SRK Consulting (Canada) Inc.
Suite 2200 – 1066 West Hastings Street
Vancouver, B.C. V6E 3X2
Canada

vancouver@srk.com
www.srk.com

**Tel:** **604.681.4196**
**Fax:** **604.687.5532**

# Memo

| | | | |
|---|---|---|---|
| **To:** | Stuart Arkley, MDNR | **Date:** | August 13, 2010 |
| **cc:** | Jim Scott, PolyMet<br>Miguel Wong, Barr Engineering | **From:** | Stephen Day<br>Christie Kearney, Barr Engineering |
| **Subject:** | Results of Analysis from Overburden Drilling Program – Update for March 2010 Test Pit Program<br>NorthMet Project – DRAFT | **Project #:** | 1UP005.001 |

## 1 Introduction

This memorandum provides chemical results from two analytical programs for overburden samples collected from the NorthMet Project in the area of the proposed mine site. The memorandum provides conclusions on the main factors controlling differences in leaching characteristics of the overburden and estimates of contact water chemistry.

The original Overburden Geochemical Characterization Plan was provided to the MDNR on February 22, 2008[1] and the accompanying analytical plan was provided to the MDNR on March 18, 2008[2]. This program involved drilling to characterize the full overburden profile from surface to bedrock. Both plans were reviewed and accepted by the MDNR with the understanding that subsequent characterization might be required prior to and during excavation of overburden material. Results of this program were provided in two memoranda dated October 16, 2008 (fine particle solids and leachate chemical analysis)[3] and June 25, 2009 (overburden pebble counts and analysis)[4].

An opportunity to collect additional overburden samples arose as a result of a USFS requirement to dig sumps to contain drilling fluids from bedrock drilling occurring as part of further resource delineation by PolyMet. As a result, a sump spoil sampling program was designed and implemented by Barr Engineering in cooperation with MDNR to provide additional data on the geochemical characteristics of unsaturated overburden. The details of the program were developed through several emails between Barr and MDNR.

Results of this second program have been compared to the findings from the original program rather than combining results into a single dataset because the sampling methods and investigation scopes were different. The sampling locations were pre-determined by the bedrock drilling locations rather than being designed to characterize particular features of the overburden.

[1] SRK Consulting, PolyMet Mining and Barr Engineering. 2008. Overburden Geochemical Characterization Plan in Support of EIS – DRAFT NorthMet Project. February 22, 2008.
[2] SRK Consulting, PolyMet Mining and Barr Engineering. 2008. Analysis of Samples from Overburden Drilling Program, NorthMet Project – DRAFT. March 18, 2008.
[3] SRK Consulting. 2008. Results of Analysis from Overburden Drilling Program. Doc IDGC05. October 16, 2008.
[4] SRK Consulting. 2009. Overburden Pebble Chemical Analysis – DRAFT. June 25, 2009.

# 2 January 2008 Drilling Program

## 2.1 Summary of Field Programs

A total of 225 feet of drilling was completed for geochemical characterization of overburden. The following summary of the field observations was provided in the analytical plan.

As expected, drift in the area has complex lithology. The majority of intervals (75%) were characterized as dominantly sandy till with varying quantities of gravels and silts. A few intervals were dominated by gravels (21 feet). Dominantly silt intercepts were unusual (two intervals totaling 5 feet). The total intersection of peaty materials was 25 feet.

The main feature of the overburden profile was the presence of oxidized (brown) and unoxidized (olive and grey) tills corresponding roughly to the presence of the water table. Of the thirteen mechanically-drilled holes, only two were in a fully unsaturated profile (holes 10 and 14) while the others were either completely saturated (four holes) or were unsaturated near surface and saturated below the saturated elevations (seven holes). Measurements of oxidation reduction potential (ORP) in field rinse tests showed a strong negative correlation with depth. Near surface samples had typical ORPs of 100 to 300 mV, whereas deeper samples had ORPs below 100 mV and as low as -200 mV. Loggers recorded the presence of what appeared to be secondary iron sulfides in the chemically-reduced overburden. Visual observations were supported by the smelled evolution of hydrogen sulfide gas when 10% hydrochloric acid was applied.

Surface tills appeared to be weakly acidic (rinse pHs less than 6.5) as shown by the correlation of rinse pH with depth. Deeper tills had rinse pHs greater than 6. The presence of acidic conditions generally did not correlate with conductivity) indicating that the variation of rinse pH was not significantly related to the presence of acidic salts as would be produced by oxidation of sulfide minerals. In fact, conductivities for samples showing rinse pHs less than 5.5 (the typical pH of deionized water) were mostly low. The exceptions were two samples with conductivity above 100 µS/cm and pHs below 5.6. These measurements did not correspond to the presence of mineralized rock.

As described below, some samples of the deeper tills became acidic prior to laboratory testing.

Other than brown coatings related to weathering of iron-bearing components of the overburden, chemical precipitates were uncommon. White cement and lenses were observed in drill hole 10, but they did not react with dilute hydrochloric acid.

The overburden rarely reacted with hydrochloric acid which indicated low concentrations of carbonate minerals.

## 2.2 Sample Selection and Analysis

A discussion of sample selection, as well as a sample analysis list, was provided in the analytical plan. The analytical plan was completed for the size fractions finer than 2 mm (-2 mm+74 µm and -74 µm), and the meteoric water mobility procedure on splits of the whole samples. The pebble counts are in progress (+4 mm size fraction) and once completed the pebbles will be re-combined with the -4+2 mm fraction for acid-base accounting and metal analysis on the +2 mm fraction.

The laboratory reported that 36 of the 37 samples submitted for analysis had sufficient pebbles (more than 180) for counting.

## 2.3 Results

### 2.3.1 Data Assessment Approach

The Geochemical Characterization Plan was designed to address various factors that could influence the geochemical characteristics of overburden, which included:

- Geological sources distant from the project area where the glacial ice originated.
- Underlying bedrock geology.
- Distance from mineralized bedrock (mainly Unit 1 of the Duluth Complex and the Virginia Formation).
- Glacial and periglacial deposition environment.
- Groundwater level during deposition.
- Current position of the water table (degree of saturation).

Field observations during drilling indicated that oxidation-reduction conditions in the overburden varied significantly and potentially exerted an important control on leaching potential of the overburden. This factor was also considered in the analysis.

The following sections provide descriptive statistics and discussion with respect to these factors.

The complete dataset is attached as Appendix A. Metal analysis was performed using two acid digestion methods (aqua regia and four acid) both followed by determination of concentrations using ICP. The difference between results for the two analytical methods was insignificant though in the case of nickel slightly higher concentrations were reported for the stronger four acid digestion (Figure 1) probably reflecting the more complete digestion of silicate minerals by this digestion. Therefore, subsequent review of the data considered results from the four-acid digestion.

The summaries below focus on the main parameters believed to be indicative of the influence of mineralized bedrock on the overburden (sulfur, copper and nickel).

### 2.3.2 Entire Dataset

*Effect of Particle Size*

Graphs comparing sulfur, copper and nickel concentrations in -74 μm and -2 mm+74 μm fractions are presented in Figure 2.

For sulfur, concentrations in the finer fraction were greater than in the coarse fraction for concentrations above 0.05% with the exception of two samples which showed nearly equivalent sulfur concentrations in the two fractions. Concentrations in the two fractions were not well correlated.

For copper, concentrations in the two fractions were correlated but were also mostly greater in the fine fraction. Nickel showed similar results except that at higher concentrations, the correlation was absent (Figure 2). Nickel concentrations were relatively stable below 200 ppm in the coarse fraction but increased to near 500 ppm for two samples. These samples also contained the highest sulfur concentrations in mineral overburden. The highest sulfur concentration in a peat (0.61%) did not contain elevated nickel concentrations.

The significant difference in sulfur concentrations for the size fractions may be linked to the observation of secondary sulfide minerals in the overburden rather than differences in the particle size distribution of primary sulfur in the overburden. There is no particular reason to expect sulfur to be concentrated in the fine fraction, and it would be expected that any fine-grained sulfur produced during deposition of the till would be oxidized following deposition. The base level sulfur concentrations in the coarser fraction (below 0.05%) are typical of background sulfur concentrations in rocks whereas the fine fraction concentrations indicated enrichment of sulfur.

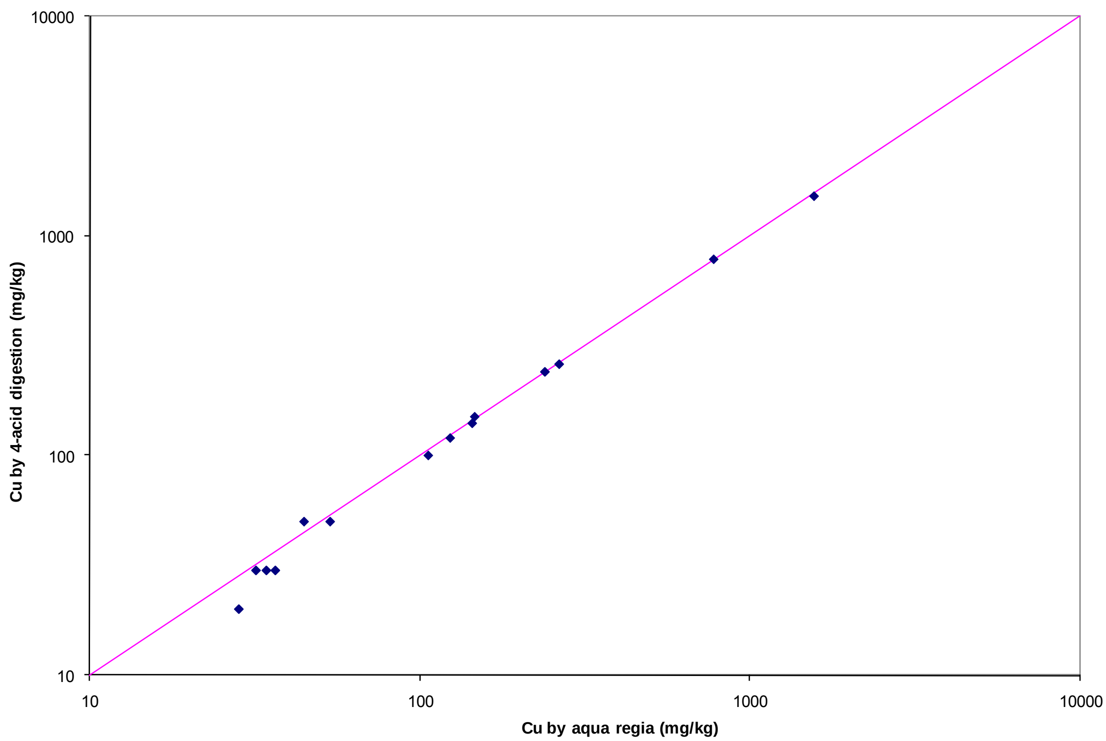
### *Overall Dataset Distribution*

Distributions for the selected parameters are presented in Table 1. Data for many parameters were strongly positively skewed hence the median provides an indication of central or typical values while the 95$^{th}$ percentile and maximum values indicate extreme values.

Measurements of oxidation reduction potential (ORP) had 5$^{th}$ and 95$^{th}$ percentile values of -90 and 290, respectively. As was discussed in the analytical plan, ORP showed a strong negative correlation with depth. Near surface samples had typical ORPs of 100 to 300 mV, whereas deeper samples had ORPs below 100 mV and as low as -200 mV.

The statistics indicate that sulfate, which would likely be formed by oxidation of sulfur occurred at very low concentrations. Sulfur is mainly expected to occur as sulfide with the exception of peat for which sulfur may also occur in organic form.

Neutralization potentials were low and carbonate was rarely detected (Appendix A) indicating that rapidly acid consuming minerals were present at low concentrations.



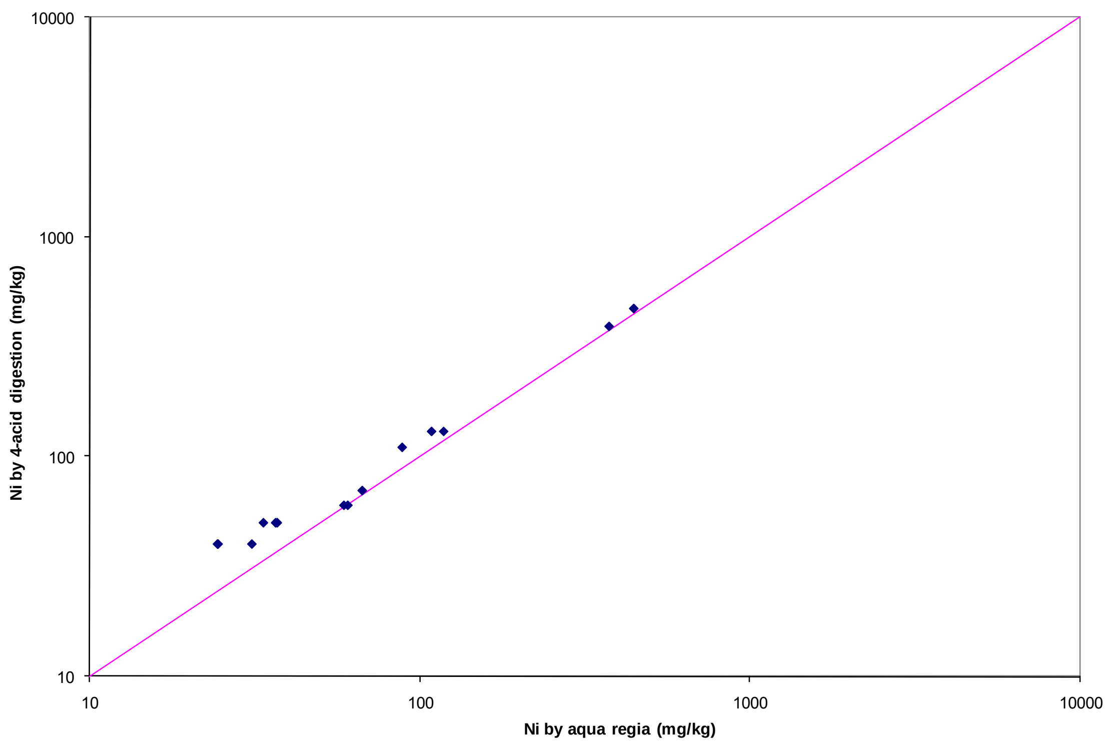




**Figure 1: Comparison of Copper and Nickel Concentrations by Different Analytical Methods (-74 µm fraction)**

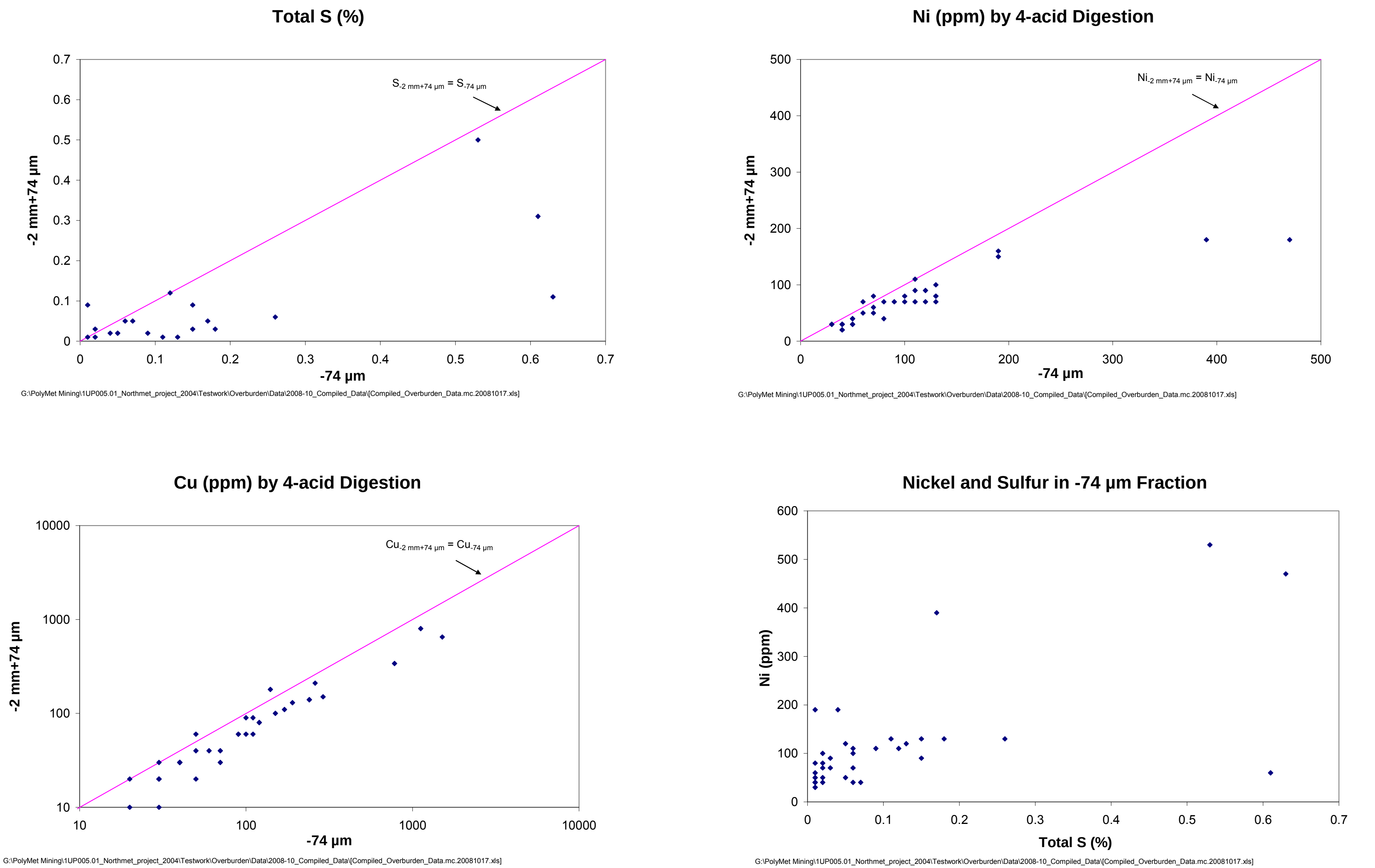



**Figure 2: Comparison of Sulfur, Copper and Nickel Concentrations in Two Particle Size Fractions**

**Table 1: Statistics for Selected Overburden Characteristics**

| Parameter | Unit | Fraction | n | Minimum | P5 | P50 | P95 | Maximum |
|---|---|---|---|---|---|---|---|---|
| pH[1] | | -5 mm | 44 | 4.8 | 5.2 | 6.4 | 6.5 | 8.7 |
| ORP[1] | mV | -5 mm | 43 | -209 | -90 | 98 | 95 | 287 |
| Total Sulfur[2] | % S | -74 µm | 37 | 0.01 | 0.01 | 0.05 | 0.10 | 0.55 |
| Total Sulfur[2] | % S | -2 mm+74 µm | 37 | <0.01 | <0.01 | 0.01 | 0.05 | 0.16 |
| Sulfate[3] | % S | -74 µm | 36 | <0.01 | <0.01 | 0.01 | 0.02 | 0.04 |
| Sulfate[3] | % S | -2 mm+74 µm | 37 | <0.01 | <0.01 | <0.01 | 0.01 | 0.03 |
| Cu[4] | ppm | -74 µm | 37 | 20 | 28 | 90 | 180 | 848 |
| Cu[4] | ppm | -2 mm+74 µm | 37 | 10 | 18 | 60 | 109 | 402 |
| Ni[4] | ppm | -74 µm | 37 | 30 | 38 | 80 | 113 | 406 |
| Ni[4] | ppm | -2 mm+74 µm | 37 | 20 | 20 | 70 | 76 | 180 |
| pH[5] | | Whole | 14 | 3.4 | 3.6 | 7.1 | 6.5 | 7.8 |
| Sulfate[5] | mg/L | Whole | 14 | 1.74 | 2.8 | 32 | 69 | 203 |
| Cu[5] | mg/L | Whole | 14 | 0.003 | 0.004 | 0.009 | 0.06 | 0.28 |
| Ni[5] | mg/L | Whole | 14 | 0.0008 | 0.001 | 0.01 | 0.25 | 1.3 |

\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\Data\2008-10_Compiled_Data\[Compiled_Overburden_Data.1UP005.001.mc.20081021.xls]

General Method: [1] Field rinse test
[2] Leco Furnace
[3] HCl soluble, Sobek *et al.* 1978
[4] Four acid digestion
[5] MWMP leachable

Median values for sulfur, copper and nickel were comparable to global crustal values with slight enrichment for copper whereas the extreme values are consistent with proximity to sulfide mineralized rock.

MWMP leachate pH for 14 samples was strongly skewed with a median of 7.1, and the 5$^{th}$ and 95$^{th}$ percentile pH values were 3.6 and 7.8, respectively. Two samples had acidic pHs below 4, and two had pHs between 5 and 6. The two samples with lowest pHs were not acidic when tested in the field but became acidic between sample collection and analysis. As described subsequently, this appears to be due to oxidation of secondary sulfide minerals formed under saturated and chemically reducing conditions in the overburden.

In the majority of samples, the dominant anion in the leachate was sulfate, followed by alkalinity and chloride. Major cation concentrations were variable with all four major ions (calcium, magnesium, sodium and potassium) contributing to the ion balance (Figure 3).

Trace metal concentrations in the leachates were correlated to pH with the highest concentrations at lowest pHs. The correlation was apparent for Al, As, Ba, Cd, Co, Cr, Cu, Fe, Pb, Ni and Zn. Copper and nickel are shown in Figure 4.

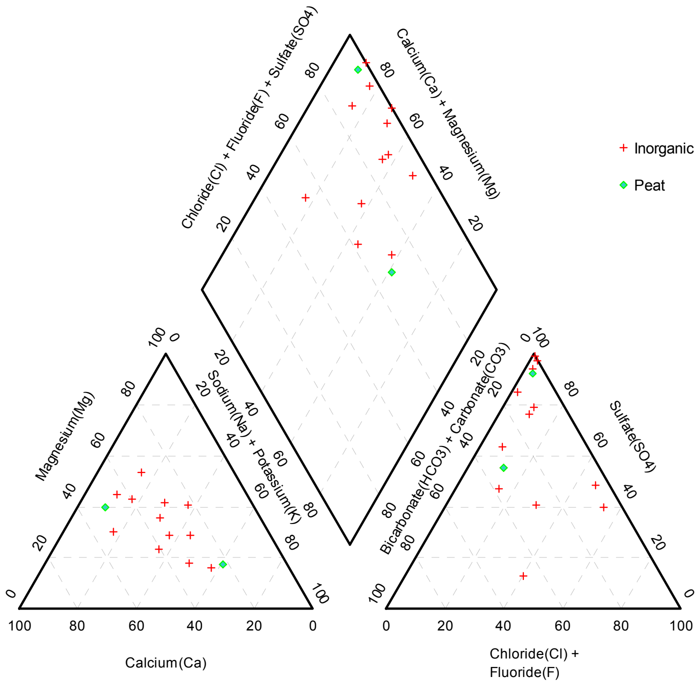
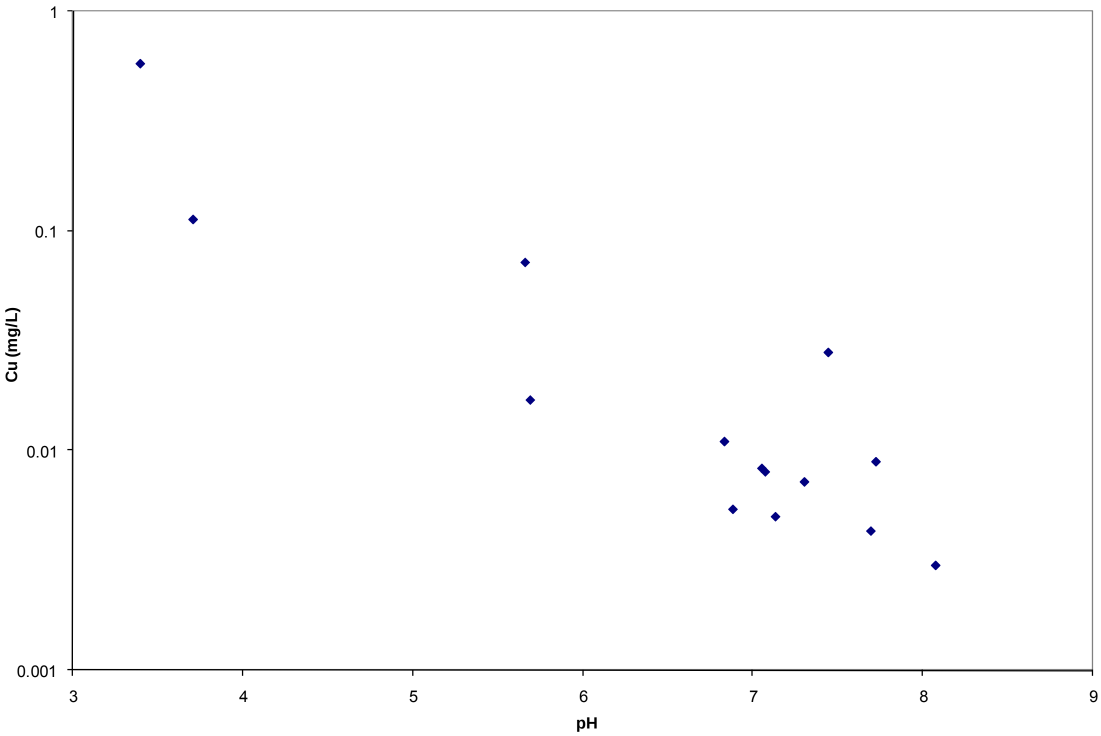



**Figure 3: Piper Diagram for MWMP Leachates**



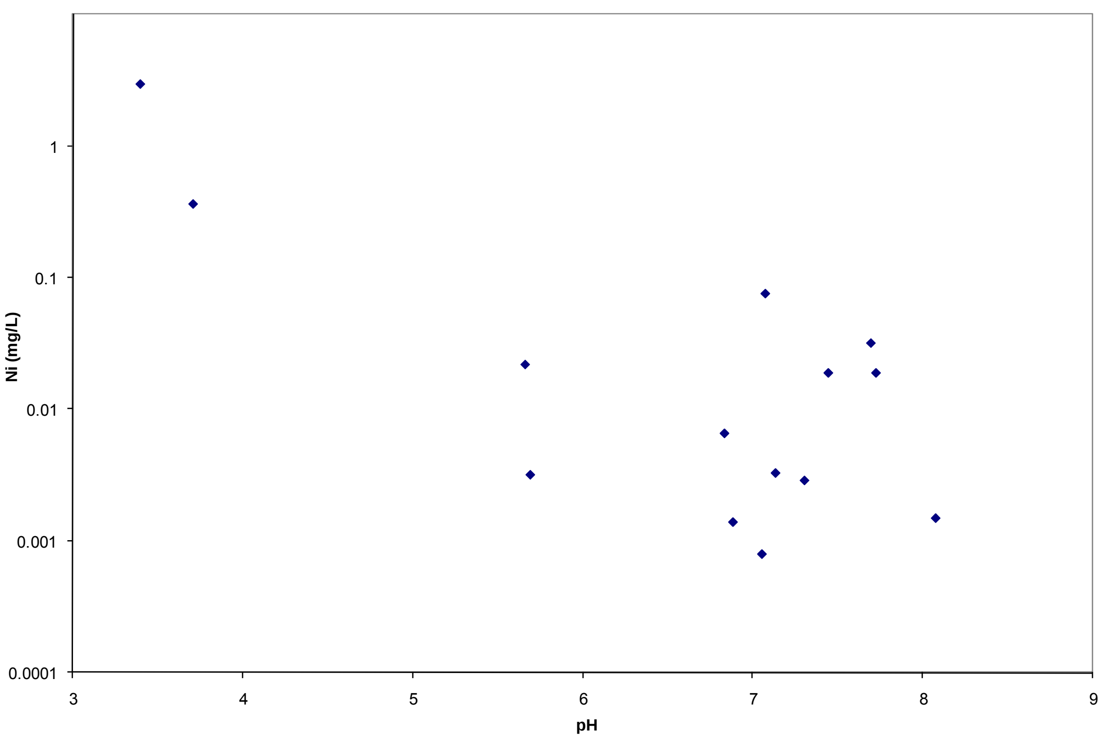




**Figure 4: Nickel and Copper Compared to pH for MWMP Leachates**

### 2.3.3 Geological Sources Up-Ice of the Project Area

Borehole RS-14B was underlain by Virginia Formation in the assumed direction up-ice of the Duluth Complex. The hole encountered bedrock at 5 feet.

The soil sample (peat) collected at RS-14B had elevated sulfur content (0.15%), a typical copper concentration (87 ppm) and a slightly low nickel concentration (59 ppm) when compared to the whole dataset.

Compared to the whole dataset, the upper till sample collected at this location had a low rinse pH (5.41), and slightly higher than typical sulfur, copper and nickel concentrations (0.09%, 190 ppm and 110 ppm, respectively).

### 2.3.4 Underlying Bedrock Geology

Table 2 presents comparative statistics for mineral overburden samples overlying Virginia Formation, Unit 1 Troctolite, and "Other" (Units above 1) Troctolite bedrock (5, 12, and 20 samples, respectively). Figure 4 presents plots of metal content versus a ratio of depth to depth to bedrock. The plots indicate that depth is of little significance to metal concentrations.

Median sulfur concentrations were greatest in samples overlying Virginia Formation bedrock (0.13%), followed by Unit 1 Troctolite (0.06%) and Other Troctolite (0.02%). Extreme values, however, appeared to be unrelated to bedrock type.

Median and extreme copper and nickel concentrations were greatest in samples overlying Unit 1 Troctolite.

Leachate from the R14B sample overlying Virginia Formation bedrock had one of the lowest pH values (3.7) and much higher than typical sulfate, copper, and nickel concentrations (188, 0.11, and 0.36 mg/L, respectively).

MWMP leachate pHs for six samples overlying Unit 1 Troctolite bedrock were near neutral (7. 1 to 7.7) in all but one sample which had a pH of 5.7 (Table 3). The median and 95$^{th}$ percentile sulfate concentrations were 32 and 149 mg/L, respectively.

Leachate pH for seven samples overlying Other Troctolite bedrock varied from 3.4 to 8.1 (with a median value of 6.9) resulting in a wide range of leachable sulfate and metal concentrations.

Overall, the data appeared to indicate bedrock geology exerts a subtle control on the sulfur content of the overburden (i.e. the comparatively elevated median concentrations for samples overlying the Virginia Formation and Unit 1) but that higher sulfur concentrations are not linked to bedrock.

### 2.3.5 Distance from Mineralized Bedrock

Figure 5 presents the spatial distribution of weighted average sulfur, copper and nickel concentrations in the main stratigraphic horizons for each hole to evaluate down-ice movement of potentially metal-rich bedrock from the mineralized Virginia Formation and Unit 1 of the Duluth Complex. In general, it is expected that these effects might be different for the stratigraphic units.

As noted in the Section 4.4, expected differences in bedrock (range of sulfur concentrations) is apparent in the overburden. This implies that ice movement has not eliminated the effect of bedrock but it is apparent from the range of sulfur concentrations in the overburden that other factors have resulted in variation in sulfur concentrations which may in part be attributed to movement of sulfur-bearing bedrock down ice from their sources.

### Table 2: Summarized Statistics for Various Data Groupings (-74 µm fraction)

| | Total Sulfur (%) | | | | | | Copper (ppm) | | | | | | Nickel (ppm) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | n | min | P5 | P50 | P95 | max | n | min | P5 | P50 | P95 | max | n | min | P5 | P50 | P95 | max |
| Virginia Formation | 5 | 0.02 | 0.03 | 0.13 | 0.24 | 0.26 | 5 | 40 | 54 | 120 | 230 | 240 | 5 | 80 | 82 | 110 | 128 | 130 |
| Unit 1 Troctolite | 12 | 0.01 | 0.01 | 0.06 | 0.33 | 0.53 | 12 | 30 | 30 | 110 | 933 | 1120 | 12 | 40 | 40 | 105 | 453 | 530 |
| Other Troctolite | 20 | 0.01 | 0.01 | 0.02 | 0.61 | 0.63 | 21 | 20 | 20 | 60 | 290 | 1510 | 21 | 30 | 30 | 60 | 190 | 470 |
| Peat | 3 | 0.01 | 0.02 | 0.15 | 0.56 | 0.61 | 3 | 20 | 35 | 170 | 251 | 260 | 3 | 40 | 42 | 60 | 123 | 130 |
| Soil | 7 | 0.02 | 0.02 | 0.06 | 0.14 | 0.15 | 7 | 30 | 33 | 110 | 213 | 240 | 7 | 50 | 56 | 90 | 127 | 130 |
| Outwash | 1 | | | 0.63 | | | 1 | | | 1510 | | | 1 | | | 470 | | |
| Upper Till | 17 | 0.01 | 0.01 | 0.01 | 0.11 | 0.18 | 18 | 20 | 29 | 50 | 205 | 290 | 18 | 30 | 30 | 50 | 139 | 190 |
| Lower Till | 7 | 0.04 | 0.04 | 0.07 | 0.23 | 0.17 | 7 | 40 | 55 | 110 | 618 | 780 | 7 | 40 | 58 | 120 | 330 | 390 |
| Saturated Mineral | 16 | 0.01 | 0.01 | 0.06 | 0.56 | 0.63 | 17 | 30 | 30 | 60 | 1198 | 1510 | 17 | 30 | 38 | 110 | 482 | 530 |
| Unsaturated Mineral | 11 | 0.01 | 0.01 | 0.02 | 0.11 | 0.13 | 11 | 20 | 25 | 70 | 155 | 190 | 11 | 30 | 35 | 70 | 115 | 120 |

\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\Data\2008-10_Compiled_Data\[Compiled_Overburden_Data.1UP005.001.mc.20081021.xls]

### Table 3: Summarized Statistics for MWMP Tests

| | Leachate pH | | | | | | Sulfate (mg/L) | | | | | | Copper (mg/L) | | | | | | Nickel (mg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | n | min | P5 | P50 | P95 | max | n | min | P5 | P50 | P95 | max | n | min | P5 | P50 | P95 | max | n | min | P5 | P50 | P95 | Max |
| Virginia Formation | 1 | | | 3.7 | | | 1 | | | 188 | | | 1 | | | 0.11 | | | 1 | | | 0.36 | | |
| Unit 1 Troctolite | 6 | 5.7 | 6.0 | 7.3 | 7.7 | 7.7 | 6 | 1.7 | 3.4 | 32 | 149 | 166 | 6 | 0.0043 | 0.0052 | 0.0086 | 0.061 | 0.072 | 6 | 0.00080 | 0.0054 | 0.021 | 0.065 | 0.076 |
| Other Troctolite | 7 | 3.4 | 4.1 | 6.9 | 7.8 | 8.1 | 7 | 3.4 | 3.8 | 21 | 189 | 230 | 7 | 0.0030 | 0.0036 | 0.0072 | 0.41 | 0.58 | 7 | 0.0014 | 0.0014 | 0.0032 | 2.1 | 3.0 |
| Peat | 2 | 6.8 | 6.9 | 7.5 | 8.0 | 8.1 | 2 | 68 | 70 | 81 | 92 | 93 | 2 | 0.0030 | 0.0034 | 0.0070 | 0.011 | 0.011 | 2 | 0.0015 | 0.0018 | 0.0041 | 0.0063 | 0.0066 |
| Soil | 2 | 5.7 | 5.7 | 6.3 | 6.8 | 6.9 | 2 | 3.4 | 4.4 | 14 | 23 | 24 | 2 | 0.0054 | 0.0087 | 0.039 | 0.069 | 0.072 | 2 | 0.0014 | 0.0024 | 0.012 | 0.021 | 0.022 |
| Outwash | 1 | | | 3.4 | | | 1 | | | 230 | | | 1 | | | 0.58 | | | 1 | | | 3.0 | | |
| Upper Till | 6 | 5.7 | 6.0 | 7.2 | 7.7 | 7.7 | 6 | 1.7 | 2.5 | 13 | 35 | 40 | 6 | 0.0050 | 0.0056 | 0.0086 | 0.025 | 0.028 | 6 | 0.00080 | 0.0013 | 0.0033 | 0.019 | 0.019 |
| Lower Till | 3 | 3.7 | 4.0 | 7.1 | 7.6 | 7.7 | 3 | 97 | 104 | 166 | 186 | 188 | 3 | 0.0043 | 0.0047 | 0.0080 | 0.10 | 0.11 | 3 | 0.032 | 0.0364 | 0.076 | 0.34 | 0.36 |
| Saturated Inorganics | 6 | 3.4 | 4.0 | 7.3 | 7.7 | 7.7 | 6 | 4.8 | 5.7 | 69 | 214 | 230 | 6 | 0.0043 | 0.0052 | 0.013 | 0.44 | 0.58 | 6 | 0.0032 | 0.0072 | 0.026 | 2.2 | 3.0 |
| Unsaturated Inorganics | 3 | 6.9 | 6.9 | 7.1 | 7.1 | 7.1 | 3 | 1.7 | 1.9 | 3.4 | 15 | 17 | 3 | 0.0050 | 0.0050 | 0.0054 | 0.0080 | 0.0083 | 3 | 0.00080 | 0.00086 | 0.0014 | 0.0031 | 0.0033 |

\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\Data\2008-10_Compiled_Data\[Compiled_Overburden_Data.1UP005.001.mc.20081021.xls]

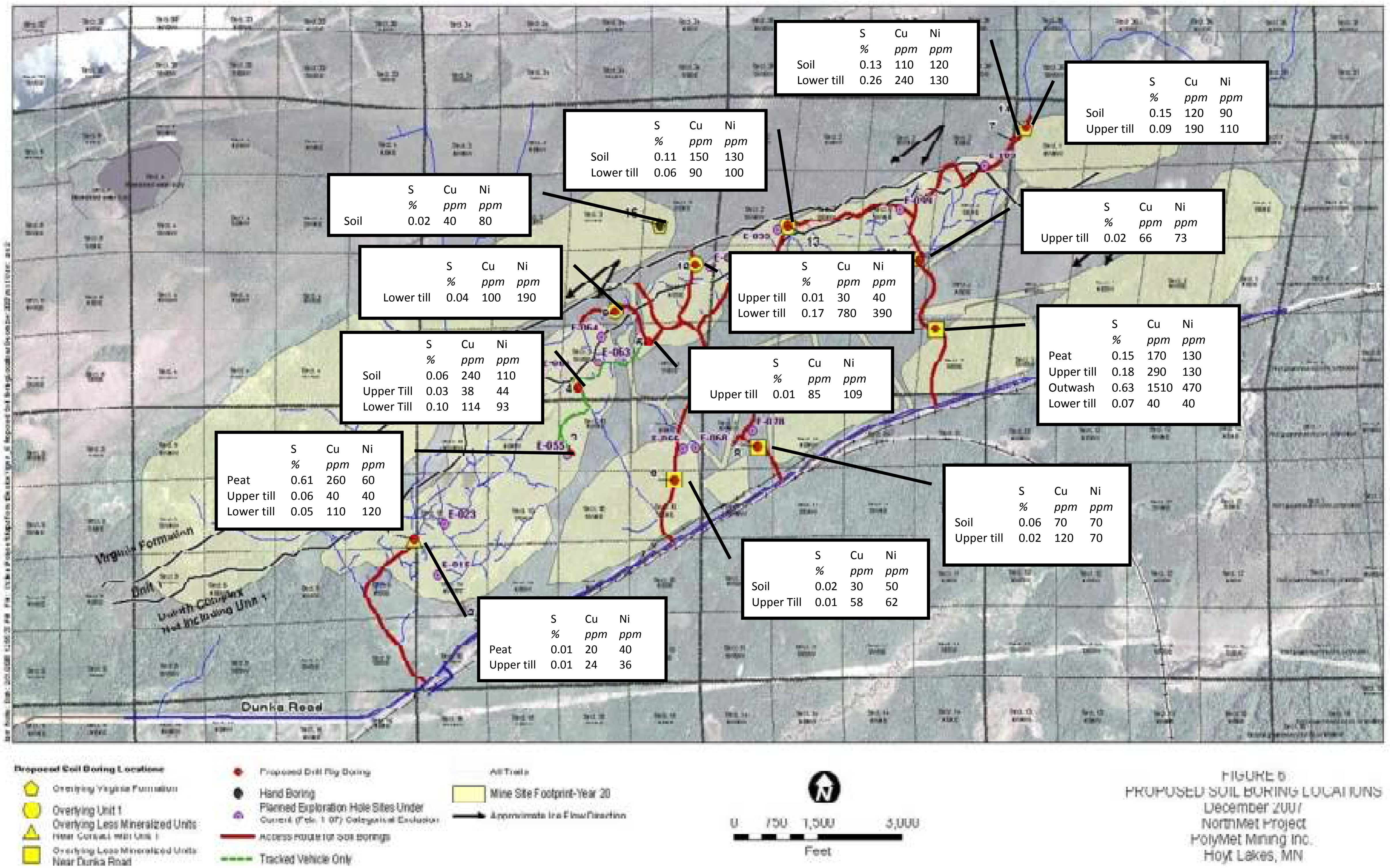



**Figure 5: Weighted Average Sulfur, Copper, and Nickel Concentrations (-74 µm fraction)**

### 2.3.6 Glacial and Periglacial Deposition environment

Different depositional environments are indicated by stratigraphic units in the overburden. Barr Engineering has interpreted two main glacial units (Upper and Lower Till). Outwash was intersected in one hole. Peat deposits are common in the project area and were specifically characterized. Thin mineral soils are also present although in some cases these were described as peat. In the comparative statistics in Table 2, samples indicated as "soil" reflect both peat and mineral soils.

The three samples classified specifically as "peat" had the highest median total sulfur and nickel concentrations. MWMP leachates for the 2 peat samples tested had circum-neutral pH. One sample (from borehole RS-01B) had a typical sulfate concentration, and low copper and nickel concentrations. The second sample (from borehole RS-03) had slightly higher than typical sulfate concentrations and typical copper and nickel concentrations.

Comparatively, Lower Till samples had higher median sulfur, copper and nickel concentrations than the Upper Till unit. MWMP leachate from one of the Lower Till samples (borehole RS-07) had one of the lowest pH values (3.7) and much higher than typical sulfate, copper, and nickel concentrations (188, 0.11, and 0.36 mg/L, respectively) (Table 3). Leachate from the other two Lower Till samples had circum-neutral pH and higher than typical sulfate, low to typical copper, and high nickel concentrations. MWMP leachates from six upper till samples had low to typical sulfate, copper, and nickel concentrations.

The one intersection of "outwash" had the highest sulfur, copper and nickel concentrations in the database and leached elevated sulphate and low pH in the MWMP (Table 3).

### 2.3.7 Groundwater Level during Deposition

The groundwater level during deposition of the glacial tills could not be evaluated and was not considered further.

### 2.3.8 Degree of Saturation

Table 2 presents comparative statistics of total sulfur, copper and nickel concentrations for saturated and unsaturated mineral overburden. Peat is by definition saturated and is considered in Section 4.6.

When comparing degree of saturation in mineral overburden, sulfur concentrations were greater in the saturated overburden ($5^{th}$, $50^{th}$, and $95^{th}$ percentile concentrations of 0.01, 0.06, and 0.56%, respectively). Unsaturated mineral overburden had $5^{th}$, $50^{th}$, and $95^{th}$ percentile concentrations of 0.01, 0.02, and 0.11% respectively.

Differences in metal concentrations were less apparent than for sulfur. Median copper concentrations were similar regardless of saturation though much higher copper concentrations were apparent at the extremes for saturated overburden. Similarly median nickel concentrations were only slightly greater in the saturated overburden though the difference was much greater at the extreme.

### 2.3.9 Effect of Oxidation-Reduction Conditions

As discussed in Section 2, wide variations in oxidation-reduction conditions were observed in the overburden as indicated by ORP determinations in field rinse tests. ORP in general decreased with increasing depth implying a correlation with degree of saturation. In addition, indications of secondary sulfide minerals were recorded throughout the survey area in six drill holes, though the implied presence of secondary sulfide minerals did not always correlate with low ORP or necessarily elevated sulfur concentrations.

As noted previously, sulfur in general appeared to be more enriched in the fine fraction. The latter would not generally be expected if the sulfides originated from bedrock materials (or at least sulfur concentrations would be the same in the fine and coarse fractions).

In general, sulfur concentrations showed a trend to increasing concentrations as ORP decreased (Figure 6) with one or two extreme values in boreholes RS11 and RS13. The sample from borehole RS13 indicated the presence of mineralized rock under saturated and reducing conditions (ORP-69 mV) and therefore the elevated sulfur concentrations in the fines may originate from bedrock rather than secondary sulfide precipitation although the presence of sulfur in the bedrock could contribute to conditions that produce secondary sulfides.

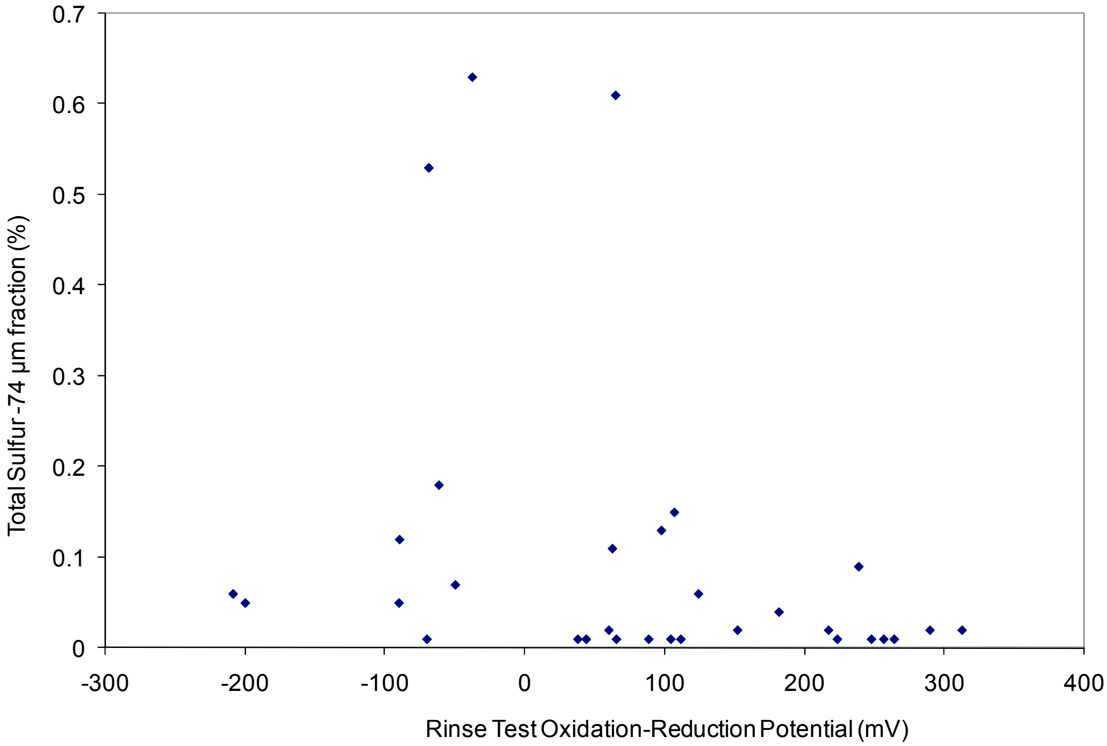



**Figure 6: Total Sulfur Compared to Rinse ORP**

The two lowest pHs indicated by MWMP tests were on samples that had indications of secondary sulfides (boreholes RS-07 and RS-11) (Table 3). These samples also yielded the highest leachable sulfate (188 and 230 mg/L) and metal concentrations. Other samples yielded non-acidic pHs and intermediate sulfate concentrations compared to samples that did not have secondary sulfides.

### 2.3.10 Conclusions

The data appear to indicate a vertical rather than a strong lateral variation in metal and sulfur concentrations in mineral overburden. The vertical effects appear as relatively higher sulfur and metal concentrations in the lower till rather than upper till units, and higher sulfur concentrations in chemically-reduced overburden. The two findings are not independent, however, because the lower till occurs deeper in the overburden profile where the overburden is saturated and chemically reducing conditions are observed.

Bedrock also exerts some control on sulfur and metal concentrations as indicated by relatively elevated though comparatively low median concentrations in overburden overlying the Virginia Formation and Unit 1 of the Duluth Complex, which is consistent with the sulfur content of the bedrock. However, elevated sulfur concentrations occur in the overburden overlying the other units of the Duluth Complex due to the vertical zoning effects.

## 2.4 Interpretation of Overburden Drilling Program Results

### 2.4.1 Possible Explanation for Vertical Zoning

Sporadic elevated sulfur concentrations and the potential for leaching of acidity and metals from the overburden appears to be related to the development of vertical zoning caused by saturated and chemically-reducing conditions. Precipitation of secondary sulfides appears to have occurred in the overburden. The conditions necessary for this to occur include the presence of organic matter to act as a reductant and a source of sulfur to provide sulfide. The presence of peat in the project area indicates that dissolved organic matter may be entering groundwater. Sulfur most likely originates from reduction of sulfate to sulfide with the sulfate originating from the mineralized bedrock.

### 2.4.2 Management of Overburden

The data indicate the need to consider selectively managing the deeper saturated overburden to address oxidation of secondary sulfides when exposed to atmospheric conditions during excavation. The current program indicates that secondary sulfides may occur throughout the project area and therefore that currently all deeper overburden should be managed to address the potential for leaching. Management of deep overburden separately would also address exposure of overburden containing mineralized rock overlying Virginia Formation and Unit 1 Troctolite.

In contrast, near surface unsaturated till contains relatively low sulfur and metal concentrations and leached low concentrations of metals.

Two management units are therefore recommended:

- Peat and unsaturated mineral overburden.
- Saturated mineral overburden.

### 2.4.3 Water Chemistry

Contact water chemistry estimates have been specifically requested for the mineral overburden units in the excavation areas and stockpiles.

The analysis of MWMP leachates provides an indicator of chemistry when stormwater comes into contact with exposed surfaces for example in excavations. In these situations, contact time is limited and the contact ratio (water to solid) is relatively high. Table 4 summarizes concentrations at the median, 95$^{th}$ percentile and maximum concentrations[5]. Generally, the 95$^{th}$ percentile values are recommended for exposed excavation faces to conservatively represent storm water since these are likely to represent the longest contact time with most soluble materials.

Due to the lack of mineralization in the unsaturated overburden, contact water chemistry is expected to be dilute and similar to existing runoff in the project area. Qualitatively, the MWMP tests confirmed that these materials produce dilute contact waters containing low concentrations of major and trace elements.

[5] Prior to complete interpretation of the data, the data were sorted using slightly different groups and provided to Barr Engineering to support RS74 (Draft 02). This version is attached as Appendix B for reference.

Components of the saturated mineral overburden are expected to contain elevated sulfur concentrations and may produce acidic leachate when exposed. The current testwork showed that only samples containing more than 0.2% sulfur produced acidic leachate between recovery by the drill program and testing in the laboratory; however, it is possible that with further exposure, other samples containing lower sulfur concentrations could produce acidity. Also, the extent of elevated sulfur concentrations in the saturated overburden is not known. The acidic pHs represented by the $95^{th}$ and maximum values should therefore be applied to the component of water that comes into contact with these materials during excavation and exposure to oxidation.

Application of MWMP results to estimation of seepage chemistry for an overburden stockpile needs to consider the disposal conditions and opportunity for water to contact the materials. Based on the current material balance, the only overburden stockpiles planned will be unsaturated overburden and peat stockpiles in the Overburden Storage and Laydown Area. Saturated overburden will mainly be placed within the temporary waste rock stockpiles for ultimate disposal in the backfilled East Pit. Therefore, the use of the $95^{th}$ percentile contact chemistry would be warranted for the determination of the groundwater impact when comingled with the waste rock in the temporary stockpile without compaction to reduce water infiltration. However, if a saturated overburden stockpile is required in the future, the use of $95^{th}$ percentile contact chemistry for the saturated overburden is not warranted if infiltration can be minimized using standard compaction techniques. If saturated overburden is stockpiled separately in the future, it is recommended that the median values for the saturated overburden be used as an estimate for water quality.

## Table 4: Summary of MWMP Leachate Results By Material Type

| | pH | Alk | F | Cl | $SO_4$ | Al | Sb | As | Ba | Be | B | Cd | Ca | Cr | Co | Cu | Fe | Pb | Mg | Mn | Mo | Ni | Se | Ag | Na | Te | Tl | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Material | | 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 | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| **PEAT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P50 | 7.5 | 46 | 0.59 | 5.9 | 81 | 0.086 | 0.0006 | 0.0037 | 0.023 | <0.0002 | 0.21 | <0.00004 | 19 | 0.0004 | 0.0003 | 0.007 | 0.07 | 0.00009 | 9.3 | 0.13 | 0.019 | 0.0041 | 0.00075 | 0.00068 | 26 | <0.0002 | 0.000045 | 0.0034 | 0.0015 |
| P95 | 6.9 | 79 | 1 | 8.8 | 92 | 0.13 | 0.00069 | 0.0043 | 0.034 | <0.0002 | 0.23 | <0.00004 | 23 | 0.00094 | 0.00066 | 0.011 | 0.12 | 0.00022 | 11 | 0.19 | 0.028 | 0.0063 | 0.00089 | 0.0013 | 45 | <0.0002 | 0.0001 | 0.0042 | 0.0038 |
| Max | 6.8 | 83 | 1.1 | 9.2 | 93 | 0.13 | 0.0007 | 0.0044 | 0.035 | <0.0002 | 0.23 | <0.00004 | 23 | 0.001 | 0.0007 | 0.011 | 0.12 | 0.00023 | 11 | 0.19 | 0.029 | 0.0066 | 0.0009 | 0.0014 | 47 | <0.0002 | 0.00011 | 0.0043 | 0.004 |
| **SATURATED MINERAL OVERBURDEN** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P50 | 7.3 | 13 | 0.33 | 2 | 69 | 0.14 | 0.0004 | 0.0023 | 0.011 | <0.0002 | 0.027 | 0.000015 | 13 | 0.00005 | 0.0015 | 0.013 | 0.11 | <0.00005 | 11 | 0.18 | 0.029 | 0.026 | 0.002 | <0.00005 | 6.5 | <0.0002 | <0.00002 | 0.0011 | 0.003 |
| P95 | 4 | 36 | 0.56 | 3.8 | 210 | 0.63 | 0.0012 | 0.0028 | 0.026 | 0.00055 | 0.087 | 0.005 | 26 | 0.0012 | 0.23 | 0.44 | 5.5 | 0.0011 | 18 | 1.1 | 0.034 | 2.2 | 0.0034 | <0.00005 | 13 | <0.0002 | 0.000025 | 0.0022 | 0.86 |
| Max | 3.4 | 38 | 0.6 | 4 | 230 | 0.74 | 0.0012 | 0.0028 | 0.028 | 0.0008 | 0.098 | 0.0066 | 27 | 0.0013 | 0.31 | 0.58 | 7.3 | 0.0014 | 18 | 1.3 | 0.034 | 3 | 0.0037 | <0.00005 | 13 | <0.0002 | 0.00004 | 0.0024 | 1.2 |
| **UNSATURATED MINERAL OVERBURDEN** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P50 | 7.1 | 5 | 0.18 | 1.9 | 3.4 | 0.091 | <0.0001 | 0.0005 | 0.0035 | <0.0002 | 0.013 | 0.00005 | 3.9 | <0.0002 | 0.0006 | 0.0054 | 0.05 | <0.00005 | 2 | 0.051 | 0.0039 | 0.0014 | <0.0002 | <0.00005 | 3.7 | <0.0002 | <0.00002 | 0.0005 | 0.002 |
| P95 | 6.9 | 12 | 0.45 | 3.4 | 15 | 0.3 | 0.00098 | 0.0029 | 0.013 | <0.0002 | 0.028 | 0.00015 | 5.7 | 0.00097 | 0.0015 | 0.008 | 0.059 | <0.00005 | 2.1 | 0.1 | 0.013 | 0.0031 | 0.00052 | <0.00005 | 4.2 | <0.0002 | 0.000025 | 0.00059 | 0.0056 |
| Max | 6.9 | 13 | 0.48 | 3.6 | 17 | 0.32 | 0.0011 | 0.0032 | 0.014 | <0.0002 | 0.03 | 0.00016 | 5.9 | 0.0011 | 0.0016 | 0.0083 | 0.06 | <0.00005 | 2.1 | 0.11 | 0.014 | 0.0033 | 0.0006 | <0.00005 | 4.3 | <0.0002 | 0.00003 | 0.0006 | 0.006 |

\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\Data\2008-10_Compiled_Data\[Compiled_Overburden_Data.1UP005.001.mc.20081021.xls]

# 3 2010 Sump Spoil Sampling and Analysis Program

## 3.1 Field Program

Sump excavation occurred as bedrock drilling progressed in the project area in January 2010. Each sump is roughly 8' by 8' and 5' deep. The intent of this sampling effort was to collect additional samples of unsaturated overburden to further characterize the material for use in construction applications. The following sampling procedures were followed by Barr Engineering, as described in an email to MDNR and ERM dated February 26, 2010:

1. For sumps that had already been excavated and filled with drill cuttings but not yet closed (J020, J018, and the "central sump" located near MW-05-08), break up the frozen spoil pile with a spud bar to collect the sample (as described in step 5). Describe any remaining exposed sidewall, and describe the soil sampled, once a split of the samples has been thawed.
2. For sumps not already opened, excavate the sump by segregating bulk soils of different compositions or colors into individual spoil piles. Do not segregate individual layers unless a significant thickness (minimum of 2') is observed, due to sample volume requirements and equipment inefficiencies at smaller scales. Document the depths each spoil pile came from (i.e., 0-3, 3-6, etc), and describe (color; texture [ASTM D2488]; moisture; mottling, if present; reaction with dilute HCl; magnetic properties) the sump profile.
3. Photograph sump profiles and spoil piles.
4. Record location using GPS.
5. Collect samples from the spoil piles at each sump, collecting about 4-5 gallons of soil per sample to provide sufficient samples for analysis.
6. Split the sample to keep about a half gallon of soil thawed for rinse testing and freeze the remaining sample for further analysis.

Sump locations are shown in Figure 7. A total of 13 samples were collected from nine locations as listed in Table 5.

### Table 5: Summary of Samples Collected

| Location | Depths Sampled |
|---|---|
| J007 | 0-3, 3-5 |
| J008 | 0-3.5, 3.5-4.6 |
| J012 | 0-3, 3-6 |
| J013 | Composite |
| J019 | 0-2 |
| J024 | 0-2 |
| J029 | 0-5 |
| J037 | 0-3, 3-6 |
| J107 | Composite |

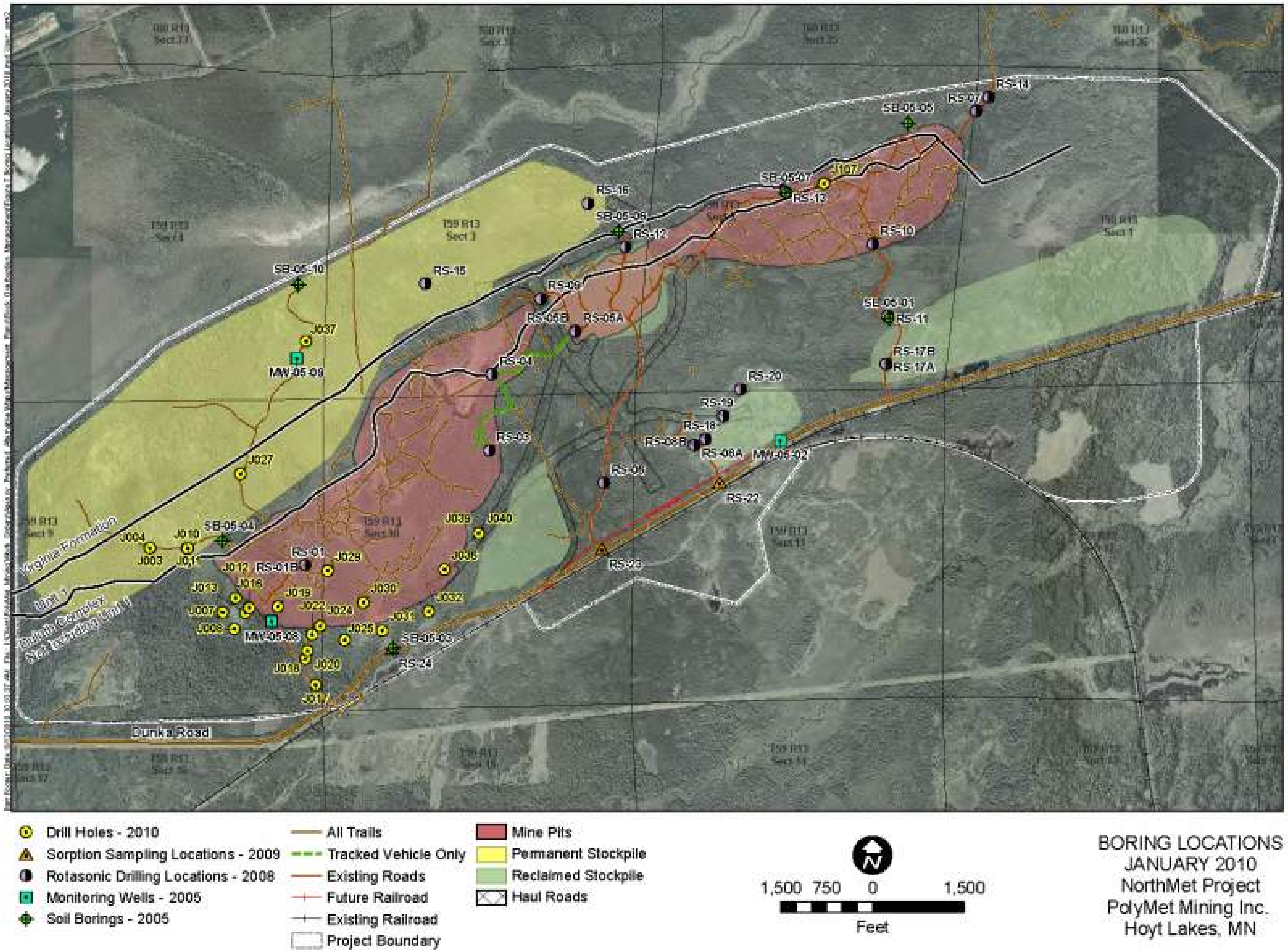



**Figure 7: Location of 2010 Sumps**

## 3.2 Analytical Program

The analytical plan was provided to the MDNR by email on March 3, 2010.

### 3.2.1 Rinse Analysis

Rinse analyses were performed by Barr personnel using a procedure provided by SRK. The procedure involves leaching a sub-sample screened to -5 mm at a liquid to solid ratio of 1:1 (roughly by weight). The resulting leachate is tested for pH and conductivity.

### 3.2.2 Laboratory Program

At the laboratory, the following analyses were performed:

- A split of the whole sample was used to measure the particle size distribution using ASTM method D422.
- A split of the whole sample was tested using the meteoric water mobility procedure (MWMP, NDEP 1996[6]).
- The -2 mm fraction was tested for acid-base account (Sobek et al 1978[7]), moisture content, element content by aqua regia digestion and element content by 1N nitric acid digestion.

As described in the March 3, 2010 email, the 1N nitric acid digestion was proposed to evaluate reasonably labile methods as recommended by the Regional Technical Committee of the USDA (W 124, The Optimum Utilization of Sewage Sludge on Agricultural Land) (Pierce 1980[8]).

## 3.3 Results

Laboratory reports are provided in Appendix C.

### 3.3.1 Field Observations and Rinse Tests

Field observations are attached in Appendix C. All soil samples subsequently tested were described as “Dry”, “Dry to Moist” or “Moist” but none were saturated. Yellowish and brown soil colors were mostly indicative of oxidizing conditions. Three samples were olive brown.

Rinse conductivities were very uniform and low (average 16 µS/cm, range 7 to 26 µS/cm). Rinse pHs averaged 6.7 with a range of 5.8 to 9.0. The low conductivities indicate that the deionized water was weakly modified by contact with the soils and as a result some rinse pHs were only marginally above the typical pH of the deionized water.

### 3.3.2 Laboratory Analysis

*Acid Base Accounting*

Acid-base accounting provide an indication of potential for acidic conditions to develop by determining acid potential from the reactive sulfur component, and acid neutralization potential. Results are provided in Table 6.

[6] Nevada Division of Environmental Protection. 1996. Meteoric Water Mobility Procedure (MWMP) Standardized Column Test Procedure. *NDEP publication MWMP.ltr*. May 3 1996. 6p

[7] Sobek A A, Schuller W A, Freeman J R, and Smith R M., 1978, Field and laboratory methods applicable to overburden and minesoils. USEPA Report No. 600/2-78-054, 203 pp.

[8] Pierce, F.J. 1980. The content and distribution of Cd, Cr, Cu, Ni, Pb, and Zn in 16 selected Minnesota soil series. M.S. thesis, University of Minnesota, St. Paul, MN, USA. 140 p.

Paste pH, which is similar to rinse pH except the sample is crushed rather than sieved for analysis, showed similar pHs as the rinse test. Average pH was 6.4 and the range was 5.4 to 7.1.

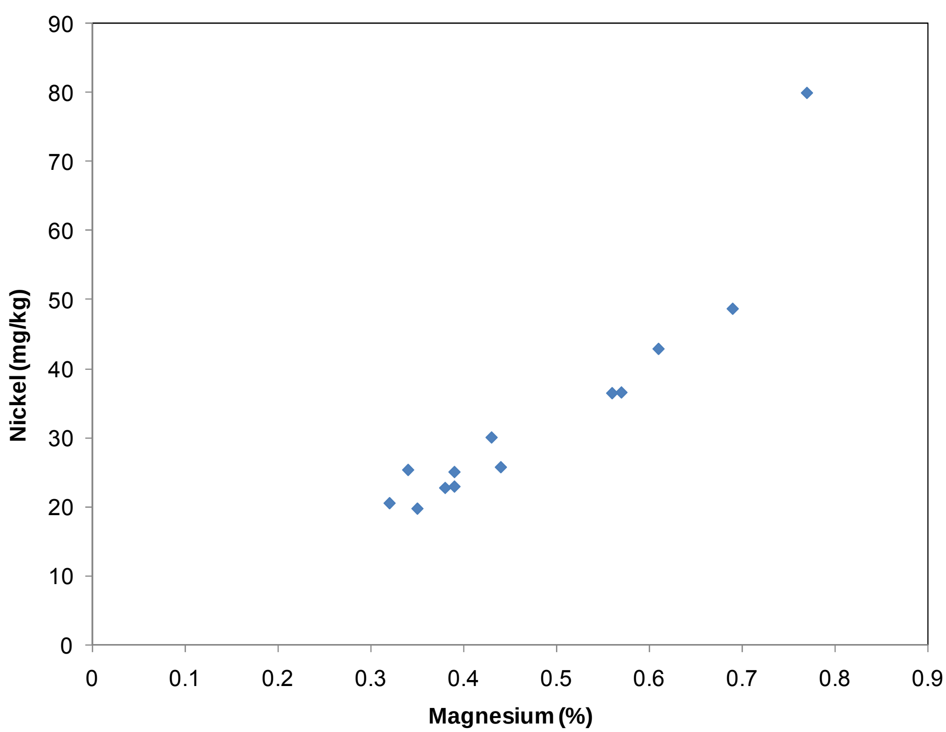
The total sulfur content of all samples was very low (average 0.02%, maximum 0.03%). These concentrations were very close to the detection limit of 0.01%. Sulfur likely occurs as trace levels of sulfate, sulfide and sulfur associated with carbonaceous matter.

The "fizz test" showed no visible fizz with 10% hydrochloric acid and indicated low carbonate content, which was confirmed by carbonate analysis. Only one sample contained carbonate above the detection level of 0.2% $CO_2$. Titrated total NP tended to be higher than the carbonate content due to acid buffering by non-carbonate minerals.

These results indicated very low potential for acidic conditions to develop. These soils have very low reactivity from the standpoint of acid generation potential.

### 3.3.3 Element Content

Element content determined following an aqua regia digestion indicated very uniform concentrations (Table 7) with the exception of one sample (J107). Coefficients of variation were below about 30% for the dataset excluding J107. This sample showed higher concentrations of some elements commonly associated with sulfide minerals, particularly copper (87 mg/kg) and nickel (80 mg/kg). Nickel and magnesium concentrations were strongly correlated in the dataset (Figure 8) suggesting a variable influence from oxidized mafic rocks which could include basaltic rocks and gabbro from the Duluth Complex.




Y:\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\2010-07_Report\Interpretations\[ePolymet Static Testing Apr 09 10 (May 28

**Figure 8: Correlation of Magnesium and Nickel Concentrations for 2010 Overburden Samples**

Because the 1N nitric acid digestion required development by the laboratory, all tests were performed in duplicate to evaluate reproducibility. The laboratory analyzed the resulting leachates using two methods (ICP-ES and ICP-MS) to quantify concentrations for all parameters. Duplicate results were assessed with respect to a relative percent difference of 20% for results greater than 10 times the limit of detection. For the main parameters of interest, RPDs were outside this range for Cu (1 sample), Co (no samples) and nickel (5 samples). However, the highest RPD for these parameters was 33% and most were between 20 and 30%. Since this is a weak extraction, reproducibility is considered to be reasonable.

Results were reported by the laboratory as concentration in leachates. For comparison with concentrations yielded by the aqua regia digestion, the leachate concentrations were converted to mg/kg by multiplying by 5 (for results reported in mg/L) and 0.005 (for results reported in µg/L). Like the results of the higher strength aqua regia digestion, concentrations were uniform (Table 8). For cobalt, copper and nickel, coefficients of variation were below 50%.

The difference in extraction by aqua regia and 1N nitric acid were compared as percentages (Table 8). In all cases, nitric acid extracted less than aqua regia and differences in extraction could be attributed to mineral occurrence. Silicate minerals were the least soluble in nitric acid (though aqua reqia also incompletely dissolves silicates). Carbonates, secondary oxides and sulfides can all be expected to dissolve in both nitric and aqua regia to some degree. Major elements associated only with silicates (Na and K) showed the lowest extractions (4 and 6%, respectively). Major elements possibly associated with carbonates (Ca and Mg) showed higher extractions (26 and 16%, respectively). Aluminum and iron, which are likely associated with secondary oxides as well as silicates were more extractable than the alkali metals at 15% and 11%, respectively. Extractions of copper and nickel were higher than iron (19%, 13%) implying a greater association with oxide components compared to iron. The more extractable trace elements were cadmium (27%), cobalt (27%), lead (36%) and manganese (36%).

Aqua regia and nitric acid extractable concentrations were not correlated. Notably, sample J107, which had elevated aqua regia digestible metals concentrations, showed relatively low nitric acid extractable concentrations along with sample J007 (0-3).

Results from these tests were compared with results for the same procedure described by Pierce (1980) (Table 8) for Udept class soils. Concentrations determined for the NorthMet area soils were of the same order but consistently lower than those reported by Pierce (1980). A direct comparison of these datasets for soils from different areas analyzed by different laboratories should not be made but the results suggest that soils in the NorthMet area are not unusual in terms of weak acid extractability.

MWMP leachate pHs were typically between 6 and 7 with the exception of 5.9 for J107 (Table 9). Leachate chemistry was dominated by sulfate, bicarbonate, calcium, sodium and magnesium but concentrations were very low. Median sulfate concentrations were 4.3 mg/L and the maximum 10 mg/L (for J107). Metal concentrations were very low. Median copper and nickel concentrations were 0.005 and 0.0007 mg/L respectively.

## 3.4 Comparison with Results of Overburden Drilling Program

Table 10 compares sulfur, copper and nickel concentrations in unsaturated overburden collected during the drilling program with those collected from sump spoils. Due to differences in the analytical programs, the comparison is between the calculated concentrations in -2 mm from analysis of the -2+0.074 mm and -0.074 mm fraction of drilling samples and the analyzed -2 mm fraction of the sump spoils. The range of sulfur concentration was very similar in both cases. Copper and nickel concentrations were slightly elevated for the drill hole samples. This may reflect a greater influence from Duluth Complex rock at depth though the differences are small. The data support the conclusion that bulk characteristics of unsaturated overburden have been adequately characterized by these programs.

Table 11 provides a similar comparison for leachable components of unsaturated overburden. The distribution of concentrations is very similar for the original small dataset of three samples and the 13 sump spoils samples. These results also indicate that the database of 16 samples has demonstrated the low leaching potential of unsaturated overburden throughout the site.

# 4 Conclusions

Two overburden characterization programs have shown:

- Two overburden managements units (saturated; and unsaturated and peat) will classify excavated materials based on reactivity and leachability;
- Saturated overburden has higher reactivity apparently due to the localized presence of secondary sulfide minerals; and
- Unsaturated overburden consistently has low reactivity based on sulfur and metal content, and shows weak leachability when tested using MWMP.

## Table 6: Acid-Base Accounting Results for Sump Spoil Samples

| Sample ID | Paste pH Std. Units | $CO_2$ % $CO_2$ | Total S % S | Sulphate % S | AP kg $CaCO_3$/t | Sobek NP kg $CaCO_3$/t | Net NP kg $CaCO_3$/t | NP/AP Ratio | Fizz Test Visual |
|---|---|---|---|---|---|---|---|---|---|
| LOD | 0.01 | 0.2 | 0.01 | 0.01 | #N/A | 0.1 | #N/A | #N/A | #N/A |
| Method Code | Sobek | C-GAS05 | S-IR08 | S-GRA06a | Calc. | Sobek NP | Calc. | Calc. | Sobek |
| J007 (0-3) | 5.44 | <0.2 | 0.02 | <0.01 | 0.6 | 5.1 | 4.5 | 8.2 | None |
| J007 (3-5) | 6.83 | <0.2 | 0.01 | <0.01 | 0.3 | 8.4 | 8.1 | 26.9 | None |
| J008 (0-3.5) | 6.23 | <0.2 | <0.01 | <0.01 | <0.3 | 8.9 | 8.9 | 29.7 | None |
| J008 (3.5-4.6) | 6.65 | <0.2 | 0.02 | 0.01 | 0.3 | 8.8 | 8.5 | 28.2 | None |
| J012 (0-3) | 6.57 | <0.2 | 0.01 | 0.01 | <0.3 | 7.2 | 7.2 | 24.0 | None |
| J012 (3-6) | 6.89 | <0.2 | 0.03 | <0.01 | 0.9 | 7.3 | 6.4 | 7.8 | None |
| J013 | 6.28 | 0.2 | 0.02 | <0.01 | 0.6 | 7.8 | 7.2 | 12.5 | None |
| J019 (0-2) | 6.02 | 0.2 | 0.02 | <0.01 | 0.6 | 5.2 | 4.6 | 8.3 | None |
| J024 (0-2) | 6.69 | 0.2 | 0.01 | 0.01 | <0.3 | 7.3 | 7.3 | 24.3 | None |
| J029 (0-5) | 6.55 | 1.2 | 0.02 | 0.01 | 0.3 | 9.4 | 9.1 | 30.1 | None |
| J037 (0-3) | 6.05 | 0.2 | 0.01 | 0.01 | <0.3 | 5.7 | 5.7 | 19.0 | None |
| J037 (3-6) | 7.10 | 0.2 | 0.01 | 0.01 | <0.3 | 7.0 | 7.0 | 23.3 | None |
| J107[1] | 5.45 | <0.2 | 0.02 | 0.01 | 0.3 | 4.3 | 4.0 | 13.8 | None |
| **Duplicates** | | | | | | | | | |
| J007 (0-3) | 5.50 | | | | | 5.7 | | | None |

\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\2010-07_Report\Interpretations\[ePolymet Static Testing Apr 09 10 (May 28 10)_1UP005001_ver00.xls]

**Table 7: Metal Concentrations Determined Following Aqua Regia Digestion for Sump Spoil Samples**

| Sample ID | Co ppm | Cu ppm | Mg % | Ni ppm |
|---|---|---|---|---|
| LOD | 0.1 | 0.2 | 0.01 | 0.2 |
| Method Code | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 |
| J007 (0-3) | 12 | 24.5 | 0.61 | 42.9 |
| J007 (3-5) | 7.8 | 19.4 | 0.38 | 22.8 |
| J008 (0-3.5) | 11.2 | 25.4 | 0.57 | 36.6 |
| J008 (3.5-4.6) | 11.2 | 28 | 0.56 | 36.5 |
| J012 (0-3) | 8 | 28.2 | 0.39 | 23 |
| J012 (3-6) | 7.6 | 28.3 | 0.35 | 19.8 |
| J013 | 8.5 | 20.1 | 0.44 | 25.8 |
| J019 (0-2) | 9.2 | 18.5 | 0.43 | 30.1 |
| J024 (0-2) | 8.6 | 20 | 0.39 | 25.1 |
| J029 (0-5) | 12.9 | 28.7 | 0.69 | 48.7 |
| J037 (0-3) | 8.5 | 23.1 | 0.34 | 25.4 |
| J037 (3-6) | 6.8 | 17.3 | 0.32 | 20.6 |
| J107 | 15.5 | 86.7 | 0.77 | 79.9 |

\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\2010-07_Report\Interpretations\[ePolymet Static Testing Apr 09 10 (May 28 10)_1UP005001_ver00.xls]

## Table 8: Metal Concentrations Determined Following 1N Nitric Acid Extraction for Sump Spoil Samples

| Sample ID | Cd mg/kg | Cu mg/kg | Pb mg/kg | Zn mg/kg | Al mg/kg | Ca mg/kg | Co mg/kg | Fe mg/kg | K % | Mg mg/kg | Mn mg/kg | Na mg/kg | Ni mg/kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J007 (0-3) | 0.01 | 0.5 | 1 | 2.0 | 0.06 | 0.01 | 2.8 | 0.05 | -0.003 | 0.01 | 16 | 0.004 | 0.6 |
| J007 (3-5) | 0.01 | 5.5 | 1 | 3.3 | 0.20 | 0.16 | 2.5 | 0.32 | 0.006 | 0.09 | 226 | 0.003 | 5.1 |
| J008 (0-3.5) | 0.01 | 6.6 | 1 | 2.6 | 0.27 | 0.16 | 3.4 | 0.40 | 0.008 | 0.12 | 165 | 0.003 | 6.5 |
| J008 (3.5-4.6) | 0.01 | 8.0 | 1 | 2.9 | 0.25 | 0.17 | 3.3 | 0.36 | 0.007 | 0.12 | 199 | 0.003 | 7.5 |
| J012 (0-3) | 0.01 | 8.3 | 1 | 3.0 | 0.22 | 0.14 | 2.2 | 0.34 | 0.004 | 0.09 | 171 | 0.003 | 4.3 |
| J012 (3-6) | 0.01 | 8.6 | 1 | 3.5 | 0.18 | 0.15 | 2.1 | 0.33 | 0.007 | 0.09 | 163 | 0.003 | 4.0 |
| J013 | 0.02 | 4.4 | 1 | 2.3 | 0.28 | 0.13 | 2.3 | 0.27 | 0.006 | 0.07 | 165 | 0.003 | 3.8 |
| J019 (0-2) | 0.01 | 4.5 | 1 | 1.4 | 0.43 | 0.11 | 2.0 | 0.41 | 0.003 | 0.05 | 79 | 0.004 | 2.4 |
| J024 (0-2) | 0.01 | 5.0 | 1 | 3.1 | 0.20 | 0.13 | 2.5 | 0.41 | 0.004 | 0.10 | 188 | 0.003 | 4.6 |
| J029 (0-5) | 0.02 | 6.7 | 1 | 2.8 | 0.39 | 0.14 | 3.2 | 0.34 | 0.007 | 0.11 | 127 | 0.004 | 6.7 |
| J037 (0-3) | 0.01 | 4.7 | 1 | 2.7 | 0.21 | 0.13 | 3.0 | 0.44 | 0.004 | 0.09 | 297 | 0.003 | 4.2 |
| J037 (3-6) | 0.02 | 4.5 | 1 | 4.0 | 0.16 | 0.16 | 2.2 | 0.32 | 0.006 | 0.10 | 195 | 0.003 | 4.4 |
| J107 | 0.02 | 2.2 | 2 | 3.1 | 0.08 | 0.01 | 3.3 | 0.05 | -0.003 | 0.01 | 14 | 0.004 | 1.0 |
| **Extraction Compared to Aqua Regia** | | | | | | | | | | | | | |
| J007 (0-3) | 26% | 2% | 36% | 5% | 3% | 2% | 23% | 1% | -4% | 1% | 4% | 5% | 1% |
| J007 (3-5) | 29% | 28% | 36% | 14% | 18% | 35% | 32% | 12% | 8% | 24% | 43% | 5% | 22% |
| J008 (0-3.5) | 29% | 26% | 40% | 9% | 16% | 34% | 30% | 13% | 10% | 20% | 42% | 4% | 18% |
| J008 (3.5-4.6) | 23% | 29% | 38% | 9% | 16% | 31% | 30% | 11% | 7% | 21% | 43% | 3% | 20% |
| J012 (0-3) | 30% | 29% | 41% | 13% | 19% | 36% | 27% | 13% | 5% | 23% | 35% | 5% | 19% |
| J012 (3-6) | 24% | 30% | 34% | 14% | 17% | 37% | 27% | 12% | 7% | 25% | 31% | 4% | 20% |
| J013 | 33% | 22% | 40% | 9% | 20% | 29% | 27% | 11% | 6% | 15% | 42% | 4% | 15% |
| J019 (0-2) | 26% | 24% | 31% | 3% | 19% | 16% | 21% | 16% | 4% | 11% | 32% | 3% | 8% |
| J024 (0-2) | 23% | 25% | 33% | 13% | 18% | 34% | 29% | 14% | 5% | 25% | 38% | 4% | 18% |
| J029 (0-5) | 24% | 23% | 33% | 9% | 22% | 21% | 25% | 11% | 9% | 16% | 37% | 3% | 14% |
| J037 (0-3) | 27% | 20% | 36% | 13% | 18% | 32% | 35% | 18% | 6% | 26% | 59% | 5% | 17% |
| J037 (3-6) | 29% | 26% | 29% | 18% | 18% | 36% | 33% | 13% | 7% | 31% | 44% | 5% | 21% |
| J107 | 27% | 3% | 36% | 7% | 4% | 2% | 21% | 1% | -4% | 1% | 4% | 7% | 1% |
| Udept Soils (n=15, Pierce 1980) | | | | | | | | | | | | | |
| Average | 0.07 | 11 | 2.3 | 12.6 | - | - | - | - | - | - | - | - | 8.9 |

\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\2010-07_Report\Interpretations\[ePolymet Static Testing Apr 09 10 (May 28 10)_1UP005001_ver00.xls]
G:\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\2010-07_Report\Interpretations\[PierceData_1UP005001_SJD_VER00.xlsx]

## Table 9: MWMP Results for Sump Spoil Samples

| Sample ID | pH | F | $SO_4$ | Al | Sb | As | Ba | Be | B | Cd | Ca | Cr | Co | Cu | Fe | Pb | Mg | Mn | Hg | Mo | Ni | K | Se | Ag | Na | Tl | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 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 | ug/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| J007 (0-3) | 6.52 | 0.04 | 5 | 0.0815 | 0.00005 | 0.00036 | 0.00129 | 0.00002 | -0.05 | 0.000007 | 1.57 | 0.0003 | 0.000295 | 0.00513 | 0.015 | 0.000211 | 0.54 | 0.0133 | 0.02 | -0.00005 | 0.00041 | 0.14 | 0.00019 | -0.000005 | 1.98 | 0.000011 | 0.0006 | 0.0016 |
| J007 (3-5) | 6.75 | 0.07 | 1.6 | 0.141 | 0.00005 | 0.00037 | 0.00212 | 0.00002 | -0.05 | -0.000005 | 1.35 | 0.0004 | 0.000191 | 0.00468 | 0.133 | 0.000125 | 0.49 | 0.00452 | 0.02 | 0.00007 | 0.00067 | 0.12 | 0.00013 | -0.000005 | 1.66 | 0.000003 | 0.0009 | 0.0009 |
| J008 (0-3.5) | 6.58 | 0.03 | 1.1 | 0.257 | 0.00005 | 0.00052 | 0.0024 | 0.00004 | -0.05 | 0.000005 | 2.58 | 0.0008 | 0.000242 | 0.0069 | 0.143 | 0.000051 | 0.57 | 0.00656 | 0.02 | 0.00012 | 0.00093 | 0.53 | 0.0003 | 0.000008 | 1.25 | 0.000005 | 0.0008 | 0.0007 |
| J008 (3.5-4.6) | 6.62 | 0.03 | 0.8 | 0.201 | 0.00006 | 0.00057 | 0.00184 | 0.00005 | -0.05 | -0.000005 | 2.35 | 0.0008 | 0.000212 | 0.00759 | 0.127 | 0.000044 | 0.56 | 0.00597 | 0.02 | 0.00009 | 0.00113 | 0.26 | 0.00024 | 0.000008 | 1.65 | 0.000003 | 0.0009 | 0.0006 |
| J012 (0-3) | 6.74 | 0.05 | 4.8 | 0.049 | 0.00004 | 0.00026 | 0.00104 | 0.00001 | -0.05 | -0.000005 | 1.64 | 0.0004 | 0.000128 | 0.00437 | 0.035 | 0.000036 | 0.71 | 0.00344 | 0.01 | -0.00005 | 0.00064 | 0.11 | 0.00015 | -0.000005 | 2.23 | -0.000002 | 0.0004 | 0.0008 |
| J012 (3-6) | 6.9 | 0.07 | 5.3 | 0.205 | 0.00004 | 0.00039 | 0.00334 | 0.00002 | -0.05 | -0.000005 | 1.82 | 0.0006 | 0.00017 | 0.00367 | 0.239 | 0.000114 | 0.82 | 0.00722 | 0.01 | 0.00006 | 0.00073 | 0.22 | 0.00008 | -0.000005 | 2.01 | -0.000002 | 0.001 | 0.0011 |
| J013 | 6.53 | 0.02 | -0.5 | 0.559 | 0.00006 | 0.00053 | 0.00147 | 0.00007 | -0.05 | 0.000013 | 3.01 | 0.0015 | 0.000293 | 0.00622 | 0.179 | 0.000043 | 0.68 | 0.014 | 0.02 | 0.00006 | 0.00113 | 0.27 | 0.0004 | 0.000014 | 1.62 | 0.000004 | 0.0006 | 0.0019 |
| J019 (0-2) | 6.49 | 0.03 | 7.4 | 0.215 | 0.00006 | 0.00039 | 0.00061 | 0.00003 | -0.05 | -0.000005 | 4.07 | 0.0011 | 0.000296 | 0.00683 | 0.177 | 0.000034 | 1.4 | 0.0033 | 0.02 | -0.00005 | 0.00035 | -0.05 | 0.00031 | 0.000007 | 1.94 | 0.000004 | 0.001 | 0.0011 |
| J024 (0-2) | 6.49 | 0.06 | 4.3 | 0.0297 | 0.00002 | 0.00022 | 0.00079 | -0.00001 | -0.05 | -0.000005 | 1.82 | -0.0001 | 0.000123 | 0.00398 | 0.033 | 0.000074 | 0.68 | 0.0051 | -0.01 | -0.00005 | 0.00042 | 0.09 | 0.00014 | -0.000005 | 1.52 | -0.000002 | 0.0003 | 0.0012 |
| J029 (0-5) | 6.62 | 0.02 | 2.8 | 0.0778 | 0.00004 | 0.00026 | 0.00117 | 0.00001 | -0.05 | 0.000012 | 4.46 | 0.0002 | 0.00019 | 0.00643 | 0.027 | 0.000006 | 0.99 | 0.00475 | 0.01 | 0.00012 | 0.00037 | 0.37 | 0.00019 | -0.000005 | 1.95 | 0.000002 | 0.0004 | 0.0015 |
| J037 (0-3) | 6.25 | 0.05 | 4.4 | 0.0973 | 0.00004 | 0.00024 | 0.00142 | 0.00002 | -0.05 | -0.000005 | 1.34 | 0.0014 | 0.000129 | 0.0036 | 0.081 | 0.000026 | 0.65 | 0.0155 | 0.01 | -0.00005 | 0.00111 | 0.09 | 0.00026 | -0.000005 | 1.65 | 0.000003 | 0.0003 | 0.001 |
| J037 (3-6) | 6.42 | 0.13 | 2.1 | 0.139 | 0.00007 | 0.00043 | 0.00212 | 0.00002 | -0.05 | -0.000005 | 1.15 | 0.0014 | 0.000127 | 0.00519 | 0.152 | 0.000152 | 0.67 | 0.00687 | 0.01 | 0.00011 | 0.00116 | 0.15 | 0.00019 | -0.000005 | 1.67 | 0.000002 | 0.0012 | 0.001 |
| J107 | 5.85 | 0.01 | 10 | 0.0284 | 0.00002 | 0.0002 | 0.00402 | -0.00001 | -0.05 | 0.000026 | 2.13 | -0.0001 | 0.00036 | 0.00221 | 0.004 | 0.000038 | 0.93 | 0.0601 | -0.01 | -0.00005 | 0.00308 | 0.84 | 0.00046 | -0.000005 | 2.14 | 0.000008 | 0.0002 | 0.0018 |

\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\2010-07_Report\Interpretations\[ePolymet Static Testing Apr 09 10 (May 28 10)_1UP005001_ver00.xls]

## Table 10: Comparison of Sulfur, Nickel and Copper Content of Unsaturated Overburden

| | Total Sulfur (%) | | | | | | Copper (ppm) | | | | | | Nickel (ppm) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | n | min | P5 | P50 | P95 | max | n | min | P5 | P50 | P95 | max | n | min | P5 | P50 | P95 | max |
| Drilling Samples | 11 | 0.01 | 0.01 | 0.01 | 0.03 | 0.03 | 11 | 20 | 20 | 31 | 104 | 126 | 11 | 17 | 18 | 50 | 71 | 72 |
| Sump Spoils | 13 | 0.01 | 0.01 | 0.02 | 0.03 | 0.03 | 13 | 17 | 18 | 25 | 52 | 89 | 13 | 20 | 20 | 26 | 46 | 80 |

\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\2010-07_Report\Interpretations\[Calc-2mm_1UP005001_SJD_VER00.xlsx]
\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\2010-07_Report\Interpretations\[ePolymet Static Testing Apr 09 10 (May 28 10)_1UP005001_ver00.xls]

## Table 11: Comparison of Sulfate, Nickel and Copper Concentrations in MWMP Leachates from Unsaturated Overburden

| | Sulfate (mg/L) | | | | Copper (mg/L) | | | | Nickel (mg/L) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | n | P50 | P95 | max | n | P50 | P95 | max | n | P50 | P95 | max |
| Drilling Samples | 3 | 3.4 | 15 | 17 | 11 | 0.005 | 0.008 | 0.008 | 11 | 0.001 | 0.003 | 0.003 |
| Sump Spoils | 13 | 4.3 | 8.4 | 10 | 13 | 0.005 | 0.007 | 0.008 | 13 | 0.0007 | 0.002 | 0.003 |

\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\Data\2008-10_Compiled_Data\[Compiled_Overburden_Data.1UP005.001.mc.20081021.xls]
\\Van-svr0.van.na.srk.ad\ge_projects\PolyMet Mining\1UP005.01_Northmet_project_2004\Testwork\Overburden\2010-07_Report\Interpretations\[ePolymet Static Testing Apr 09 10 (May 28 10)_1UP005001_ver00.xls]

# Appendix A
# Drill Hole Overburden Geochemical Data

| Fraction Analyzed | | | Whole Sample | Whole Sample | Whole Sample | Whole Sample | Whole Sample | Whole Sample | -5 mm | -5 mm | -5 mm | Whole Sample | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **Stratigraphic Unit** | **Saturated** | **Oxidized** | **Texture** | **Sulfides** | **Other** | **pH** | **Specific Conductivity** | **ORP** | **Moisture Content** | **Total C** | **$CO_2$** | **Total Sulphur** | **Sulphate** | **MPA** |
| **Units** | From (ft) | To (ft) | | | | | | | | (µS/cm) | mV | % | % C | % CO2 | % S | % S | kgCaCO3/t ore |
| **Detection Limit** | | | | | | | | | | | | | 0.01 | 0.2 | 0.01 | 0.01 | 0.3 |
| **General Method** | | | Field Observation | Field Observation | Field Observation | Field Observation | Field Observation | Field Observation | Rinse Test | Rinse Test | Rinse Test | | ABA | ABA | ABA | ABA | ABA |
| **Analytical Method Code** | | | | | | | | | | | | | C-IR07 | C-GAS05 | S-IR08 | S-GRA06a | OA-VOL08 |
| RS-01B | 0 | 1 | Peat | | | Peat | | | 7.05 | 24 | 248.1 | 39 | | <0.2 | 0.01 | <0.01 | 2.8 |
| RS-01B | 1 | 5 | Upper till | N | Y | Sand | | | 5.86 | 10 | 256.9 | 4.7 | | <0.2 | 0.01 | 0.01 | 0.3 |
| RS-01B | 14 | 15 | Upper till | Y | Y | Sand | | | 6.37 | 16 | 223.7 | 5.7 | | <0.2 | 0.01 | 0.01 | <0.3 |
| RS-01B | 18 | 20 | Upper till | Y | N | Sand | | | 7.28 | 34 | 65.6 | 7.8 | | <0.2 | 0.01 | <0.01 | 0.3 |
| RS-01B | 20 | 25 | Lower till, Bedrock at 20.5ft | | | | | | 8.79 | 66 | -40 | 9.1 | | | | | |
| RS-03 | 5 | 10 | Peat | | | Peat | | | 5.17 | 116 | 65 | 65 | | NSS* | 0.61 | NSS* | NSS* |
| RS-03 | 15 | 20 | Upper till | Y | N | Sand | | | 7.4 | 50 | -208.7 | 4.3 | | <0.2 | 0.06 | 0.01 | 1.9 |
| RS-03 | 20 | 22 | Lower till, Bedrock at 22ft | Y | N | Gravel | | | 9.42 | 63 | -200 | 5.8 | | 0.3 | 0.05 | 0.02 | 1.6 |
| RS-04 | 1 | 5 | Soil | Y | Y | Silt | | | 5.77 | 22 | 124.3 | 12 | | <0.2 | 0.06 | 0.01 | 1.9 |
| RS-04 | 10 | 15 | Upper till | Y | Y | Sand | | | 6.33 | 25 | 104.5 | 3.8 | | <0.2 | 0.01 | 0.02 | 0.3 |
| RS-04 | 15 | 20 | Upper till (15-18ft), Lower till (18-25ft) | Y | N | Sand | Secondary | | 6.74 | 25 | -90 | 7.4 | | 0.2 | 0.05 | <0.01 | 1.6 |
| RS-04 | 20 | 25 | Lower till, Bedrock at 25ft | Y | N | Sand | Secondary | | 7.83 | 17 | -89.6 | 4.7 | | 0.3 | 0.12 | <0.01 | 3.8 |
| RS-05A | 5 | 10 | Upper till | mixed | mixed | mixed | | | 6.55 | 22 | 88.7 | 6.5 | | <0.2 | 0.01 | 0.04 | 0.3 |
| RS-05A | 10 | 13 | Upper till, Bedrock at 13ft | Y | N | Gravel | | | 8.9 | 88 | -70 | 2.5 | | <0.2 | 0.01 | 0.01 | 0.3 |
| RS-06A | 0.5 | 2 | Soil | N | Y | Sand | | | 4.84 | 5 | 313 | 6.8 | | 0.2 | 0.02 | 0.01 | 0.6 |
| RS-06A | 2 | 4 | Upper till | N | Y | Sand | | | 4.99 | 11 | 279 | 8.1 | | | | | |
| RS-06A | 5 | 7.5 | Upper till | N | Y | Sand | | | 5.82 | 12 | 264.4 | 9.5 | | <0.2 | 0.01 | <0.01 | 0.3 |
| RS-06A | 7.5 | 10 | Upper till | N | Y | Sand | | | 6.32 | 17 | 251 | 4.3 | | | | | |
| RS-06A | 15 | 19 | Upper till | Y | N | Sand | Secondary | | 6.75 | 18 | 38 | 9.5 | | <0.2 | 0.01 | <0.01 | 0.3 |
| RS-06A | 19 | 21 | Upper till, Bedrock at 21ft | Y | N | Sand | Secondary | | 7.86 | 20 | 18 | 9.1 | | | | | |
| RS-07 | 1 | 2 | Soil | N | Y | Sand | | | 5.61 | 45 | 97.8 | 15 | | <0.2 | 0.13 | <0.01 | 4.1 |
| RS-07 | 2 | 3 | Soil | N | Y | Sand | | | | | | 13 | | | | | |
| RS-07 | 3 | 5 | Upper till | N | Y | Sand | | | 6.1 | 52 | 27 | 9.4 | | | | | |
| RS-07 | 5 | 6 | Upper till | N | Y | Sand | | | 6.1 | 52 | 27 | 4.2 | | | | | |
| RS-07 | 6 | 10 | Lower till | | | | | | 6.4 | 17 | 60 | 5.8 | | | | | |
| RS-07R | 10 | 12 | Lower till (10-11ft), Bedrock (11-12ft) | | | | | | | | | 5.0 | | | | | |
| RS-07R | 13.5 | 14.5 | Bedrock | Y | N | Gravel | | | 7.48 | 82 | | 7.0 | | | | | |
| RS-07/RS-07R | 6 | 14.5 | Lower till | | | | | | | | | | | <0.2 | 0.26 | 0.01 | 8.1 |
| RS-08A | 0 | 1 | Soil | N | N | Sand | | | | | | 15 | | <0.2 | 0.06 | <0.01 | 1.9 |
| RS-08A | 1 | 5 | Upper till | N | N | Sand | | | 5.18 | 19 | 287.6 | 6.7 | | | | | |
| RS-08A | 5 | 11 | Upper till | N | N | Sand | Secondary | | 5.78 | 22 | 217.4 | 6.4 | | <0.2 | 0.02 | 0.05 | 0.6 |
| RS-09 | 7 | 8 | Lower till, Bedrock at 8ft | Y | N | Silt | Secondary | | 5.88 | 2 | 182 | 11 | | <0.2 | 0.04 | 0.03 | 1.3 |
| RS-10 | 1 | 2 | Upper till | N | Y | Sand | | | | | | 12 | | <0.2 | 0.03 | 0.02 | 0.9 |
| RS-10 | 2 | 3 | Upper till | N | Y | Sand | | | 6.07 | 30 | 193 | 9.8 | | | | | |
| RS-10 | 3 | 5.5 | Upper till | N | Y | Sand | | | 5.73 | 12 | 241.6 | 9.5 | | | | | |
| RS-10 | 5.5 | 7.5 | Upper till | | | | | Cement | 7.08 | 20 | 60.2 | 6.2 | | <0.2 | 0.02 | 0.01 | 0.6 |
| RS-10 | 7.5 | 10 | Upper till | N | N | Gravel | | | 6.81 | 30 | 152.3 | 4.4 | | <0.2 | 0.02 | <0.01 | 0.6 |
| RS-10 | 10 | 14 | Upper till | N | N | Gravel | | Cement | 6.5 | 26 | 145.3 | 28 | | | | | |
| RS-11 | 0 | 9.5 | Peat | | | Peat | | | 5.89 | 40 | 107.1 | 33 | | <0.2 | 0.15 | <0.01 | 4.7 |
| RS-11 | 11.5 | 17 | Upper till | Y | N | Sand | Secondary | | 6.47 | 47 | -61.4 | 9.3 | | <0.2 | 0.18 | <0.01 | 5.6 |
| RS-11 | 17 | 25 | Outwash | Y | N | Gravel | Secondary | | 6.56 | 30 | -37.5 | 6.3 | | <0.2 | 0.63 | 0.02 | 19.7 |
| RS-11 | 28 | 31 | Lower till | Y | N | Sand | | | 6.5 | 70 | -49.7 | 5.9 | | 0.4 | 0.07 | <0.01 | 2.2 |
| RS-11 | 31 | 33 | Lower till, Bedrock at 33ft | Y | N | Sand | | | | | | 4.7 | | | | | |
| RS-12 | 7 | 9 | Upper till | N | Y | Sand | | Mineral'd Rock | 7.17 | 33 | 111.7 | 6.9 | | 0.4 | 0.01 | 0.01 | 0.3 |
| RS-12 | 16 | 18 | Upper till | Y | Y | Sand | | | 7.14 | 14 | 44 | 10 | | <0.2 | 0.01 | 0.01 | 0.3 |
| RS-12 | 20 | 22 | Lower till, Bedrock at 22ft | Y | N | Sand | | Mineral'd Rock | | | | 5.3 | | <0.2 | 0.17 | 0.02 | 5.3 |
| RS-13 | 0 | 1.5 | Soil | | | peat | | | 6.15 | 42 | 62.7 | 29 | | <0.2 | 0.11 | 0.02 | 3.4 |
| RS-13 | 1.5 | 2.5 | Lower till | | | Sand | | | | | | 15 | | <0.2 | 0.06 | <0.01 | 1.9 |
| RS-13 | 2.5 | 6 | Lower till | | | Sand | | | 6.07 | 27 | 106.6 | 5.2 | | | | | |
| RS-13 | 8 | 10 | Bedrock | Y | N | Gravel | | Mineral'd Rock | 7.2 | 46 | -68.7 | 4.1 | | <0.2 | 0.53 | 0.05 | 16.6 |
| RS-14B | 0 | 1.5 | Soil | | | Peat | | | | | | 26 | | <0.2 | 0.15 | <0.01 | 4.7 |
| RS-14B | 1.5 | 3 | Upper till | N | Y | Sand | | | 5.41 | 19 | 239 | 16 | | <0.2 | 0.09 | <0.01 | 2.8 |
| RS-14B | 3 | 5 | Upper till, Bedrock at 5ft | N | Y | Sand | | | | | | 6.3 | | | | | |
| RS-16B | 0 | 2 | Soil | N | Y | Sand | | | 5.29 | 8 | 290 | 22 | | <0.2 | 0.02 | <0.01 | 0.6 |

| **Fraction Analyzed** | | | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **NP** | **Fizz Rating** | **Ag** | **Al** | **As** | **Au** | **B** | **Ba** | **Be** | **Bi** | **Ca** | **Cd** | **Ce** | **Co** | **Cr** | **Cs** | **Cu** |
| **Units** | From (ft) | To (ft) | kgCaCO3/t ore | Unity | ppm | % | ppm | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | ppm | ppm |
| **Detection Limit** | | | 1 | 1 | 0.01 | 0.01 | 0.1 | 0.2 | 10 | 10 | 0.05 | 0.01 | 0.01 | 0.01 | 0.02 | 0.1 | 1 | 0.05 | 0.2 |
| **General Method** | | | ABA | ABA | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia |
| **Analytical Method Code** | | | OA-VOL08 | OA-VOL08 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 |
| RS-01B | 0 | 1 | 5 | 1 | 4.73 | 1.29 | 6.7 | <0.2 | <10 | 140 | 0.43 | 0.21 | 0.43 | 0.54 | 23.5 | 8 | 36 | 1.21 | 28.3 |
| RS-01B | 1 | 5 | 2 | 1 | 1.05 | 1.19 | 6 | <0.2 | <10 | 40 | 0.4 | 0.07 | 0.39 | 0.09 | 50.7 | 7.6 | 38 | 1.06 | 25.2 |
| RS-01B | 14 | 15 | 5 | 1 | 0.63 | 0.9 | 5.5 | <0.2 | <10 | 40 | 0.34 | 0.07 | 0.55 | 0.09 | 40.8 | 7 | 36 | 1.1 | 31.2 |
| RS-01B | 18 | 20 | 13 | 1 | 9.98 | 1.24 | 4.5 | <0.2 | <10 | 40 | 0.36 | 0.08 | 0.83 | 0.08 | 40.5 | 9.6 | 47 | 1 | 38.8 |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | NSS* | NSS* | 0.54 | 0.82 | 5.3 | <0.2 | <10 | 60 | 0.41 | 0.1 | 1.19 | 0.45 | 30.2 | 5 | 46 | 0.58 | 264 |
| RS-03 | 15 | 20 | 15 | 1 | 0.08 | 0.74 | 4.7 | <0.2 | <10 | 40 | 0.24 | 0.25 | 0.77 | 0.11 | 35.8 | 6.6 | 32 | 0.69 | 37.3 |
| RS-03 | 20 | 22 | 20 | 1 | 5.76 | 1.79 | 2.2 | <0.2 | <10 | 50 | 0.23 | 0.27 | 1.23 | 0.13 | 33.5 | 22.6 | 41 | 1.14 | 120 |
| RS-04 | 1 | 5 | 6 | 1 | 0.55 | 2.45 | 7.9 | <0.2 | <10 | 80 | 0.45 | 0.2 | 0.53 | 0.12 | 50.6 | 17 | 62 | 1.98 | 240 |
| RS-04 | 10 | 15 | 7 | 1 | 1.22 | 0.8 | 2.6 | <0.2 | <10 | 40 | 0.25 | 0.06 | 0.59 | 0.08 | 47.4 | 8.2 | 37 | 0.71 | 36.5 |
| RS-04 | 15 | 20 | 12 | 1 | 1.92 | 0.76 | 1.5 | <0.2 | <10 | 20 | 0.19 | 0.06 | 0.66 | 0.07 | 41.6 | 7.9 | 33 | 0.84 | 53.5 |
| RS-04 | 20 | 25 | 13 | 1 | 1.87 | 1.01 | 3 | <0.2 | <10 | 30 | 0.28 | 0.07 | 0.75 | 0.12 | 36.5 | 14.9 | 37 | 1.17 | 144 |
| RS-05A | 5 | 10 | 17 | 1 | 0.08 | 1.64 | 5.8 | <0.2 | <10 | 70 | 0.43 | 0.14 | 0.5 | 0.12 | 54.4 | 14.5 | 57 | 1.87 | 106 |
| RS-05A | 10 | 13 | 6 | 1 | 0.03 | 4.47 | 1.9 | <0.2 | <10 | 50 | 0.23 | 0.05 | 2.43 | 0.1 | 17.95 | 38.5 | 80 | 0.76 | 59.4 |
| RS-06A | 0.5 | 2 | 0 | 1 | 0.17 | 2.16 | 4 | <0.2 | <10 | 90 | 0.48 | 0.09 | 0.33 | 0.1 | 52.4 | 12.3 | 46 | 1.6 | 31.9 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | 6 | 1 | 0.54 | 1.46 | 4.6 | <0.2 | <10 | 60 | 0.41 | 0.08 | 0.53 | 0.05 | 50.3 | 9.6 | 50 | 1.16 | 42.1 |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | 6 | 1 | 0.25 | 1.05 | 6.8 | <0.2 | <10 | 50 | 0.32 | 0.07 | 0.58 | 0.1 | 50.4 | 11.7 | 43 | 1.08 | 44.6 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | -2 | 1 | 0.04 | 3.04 | 9.6 | <0.2 | <10 | 110 | 0.81 | 0.16 | 0.31 | 0.11 | 40.9 | 14.7 | 101 | 3.75 | 115 |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | 12 | 1 | 0.25 | 2.5 | 15.3 | <0.2 | <10 | 110 | 0.85 | 0.27 | 0.48 | 0.52 | 56.7 | 25.2 | 99 | 4.13 | 239 |
| RS-08A | 0 | 1 | 4 | 1 | 0.16 | 2.9 | 8.5 | <0.2 | <10 | 70 | 0.67 | 0.1 | 0.35 | 0.09 | 45.3 | 15 | 59 | 2.08 | 70.8 |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | 7 | 1 | 0.58 | 1.53 | 11.7 | <0.2 | <10 | 60 | 0.43 | 0.09 | 0.58 | 0.19 | 49.6 | 19.2 | 53 | 2.24 | 123.5 |
| RS-09 | 7 | 8 | 23 | 1 | 0.07 | 4.83 | 5 | <0.2 | <10 | 80 | 0.54 | 0.08 | 2.41 | 0.17 | 35.1 | 34.2 | 89 | 2.41 | 107.5 |
| RS-10 | 1 | 2 | 2 | 1 | 0.07 | 2.67 | 4 | <0.2 | <10 | 110 | 0.52 | 0.13 | 0.31 | 0.07 | 42.1 | 14 | 56 | 2.26 | 39.1 |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | 9 | 1 | 0.05 | 1.88 | 4.8 | <0.2 | <10 | 90 | 0.49 | 0.12 | 0.55 | 0.06 | 57.6 | 12.7 | 68 | 3.52 | 53.4 |
| RS-10 | 7.5 | 10 | 11 | 1 | 0.05 | 2.57 | 9.7 | <0.2 | <10 | 100 | 0.59 | 0.11 | 0.65 | 0.14 | 47.1 | 20.5 | 85 | 4.27 | 88.3 |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | 3 | 1 | 1.65 | 2.48 | 4.5 | <0.2 | <10 | 90 | 0.68 | 0.16 | 0.75 | 0.4 | 40.8 | 18.2 | 110 | 2.74 | 166.5 |
| RS-11 | 11.5 | 17 | 14 | 1 | 0.24 | 2.62 | 10.7 | <0.2 | <10 | 100 | 0.89 | 0.25 | 0.68 | 0.31 | 54.9 | 21.5 | 107 | 3.62 | 307 |
| RS-11 | 17 | 25 | 4 | 1 | 27.4 | 3.09 | 20.9 | <0.2 | <10 | 100 | 0.77 | 0.46 | 0.87 | 0.6 | 41.9 | 41.2 | 102 | 4.44 | 1560 |
| RS-11 | 28 | 31 | 2 | 1 | 1.09 | 1.01 | 5 | <0.2 | <10 | 50 | 0.31 | 0.07 | 0.82 | 0.13 | 46.4 | 9.1 | 46 | 1.38 | 46.1 |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | 17 | 1 | 0.01 | 1.04 | 5.3 | <0.2 | <10 | 50 | 0.36 | 0.07 | 0.67 | 0.08 | 54 | 8.5 | 35 | 1.15 | 34.3 |
| RS-12 | 16 | 18 | 11 | 1 | 0.01 | 0.85 | 5.6 | <0.2 | <10 | 40 | 0.36 | 0.09 | 0.47 | 0.13 | 53.1 | 7.6 | 33 | 1.02 | 32.2 |
| RS-12 | 20 | 22 | 5 | 1 | 0.25 | 1.97 | 10 | <0.2 | <10 | 50 | 0.33 | 0.19 | 1.04 | 0.18 | 43.5 | 43.9 | 47 | 1.18 | 775 |
| RS-13 | 0 | 1.5 | 19 | 1 | 0.11 | 2.47 | 4.4 | <0.2 | <10 | 60 | 0.54 | 0.08 | 0.61 | 0.18 | 35.3 | 21.9 | 63 | 1.22 | 146.5 |
| RS-13 | 1.5 | 2.5 | 6 | 1 | 0.1 | 2.67 | 7.2 | <0.2 | <10 | 120 | 0.55 | 0.06 | 0.39 | 0.08 | 58.9 | 19.9 | 90 | 4.21 | 88.1 |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | 6 | 1 | 0.49 | 2.69 | 20.7 | <0.2 | <10 | 90 | 0.54 | 0.25 | 1.02 | 0.39 | 46.3 | 67.2 | 72 | 2.4 | 1155 |
| RS-14B | 0 | 1.5 | 1 | 1 | 0.17 | 2.37 | 5.4 | <0.2 | <10 | 100 | 0.44 | 0.14 | 0.28 | 0.2 | 23 | 12 | 51 | 1.63 | 86.5 |
| RS-14B | 1.5 | 3 | 3 | 1 | 0.22 | 3 | 6.4 | <0.2 | <10 | 80 | 0.71 | 0.11 | 0.33 | 0.13 | 45.6 | 19.2 | 63 | 2.29 | 180.5 |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | 0 | 1 | 0.1 | 3.71 | 7 | <0.2 | <10 | 90 | 0.75 | 0.09 | 0.24 | 0.15 | 42.5 | 16.7 | 67 | 1.41 | 29.4 |

| **Fraction Analyzed** | | | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **Fe** | **Ga** | **Ge** | **Hf** | **Hg** | **In** | **K** | **La** | **Li** | **Mg** | **Mn** | **Mo** | **Na** | **Nb** | **Ni** | **P** | **Pb** |
| **Units** | From (ft) | To (ft) | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | % | ppm | ppm | % | ppm | ppm | ppm | ppm |
| **Detection Limit** | | | 0.01 | 0.05 | 0.05 | 0.02 | 0.01 | 0.005 | 0.01 | 0.2 | 0.1 | 0.01 | 5 | 0.05 | 0.01 | 0.05 | 0.2 | 10 | 0.2 |
| **General Method** | | | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia |
| **Analytical Method Code** | | | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 |
| RS-01B | 0 | 1 | 2.9 | 6.01 | <0.05 | <0.02 | 0.08 | 0.024 | 0.09 | 9.6 | 6.7 | 0.21 | 1550 | 1.51 | 0.02 | 1.02 | 24.4 | 1120 | 21.8 |
| RS-01B | 1 | 5 | 3.33 | 4.02 | 0.09 | 0.12 | 0.02 | 0.013 | 0.07 | 20.1 | 6 | 0.31 | 574 | 0.69 | 0.04 | 0.93 | 22.6 | 870 | 5.4 |
| RS-01B | 14 | 15 | 3.3 | 3.73 | 0.08 | 0.3 | 0.01 | 0.013 | 0.08 | 19.9 | 6.6 | 0.37 | 469 | 0.57 | 0.06 | 0.25 | 20.9 | 900 | 5.9 |
| RS-01B | 18 | 20 | 3.02 | 4.45 | <0.05 | 0.32 | 0.01 | 0.013 | 0.11 | 19.1 | 7 | 0.6 | 465 | 0.67 | 0.16 | 0.21 | 32 | 810 | 4 |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | 2.13 | 2.53 | <0.05 | 0.07 | 0.12 | 0.013 | 0.04 | 17.3 | 4.3 | 0.3 | 179 | 12.1 | 0.03 | 0.91 | 60.5 | 580 | 6.5 |
| RS-03 | 15 | 20 | 2.18 | 3.06 | 0.08 | 0.3 | 0.01 | 0.011 | 0.1 | 17 | 7.8 | 0.43 | 211 | 0.62 | 0.05 | 0.41 | 28 | 880 | 4.1 |
| RS-03 | 20 | 22 | 3.65 | 5.19 | <0.05 | 0.25 | 0.01 | 0.012 | 0.15 | 15.3 | 10 | 1.54 | 392 | 1.57 | 0.25 | 0.38 | 104 | 770 | 3.5 |
| RS-04 | 1 | 5 | 4.12 | 8.02 | <0.05 | 0.13 | 0.02 | 0.029 | 0.11 | 23.6 | 15.3 | 0.66 | 386 | 1.44 | 0.04 | 1.61 | 104 | 860 | 6.7 |
| RS-04 | 10 | 15 | 2.43 | 3.4 | <0.05 | 0.25 | 0.01 | 0.01 | 0.08 | 21 | 8.1 | 0.36 | 255 | 0.9 | 0.05 | 0.56 | 31 | 1010 | 4.4 |
| RS-04 | 15 | 20 | 1.94 | 3.15 | <0.05 | 0.33 | 0.01 | 0.012 | 0.08 | 18.4 | 7.5 | 0.42 | 183 | 0.64 | 0.06 | 0.41 | 37 | 960 | 3.8 |
| RS-04 | 20 | 25 | 2.7 | 3.7 | <0.05 | 0.31 | 0.01 | 0.012 | 0.1 | 16.7 | 9.5 | 0.72 | 233 | 0.97 | 0.08 | 0.29 | 88.4 | 880 | 4 |
| RS-05A | 5 | 10 | 3.29 | 5.88 | <0.05 | 0.28 | 0.02 | 0.021 | 0.17 | 25.4 | 13.1 | 0.56 | 339 | 1.14 | 0.04 | 0.5 | 58.9 | 880 | 5.2 |
| RS-05A | 10 | 13 | 4.13 | 9.24 | <0.05 | 0.08 | 0.01 | 0.011 | 0.13 | 9 | 9.3 | 2.64 | 501 | 2.88 | 0.62 | 0.18 | 170 | 370 | 2.6 |
| RS-06A | 0.5 | 2 | 2.95 | 6.81 | <0.05 | 0.11 | 0.03 | 0.023 | 0.12 | 18.8 | 17.6 | 0.45 | 303 | 0.79 | 0.02 | 1.93 | 36.6 | 1240 | 6.1 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | 3.01 | 5.26 | <0.05 | 0.27 | 0.01 | 0.018 | 0.1 | 25.1 | 11.2 | 0.5 | 253 | 0.78 | 0.05 | 0.49 | 31.9 | 880 | 4.4 |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | 2.86 | 4.25 | <0.05 | 0.34 | 0.01 | 0.014 | 0.13 | 23.3 | 9.9 | 0.46 | 332 | 1.1 | 0.05 | 0.38 | 33.6 | 1000 | 4.5 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | 5.23 | 12.4 | <0.05 | 0.16 | 0.02 | 0.038 | 0.27 | 18.4 | 55.3 | 0.92 | 212 | 2.88 | 0.02 | 4.38 | 109.5 | 940 | 5.7 |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | 6.42 | 9.13 | 0.15 | 0.32 | 0.03 | 0.045 | 0.51 | 25 | 32.7 | 1.01 | 289 | 4.77 | 0.06 | 1.62 | 118 | 1130 | 6.7 |
| RS-08A | 0 | 1 | 3.87 | 8.35 | <0.05 | 0.14 | 0.06 | 0.028 | 0.12 | 19.9 | 20.4 | 0.53 | 232 | 1.34 | 0.03 | 2.74 | 62.6 | 620 | 5.8 |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | 3.84 | 5.52 | 0.09 | 0.36 | 0.03 | 0.022 | 0.23 | 22.5 | 14.4 | 0.68 | 385 | 1.25 | 0.06 | 0.34 | 66.9 | 920 | 4.2 |
| RS-09 | 7 | 8 | 5.33 | 10.7 | 0.08 | 0.22 | 0.02 | 0.024 | 0.31 | 15.5 | 17.1 | 2.36 | 509 | 7.75 | 0.59 | 0.4 | 178.5 | 500 | 3.7 |
| RS-10 | 1 | 2 | 3.12 | 8.92 | <0.05 | 0.1 | 0.04 | 0.025 | 0.17 | 17.5 | 25 | 0.49 | 302 | 1.56 | 0.03 | 2.38 | 57.2 | 580 | 6.6 |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | 3.52 | 7.67 | 0.09 | 0.49 | 0.01 | 0.021 | 0.46 | 27.7 | 29.2 | 0.92 | 369 | 1.16 | 0.03 | 0.46 | 38.3 | 1320 | 4.2 |
| RS-10 | 7.5 | 10 | 5.78 | 8.57 | 0.18 | 0.48 | 0.01 | 0.031 | 0.54 | 22.4 | 22.3 | 1.12 | 423 | 1.44 | 0.09 | 0.28 | 85.1 | 820 | 7.6 |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | 3.01 | 8.34 | 0.1 | 0.22 | 0.03 | 0.035 | 0.29 | 19 | 26.4 | 0.93 | 227 | 1.45 | 0.09 | 2.77 | 102 | 740 | 6.4 |
| RS-11 | 11.5 | 17 | 4.64 | 9.4 | 0.13 | 0.4 | 0.02 | 0.056 | 0.35 | 25.4 | 29 | 1.12 | 241 | 3.64 | 0.09 | 2.27 | 115.5 | 830 | 8.8 |
| RS-11 | 17 | 25 | 9.75 | 9.8 | 0.31 | 0.47 | 0.03 | 0.071 | 0.52 | 20.3 | 36.3 | 1.83 | 358 | 5.44 | 0.11 | 1.11 | 444 | 920 | 9.3 |
| RS-11 | 28 | 31 | 3.71 | 4.24 | 0.06 | 0.38 | 0.01 | 0.016 | 0.23 | 20.7 | 14.4 | 0.61 | 285 | 1.1 | 0.06 | 0.42 | 30.3 | 1010 | 3.8 |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | 2.68 | 4 | 0.05 | 0.34 | 0.01 | 0.013 | 0.11 | 26.7 | 10 | 0.45 | 332 | 0.55 | 0.03 | 0.38 | 24.5 | 1110 | 4.3 |
| RS-12 | 16 | 18 | 2.58 | 3.21 | 0.06 | 0.29 | 0.01 | 0.014 | 0.09 | 22.2 | 8.3 | 0.28 | 290 | 0.84 | 0.03 | 0.39 | 24 | 1060 | 4.1 |
| RS-12 | 20 | 22 | 4.51 | 5.52 | 0.09 | 0.26 | 0.02 | 0.028 | 0.16 | 19.7 | 9.9 | 1.43 | 447 | 2.62 | 0.2 | 0.35 | 374 | 1000 | 4.6 |
| RS-13 | 0 | 1.5 | 3.74 | 6.85 | <0.05 | 0.08 | 0.05 | 0.026 | 0.09 | 13.9 | 16 | 0.59 | 688 | 2.02 | 0.07 | 2.02 | 108.5 | 790 | 6.6 |
| RS-13 | 1.5 | 2.5 | 4.23 | 8.59 | 0.05 | 0.29 | 0.02 | 0.029 | 0.56 | 23.7 | 23 | 0.98 | 413 | 1.1 | 0.04 | 2.25 | 84.4 | 820 | 4.2 |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | 5.68 | 7.77 | 0.1 | 0.28 | 0.02 | 0.033 | 0.3 | 20.5 | 19 | 0.78 | 412 | 5.04 | 0.18 | 0.82 | 517 | 880 | 5.7 |
| RS-14B | 0 | 1.5 | 3.56 | 6.6 | <0.05 | 0.03 | 0.08 | 0.025 | 0.11 | 9.2 | 15.5 | 0.41 | 400 | 1.23 | 0.02 | 1.7 | 59.1 | 610 | 13.8 |
| RS-14B | 1.5 | 3 | 3.88 | 8.65 | <0.05 | 0.09 | 0.06 | 0.029 | 0.2 | 17.7 | 24.2 | 0.62 | 327 | 1.65 | 0.04 | 2.42 | 94.6 | 670 | 5.6 |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | 4.02 | 8.8 | <0.05 | 0.11 | 0.05 | 0.031 | 0.06 | 12.2 | 14.4 | 0.57 | 277 | 1.06 | 0.03 | 2.04 | 62.2 | 920 | 6.7 |

| **Fraction Analyzed** | | | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **Rb** | **Re** | **S** | **Sb** | **Sc** | **Se** | **Sn** | **Sr** | **Ta** | **Te** | **Th** | **Ti** | **Tl** | **U** | **V** | **W** | **Y** |
| **Units** | From (ft) | To (ft) | ppm | ppm | % | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | ppm |
| **Detection Limit** | | | 0.1 | 0.001 | 0.01 | 0.05 | 0.1 | 0.2 | 0.2 | 0.2 | 0.01 | 0.01 | 0.2 | 0.005 | 0.02 | 0.05 | 1 | 0.05 | 0.05 |
| **General Method** | | | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia | Aqua Regia |
| **Analytical Method Code** | | | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 |
| RS-01B | 0 | 1 | 14.7 | <0.001 | 0.05 | 0.19 | 1.9 | 0.6 | 1.7 | 29.3 | <0.01 | 0.03 | 0.7 | 0.061 | 0.09 | 0.44 | 56 | 1.68 | 2.5 |
| RS-01B | 1 | 5 | 8.5 | <0.001 | 0.02 | 0.05 | 3.6 | 0.4 | 0.6 | 26.1 | <0.01 | 0.01 | 5 | 0.099 | 0.06 | 0.74 | 51 | 0.35 | 6.2 |
| RS-01B | 14 | 15 | 8.6 | <0.001 | 0.02 | 0.08 | 4.2 | 0.3 | 0.6 | 31 | <0.01 | 0.01 | 4.6 | 0.104 | 0.06 | 0.68 | 50 | 0.32 | 7.64 |
| RS-01B | 18 | 20 | 8.8 | <0.001 | 0.03 | 0.08 | 3.7 | 0.3 | 1.4 | 42 | <0.01 | 0.01 | 4.5 | 0.106 | 0.07 | 0.67 | 46 | 1.66 | 7.43 |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | 4.1 | 0.011 | 0.46 | 0.35 | 3.3 | 2.8 | 1.2 | 48.5 | 0.01 | 0.03 | 6.6 | 0.035 | 0.06 | 3.47 | 31 | 3.81 | 8.45 |
| RS-03 | 15 | 20 | 7.7 | 0.001 | 0.07 | 0.14 | 2.6 | 0.4 | 0.4 | 30.2 | <0.01 | 0.02 | 3.6 | 0.096 | 0.06 | 0.95 | 44 | 0.3 | 6.96 |
| RS-03 | 20 | 22 | 9.7 | <0.001 | 0.05 | 0.17 | 3.7 | 1.6 | 1.1 | 54.9 | 0.01 | 0.02 | 3.7 | 0.12 | 0.08 | 1.05 | 43 | 2.82 | 6.7 |
| RS-04 | 1 | 5 | 16.5 | <0.001 | 0.01 | 0.24 | 7 | 0.6 | 0.8 | 29 | <0.01 | 0.03 | 5 | 0.137 | 0.16 | 1.56 | 80 | 0.3 | 10.6 |
| RS-04 | 10 | 15 | 7.2 | <0.001 | 0.01 | 0.11 | 3 | 0.5 | 0.6 | 30 | <0.01 | 0.01 | 5.2 | 0.107 | 0.06 | 0.9 | 46 | 0.62 | 7.82 |
| RS-04 | 15 | 20 | 6.3 | <0.001 | 0.05 | 0.07 | 2.7 | 0.3 | 0.6 | 30.1 | <0.01 | 0.01 | 4.9 | 0.106 | 0.05 | 1.25 | 43 | 0.91 | 7.48 |
| RS-04 | 20 | 25 | 7.9 | 0.002 | 0.12 | 0.12 | 3.6 | 0.4 | 0.6 | 30.5 | <0.01 | 0.02 | 4.3 | 0.103 | 0.08 | 1.26 | 46 | 0.57 | 7.18 |
| RS-05A | 5 | 10 | 21.8 | <0.001 | <0.01 | 0.24 | 6.4 | 0.4 | 0.8 | 29.1 | <0.01 | 0.03 | 6 | 0.141 | 0.18 | 1.43 | 64 | 1.31 | 10.7 |
| RS-05A | 10 | 13 | 7 | 0.001 | <0.01 | 0.08 | 3.7 | 0.3 | 0.5 | 114 | <0.01 | 0.01 | 1.8 | 0.067 | 0.06 | 0.48 | 25 | 0.79 | 3.79 |
| RS-06A | 0.5 | 2 | 16.7 | <0.001 | 0.01 | 0.13 | 4 | 0.7 | 0.7 | 22.3 | <0.01 | 0.02 | 4.8 | 0.121 | 0.13 | 0.97 | 65 | 0.34 | 5.87 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | 11.4 | <0.001 | <0.01 | 0.14 | 5.4 | 0.5 | 0.7 | 35.3 | <0.01 | 0.02 | 5.2 | 0.129 | 0.11 | 1.12 | 58 | 1.41 | 10.15 |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | 13 | <0.001 | <0.01 | 0.14 | 4.1 | 0.3 | 0.6 | 31.7 | <0.01 | 0.02 | 5.5 | 0.119 | 0.1 | 1.01 | 51 | 0.68 | 8.58 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | 36.3 | 0.001 | 0.04 | 0.25 | 9.1 | 1 | 1 | 18.3 | <0.01 | 0.03 | 5.3 | 0.221 | 0.2 | 1.76 | 97 | 0.71 | 7.18 |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | 44.4 | 0.002 | 0.27 | 0.72 | 10.8 | 1.3 | 0.9 | 26 | 0.01 | 0.05 | 6.5 | 0.197 | 0.4 | 3.5 | 104 | 6.67 | 14.6 |
| RS-08A | 0 | 1 | 19.2 | <0.001 | 0.02 | 0.21 | 5.6 | 1.1 | 0.8 | 25.3 | <0.01 | 0.04 | 4.4 | 0.143 | 0.16 | 1.22 | 69 | 0.39 | 7.86 |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | 24.8 | <0.001 | 0.01 | 0.31 | 5.4 | 0.4 | 0.7 | 32.7 | 0.01 | 0.02 | 5.4 | 0.14 | 0.19 | 1.37 | 58 | 11.95 | 8.99 |
| RS-09 | 7 | 8 | 21.1 | 0.001 | 0.03 | 0.27 | 6.4 | 0.4 | 0.8 | 113.5 | 0.01 | 0.03 | 4 | 0.129 | 0.19 | 1.62 | 50 | 1.58 | 7.26 |
| RS-10 | 1 | 2 | 23.2 | <0.001 | 0.01 | 0.15 | 4.8 | 0.7 | 1 | 24.3 | <0.01 | 0.02 | 5.4 | 0.131 | 0.15 | 1.14 | 72 | 3.37 | 5.67 |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | 38.3 | <0.001 | 0.01 | 0.29 | 7.5 | 0.5 | 0.8 | 30.3 | <0.01 | 0.03 | 6.6 | 0.189 | 0.29 | 1.82 | 72 | 0.71 | 9.44 |
| RS-10 | 7.5 | 10 | 46.5 | <0.001 | 0.01 | 0.42 | 9.1 | 0.4 | 0.8 | 36.2 | <0.01 | 0.03 | 5.7 | 0.192 | 0.33 | 1.92 | 74 | 1.96 | 10 |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | 27.9 | 0.001 | 0.07 | 0.59 | 8.4 | 1.1 | 1 | 30.9 | <0.01 | 0.04 | 4.7 | 0.191 | 0.26 | 2.66 | 102 | 1.52 | 9.94 |
| RS-11 | 11.5 | 17 | 37.1 | 0.002 | 0.19 | 1.01 | 10.7 | 1.5 | 1 | 29.9 | 0.01 | 0.05 | 6 | 0.223 | 0.32 | 4.54 | 130 | 0.7 | 13.35 |
| RS-11 | 17 | 25 | 43.7 | 0.006 | 0.65 | 1.68 | 10.4 | 3.3 | 3.5 | 36.9 | <0.01 | 0.14 | 5.5 | 0.205 | 0.4 | 4.46 | 95 | 4.87 | 13.45 |
| RS-11 | 28 | 31 | 16.3 | <0.001 | 0.09 | 0.18 | 3.9 | 0.4 | 0.7 | 31.8 | <0.01 | 0.02 | 5.2 | 0.126 | 0.13 | 1.29 | 53 | 0.68 | 8 |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | 11.3 | <0.001 | <0.01 | 0.12 | 4.5 | 0.4 | 0.5 | 30 | 0.01 | 0.01 | 5.7 | 0.109 | 0.11 | 1.07 | 51 | 0.19 | 10.6 |
| RS-12 | 16 | 18 | 9.8 | <0.001 | <0.01 | 0.18 | 3.5 | 0.4 | 0.4 | 26.8 | 0.01 | 0.02 | 5.9 | 0.098 | 0.11 | 1.38 | 48 | 0.31 | 9.98 |
| RS-12 | 20 | 22 | 14.2 | 0.002 | 0.19 | 0.23 | 4.3 | 0.9 | 0.7 | 49.8 | 0.01 | 0.04 | 4.7 | 0.12 | 0.1 | 1.08 | 49 | 1.32 | 9.84 |
| RS-13 | 0 | 1.5 | 10.7 | 0.001 | 0.03 | 0.18 | 4.4 | 0.9 | 0.7 | 30.8 | 0.01 | 0.03 | 3.2 | 0.129 | 0.11 | 0.96 | 89 | 1.53 | 6.62 |
| RS-13 | 1.5 | 2.5 | 44.4 | 0.001 | 0.01 | 0.16 | 10.3 | 0.7 | 0.9 | 21.2 | 0.01 | 0.03 | 5.9 | 0.217 | 0.33 | 1.38 | 97 | 0.48 | 9.45 |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | 25.5 | 0.005 | 0.58 | 0.74 | 6.2 | 1.9 | 1 | 51.1 | <0.01 | 0.07 | 4.6 | 0.156 | 0.28 | 1.35 | 69 | 0.98 | 9.14 |
| RS-14B | 0 | 1.5 | 16.1 | <0.001 | 0.04 | 0.26 | 3 | 0.7 | 0.8 | 15.8 | <0.01 | 0.03 | 1.6 | 0.096 | 0.12 | 0.68 | 71 | 0.58 | 3.26 |
| RS-14B | 1.5 | 3 | 20.5 | <0.001 | 0.02 | 0.22 | 5.9 | 1 | 0.8 | 19.7 | 0.01 | 0.03 | 4.4 | 0.131 | 0.21 | 1.54 | 73 | 1.2 | 7.62 |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | 12.7 | <0.001 | 0.01 | 0.15 | 4.4 | 0.8 | 0.8 | 15.9 | 0.01 | 0.03 | 4.2 | 0.138 | 0.1 | 0.91 | 114 | 0.18 | 4.77 |

| Fraction Analyzed | | | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **Zn** | **Zr** | **Ag** | **Al** | **As** | **Ba** | **Be** | **Bi** | **Ca** | **Cd** | **Co** | **Cr** | **Cu** | **Fe** | **Ga** | **K** | **La** | **Mg** | **Mn** | **Mo** | **Na** |
| **Units** | From (ft) | To (ft) | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm | % | ppm | % | ppm | ppm | % |
| **Detection Limit** | | | 2 | 0.5 | 1 | 0.05 | 50 | 50 | 10 | 20 | 0.05 | 10 | 10 | 10 | 10 | 0.05 | 50 | 0.1 | 50 | 0.05 | 10 | 10 | 0.05 |
| **General Method** | | | Aqua Regia | Aqua Regia | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid |
| **Analytical Method Code** | | | ME-MS41 | ME-MS41 | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
| RS-01B | 0 | 1 | 168 | <0.5 | 3 | 3.61 | <50 | 520 | <10 | <20 | 1.55 | <10 | 10 | 100 | 20 | 4.06 | <50 | 0.7 | <50 | 0.6 | 1690 | <10 | 1.59 |
| RS-01B | 1 | 5 | 24 | 5.4 | 1 | 4.15 | <50 | 510 | <10 | <20 | 1.8 | <10 | 10 | 80 | 20 | 4.39 | <50 | 1.2 | <50 | 0.67 | 840 | <10 | 2.29 |
| RS-01B | 14 | 15 | 28 | 10.5 | <1 | 3.87 | <50 | 500 | <10 | <20 | 2.04 | <10 | 10 | 80 | 30 | 4.42 | <50 | 1.1 | <50 | 0.7 | 750 | <10 | 2.39 |
| RS-01B | 18 | 20 | 33 | 10.7 | 9 | 2.99 | <50 | 470 | <10 | <20 | 2.38 | <10 | 10 | 100 | 30 | 4.24 | <50 | 1.1 | <50 | 0.85 | 780 | <10 | 2.42 |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | 24 | 2.9 | 1 | 2.26 | <50 | 270 | <10 | <20 | 1.85 | <10 | <10 | 70 | 260 | 2.77 | <50 | 0.7 | <50 | 0.52 | 310 | 10 | 0.92 |
| RS-03 | 15 | 20 | 30 | 9.5 | <1 | 3.83 | <50 | 520 | <10 | <20 | 2.68 | <10 | 10 | 80 | 40 | 3.72 | <50 | 1.2 | <50 | 0.9 | 570 | <10 | 2.47 |
| RS-03 | 20 | 22 | 48 | 8 | 5 | 4.17 | <50 | 440 | <10 | <20 | 3.21 | <10 | 20 | 90 | 110 | 4.86 | <50 | 1 | <50 | 1.76 | 710 | <10 | 2.28 |
| RS-04 | 1 | 5 | 63 | 5.2 | <1 | 4.89 | <50 | 480 | <10 | <20 | 1.76 | <10 | 20 | 100 | 240 | 5.17 | <50 | 0.9 | <50 | 0.93 | 640 | <10 | 1.87 |
| RS-04 | 10 | 15 | 29 | 9.3 | <1 | 3.07 | <50 | 520 | <10 | <20 | 2.16 | <10 | 10 | 80 | 30 | 3.4 | <50 | 1.3 | <50 | 0.72 | 520 | <10 | 2.48 |
| RS-04 | 15 | 20 | 26 | 10.1 | <1 | 3.15 | <50 | 500 | <10 | <20 | 2.29 | <10 | 10 | 80 | 50 | 3.06 | <50 | 1.5 | <50 | 0.82 | 460 | <10 | 2.54 |
| RS-04 | 20 | 25 | 34 | 9.9 | 2 | 3.97 | <50 | 490 | <10 | <20 | 2.52 | <10 | 20 | 90 | 140 | 4.05 | <50 | 1.3 | <50 | 1.14 | 560 | <10 | 2.43 |
| RS-05A | 5 | 10 | 52 | 10.8 | 1 | 4.63 | <50 | 550 | <10 | <20 | 2.02 | <10 | 20 | 100 | 100 | 4.48 | <50 | 1 | <50 | 0.91 | 640 | <10 | 2.3 |
| RS-05A | 10 | 13 | 53 | 2.8 | 2 | 6.88 | <50 | 300 | <10 | <20 | 5.56 | <10 | 40 | 270 | 60 | 5.26 | <50 | 0.5 | <50 | 2.57 | 720 | <10 | 2.11 |
| RS-06A | 0.5 | 2 | 48 | 4.6 | <1 | 4.28 | <50 | 620 | <10 | <20 | 1.63 | <10 | 10 | 100 | 30 | 4.06 | <50 | 0.9 | <50 | 0.84 | 590 | <10 | 2.04 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | 37 | 10.7 | <1 | 3.55 | <50 | 520 | <10 | <20 | 1.96 | <10 | 10 | 90 | 70 | 4.04 | <50 | 1.2 | <50 | 0.79 | 550 | <10 | 2.3 |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | 38 | 11.4 | <1 | 3.33 | <50 | 520 | <10 | <20 | 2.07 | <10 | 10 | 80 | 50 | 3.94 | <50 | 1.1 | <50 | 0.82 | 640 | <10 | 2.4 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | 142 | 6.4 | <1 | 3.91 | <50 | 450 | <10 | <20 | 1.29 | <10 | 20 | 150 | 110 | 6.41 | <50 | 0.8 | <50 | 1.3 | 540 | <10 | 1.45 |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | 131 | 12.3 | 2 | 4.91 | <50 | 520 | <10 | <20 | 1.76 | <10 | 20 | 130 | 240 | 8.26 | <50 | 1.3 | <50 | 1.42 | 790 | <10 | 1.7 |
| RS-08A | 0 | 1 | 52 | 5.5 | <1 | 4.57 | <50 | 510 | <10 | <20 | 1.38 | <10 | 10 | 100 | 70 | 4.94 | <50 | 1.1 | <50 | 0.87 | 550 | <10 | 1.81 |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | 61 | 13.4 | <1 | 3.9 | <50 | 560 | <10 | <20 | 2 | <10 | 20 | 90 | 120 | 5.28 | <50 | 1.3 | <50 | 1.05 | 810 | <10 | 2.24 |
| RS-09 | 7 | 8 | 74 | 8.3 | <1 | 5.39 | <50 | 370 | <10 | <20 | 3.84 | <10 | 30 | 140 | 100 | 6.15 | <50 | 0.9 | <50 | 2.22 | 760 | <10 | 1.97 |
| RS-10 | 1 | 2 | 54 | 4 | <1 | 4.01 | <50 | 510 | <10 | <20 | 1.15 | <10 | 20 | 100 | 40 | 3.92 | <50 | 0.9 | <50 | 0.76 | 520 | <10 | 1.57 |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | 70 | 18.2 | 2 | 4.72 | <50 | 800 | <10 | <20 | 1.91 | <10 | 10 | 80 | 50 | 4.46 | <50 | 1.4 | <50 | 1.18 | 650 | <10 | 2.45 |
| RS-10 | 7.5 | 10 | 78 | 17.6 | <1 | 4.61 | <50 | 490 | <10 | <20 | 1.96 | <10 | 20 | 110 | 90 | 6.81 | <50 | 1.2 | <50 | 1.31 | 800 | <10 | 1.98 |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | 120 | 7.7 | 3 | 3.69 | <50 | 360 | <10 | <20 | 2.33 | <10 | 20 | 210 | 170 | 5 | <50 | 0.9 | <50 | 1.43 | 660 | <10 | 1.48 |
| RS-11 | 11.5 | 17 | 159 | 13.8 | 1 | 3.93 | <50 | 410 | <10 | <20 | 2.2 | <10 | 20 | 160 | 290 | 6.17 | <50 | 0.9 | <50 | 1.48 | 640 | <10 | 1.69 |
| RS-11 | 17 | 25 | 210 | 15.8 | 24 | 5.6 | <50 | 390 | <10 | <20 | 2.35 | <10 | 40 | 140 | 1510 | 12.25 | <50 | 1.1 | <50 | 2.32 | 930 | <10 | 1.36 |
| RS-11 | 28 | 31 | 40 | 11.5 | 1 | 3.8 | <50 | 600 | <10 | <20 | 2.36 | <10 | 10 | 80 | 40 | 5.18 | <50 | 1.4 | <50 | 1.05 | 740 | <10 | 2.4 |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | 32 | 11.1 | <1 | 3.72 | <50 | 560 | <10 | <20 | 2.15 | <10 | 10 | 70 | 30 | 3.73 | <50 | 1.3 | <50 | 0.8 | 640 | <10 | 2.42 |
| RS-12 | 16 | 18 | 38 | 9.5 | <1 | 3.26 | <50 | 550 | <10 | <20 | 1.97 | <10 | 10 | 80 | 30 | 3.65 | <50 | 1.4 | <50 | 0.69 | 600 | <10 | 2.47 |
| RS-12 | 20 | 22 | 53 | 8.8 | <1 | 4.62 | <50 | 430 | <10 | <20 | 3 | <10 | 40 | 100 | 780 | 5.89 | <50 | 1 | <50 | 1.76 | 780 | <10 | 2.14 |
| RS-13 | 0 | 1.5 | 61 | 2.8 | 1 | 4.43 | <50 | 410 | <10 | <20 | 2.29 | <10 | 20 | 160 | 150 | 5.63 | <50 | 0.7 | <50 | 1.13 | 1110 | <10 | 1.71 |
| RS-13 | 1.5 | 2.5 | 71 | 12.3 | <1 | 4.57 | <50 | 430 | <10 | <20 | 1.81 | <10 | 20 | 130 | 90 | 5.3 | <50 | 0.9 | <50 | 1.2 | 700 | <10 | 2.11 |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | 58 | 11.2 | <1 | 5.5 | <50 | 500 | <10 | <20 | 2.39 | <10 | 70 | 140 | 1120 | 8.21 | <50 | 1.2 | <50 | 1.57 | 990 | <10 | 1.95 |
| RS-14B | 0 | 1.5 | 69 | 1 | <1 | 3.36 | <50 | 410 | <10 | <20 | 1.15 | <10 | 20 | 120 | 120 | 4.43 | <50 | 1.1 | <50 | 0.73 | 650 | <10 | 1.23 |
| RS-14B | 1.5 | 3 | 64 | 3.2 | <1 | 4.11 | <50 | 460 | <10 | <20 | 1.52 | <10 | 20 | 120 | 190 | 4.96 | <50 | 1.2 | <50 | 0.95 | 640 | <10 | 1.66 |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | 51 | 4.2 | <1 | 4.62 | <50 | 410 | <10 | <20 | 1.59 | <10 | 20 | 160 | 40 | 5.64 | <50 | 1 | <50 | 1.02 | 630 | <10 | 1.42 |

| Fraction Analyzed | | | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **Ni** | **P** | **Pb** | **S** | **Sb** | **Sc** | **Sr** | **Th** | **Ti** | **Tl** | **U** | **V** | **W** | **Zn** | **$CO_2$** | **Total Sulphur** | **Sulphate** | **MPA** | **NP** |
| **Units** | From (ft) | To (ft) | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | ppm | % CO2 | % S | % S | kgCaCO3/t ore | kgCaCO3/t ore |
| **Detection Limit** | | | 10 | 50 | 20 | 0.1 | 50 | 10 | 10 | 50 | 0.05 | 50 | 50 | 10 | 50 | 20 | 0.2 | 0.01 | 0.01 | 0.3 | 1 |
| **General Method** | | | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | 4-Acid | ABA | ABA | ABA | ABA | ABA |
| **Analytical Method Code** | | | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | C-GAS05 | S-IR08 | S-GRA06a | OA-VOL08 | OA-VOL08 |
| RS-01B | 0 | 1 | 40 | 1140 | <20 | <0.1 | <50 | <10 | 260 | <50 | 0.44 | <50 | <50 | 90 | <50 | 110 | <0.2 | 0.09 | <0.01 | 1.6 | 3 |
| RS-01B | 1 | 5 | 30 | 810 | <20 | <0.1 | <50 | 10 | 360 | <50 | 0.34 | <50 | <50 | 80 | <50 | 40 | <0.2 | <0.01 | <0.01 | <0.3 | 1 |
| RS-01B | 14 | 15 | 30 | 860 | <20 | <0.1 | <50 | 10 | 360 | <50 | 0.34 | <50 | <50 | 80 | <50 | 40 | <0.2 | <0.01 | <0.01 | <0.3 | 3 |
| RS-01B | 18 | 20 | 50 | 760 | <20 | <0.1 | <50 | <10 | 340 | <50 | 0.32 | <50 | <50 | 80 | <50 | 50 | <0.2 | 0.01 | <0.01 | 0.3 | 9 |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | 60 | 590 | <20 | 0.5 | <50 | <10 | 180 | <50 | 0.2 | <50 | <50 | 50 | <50 | 30 | <0.2 | 0.31 | <0.01 | 9.7 | 19 |
| RS-03 | 15 | 20 | 40 | 860 | <20 | 0.1 | <50 | 10 | 370 | <50 | 0.39 | <50 | <50 | 90 | <50 | 40 | 0.2 | 0.05 | <0.01 | 1.6 | 9 |
| RS-03 | 20 | 22 | 120 | 730 | <20 | <0.1 | <50 | <10 | 330 | <50 | 0.39 | <50 | <50 | 80 | <50 | 60 | <0.2 | 0.02 | <0.01 | 0.6 | 26 |
| RS-04 | 1 | 5 | 110 | 880 | <20 | <0.1 | <50 | 10 | 300 | <50 | 0.41 | <50 | <50 | 110 | <50 | 70 | <0.2 | <0.01 | <0.01 | <0.3 | 6 |
| RS-04 | 10 | 15 | 40 | 930 | <20 | <0.1 | <50 | <10 | 360 | <50 | 0.35 | <50 | <50 | 80 | <50 | 40 | <0.2 | <0.01 | <0.01 | <0.3 | 4 |
| RS-04 | 15 | 20 | 50 | 890 | <20 | <0.1 | <50 | <10 | 350 | <50 | 0.36 | <50 | <50 | 80 | <50 | 40 | <0.2 | 0.02 | <0.01 | 0.6 | 7 |
| RS-04 | 20 | 25 | 110 | 860 | <20 | 0.1 | <50 | 10 | 360 | <50 | 0.37 | <50 | <50 | 90 | <50 | 50 | <0.2 | 0.12 | <0.01 | 3.8 | 19 |
| RS-05A | 5 | 10 | 60 | 860 | <20 | <0.1 | <50 | 10 | 360 | <50 | 0.39 | <50 | <50 | 100 | <50 | 60 | <0.2 | <0.01 | <0.01 | <0.3 | 25 |
| RS-05A | 10 | 13 | 190 | 360 | <20 | <0.1 | <50 | <10 | 320 | <50 | 0.25 | <50 | <50 | 60 | <50 | 60 | <0.2 | <0.01 | <0.01 | <0.3 | 5 |
| RS-06A | 0.5 | 2 | 50 | 1230 | <20 | <0.1 | <50 | 10 | 340 | <50 | 0.44 | <50 | <50 | 100 | <50 | 60 | <0.2 | <0.01 | <0.01 | <0.3 | 3 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | 80 | 810 | 30 | <0.1 | <50 | 10 | 340 | <50 | 0.38 | <50 | <50 | 90 | <50 | 60 | <0.2 | <0.01 | <0.01 | <0.3 | 6 |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | 50 | 920 | <20 | <0.1 | <50 | 10 | 340 | <50 | 0.37 | <50 | <50 | 80 | <50 | 50 | <0.2 | <0.01 | <0.01 | <0.3 | 6 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | 120 | 1010 | <20 | <0.1 | <50 | 10 | 200 | <50 | 0.46 | <50 | <50 | 130 | <50 | 160 | <0.2 | 0.01 | <0.01 | 0.3 | 2 |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | 130 | 1160 | <20 | 0.2 | <50 | 10 | 240 | <50 | 0.42 | <50 | <50 | 130 | <50 | 150 | <0.2 | 0.06 | <0.01 | 1.9 | 4 |
| RS-08A | 0 | 1 | 70 | 610 | <20 | <0.1 | <50 | 10 | 290 | <50 | 0.39 | <50 | <50 | 90 | <50 | 60 | <0.2 | <0.01 | <0.01 | <0.3 | 4 |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | 70 | 890 | <20 | <0.1 | <50 | 10 | 350 | <50 | 0.38 | <50 | <50 | 90 | <50 | 80 | <0.2 | <0.01 | <0.01 | <0.3 | 6 |
| RS-09 | 7 | 8 | 190 | 500 | <20 | <0.1 | <50 | 10 | 300 | <50 | 0.3 | <50 | <50 | 80 | <50 | 80 | <0.2 | 0.02 | <0.01 | 0.6 | 19 |
| RS-10 | 1 | 2 | 70 | 590 | <20 | <0.1 | <50 | 10 | 210 | <50 | 0.44 | <50 | <50 | 100 | <50 | 70 | <0.2 | <0.01 | <0.01 | <0.3 | 2 |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | 40 | 1230 | <20 | <0.1 | <50 | 10 | 450 | <50 | 0.33 | <50 | <50 | 90 | <50 | 80 | <0.2 | <0.01 | <0.01 | <0.3 | 6 |
| RS-10 | 7.5 | 10 | 100 | 780 | <20 | <0.1 | <50 | 10 | 290 | <50 | 0.3 | <50 | <50 | 90 | <50 | 80 | <0.2 | 0.01 | <0.01 | 0.3 | 12 |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | 130 | 790 | <20 | 0.1 | <50 | 10 | 180 | <50 | 0.66 | <50 | <50 | 150 | <50 | 150 | <0.2 | 0.03 | <0.01 | 0.9 | 7 |
| RS-11 | 11.5 | 17 | 130 | 840 | <20 | 0.2 | <50 | 10 | 210 | <50 | 0.65 | <50 | <50 | 170 | <50 | 180 | <0.2 | 0.03 | <0.01 | 0.9 | 5 |
| RS-11 | 17 | 25 | 470 | 950 | <20 | 0.6 | <50 | 10 | 200 | <50 | 0.4 | <50 | <50 | 130 | <50 | 240 | <0.2 | 0.11 | <0.01 | 3.4 | 5 |
| RS-11 | 28 | 31 | 40 | 920 | <20 | 0.1 | <50 | 10 | 390 | <50 | 0.33 | <50 | <50 | 90 | <50 | 60 | 0.2 | 0.05 | <0.01 | 1.6 | 11 |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | 40 | 1030 | <20 | <0.1 | <50 | 10 | 380 | <50 | 0.36 | <50 | <50 | 80 | <50 | 50 | <0.2 | <0.01 | <0.01 | <0.3 | 5 |
| RS-12 | 16 | 18 | 40 | 970 | <20 | <0.1 | <50 | 10 | 350 | <50 | 0.36 | <50 | <50 | 80 | <50 | 50 | <0.2 | <0.01 | <0.01 | <0.3 | 3 |
| RS-12 | 20 | 22 | 390 | 950 | <20 | 0.2 | <50 | 10 | 330 | <50 | 0.46 | <50 | <50 | 90 | <50 | 70 | <0.2 | 0.05 | 0.04 | 1.6 | 20 |
| RS-13 | 0 | 1.5 | 130 | 870 | <20 | <0.1 | <50 | 10 | 250 | <50 | 0.74 | <50 | <50 | 140 | <50 | 80 | <0.2 | 0.01 | 0.02 | 0.3 | 9 |
| RS-13 | 1.5 | 2.5 | 100 | 850 | <20 | <0.1 | <50 | 10 | 300 | <50 | 0.51 | <50 | <50 | 120 | <50 | 80 | <0.2 | <0.01 | 0.02 | <0.3 | 5 |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | 530 | 860 | <20 | 0.5 | <50 | 10 | 330 | <50 | 0.51 | <50 | <50 | 110 | <50 | 90 | <0.2 | 0.5 | 0.07 | 15.6 | 10 |
| RS-14B | 0 | 1.5 | 90 | 670 | 40 | <0.1 | <50 | 10 | 180 | <50 | 0.51 | <50 | <50 | 110 | <50 | 110 | <0.2 | 0.09 | 0.01 | 2.8 | 3 |
| RS-14B | 1.5 | 3 | 110 | 710 | <20 | <0.1 | <50 | 10 | 240 | <50 | 0.47 | <50 | <50 | 110 | <50 | 90 | <0.2 | 0.02 | 0.02 | 0.6 | 4 |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | 80 | 950 | <20 | <0.1 | <50 | 10 | 190 | <50 | 0.93 | <50 | <50 | 180 | <50 | 80 | <0.2 | 0.03 | 0.03 | 0.9 | 3 |

| Fraction Analyzed | | | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **Fizz Rating** | **Ag** | **Al** | **As** | **Au** | **B** | **Ba** | **Be** | **Bi** | **Ca** | **Cd** | **Ce** | **Co** | **Cr** | **Cs** | **Cu** |
| **Units** | From (ft) | To (ft) | Unity | ppm | % | ppm | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | ppm | ppm |
| **Detection Limit** | | | 1 | 0.01 | 0.01 | 0.1 | 0.2 | 10 | 10 | 0.05 | 0.01 | 0.01 | 0.01 | 0.02 | 0.1 | 1 | 0.05 | 0.2 |
| **General Method** | | | ABA | | | | | | | | | | | | | | | |
| **Analytical Method Code** | | | OA-VOL08 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 |
| RS-01B | 0 | 1 | 1 | 2.61 | 0.94 | 5.3 | <0.2 | <10 | 160 | 0.28 | 0.2 | 0.67 | 0.48 | 17.6 | 7.8 | 66 | 0.95 | 13 |
| RS-01B | 1 | 5 | 1 | 0.81 | 1 | 5.7 | <0.2 | <10 | 40 | 0.34 | 0.04 | 0.36 | 0.07 | 35.6 | 7.3 | 115 | 0.9 | 20 |
| RS-01B | 14 | 15 | 1 | 0.64 | 0.78 | 3.6 | <0.2 | <10 | 40 | 0.29 | 0.03 | 0.44 | 0.08 | 31.1 | 7.4 | 117 | 0.83 | 25.8 |
| RS-01B | 18 | 20 | 1 | 7.85 | 0.97 | 2.8 | <0.2 | <10 | 40 | 0.26 | 0.03 | 0.59 | 0.06 | 30.3 | 8.5 | 105 | 0.72 | 26.2 |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | 1 | 0.36 | 0.78 | 3.4 | <0.2 | <10 | 70 | 0.31 | 0.04 | 1.19 | 0.45 | 22.1 | 4.8 | 246 | 0.53 | 217 |
| RS-03 | 15 | 20 | 1 | 0.09 | 0.77 | 4.2 | <0.2 | <10 | 40 | 0.27 | 0.03 | 0.62 | 0.1 | 30.7 | 6.3 | 118 | 0.68 | 36.1 |
| RS-03 | 20 | 22 | 1 | 3.39 | 1.55 | 2.2 | <0.2 | <10 | 50 | 0.27 | 0.04 | 0.95 | 0.1 | 30.2 | 16.6 | 102 | 1.07 | 91.5 |
| RS-04 | 1 | 5 | 1 | 0.14 | 1.74 | 5.7 | <0.2 | <10 | 60 | 0.41 | 0.11 | 0.48 | 0.1 | 34.8 | 14.3 | 124 | 1.34 | 146.5 |
| RS-04 | 10 | 15 | 1 | 0.47 | 0.64 | 1.4 | <0.2 | <10 | 30 | 0.25 | 0.02 | 0.41 | 0.04 | 30.8 | 5.3 | 109 | 0.53 | 21.5 |
| RS-04 | 15 | 20 | 1 | 0.36 | 0.66 | 1.2 | <0.2 | <10 | 30 | 0.19 | 0.03 | 0.46 | 0.05 | 30.8 | 5.9 | 110 | 0.62 | 63.6 |
| RS-04 | 20 | 25 | 1 | 0.69 | 1.08 | 2.3 | <0.2 | <10 | 30 | 0.26 | 0.06 | 0.57 | 0.13 | 27.8 | 14.3 | 104 | 1.06 | 187.5 |
| RS-05A | 5 | 10 | 1 | 0.07 | 1.1 | 2.8 | <0.2 | <10 | 50 | 0.38 | 0.06 | 0.46 | 0.09 | 34 | 10.1 | 123 | 0.95 | 60 |
| RS-05A | 10 | 13 | 1 | 0.05 | 3.58 | 1.3 | <0.2 | <10 | 40 | 0.19 | <0.01 | 2.03 | 0.08 | 15.7 | 29.8 | 133 | 0.57 | 36.1 |
| RS-06A | 0.5 | 2 | 1 | 0.11 | 1.61 | 2.7 | <0.2 | <10 | 70 | 0.4 | 0.06 | 0.32 | 0.07 | 38.1 | 9.8 | 95 | 1.39 | 20.9 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | 1 | 0.14 | 1.13 | 3.2 | <0.2 | <10 | 50 | 0.32 | 0.06 | 0.46 | 0.06 | 39 | 9.4 | 105 | 1.01 | 29.3 |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | 1 | 0.11 | 0.76 | 3.7 | <0.2 | <10 | 40 | 0.29 | 0.03 | 0.44 | 0.08 | 33.5 | 7.3 | 107 | 0.73 | 23.7 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | 1 | 0.01 | 1.63 | 5.8 | <0.2 | <10 | 60 | 0.46 | 0.07 | 0.28 | 0.07 | 29.1 | 8.3 | 120 | 2.07 | 59.2 |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | 1 | 0.11 | 1.82 | 6.9 | <0.2 | <10 | 70 | 0.66 | 0.17 | 0.46 | 0.27 | 34.6 | 16.1 | 138 | 2.49 | 140.5 |
| RS-08A | 0 | 1 | 1 | 0.1 | 1.87 | 5.6 | <0.2 | <10 | 50 | 0.54 | 0.08 | 0.41 | 0.07 | 31.7 | 12.3 | 98 | 1.39 | 46.1 |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | 1 | 0.38 | 1.17 | 8.5 | <0.2 | <10 | 50 | 0.36 | 0.06 | 0.49 | 0.15 | 35.2 | 14.3 | 115 | 1.49 | 74.5 |
| RS-09 | 7 | 8 | 1 | 0.08 | 4.06 | 4.2 | <0.2 | <10 | 70 | 0.41 | 0.06 | 2.04 | 0.15 | 29.4 | 27.5 | 140 | 2.03 | 85.7 |
| RS-10 | 1 | 2 | 1 | 0.05 | 2 | 3.6 | <0.2 | <10 | 80 | 0.45 | 0.09 | 0.37 | 0.05 | 32.7 | 12.9 | 111 | 1.79 | 29.4 |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | 1 | 0.05 | 1.57 | 3.6 | <0.2 | <10 | 80 | 0.47 | 0.09 | 0.39 | 0.05 | 42.2 | 10.1 | 131 | 2.59 | 36.6 |
| RS-10 | 7.5 | 10 | 1 | 0.06 | 2.13 | 7.1 | <0.2 | <10 | 80 | 0.47 | 0.09 | 0.67 | 0.12 | 34.6 | 16.5 | 125 | 2.75 | 63.7 |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | 1 | 0.79 | 1.87 | 3.2 | <0.2 | <10 | 70 | 0.48 | 0.09 | 0.64 | 0.28 | 32.7 | 13.3 | 143 | 1.96 | 115 |
| RS-11 | 11.5 | 17 | 1 | 0.12 | 1.97 | 4.7 | <0.2 | <10 | 70 | 0.53 | 0.1 | 0.66 | 0.21 | 33.9 | 12.7 | 142 | 2.17 | 155 |
| RS-11 | 17 | 25 | 1 | 6.33 | 2.11 | 6 | <0.2 | <10 | 70 | 0.53 | 0.17 | 0.72 | 0.32 | 30.3 | 19.4 | 137 | 2.41 | 680 |
| RS-11 | 28 | 31 | 2 | 0.36 | 0.9 | 3.5 | <0.2 | <10 | 50 | 0.35 | 0.05 | 0.57 | 0.09 | 31.5 | 7.1 | 113 | 1.15 | 34.3 |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | 1 | 0.03 | 0.71 | 3 | <0.2 | <10 | 40 | 0.29 | 0.06 | 0.4 | 0.05 | 29.4 | 5.4 | 120 | 0.67 | 17 |
| RS-12 | 16 | 18 | 1 | 0.03 | 0.63 | 2.6 | <0.2 | <10 | 30 | 0.26 | 0.06 | 0.37 | 0.08 | 30.3 | 5 | 105 | 0.63 | 17.2 |
| RS-12 | 20 | 22 | 1 | 0.13 | 1.24 | 4.2 | <0.2 | <10 | 40 | 0.26 | 0.07 | 0.66 | 0.1 | 27.4 | 19.5 | 113 | 0.68 | 342 |
| RS-13 | 0 | 1.5 | 1 | 0.08 | 1.83 | 3.5 | <0.2 | <10 | 50 | 0.44 | 0.05 | 0.6 | 0.15 | 30.1 | 17.3 | 99 | 0.88 | 97.2 |
| RS-13 | 1.5 | 2.5 | 1 | 0.07 | 1.75 | 3.8 | <0.2 | <10 | 60 | 0.46 | 0.03 | 0.5 | 0.07 | 36.2 | 14.4 | 113 | 1.43 | 62 |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | 1 | 0.3 | 1.88 | 9.8 | <0.2 | <10 | 60 | 0.36 | 0.15 | 0.78 | 0.27 | 34.4 | 48.4 | 120 | 1.43 | 817 |
| RS-14B | 0 | 1.5 | 1 | 0.21 | 1.83 | 4.9 | <0.2 | <10 | 80 | 0.38 | 0.13 | 0.3 | 0.24 | 24.4 | 13.5 | 90 | 1.45 | 73.8 |
| RS-14B | 1.5 | 3 | 1 | 0.14 | 2.26 | 4.9 | <0.2 | <10 | 60 | 0.48 | 0.09 | 0.34 | 0.12 | 31.4 | 16.4 | 88 | 1.78 | 116.5 |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | 1 | 0.07 | 2.24 | 4.6 | <0.2 | <10 | 60 | 0.45 | 0.07 | 0.3 | 0.14 | 28.2 | 15.2 | 84 | 0.99 | 22.9 |

| Fraction Analyzed | | | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **Fe** | **Ga** | **Ge** | **Hf** | **Hg** | **In** | **K** | **La** | **Li** | **Mg** | **Mn** | **Mo** | **Na** | **Nb** | **Ni** | **P** |
| **Units** | From (ft) | To (ft) | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | % | ppm | ppm | % | ppm | ppm | ppm |
| **Detection Limit** | | | 0.01 | 0.05 | 0.05 | 0.02 | 0.01 | 0.005 | 0.01 | 0.2 | 0.1 | 0.01 | 5 | 0.05 | 0.01 | 0.05 | 0.2 | 10 |
| **General Method** | | | | | | | | | | | | | | | | | | |
| **Analytical Method Code** | | | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 |
| RS-01B | 0 | 1 | 2.53 | 3.98 | 0.05 | <0.02 | 0.08 | 0.015 | 0.08 | 7.6 | 5.7 | 0.22 | 1755 | 1.7 | 0.02 | 0.97 | 17.6 | 1010 |
| RS-01B | 1 | 5 | 2.99 | 3.49 | 0.13 | 0.17 | 0.02 | 0.011 | 0.08 | 16.6 | 7.5 | 0.33 | 581 | 2.02 | 0.04 | 0.63 | 18.9 | 560 |
| RS-01B | 14 | 15 | 2.72 | 3.05 | 0.13 | 0.27 | 0.01 | 0.01 | 0.09 | 15.6 | 7.6 | 0.34 | 523 | 2.01 | 0.05 | 0.54 | 20.6 | 550 |
| RS-01B | 18 | 20 | 2.54 | 3.32 | 0.12 | 0.25 | 0.01 | 0.01 | 0.11 | 14.6 | 7.5 | 0.5 | 411 | 1.91 | 0.12 | 0.21 | 26.5 | 510 |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | 2.91 | 2.19 | 0.11 | 0.05 | 0.1 | 0.01 | 0.04 | 12.3 | 3.8 | 0.25 | 286 | 42.9 | 0.02 | 0.94 | 70.2 | 490 |
| RS-03 | 15 | 20 | 2.09 | 2.96 | 0.08 | 0.26 | 0.01 | 0.009 | 0.11 | 15.6 | 9.1 | 0.38 | 209 | 2.47 | 0.07 | 0.4 | 23.6 | 590 |
| RS-03 | 20 | 22 | 2.98 | 4.55 | 0.1 | 0.24 | 0.01 | 0.012 | 0.16 | 14.9 | 10.6 | 1.15 | 322 | 2.68 | 0.22 | 0.28 | 79.6 | 490 |
| RS-04 | 1 | 5 | 3.5 | 6.02 | 0.12 | 0.08 | 0.02 | 0.02 | 0.09 | 18.3 | 13.2 | 0.51 | 359 | 8.09 | 0.06 | 1.48 | 67.4 | 550 |
| RS-04 | 10 | 15 | 1.62 | 2.75 | 0.05 | 0.23 | <0.01 | 0.007 | 0.09 | 14.9 | 8.2 | 0.3 | 175 | 2.28 | 0.06 | 0.37 | 19.8 | 460 |
| RS-04 | 15 | 20 | 1.5 | 2.71 | 0.06 | 0.26 | 0.01 | 0.008 | 0.09 | 15.8 | 8.1 | 0.34 | 158 | 2.02 | 0.07 | 0.32 | 27.6 | 490 |
| RS-04 | 20 | 25 | 2.77 | 3.68 | 0.1 | 0.23 | 0.01 | 0.013 | 0.13 | 13.7 | 11.7 | 0.74 | 258 | 2.26 | 0.09 | 0.2 | 98 | 460 |
| RS-05A | 5 | 10 | 2.64 | 4.07 | 0.1 | 0.25 | 0.01 | 0.014 | 0.11 | 17.6 | 10.4 | 0.46 | 274 | 2.49 | 0.07 | 0.34 | 35.7 | 480 |
| RS-05A | 10 | 13 | 3.71 | 7.11 | 0.11 | 0.06 | 0.01 | 0.008 | 0.11 | 8.2 | 8.1 | 2.35 | 440 | 3.95 | 0.54 | 0.18 | 137.5 | 260 |
| RS-06A | 0.5 | 2 | 2.59 | 5.74 | 0.07 | 0.1 | 0.02 | 0.017 | 0.14 | 16.7 | 19.4 | 0.45 | 270 | 1.89 | 0.04 | 1.74 | 27.6 | 930 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | 2.62 | 4.26 | 0.11 | 0.27 | 0.01 | 0.013 | 0.12 | 20.3 | 10.8 | 0.46 | 285 | 2.09 | 0.06 | 0.42 | 26.1 | 620 |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | 2.16 | 3.23 | 0.09 | 0.28 | 0.01 | 0.01 | 0.11 | 17.2 | 9.1 | 0.36 | 238 | 2.29 | 0.06 | 0.34 | 21.6 | 560 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | 4.32 | 6.24 | 0.05 | 0.11 | 0.01 | 0.019 | 0.23 | 13.1 | 30.1 | 0.58 | 180 | 2.98 | 0.03 | 2.48 | 58.2 | 600 |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | 5.42 | 6.32 | 0.22 | 0.25 | 0.01 | 0.026 | 0.37 | 17.5 | 28.1 | 0.76 | 246 | 3.71 | 0.07 | 1.01 | 72.3 | 670 |
| RS-08A | 0 | 1 | 3.66 | 5.76 | 0.12 | 0.1 | 0.03 | 0.018 | 0.11 | 15.8 | 15.8 | 0.52 | 257 | 2.02 | 0.05 | 1.86 | 47.8 | 620 |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | 3.41 | 4.24 | 0.14 | 0.31 | 0.02 | 0.015 | 0.18 | 17.6 | 12.6 | 0.63 | 346 | 2.85 | 0.08 | 0.27 | 50.7 | 570 |
| RS-09 | 7 | 8 | 4.88 | 8.86 | 0.17 | 0.21 | 0.01 | 0.019 | 0.29 | 13.9 | 15.3 | 2.04 | 470 | 11.65 | 0.52 | 0.34 | 151 | 440 |
| RS-10 | 1 | 2 | 3.13 | 6.92 | 0.1 | 0.14 | 0.02 | 0.02 | 0.19 | 14.2 | 22 | 0.54 | 394 | 2.55 | 0.06 | 2.07 | 45 | 470 |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | 2.87 | 6.1 | 0.12 | 0.39 | 0.01 | 0.016 | 0.37 | 21.5 | 23.5 | 0.69 | 326 | 2.39 | 0.05 | 0.41 | 31.1 | 660 |
| RS-10 | 7.5 | 10 | 5.16 | 6.86 | 0.23 | 0.38 | 0.02 | 0.021 | 0.43 | 17.8 | 19.9 | 0.97 | 411 | 2.67 | 0.11 | 0.27 | 65.1 | 630 |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | 2.45 | 6.28 | 0.19 | 0.17 | 0.02 | 0.025 | 0.25 | 16.2 | 21.1 | 0.68 | 234 | 2.69 | 0.09 | 2.29 | 68 | 510 |
| RS-11 | 11.5 | 17 | 3.18 | 6.64 | 0.15 | 0.32 | <0.01 | 0.029 | 0.29 | 17.6 | 22.4 | 0.73 | 207 | 3.16 | 0.12 | 1.4 | 64.3 | 570 |
| RS-11 | 17 | 25 | 4.73 | 6.61 | 0.19 | 0.26 | 0.01 | 0.028 | 0.38 | 15.2 | 27.3 | 1.11 | 260 | 3.31 | 0.13 | 0.69 | 169.5 | 520 |
| RS-11 | 28 | 31 | 2.74 | 3.6 | 0.11 | 0.27 | <0.01 | 0.012 | 0.21 | 16.3 | 13.7 | 0.49 | 274 | 2.42 | 0.06 | 0.31 | 24.1 | 550 |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | 2.03 | 2.93 | 0.08 | 0.26 | 0.01 | 0.01 | 0.1 | 16.2 | 8.4 | 0.32 | 239 | 2.17 | 0.05 | 0.35 | 15.1 | 510 |
| RS-12 | 16 | 18 | 1.94 | 2.66 | 0.08 | 0.25 | 0.01 | 0.008 | 0.09 | 14.7 | 7.8 | 0.26 | 203 | 2.12 | 0.05 | 0.36 | 15.2 | 480 |
| RS-12 | 20 | 22 | 3.02 | 3.76 | 0.11 | 0.2 | 0.01 | 0.014 | 0.11 | 13.5 | 8.6 | 0.89 | 297 | 3.05 | 0.13 | 0.27 | 160 | 470 |
| RS-13 | 0 | 1.5 | 3.26 | 5.43 | 0.11 | 0.06 | 0.03 | 0.02 | 0.08 | 13 | 12.8 | 0.62 | 645 | 2.58 | 0.09 | 1.95 | 83.8 | 510 |
| RS-13 | 1.5 | 2.5 | 3.21 | 5.65 | 0.1 | 0.22 | 0.01 | 0.017 | 0.19 | 16.8 | 14.9 | 0.71 | 344 | 2.18 | 0.09 | 1.4 | 66.7 | 500 |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | 4.57 | 5.66 | 0.15 | 0.27 | 0.02 | 0.021 | 0.19 | 17.1 | 14.3 | 0.63 | 339 | 4.59 | 0.16 | 0.6 | 382 | 560 |
| RS-14B | 0 | 1.5 | 3.55 | 6.73 | 0.09 | 0.05 | 0.07 | 0.023 | 0.11 | 11.1 | 12.6 | 0.47 | 450 | 2.37 | 0.04 | 1.5 | 54.3 | 530 |
| RS-14B | 1.5 | 3 | 3.99 | 7.48 | 0.11 | 0.11 | 0.03 | 0.024 | 0.19 | 14 | 17.5 | 0.65 | 435 | 2.38 | 0.06 | 1.46 | 68.4 | 420 |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | 3.46 | 7.39 | 0.08 | 0.13 | 0.03 | 0.023 | 0.06 | 11.6 | 10.4 | 0.67 | 361 | 1.72 | 0.06 | 1.43 | 54.9 | 600 |

| **Fraction Analyzed** | | | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **Pb** | **Rb** | **Re** | **S** | **Sb** | **Sc** | **Se** | **Sn** | **Sr** | **Ta** | **Te** | **Th** | **Ti** | **Tl** | **U** | **V** |
| **Units** | From (ft) | To (ft) | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm |
| **Detection Limit** | | | 0.2 | 0.1 | 0.001 | 0.01 | 0.05 | 0.1 | 0.2 | 0.2 | 0.2 | 0.01 | 0.01 | 0.2 | 0.005 | 0.02 | 0.05 | 1 |
| **General Method** | | | | | | | | | | | | | | | | | | |
| **Analytical Method Code** | | | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 |
| RS-01B | 0 | 1 | 16.4 | 12.2 | <0.001 | 0.06 | 0.17 | 1.3 | 0.6 | 1 | 44.6 | <0.01 | 0.03 | 0.5 | 0.052 | 0.09 | 0.33 | 40 |
| RS-01B | 1 | 5 | 3.5 | 8.2 | <0.001 | <0.01 | 0.07 | 3.2 | 0.4 | 0.5 | 27.8 | <0.01 | <0.01 | 3.6 | 0.1 | 0.07 | 0.62 | 43 |
| RS-01B | 14 | 15 | 3.8 | 7.4 | <0.001 | <0.01 | 0.1 | 3.1 | 0.3 | 0.6 | 26.9 | <0.01 | <0.01 | 3.5 | 0.095 | 0.06 | 0.58 | 40 |
| RS-01B | 18 | 20 | 2.7 | 7.3 | <0.001 | 0.01 | 0.08 | 2.7 | 0.3 | 1.1 | 34.5 | <0.01 | <0.01 | 3.5 | 0.089 | 0.06 | 0.53 | 35 |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | 3.4 | 3.7 | 0.014 | 0.53 | 0.34 | 2.9 | 2.9 | 1.9 | 47.6 | 0.02 | 0.01 | 1.5 | 0.028 | 0.07 | 1.14 | 25 |
| RS-03 | 15 | 20 | 2.8 | 7.6 | <0.001 | 0.09 | 0.1 | 2.6 | 0.3 | 0.4 | 30.3 | <0.01 | <0.01 | 4.1 | 0.096 | 0.06 | 0.87 | 36 |
| RS-03 | 20 | 22 | 2.7 | 9.7 | <0.001 | 0.05 | 0.12 | 3.2 | 0.9 | 0.8 | 48.4 | <0.01 | <0.01 | 3.2 | 0.116 | 0.08 | 0.81 | 38 |
| RS-04 | 1 | 5 | 4.7 | 11 | 0.001 | 0.01 | 0.16 | 4.8 | 0.5 | 0.9 | 28.4 | <0.01 | <0.01 | 3.3 | 0.119 | 0.11 | 0.99 | 65 |
| RS-04 | 10 | 15 | 2.7 | 6.2 | <0.001 | <0.01 | 0.05 | 2.2 | 0.4 | 0.4 | 27.1 | <0.01 | <0.01 | 3.7 | 0.085 | 0.04 | 0.59 | 30 |
| RS-04 | 15 | 20 | 2.6 | 5.8 | <0.001 | 0.03 | 0.05 | 2.2 | 0.3 | 0.4 | 27.6 | <0.01 | <0.01 | 4 | 0.085 | 0.04 | 0.86 | 30 |
| RS-04 | 20 | 25 | 2.9 | 8.8 | 0.002 | 0.18 | 0.11 | 3.4 | 0.5 | 0.5 | 29.6 | <0.01 | <0.01 | 3.3 | 0.097 | 0.08 | 0.82 | 41 |
| RS-05A | 5 | 10 | 3.1 | 10.6 | <0.001 | <0.01 | 0.13 | 3.7 | 0.3 | 0.5 | 29 | <0.01 | <0.01 | 3.7 | 0.116 | 0.08 | 0.83 | 46 |
| RS-05A | 10 | 13 | 1.8 | 5.2 | <0.001 | <0.01 | 0.06 | 2.9 | 0.2 | 0.3 | 89.9 | <0.01 | <0.01 | 1.5 | 0.062 | 0.04 | 0.35 | 21 |
| RS-06A | 0.5 | 2 | 4.6 | 15.6 | <0.001 | 0.01 | 0.09 | 3 | 0.5 | 0.6 | 23.1 | <0.01 | 0.01 | 3.8 | 0.123 | 0.1 | 0.66 | 57 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | 3.4 | 10.9 | <0.001 | <0.01 | 0.12 | 4.1 | 0.4 | 0.6 | 32.1 | <0.01 | 0.01 | 4 | 0.127 | 0.09 | 0.85 | 53 |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | 2.8 | 8.9 | <0.001 | 0.01 | 0.08 | 2.8 | 0.2 | 0.4 | 28.6 | <0.01 | <0.01 | 4.1 | 0.098 | 0.06 | 0.67 | 38 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | 3.4 | 19.9 | 0.001 | 0.02 | 0.19 | 4.9 | 0.5 | 0.6 | 19 | <0.01 | 0.02 | 3.6 | 0.133 | 0.13 | 1.07 | 61 |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | 3.4 | 28.9 | 0.001 | 0.11 | 0.35 | 7.7 | 0.7 | 0.7 | 26.6 | 0.01 | 0.05 | 4.1 | 0.164 | 0.24 | 1.72 | 74 |
| RS-08A | 0 | 1 | 4.2 | 13 | <0.001 | 0.01 | 0.16 | 3.8 | 0.5 | 0.6 | 25.6 | <0.01 | 0.01 | 3.2 | 0.122 | 0.11 | 0.81 | 65 |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | 2.9 | 16.4 | <0.001 | 0.01 | 0.22 | 4.1 | 0.4 | 0.6 | 30.4 | <0.01 | 0.02 | 4.3 | 0.112 | 0.12 | 0.98 | 45 |
| RS-09 | 7 | 8 | 3 | 18.8 | 0.001 | 0.03 | 0.25 | 5.9 | 0.5 | 0.8 | 89.7 | <0.01 | 0.01 | 3.4 | 0.125 | 0.15 | 1.23 | 48 |
| RS-10 | 1 | 2 | 4.8 | 19.5 | <0.001 | 0.01 | 0.13 | 4.3 | 0.6 | 0.8 | 25.9 | <0.01 | 0.01 | 4 | 0.144 | 0.12 | 0.88 | 69 |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | 3.1 | 30 | <0.001 | 0.01 | 0.23 | 6.2 | 0.3 | 0.6 | 30.7 | <0.01 | 0.01 | 4.6 | 0.165 | 0.2 | 1.29 | 58 |
| RS-10 | 7.5 | 10 | 5 | 32.7 | <0.001 | 0.02 | 0.27 | 7.2 | 0.3 | 0.7 | 36.3 | <0.01 | 0.02 | 4.4 | 0.153 | 0.21 | 1.41 | 62 |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | 4.2 | 21.6 | 0.001 | 0.06 | 0.37 | 6.5 | 0.8 | 1 | 29.7 | <0.01 | 0.02 | 4 | 0.153 | 0.19 | 1.5 | 73 |
| RS-11 | 11.5 | 17 | 4 | 24.9 | 0.001 | 0.08 | 0.41 | 6.8 | 0.6 | 0.7 | 33.4 | <0.01 | 0.02 | 3.9 | 0.176 | 0.21 | 2.04 | 77 |
| RS-11 | 17 | 25 | 3.5 | 28.3 | 0.002 | 0.2 | 0.47 | 7 | 1 | 1.4 | 36.2 | <0.01 | 0.03 | 3.8 | 0.148 | 0.24 | 1.85 | 60 |
| RS-11 | 28 | 31 | 2.5 | 14 | 0.001 | 0.1 | 0.12 | 3.4 | 0.4 | 0.5 | 28.9 | <0.01 | 0.01 | 3.6 | 0.099 | 0.11 | 0.93 | 39 |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | 2.6 | 7.8 | <0.001 | <0.01 | 0.07 | 2.8 | 0.2 | 0.4 | 26.3 | <0.01 | <0.01 | 3.1 | 0.09 | 0.06 | 0.58 | 36 |
| RS-12 | 16 | 18 | 2.6 | 6.9 | <0.001 | <0.01 | 0.09 | 2.5 | <0.2 | 0.4 | 25.6 | <0.01 | <0.01 | 3.3 | 0.083 | 0.07 | 0.77 | 34 |
| RS-12 | 20 | 22 | 2.7 | 8.2 | 0.001 | 0.08 | 0.1 | 2.7 | 0.4 | 0.4 | 36.5 | <0.01 | <0.01 | 2.8 | 0.095 | 0.06 | 0.62 | 34 |
| RS-13 | 0 | 1.5 | 5 | 7.7 | 0.001 | 0.02 | 0.15 | 3.2 | 0.6 | 0.7 | 33.3 | 0.01 | <0.01 | 2.3 | 0.123 | 0.08 | 0.65 | 71 |
| RS-13 | 1.5 | 2.5 | 3.3 | 15.1 | <0.001 | <0.01 | 0.11 | 4.5 | 0.5 | 0.6 | 27.6 | <0.01 | <0.01 | 3.7 | 0.152 | 0.12 | 0.77 | 67 |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | 3.9 | 14.9 | 0.004 | 0.63 | 0.4 | 4.1 | 1.2 | 0.6 | 42.4 | <0.01 | 0.03 | 3.4 | 0.133 | 0.16 | 0.85 | 58 |
| RS-14B | 0 | 1.5 | 13.2 | 15.3 | <0.001 | 0.03 | 0.27 | 3 | 0.7 | 3.1 | 21.1 | 0.01 | 0.05 | 1.8 | 0.091 | 0.1 | 0.64 | 66 |
| RS-14B | 1.5 | 3 | 4.5 | 18.1 | <0.001 | 0.02 | 0.18 | 5 | 0.7 | 1.1 | 21.1 | 0.01 | 0.04 | 3.4 | 0.12 | 0.16 | 0.99 | 65 |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | 6.2 | 9.6 | <0.001 | 0.01 | 0.14 | 3.2 | 0.5 | 1.4 | 20.5 | 0.01 | 0.03 | 3 | 0.126 | 0.07 | 0.61 | 89 |

| Fraction Analyzed | | | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **W** | **Y** | **Zn** | **Zr** | **Ag** | **Al** | **As** | **Ba** | **Be** | **Bi** | **Ca** | **Cd** | **Co** | **Cr** | **Cu** | **Fe** |
| **Units** | From (ft) | To (ft) | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| **Detection Limit** | | | 0.05 | 0.05 | 2 | 0.5 | 1 | 0.05 | 50 | 50 | 10 | 20 | 0.05 | 10 | 10 | 10 | 10 | 0.05 |
| **General Method** | | | | | | | | | | | | | | | | | | |
| **Analytical Method Code** | | | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
| RS-01B | 0 | 1 | 1.49 | 2.22 | 79 | 0.9 | 2 | 2.8 | <50 | 500 | <10 | <20 | 1.54 | <10 | 10 | 120 | 10 | 3.32 |
| RS-01B | 1 | 5 | 0.33 | 5.18 | 23 | 7.4 | 2 | 5.17 | <50 | 590 | <10 | <20 | 1.65 | <10 | 10 | 160 | 20 | 3.98 |
| RS-01B | 14 | 15 | 0.27 | 5.75 | 25 | 8.8 | <1 | 3.87 | <50 | 580 | <10 | <20 | 1.71 | <10 | 10 | 170 | 30 | 3.68 |
| RS-01B | 18 | 20 | 1.24 | 5.28 | 26 | 8.1 | 6 | 4.67 | <50 | 580 | <10 | <20 | 2.06 | <10 | 10 | 160 | 20 | 3.59 |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | 1.69 | 7.38 | 18 | 3.1 | <1 | 1.85 | <50 | 210 | <10 | <20 | 1.49 | <10 | <10 | 220 | 210 | 2.68 |
| RS-03 | 15 | 20 | 0.26 | 5.84 | 25 | 8.2 | <1 | 4.36 | <50 | 610 | <10 | <20 | 2.07 | <10 | 10 | 160 | 30 | 3.08 |
| RS-03 | 20 | 22 | 2.19 | 5.48 | 38 | 7.8 | 3 | 4.45 | <50 | 530 | <10 | <20 | 2.65 | <10 | 20 | 150 | 90 | 4.14 |
| RS-04 | 1 | 5 | 0.28 | 7.31 | 41 | 4.4 | <1 | 4.94 | <50 | 580 | <10 | <20 | 1.74 | <10 | 20 | 150 | 140 | 4.28 |
| RS-04 | 10 | 15 | 0.38 | 4.89 | 19 | 7.4 | <1 | 4.65 | <50 | 650 | <10 | <20 | 1.76 | <10 | 10 | 140 | 20 | 2.39 |
| RS-04 | 15 | 20 | 0.34 | 5.12 | 20 | 7.6 | <1 | 4.32 | <50 | 630 | <10 | <20 | 1.82 | <10 | 10 | 140 | 60 | 2.31 |
| RS-04 | 20 | 25 | 0.57 | 5.2 | 32 | 8 | <1 | 3.92 | <50 | 560 | <10 | <20 | 1.91 | <10 | 20 | 150 | 180 | 3.7 |
| RS-05A | 5 | 10 | 1.14 | 6.8 | 31 | 9.1 | <1 | 5.05 | <50 | 640 | <10 | <20 | 1.87 | <10 | 10 | 180 | 60 | 3.81 |
| RS-05A | 10 | 13 | 0.54 | 2.97 | 42 | 2.7 | <1 | 4.99 | <50 | 320 | <10 | <20 | 4.88 | <10 | 30 | 300 | 40 | 4.33 |
| RS-06A | 0.5 | 2 | 0.32 | 4.9 | 40 | 4.9 | <1 | 5.3 | <50 | 730 | <10 | <20 | 1.72 | <10 | 20 | 150 | 20 | 3.71 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | 1.6 | 7.58 | 31 | 9.6 | <1 | 4.86 | <50 | 640 | <10 | <20 | 1.92 | <10 | 10 | 150 | 30 | 3.81 |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | 0.57 | 5.74 | 25 | 8.8 | <1 | 5.03 | <50 | 650 | <10 | <20 | 1.89 | <10 | 10 | 150 | 20 | 3.27 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | 0.59 | 4.95 | 64 | 4.4 | <1 | 4.31 | <50 | 670 | <10 | <20 | 1.49 | <10 | 10 | 190 | 60 | 6.14 |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | 3.21 | 8.71 | 82 | 9.4 | <1 | 4.58 | <50 | 630 | <10 | <20 | 1.72 | <10 | 20 | 170 | 140 | 7.41 |
| RS-08A | 0 | 1 | 0.34 | 6.32 | 38 | 5.1 | <1 | 3.99 | <50 | 610 | <10 | <20 | 1.57 | <10 | 10 | 150 | 40 | 4.78 |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | 12.45 | 6.48 | 42 | 10.9 | 1 | 4.06 | <50 | 630 | <10 | <20 | 1.76 | <10 | 20 | 160 | 80 | 4.99 |
| RS-09 | 7 | 8 | 1.42 | 6.03 | 63 | 8.1 | 1 | 5.28 | <50 | 430 | <10 | <20 | 3.47 | <10 | 30 | 180 | 90 | 5.77 |
| RS-10 | 1 | 2 | 2.7 | 5.38 | 45 | 6.9 | <1 | 3.52 | <50 | 580 | <10 | <20 | 1.55 | <10 | 20 | 170 | 30 | 4.08 |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | 0.91 | 7.28 | 55 | 14.1 | <1 | 5.39 | <50 | 910 | <10 | <20 | 1.64 | <10 | 10 | 150 | 40 | 3.77 |
| RS-10 | 7.5 | 10 | 3.79 | 7.33 | 58 | 13.4 | <1 | 4.66 | <50 | 590 | <10 | <20 | 2 | <10 | 20 | 170 | 60 | 6.69 |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | 0.87 | 7.09 | 80 | 6.7 | 4 | 3.77 | <50 | 500 | <10 | <20 | 2.13 | <10 | 20 | 210 | 110 | 4.63 |
| RS-11 | 11.5 | 17 | 0.41 | 8.38 | 92 | 10.9 | <1 | 4.5 | <50 | 550 | <10 | <20 | 2.41 | <10 | 20 | 210 | 150 | 5.58 |
| RS-11 | 17 | 25 | 2.92 | 7.3 | 99 | 8.8 | 5 | 5.62 | <50 | 640 | <10 | <20 | 2.14 | <10 | 20 | 180 | 650 | 6.6 |
| RS-11 | 28 | 31 | 1 | 5.42 | 31 | 8.5 | <1 | 4.54 | <50 | 750 | <10 | <20 | 1.85 | <10 | 10 | 140 | 30 | 4.33 |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | 0.24 | 5.84 | 21 | 7.6 | <1 | 4.36 | <50 | 690 | <10 | <20 | 1.64 | <10 | 10 | 150 | 20 | 2.84 |
| RS-12 | 16 | 18 | 0.24 | 5.77 | 23 | 7.7 | <1 | 5.02 | <50 | 690 | <10 | <20 | 1.71 | <10 | 10 | 130 | 10 | 2.84 |
| RS-12 | 20 | 22 | 0.54 | 5.31 | 32 | 6.6 | 2 | 5.34 | <50 | 630 | <10 | <20 | 2.25 | <10 | 20 | 160 | 340 | 4.33 |
| RS-13 | 0 | 1.5 | 0.73 | 6.29 | 44 | 3.3 | 3 | 4.49 | <50 | 480 | <10 | <20 | 2.51 | <10 | 30 | 180 | 100 | 5.05 |
| RS-13 | 1.5 | 2.5 | 0.27 | 6.83 | 42 | 9.1 | <1 | 4.49 | <50 | 490 | <10 | <20 | 2.21 | <10 | 20 | 180 | 60 | 4.81 |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | 0.52 | 6.57 | 39 | 10.2 | <1 | 5.32 | <50 | 550 | <10 | <20 | 2.28 | <10 | 50 | 200 | 800 | 7.2 |
| RS-14B | 0 | 1.5 | 0.57 | 4.13 | 58 | 1.3 | 2 | 4.2 | <50 | 490 | <10 | <20 | 1.51 | <10 | 20 | 150 | 80 | 5.07 |
| RS-14B | 1.5 | 3 | 1.5 | 5.9 | 53 | 3.4 | 1 | 4.88 | <50 | 550 | <10 | <20 | 1.76 | <10 | 20 | 150 | 130 | 5.57 |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | 0.21 | 4.73 | 44 | 4.1 | <1 | 4.86 | <50 | 520 | <10 | <20 | 1.96 | <10 | 20 | 170 | 30 | 5.15 |

| Fraction Analyzed | | | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **Ga** | **K** | **La** | **Mg** | **Mn** | **Mo** | **Na** | **Ni** | **P** | **Pb** | **S** | **Sb** | **Sc** | **Sr** | **Th** | **Ti** |
| **Units** | From (ft) | To (ft) | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| **Detection Limit** | | | 50 | 0.1 | 50 | 0.05 | 10 | 10 | 0.05 | 10 | 50 | 20 | 0.1 | 50 | 10 | 10 | 50 | 0.05 |
| **General Method** | | | | | | | | | | | | | | | | | | |
| **Analytical Method Code** | | | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
| RS-01B | 0 | 1 | <50 | 0.9 | <50 | 0.48 | 1860 | <10 | 1.58 | 20 | 920 | 20 | 0.1 | <50 | <10 | 270 | <50 | 0.28 |
| RS-01B | 1 | 5 | <50 | 1.6 | <50 | 0.67 | 890 | <10 | 2.62 | 30 | 520 | <20 | <0.1 | <50 | 10 | 450 | <50 | 0.26 |
| RS-01B | 14 | 15 | <50 | 1.4 | <50 | 0.63 | 820 | <10 | 2.73 | 30 | 510 | <20 | <0.1 | <50 | <10 | 420 | <50 | 0.26 |
| RS-01B | 18 | 20 | <50 | 1.7 | <50 | 0.8 | 740 | <10 | 2.8 | 40 | 490 | <20 | <0.1 | <50 | 10 | 440 | <50 | 0.25 |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | <50 | 0.5 | <50 | 0.35 | 330 | 30 | 0.65 | 70 | 480 | <20 | 0.5 | <50 | <10 | 140 | <50 | 0.11 |
| RS-03 | 15 | 20 | <50 | 1.7 | <50 | 0.72 | 490 | <10 | 2.81 | 30 | 530 | 20 | 0.1 | <50 | 10 | 460 | <50 | 0.26 |
| RS-03 | 20 | 22 | <50 | 1.4 | <50 | 1.42 | 640 | <10 | 2.65 | 90 | 510 | <20 | 0.1 | <50 | 10 | 400 | <50 | 0.31 |
| RS-04 | 1 | 5 | <50 | 1 | <50 | 0.81 | 620 | <10 | 2.45 | 70 | 580 | <20 | <0.1 | <50 | 10 | 420 | <50 | 0.33 |
| RS-04 | 10 | 15 | <50 | 1.8 | <50 | 0.57 | 370 | <10 | 3.08 | 30 | 460 | <20 | <0.1 | <50 | <10 | 510 | <50 | 0.22 |
| RS-04 | 15 | 20 | <50 | 1.8 | <50 | 0.64 | 360 | <10 | 3 | 30 | 460 | <20 | <0.1 | <50 | <10 | 470 | <50 | 0.23 |
| RS-04 | 20 | 25 | <50 | 1.6 | <50 | 1.01 | 540 | <10 | 2.73 | 110 | 450 | <20 | 0.1 | <50 | 10 | 410 | <50 | 0.32 |
| RS-05A | 5 | 10 | <50 | 1.7 | <50 | 0.8 | 610 | <10 | 2.77 | 50 | 460 | <20 | <0.1 | <50 | 10 | 470 | <50 | 0.3 |
| RS-05A | 10 | 13 | <50 | 0.7 | <50 | 1.94 | 620 | <10 | 2.42 | 150 | 240 | <20 | <0.1 | <50 | <10 | 350 | <50 | 0.21 |
| RS-06A | 0.5 | 2 | <50 | 1.4 | <50 | 0.89 | 560 | <10 | 2.64 | 40 | 940 | <20 | <0.1 | <50 | 10 | 530 | <50 | 0.36 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | <50 | 1.7 | <50 | 0.81 | 600 | <10 | 2.78 | 40 | 580 | <20 | <0.1 | <50 | 10 | 490 | <50 | 0.34 |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | <50 | 1.8 | <50 | 0.73 | 560 | <10 | 2.91 | 30 | 540 | 20 | <0.1 | <50 | 10 | 500 | <50 | 0.26 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | <50 | 1.7 | <50 | 1.04 | 750 | <10 | 2.25 | 70 | 620 | <20 | <0.1 | <50 | 10 | 400 | <50 | 0.31 |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | <50 | 1.8 | <50 | 1.24 | 920 | <10 | 2.23 | 80 | 650 | <20 | 0.1 | <50 | 10 | 370 | <50 | 0.34 |
| RS-08A | 0 | 1 | <50 | 1.4 | <50 | 0.81 | 690 | <10 | 2.34 | 50 | 550 | <20 | <0.1 | <50 | <10 | 410 | <50 | 0.34 |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | <50 | 1.7 | <50 | 0.94 | 930 | <10 | 2.59 | 80 | 530 | <20 | <0.1 | <50 | 10 | 440 | <50 | 0.28 |
| RS-09 | 7 | 8 | <50 | 1.2 | <50 | 1.93 | 760 | <10 | 2.26 | 160 | 410 | <20 | <0.1 | <50 | 10 | 350 | <50 | 0.27 |
| RS-10 | 1 | 2 | <50 | 1.2 | <50 | 0.77 | 670 | <10 | 2.38 | 60 | 460 | 20 | <0.1 | <50 | <10 | 360 | <50 | 0.39 |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | <50 | 1.8 | <50 | 0.88 | 600 | <10 | 3.15 | 30 | 610 | 20 | <0.1 | <50 | 10 | 660 | <50 | 0.25 |
| RS-10 | 7.5 | 10 | <50 | 1.6 | <50 | 1.3 | 990 | <10 | 2.35 | 70 | 600 | <20 | <0.1 | <50 | 10 | 370 | <50 | 0.25 |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | <50 | 1.1 | <50 | 1.17 | 780 | <10 | 1.89 | 70 | 490 | <20 | 0.1 | <50 | 10 | 290 | <50 | 0.52 |
| RS-11 | 11.5 | 17 | <50 | 1.5 | <50 | 1.26 | 850 | <10 | 2.25 | 80 | 570 | <20 | 0.1 | <50 | 10 | 340 | <50 | 0.53 |
| RS-11 | 17 | 25 | <50 | 1.9 | <50 | 1.52 | 790 | <10 | 2.26 | 180 | 520 | <20 | 0.2 | <50 | 10 | 390 | <50 | 0.33 |
| RS-11 | 28 | 31 | <50 | 1.6 | <50 | 0.84 | 820 | <10 | 2.85 | 30 | 520 | <20 | 0.1 | <50 | 10 | 500 | <50 | 0.22 |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | <50 | 1.8 | <50 | 0.58 | 520 | <10 | 3 | 20 | 440 | <20 | <0.1 | <50 | <10 | 530 | <50 | 0.22 |
| RS-12 | 16 | 18 | <50 | 1.9 | <50 | 0.58 | 490 | <10 | 3 | 20 | 430 | 20 | <0.1 | <50 | <10 | 520 | <50 | 0.23 |
| RS-12 | 20 | 22 | <50 | 1.6 | <50 | 1.22 | 650 | <10 | 2.83 | 180 | 470 | <20 | 0.1 | <50 | 10 | 490 | <50 | 0.3 |
| RS-13 | 0 | 1.5 | <50 | 0.9 | <50 | 1.12 | 1050 | <10 | 2.06 | 100 | 580 | <20 | <0.1 | <50 | 10 | 310 | <50 | 0.53 |
| RS-13 | 1.5 | 2.5 | <50 | 0.9 | <50 | 1.09 | 760 | <10 | 2.39 | 80 | 520 | 20 | <0.1 | <50 | 10 | 340 | <50 | 0.47 |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | <50 | 1.3 | <50 | 1.42 | 1050 | <10 | 2.39 | 380 | 530 | <20 | 0.5 | <50 | 10 | 400 | <50 | 0.48 |
| RS-14B | 0 | 1.5 | <50 | 0.8 | <50 | 0.9 | 790 | <10 | 1.64 | 70 | 540 | 20 | <0.1 | <50 | 10 | 260 | <50 | 0.47 |
| RS-14B | 1.5 | 3 | <50 | 0.8 | <50 | 1.04 | 840 | <10 | 2.09 | 90 | 500 | <20 | <0.1 | <50 | 10 | 310 | <50 | 0.45 |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | <50 | 0.8 | <50 | 1.14 | 720 | <10 | 2.07 | 70 | 610 | <20 | <0.1 | <50 | 10 | 300 | <50 | 0.69 |

| Fraction Analyzed | | | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | -2 mm+74 µm | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **Tl** | **U** | **V** | **W** | **Zn** | **Initial Sample Wt** | **Volume Influent** | **Volume Effluent** | **Sample Wt After Extraction** | **Moisture Content** | **pH** | **Redox** | **Conductivity** | **Acidity (to pH 4.5)** | **Total Acidity (to pH 8.3)** | **Alkalinity** | **Fluoride** |
| **Units** | From (ft) | To (ft) | ppm | ppm | ppm | ppm | ppm | kg | mL | mL | kg | % | | mV | uS/cm | mg CaCO3/L | mg CaCO3/L | mg CaCO3/L | mg/L |
| **Detection Limit** | | | 50 | 50 | 10 | 50 | 20 | | | | | | | | | | | | |
| **General Method** | | | | | | | | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP |
| **Analytical Method Code** | | | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | | | | | | meter | meter | meter | titration | titration | titration | |
| RS-01B | 0 | 1 | <50 | <50 | 70 | <50 | 90 | 1 | 670 | 569 | 1.104 | 12.8 | 8.07 | 399.9 | 330.5 | #N/A | 2.38 | 82.69 | 1.1 |
| RS-01B | 1 | 5 | <50 | <50 | 70 | <50 | 30 | | | | | | | | | | | | |
| RS-01B | 14 | 15 | <50 | <50 | 70 | <50 | 40 | | | | | | | | | | | | |
| RS-01B | 18 | 20 | <50 | <50 | 60 | <50 | 40 | | | | | | | | | | | | |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | <50 | <50 | 40 | <50 | 30 | 1 | 1650 | 544 | 2.105 | 62.4 | 6.83 | 392.57 | 249.17 | #N/A | 6.56 | 8.54 | 0.08 |
| RS-03 | 15 | 20 | <50 | <50 | 60 | <50 | 40 | | | | | | | | | | | | |
| RS-03 | 20 | 22 | <50 | <50 | 70 | <50 | 50 | | | | | | | | | | | | |
| RS-04 | 1 | 5 | <50 | <50 | 90 | <50 | 60 | | | | | | | | | | | | |
| RS-04 | 10 | 15 | <50 | <50 | 50 | <50 | 30 | 1 | 655 | 551 | 1.104 | 11.6 | 7.44 | 361.32 | 54.29 | #N/A | 3.17 | 14.38 | 0.38 |
| RS-04 | 15 | 20 | <50 | <50 | 60 | <50 | 30 | 1 | 690 | 531 | 1.157 | 12.4 | 7.72 | 380.85 | 164.77 | #N/A | 2.85 | 37.68 | 0.6 |
| RS-04 | 20 | 25 | <50 | <50 | 70 | <50 | 40 | 1 | 625 | 523 | 1.103 | 7.4 | 7.69 | 385.25 | 253.14 | #N/A | 2.82 | 31 | 0.2 |
| RS-05A | 5 | 10 | <50 | <50 | 70 | <50 | 50 | 1 | 655 | 510 | 1.146 | 13.8 | 7.3 | 379.39 | 70 | #N/A | 3.02 | 7.68 | 0.15 |
| RS-05A | 10 | 13 | <50 | <50 | 60 | <50 | 50 | | | | | | | | | | | | |
| RS-06A | 0.5 | 2 | <50 | <50 | 90 | <50 | 60 | 1 | 715 | 518 | 1.198 | 20.8 | 6.88 | 390.62 | 30.48 | #N/A | 4.6 | 5.04 | < 0.05 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | <50 | <50 | 80 | <50 | 50 | | | | | | | | | | | | |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | <50 | <50 | 70 | <50 | 40 | 1 | 1115 | 1030 | 1.141 | 11.3 | 5.69 | 473.63 | 45.23 | #N/A | 6.98 | 1.56 | 0.42 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | <50 | <50 | 90 | <50 | 80 | | | | | | | | | | | | |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | <50 | <50 | 100 | <50 | 100 | 1 | 1138 | 1028 | 1.155 | 13.9 | 3.71 | 490.23 | 355.82 | #N/A | 12.25 | #N/A | < 0.05 |
| RS-08A | 0 | 1 | <50 | <50 | 90 | <50 | 50 | | | | | | | | | | | | |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | <50 | <50 | 70 | <50 | 60 | 1 | 1250 | 1044 | 1.123 | 9.06 | 7.13 | 341.3 | 55.25 | #N/A | 3.98 | 4.62 | 0.48 |
| RS-09 | 7 | 8 | <50 | <50 | 80 | <50 | 70 | | | | | | | | | | | | |
| RS-10 | 1 | 2 | <50 | <50 | 100 | <50 | 60 | | | | | | | | | | | | |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | <50 | <50 | 70 | <50 | 70 | | | | | | | | | | | | |
| RS-10 | 7.5 | 10 | <50 | <50 | 80 | <50 | 70 | | | | | | | | | | | | |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | <50 | <50 | 110 | <50 | 100 | | | | | | | | | | | | |
| RS-11 | 11.5 | 17 | <50 | <50 | 120 | <50 | 110 | | | | | | | | | | | | |
| RS-11 | 17 | 25 | <50 | <50 | 90 | <50 | 110 | 1 | 1174 | 1045 | 1.136 | 9.24 | 3.4 | 512.2 | 464.64 | 23.55 | 59.67 | #N/A | < 0.05 |
| RS-11 | 28 | 31 | <50 | <50 | 60 | <50 | 40 | | | | | | | | | | | | |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | <50 | <50 | 60 | <50 | 30 | 1 | 1144 | 1013 | 1.125 | 8.87 | 7.05 | 303.22 | 50.77 | #N/A | 3.74 | 13.06 | 0.18 |
| RS-12 | 16 | 18 | <50 | <50 | 60 | <50 | 30 | | | | | | | | | | | | |
| RS-12 | 20 | 22 | <50 | <50 | 70 | <50 | 50 | 1 | 1132 | 1027 | 1.097 | 7.93 | 7.07 | 353.02 | 350.97 | #N/A | 4.05 | 11.21 | 0.28 |
| RS-13 | 0 | 1.5 | <50 | <50 | 120 | <50 | 70 | 1 | 1525 | 1050 | 1.874 | 30.86 | 5.66 | 399.9 | 161.99 | #N/A | 19.72 | 4.94 | 0.14 |
| RS-13 | 1.5 | 2.5 | <50 | <50 | 110 | <50 | 70 | | | | | | | | | | | | |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | <50 | <50 | 100 | <50 | 70 | | | | | | | | | | | | |
| RS-14B | 0 | 1.5 | <50 | <50 | 100 | <50 | 80 | | | | | | | | | | | | |
| RS-14B | 1.5 | 3 | <50 | <50 | 100 | <50 | 70 | | | | | | | | | | | | |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | <50 | <50 | 140 | <50 | 70 | | | | | | | | | | | | |

| **Fraction Analyzed** | | | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole | Whole |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Depth** | **Depth** | **Chloride** | **Sulphate** | **Hardness $CaCO_3$** | **Al** | **Sb** | **As** | **Ba** | **Be** | **Bi** | **B** | **Cd** | **Ca** | **Cr** | **Co** | **Cu** | **Fe** | **Pb** | **Li** | **Mg** | **Mn** | **Hg** |
| **Units** | From (ft) | To (ft) | 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 | mg/L | mg/L | mg/L |
| **Detection Limit** | | | | | | | | | | | | | | | | | | | | | | | |
| **General Method** | | | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP | MWMP |
| **Analytical Method Code** | | | | Turbidity | | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS | ICP-MS |
| RS-01B | 0 | 1 | 9.16 | 68.3 | 71.5 | 0.042 | 0.0005 | 0.0029 | 0.01 | < 0.0002 | < 0.0002 | 0.23 | < 0.00004 | 15.8 | < 0.0002 | < 0.0001 | 0.003 | 0.02 | < 0.00005 | 0.0099 | 7.76 | 0.0592 | 0.02 |
| RS-01B | 1 | 5 | | | | | | | | | | | | | | | | | | | | | |
| RS-01B | 14 | 15 | | | | | | | | | | | | | | | | | | | | | |
| RS-01B | 18 | 20 | | | | | | | | | | | | | | | | | | | | | |
| RS-01B | 20 | 25 | | | | | | | | | | | | | | | | | | | | | |
| RS-03 | 5 | 10 | 2.73 | 93.4 | 102 | 0.13 | 0.0007 | 0.0044 | 0.035 | < 0.0002 | < 0.0002 | 0.18 | < 0.00004 | 22.9 | 0.001 | 0.0007 | 0.011 | 0.12 | 0.00023 | 0.0043 | 10.9 | 0.192 | < 0.02 |
| RS-03 | 15 | 20 | | | | | | | | | | | | | | | | | | | | | |
| RS-03 | 20 | 22 | | | | | | | | | | | | | | | | | | | | | |
| RS-04 | 1 | 5 | | | | | | | | | | | | | | | | | | | | | |
| RS-04 | 10 | 15 | 1.28 | 8.53 | 18.6 | 0.19 | 0.0004 | 0.0014 | 0.0066 | < 0.0002 | < 0.0002 | 0.037 | < 0.00004 | 3.62 | 0.0013 | 0.0012 | 0.028 | 0.31 | < 0.00005 | 0.0016 | 2.32 | 0.236 | < 0.02 |
| RS-04 | 15 | 20 | 2.33 | 39.9 | 57 | 0.092 | 0.0012 | 0.0022 | 0.014 | < 0.0002 | < 0.0002 | 0.098 | < 0.00004 | 7.97 | < 0.0002 | 0.0006 | 0.0089 | 0.07 | < 0.00005 | 0.0058 | 9.01 | 0.0379 | < 0.02 |
| RS-04 | 20 | 25 | 1.37 | 97.4 | 120 | 0.024 | 0.0011 | 0.0023 | 0.018 | < 0.0002 | < 0.0002 | 0.055 | < 0.00004 | 17.7 | < 0.0002 | 0.0017 | 0.0043 | < 0.01 | < 0.00005 | 0.0082 | 18.3 | 0.0596 | < 0.02 |
| RS-05A | 5 | 10 | 1.91 | 21.2 | 23 | 0.067 | 0.0003 | 0.0004 | 0.0051 | < 0.0002 | < 0.0002 | 0.036 | < 0.00004 | 5.86 | < 0.0002 | 0.0005 | 0.0072 | 0.04 | < 0.00005 | 0.0017 | 2.04 | 0.0453 | 0.02 |
| RS-05A | 10 | 13 | | | | | | | | | | | | | | | | | | | | | |
| RS-06A | 0.5 | 2 | 1.9 | 3.41 | 7.2 | 0.32 | < 0.0001 | 0.0004 | 0.014 | < 0.0002 | < 0.0002 | 0.03 | 0.00005 | 1.77 | 0.0011 | 0.0006 | 0.0054 | 0.06 | < 0.00005 | 0.0006 | 0.66 | 0.0511 | 0.02 |
| RS-06A | 2 | 4 | | | | | | | | | | | | | | | | | | | | | |
| RS-06A | 5 | 7.5 | | | | | | | | | | | | | | | | | | | | | |
| RS-06A | 7.5 | 10 | | | | | | | | | | | | | | | | | | | | | |
| RS-06A | 15 | 19 | 4.01 | 4.77 | 10.8 | 0.29 | 0.0003 | 0.0027 | 0.0083 | < 0.0002 | < 0.0002 | 0.012 | 0.00011 | 2.79 | 0.0003 | 0.0013 | 0.017 | 0.15 | 0.00028 | 0.0008 | 0.92 | 0.116 | < 0.02 |
| RS-06A | 19 | 21 | | | | | | | | | | | | | | | | | | | | | |
| RS-07 | 1 | 2 | | | | | | | | | | | | | | | | | | | | | |
| RS-07 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | |
| RS-07 | 3 | 5 | | | | | | | | | | | | | | | | | | | | | |
| RS-07 | 5 | 6 | | | | | | | | | | | | | | | | | | | | | |
| RS-07 | 6 | 10 | | | | | | | | | | | | | | | | | | | | | |
| RS-07R | 10 | 12 | | | | | | | | | | | | | | | | | | | | | |
| RS-07R | 13.5 | 14.5 | | | | | | | | | | | | | | | | | | | | | |
| RS-07/RS-07R | 6 | 14.5 | 4.03 | 188 | 108 | 0.14 | < 0.0001 | 0.0033 | 0.046 | < 0.0002 | < 0.0002 | 0.022 | 0.0025 | 17.8 | 0.0006 | 0.124 | 0.113 | 0.95 | 0.00058 | 0.02 | 15.3 | 1.09 | < 0.02 |
| RS-08A | 0 | 1 | | | | | | | | | | | | | | | | | | | | | |
| RS-08A | 1 | 5 | | | | | | | | | | | | | | | | | | | | | |
| RS-08A | 5 | 11 | 0.74 | 16.5 | 17.7 | 0.091 | 0.0011 | 0.0032 | 0.003 | < 0.0002 | < 0.0002 | 0.013 | 0.00016 | 3.85 | < 0.0002 | 0.0016 | 0.005 | 0.05 | < 0.00005 | 0.0014 | 1.95 | 0.105 | < 0.02 |
| RS-09 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | |
| RS-10 | 1 | 2 | | | | | | | | | | | | | | | | | | | | | |
| RS-10 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | |
| RS-10 | 3 | 5.5 | | | | | | | | | | | | | | | | | | | | | |
| RS-10 | 5.5 | 7.5 | | | | | | | | | | | | | | | | | | | | | |
| RS-10 | 7.5 | 10 | | | | | | | | | | | | | | | | | | | | | |
| RS-10 | 10 | 14 | | | | | | | | | | | | | | | | | | | | | |
| RS-11 | 0 | 9.5 | | | | | | | | | | | | | | | | | | | | | |
| RS-11 | 11.5 | 17 | | | | | | | | | | | | | | | | | | | | | |
| RS-11 | 17 | 25 | 1.71 | 230 | 105 | 0.74 | < 0.0001 | 0.0028 | 0.028 | 0.0008 | < 0.0002 | 0.016 | 0.0066 | 21 | 0.0008 | 0.305 | 0.579 | 7.25 | 0.0014 | 0.028 | 12.9 | 1.31 | < 0.02 |
| RS-11 | 28 | 31 | | | | | | | | | | | | | | | | | | | | | |
| RS-11 | 31 | 33 | | | | | | | | | | | | | | | | | | | | | |
| RS-12 | 7 | 9 | 3.62 | 1.74 | 23.3 | 0.068 | < 0.0001 | 0.0005 | 0.0035 | < 0.0002 | < 0.0002 | < 0.001 | 0.00005 | 5.92 | < 0.0002 | < 0.0001 | 0.0083 | 0.02 | < 0.00005 | < 0.0002 | 2.07 | 0.0075 | < 0.02 |
| RS-12 | 16 | 18 | | | | | | | | | | | | | | | | | | | | | |
| RS-12 | 20 | 22 | 3.33 | 166 | 141 | 0.01 | 0.0004 | 0.0011 | 0.0084 | < 0.0002 | < 0.0002 | < 0.001 | 0.00007 | 27 | < 0.0002 | 0.0051 | 0.008 | < 0.01 | < 0.00005 | 0.0003 | 17.8 | 0.305 | < 0.02 |
| RS-13 | 0 | 1.5 | 16.6 | 23.6 | 49.6 | 1.49 | < 0.0001 | 0.0016 | 0.028 | < 0.0002 | < 0.0002 | 0.025 | 0.00019 | 9.64 | 0.003 | 0.0028 | 0.072 | 0.77 | 0.0028 | 0.0004 | 6.18 | 0.402 | < 0.02 |
| RS-13 | 1.5 | 2.5 | | | | | | | | | | | | | | | | | | | | | |
| RS-13 | 2.5 | 6 | | | | | | | | | | | | | | | | | | | | | |
| RS-13 | 8 | 10 | | | | | | | | | | | | | | | | | | | | | |
| RS-14B | 0 | 1.5 | | | | | | | | | | | | | | | | | | | | | |
| RS-14B | 1.5 | 3 | | | | | | | | | | | | | | | | | | | | | |
| RS-14B | 3 | 5 | | | | | | | | | | | | | | | | | | | | | |
| RS-16B | 0 | 2 | | | | | | | | | | | | | | | | | | | | | |

## Appendix B
## Initial Summary of MWMP Data Provided to Barr Engineering

| | Solids | Leaches | Stat | Whole MWMP pH | Whole MWMP Redox | Whole MWMP Conductivity | Whole MWMP Total Acidity (to pH 8.3) | Whole MWMP Alkalinity | Whole MWMP Fluoride | Whole MWMP Chloride | Whole MWMP Sulphate | Whole MWMP Hardness CaCO3 | Whole MWMP Al | Whole MWMP Sb | Whole MWMP As | Whole MWMP Ba | Whole MWMP Be | Whole MWMP B | Whole MWMP Cd |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | mV | uS/cm | mg CaCO3/L | mg CaCO3/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| Peat | 6 | 2 | P5 | 6.7715 | 392.9365 | 166.349 | 7.218 | 5.12 | 0.083 | 3.4235 | 27.09 | 52.22 | 0.198 | -0.00006 | 0.00174 | 0.02835 | -0.0002 | 0.03275 | -0.0000285 |
| | | | Median | 6.245 | 396.235 | 205.58 | 13.14 | 6.74 | 0.11 | 9.665 | 58.5 | 75.8 | 0.81 | 0.0003 | 0.003 | 0.0315 | -0.0002 | 0.1025 | 0.000075 |
| | | | P95 | 5.7185 | 399.5335 | 244.811 | 19.062 | 8.36 | 0.137 | 15.9065 | 89.91 | 99.38 | 1.422 | 0.00066 | 0.00426 | 0.03465 | -0.0002 | 0.17225 | 0.0001785 |
| Unsaturated Mineral | 13 | 4 | P5 | 7.283 | 345.109 | 32.957 | 3.116 | 4.662 | 0.1665 | 0.856 | 4.719 | 8.25 | 0.0694 | -0.00006 | 0.0004 | 0.00321 | -0.0002 | 0.0147 | -0.000031 |
| | | | Median | 7.13 | 379.39 | 55.25 | 3.98 | 5.04 | 0.315 | 1.9 | 16.5 | 17.7 | 0.091 | 0.0003 | 0.0004 | 0.0051 | -0.0002 | 0.03 | 0.00005 |
| | | | P95 | 6.905 | 389.497 | 68.525 | 4.538 | 7.416 | 0.4635 | 1.909 | 20.73 | 22.47 | 0.2971 | 0.00102 | 0.00292 | 0.01311 | -0.0002 | 0.0354 | 0.000149 |
| Saturated Mineral | 19 | 6 | P5 | 7.965 | 367.179 | 47.948 | 2.512 | #N/A | 0.236 | 1.307 | 5.898 | 13.14 | 0.0294 | -0.0001 | 0.00164 | 0.00711 | -0.0002 | 0.0132 | -0.00004 |
| | | | Median | 7.44 | 399.9 | 253.14 | 3.17 | #N/A | 0.42 | 2.33 | 68.3 | 71.5 | 0.14 | 0.0004 | 0.0027 | 0.014 | -0.0002 | 0.037 | -0.00004 |
| | | | P95 | 3.493 | 505.609 | 431.994 | 45.444 | #N/A | 1 | 7.621 | 217.4 | 116.4 | 0.605 | 0.00117 | 0.00318 | 0.0406 | 0.0005 | 0.1904 | 0.00537 |
| OB with Mineralized Rock | 3 | 2 | P5 | 7.069 | 305.71 | 65.78 | 3.7555 | 11.3025 | 0.185 | 3.3445 | 9.953 | 29.185 | 0.0129 | -0.000075 | 0.00053 | 0.003745 | -0.0002 | -0.001 | 0.000051 |
| | | | Median | 7.06 | 328.12 | 200.87 | 3.895 | 12.135 | 0.23 | 3.475 | 83.87 | 82.15 | 0.039 | 0.00015 | 0.0008 | 0.00595 | -0.0002 | -0.001 | 0.00006 |
| | | | P95 | 7.051 | 350.53 | 335.96 | 4.0345 | 12.9675 | 0.275 | 3.6055 | 157.787 | 135.115 | 0.0651 | 0.000375 | 0.00107 | 0.008155 | -0.0002 | -0.001 | 0.000069 |
| All | 41 | 14 | P5 | 7.8425 | 327.972 | 40.0675 | 2.666 | #N/A | 0.11 | 1.091 | 2.8255 | 9.54 | 0.0191 | -0.0001 | 0.0004 | 0.003325 | -0.0002 | -0.001 | -0.00004 |
| | | | Median | 7.06 | 387.935 | 163.38 | 4.015 | #N/A | 0.28 | 2.53 | 31.75 | 53.3 | 0.111 | 0.00035 | 0.00225 | 0.012 | -0.0002 | 0.0275 | 0.00005 |
| | | | P95 | 3.6015 | 497.9195 | 393.907 | 33.7025 | #N/A | 0.85 | 11.764 | 202.7 | 127.35 | 1.0025 | 0.001135 | 0.003685 | 0.03885 | 0.00015 | 0.1975 | 0.003935 |
| | | | Max | 3.4 | 512.2 | 464.64 | 59.67 | #N/A | 1.1 | 16.6 | 230 | 141 | 1.49 | 0.0012 | 0.0044 | 0.046 | 0.0008 | 0.23 | 0.0066 |

| | Stat | Whole MWMP Ca | Whole MWMP Cr | Whole MWMP Co | Whole MWMP Cu | Whole MWMP Fe | Whole MWMP Pb | Whole MWMP Mg | Whole MWMP Mn | Whole MWMP Mo | Whole MWMP Ni | Whole MWMP P | Whole MWMP K | Whole MWMP Se | Whole MWMP Ag | Whole MWMP Na | Whole MWMP Tl | Whole MWMP Ti | Whole MWMP V | Whole MWMP Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 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 | mg/L |
| Peat | P5 | 10.303 | 0.0011 | 0.000805 | 0.01405 | 0.1525 | 0.0003585 | 6.416 | 0.2025 | 0.00152 | 0.00737 | 0.052 | 1.734 | 0.00064 | -0.00005 | 4.3095 | 0.000072 | 0.001875 | 0.002115 | 0.00425 |
| | Median | 16.27 | 0.002 | 0.00175 | 0.0415 | 0.445 | 0.001515 | 8.54 | 0.297 | 0.0053 | 0.0143 | 0.07 | 4.11 | 0.001 | -0.00005 | 5.025 | 0.00009 | 0.00255 | 0.00315 | 0.0065 |
| | P95 | 22.237 | 0.0029 | 0.002695 | 0.06895 | 0.7375 | 0.0026715 | 10.664 | 0.3915 | 0.00908 | 0.02123 | 0.088 | 6.486 | 0.00136 | -0.00005 | 5.7405 | 0.000108 | 0.003225 | 0.004185 | 0.00875 |
| Unsaturated Mineral | P5 | 1.978 | -0.0002 | 0.00051 | 0.00504 | 0.041 | -0.00005 | 0.789 | 0.04588 | 0.000195 | 0.00155 | -0.03 | 0.744 | -0.0002 | -0.00005 | 3.747 | -0.00002 | 0.00113 | 0.00042 | 0.0021 |
| | Median | 3.85 | -0.0002 | 0.0006 | 0.0054 | 0.05 | -0.00005 | 1.95 | 0.0511 | 0.0024 | 0.0029 | -0.03 | 0.78 | -0.0002 | -0.00005 | 4.26 | -0.00002 | 0.0023 | 0.0006 | 0.003 |
| | P95 | 5.659 | 0.00097 | 0.0015 | 0.00702 | 0.059 | -0.00005 | 2.031 | 0.09961 | 0.01257 | 0.00326 | -0.03 | 1.23 | 0.00052 | -0.00005 | 5.331 | 0.000025 | 0.00257 | 0.0006 | 0.0057 |
| Saturated Mineral | P5 | 3.039 | -0.0002 | 0.00011 | 0.00339 | -0.001 | -0.00005 | 1.34 | 0.04429 | 0.000332 | 0.00201 | -0.03 | 1.257 | 0.00055 | -0.00005 | 3.691 | -0.00002 | 0.00075 | -0.0002 | -0.0004 |
| | Median | 15.8 | 0.0003 | 0.0013 | 0.017 | 0.15 | -0.00005 | 9.01 | 0.116 | 0.0274 | 0.019 | -0.03 | 4.45 | 0.0019 | -0.00005 | 7.19 | -0.00002 | 0.0016 | 0.0014 | 0.003 |
| | P95 | 20.04 | 0.00115 | 0.2507 | 0.4392 | 5.36 | 0.001154 | 17.4 | 1.244 | 0.03191 | 2.1812 | 0.04 | 9.827 | 0.00377 | 0.000965 | 37.07 | 0.000082 | 0.00614 | 0.00247 | 0.862 |
| OB with Mineralized Rock | P5 | 6.974 | -0.0002 | 0.00016 | 0.008015 | -0.0085 | -0.00005 | 2.8565 | 0.022375 | 0.00539 | 0.00456 | -0.03 | 0.7285 | -9E-05 | -0.00005 | 2.334 | -0.00002 | -9.5E-05 | -0.000165 | 0.00205 |
| | Median | 16.46 | -0.0002 | 0.0025 | 0.00815 | 0.005 | -0.00005 | 9.935 | 0.15625 | 0.0188 | 0.0384 | -0.03 | 1.345 | 0.0009 | -0.00005 | 6.96 | -0.00002 | 0.00085 | 0.00015 | 0.0025 |
| | P95 | 25.946 | -0.0002 | 0.00484 | 0.008285 | 0.0185 | -0.00005 | 17.0135 | 0.290125 | 0.03221 | 0.07224 | -0.03 | 1.9615 | 0.00189 | -0.00005 | 11.586 | -0.00002 | 0.001795 | 0.000465 | 0.00295 |
| All | P5 | 2.433 | -0.0002 | -0.0001 | 0.003845 | -0.01 | -0.00005 | 0.829 | 0.02726 | 0.000171 | 0.00119 | -0.03 | 0.712 | -0.0002 | -0.00005 | 2.925 | -0.00002 | 0.00032 | -0.0002 | 0.0003 |
| | Median | 8.805 | 0.00005 | 0.00125 | 0.0086 | 0.065 | -0.00005 | 6.97 | 0.1105 | 0.008 | 0.0128 | -0.03 | 1.85 | 0.001 | -0.00005 | 5.62 | -0.00002 | 0.00185 | 0.00065 | 0.003 |
| | P95 | 24.335 | 0.001895 | 0.18735 | 0.2761 | 3.155 | 0.00189 | 17.975 | 1.167 | 0.03318 | 1.2726 | 0.077 | 8.4475 | 0.003735 | 0.0004575 | 25.135 | 0.0001035 | 0.00502 | 0.00313 | 0.526 |
| | Max | 27 | 0.003 | 0.305 | 0.579 | 7.25 | 0.0028 | 18.3 | 1.31 | 0.0337 | 2.96 | 0.09 | 11.6 | 0.0038 | 0.0014 | 47.3 | 0.00011 | 0.0071 | 0.0043 | 1.15 |

# Appendix C
# Sump Spoil Geochemical Data

**CLIENT** : SRK Consulting
**PROJECT** : Polymet Soil Samples
**PROJECT #** : 0518
**TEST** : Moisture Content
**Date** : April 13, 2010

**Pre-MWMP Leach Test**

| Sample ID | Wet Weight (kg) | Dry Weight (kg) | Moisture % |
|---|---|---|---|
| J007 (0-3) | 11.45 | 10.40 | 9.17 |
| J007 (3-5) | 11.45 | 10.70 | 6.55 |
| J008 (0-3.5) | 11.95 | 10.95 | 8.37 |
| J008 (3.5-4.6) | 11.60 | 10.75 | 7.33 |
| J012 (0-3) | 11.50 | 10.65 | 7.39 |
| J012 (3-6) | 11.50 | 10.55 | 8.26 |
| J013 | 10.40 | 9.70 | 6.73 |
| J019 (0-2) | 12.95 | 10.85 | 16.22 |
| J024 (0-2) | 11.75 | 10.85 | 7.66 |
| J029 (0-5) | 11.55 | 10.50 | 9.09 |
| J037 (0-3) | 11.50 | 10.50 | 8.70 |
| J037 (3-6) | 11.30 | 10.35 | 8.41 |
| J107 | 11.35 | 10.15 | 10.57 |

**Post-MWMP Leach Test**

| Sample ID | Wet Weight (kg) | Dry Weight (kg) | Moisture % |
|---|---|---|---|
| J007 (0-3) | 6.20 | 4.95 | 20.16 |
| J007 (3-5) | 5.70 | 4.95 | 13.16 |
| J008 (0-3.5) | 5.95 | 4.90 | 17.65 |
| J008 (3.5-4.6) | 5.85 | 4.95 | 15.38 |
| J012 (0-3) | 5.80 | 4.95 | 14.66 |
| J012 (3-6) | 5.90 | 5.05 | 14.41 |
| J013 | 5.85 | 4.95 | 15.38 |
| J019 (0-2) | 6.25 | 4.95 | 20.80 |
| J024 (0-2) | 5.60 | 4.95 | 11.61 |
| J029 (0-5) | 5.90 | 4.95 | 16.10 |
| J037 (0-3) | 5.80 | 4.95 | 14.66 |
| J037 (3-6) | 5.65 | 4.95 | 12.39 |
| J107 | 6.20 | 4.95 | 20.16 |

**CLIENT** : **SRK Consulting**
**PROJECT** : **Polymet Soil Samples**
**PROJECT #** : **0518**
**Test** : **Meteoric Water Mobility Procedure**
**Date** : **April 26 - May 4, 2010**

**Leachate Analysis**

| **Sample ID** | | | **J007 (0-3)** | **J007 (3-5)** | **J008 (0-3.5)** | **J008 (3.5-4.6)** | **J012 (0-3)** | **J012 (3-6)** | **J013** | **J019 (0-2)** | **J024 (0-2)** | **J029 (0-5)** | **J037 (0-3)** | **J037 (3-6)** | **J107** | **Blank** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Method** | **Units** | | | | | | | | | | | | | | |
| Initial Dry Sample Wt | | kg | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | #N/A |
| Volume Influent | | mL | 6.25 | 5.80 | 6.04 | 5.89 | 5.84 | 5.79 | 5.90 | 6.30 | 5.75 | 6.00 | 5.85 | 5.75 | 6.30 | 5.10 |
| Volume Effluent | | mL | 5.00 | 5.00 | 5.00 | 5.01 | 5.01 | 5.00 | 5.00 | 5.00 | 5.05 | 5.00 | 5.00 | 5.00 | 5.00 | 5.10 |
| Sample Wet Wt After Extraction | | kg | 6.20 | 5.70 | 5.95 | 5.85 | 5.80 | 5.90 | 5.85 | 6.25 | 5.60 | 5.90 | 5.80 | 5.65 | 6.20 | #N/A |
| Sample Dry Wt After Extraction | | kg | 4.95 | 4.95 | 4.90 | 4.95 | 4.95 | 5.05 | 4.95 | 4.95 | 4.95 | 4.95 | 4.95 | 4.95 | 4.95 | #N/A |
| pH | meter | | 6.52 | 6.75 | 6.58 | 6.62 | 6.74 | 6.9 | 6.53 | 6.49 | 6.49 | 6.62 | 6.25 | 6.42 | 5.85 | 6.65 |
| Redox | meter | mV | 340 | 338 | 352 | 354 | 346 | 346 | 361 | 264 | 262 | 283 | 297 | 293 | 318 | 223 |
| Conductivity | meter | uS/cm | 23 | 16 | 22 | 22 | 26 | 26 | 25 | 39 | 24 | 45 | 22 | 20 | 38 | 5 |
| Acidity (to pH 4.5) | titration | mg CaCO3/L | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| Total Acidity (to pH 8.3) | titration | mg CaCO3/L | 3.1 | 2.9 | 3.3 | 2.9 | 4.0 | 3.1 | 3.9 | 5.7 | 4.5 | 4.7 | 5.2 | 5.2 | 4.6 | 3.6 |
| Alkalinity | titration | mg CaCO3/L | 3.5 | 5.3 | 5.2 | 5.7 | 5.8 | 7.2 | 6.8 | 5.5 | 3.3 | 5.6 | 2.7 | 3.8 | 1.8 | 2.9 |
| Inorganic Carbon | | mg/L | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | -1 | 1 | -1 | -1 | -1 | -1 |
| Fluoride | | mg/L | 0.04 | 0.07 | 0.03 | 0.03 | 0.05 | 0.07 | 0.02 | 0.03 | 0.06 | 0.02 | 0.05 | 0.13 | 0.01 | -0.01 |
| Chloride | | mg/L | -0.5 | -0.5 | -0.5 | 0.8 | -0.5 | 0.6 | 0.8 | -0.5 | 0.8 | 5.8 | -0.5 | -0.5 | 1.3 | -0.5 |
| Sulphate | Turbidity | mg/L | 5 | 1.6 | 1.1 | 0.8 | 4.8 | 5.3 | -0.5 | 7.4 | 4.3 | 2.8 | 4.4 | 2.1 | 10 | -0.5 |
| **Ion Balance** | | | | | | | | | | | | | | | | |
| Major Anions | calc. | meq/L | 0.18 | 0.14 | 0.13 | 0.15 | 0.22 | 0.27 | 0.16 | 0.26 | 0.18 | 0.33 | 0.15 | 0.13 | 0.28 | #N/A |
| Major Cations | calc. | meq/L | 0.21 | 0.21 | 0.28 | 0.27 | 0.24 | 0.29 | 0.36 | 0.44 | 0.22 | 0.40 | 0.19 | 0.21 | 0.30 | #N/A |
| Difference | calc. | meq/L | -0.04 | -0.06 | -0.15 | -0.12 | -0.02 | -0.01 | -0.20 | -0.17 | -0.03 | -0.06 | -0.05 | -0.09 | -0.02 | #N/A |
| Diff. (%) | calc. | meq/L | -9.4% | -18.3% | -37.2% | -27.5% | -4.8% | -2.2% | -37.8% | -24.4% | -8.4% | -8.8% | -13.6% | -25.6% | -2.8% | #N/A |
| **Dissolved Metals** | | | | | | | | | | | | | | | | |
| Hardness CaCO3 | | mg/L | 6.2 | 5.4 | 8.8 | 8.2 | 7 | 7.9 | 10.3 | 15.9 | 7.3 | 15.2 | 6 | 5.6 | 9.2 | -0.5 |
| Aluminum Al | ICP-MS | mg/L | 0.0815 | 0.141 | 0.257 | 0.201 | 0.049 | 0.205 | 0.559 | 0.215 | 0.0297 | 0.0778 | 0.0973 | 0.139 | 0.0284 | 0.006 |
| Antimony Sb | ICP-MS | mg/L | 0.00005 | 0.00005 | 0.00005 | 0.00006 | 0.00004 | 0.00004 | 0.00006 | 0.00006 | 0.00002 | 0.00004 | 0.00004 | 0.00007 | 0.00002 | -0.0004 |
| Arsenic As | ICP-MS | mg/L | 0.00036 | 0.00037 | 0.00052 | 0.00057 | 0.00026 | 0.00039 | 0.00053 | 0.00039 | 0.00022 | 0.00026 | 0.00024 | 0.00043 | 0.0002 | -0.0004 |
| Barium Ba | ICP-MS | mg/L | 0.00129 | 0.00212 | 0.0024 | 0.00184 | 0.00104 | 0.00334 | 0.00147 | 0.00061 | 0.00079 | 0.00117 | 0.00142 | 0.00212 | 0.00402 | 0.0009 |
| Beryllium Be | ICP-MS | mg/L | 0.00002 | 0.00002 | 0.00004 | 0.00005 | 0.00001 | 0.00002 | 0.00007 | 0.00003 | -0.00001 | 0.00001 | 0.00002 | 0.00002 | -0.00001 | -0.0002 |
| Bismuth Bi | ICP-MS | mg/L | -0.000005 | -0.000005 | -0.000005 | -0.000005 | -0.000005 | -0.000005 | -0.000005 | -0.000005 | 0.000019 | -0.000005 | -0.000005 | -0.000005 | -0.000005 | -0.0001 |
| Boron B | ICP-MS | mg/L | -0.05 | -0.05 | -0.05 | -0.05 | -0.05 | -0.05 | -0.05 | -0.05 | -0.05 | -0.05 | -0.05 | -0.05 | -0.05 | -1 |
| Cadmium Cd | ICP-MS | mg/L | 0.000007 | -0.000005 | 0.000005 | -0.000005 | -0.000005 | -0.000005 | 0.000013 | -0.000005 | -0.000005 | 0.000012 | -0.000005 | -0.000005 | 0.000026 | -0.0001 |
| Calcium Ca | ICP-MS | mg/L | 1.57 | 1.35 | 2.58 | 2.35 | 1.64 | 1.82 | 3.01 | 4.07 | 1.82 | 4.46 | 1.34 | 1.15 | 2.13 | -1 |
| Chromium Cr | ICP-MS | mg/L | 0.0003 | 0.0004 | 0.0008 | 0.0008 | 0.0004 | 0.0006 | 0.0015 | 0.0011 | -0.0001 | 0.0002 | 0.0014 | 0.0014 | -0.0001 | -0.002 |
| Cobalt Co | ICP-MS | mg/L | 0.000295 | 0.000191 | 0.000242 | 0.000212 | 0.000128 | 0.00017 | 0.000293 | 0.000296 | 0.000123 | 0.00019 | 0.000129 | 0.000127 | 0.00036 | -0.0001 |
| Copper Cu | ICP-MS | mg/L | 0.00513 | 0.00468 | 0.0069 | 0.00759 | 0.00437 | 0.00367 | 0.00622 | 0.00683 | 0.00398 | 0.00643 | 0.0036 | 0.00519 | 0.00221 | -0.001 |
| Iron Fe | ICP-MS | mg/L | 0.015 | 0.133 | 0.143 | 0.127 | 0.035 | 0.239 | 0.179 | 0.177 | 0.033 | 0.027 | 0.081 | 0.152 | 0.004 | -0.02 |
| Lead Pb | ICP-MS | mg/L | 0.000211 | 0.000125 | 0.000051 | 0.000044 | 0.000036 | 0.000114 | 0.000043 | 0.000034 | 0.000074 | 0.000006 | 0.000026 | 0.000152 | 0.000038 | 0.0012 |
| Lithium Li | ICP-MS | mg/L | -0.0005 | -0.0005 | -0.0005 | -0.0005 | -0.0005 | 0.0006 | -0.0005 | -0.0005 | -0.0005 | -0.0005 | -0.0005 | 0.0006 | -0.0005 | -0.01 |
| Magnesium Mg | ICP-MS | mg/L | 0.54 | 0.49 | 0.57 | 0.56 | 0.71 | 0.82 | 0.68 | 1.4 | 0.68 | 0.99 | 0.65 | 0.67 | 0.93 | -1 |
| Manganese Mn | ICP-MS | mg/L | 0.0133 | 0.00452 | 0.00656 | 0.00597 | 0.00344 | 0.00722 | 0.014 | 0.0033 | 0.0051 | 0.00475 | 0.0155 | 0.00687 | 0.0601 | -0.001 |
| Mercury Hg | ICP-MS | ug/L | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.02 | 0.02 | -0.01 | 0.01 | 0.01 | 0.01 | -0.01 | -0.2 |
| Molybdenum Mo | ICP-MS | mg/L | -0.00005 | 0.00007 | 0.00012 | 0.00009 | -0.00005 | 0.00006 | 0.00006 | -0.00005 | -0.00005 | 0.00012 | -0.00005 | 0.00011 | -0.00005 | -0.001 |
| Nickel Ni | ICP-MS | mg/L | 0.00041 | 0.00067 | 0.00093 | 0.00113 | 0.00064 | 0.00073 | 0.00113 | 0.00035 | 0.00042 | 0.00037 | 0.00111 | 0.00116 | 0.00308 | -0.0004 |
| Potassium K | ICP-MS | mg/L | 0.14 | 0.12 | 0.53 | 0.26 | 0.11 | 0.22 | 0.27 | -0.05 | 0.09 | 0.37 | 0.09 | 0.15 | 0.84 | -1 |
| Selenium Se | ICP-MS | mg/L | 0.00019 | 0.00013 | 0.0003 | 0.00024 | 0.00015 | 0.00008 | 0.0004 | 0.00031 | 0.00014 | 0.00019 | 0.00026 | 0.00019 | 0.00046 | -0.0008 |
| Silicon Si | ICP-MS | mg/L | 13.5 | 11.5 | 8.26 | 8.65 | 11.3 | 11.4 | 7.45 | 12.5 | 11.2 | 7.59 | 12.1 | 14.5 | 8.22 | -2 |
| Silver Ag | ICP-MS | mg/L | -0.000005 | -0.000005 | 0.000008 | 0.000008 | -0.000005 | -0.000005 | 0.000014 | 0.000007 | -0.000005 | -0.000005 | -0.000005 | -0.000005 | -0.000005 | -0.0001 |
| Sodium Na | ICP-MS | mg/L | 1.98 | 1.66 | 1.25 | 1.65 | 2.23 | 2.01 | 1.62 | 1.94 | 1.52 | 1.95 | 1.65 | 1.67 | 2.14 | -1 |
| Strontium Sr | ICP-MS | mg/L | 0.0109 | 0.008 | 0.0161 | 0.014 | 0.0109 | 0.0116 | 0.02 | 0.014 | 0.0123 | 0.0237 | 0.00786 | 0.00538 | 0.0186 | -0.001 |
| Tellurium Te | ICP-MS | mg/L | -0.00002 | -0.00002 | -0.00002 | -0.00002 | -0.00002 | -0.00002 | -0.00002 | -0.00002 | -0.00002 | -0.00002 | -0.00002 | -0.00002 | -0.00002 | -0.0004 |
| Thallium Tl | ICP-MS | mg/L | 0.000011 | 0.000003 | 0.000005 | 0.000003 | -0.000002 | -0.000002 | 0.000004 | 0.000004 | -0.000002 | 0.000002 | 0.000003 | 0.000002 | 0.000008 | -0.00004 |
| Thorium Th | ICP-MS | mg/L | 0.000022 | 0.000045 | 0.000199 | 0.000231 | 0.000028 | 0.000045 | 0.000626 | 0.000226 | 0.000013 | 0.000053 | 0.000036 | 0.000076 | 0.000006 | -0.0001 |
| Tin Sn | ICP-MS | mg/L | 0.00004 | 0.0002 | 0.00009 | 0.00019 | 0.00025 | 0.00035 | 0.00045 | 0.00281 | 0.00272 | 0.00323 | 0.00282 | 0.0032 | 0.0036 | 0.0812 |
| Titanium Ti | ICP-MS | mg/L | -0.0005 | 0.0042 | 0.0046 | 0.004 | 0.001 | 0.0092 | 0.0051 | 0.0026 | 0.0006 | 0.0007 | 0.0018 | 0.0045 | -0.0005 | -0.01 |
| Uranium U | ICP-MS | mg/L | 0.000054 | 0.000089 | 0.000313 | 0.000339 | 0.000085 | 0.000057 | 0.000348 | 0.000333 | 0.000027 | 0.000094 | 0.000088 | 0.000122 | 0.000012 | -0.00004 |
| Vanadium V | ICP-MS | mg/L | 0.0006 | 0.0009 | 0.0008 | 0.0009 | 0.0004 | 0.001 | 0.0006 | 0.001 | 0.0003 | 0.0004 | 0.0003 | 0.0012 | 0.0002 | -0.004 |
| Zinc Zn | ICP-MS | mg/L | 0.0016 | 0.0009 | 0.0007 | 0.0006 | 0.0008 | 0.0011 | 0.0019 | 0.0011 | 0.0012 | 0.0015 | 0.001 | 0.001 | 0.0018 | 0.006 |
| Zirconium Zr | ICP-MS | mg/L | 0.0004 | 0.0004 | 0.0026 | 0.0028 | 0.0003 | 0.0003 | 0.0045 | 0.0026 | -0.0001 | 0.0006 | 0.0004 | 0.0004 | -0.0001 | -0.002 |

**CLIENT** : SRK Consulting
**PROJECT** : Polymet Soil Samples
**PROJECT #** : 0518
**TEST** : Screen Assay & Moisture Content
**Date** : April 13, 2010

| Sample ID | Weight | +2mm | | -2mm | |
|---|---|---|---|---|---|
| | (g) | (g) | (%) | (g) | (%) |
| J007 (0-3) | 300.0 | 77.9 | 26.0% | 221.9 | 74.0% |
| J007 (3-5) | 300.0 | 106.5 | 35.5% | 193.4 | 64.5% |
| J008 (0-3.5) | 300.0 | 98.8 | 33.0% | 201.0 | 67.0% |
| J008 (3.5-4.6) | 300.0 | 126.1 | 42.1% | 173.6 | 57.9% |
| J012 (0-3) | 300.0 | 109.2 | 36.4% | 190.6 | 63.6% |
| J012 (3-6) | 300.0 | 128.5 | 42.9% | 171.3 | 57.1% |
| J013 | 300.0 | 107.9 | 36.0% | 192 | 64.0% |
| J019 (0-2) | 300.0 | 49.9 | 16.6% | 250 | 83.4% |
| J024 (0-2) | 300.0 | 160.1 | 53.4% | 139.7 | 46.6% |
| J029 (0-5) | 300.0 | 67.4 | 22.5% | 232.4 | 77.5% |
| J037 (0-3) | 300.0 | 117.8 | 39.3% | 181.7 | 60.7% |
| J037 (3-6) | 300.0 | 147.1 | 49.0% | 152.8 | 51.0% |
| J107 | 300.0 | 80.3 | 26.8% | 219.4 | 73.2% |

| Sample ID | Wet Weight (g) | Dry Weight (g) | Moisture % |
|---|---|---|---|
| J007 (0-3) | 25.0 | 24.48 | 2.08 |
| J007 (3-5) | 25.0 | 24.67 | 1.32 |
| J008 (0-3.5) | 25.0 | 24.51 | 1.96 |
| J008 (3.5-4.6) | 25.0 | 24.64 | 1.44 |
| J012 (0-3) | 25.0 | 24.72 | 1.12 |
| J012 (3-6) | 25.0 | 24.70 | 1.20 |
| J013 | 25.0 | 24.69 | 1.24 |
| J019 (0-2) | 25.0 | 24.47 | 2.12 |
| J024 (0-2) | 25.0 | 24.72 | 1.12 |
| J029 (0-5) | 25.0 | 24.65 | 1.40 |
| J037 (0-3) | 25.0 | 24.49 | 2.04 |
| J037 (3-6) | 25.0 | 24.71 | 1.16 |
| J107 | 25.0 | 24.23 | 3.08 |

***Moisture Content on the -2mm Fraction***

**CLIENT** : **SRK Consulting**
**PROJECT** : **Polymet Soil Samples**
**PROJECT #** : **0518**
**TEST** : **Sobek Acid-Base Accounting**
**Date** : **April 22, 2010**

| Sample ID | Paste pH Std. Units | CO2 % CO2 | Equiv. CaCO3 kg CaCO3/t | Total S % S | Sulphate % S | Sulphur Diff. % S | AP kg CaCO3/t | Sobek NP kg CaCO3/t | Net NP kg CaCO3/t | NP/AP Ratio | Fizz Test Visual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LOD | 0.01 | 0.2 | #N/A | 0.01 | 0.01 | #N/A | #N/A | 0.1 | #N/A | #N/A | #N/A |
| Method Code | Sobek | C-GAS05 | Calc. | S-IR08 | S-GRA06a | Calc. | Calc. | Sobek NP | Calc. | Calc. | Sobek |
| J007 (0-3) | 5.44 | <0.2 | <4.5 | 0.02 | <0.01 | 0.02 | 0.6 | 5.1 | 4.5 | 8.2 | None |
| J007 (3-5) | 6.83 | <0.2 | <4.5 | 0.01 | <0.01 | 0.01 | 0.3 | 8.4 | 8.1 | 26.9 | None |
| J008 (0-3.5) | 6.23 | <0.2 | <4.5 | <0.01 | <0.01 | <0.01 | <0.3 | 8.9 | 8.9 | 29.7 | None |
| J008 (3.5-4.6) | 6.65 | <0.2 | <4.5 | 0.02 | 0.01 | 0.01 | 0.3 | 8.8 | 8.5 | 28.2 | None |
| J012 (0-3) | 6.57 | <0.2 | <4.5 | 0.01 | 0.01 | <0.01 | <0.3 | 7.2 | 7.2 | 24.0 | None |
| J012 (3-6) | 6.89 | <0.2 | <4.5 | 0.03 | <0.01 | 0.03 | 0.9 | 7.3 | 6.4 | 7.8 | None |
| J013 | 6.28 | 0.2 | 4.5 | 0.02 | <0.01 | 0.02 | 0.6 | 7.8 | 7.2 | 12.5 | None |
| J019 (0-2) | 6.02 | 0.2 | 4.5 | 0.02 | <0.01 | 0.02 | 0.6 | 5.2 | 4.6 | 8.3 | None |
| J024 (0-2) | 6.69 | 0.2 | 4.5 | 0.01 | 0.01 | <0.01 | <0.3 | 7.3 | 7.3 | 24.3 | None |
| J029 (0-5) | 6.55 | 1.2 | 27.3 | 0.02 | 0.01 | 0.01 | 0.3 | 9.4 | 9.1 | 30.1 | None |
| J037 (0-3) | 6.05 | 0.2 | 4.5 | 0.01 | 0.01 | <0.01 | <0.3 | 5.7 | 5.7 | 19.0 | None |
| J037 (3-6) | 7.10 | 0.2 | 4.5 | 0.01 | 0.01 | <0.01 | <0.3 | 7.0 | 7.0 | 23.3 | None |
| J107 | 5.45 | <0.2 | <4.5 | 0.02 | 0.01 | 0.01 | 0.3 | 4.3 | 4.0 | 13.8 | None |
| **Duplicates** | | | | | | | | | | | |
| J007 (0-3) | 5.50 | | | | | | | 5.7 | | | None |

**Note:**

Equivalent CaCO3 is calculated from the CO2 originating from carbonate minerals.

Sulphur Difference = Total S - Sulphate S

AP = Acid Potential in tonnes CaCO3 equivalent per 1000 tonnes of material. AP is calculated from the sulphur difference.

Sobek NP = Neutralization Potential in tonnes CaCO3 equivalent per 1000 tonnes of material.

NET NP = Sobek NP - AP

**CLIENT** **: SRK Consulting**
**PROJECT** **: Polymet Soil Samples**
**PROJECT #** **: 0518**
**TEST** **: Metals by Aqua Regia Digestion with ICP-MS Finish**
**Date** **: April 28, 2010**

| Sample ID | Ag ppm | Al % | As ppm | Au ppm | B ppm | Ba ppm | Be ppm | Bi ppm | Ca % | Cd ppm | Ce ppm | Co ppm | Cr ppm | Cs ppm | Cu ppm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOD | 0.01 | 0.01 | 0.1 | 0.2 | 10 | 10 | 0.05 | 0.01 | 0.01 | 0.01 | 0.02 | 0.1 | 1 | 0.05 | 0.2 |
| Method Code | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 |
| J007 (0-3) | 0.04 | 2.01 | 2.2 | <0.2 | <10 | 50 | 0.4 | 0.06 | 0.44 | 0.05 | 35 | 12 | 64 | 0.7 | 24.5 |
| J007 (3-5) | 0.03 | 1.1 | 2.4 | <0.2 | <10 | 40 | 0.28 | 0.05 | 0.45 | 0.05 | 34.5 | 7.8 | 65 | 0.71 | 19.4 |
| J008 (0-3.5) | 0.02 | 1.61 | 2.3 | <0.2 | <10 | 50 | 0.33 | 0.05 | 0.46 | 0.05 | 35.3 | 11.2 | 69 | 0.57 | 25.4 |
| J008 (3.5-4.6) | 0.02 | 1.57 | 2.6 | <0.2 | <10 | 50 | 0.34 | 0.06 | 0.55 | 0.06 | 37.8 | 11.2 | 76 | 0.64 | 28 |
| J012 (0-3) | 0.02 | 1.16 | 2.4 | <0.2 | <10 | 40 | 0.3 | 0.06 | 0.38 | 0.04 | 36.9 | 8 | 73 | 0.75 | 28.2 |
| J012 (3-6) | 0.03 | 1.06 | 3.1 | <0.2 | <10 | 40 | 0.29 | 0.06 | 0.41 | 0.06 | 36.1 | 7.6 | 77 | 0.78 | 28.3 |
| J013 | 0.02 | 1.38 | 2 | <0.2 | <10 | 40 | 0.35 | 0.05 | 0.43 | 0.05 | 35.9 | 8.5 | 72 | 0.63 | 20.1 |
| J019 (0-2) | 0.05 | 2.23 | 1.4 | <0.2 | <10 | 40 | 0.44 | 0.05 | 0.67 | 0.05 | 33.3 | 9.2 | 47 | 0.63 | 18.5 |
| J024 (0-2) | 0.03 | 1.11 | 3.2 | <0.2 | <10 | 40 | 0.33 | 0.06 | 0.39 | 0.05 | 30.6 | 8.6 | 82 | 0.83 | 20 |
| J029 (0-5) | 0.02 | 1.81 | 1.9 | <0.2 | <10 | 40 | 0.36 | 0.05 | 0.66 | 0.07 | 31.6 | 12.9 | 59 | 0.61 | 28.7 |
| J037 (0-3) | 0.03 | 1.2 | 2.3 | <0.2 | <10 | 40 | 0.33 | 0.07 | 0.39 | 0.03 | 31.9 | 8.5 | 70 | 0.69 | 23.1 |
| J037 (3-6) | 0.03 | 0.88 | 2.6 | <0.2 | <10 | 40 | 0.29 | 0.08 | 0.43 | 0.06 | 31.2 | 6.8 | 72 | 0.66 | 17.3 |
| J107 | 0.07 | 2.26 | 3.4 | <0.2 | <10 | 50 | 0.49 | 0.09 | 0.35 | 0.08 | 33.1 | 15.5 | 69 | 1.08 | 86.7 |

| Sample ID | Fe % | Ga ppm | Ge ppm | Hf ppm | Hg ppm | In ppm | K % | La ppm | Li ppm | Mg % | Mn ppm | Mo ppm | Na % | Nb ppm | Ni ppm | P ppm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOD | 0.01 | 0.05 | 0.05 | 0.02 | 0.01 | 0.005 | 0.01 | 0.2 | 0.1 | 0.01 | 5 | 0.05 | 0.01 | 0.05 | 0.2 | 10 |
| Method Code | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 |
| J007 (0-3) | 3.25 | 5.82 | 0.09 | 0.17 | 0.01 | 0.021 | 0.06 | 13.8 | 8.8 | 0.61 | 388 | 0.53 | 0.09 | 1.26 | 42.9 | 440 |
| J007 (3-5) | 2.63 | 3.8 | 0.12 | 0.28 | <0.01 | 0.012 | 0.08 | 16.4 | 7.2 | 0.38 | 529 | 0.35 | 0.07 | 0.42 | 22.8 | 510 |
| J008 (0-3.5) | 2.98 | 4.92 | 0.1 | 0.22 | 0.01 | 0.017 | 0.08 | 18.3 | 8.2 | 0.57 | 395 | 0.44 | 0.08 | 0.62 | 36.6 | 480 |
| J008 (3.5-4.6) | 3.14 | 5.04 | 0.13 | 0.29 | <0.01 | 0.018 | 0.09 | 20.2 | 8.2 | 0.56 | 464 | 0.45 | 0.1 | 0.51 | 36.5 | 540 |
| J012 (0-3) | 2.68 | 3.99 | 0.12 | 0.22 | 0.01 | 0.013 | 0.08 | 18.4 | 7.6 | 0.39 | 488 | 0.38 | 0.06 | 0.49 | 23 | 500 |
| J012 (3-6) | 2.66 | 3.73 | 0.13 | 0.26 | <0.01 | 0.012 | 0.09 | 17.1 | 7.4 | 0.35 | 516 | 0.39 | 0.07 | 0.38 | 19.8 | 520 |
| J013 | 2.48 | 4.36 | 0.1 | 0.16 | <0.01 | 0.015 | 0.09 | 15.2 | 8.6 | 0.44 | 390 | 0.4 | 0.07 | 1.05 | 25.8 | 470 |
| J019 (0-2) | 2.56 | 6.09 | 0.1 | 0.12 | 0.01 | 0.021 | 0.07 | 21.3 | 9 | 0.43 | 251 | 0.48 | 0.15 | 1.42 | 30.1 | 300 |
| J024 (0-2) | 3.01 | 4.21 | 0.12 | 0.22 | 0.01 | 0.015 | 0.08 | 14.6 | 8.6 | 0.39 | 499 | 1.85 | 0.07 | 0.45 | 25.1 | 440 |
| J029 (0-5) | 3 | 5.73 | 0.1 | 0.23 | 0.01 | 0.02 | 0.07 | 14.8 | 10 | 0.69 | 345 | 0.88 | 0.13 | 0.66 | 48.7 | 460 |
| J037 (0-3) | 2.53 | 4.26 | 0.1 | 0.16 | 0.01 | 0.014 | 0.06 | 15.2 | 8.1 | 0.34 | 505 | 0.5 | 0.06 | 0.77 | 25.4 | 440 |
| J037 (3-6) | 2.44 | 3.39 | 0.11 | 0.24 | 0.01 | 0.012 | 0.09 | 14.2 | 7.6 | 0.32 | 442 | 0.49 | 0.07 | 0.36 | 20.6 | 520 |
| J107 | 3.87 | 7.25 | 0.1 | 0.14 | 0.02 | 0.022 | 0.07 | 12 | 15.7 | 0.77 | 371 | 0.87 | 0.06 | 1.62 | 79.9 | 560 |

| Sample ID | Pb ppm | Rb ppm | Re ppm | S % | Sb ppm | Sc ppm | Se ppm | Sn ppm | Sr ppm | Ta ppm | Te ppm | Th ppm | Ti % | Tl ppm | U ppm | V ppm | W ppm | Y ppm | Zn ppm | Zr ppm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOD | 0.2 | 0.1 | 0.001 | 0.01 | 0.05 | 0.1 | 0.2 | 0.2 | 0.2 | 0.01 | 0.01 | 0.2 | 0.005 | 0.02 | 0.05 | 1 | 0.05 | 0.05 | 2 | 0.5 |
| Method Code | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 | ME-MS41 |
| J007 (0-3) | 3.9 | 7.1 | <0.001 | 0.01 | 0.09 | 3.1 | 0.4 | 0.7 | 30.4 | 0.01 | 0.01 | 2.5 | 0.133 | 0.06 | 0.49 | 76 | 0.11 | 6.8 | 38 | 8 |
| J007 (3-5) | 3.2 | 7.4 | <0.001 | 0.01 | 0.07 | 3.1 | 0.3 | 0.5 | 34.5 | <0.01 | 0.01 | 3 | 0.106 | 0.06 | 0.47 | 46 | 0.13 | 7.01 | 23 | 10.6 |
| J008 (0-3.5) | 3.2 | 7.8 | <0.001 | 0.01 | 0.08 | 3.6 | 0.4 | 0.5 | 36.2 | <0.01 | <0.01 | 2.9 | 0.127 | 0.06 | 0.56 | 73 | 0.1 | 7.15 | 30 | 9.7 |
| J008 (3.5-4.6) | 3.6 | 8.1 | <0.001 | 0.01 | 0.09 | 4 | 0.4 | 0.6 | 39.7 | <0.01 | 0.01 | 3.3 | 0.139 | 0.06 | 0.58 | 74 | 0.1 | 8.98 | 32 | 11.7 |
| J012 (0-3) | 3.5 | 7.5 | <0.001 | 0.01 | 0.07 | 3.6 | 0.3 | 0.4 | 32 | <0.01 | 0.01 | 3.4 | 0.111 | 0.06 | 0.55 | 49 | 0.12 | 7.8 | 24 | 9.1 |
| J012 (3-6) | 3.5 | 8.2 | <0.001 | 0.01 | 0.07 | 3.4 | 0.3 | 0.4 | 32.4 | <0.01 | 0.01 | 3.2 | 0.109 | 0.06 | 0.52 | 45 | 0.12 | 6.87 | 24 | 10 |
| J013 | 3.3 | 8.3 | <0.001 | 0.01 | 0.07 | 2.8 | 0.3 | 0.5 | 33.1 | <0.01 | <0.01 | 3.1 | 0.116 | 0.06 | 0.47 | 50 | 0.11 | 5.83 | 26 | 7.3 |
| J019 (0-2) | 3.3 | 8.1 | <0.001 | 0.01 | 0.08 | 3.8 | 0.4 | 0.7 | 42.5 | 0.01 | 0.01 | 2.1 | 0.114 | 0.05 | 0.81 | 55 | 0.11 | 9.82 | 40 | 5.4 |
| J024 (0-2) | 3.6 | 8.1 | 0.001 | <0.01 | 0.09 | 3.5 | 0.2 | 0.5 | 29.8 | <0.01 | 0.01 | 3.9 | 0.106 | 0.07 | 0.64 | 51 | 0.12 | 6.98 | 24 | 9.1 |
| J029 (0-5) | 3.3 | 6.9 | 0.001 | <0.01 | 0.09 | 3.6 | 0.2 | 0.6 | 40.7 | 0.01 | 0.01 | 3.2 | 0.113 | 0.07 | 0.62 | 64 | 0.1 | 8 | 32 | 10.1 |
| J037 (0-3) | 4 | 7.1 | <0.001 | <0.01 | 0.09 | 3.5 | 0.3 | 0.5 | 28.1 | <0.01 | 0.01 | 3.9 | 0.097 | 0.06 | 0.61 | 46 | 0.11 | 7.1 | 21 | 7.4 |
| J037 (3-6) | 3.8 | 7.1 | <0.001 | <0.01 | 0.08 | 2.9 | 0.2 | 0.4 | 28.4 | <0.01 | 0.01 | 3.8 | 0.087 | 0.06 | 0.52 | 38 | 0.11 | 6.13 | 22 | 9.2 |
| J107 | 4.9 | 13 | <0.001 | <0.01 | 0.13 | 3.6 | 0.4 | 0.7 | 23.2 | 0.01 | 0.01 | 3.7 | 0.131 | 0.09 | 0.79 | 91 | 0.14 | 5.19 | 44 | 6.3 |

**CLIENT** : SRK Consulting
**PROJECT** : Polymet Soil Samples
**PROJECT #** : 0518
**TEST** : Metals by 1N Nitric Acid Digestion with ICP-MS Finish on -2mm fraction
**Date** : April 26/27, 2010

| Sample ID | As | Cd | Cr | Cu | Hg | Pb | Se | Zn | Ag | Al | B | Be | Bi | Ca | Ce | Co | Cs | Fe | Ga | Hf | In |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L |
| LOD | 10 | 0.1 | 1 | 0.3 | 0.2 | 0.2 | 10 | 2 | 0.06 | 50 | 10 | 0.3 | 0.1 | 200 | 0.02 | 0.1 | 0.01 | 20 | 0.05 | 0.05 | 0.04 |
| Method Code | ME-MS14a | ME-MS14a | ME-MS14a | ME-MS14a | ME-MS14a | ME-MS14a | ME-MS14a | ME-MS14a | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b |
| J007 (0-3) | 20 | 2.8 | 549 | 603 | <0.2 | 292 | <10 | 419 | 0.27 | >10000 | 40 | 38.2 | 12.1 | >10000 | >1000 | 566 | 7.74 | >10000 | 231 | 10.95 | 1.3 |
| J007 (0-3) DUP | 20 | 2.4 | 540 | 451 | <0.2 | 277 | <10 | 389 | 0.8 | >10000 | 40 | 38 | 5 | >10000 | >1000 | 561 | 7.32 | >10000 | 218 | 11.05 | 0.8 |
| J007 (3-5) | 30 | 2.9 | 462 | 646 | <0.2 | 232 | <10 | 683 | 0.71 | >10000 | 10 | 19 | 4.6 | >10000 | >1000 | 483 | 8.18 | >10000 | 152.5 | 2.86 | 1.19 |
| J007 (3-5) DUP | 30 | 2.8 | 465 | 590 | <0.2 | 224 | <10 | 632 | 0.35 | >10000 | 10 | 20.1 | 2.4 | >10000 | >1000 | 518 | 8.4 | >10000 | 163.5 | 2.78 | 0.5 |
| J008 (0-3.5) | 30 | 3 | 482 | 702 | 0.6 | 252 | 10 | 518 | 0.57 | >10000 | 10 | 26 | 2.4 | >10000 | >1000 | 643 | 2.24 | >10000 | 185 | 6.61 | 0.73 |
| J008 (0-3.5) DUP | 30 | 2.8 | 499 | 644 | 0.8 | 265 | 10 | 526 | 0.54 | >10000 | 10 | 26.5 | 2.1 | >10000 | >1000 | 701 | 2.45 | >10000 | 195.5 | 7 | 0.77 |
| J008 (3.5-4.6) | 40 | 2.7 | 389 | 783 | 0.2 | 260 | 10 | 569 | 0.98 | >10000 | 10 | 22.2 | 3.2 | >10000 | >1000 | 617 | 2.32 | >10000 | 165.5 | 4.8 | 1.27 |
| J008 (3.5-4.6) DUP | 40 | 2.7 | 420 | 748 | 0.6 | 282 | 10 | 601 | 0.51 | >10000 | 10 | 22.2 | 2.9 | >10000 | >1000 | 710 | 2.78 | >10000 | 181 | 5.28 | 0.66 |
| J012 (0-3) | 20 | 2.1 | 571 | 842 | <0.2 | 300 | <10 | 581 | 0.54 | >10000 | 10 | 18.9 | 2 | >10000 | >1000 | 406 | 10.05 | >10000 | 148 | 3.48 | 0.51 |
| J012 (0-3) DUP | 30 | 2.7 | 604 | 911 | 0.4 | 271 | <10 | 621 | 0.37 | >10000 | 10 | 21 | 2.2 | >10000 | >1000 | 472 | 10.85 | >10000 | 166 | 3.72 | 0.55 |
| J012 (3-6) | 30 | 3.1 | 535 | 926 | <0.2 | 231 | <10 | 707 | 0.32 | >10000 | 10 | 18.1 | 2.2 | >10000 | >1000 | 389 | 7.4 | >10000 | 147.5 | 2.66 | 0.68 |
| J012 (3-6) DUP | 30 | 2.7 | 530 | 936 | <0.2 | 246 | <10 | 680 | 0.25 | >10000 | 10 | 18.5 | 2.2 | >10000 | >1000 | 432 | 8.22 | >10000 | 156.5 | 2.76 | 0.48 |
| J013 | 30 | 3 | 436 | 529 | 0.2 | 243 | <10 | 460 | 0.83 | >10000 | 10 | 18.2 | 2.9 | >10000 | >1000 | 419 | 4.58 | >10000 | 139.5 | 5.11 | 0.94 |
| J013 DUP | 30 | 3.5 | 453 | 521 | <0.2 | 279 | <10 | 467 | 0.3 | >10000 | 10 | 20.8 | 2.6 | >10000 | >1000 | 511 | 4.33 | >10000 | 160.5 | 5.87 | 0.54 |
| J019 (0-2) | 10 | 2.6 | 351 | 468 | <0.2 | 194.5 | 10 | 257 | 0.29 | >10000 | 10 | 31.3 | 1.1 | >10000 | >1000 | 341 | 3.69 | >10000 | 179 | 9.67 | 0.76 |
| J019 (0-2) DUP | 10 | 2.6 | 385 | 454 | <0.2 | 213 | 10 | 301 | 0.41 | >10000 | <10 | 37.9 | 4.7 | >10000 | >1000 | 449 | 4.04 | >10000 | 208 | 9.26 | 0.81 |
| J024 (0-2) | 30 | 2.4 | 684 | 548 | <0.2 | 238 | <10 | 633 | 0.29 | >10000 | 10 | 22.2 | 8.3 | >10000 | >1000 | 463 | 9.24 | >10000 | 164 | 3.28 | 0.66 |
| J024 (0-2) DUP | 30 | 2.2 | 664 | 495 | 0.2 | 243 | <10 | 606 | 0.27 | >10000 | 10 | 22.1 | 2.5 | >10000 | >1000 | 528 | 9.36 | >10000 | 163 | 3.05 | 0.56 |
| J029 (0-5) | 30 | 3.2 | 324 | 718 | 0.6 | 209 | <10 | 533 | 0.82 | >10000 | 10 | 24.1 | 1.7 | >10000 | >1000 | 593 | 3.05 | >10000 | 186 | 4.97 | 0.76 |
| J029 (0-5) DUP | 30 | 3.5 | 350 | 713 | 0.7 | 221 | <10 | 569 | 0.64 | >10000 | 10 | 25.1 | 1.8 | >10000 | >1000 | 675 | 3.25 | >10000 | 203 | 5.8 | 0.72 |
| J037 (0-3) | 20 | 1.7 | 655 | 515 | <0.2 | 297 | 10 | 559 | 0.35 | >10000 | 10 | 20.9 | 2.1 | >10000 | >1000 | 584 | 7.89 | >10000 | 151.5 | 4.29 | 0.66 |
| J037 (0-3) DUP | 20 | 1.5 | 690 | 489 | <0.2 | 282 | 10 | 538 | 0.36 | >10000 | 10 | 21 | 2.4 | >10000 | >1000 | 596 | 8.92 | >10000 | 157.5 | 4.57 | 0.56 |
| J037 (3-6) | 30 | 3.4 | 551 | 524 | <0.2 | 200 | 10 | 783 | 0.21 | >10000 | 10 | 15 | 2.3 | >10000 | >1000 | 430 | 7.88 | >10000 | 141 | 2.02 | 0.47 |
| J037 (3-6) DUP | 40 | 3.6 | 564 | 522 | 0.2 | 235 | <10 | 807 | 0.17 | >10000 | 10 | 15.4 | 2.2 | >10000 | >1000 | 466 | 9.08 | >10000 | 148 | 2.03 | 0.39 |
| J107 | 40 | 4.4 | 799 | >1000 | 0.2 | 347 | <10 | 617 | 0.58 | >10000 | 30 | 52.4 | 5 | >10000 | >1000 | 656 | 10.3 | >10000 | 312 | 12.05 | 1.05 |
| J107 DUP | 30 | 4.3 | 761 | >1000 | 0.2 | 357 | <10 | 606 | 0.54 | >10000 | 40 | 49 | 6 | >10000 | >1000 | 675 | 10.9 | >10000 | 324 | 12.75 | 0.97 |
| Blank | <10 | 0.1 | 2 | 84.4 | <0.2 | 3.1 | <10 | 34 | 0.09 | 70 | <10 | <0.3 | 0.1 | 200 | 0.05 | 0.8 | 0.02 | 130 | 0.07 | <0.05 | <0.04 |

| Sample ID | K | La | Li | Mg | Mn | Mo | Na | Nb | Ni | P | Rb | Sb | Sn | Sr | Ta | Te | Th | Tl | U | V | W | Y | Zr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L | ug/L |
| LOD | 60 | 0.02 | 10 | 4 | 0.1 | 1 | 300 | 0.02 | 0.5 | 100 | 0.1 | 0.1 | 0.3 | 0.1 | 0.01 | 10 | 0.01 | 0.04 | 0.01 | 1 | 0.2 | 0.03 | 0.05 |
| Method Code | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b | ME-MS14b |
| J007 (0-3) | 7880 | >1000 | 140 | >10000 | >1000 | 5 | 8900 | 16.45 | 849 | >10000 | 144.5 | 2.2 | 18 | >1000 | 1.72 | <10 | 89.2 | 1.03 | 43.7 | >1000 | 25.3 | 692 | 336 |
| J007 (0-3) DUP | 7630 | >1000 | 150 | >10000 | >1000 | 4 | >10000 | 15.6 | 914 | >10000 | 135.5 | 2 | 28.2 | >1000 | 1.62 | <10 | 89.2 | 0.97 | 39.5 | >1000 | 3.6 | 657 | 333 |
| J007 (3-5) | >10000 | >1000 | 300 | >10000 | >1000 | 2 | 6600 | 2.33 | 864 | >10000 | 119.5 | 0.6 | 2.9 | >1000 | 0.7 | <10 | 153.5 | 0.81 | 30.5 | 880 | 3.6 | 618 | 108.5 |
| J007 (3-5) DUP | >10000 | >1000 | 290 | >10000 | >1000 | 2 | 7300 | 2.29 | 923 | >10000 | 129 | 0.4 | 1.7 | >1000 | 0.72 | <10 | 163 | 0.89 | 32.1 | 944 | 1.2 | 631 | 110.5 |
| J008 (0-3.5) | >10000 | >1000 | 250 | >10000 | >1000 | 2 | 6600 | 6.03 | >1000 | >10000 | 116.5 | 1 | 2.5 | >1000 | 0.67 | <10 | 133 | 1.52 | 46 | >1000 | 2.3 | 679 | 235 |
| J008 (0-3.5) DUP | >10000 | >1000 | 250 | >10000 | >1000 | 3 | 6100 | 7.23 | >1000 | >10000 | 124.5 | 0.6 | 1.3 | >1000 | 0.81 | <10 | 153.5 | 1.75 | 48.1 | >1000 | 1 | 706 | 269 |
| J008 (3.5-4.6) | >10000 | >1000 | 220 | >10000 | >1000 | 2 | 5900 | 4.08 | >1000 | >10000 | 81.2 | 0.9 | 2.5 | >1000 | 0.59 | <10 | 143.5 | 1.2 | 36.6 | 905 | 1.4 | 791 | 187.5 |
| J008 (3.5-4.6) DUP | >10000 | >1000 | 240 | >10000 | >1000 | 3 | 6600 | 5.22 | >1000 | >10000 | 96.5 | 0.7 | 2.1 | >1000 | 0.81 | <10 | 176.5 | 1.56 | 40.6 | >1000 | 1.4 | 871 | 219 |
| J012 (0-3) | 7560 | >1000 | 240 | >10000 | >1000 | 2 | 5600 | 5.66 | 708 | >10000 | 114.5 | 1.5 | 2 | >1000 | 1.04 | <10 | 133 | 1.24 | 39.4 | >1000 | 1 | 716 | 135 |
| J012 (0-3) DUP | 8610 | >1000 | 270 | >10000 | >1000 | 2 | 5600 | 6.52 | 826 | >10000 | 129 | 0.9 | 1.4 | >1000 | 1.27 | <10 | 157.5 | 1.58 | 40.9 | >1000 | 0.9 | 773 | 156 |
| J012 (3-6) | >10000 | >1000 | 280 | >10000 | >1000 | 1 | 5900 | 2.63 | 687 | >10000 | 115.5 | 1.1 | 1.7 | >1000 | 0.75 | <10 | 165.5 | 0.67 | 35 | 1000 | 0.9 | 595 | 97.5 |
| J012 (3-6) DUP | >10000 | >1000 | 300 | >10000 | >1000 | 1 | 6200 | 2.61 | 709 | >10000 | 130.5 | 0.6 | 1.4 | >1000 | 0.87 | <10 | 172 | 0.55 | 35.1 | >1000 | 0.8 | 614 | 100.5 |
| J013 | >10000 | >1000 | 180 | >10000 | >1000 | 2 | 5100 | 11.05 | 584 | >10000 | 121.5 | 0.6 | 1.9 | >1000 | 0.72 | <10 | 90.2 | 1.48 | 26.5 | 764 | 3.6 | 410 | 173 |
| J013 DUP | >10000 | >1000 | 180 | >10000 | >1000 | 3 | 5700 | 14.85 | 785 | >10000 | 127.5 | 1.1 | 2.2 | >1000 | 0.77 | <10 | 92.3 | 1.65 | 29.3 | 830 | 1 | 456 | 212 |
| J019 (0-2) | 4870 | >1000 | 70 | >10000 | >1000 | 3 | 8600 | 10.4 | 379 | >10000 | 129.5 | 0.7 | 1 | >1000 | 0.88 | <10 | 77.3 | 1.34 | 96.3 | >1000 | 1.3 | >1000 | 276 |
| J019 (0-2) DUP | 7070 | >1000 | 90 | >10000 | >1000 | 3 | >10000 | 12.55 | 592 | >10000 | 141 | 1.7 | 29.3 | >1000 | 1.28 | <10 | 86.9 | 0.3 | 105 | >1000 | 4.6 | >1000 | 301 |
| J024 (0-2) | 8310 | >1000 | 310 | >10000 | >1000 | 2 | 5400 | 4.82 | 768 | >10000 | 120 | 1.1 | 2.4 | >1000 | 1.16 | <10 | 141.5 | 1.25 | 37.3 | >1000 | 20.8 | 657 | 124 |
| J024 (0-2) DUP | 8830 | >1000 | 320 | >10000 | >1000 | 2 | 5600 | 4.81 | 860 | >10000 | 122.5 | 0.7 | 1.5 | >1000 | 1.34 | <10 | 169.5 | 1.51 | 39.3 | >1000 | 0.9 | 674 | 127 |
| J029 (0-5) | >10000 | >1000 | 180 | >10000 | >1000 | 2 | 7400 | 4.89 | >1000 | >10000 | 108 | 0.5 | 1.8 | >1000 | 0.61 | <10 | 87.6 | 1.5 | 34.7 | 733 | 1.1 | 672 | 191 |
| J029 (0-5) DUP | >10000 | >1000 | 180 | >10000 | >1000 | 2 | 8500 | 6.32 | >1000 | >10000 | 117.5 | 0.6 | 0.9 | >1000 | 0.92 | <10 | 99.2 | 1.6 | 37.9 | 816 | 1.8 | 756 | 222 |
| J037 (0-3) | 6880 | >1000 | 240 | >10000 | >1000 | 2 | 5800 | 6.69 | 738 | >10000 | 123.5 | 1 | 1.9 | >1000 | 1.05 | <10 | 142 | 2.02 | 37.9 | >1000 | 1.1 | 665 | 153.5 |
| J037 (0-3) DUP | 7590 | >1000 | 250 | >10000 | >1000 | 2 | 5800 | 7.07 | 742 | >10000 | 135.5 | 0.8 | 1.3 | >1000 | 1.16 | <10 | 147.5 | 2.25 | 38.3 | >1000 | 0.7 | 642 | 155.5 |
| J037 (3-6) | >10000 | >1000 | 310 | >10000 | >1000 | 1 | 6400 | 2.33 | 763 | >10000 | 119 | 0.4 | 1.8 | >1000 | 0.79 | <10 | 164.5 | 0.65 | 29.6 | >1000 | 0.8 | 520 | 73.3 |
| J037 (3-6) DUP | >10000 | >1000 | 310 | >10000 | >1000 | 2 | 6700 | 2.18 | 808 | >10000 | 135 | 0.4 | 1.8 | >1000 | 0.78 | <10 | 169.5 | 0.6 | 29 | >1000 | 0.8 | 526 | 73.4 |
| J107 | >10000 | 783 | 240 | >10000 | >1000 | 4 | 8700 | 22 | >1000 | >10000 | 321 | 2.5 | 19.9 | 950 | 1.68 | <10 | 64.3 | 1.18 | 51.3 | >1000 | 3.4 | 429 | 336 |
| J107 DUP | >10000 | 782 | 240 | >10000 | >1000 | 4 | 9000 | 24.4 | >1000 | >10000 | 326 | 3 | 21 | 955 | 1.97 | <10 | 66.8 | 1.62 | 53.2 | >1000 | 4 | 422 | 354 |
| Blank | <60 | 0.02 | <10 | 103 | 1.6 | <1 | 300 | <0.02 | 1.1 | 100 | 0.1 | 0.1 | 3.7 | 0.5 | 0.01 | <10 | 0.01 | <0.04 | 0.01 | <1 | 0.2 | <0.03 | 0.11 |

| Sample ID | Ag | Al | As | Ba | Be | Ca | Cd | Co | Cr | Cu | Fe | K | Mg | Mn | Mo | Na | Ni | P | Pb | Sb | Sr | Ti | V | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| LOD | 0.01 | 1 | 0.05 | 0.1 | 0.001 | 0.5 | 0.001 | 0.02 | 0.02 | 0.01 | 1 | 5 | 0.05 | 0.01 | 0.01 | 1 | 0.01 | 1 | 0.05 | 0.05 | 0.01 | 1 | 0.01 | 0.01 |
| Method Code | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 | ME-ICP14 |
| J007 (0-3) | 0.01 | 123 | <0.05 | 0.5 | 0.004 | 17.6 | 0.001 | 0.06 | 0.1 | 0.11 | 95 | <5 | 13.25 | 3.17 | <0.01 | <1 | 0.11 | 5 | <0.05 | <0.05 | 0.11 | 1 | 0.17 | 0.07 |
| J007 (0-3) DUP | <0.01 | 116 | <0.05 | 0.5 | 0.004 | 17.1 | <0.001 | 0.06 | 0.09 | 0.07 | 95 | <5 | 14.55 | 3.14 | <0.01 | <1 | 0.12 | 5 | <0.05 | <0.05 | 0.11 | 1 | 0.17 | 0.06 |
| J007 (3-5) | <0.01 | 388 | 0.1 | 3.1 | 0.02 | 308 | 0.004 | 0.5 | 0.78 | 1.13 | 615 | 12 | 178 | 41.3 | <0.01 | 6 | 1.01 | 82 | 0.27 | <0.05 | 1.69 | 6 | 0.95 | 1.19 |
| J007 (3-5) DUP | <0.01 | 408 | <0.05 | 3.4 | 0.02 | 323 | 0.005 | 0.55 | 0.8 | 1.07 | 671 | 13 | 190.5 | 49.2 | <0.01 | 7 | 1.01 | 86 | 0.25 | <0.05 | 1.81 | 7 | 1.04 | 1.16 |
| J008 (0-3.5) | <0.01 | 514 | <0.05 | 4.4 | 0.027 | 310 | 0.004 | 0.68 | 0.88 | 1.36 | 734 | 16 | 208 | 31.2 | <0.01 | 7 | 1.17 | 70 | 0.22 | <0.05 | 2.32 | 7 | 1.35 | 0.98 |
| J008 (0-3.5) DUP | <0.01 | 546 | 0.07 | 4.7 | 0.028 | 310 | 0.006 | 0.74 | 0.94 | 1.29 | 862 | 17 | 258 | 34.8 | <0.01 | 6 | 1.44 | 68 | 0.25 | <0.05 | 2.37 | 9 | 1.47 | 1.02 |
| J008 (3.5-4.6) | <0.01 | 457 | 0.09 | 4.1 | 0.023 | 317 | 0.003 | 0.66 | 0.71 | 1.59 | 642 | 12 | 204 | 36.7 | <0.01 | 6 | 1.3 | 81 | 0.23 | <0.05 | 1.78 | 6 | 1.02 | 1.08 |
| J008 (3.5-4.6) DUP | <0.01 | 527 | 0.09 | 4.6 | 0.025 | 356 | 0.003 | 0.78 | 0.83 | 1.62 | 801 | 14 | 267 | 42.9 | <0.01 | 8 | 1.69 | 93 | 0.31 | <0.05 | 2.02 | 8 | 1.21 | 1.24 |
| J012 (0-3) | <0.01 | 422 | 0.08 | 3.5 | 0.02 | 269 | 0.002 | 0.43 | 1.05 | 1.6 | 653 | 8 | 167.5 | 31.5 | <0.01 | 5 | 0.81 | 74 | 0.3 | <0.05 | 1.49 | 12 | 1.24 | 1.06 |
| J012 (0-3) DUP | <0.01 | 447 | 0.09 | 3.7 | 0.022 | 274 | 0.003 | 0.5 | 1.07 | 1.7 | 708 | 9 | 186.5 | 36.8 | 0.01 | 6 | 0.91 | 75 | 0.26 | <0.05 | 1.53 | 13 | 1.32 | 1.12 |
| J012 (3-6) | <0.01 | 349 | 0.15 | 3.4 | 0.019 | 298 | 0.003 | 0.41 | 0.9 | 1.67 | 631 | 12 | 167 | 30 | 0.01 | 6 | 0.76 | 80 | 0.23 | <0.05 | 1.46 | 9 | 1.13 | 1.23 |
| J012 (3-6) DUP | <0.01 | 360 | <0.05 | 3.5 | 0.02 | 303 | 0.005 | 0.44 | 0.93 | 1.75 | 675 | 14 | 176 | 35 | 0.01 | 6 | 0.82 | 81 | 0.24 | <0.05 | 1.54 | 9 | 1.2 | 1.23 |
| J013 | <0.01 | 502 | <0.05 | 3.6 | 0.019 | 243 | 0.005 | 0.45 | 0.7 | 0.9 | 490 | 12 | 117 | 29.7 | <0.01 | 5 | 0.67 | 68 | 0.27 | <0.05 | 1.39 | 8 | 0.84 | 0.72 |
| J013 DUP | <0.01 | 599 | 0.15 | 3.8 | 0.022 | 258 | 0.006 | 0.54 | 0.71 | 0.87 | 579 | 11 | 146.5 | 36.3 | <0.01 | 6 | 0.84 | 75 | 0.32 | <0.05 | 1.48 | 9 | 0.91 | 0.74 |
| J019 (0-2) | <0.01 | 805 | 0.05 | 3.5 | 0.032 | 203 | 0.007 | 0.35 | 0.64 | 0.91 | 772 | 5 | 80 | 14.6 | <0.01 | 8 | 0.4 | 26 | 0.2 | <0.05 | 1.79 | 3 | 2.09 | 0.48 |
| J019 (0-2) DUP | <0.01 | 896 | 0.08 | 3.7 | 0.033 | 225 | 0.006 | 0.42 | 0.68 | 0.88 | 883 | 6 | 109.5 | 17.05 | <0.01 | 8 | 0.56 | 33 | 0.17 | <0.05 | 1.96 | 4 | 2.22 | 0.55 |
| J024 (0-2) | <0.01 | 402 | <0.05 | 3 | 0.023 | 260 | 0.004 | 0.47 | 1.25 | 1.05 | 823 | 8 | 186 | 34.8 | 0.01 | 5 | 0.89 | 62 | 0.24 | <0.05 | 1.57 | 14 | 1.54 | 1.13 |
| J024 (0-2) DUP | <0.01 | 416 | <0.05 | 3.2 | 0.023 | 268 | 0.005 | 0.55 | 1.27 | 0.96 | 833 | 9 | 197.5 | 40.5 | <0.01 | 6 | 0.94 | 66 | 0.26 | <0.05 | 1.64 | 15 | 1.57 | 1.15 |
| J029 (0-5) | <0.01 | 747 | <0.05 | 4.4 | 0.025 | 267 | 0.005 | 0.62 | 0.56 | 1.31 | 616 | 13 | 194 | 24.3 | <0.01 | 7 | 1.18 | 66 | 0.21 | <0.05 | 2.06 | 5 | 0.79 | 0.94 |
| J029 (0-5) DUP | <0.01 | 810 | <0.05 | 4.7 | 0.026 | 292 | 0.005 | 0.7 | 0.62 | 1.36 | 739 | 13 | 246 | 26.5 | <0.01 | 9 | 1.51 | 74 | 0.19 | <0.05 | 2.18 | 5 | 0.87 | 1.04 |
| J037 (0-3) | <0.01 | 419 | <0.05 | 4.1 | 0.022 | 249 | 0.002 | 0.61 | 1.16 | 0.95 | 858 | 7 | 172 | 58.2 | <0.01 | 6 | 0.82 | 59 | 0.27 | <0.05 | 1.33 | 10 | 1.76 | 0.98 |
| J037 (0-3) DUP | <0.01 | 435 | 0.05 | 4.1 | 0.023 | 253 | 0.002 | 0.66 | 1.23 | 0.91 | 914 | 8 | 180 | 60.5 | <0.01 | 6 | 0.86 | 59 | 0.28 | <0.05 | 1.35 | 11 | 1.96 | 0.96 |
| J037 (3-6) | <0.01 | 319 | 0.06 | 3.4 | 0.016 | 309 | 0.005 | 0.47 | 0.92 | 0.91 | 619 | 12 | 192.5 | 37.2 | <0.01 | 7 | 0.86 | 87 | 0.17 | <0.05 | 1.27 | 8 | 1.18 | 1.33 |
| J037 (3-6) DUP | <0.01 | 332 | 0.08 | 3.2 | 0.017 | 314 | 0.004 | 0.49 | 0.93 | 0.9 | 653 | 13 | 199.5 | 40.9 | <0.01 | 7 | 0.89 | 89 | 0.21 | <0.05 | 1.29 | 8 | 1.21 | 1.34 |
| J107 | <0.01 | 167 | <0.05 | 0.6 | 0.005 | 14.4 | <0.001 | 0.07 | 0.13 | 0.46 | 90 | <5 | 16.8 | 2.74 | <0.01 | <1 | 0.2 | 5 | <0.05 | <0.05 | 0.09 | 1 | 0.18 | 0.09 |
| J107 DUP | <0.01 | 172 | <0.05 | 0.6 | 0.005 | 14.1 | <0.001 | 0.07 | 0.13 | 0.42 | 98 | <5 | 19.4 | 2.86 | <0.01 | <1 | 0.21 | 5 | <0.05 | <0.05 | 0.1 | 1 | 0.18 | 0.09 |
| Blank | | | | | | | | | | | | | | | | | | | | | | | | |

Duplicate 3.00 g samples (oven dry basis) were extraced with 15 mL of 1N nitric acid (2N nitric acid for samples containing free carbonates) in 50 mL polypropylene tubes and shaken for 20 h on a reciprocal shaker.

The tubes were then centrifuged at maximum RPM for 10 minutes and an aliquote filtered for metal analysis by the same suite of metals as conducted on the solids (Code ME-MS41).
A Blank was setup and run through the analysis process.