284 Sheffield Street
Mountainside, NJ 07092

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SDG NARRATIVE

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USEPA
SDG # E29X3
CASE # 51878
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB Order ID #P4879

A. Number of Samples and Date of Receipt

20 Soil samples were delivered to the laboratory intact on 11/15/2024, 11/16/2024.

B. Parameters

Test requested for Metals 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, Vanadium, Zinc, Hg.

C. Cooler Temp

Indicator Bottle**: __Presence/__**Absence

Cooler: 2.5°C, 2.3°C, 2.4°C, 2.1°C, 2.0°C

D. 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.

E. Calculation:

Calculation for ICP-AES Soil Sample:

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

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

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 E29X1 For Aluminum:

If C   = 18.14556 ppm
   Vf = 100 ml
   W = 1.39g
   S   = 0.84(84/100)
   DF = 1

$$\text{Concentration (mg/kg)} = 18.14556 \times \frac{100}{1.39 \times 0.84} \times 1$$

$$= 1554.09 \text{ mg/kg}$$

$$= 1600 \text{ mg/kg (Reported Result with Signification)}$$

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

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Example Calculation For Sample E29X1 For Arsenic:

If C = 4.38 ppb
Vf = 500 ml
W = 1.30 g
S = 0.84(84/100)
DF = 1

Concentration (mg/kg) = 4.38 x $\dfrac{500}{1.30 \text{ x } 0.84}$ x 1 / 1000

= 2.0054 mg/kg

= 2.0 mg/kg (Reported Result with Signification)

Calculation for Hg Soil Sample:

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

Concentration (mg/kg) = C x $\dfrac{Vf}{W \text{ x } S}$ x 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 E29X1:

If C = 0.3069 ppb
Vf = 100 mL
W = 0.50g
S = 0.84(84/100)
DF = 21

Concentration (mg/kg) = 0.3069 x $\dfrac{100}{0.50 \text{ x } 0.84}$ x 1 / 1000

= 0.0730 mg/kg

= 0.073 mg/kg (Reported Result with Signification)

F. 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 requirements except for Chromium. 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
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

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