284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # MJNBZ1
CASE # 51918
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID # P5250
MODIFIED ANALYSIS #3157.0

A. Number of Samples and Date of Receipt

06 Soil samples was delivered to the laboratory intact on 12/11/2024, 12/14/2024.

B. Parameters

Test requested for Metals CLP MS FULL = Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc & Mercury.

C. Cooler Temp

Indicator Bottle**: Presence/**Absence

Cooler: 2.0^{o}C, 2.1^{o}C

D. Detail Documentation (related to Sample Handling Shipping, Analytical Problem, Temp of Cooler etc):

Issue 1 : A "P" or "M" prefix was listed at the beginning of a CLP sample ID.

Issue 2: There is no sample designated on the COC for laboratory QC for ICP-MS Metals and Hg analyses in SDG MJNBZ1. The laboratory has selected sample MJNBZ2 for laboratory QC for ICP-MS Metals and Hg, and confirms that the sample is not a PT, blank, or rinsate sample.

Issue 3: According to the COC, samples shipped on 12/09/2024, but the collection date for samples MJNBZ3 and MJNBZ4 is 12/11/2024, indicating these samples were collected two days after the ship date. Please advise on how the laboratory may proceed.

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E. Corrective Action taken for above:

Resolution 1 : To maintain COC integrity, ASB requests no changes to the Sample IDs. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Resolution 2: Per SFAM01.1 Exhibit A, Section 5.5.4.1., the laboratory should note the issue in the SDG Narrative and proceed with analysis of the samples.

Resolution 3: Per Region 10, the laboratory should proceed with a sample collection date of 12/06/2024 for samples MJNBZ3 and MJNBZ4. 12/11/2024 was the date that the samples were originally planned to be collected, but these samples were actually collected on 12/06/2024. Please note the issue in the SDG Narrative and proceed with analysis of the samples.

F. Analytical Techniques:

All analyses were based on CLP Methodology by method SFAM01.1.

G. Calculation:

Calculation for ICP-MS Soil Sample:

Conversion of Results from µg /L or ppb to mg/kg :

$$\text{Concentration (mg/kg)} = C \times \frac{Vf}{W \times S} \times DF / 1000$$

Where,

C = Instrument value in ppb (The average of all replicate integrations)
Vf = Final digestion volume (mL)
W = Initial aliquot amount (g) (Fraction of Sample amount taken in prep)
S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

Example Calculation For Sample MJNBZ1 For Arsenic:

If C = 9.24 ppb
Vf = 500 ml
W = 1.16 g
S = 0.894 (89.4/100)
DF = 1

$$\text{Concentration (mg/kg)} = 9.24 \times \frac{500}{1.16 \times 0.894} \times 1 / 1000$$

$$= 4.4549 \text{ mg/kg}$$

$$= 4.5 \text{ mg/kg (Reported Result with Signification)}$$

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Calculation for Hg Soil Sample:

Conversion of Results from µg /L or ppb to mg/kg :

$$\text{Concentration (mg/kg)} = C \times \frac{Vf}{W \times S} \times DF / 1000$$

Where,

C = Instrument response in µg/L from the calibration curve.
Vf = Final prepared (absorbing solution) volume (mL)
W = Initial aliquot amount (g) (Fraction of Sample amount taken in prep)
S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

Example Calculation For Sample MJNBZ1:

If C =0.4461 ppb
Vf = 100 mL
W = 0.60g
S = 0.894(89.4/100)
DF = 1

$$\text{Concentration (mg/kg)} = 0.4461 \times \frac{100}{0.60 \times 0.894} \times 1 / 1000$$

$$= 0.083165 \text{ mg/kg}$$

$$= 0.083 \text{ mg/kg (Reported Result with Signification)}$$

H. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. MS Spike sample did meet requirements. Duplicate sample did meet requirements. Serial Dilution did meet requirements.

Collision cell is being used to remove potential interferences. The analytes Na, Mg, Al, K, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As are being analyzed with collision cell and analytes Be, B, Ca, Ti, Se, Sr, Zr, Mo, Ag, Cd, Sn, Sb, Ba, Tl, Pb, U are being analyzed with Non-Collision Cell. Helium gas is used for the Collision Cell analysis.

Internal Standard Association for ICP-MS analysis.

Target Analyte	Associated Internal Standard

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Antimony	159Tb
Arsenic	89Y
Barium	159Tb
Beryllium	6Li
Cadmium	159Tb
Chromium	45Sc
Cobalt	45Sc
Copper	45Sc
Lead	209Bi
Manganese	45Sc
Molybdenum	89Y
Nickel	45Sc
Selenium	89Y
Silver	159Tb
Thallium	209Bi
Vanadium	45Sc
Zinc	45Sc

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature_____ Name: Nimisha Pandya

Date _____ Title: Document Control Officer

Date: 05/11/2017	**MA:** 3157.0	**Title:** ICP-MS Analysis Plus Molybdenum
Method Source: SFAM01.1	**Method:** ICP-MS	
Matrix: Soil/Sediment		

Summary of Modification

The purpose of this modified analysis is to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte Molybdenum (Mo). Unless specifically modified by this modification, all analyses, Quality Control (QC), and reporting requirements specified in the SOW listed in your current EPA agreement remain unchanged and in full force and effect.

I. Analyte Modifications **Not applicable** ☐

Analyte	CAS Number	CRQL (mg/kg)	Spike Added (mg/kg)
Molybdenum (Mo)	7439-98-7	2.0	100

II. Calibration and QC Requirements **Not applicable** ☐

The Laboratory shall:

- Ensure that a Method Detection Limit has been determined for Mo in soil/sediment matrix by the preparation method used for the samples that meets all applicable SOW requirements.
- Perform the Initial Calibration with at least one non-blank standard at or below the modified CRQL, converted to µg/L.
- Add Mo to the ICV and CCV at appropriate mid-range concentrations.
- Evaluate the ICB and CCB against the modified CRQL converted to µg/L.
- Evaluate the Preparation Blanks using the modified CRQL.
- Perform the Matrix Spike at the level specified above. Post-digestion spike requirements are per the SOW.
- Flag the Duplicates based on the modified CRQL.
- Prepare the LCS at 2 times the modified CRQL.

III. Preparation and Method Modifications **Not applicable** ☒

IV. Special Reporting Requirements **Not applicable** ☐

The Laboratory shall:

- Add Molybdenum to Form 1.
- Report the "J" and "U" qualifiers in accordance with the requirements in Exhibit B, Section 3.4.3.2.4.2, using the modified CRQL.
- Ensure that the SDG Narrative is updated as stated in the SOW, including any technical and administrative problems encountered and the corrective action taken. These problems may include interference problems encountered during analysis, dilutions, re-analyses or re-preparations performed, and problems with the analysis of samples. Also include a discussion of any SOW Modified Analysis including a copy of the approved modification with the SDG Narrative.