	24 days	
Physical Tests : Moisture Content by Gravimetry										
Paper Bag (Brown) High RN - Finisher Tails	E144	16-Oct-2023	----	----	----		08-Nov-2023	----	24 days	
Physical Tests : Moisture Content by Gravimetry										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E144	16-Oct-2023	----	----	----		08-Nov-2023	----	24 days	
Physical Tests : Moisture Content by Gravimetry										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E144	16-Oct-2023	----	----	----		08-Nov-2023	----	24 days	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E144	16-Oct-2023	----	----	----		08-Nov-2023	----	24 days	
Physical Tests : Moisture Content by Gravimetry										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E144	16-Oct-2023	----	----	----		08-Nov-2023	----	24 days	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E127	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E127	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E127	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E127	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E127	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E127	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E127	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✖ EHT



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E127	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT
Physical Tests : ORP by electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E127	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Cobber Tails	E116	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Finisher Tails	E116	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RC - Gravity Flotation Tails	E116	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Cobber Tails	E116	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Finisher Tails	E116	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) High RN - Gravity Flotation Tails	E116	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Cobber Tails	E116	16-Oct-2023	14-Nov-2023	30 days	30 days	✓	16-Nov-2023	30 days	31 days	✗ EHT

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 Work Order : VA23C6784
 Client : O'Kane Consultants Inc.
 Project : Shake flask and water/supernatant portion



Matrix: **Soil/Solid**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Finisher Tails	E116	16-Oct-2023	14-Nov-2023	30 days	30 days	✔	16-Nov-2023	30 days	31 days	✖ EHT
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Paper Bag (Brown) Year 1@5 - Gravity Flotation Tails	E116	16-Oct-2023	14-Nov-2023	30 days	30 days	✔	16-Nov-2023	30 days	31 days	✖ EHT

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

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

Matrix: **Soil/Solid**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1231064	1	11	9.0	5.0	✔
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1231055	1	18	5.5	5.0	✔
Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)	E300	1231066	1	11	9.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1231058	1	18	5.5	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1231054	1	18	5.5	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1231057	1	18	5.5	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1231060	1	13	7.6	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1231059	1	18	5.5	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1231053	1	18	5.5	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1231056	1	18	5.5	5.0	✔
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127	1231063	1	11	9.0	5.0	✔
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	1231061	1	18	5.5	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1231052	1	18	5.5	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1231065	1	11	9.0	5.0	✔
Laboratory Control Samples (LCS)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1231064	1	11	9.0	5.0	✔
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1231055	1	18	5.5	5.0	✔
Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)	E300	1231066	1	11	9.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1231058	1	18	5.5	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1231054	1	18	5.5	5.0	✔
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	1231062	1	18	5.5	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1231057	1	18	5.5	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1231060	1	13	7.6	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1231059	1	18	5.5	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1231053	1	18	5.5	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1231056	1	18	5.5	5.0	✔
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127	1231063	1	11	9.0	5.0	✔
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	1231061	1	18	5.5	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1231052	1	18	5.5	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1231065	1	11	9.0	5.0	✔
Method Blanks (MB)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	1231064	1	11	9.0	5.0	✔
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	1231055	1	18	5.5	5.0	✔
Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)	E300	1231066	1	11	9.0	5.0	✔



Matrix: Soil/Solid

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1231058	1	18	5.5	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1231054	1	18	5.5	5.0	✔
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	1231062	1	18	5.5	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1231057	1	18	5.5	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1231060	1	13	7.6	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1231059	1	18	5.5	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1231053	1	18	5.5	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1231056	1	18	5.5	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1231052	1	18	5.5	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1231065	1	11	9.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluoresence (Shakeflask, 3:1 Ratio with Water)	E300	1231066	1	11	9.0	5.0	✔
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	1231058	1	18	5.5	5.0	✔
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	1231054	1	18	5.5	5.0	✔
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	1231057	1	18	5.5	5.0	✔
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	1231060	1	13	7.6	5.0	✔
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	1231059	1	18	5.5	5.0	✔
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	1231053	1	18	5.5	5.0	✔
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	1231056	1	18	5.5	5.0	✔
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	1231052	1	18	5.5	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381	1231065	1	11	9.0	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. Conductivity measurements are temperature-compensated to 25°C.
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^\circ\text{C}$) on an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. The pH is then measured by a standard pH probe.
ORP by electrode (Shakeflask, 3:1 Ratio with Water)	E127 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/ASTM D1498 (mod)	Oxidation reduction potential is reported as the oxidation-reduction potential (measured in mV) of the platinum metal-reference electrode employed in the analysis of an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C . Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.S04 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/APHA 2310 B (mod)	Acidity is determined by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by potentiometric titration to a specified endpoint.
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by autotitration
Ammonia by Fluorescence (Shakeflask, 3:1 Ratio with Water)	E300 ALS Environmental - Vancouver	Soil/Solid	MEND (mod)/J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia is analyzed by flow-injection analysis with fluorescence detection by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis.
Total Dissolved Phosphorus by Colourimetry (Shakeflask, 3:1 Ratio with Water)	E381 ALS Environmental - Vancouver	Soil/Solid	MEND/APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer on an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered and digested prior to analysis.
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES/EPA 6020B (mod)	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by Collision/Reaction Cell ICPMS. This extraction is an empirical procedure with pre-defined characteristics. Recovery of some elements (Ag, Bi, and Sn) by this method can be variable due to the neutral pH of the extraction fluid, and therefore the LCS DQOs has been established at 50-130% for these elements.
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES/EPA 1631E (mod)	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by CVAAS. This extraction is an empirical procedure with pre-defined characteristics. Recovery of mercury can be variable due to the neutral pH of the extraction fluid, and therefore the LCS DQO has been established at 50-130%.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Shakeflask Leachate Preparation (3:1 Ratio with Water)	EP446 ALS Environmental - Vancouver	Soil/Solid	BC MINISTRY OF ENERGY AND MINES	A sample is extracted with water at a 3:1 liquid to solids ratio for 24 hours, then filtered through a 0.45 micron membrane filter.

QUALITY CONTROL REPORT

Work Order	: VA23C6784	Page	: 1 of 11
Client	: O'Kane Consultants Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Katherine Raymond	Account Manager	: Tasnia Tarannum
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: Shake flask and water/supernatant portion	Date Samples Received	: 16-Oct-2023 15:20
PO	: ----	Date Analysis Commenced	: 08-Nov-2023
C-O-C number	: ----	Issue Date	: 21-Nov-2023 16:26
Sampler	: ----		
Site	: Atlantic Mine Rock Sample Program Analysis		
Quote number	: VA23-OKCI100-003		
No. of samples received	: 9		
No. of samples analysed	: 9		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	Position	Laboratory Department
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Rebecca Sit	Supervisor - Organics Extractions	Vancouver Organics, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

Page : 2 of 11
Work Order : VA23C6784
Client : O'Kane Consultants Inc.
Project : Shake flask and water/supernatant portion



General Comments

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

Key :

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

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

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

Workorder Comments

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



Laboratory Duplicate (DUP) Report

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

Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1231061)											
VA23C6784-006	High RN - Gravity Flotation Tails	pH	----	E116	0.10	pH units	7.49	7.79	3.93%	5%	----
Physical Tests (QC Lot: 1231063)											
VA23C6784-006	High RN - Gravity Flotation Tails	Oxidation-reduction potential [ORP], leachable	----	E127	0.10	mV	185	186	0.592%	30%	----
Leachable Anions & Nutrients (QC Lot: 1231052)											
VA23C6784-006	High RN - Gravity Flotation Tails	Sulfate, leachable	14808-79-8	E243.SO4	0.50	mg/L	1.86	1.89	0.02	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1231053)											
VA23C6784-006	High RN - Gravity Flotation Tails	Nitrate (as N), leachable	14797-55-8	E243.NO3	0.0050	mg/L	0.0266	0.0274	0.0008	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1231054)											
VA23C6784-006	High RN - Gravity Flotation Tails	Chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L	0.56	0.56	0.002	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1231055)											
VA23C6784-006	High RN - Gravity Flotation Tails	Alkalinity, total (as CaCO3), leachable	----	E294	2.0	mg/L	15.6	24.3	43.6%	25%	DUP-H
Leachable Anions & Nutrients (QC Lot: 1231056)											
VA23C6784-006	High RN - Gravity Flotation Tails	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.0010	mg/L	0.0108	0.0109	0.322%	30%	----
Leachable Anions & Nutrients (QC Lot: 1231057)											
VA23C6784-006	High RN - Gravity Flotation Tails	Fluoride, leachable	16984-48-8	E243.F	0.020	mg/L	0.028	0.027	0.0007	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1231058)											
VA23C6784-006	High RN - Gravity Flotation Tails	Bromide, leachable	24959-67-9	E243.Br	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1231064)											
VA23C6784-006	High RN - Gravity Flotation Tails	Acidity, leachable (as CaCO3)	----	E285	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 1231065)											
VA23C6784-006	High RN - Gravity Flotation Tails	Phosphorus, total dissolved	7723-14-0	E381	0.0020	mg/L	0.0627	0.0498	23.0%	30%	----
Leachable Anions & Nutrients (QC Lot: 1231066)											
VA23C6784-006	High RN - Gravity Flotation Tails	Ammonia, total, leachable (as N)	7664-41-7	E300	0.0050	mg/L	0.0654	0.0774	16.7%	20%	----
Leachable Metals (QC Lot: 1231059)											

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 Work Order : VA23C6784
 Client : O'Kane Consultants Inc.
 Project : Shake flask and water/supernatant portion



Sub-Matrix: Soil/Solid

Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Metals (QC Lot: 1231059) - continued											
VA23C6784-006	High RN - Gravity Flotation Tails	Aluminum, leachable	7429-90-5	E446	0.0050	mg/L	0.0202	0.0293	0.0091	Diff <2x LOR	----
		Antimony, leachable	7440-36-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, leachable	7440-38-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0095	0.0148	43.8%	30%	DUP-H
		Beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, leachable	7440-43-9	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Calcium, leachable	7440-70-2	E446	0.10	mg/L	5.23	7.31	33.1%	30%	DUP-H
		Chromium, leachable	7440-47-3	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, leachable	7440-48-4	E446	0.00010	mg/L	0.00016	0.00025	0.00010	Diff <2x LOR	----
		Copper, leachable	7440-50-8	E446	0.0010	mg/L	0.0276	0.0448	47.3%	30%	DUP-H
		Iron, leachable	7439-89-6	E446	0.030	mg/L	<0.030	<0.030	0	Diff <2x LOR	----
		Lead, leachable	7439-92-1	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Lithium, leachable	7439-93-2	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Magnesium, leachable	7439-95-4	E446	0.050	mg/L	1.07	1.45	29.9%	30%	----
		Manganese, leachable	7439-96-5	E446	0.00050	mg/L	0.0120	0.00629	62.5%	30%	DUP-H
		Molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00364	0.00641	55.2%	30%	DUP-H
		Nickel, leachable	7440-02-0	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Potassium, leachable	7440-09-7	E446	0.050	mg/L	0.366	0.421	14.0%	30%	----
		Selenium, leachable	7782-49-2	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Silicon, leachable	7440-21-3	E446	0.050	mg/L	0.402	0.782	64.2%	40%	DUP-H
		Silver, leachable	7440-22-4	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Sodium, leachable	7440-23-5	E446	0.050	mg/L	0.477	0.547	13.6%	30%	----
		Strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.0120	0.0194	47.0%	30%	DUP-H
		Sulfur, leachable	7704-34-9	E446	0.50	mg/L	0.62	1.04	0.41	Diff <2x LOR	----
		Thallium, leachable	7440-28-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, leachable	7440-32-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Uranium, leachable	7440-61-1	E446	0.000010	mg/L	<0.000010	0.000023	0.000013	Diff <2x LOR	----
		Vanadium, leachable	7440-62-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 1231060)											



Sub-Matrix: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Leachable Metals (QC Lot: 1231060) - continued											
VA23C6784-006	High RN - Gravity Flotation Tails	Mercury, leachable	7439-97-6	E515	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----

Qualifiers

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.



Method Blank (MB) Report

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

Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1231062)						
Conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Leachable Anions & Nutrients (QCLot: 1231052)						
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1231053)						
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	# 0.0050	B
Leachable Anions & Nutrients (QCLot: 1231054)						
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 1231055)						
Alkalinity, total (as CaCO ₃), leachable	----	E294	2	mg/L	<2.0	----
Leachable Anions & Nutrients (QCLot: 1231056)						
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	<0.0010	----
Leachable Anions & Nutrients (QCLot: 1231057)						
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	<0.020	----
Leachable Anions & Nutrients (QCLot: 1231058)						
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	<0.050	----
Leachable Anions & Nutrients (QCLot: 1231064)						
Acidity, leachable (as CaCO ₃)	----	E285	4	mg/L	<4.0	----
Leachable Anions & Nutrients (QCLot: 1231065)						
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	<0.0020	----
Leachable Anions & Nutrients (QCLot: 1231066)						
Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	# 0.0062	MB-LOR
Leachable Metals (QCLot: 1231059)						
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 1231059) - continued						
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	<0.0010	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	<0.00010	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	<0.010	----
Leachable Metals (QCLot: 1231060)						
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	<0.000050	----

Qualifiers

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.



Laboratory Control Sample (LCS) Report

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

Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1231061)									
pH	----	E116	----	pH units	7.04 pH units	99.7	95.0	105	----
Physical Tests (QCLot: 1231062)									
Conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	92.7	90.0	110	----
Physical Tests (QCLot: 1231063)									
Oxidation-reduction potential [ORP], leachable	----	E127	----	mV	220 mV	102	95.0	105	----
Leachable Anions & Nutrients (QCLot: 1231052)									
Sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	25 mg/L	98.5	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1231053)									
Nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.625 mg/L	97.3	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1231054)									
Chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	25 mg/L	96.5	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1231055)									
Alkalinity, total (as CaCO3), leachable	----	E294	2	mg/L	500 mg/L	106	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1231056)									
Nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	0.125 mg/L	95.2	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1231057)									
Fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	0.25 mg/L	92.3	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1231058)									
Bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	0.125 mg/L	99.6	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1231064)									
Acidity, leachable (as CaCO3)	----	E285	4	mg/L	50 mg/L	108	85.0	115	----
Leachable Anions & Nutrients (QCLot: 1231065)									
Phosphorus, total dissolved	7723-14-0	E381	0.002	mg/L	0.05 mg/L	90.4	80.0	120	----
Leachable Anions & Nutrients (QCLot: 1231066)									
Ammonia, total, leachable (as N)	7664-41-7	E300	0.005	mg/L	0.2 mg/L	97.8	85.0	115	----
Leachable Metals (QCLot: 1231059)									
Aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	98.9	70.0	130	----
Antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	101	70.0	130	----
Arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	101	70.0	130	----
Barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	99.7	70.0	130	----



Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Leachable Metals (QCLot: 1231059) - continued									
Beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	93.0	70.0	130	----
Bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	93.5	50.0	130	----
Boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	91.2	70.0	130	----
Cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	99.4	70.0	130	----
Calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	95.5	70.0	130	----
Chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	93.6	70.0	130	----
Cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	94.1	70.0	130	----
Copper, leachable	7440-50-8	E446	0.001	mg/L	0.025 mg/L	93.2	70.0	130	----
Iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	91.0	70.0	130	----
Lead, leachable	7439-92-1	E446	0.0001	mg/L	0.05 mg/L	97.4	70.0	130	----
Lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	90.6	70.0	130	----
Magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	101	70.0	130	----
Manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	97.6	70.0	130	----
Molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	100	70.0	130	----
Nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	94.4	70.0	130	----
Phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	103	70.0	130	----
Potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	96.4	70.0	130	----
Selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	98.4	70.0	130	----
Silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	103	70.0	130	----
Silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	88.9	50.0	130	----
Sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	99.3	70.0	130	----
Strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	99.8	70.0	130	----
Sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	97.8	70.0	130	----
Thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	90.3	70.0	130	----
Tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	95.4	50.0	130	----
Titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	84.6	50.0	130	----
Uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	90.3	70.0	130	----
Vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	97.9	70.0	130	----
Zinc, leachable	7440-66-6	E446	0.01	mg/L	0.05 mg/L	95.2	70.0	130	----
Leachable Metals (QCLot: 1231060)									
Mercury, leachable	7439-97-6	E515	0.00005	mg/L	0.0005 mg/L	103	50.0	130	----



Matrix Spike (MS) Report

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

Sub-Matrix: Soil/Solid

Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Anions & Nutrients (QCLot: 1231052)										
VA23C6784-002	Year 1@5 - Finisher Tails	Sulfate, leachable	14808-79-8	E243.SO4	100 mg/L	100 mg/L	100	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1231053)										
VA23C6784-002	Year 1@5 - Finisher Tails	Nitrate (as N), leachable	14797-55-8	E243.NO3	2.49 mg/L	2.5 mg/L	99.7	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1231054)										
VA23C6784-002	Year 1@5 - Finisher Tails	Chloride, leachable	16887-00-6	E243.Cl	99.6 mg/L	100 mg/L	99.6	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1231056)										
VA23C6784-002	Year 1@5 - Finisher Tails	Nitrite (as N), leachable	14797-65-0	E243.NO2	0.493 mg/L	0.5 mg/L	98.7	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1231057)										
VA23C6784-002	Year 1@5 - Finisher Tails	Fluoride, leachable	16984-48-8	E243.F	1.01 mg/L	1 mg/L	101	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1231058)										
VA23C6784-002	Year 1@5 - Finisher Tails	Bromide, leachable	24959-67-9	E243.Br	0.542 mg/L	0.5 mg/L	108	60.0	140	----
Leachable Anions & Nutrients (QCLot: 1231065)										
VA23C6784-002	Year 1@5 - Finisher Tails	Phosphorus, total dissolved	7723-14-0	E381	ND mg/L	0.05 mg/L	ND	70.0	130	----
Leachable Anions & Nutrients (QCLot: 1231066)										
VA23C6784-002	Year 1@5 - Finisher Tails	Ammonia, total, leachable (as N)	7664-41-7	E300	0.0923 mg/L	0.1 mg/L	92.3	60.0	140	----
Leachable Metals (QCLot: 1231059)										
VA23C6784-002	Year 1@5 - Finisher Tails	Aluminum, leachable	7429-90-5	E446	0.191 mg/L	0.2 mg/L	95.7	70.0	130	----
		Antimony, leachable	7440-36-0	E446	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		Arsenic, leachable	7440-38-2	E446	0.0190 mg/L	0.02 mg/L	95.3	70.0	130	----
		Barium, leachable	7440-39-3	E446	0.0198 mg/L	0.02 mg/L	99.1	70.0	130	----
		Beryllium, leachable	7440-41-7	E446	0.0371 mg/L	0.04 mg/L	92.8	70.0	130	----
		Bismuth, leachable	7440-69-9	E446	0.00927 mg/L	0.01 mg/L	92.7	70.0	130	----
		Boron, leachable	7440-42-8	E446	0.094 mg/L	0.1 mg/L	93.8	70.0	130	----
		Cadmium, leachable	7440-43-9	E446	0.00398 mg/L	0.004 mg/L	99.6	70.0	130	----
		Calcium, leachable	7440-70-2	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, leachable	7440-47-3	E446	0.0383 mg/L	0.04 mg/L	95.7	70.0	130	----
		Cobalt, leachable	7440-48-4	E446	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		Copper, leachable	7440-50-8	E446	0.0181 mg/L	0.02 mg/L	90.4	70.0	130	----
		Iron, leachable	7439-89-6	E446	1.80 mg/L	2 mg/L	90.1	70.0	130	----



Sub-Matrix: Soil/Solid					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 1231059) - continued										
VA23C6784-002	Year 1@5 - Finisher Tails	Lead, leachable	7439-92-1	E446	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Lithium, leachable	7439-93-2	E446	0.0934 mg/L	0.1 mg/L	93.4	70.0	130	----
		Magnesium, leachable	7439-95-4	E446	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, leachable	7439-96-5	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Molybdenum, leachable	7439-98-7	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Nickel, leachable	7440-02-0	E446	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	----
		Phosphorus, leachable	7723-14-0	E446	9.86 mg/L	10 mg/L	98.6	70.0	130	----
		Potassium, leachable	7440-09-7	E446	4.00 mg/L	4 mg/L	100.0	70.0	130	----
		Selenium, leachable	7782-49-2	E446	0.0399 mg/L	0.04 mg/L	99.7	70.0	130	----
		Silicon, leachable	7440-21-3	E446	ND mg/L	10 mg/L	ND	70.0	130	----
		Silver, leachable	7440-22-4	E446	0.00385 mg/L	0.004 mg/L	96.3	70.0	130	----
		Sodium, leachable	7440-23-5	E446	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, leachable	7440-24-6	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, leachable	7704-34-9	E446	19.6 mg/L	20 mg/L	98.1	70.0	130	----
		Thallium, leachable	7440-28-0	E446	0.00366 mg/L	0.004 mg/L	91.6	70.0	130	----
		Tin, leachable	7440-31-5	E446	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		Titanium, leachable	7440-32-6	E446	0.035 mg/L	0.04 mg/L	88.6	70.0	130	----
		Uranium, leachable	7440-61-1	E446	0.00361 mg/L	0.004 mg/L	90.2	70.0	130	----
		Vanadium, leachable	7440-62-2	E446	0.0960 mg/L	0.1 mg/L	96.0	70.0	130	----
		Zinc, leachable	7440-66-6	E446	0.366 mg/L	0.4 mg/L	91.5	70.0	130	----
Leachable Metals (QCLot: 1231060)										
VA23C6784-002	Year 1@5 - Finisher Tails	Mercury, leachable	7439-97-6	E515	0.000103 mg/L	0.0001 mg/L	103	70.0	130	----

COC Number: **22 -**

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Canada Toll Free: 1 800 668 9878

Work Order Reference

VA23C6784

Report To		Contact and company name below will appear on the final report		Reports / Recipients		Turnaround Time (TAT) Requested	
Company:	O'Kane Consultants	Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL) Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A ☐ Compare Results to Criteria on Report - provide details below if box checked Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX		☐ Routine [R] if received by 3pm M-F - no surcharges apply ☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum ☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum ☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum ☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum ☐ Same day [E2] if received by 10am M-S - 200% rush surcharge			
Contact:	Katherine Raymond			Additional fees may apply to rush requests on weekend			
Phone:	1 437 684 4071						
Company address below will appear on the final report							
Street:	112 - 112 Research Drive	Email 1 or Fax		kraymond@oko-sk.com		Date and Time Required for all E&P TATs:	
City/Province:	Saskatoon, SK	Email 2					
Postal Code:	S7N 3R3	Email 3					

Invoice To	Same as Report To ☒ YES ☐ NO	Invoice Recipients	
	Copy of Invoice with Report ☒ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	
Project Information		Oil and Gas Required Fields (client use)	
ALS Client Code / QUOTE #: VA23-OKC1100-003		AFE/Cost Center:	PO#
Job / Project #: Shake flask and water/supernatant portion		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (ALS use only): 6784		ALS Contact:	Tasnia Tarannum	Sampler:	
ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	
	Year 1@5 - Cobber tails			Solid	
	Year 1@5 - Finisher Tails			Solid	
	~~Year 1@5 - Gravity Flotation Tails~~			~~Solid~~	
	High RN - Cobber Tails			Solid	
	High RN - Finisher Tails			Solid	
	High RN - Gravity Flotation Tails			Solid	
	High RC - Cobber Tails			Solid	
	High RC - Finisher Tails			Solid	
	High RC - Gravity Flotation Tails			Solid	

[illegible]

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? ☐ YES ☒ NO				Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED					
Are samples for human consumption/ use? ☐ YES ☒ NO				Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A					
				INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
						20			
SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)			
Released by: Laurence Boisvert	Date: 07-Aug-23	Time:	Received by:	Date:	Time:	Received by: CW	Date: Met 16	Time: 1520	

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.

MAY 2023 EDITION

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn: Katherine Raymond

Date Samples Received: Oct-28-2024

Client P.O.: 5589

All results have been reviewed and approved by a Qualified Person in accordance with the Saskatchewan Environmental Code, Corrective Action Plan Chapter, for the purposes of certifying a laboratory analysis

Results from Lab Section 4 approved by Snook, Vicky
Results from Lab Section 2 approved by Britton, Stephanie

Test methods and data are validated by the laboratory's Quality Assurance Program.

Routine methods follow recognized procedures from sources such as

- Standard Methods for the Examination of Water and Wastewater APHA AWWA WEF
- Environment Canada
- US EPA
- CANMET

The results reported relate only to the test samples as provided by the client. Results apply to the sample as received, unless otherwise indicated.

Data marked as "by Client" has been provided by the client and may affect the validity of results.

Samples will be kept for 30 days after the final report is sent. Please contact the lab if you have any special requirements.

Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Analytes denoted with * are accredited by CALA to ISO/IEC 17025:2017.

Additional information is available upon request.

This is a final report.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39262

Sample Type: ROCK

YEAR 1@5 - COBBER TAILS

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.001	10
Uranium-234 calculated	Bq/g	0.003	none set
Uranium-235 calculated	Bq/g	0.0002	none set
Uranium-238 calculated	Bq/g	0.003	10
Radium-228*	Bq/g	<0.007	0.3
Thorium-228	Bq/g	<0.003	0.3
Thorium-230*	Bq/g	<0.2	10
Radium-226*	Bq/g	<0.06	0.3
Lead-210*	Bq/g	<0.02	0.3
Potassium-40*	Bq/g	<0.04	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.32

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.02

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for

Test Report

SRC Group # 2024-13809

Nov 20, 2024

the Management of Naturally Occurring Radioactive Materials Volume III:
Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39263

Sample Type: ROCK

YEAR 1@5 - FINISHER TAILS

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.001	10
Uranium-234 calculated	Bq/g	0.001	none set
Uranium-235 calculated	Bq/g	<0.00006	none set
Uranium-238 calculated	Bq/g	0.001	10
Radium-228*	Bq/g	<0.006	0.3
Thorium-228	Bq/g	<0.003	0.3
Thorium-230*	Bq/g	<0.2	10
Radium-226*	Bq/g	<0.03	0.3
Lead-210*	Bq/g	<0.03	0.3
Potassium-40*	Bq/g	<0.01	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.25

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.02

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39264

Sample Type: ROCK

YEAR 1@5 - GRAVITY FLOTATION

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.001	10
Uranium-234 calculated	Bq/g	0.002	none set
Uranium-235 calculated	Bq/g	0.0001	none set
Uranium-238 calculated	Bq/g	0.002	10
Radium-228*	Bq/g	0.006	0.3
Thorium-228	Bq/g	0.002	0.3
Thorium-230*	Bq/g	<0.1	10
Radium-226*	Bq/g	<0.02	0.3
Lead-210*	Bq/g	<0.02	0.3
Potassium-40*	Bq/g	<0.1	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.18

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.01

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39265

Sample Type: ROCK

K-08-08-31

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.001	10
Uranium-234 calculated	Bq/g	0.002	none set
Uranium-235 calculated	Bq/g	0.0001	none set
Uranium-238 calculated	Bq/g	0.002	10
Radium-228*	Bq/g	0.06	0.3
Thorium-228	Bq/g	0.054	0.3
Thorium-230*	Bq/g	<0.4	10
Radium-226*	Bq/g	0.1	0.3
Lead-210*	Bq/g	0.07	0.3
Potassium-40*	Bq/g	<0.07	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.99

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.05

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39266

Sample Type: ROCK

K-08-12-27.35

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.001	10
Uranium-234 calculated	Bq/g	0.001	none set
Uranium-235 calculated	Bq/g	<0.00006	none set
Uranium-238 calculated	Bq/g	0.001	10
Radium-228*	Bq/g	<0.004	0.3
Thorium-228	Bq/g	<0.003	0.3
Thorium-230*	Bq/g	<0.2	10
Radium-226*	Bq/g	<0.05	0.3
Lead-210*	Bq/g	<0.03	0.3
Potassium-40*	Bq/g	<0.03	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.31

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.02

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39267

Sample Type: ROCK

K-10-28-23

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.004	10
Uranium-234 calculated	Bq/g	0.007	none set
Uranium-235 calculated	Bq/g	0.0004	none set
Uranium-238 calculated	Bq/g	0.007	10
Radium-228*	Bq/g	<0.006	0.3
Thorium-228	Bq/g	0.004	0.3
Thorium-230*	Bq/g	<0.3	10
Radium-226*	Bq/g	<0.03	0.3
Lead-210*	Bq/g	<0.03	0.3
Potassium-40*	Bq/g	0.12	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.27

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.03

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39268

Sample Type: ROCK

K-11-112A-166.8

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.052	10
Uranium-234 calculated	Bq/g	0.060	none set
Uranium-235 calculated	Bq/g	0.0030	none set
Uranium-238 calculated	Bq/g	0.060	10
Radium-228*	Bq/g	0.07	0.3
Thorium-228	Bq/g	0.069	0.3
Thorium-230*	Bq/g	<0.4	10
Radium-226*	Bq/g	0.2	0.3
Lead-210*	Bq/g	0.05	0.3
Potassium-40*	Bq/g	2.2	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 1.5

This sample exceeds the unconditional derived release limits for the sum of ratios calculation but meets the unconditional derived release limits for diffuse NORM sources for the individual isotopes.

Transport Sum of Ratios = 0.05

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and would be provincially regulated.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39269

Sample Type: ROCK

K-10-59-182.2

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.014	10
Uranium-234 calculated	Bq/g	0.068	none set
Uranium-235 calculated	Bq/g	0.0034	none set
Uranium-238 calculated	Bq/g	0.068	10
Radium-228*	Bq/g	0.01	0.3
Thorium-228	Bq/g	0.012	0.3
Thorium-230*	Bq/g	<0.3	10
Radium-226*	Bq/g	0.1	0.3
Lead-210*	Bq/g	<0.04	0.3
Potassium-40*	Bq/g	0.19	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.58

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.03

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39270

Sample Type: ROCK

K-10-61-260.5

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.037	10
Uranium-234 calculated	Bq/g	0.29	none set
Uranium-235 calculated	Bq/g	0.014	none set
Uranium-238 calculated	Bq/g	0.29	10
Radium-228*	Bq/g	0.06	0.3
Thorium-228	Bq/g	0.05	0.3
Thorium-230*	Bq/g	0.6	10
Radium-226*	Bq/g	0.4	0.3 +
Lead-210*	Bq/g	0.3	0.3
Potassium-40*	Bq/g	0.9	17

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 2.8

This sample exceeds the unconditional derived release limits for diffuse NORM sources for one or more isotopes set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.08

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III: Transportation table 1 and would be provincially regulated.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39271

Sample Type: ROCK

K-10-70-466.35

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.006	10
Uranium-234 calculated	Bq/g	0.027	none set
Uranium-235 calculated	Bq/g	0.0013	none set
Uranium-238 calculated	Bq/g	0.027	10
Radium-228*	Bq/g	<0.008	0.3
Thorium-228	Bq/g	0.007	0.3
Thorium-230*	Bq/g	<0.2	10
Radium-226*	Bq/g	0.08	0.3
Lead-210*	Bq/g	<0.02	0.3
Potassium-40*	Bq/g	0.11	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.41

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.02

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39272

Sample Type: ROCK

K-10-83-659.7

Analyte Name	Units	Results	Unconditional Release Limit	
Thorium-232 calculated	Bq/g	0.027	10	
Uranium-234 calculated	Bq/g	0.45	none set	
Uranium-235 calculated	Bq/g	0.023	none set	
Uranium-238 calculated	Bq/g	0.45	10	
Radium-228*	Bq/g	0.04	0.3	
Thorium-228	Bq/g	0.04	0.3	
Thorium-230*	Bq/g	0.8	10	
Radium-226*	Bq/g	0.5	0.3	+
Lead-210*	Bq/g	0.4	0.3	+
Potassium-40*	Bq/g	0.8	17	

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 3.4

This sample exceeds the unconditional derived release limits for diffuse NORM sources for one or more isotopes set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.10

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III: Transportation table 1 and would be provincially regulated.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39273

Sample Type: ROCK

K-11-108-103.5

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.018	10
Uranium-234 calculated	Bq/g	0.015	none set
Uranium-235 calculated	Bq/g	0.0007	none set
Uranium-238 calculated	Bq/g	0.015	10
Radium-228*	Bq/g	0.03	0.3
Thorium-228	Bq/g	0.018	0.3
Thorium-230*	Bq/g	<0.3	10
Radium-226*	Bq/g	<0.06	0.3
Lead-210*	Bq/g	<0.04	0.3
Potassium-40*	Bq/g	<0.2	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.54

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.03

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39274

Sample Type: ROCK

K-11-108-180.3

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.12	10
Uranium-234 calculated	Bq/g	0.028	none set
Uranium-235 calculated	Bq/g	0.0014	none set
Uranium-238 calculated	Bq/g	0.028	10
Radium-228*	Bq/g	0.14	0.3
Thorium-228	Bq/g	0.15	0.3
Thorium-230*	Bq/g	<0.4	10
Radium-226*	Bq/g	<0.07	0.3
Lead-210*	Bq/g	<0.04	0.3
Potassium-40*	Bq/g	1.8	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 1.5

This sample exceeds the unconditional derived release limits for the sum of ratios calculation but meets the unconditional derived release limits for diffuse NORM sources for the individual isotopes.

Transport Sum of Ratios = 0.06

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and would be provincially regulated.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39275

Sample Type: ROCK

K-11-108-218

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.033	10
Uranium-234 calculated	Bq/g	0.060	none set
Uranium-235 calculated	Bq/g	0.0030	none set
Uranium-238 calculated	Bq/g	0.060	10
Radium-228*	Bq/g	0.04	0.3
Thorium-228	Bq/g	0.04	0.3
Thorium-230*	Bq/g	<0.4	10
Radium-226*	Bq/g	0.2	0.3
Lead-210*	Bq/g	0.05	0.3
Potassium-40*	Bq/g	1.7	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 1.2

This sample exceeds the unconditional derived release limits for the sum of ratios calculation but meets the unconditional derived release limits for diffuse NORM sources for the individual isotopes.

Transport Sum of Ratios = 0.05

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and would be provincially regulated.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39276

Sample Type: ROCK

K-11-112A-113.8

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.028	10
Uranium-234 calculated	Bq/g	0.027	none set
Uranium-235 calculated	Bq/g	0.0014	none set
Uranium-238 calculated	Bq/g	0.027	10
Radium-228*	Bq/g	0.04	0.3
Thorium-228	Bq/g	0.039	0.3
Thorium-230*	Bq/g	<0.4	10
Radium-226*	Bq/g	0.08	0.3
Lead-210*	Bq/g	0.04	0.3
Potassium-40*	Bq/g	1.9	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.82

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.05

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39277

Sample Type: ROCK

K-12-194-199.7

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.014	10
Uranium-234 calculated	Bq/g	0.040	none set
Uranium-235 calculated	Bq/g	0.0020	none set
Uranium-238 calculated	Bq/g	0.040	10
Radium-228*	Bq/g	0.02	0.3
Thorium-228	Bq/g	0.020	0.3
Thorium-230*	Bq/g	<0.2	10
Radium-226*	Bq/g	0.04	0.3
Lead-210*	Bq/g	0.04	0.3
Potassium-40*	Bq/g	0.19	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.43

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.02

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39278

Sample Type: ROCK

K-11-135-182.5

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.005	10
Uranium-234 calculated	Bq/g	0.010	none set
Uranium-235 calculated	Bq/g	0.0005	none set
Uranium-238 calculated	Bq/g	0.010	10
Radium-228*	Bq/g	0.01	0.3
Thorium-228	Bq/g	0.006	0.3
Thorium-230*	Bq/g	<0.1	10
Radium-226*	Bq/g	<0.02	0.3
Lead-210*	Bq/g	<0.02	0.3
Potassium-40*	Bq/g	<0.05	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.20

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.01

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39279

Sample Type: ROCK

K-11-135-48.5

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.058	10
Uranium-234 calculated	Bq/g	0.078	none set
Uranium-235 calculated	Bq/g	0.0039	none set
Uranium-238 calculated	Bq/g	0.078	10
Radium-228*	Bq/g	0.08	0.3
Thorium-228	Bq/g	0.07	0.3
Thorium-230*	Bq/g	<0.4	10
Radium-226*	Bq/g	0.2	0.3
Lead-210*	Bq/g	0.1	0.3
Potassium-40*	Bq/g	1.0	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 1.6

This sample exceeds the unconditional derived release limits for the sum of ratios calculation but meets the unconditional derived release limits for diffuse NORM sources for the individual isotopes.

Transport Sum of Ratios = 0.05

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and would be provincially regulated.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39280

Sample Type: ROCK

K-11-147-303.2

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.002	10
Uranium-234 calculated	Bq/g	0.003	none set
Uranium-235 calculated	Bq/g	0.0001	none set
Uranium-238 calculated	Bq/g	0.003	10
Radium-228*	Bq/g	<0.002	0.3
Thorium-228	Bq/g	0.003	0.3
Thorium-230*	Bq/g	<0.1	10
Radium-226*	Bq/g	<0.02	0.3
Lead-210*	Bq/g	<0.02	0.3
Potassium-40*	Bq/g	<0.02	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.16

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.01

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39281

Sample Type: ROCK

K-11-153-181.8

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.012	10
Uranium-234 calculated	Bq/g	0.025	none set
Uranium-235 calculated	Bq/g	0.0012	none set
Uranium-238 calculated	Bq/g	0.025	10
Radium-228*	Bq/g	0.03	0.3
Thorium-228	Bq/g	0.021	0.3
Thorium-230*	Bq/g	<0.2	10
Radium-226*	Bq/g	0.09	0.3
Lead-210*	Bq/g	<0.02	0.3
Potassium-40*	Bq/g	0.44	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.58

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.02

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39282

Sample Type: ROCK

K-10-45-191.5

Analyte Name	Units	Results	Unconditional Release Limit	
Thorium-232 calculated	Bq/g	0.060	10	
Uranium-234 calculated	Bq/g	1.5	none set	
Uranium-235 calculated	Bq/g	0.073	none set	
Uranium-238 calculated	Bq/g	1.5	10	
Radium-228*	Bq/g	0.05	0.3	
Thorium-228	Bq/g	0.06	0.3	
Thorium-230*	Bq/g	1	10	
Radium-226*	Bq/g	1.2	0.3	+
Lead-210*	Bq/g	0.7	0.3	+
Potassium-40*	Bq/g	0.8	17	

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 6.8

This sample exceeds the unconditional derived release limits for diffuse NORM sources for one or more isotopes set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.13

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III: Transportation table 1 and would be provincially regulated.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39283

Sample Type: ROCK

K-11-159-297.2

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.062	10
Uranium-234 calculated	Bq/g	0.020	none set
Uranium-235 calculated	Bq/g	0.0010	none set
Uranium-238 calculated	Bq/g	0.020	10
Radium-228*	Bq/g	0.08	0.3
Thorium-228	Bq/g	0.079	0.3
Thorium-230*	Bq/g	<0.4	10
Radium-226*	Bq/g	0.1	0.3
Lead-210*	Bq/g	<0.03	0.3
Potassium-40*	Bq/g	1.8	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 1.1

This sample exceeds the unconditional derived release limits for the sum of ratios calculation but meets the unconditional derived release limits for diffuse NORM sources for the individual isotopes.

Transport Sum of Ratios = 0.05

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and would be provincially regulated.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39284

Sample Type: ROCK

K-11-166-271

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	<0.001	10
Uranium-234 calculated	Bq/g	0.003	none set
Uranium-235 calculated	Bq/g	0.0002	none set
Uranium-238 calculated	Bq/g	0.003	10
Radium-228*	Bq/g	<0.004	0.3
Thorium-228	Bq/g	<0.002	0.3
Thorium-230*	Bq/g	<0.2	10
Radium-226*	Bq/g	<0.04	0.3
Lead-210*	Bq/g	<0.02	0.3
Potassium-40*	Bq/g	<0.03	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.24

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.02

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39285

Sample Type: ROCK

K-12-174-175.9

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	<0.001	10
Uranium-234 calculated	Bq/g	0.002	none set
Uranium-235 calculated	Bq/g	0.00008	none set
Uranium-238 calculated	Bq/g	0.002	10
Radium-228*	Bq/g	<0.003	0.3
Thorium-228	Bq/g	<0.002	0.3
Thorium-230*	Bq/g	<0.08	10
Radium-226*	Bq/g	<0.02	0.3
Lead-210*	Bq/g	<0.01	0.3
Potassium-40*	Bq/g	<0.02	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 0.12

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.009

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39286

Sample Type: ROCK

K-12-179-168.5

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.054	10
Uranium-234 calculated	Bq/g	0.14	none set
Uranium-235 calculated	Bq/g	0.0069	none set
Uranium-238 calculated	Bq/g	0.14	10
Radium-228*	Bq/g	0.07	0.3
Thorium-228	Bq/g	0.07	0.3
Thorium-230*	Bq/g	<0.6	10
Radium-226*	Bq/g	0.2	0.3
Lead-210*	Bq/g	0.1	0.3
Potassium-40*	Bq/g	0.9	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 1.6

This sample exceeds the unconditional derived release limits for the sum of ratios calculation but meets the unconditional derived release limits for diffuse NORM sources for the individual isotopes.

Transport Sum of Ratios = 0.07

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and would be provincially regulated.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39287

Sample Type: ROCK

K-12-185-66.3

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.048	10
Uranium-234 calculated	Bq/g	0.073	none set
Uranium-235 calculated	Bq/g	0.0037	none set
Uranium-238 calculated	Bq/g	0.073	10
Radium-228*	Bq/g	0.06	0.3
Thorium-228	Bq/g	0.054	0.3
Thorium-230*	Bq/g	<0.4	10
Radium-226*	Bq/g	0.09	0.3
Lead-210*	Bq/g	0.07	0.3
Potassium-40*	Bq/g	0.74	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 1.0

This sample meets the unconditional derived release limits for diffuse NORM sources set by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials table 5.1.

Transport Sum of Ratios = 0.05

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and is not regulated for transport.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Okane Consultants
112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Attn : Katherine Raymond

Date Samples Received: Oct-28-2024 Client P.O.: 5589

SRC Lab # 39288

Sample Type: ROCK

K-12-194-101.5

Analyte Name	Units	Results	Unconditional Release Limit
Thorium-232 calculated	Bq/g	0.042	10
Uranium-234 calculated	Bq/g	0.12	none set
Uranium-235 calculated	Bq/g	0.0061	none set
Uranium-238 calculated	Bq/g	0.12	10
Radium-228*	Bq/g	0.06	0.3
Thorium-228	Bq/g	0.05	0.3
Thorium-230*	Bq/g	<0.5	10
Radium-226*	Bq/g	0.1	0.3
Lead-210*	Bq/g	0.1	0.3
Potassium-40*	Bq/g	0.61	17

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

Results are reported on an as received basis.

Gamma Spectroscopy (Rad-300) detection limits vary and are influenced by several factors. "Less than" values reported above represent the lowest detection limits achievable for the sample.

Radium 228 and Thorium 228 are not directly detected by Gamma spectroscopy, instead, they are inferred from Actinium 228 and Lead 212.

Concentrations of Uranium and Thorium were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The activity of Uranium-234, Uranium-235, Uranium-238 and Thorium-232 was calculated from the ICP-MS results based on natural abundance.

Sum of Ratios = 1.1

This sample exceeds the unconditional derived release limits for the sum of ratios calculation but meets the unconditional derived release limits for diffuse NORM sources for the individual isotopes.

Transport Sum of Ratios = 0.06

This sample meets the packaging and transport of nuclear substances limits for one or more isotopes outlined by the Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials Volume III:

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Transportation table 1 and would be provincially regulated.

The temperature of the cooler was 18.6 °C upon receipt.

Test Report

SRC Group # 2024-13809

Nov 20, 2024

Analyte Methods

Name	Units	Method
Thorium-232 calculated	Bq/g	PRP-034 / Chm-522
Uranium-234 calculated	Bq/g	PRP-034 / Chm-522
Uranium-235 calculated	Bq/g	PRP-034 / Chm-522
Uranium-238 calculated	Bq/g	PRP-034 / Chm-522
Potassium-40	Bq/g	Rad-300
Lead-210	Bq/g	Rad-300
Radium-226	Bq/g	Rad-300
Radium-228	Bq/g	Rad-300
Thorium-228	Bq/g	Rad-300
Thorium-230	Bq/g	Rad-300



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