284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # ME29D7
CASE # 51759
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID # P4976
MODIFIED ANALYSIS # 3227.1

A. Number of Samples and Date of Receipt

19 Soil samples were delivered to the laboratory intact on 11/23/2024

B. Parameter

Test requested for Metals CLP CLP12= Aluminum, Calcium , Iron, Magnesium , Potassium , Sodium .

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

C. Cooler Temp

Indicator Bottle**: Presence/**Absence

Cooler: 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: The sample jars for soil samples ME29E9, ME29F1 and ME29G2 were broken inside their Ziplock bags, and all sample volume spilled into the bags. The ice water that submerged the soil samples in the bag could result in crosscontamination.

Issue 3: The COCs are issing the relinquished by information.

Issue 4: Hg analysis is not scheduled for this Case but is listed on the COC.

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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 Region 5, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples with the risk of cross-contamination.

Resolution 3: Per Region 5, a revised COC has been provided with the relinquished by information. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Resolution 4: Per Region 5, the laboratory will disregard Hg analysis and proceed with the analysis of the samples as scheduled. Please note the issue in the SDG Narrative

F. Analytical Techniques:

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

Inter Element correction factors (IECs) are determined annually and correction factor are applied during ICP-AES analysis.

G. Calculation:

Calculation for ICP-AES Soil Sample:

Conversion of Results from mg/L or ppm to mg/kg (Dry Weight Basis):

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

Where,

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

Example Calculation For Sample ME29D7 For Aluminum:

If C = 15.13382 ppm
Vf = 100 ml
W = 1.10 g
S = 0.92(92.0/100)
DF = 1

$$\text{Concentration (mg/kg)} = 15.13382 \times \frac{100}{1.10 \times 0.92} \times 1$$

$$= 1495.4367 \text{ mg/kg}$$

$$= 1500 \text{ mg/kg (Reported Result with Signification)}$$

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 ME29D7 For Antimony:

If C = 0.49ppb
Vf = 500 ml
W = 1.24 g
S = 0.92(92.0/100)
DF = 1

$$\text{Concentration (mg/kg)} = 0.49 \times \frac{500}{1.24 \times 0.92} \times 1 / 1000$$

$$= 0.214761 \text{ mg/kg}$$

$$= 0.22 \text{ mg/kg (Reported Result with Signification)}$$

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. Spike sample did meet requirements except for Arsenic, Lead. 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.

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Internal Standard Association for ICP-MS analysis.

Target Analyte	Associated Internal Standard
Antimony	159Tb
Arsenic	89Y
Barium	159Tb
Beryllium	6Li
Cadmium	159Tb
Chromium	45Sc
Cobalt	45Sc
Copper	45Sc
Lead	209Bi
Manganese	45Sc
Nickel	45Sc
Selenium	89Y
Silver	159Tb
Thallium	209Bi
Titanium	45Sc
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: 10/31/2024	**MA:** 3227.1	**Title:** ICP-MS Analysis Plus Titanium
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 Titanium (Ti). 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)	MDL (mg/kg)	Spike Added (mg/kg)
Titanium (Ti)	7440-32-6	1.0	<1.0	50

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

The Laboratory shall:

- Ensure that a Method Detection Limit has been determined for Ti in soil/sediment matrix by the preparation method used for the samples that is less than the CRQL.
- Perform the Initial Calibration with at least one non-blank standard at or below the modified CRQL, converted to µg/L.
- Add Ti 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 Titanium 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.