284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # E29Y8
CASE # 51878
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID # P4902

A. Number of Samples and Date of Receipt

02 Soil samples were delivered to the laboratory intact on 11/16/2024.

B. Parameters

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

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

C. Cooler Temp

Indicator Bottle**: Presence/**Absence

Cooler: 2.0^{o}C

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

Issue 1: SDGs E2A11, E2A12 and E29Y8 require laboratory QC. The laboratory would like to use sample E2A12 for Laboratory QC of PEST, ARO, SVOA, SVOA SIM, ICP-MS, ICP-AES and Hg analysis. The sample listed on the COC for Laboratory QC has already been used in another SDG and sample E2A12 is not a blank, rinsate or PT sample.

Issue 2: SDGs E2A11, E2A12 and E29Y8 require laboratory QC and there is no extra volume for Laboratory QC of soil VOA. The laboratory would like to proceed without Laboratory QC.

Issue 3: The sample collection year is listed as 2025 on the COC for sample E2A12.

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E. Corrective Action taken for above:

Resolution 1: Per Region 5, the laboratory will proceed sample E2A12 for Laboratory QC of Metals and organic analyses. Please 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 without Laboratory QC for soil VOA analysis.

Resolution 3: Per Region 5, the sample collection year for sample E2A12 is 2024. Please note the issue in the SDG Narrative and proceed with the analysis of the samples.

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 E29Y8 For Aluminum:

If C = 23.76372 ppm
Vf = 100 ml
W = 1.47g
S = 0.87(87/100)
DF = 1

$$\text{Concentration (mg/kg)} = 23.76372 \times \frac{100}{1.47 \times 0.87} \times 1$$

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= 1858.1374 mg/kg

= 1900 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 E29Y8 For Antimony :

If C = 0.09 ppb
Vf = 500 ml
W = 1.11 g
S = 0.87 (87/100)
DF = 1

$$\text{Concentration (mg/kg)} = 0.09 \times \frac{500}{1.11 \times 0.87} \times 1 / 1000$$

= 0.04659 mg/kg

= 0.047 mg/kg (Reported Result with Signification)

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

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Example Calculation For Sample E29Y8:

If C =0.094 ppb
Vf = 100 mL
W = 0.54g
S = 0.87(87/100)
DF = 1

$$\text{Concentration (mg/kg)} = 0.094 \times \frac{100}{0.54 \times 0.87} \times 1 / 1000$$

= 0.02000 mg/kg

= 0.020 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. Duplicate sample did meet except for Copper, Nickel Serial Dilution did meet requirements except for Copper.

Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged.

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
Antimony	159Tb
Arsenic	89Y
Barium	159Tb
Beryllium	6Li
Cadmium	159Tb

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Chromium	45Sc
Cobalt	45Sc
Copper	45Sc
Lead	209Bi
Manganese	45Sc
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