SDG COVER PAGE

Lab Name: Alliance Technical Group, LLC Contract: 68HERH20D0011

Lab Code: ACE Case No.: 51779 MA No.: 3225.1,3226.1 SDG No.: MYCZH9

SOW No. : SFAM01.1

| EPA Sample No. | Lab Sample Id | Analysis Method ICP-AES | ICP-MS | Mercury | Cyanide |
|---|---|---|---|---|---|
| MYCZH9 | P5189-01 | X | X | | |
| MYCZJ0 | P5189-02 | X | X | | |
| MYCZJ1 | P5189-03 | X | X | | |
| MYCZJ2 | P5189-04 | X | X | | |
| MYCZJ3 | P5189-05 | X | X | | |
| MYCZJ4 | P5189-06 | X | X | | |
| MYCZJ5 | P5189-07 | X | X | | |
| MYCZJ6 | P5189-08 | X | X | | |
| MYCZJ7 | P5189-09 | X | X | | |
| MYCZJ8 | P5189-10 | X | X | | |
| MYCZJ9 | P5189-11 | X | X | | |
| MYCZK0 | P5189-12 | X | X | | |
| MYCZK1 | P5189-13 | X | X | | |
| MYCZK2 | P5189-14 | X | X | | |
| MYCZK3 | P5189-15 | X | X | | |
| MYCZK4 | P5189-16 | X | X | | |
| MYCZK5 | P5189-17 | X | X | | |
| MYCZK6 | P5189-18 | X | X | | |
| MYCZK7 | P5189-19 | X | X | | |
| MYCZK8 | P5189-20 | X | X | | |
| MYCZK8D | P5189-21 | X | X | | |
| MYCZK8S | P5189-22 | X | X | | |

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the SDG Narrative. All edits and manual integrations have been peer-reviewed. Release of the data contained in this hardcopy Complete SDG File and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: _____

Date: _____ Title: _____

68HERH20D0011

SDG # MYCZH9

**USEPA CLP COC (LAB COPY)**
DateShipped: 12/5/2024
CarrierName: FedEx
AirbillNo: 7704 9478 1117

**CHAIN OF CUSTODY RECORD**

Case #: 51779
Cooler #: 51779-118

**No: 9-091824-120515-0118**
Lab: Alliance Technical Group LLC
Lab Contact: Max Bonner
Lab Phone: 601-264-2854

| Sample Identifier | CLP Sample No. | Matrix/Sampler | Coll. Method | Analysis/Turnaround (Days) | Tag/Preservative/Bottles | Location | Collection Date/Time | For Lab Use Only |
|---|---|---|---|---|---|---|---|---|
| O13-A-0004-01 | MYCZH9 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7288 (None) (1) | O13-A-0004 | 09/17/2024 09:04 | |
| 90285-A-007-01 | MYCZJ0 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7289 (None) (1) | 90285-A-007 | 09/17/2024 09:19 | |
| 90285-A-006-02 | MYCZJ1 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7290 (None) (1) | 90285-A-006 | 09/17/2024 09:21 | |
| 90285-A-006-01 | MYCZJ2 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7291 (None) (1) | 90285-A-006 | 09/17/2024 09:21 | |
| 90285-A-005-01 | MYCZJ3 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7292 (None) (1) | 90285-A-005 | 09/17/2024 09:23 | |
| 90285-A-002-01 | MYCZJ4 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7293 (None) (1) | 90285-A-002 | 09/17/2024 09:27 | |
| 90285-A-008-01 | MYCZJ5 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7294 (None) (1) | 90285-A-008 | 09/17/2024 09:30 | |
| 90285-A-009-01 | MYCZJ6 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7295 (None) (1) | 90285-A-009 | 09/17/2024 09:33 | |
| 90285-A-001-01 | MYCZJ7 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7296 (None) (1) | 90285-A-001 | 09/17/2024 09:36 | |
| 90285-A-004-01 | MYCZJ8 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7297 (None) (1) | 90285-A-004 | 09/17/2024 09:39 | |

Special Instructions: Percent solids required for every sample, Use MAs 3225 and 3226. Lab should select samples for Lab QC. ICP-AES 11+Metals:Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn ICP-MS 11+ Metals: Ag, As, Ba,Be, Cd, Co, Cr, Cu, Ni, Pb, Sb, Se,Tl, V, Zn

**Shipment for Case Complete? N**

**Samples Transferred From Chain of Custody #**

Analysis Key: ICP-AES 11 ICP-MS 11=CLP ICP-AES 11 Metals and ICP-MS 11 Metals

| Items/Reason | Relinquished by (Signature and Organization) | Date/Time | Received by (Signature and Organization) | Date/Time | Sample Condition Upon Receipt |
|---|---|---|---|---|---|
| Ship to Lab | Carolina Cezeine Weston | 12/05/2024 13:00 | | 1010 12-6-24 | Lf. Can #1 9.8° Custody Seal Intact no temp Blk, no ice |
| | | | | | |
| | | | | | |
| | | | | | |

**USEPA CLP COC (LAB COPY)**

DateShipped: 12/5/2024
CarrierName: FedEx
AirbillNo: 7704 9478 1117

**CHAIN OF CUSTODY RECORD**

Case #: 51779
Cooler #: 51779-118

**No: 9-091824-120515-0118**

Lab: Alliance Technical Group LLC
Lab Contact: Max Bonner
Lab Phone: 601-264-2854

| Sample Identifier | CLP Sample No. | Matrix/Sampler | Coll. Method | Analysis/Turnaround (Days) | Tag/Preservative/Bottles | Location | Collection Date/Time | For Lab Use Only |
|---|---|---|---|---|---|---|---|---|
| 90285-A-003-01 | MYCZJ9 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7298 (None) (1) | 90285-A-003 | 09/17/2024 09:40 | |
| 170A_2-A-S003-01 | MYCZK0 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7299 (None) (1) | 170A_2-A-S003 | 09/18/2024 14:42 | |
| 170A_2-A-002-01 | MYCZK1 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7300 (None) (1) | 170A_2-A-002 | 09/18/2024 14:41 | |
| 170A_2-A-S001-01 | MYCZK2 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7301 (None) (1) | 170A_2-A-S001 | 09/18/2024 14:40 | |
| 170A_2-A-S002-02 | MYCZK3 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7302 (None) (1) | 170A_2-A-S002 | 09/18/2024 14:39 | |
| 170A_2-A-S002-01 | MYCZK4 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7303 (None) (1) | 170A_2-A-S002 | 09/18/2024 14:38 | |
| 170A_2-A-001-01 | MYCZK5 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7304 (None) (1) | 170A_2-A-001 | 09/18/2024 14:36 | |
| 2314-A-002-01 | MYCZK6 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7305 (None) (1) | 2314-A-002 | 09/18/2024 15:08 | |
| 2314-A-004-01 | MYCZK7 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7306 (None) (1) | 2314-A-004 | 09/18/2024 15:06 | |
| 2314-A-003-01 | MYCZK8 | Soil/ REAC | Grab | ICP-AES 11 ICP-MS 11(21) | 9-7307 (None) (1) | 2314-A-003 | 09/18/2024 15:05 | ae |

Special Instructions: Percent solids required for every sample, Use MAs 3225 and 3226. Lab should select samples for Lab QC. ICP-AES 11+Metals:Ag,Al,As,Ba,Be,Ca,Cd,Co,Cr,Cu,Fe,K,Mg,Mn,Na,Ni,Pb,Sb,Se,Tl,V,Zn ICP-MS 11+ Metals: Ag, As, Ba,Be, Cd, Co, Cr, Cu, Ni, Pb, Sb, Se,Tl, V, Zn

**Shipment for Case Complete? N**

**Samples Transferred From Chain of Custody #**

Analysis Key: ICP-AES 11 ICP-MS 11=CLP ICP-AES 11 Metals and ICP-MS 11 Metals

| Items/Reason | Relinquished by (Signature and Organization) | Date/Time | Received by (Signature and Organization) | Date/Time | Sample Condition Upon Receipt |
|---|---|---|---|---|---|
| Ship to Lab | Carolina Cuyano Weston | 12/05/2024 13:00 | | 1010 12-6-24 | Thermometer # 1 9.8°C |
| | | | | | Custody Seal Intact |
| | | | | | no temp blank, no TCC |
| | | | | | |

FORM DC-1

SAMPLE LOG-IN SHEET

| | | |
|---|---|---|
| Lab Name : Alliance Technical Group, LLC | | Page 1 of 1 |
| Received By (Print Name) Cassandra Pena | | Log-in Date **12/6/2024** |
| Received By (Signature) | | |
| Case Number 51779 | SDG No. MYCZH9 | MA No. 3225.1,3226.1 |

| Remarks: | |
|---|---|
| 1. Custody Seal (s) | Present, Intact |
| 2. Custody Seal Nos. | n/a |
| 3. Traffic Reports/Chain Of Custody Records | Present |
| 4. Airbill | Present |
| 5. Airbill No. and Shipping Container ID No. | 770494781117<br>1 |
| 6. Shipping Container Temperature Indicator Bottle | Absent |
| 7. Shipping Container Temperature | 9.8 Degree C |
| 8. Sample Condition | Intact |
| 9. Sample Tags Sample Tag Numbers | Absent<br>Listed on Traffic Report |
| 10. Does information on Traffic Reports/Chain of Custody Records and Sample Tags agree ? | Yes |
| 11. Date Received at Lab | 12/06/2024 |
| 12.Time Received | 10:10 |

| | EPA Sample # | Aqueous/ Water Sample pH | Corresponding Sample Tag # | Corresponding Assigned Lab # | Remarks: Condition of Sample Shipment, etc. |
|---|---|---|---|---|---|
| 1 | MYCZH9 | N/A | 9-7288 | P5189-01 | Intact |
| 2 | MYCZJ0 | N/A | 9-7289 | P5189-02 | Intact |
| 3 | MYCZJ1 | N/A | 9-7290 | P5189-03 | Intact |
| 4 | MYCZJ2 | N/A | 9-7291 | P5189-04 | Intact |
| 5 | MYCZJ3 | N/A | 9-7292 | P5189-05 | Intact |
| 6 | MYCZJ4 | N/A | 9-7293 | P5189-06 | Intact |
| 7 | MYCZJ5 | N/A | 9-7294 | P5189-07 | Intact |
| 8 | MYCZJ6 | N/A | 9-7295 | P5189-08 | Intact |
| 9 | MYCZJ7 | N/A | 9-7296 | P5189-09 | Intact |
| 10 | MYCZJ8 | N/A | 9-7297 | P5189-10 | Intact |
| 11 | MYCZJ9 | N/A | 9-7298 | P5189-11 | Intact |
| 12 | MYCZK0 | N/A | 9-7299 | P5189-12 | Intact |
| 13 | MYCZK1 | N/A | 9-7300 | P5189-13 | Intact |
| 14 | MYCZK2 | N/A | 9-7301 | P5189-14 | Intact |
| 15 | MYCZK3 | N/A | 9-7302 | P5189-15 | Intact |
| 16 | MYCZK4 | N/A | 9-7303 | P5189-16 | Intact |
| 17 | MYCZK5 | N/A | 9-7304 | P5189-17 | Intact |
| 18 | MYCZK6 | N/A | 9-7305 | P5189-18 | Intact |
| 19 | MYCZK7 | N/A | 9-7306 | P5189-19 | Intact |
| 20 | MYCZK8 | N/A | 9-7307 | P5189-20 | Intact |
| 21 | MYCZK8D | N/A | 9-7307 | P5189-21 | Intact |
| 22 | MYCZK8S | N/A | 9-7307 | P5189-22 | Intact |
| 23 | N/A | N/A | N/A | N/A | N/A |

* Contact SMO and attach record of resolution

| | |
|---|---|
| Reviewed By | Logbook No. N/A |
| Date 12/6/24 | Logbook Page No. N/A |

FORM DC-2
COMPLETE SDG FILE (CSF) INVENTORY SHEET

| | | | |
|---|---|---|---|
| LAB NAME | **Alliance Technical Group, LLC** | | |
| LAB CODE | **ACE** | | |
| CONTRACT NO. | **68HERH20D0011** | | |
| CASE NO. | **51779** | SDG NO. | **MYCZH9** |
| MA NO. | **3225.1,3226.1** | SOW NO. | **SFAM01.1** |

All documents delivered in the Complete SDG File must be original documents where possible.
(Reference - Exhibit B Section 2.4)

| | PAGE NOs: FROM | PAGE NOs: TO | CHECK LAB | CHECK REGION |
|---|---|---|---|---|
| 1 . SDG Cover Page | 1 | 1 | ✓ | |
| 2 . Traffic Report/Chain of Custody Record(s) | 2 | 3 | ✓ | |
| 3 . Sample Log-In Sheet (DC-1) | 4 | 4 | ✓ | |
| 4 . CSF Inventory Sheet (DC-2) | 5 | 7 | ✓ | |
| 5 . SDG Narrative | 8 | 17 | ✓ | |
| 6 . Communication Logs | NA | NA | ✓ | |
| 7 . Percent Solids Log | 18 | 20 | ✓ | |
| **Analysis Forms and Data (ICP-AES)** | | | | |
| 8 . Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable | 21 | 40 | ✓ | |
| 9 . Instrument raw data by instrument in analysis order | 41 | 539 | ✓ | |
| **Other Data** | | | | |
| 10 . Standard and Reagent Preparation Logs | 540 | 677 | ✓ | |
| 11 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks | 678 | 679 | ✓ | |
| 12 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks | 680 | 692 | ✓ | |
| 13 . Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions | NA | NA | ✓ | |
| 14 . Extraction Logs for TCLP and SPLP | NA | NA | ✓ | |
| 15 . Raw GPC Data | NA | NA | ✓ | |
| 16 . Raw Florisil Data | NA | NA | ✓ | |
| **Analysis Forms and Data (ICP-MS)** | | | | |
| 17 . Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable | 693 | 712 | ✓ | |
| 18 . Instrument raw data by instrument in analysis order | 713 | 1648 | ✓ | |
| **Other Data** | | | | |
| 19 . Standard and Reagent Preparation Logs | 1649 | 1779 | ✓ | |
| 20 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks | 1780 | 1781 | ✓ | |
| 21 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks | 1782 | 1790 | ✓ | |
| 22 . Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions | NA | NA | ✓ | |

| | PAGE NOs: FROM | TO | CHECK LAB | REGION |
|---|---|---|---|---|
| 23. Extraction Logs for TCLP and SPLP | NA | NA | ✓ | |
| 24. Raw GPC Data | NA | NA | ✓ | |
| 25. Raw Florisil Data | NA | NA | ✓ | |
| **Analysis Forms and Data (Mercury)** | | | | |
| 26. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable | NA | NA | ✓ | |
| 27. Instrument raw data by instrument in analysis order | NA | NA | ✓ | |
| **Other Data** | | | | |
| 28. Standard and Reagent Preparation Logs | NA | NA | ✓ | |
| 29. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks | NA | NA | ✓ | |
| 30. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks | NA | NA | ✓ | |
| 31. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions | NA | NA | ✓ | |
| 32. Extraction Logs for TCLP and SPLP | NA | NA | ✓ | |
| 33. Raw GPC Data | NA | NA | ✓ | |
| 34. Raw Florisil Data | NA | NA | ✓ | |
| **Analysis Forms and Data (Cyanide)** | | | | |
| 35. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable | NA | NA | ✓ | |
| 36. Instrument raw data by instrument in analysis order | NA | NA | ✓ | |
| **Other Data** | | | | |
| 37. Standard and Reagent Preparation Logs | NA | NA | ✓ | |
| 38. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks | NA | NA | ✓ | |
| 39. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks | NA | NA | ✓ | |
| 40. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions | NA | NA | ✓ | |
| 41. Extraction Logs for TCLP and SPLP | NA | NA | ✓ | |
| 42. Raw GPC Data | NA | NA | ✓ | |
| 43. Raw Florisil Data | NA | NA | ✓ | |

| | PAGE NOs: FROM | TO | CHECK LAB | REGION |
|---|---|---|---|---|
| **Additional** | | | | |
| 44. EPA Shipping/Receiving Documents | | | | |
| Airbill (No. of Shipments 1 ) | 1791 | 1791 | ✓ | |
| Sample Tags | NA | NA | ✓ | |
| Sample Log-In Sheet (Lab) | 1792 | 1794 | ✓ | |
| 45. Misc. Shipping/Receiving Records (list all individual records) | | | | |
| | NA | NA | ✓ | |
| | | | | |
| | | | | |
| 46. Internal Lab Sample Transfer Records and Tracking Sheets (describe or list) | | | | |
| | 1795 | 1798 | ✓ | |
| | | | | |
| 47. Other Records and related Communication Logs (describe or list) | | | | |
| | NA | NA | ✓ | |
| | | | | |
| | | | | |

48. Comments:

| | | | |
|---|---|---|---|
| Completed by: (CLP Lab) | | Nimisha Pandya, Document Control Officer | |
| | (Signature) | (Print Name & Title) | (Date) |
| Audited by: (EPA) | | | |
| | (Signature) | (Print Name & Title) | (Date) |

**284 Sheffield Street**
**Mountainside, NJ 07092**

## SDG NARRATIVE

**USEPA**
**SDG # MYCZH9**
**CASE # 51779**
**CONTRACT # 68HERH20D0011**
**SOW# SFAM01.1**
**LAB NAME: Alliance Technical Group, LLC**
**LAB CODE: ACE**
**LAB ORDER ID # P5189**
**MODIFIED ANALYSIS #3225.1, 3226.1**

**A. Number of Samples and Date of Receipt**

20 Soil samples was delivered to the laboratory intact on 12/06/2024

B. Parameters

Test requested for Metals CLP FULL = Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc.

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

**C. Cooler Temp**

Indicator Bottle**:** Presence**/Absence**

Cooler: 9.8$^{o}$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.

**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.

**F. Analytical Techniques:**

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

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**Mountainside, NJ 07092**

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 MYCZH9 For Antimony :**

If C = 0.0183497 ppm
Vf = 100 ml
W = 1.33 g
S = 0.962(96.2/100)
DF = 2

$$\text{Concentration (mg/kg)} = 0.0183497 \times \frac{100}{1.33 \times 0.962} \times 2$$

$$= 2.868350 \text{ mg/kg}$$

= 2.9 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)

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**Mountainside, NJ 07092**

S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

**Example Calculation For Sample MYCZH9 For Antimony:**

If C = 0.08 ppb
Vf = 500 ml
W = 1.33 g
S = 0.962(96.2/100)
DF = 1

$$\text{Concentration (mg/kg)} = 0.08 \times \frac{500}{1.33 \times 0.962} \times 1 / 1000$$

$$= 0.031263 \text{ mg/kg}$$

= 0.031 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 (MYCZK8S) did meet requirements except for Arsenic. 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 |
|---|---|
| Antimony | 159Tb |
| Arsenic | 89Y |
| Barium | 159Tb |
| Beryllium | 6Li |
| Cadmium | 159Tb |
| Chromium | 45Sc |
| Cobalt | 45Sc |

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**Mountainside, NJ 07092**

| | |
|---|---|
| Copper | 45Sc |
| Lead | 209Bi |
| 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:** 09/11/2024 | **MA:** 3225.1 | **Title:** ICP-MS with Modified Preparation Method and Analysis of Soils with Additional Laboratory QC |
|---|---|---|
| **Method Source:** SFAM01.1 | **Method:** ICP-MS | |
| **Matrix:** Soil/Sediment | | |

**Summary of Modification**

The purpose of this modified analysis is to prepare samples by EPA Draft Method 3050C (see below) with additional modified LCS and Matrix Spikes and analyze for the scheduled target analytes by ICP-MS. 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** ☒

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

The Laboratory shall:

- Use the Method Detection Limits (MDLs) determined for routine soil analyses (i.e., Method 200.8) to report the results for these analyses. The Laboratory is NOT required to perform an MDL study for Draft Method 3050C.
- Prepare and analyze an additional Laboratory Control Sample (LCS) spiked at the CRQL. Percent Recovery limits do NOT apply to this LCS and no corrective actions are required.
- Prepare a Matrix Spike spiked at three times the levels specified in the SOW.
- Prepare and analyze an additional Matrix Spike sample spiked at five times the levels specified for this Modified Analysis (i.e., 15x the levels specified in the SOW).
- Post-Digestion Spike requirements apply to the 5x Matrix Spike only.
- Post-Digestion Spike corrective actions apply to Sb.

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

The Laboratory shall:

- Prepare and analyze the sample by EPA Draft Method 3050C as follows:
  - Mix sample thoroughly and transfer 1.00 – 1.50 g to a digestion vessel.
  - Add 10 mL 1:1 $HNO_3$ and 5 mL 1:1 HCl, heat the sample at 95°C (±3°C) and reflux 10-15 minutes.
  - Add 5 mL concentrated $HNO_3$ and reflux for 30 minutes at 95°C (±3°C), repeat until digestion complete.
  - Concentrate sample to 5 mL or reflux without boiling for 2 hours at 95°C (±3°C).
  - Cool sample, add 2mL water and 3 mL 30% $H_2O_2$. Heat at 95°C (±3°C) and add additional 1 mL aliquots of 30% $H_2O_2$ until effervescence is minimal.
  - Reduce volume to 5 mL or reflux without boiling for 2 hours at 95°C (±3°C).
  - Dilute to 100 mL with water, centrifuge or filter as necessary prior to analysis.
- The same sample extracts can be used for ICP-AES analysis. Separate Matrix Spikes and LCS will need to be prepared for both ICP-AES and ICP-MS analyses.
- Analyze the samples starting at an initial 5x dilution. Subsequently, dilute samples as necessary to bring the analyte concentrations within the calibration range of the instrument per the SOW.
- Method Blanks, both LCSs, and all instrument QC are to be analyzed undiluted.

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

The Laboratory shall:

- Ensure the SDG Narrative is updated as stated in the SOW, including any technical and administrative problems encountered and the resolution or corrective actions taken. These problems may include interference problems encountered during analysis, dilutions, re-analyses and/or re-preparations performed, and problems with the analysis of samples. Also include a discussion of any SOW Modified Analyses, including a copy of the approved modification form with the SDG Narrative.
- Initial analysis data are reported with a dilution factor of 1.0 and a final volume of 500 mL, per the SOW.
- Report the additional LCS as “LCSD” in the raw data and in the EDD with QCType “Laboratory_Control_Sample_Duplicate”.
- Report the additional Matrix Spike with an “SRE” suffix in the raw data and EDD.
- Report any Post-Digestion Spike of the additional 5x Matrix Spike with an “ARE” suffix.

| **Date:** 09/11/2024 | **MA:** 3226.1 | **Title:** ICP-AES with Modified Preparation Method and Analysis of Soils with Additional Laboratory QC |
|---|---|---|
| **Method Source:** SFAM01.1 | **Method:** ICP-AES | |
| **Matrix:** Soil/Sediment | | |

**Summary of Modification**

The purpose of this modified analysis is to prepare samples by EPA Draft Method 3050C (see below) with additional modified LCS and Matrix Spikes and analyze for the scheduled target analytes by ICP-AES. 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** ☒

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

The Laboratory shall:

- Use the Method Detection Limits determined for routine soil analyses (i.e., Method 3050B) to report the results for these analyses. The Laboratory is NOT required to perform an MDL study for Draft Method 3050C.
- Prepare and analyze an additional Laboratory Control Sample (LCS) spiked at the CRQL. Percent Recovery limits do NOT apply to this LCS and no corrective actions are required.
- Prepare a Matrix Spike spiked at two times the levels specified in the SOW.
- Post-Digestion Spike requirements apply to the 2x Matrix Spike.
- Post-Digestion Spike corrective actions apply to Sb.

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

The Laboratory shall:

- Prepare and analyze the sample by EPA Draft Method 3050C as follows:
  - Mix sample thoroughly and transfer 1.00 – 1.50 g to a digestion vessel.
  - Add 10 mL 1:1 $HNO_3$ and 5 mL 1:1 HCl, heat the sample at 95°C (±3°C) and reflux 10 -15 minutes.
  - Add 5 mL concentrated $HNO_3$ and reflux for 30 minutes at 95°C (±3°C), repeat until digestion complete.
  - Concentrate sample to 5 mL or reflux without boiling for 2 hours at 95°C (±3°C).
  - Cool sample, add 2mL water and 3 mL 30% $H_2O_2$. Heat at 95°C (±3°C) and add additional 1 mL aliquots of 30% $H_2O_2$ until effervescence is minimal.
  - Reduce volume to 5 mL or reflux without boiling for 2 hours at 95°C (±3°C).
  - Dilute to 100 mL with water, centrifuge or filter as necessary prior to analysis.
- The same sample extracts can also be used for ICP-MS analysis. Separate Matrix Spikes and LCS will need to be prepared for both ICP-AES and ICP-MS analyses.
- Analyze the samples starting at an initial 2x dilution. Subsequently, dilute samples as necessary to bring the analyte concentrations within the calibration range of the instrument per the SOW.
- Verify that the dilution was adequate to reduce interferents to within the method calibration range. This can optionally be verified by visual verification of the spectrogram or by analysis of a serial dilution. There are other acceptable means to provide assurance, e.g. some software may automatically provide guidance to the analyst.
- Method Blanks, both LCS, and all instrument QC are to be analyzed undiluted.

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

The Laboratory shall:

- Ensure the SDG Narrative is updated as stated in the SOW, including any technical and administrative problems encountered and the resolution or corrective actions taken. These problems may include interference problems encountered during analysis, dilutions, re-analyses and/or re-preparations performed, and problems with the analysis of samples. Also include a discussion of any SOW Modified Analyses, including a copy of the approved modification form with the SDG Narrative.
- Initial analysis data are reported with a dilution factor of 2.0 and a final volume of 100 mL, per the SOW.
- Report the additional LCS as "LCSD" in the raw data and in the EDD with QCType "Laboratory_Control_Sample_Duplicate".
- Ensure that up-to-date Interelement Correction Factors (IECs) are provided with the data package.

| Element, Wavelength and Order | Use? | # IECs | IEC | k1 | k2 | Calc-in-fit? |
|---|---|---|---|---|---|---|
| As 189.042 {479} | ☒ | 1 | Fe | -0.000064 | 0.000000 | No |
| Tl 190.856 {477} | ☒ | 5 | Mo | -0.002450 | 0.000000 | No |
| | | | Co | 0.002248 | 0.000000 | No |
| | | | Ti | -0.000500 | 0.000000 | No |
| | | | Mn | 0.000370 | 0.000000 | No |
| | | | V | -0.012340 | 0.000000 | No |
| Pb 220.353 {453} | ☒ | 6 | Mo | -0.001480 | 0.000000 | No |
| | | | Al | -0.000075 | 0.000000 | No |
| | | | Cu | 0.001400 | 0.000000 | No |
| | | | Fe | 0.000030 | 0.000000 | No |
| | | | Mn | 0.000340 | 0.000000 | No |
| | | | Ni | 0.000630 | 0.000000 | No |
| Se 196.090 {472} | ☒ | 3 | Fe | -0.000308 | 0.000000 | No |
| | | | Mn | 0.000470 | 0.000000 | No |
| | | | Co | -0.000630 | 0.000000 | No |
| Sb 206.833 {463} | ☒ | 4 | Cr | 0.010700 | 0.000000 | No |
| | | | V | -0.001168 | 0.000000 | No |
| | | | Mo | -0.002850 | 0.000000 | No |
| | | | Ni | -0.000440 | 0.000000 | No |
| Al 396.152 { 85} | ☒ | 1 | Mo | 0.037230 | 0.000000 | No |
| Ba 493.409 { 68} | ☐ | None | | | | |
| Be 234.861 {144} | ☒ | 3 | Mo | -0.000320 | 0.000000 | No |
| | | | Fe | 0.000010 | 0.000000 | No |
| | | | Mn | -0.000047 | 0.000000 | No |
| Cd 214.438 {457} | ☒ | 1 | Fe | 0.000040 | 0.000000 | No |
| Ca 373.690 { 90} | ☐ | None | | | | |
| Cr 267.716 {126} | ☒ | 1 | Mn | 0.000160 | 0.000000 | No |
| Co 228.616 {448} | ☒ | 2 | Ti | 0.001840 | 0.000000 | No |
| | | | Mo | -0.001230 | 0.000000 | No |
| Cu 324.754 {104} | ☒ | 4 | Co | -0.000796 | 0.000000 | No |
| | | | Fe | -0.000100 | 0.000000 | No |
| | | | Mn | 0.000345 | 0.000000 | No |
| | | | Ni | 0.000895 | 0.000000 | No |
| Fe 259.837 {130} | ☐ | None | | | | |
| Mn 257.610 {131} | ☒ | 1 | Ni | 0.000897 | 0.000000 | No |
| Mg 279.079 {121} | ☐ | None | | | | |
| Ni 231.604 {446} | ☐ | None | | | | |
| Ag 328.068 {103} | ☒ | 3 | Fe | -0.000100 | 0.000000 | No |
| | | | Mn | 0.000146 | 0.000000 | No |
| | | | V | -0.000889 | 0.000000 | No |
| Na 818.326 { 41} | ☐ | None | | | | |
| V 292.402 {115} | ☒ | 2 | Mo | -0.008480 | 0.000000 | No |
| | | | Cr | -0.002220 | 0.000000 | No |
| Zn 206.200 {464} | ☐ | None | | | | |
| Zn 213.856 {158} | ☒ | 1 | Ni | 0.007280 | 0.000000 | No |
| K 769.896 { 44} | ☐ | None | | | | |
| P 177.495 {490} | ☒ | 2 | Ni | 0.001640 | 0.000000 | No |
| | | | Cu | -0.012530 | 0.000000 | No |
| B 249.678 {135} | ☒ | 3 | Co | 0.002880 | 0.000000 | No |
| | | | V | -0.002000 | 0.000000 | No |
| | | | Fe | -0.001360 | 0.000000 | No |
| Mo 202.030 {467} | ☐ | None | | | | |
| S 182.034 {485} | ☒ | 2 | Mo | -0.008000 | 0.000000 | No |
| | | | Mn | 0.002700 | 0.000000 | No |

| Element, Wavelength and Order | Use? | # IECs | IEC | k1 | k2 | Calc-in-fit? |
|---|---|---|---|---|---|---|
| Si 251.611 {134} | ☒ | 2 | Mo | 0.010520 | 0.000000 | No |
| | | | Ti | 0.005650 | 0.000000 | No |
| Sn 189.989 {478} | ☐ | None | | | | |
| Ti 336.121 {100} | ☒ | 1 | Ni | -0.001000 | 0.000000 | No |
| Li 670.784 { 50} | ☐ | None | | | | |
| Y 224.306 {450}* | ☐ | None | | | | |
| Y 360.073 { 94}* | ☐ | None | | | | |
| Y 371.030 { 91}* | ☐ | None | | | | |
| Y 224.306 {150}* | ☐ | None | | | | |
| In 230.606 {446}* | ☐ | None | | | | |
| Sr 407.771 { 83} | ☐ | None | | | | |

# PERCENT SOLID

**Supervisor:** Iwona
**Analyst:** jignesh
**Date:** 12/11/2024

**OVENTEMP IN Celsius(°C):** 107
**Time IN:** 13:20
**In Date:** 12/10/2024
**Weight Check 1.0g:** 1.00
**Weight Check 10g:** 10.00
**OvenID:** M OVEN#1

**OVENTEMP OUT Celsius(°C):** 103
**Time OUT:** 07:44
**Out Date:** 12/11/2024
**Weight Check 1.0g:** 1.00
**Weight Check 10g:** 10.00
**BalanceID:** M SC-4
**Thermometer ID:** % SOLID- OVEN

**QC:** LB133860

| Lab ID | Client SampleID | Dish # | Dish Wt(g) (A) | Sample Wt(g) | Dish + Sample Wt(g) (B) | Dish+Dry Sample Wt(g) (C) | % Solid | Comments |
|---|---|---|---|---|---|---|---|---|
| P5189-01 | MYCZH9 | 1 | 1.18 | 8.50 | 9.68 | 9.36 | 96.2 | |
| P5189-02 | MYCZJ0 | 2 | 1.16 | 8.49 | 9.65 | 9.57 | 99.1 | |
| P5189-03 | MYCZJ1 | 3 | 1.18 | 8.58 | 9.76 | 9.48 | 96.7 | |
| P5189-04 | MYCZJ2 | 4 | 1.17 | 8.75 | 9.92 | 9.64 | 96.8 | |
| P5189-05 | MYCZJ3 | 5 | 1.16 | 8.64 | 9.8 | 9.64 | 98.1 | |
| P5189-06 | MYCZJ4 | 6 | 1.16 | 8.71 | 9.87 | 9.69 | 97.9 | |
| P5189-07 | MYCZJ5 | 7 | 1.17 | 8.34 | 9.51 | 9.33 | 97.8 | |
| P5189-08 | MYCZJ6 | 8 | 1.17 | 8.39 | 9.56 | 9.39 | 98.0 | |
| P5189-09 | MYCZJ7 | 9 | 1.18 | 8.72 | 9.9 | 9.74 | 98.2 | |
| P5189-10 | MYCZJ8 | 10 | 1.18 | 8.58 | 9.76 | 9.55 | 97.6 | |
| P5189-11 | MYCZJ9 | 11 | 1.16 | 8.53 | 9.69 | 9.51 | 97.9 | |
| P5189-12 | MYCZK0 | 12 | 1.19 | 8.44 | 9.63 | 9.21 | 95.0 | |
| P5189-13 | MYCZK1 | 13 | 1.18 | 8.42 | 9.6 | 9.47 | 98.5 | |
| P5189-14 | MYCZK2 | 14 | 1.18 | 8.65 | 9.83 | 9.36 | 94.6 | |
| P5189-15 | MYCZK3 | 15 | 1.15 | 8.67 | 9.82 | 9.56 | 97.0 | |
| P5189-16 | MYCZK4 | 16 | 1.19 | 8.52 | 9.71 | 9.41 | 96.5 | |
| P5189-17 | MYCZK5 | 17 | 1.17 | 8.45 | 9.62 | 9.26 | 95.7 | |
| P5189-18 | MYCZK6 | 18 | 1.16 | 8.59 | 9.75 | 9.47 | 96.7 | |
| P5189-19 | MYCZK7 | 19 | 1.18 | 8.40 | 9.58 | 9.3 | 96.7 | |
| P5189-20 | MYCZK8 | 20 | 1.17 | 8.72 | 9.89 | 9.71 | 97.9 | |
| P5189-21 | MYCZK8D | 21 | 1.17 | 8.72 | 9.89 | 9.71 | 97.9 | |
| P5189-22 | MYCZK8S | 22 | 1.17 | 8.72 | 9.89 | 9.71 | 97.9 | |

$$\% \text{ Solid} = \frac{(C-A) * 100}{(B-A)}$$

# WORKLIST(Hardcopy Internal Chain)

VB 133860

**WorkList Name :** %1-p189 **WorkList ID :** 186180 **Department :** Wet-Chemistry **Date :** 12-10-2024 11:23:23

| Sample | Customer Sample | Matrix | Test | Preservative | Customer | Raw Sample Storage Location | Collect Date | Method |
|---|---|---|---|---|---|---|---|---|
| P5189-01 | MYCZH9 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-02 | MYCZJ0 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-03 | MYCZJ1 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-04 | MYCZJ2 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-05 | MYCZJ3 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-06 | MYCZJ4 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-07 | MYCZJ5 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-08 | MYCZJ6 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-09 | MYCZJ7 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-10 | MYCZJ8 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-11 | MYCZJ9 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-12 | MYCZK0 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/17/2024 | Chemtech -SO |
| P5189-13 | MYCZK1 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/18/2024 | Chemtech -SO |
| P5189-14 | MYCZK2 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/18/2024 | Chemtech -SO |
| P5189-15 | MYCZK3 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/18/2024 | Chemtech -SO |
| P5189-16 | MYCZK4 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/18/2024 | Chemtech -SO |
| P5189-17 | MYCZK5 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/18/2024 | Chemtech -SO |
| P5189-18 | MYCZK6 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/18/2024 | Chemtech -SO |
| P5189-19 | MYCZK7 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/18/2024 | Chemtech -SO |
| P5189-20 | MYCZK8 | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/18/2024 | Chemtech -SO |
| P5189-21 | MYCZK8D | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/18/2024 | Chemtech -SO |

**Date/Time** 12-10-24 12:35

**Raw Sample Received by:**

**Raw Sample Relinquished by:**

**Date/Time** 12-10-24 13:25

**Raw Sample Received by:**

**Raw Sample Relinquished by:**

# WORKLIST(Hardcopy Internal Chain)

JB 13860

**WorkList Name :** %1-p189 **WorkList ID :** 186180 **Department :** Wet-Chemistry **Date :** 12-10-2024 11:23:23

| Sample | Customer Sample | Matrix | Test | Preservative | Customer | Raw Sample Storage Location | Collect Date | Method |
|---|---|---|---|---|---|---|---|---|
| P5189-22 | MYCZK8S | Solid | Percent Solids | Cool 4 deg C | USEP01 | C33 | 09/18/2024 | Chemtech -SO |

**Date/Time** 12-10-24 1235

**Raw Sample Received by:** JB WDC

**Raw Sample Relinquished by:** CP



**Date/Time** 12-10-24 1325

**Raw Sample Received by:** CP

**Raw Sample Relinquished by:** JB WDC