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.: MYCZG9

SOW No. : SFAM01.1

EPA Sample No.	Lab Sample Id	Analysis Method ICP-AES	ICP-MS	Mercury	Cyanide
MYCZG9	P5188-01	X	X		
MYCZH0	P5188-02	X	X		
MYCZH1	P5188-03	X	X		
MYCZH2	P5188-04	X	X		
MYCZH3	P5188-05	X	X		
MYCZH4	P5188-06	X	X		
MYCZH5	P5188-07	X	X		
MYCZH6	P5188-08	X	X		
MYCZH7	P5188-09	X	X		
MYCZH8	P5188-10	X	X		
MYCZQ9	P5188-11	X	X		
MYCZR0	P5188-12	X	X		
MYCZR1	P5188-13	X	X		
MYCZR2	P5188-14	X	X		
MYCZR3	P5188-15	X	X		
MYCZR4	P5188-16	X	X		
MYCZR5	P5188-17	X	X		
MYCZR6	P5188-18	X	X		
MYCZR7	P5188-19	X	X		
MYCZR8	P5188-20	X	X		
MYCZR8D	P5188-21	X	X		
MYCZR8S	P5188-22	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: _____

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
O12-A-S0002-01	MYCZG9	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7278 (None) (1)	O12-A-S0002	09/17/2024 11:29	
O13-A-0008-01	MYCZH0	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7279 (None) (1)	O13-A-0008	09/17/2024 08:44	
O13-A-0003-01	MYCZH1	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7280 (None) (1)	O13-A-0003	09/17/2024 08:45	
O13-A-0010-03	MYCZH2	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7281 (None) (1)	O13-A-0010	09/17/2024 08:48	
O13-A-0009-01	MYCZH3	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7282 (None) (1)	O13-A-0009	09/17/2024 08:50	
O13-A-0001-01	MYCZH4	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7283 (None) (1)	O13-A-0001	09/17/2024 08:54	
O13-A-0005-01	MYCZH5	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7284 (None) (1)	O13-A-0005	09/17/2024 08:56	
O13-A-0007-01	MYCZH6	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7285 (None) (1)	O13-A-0007	09/17/2024 08:57	
O13-A-0002-01	MYCZH7	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7286 (None) (1)	O13-A-0002	09/17/2024 09:01	
O13-A-0006-01	MYCZH8	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7287 (None) (1)	O13-A-0006	09/17/2024 09:02	

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	Caroline Cayemo Weston	12/05/2024 13:00		10 10 12-6-24	IR-Cont 1 9.8°
					Custody Seal Intact
					NO Temp / NO ICE

USEPA CLP COC (LAB COPY)
DateShipped: 12/5/2024
CarrierName: FedEx
AirbillNo: 7704 9477 9210

CHAIN OF CUSTODY RECORD

Case #: 51779
Cooler #: 51779-119

No: 9-091924-162923-0119
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
90292-A-002-01	MYCZQ9	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7358 (None) (1)	90292-A-002	09/18/2024 10:11	
90292-A-004-01	MYCZR0	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7359 (None) (1)	90292-A-004	09/18/2024 10:07	
90292-A-003-01	MYCZR1	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7360 (None) (1)	90292-A-003	09/18/2024 10:05	
90301-A-005-01	MYCZR2	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7361 (None) (1)	90301-A-005	09/18/2024 11:29	
90301-A-004-01	MYCZR3	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7362 (None) (1)	90301-A-004	09/18/2024 11:28	
90301-A-002-01	MYCZR4	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7363 (None) (1)	90301-A-002	09/18/2024 11:27	
90301-A-003-01	MYCZR5	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7364 (None) (1)	90301-A-003	09/18/2024 11:25	
90301-A-006-02	MYCZR6	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7365 (None) (1)	90301-A-006	09/18/2024 11:23	
90301-A-006-01	MYCZR7	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7366 (None) (1)	90301-A-006	09/18/2024 11:21	
90301-A-001-01	MYCZR8	Soil/ REAC	Grab	ICP-AES 11 ICP-MS 11(21)	9-7367 (None) (1)	90301-A-001	09/18/2024 11:20	[illegible]

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	Carowmer Cyerno Weston	12/05/2024 13:00	[illegible]	1010 12-6-24	[illegible] 9.1 C
					Custody Seal Intact
					NO Temp Blank/NO ICE

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page 1 of 2
Received By (Print Name) [signature]		Log-in Date **12/6/2024**
Received By (Signature) [signature]		
Case Number 51779	SDG No. MYCZG9	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 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 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	MYCZG9	N/A	9-7278	P5188-01	Intact
2	MYCZH0	N/A	9-7279	P5188-02	Intact
3	MYCZH1	N/A	9-7280	P5188-03	Intact
4	MYCZH2	N/A	9-7281	P5188-04	Intact
5	MYCZH3	N/A	9-7282	P5188-05	Intact
6	MYCZH4	N/A	9-7283	P5188-06	Intact
7	MYCZH5	N/A	9-7284	P5188-07	Intact
8	MYCZH6	N/A	9-7285	P5188-08	Intact
9	MYCZH7	N/A	9-7286	P5188-09	Intact
10	MYCZH8	N/A	9-7287	P5188-10	Intact
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A

* Contact SMO and attach record of resolution

Reviewed By	[signature]	Logbook No.	N/A
Date	12/6/24	Logbook Page No.	N/A

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page 2 of 2
Received By (Print Name) Caganova Rena		Log-in Date **12/6/2024**
Received By (Signature)		
Case Number 51779	SDG No. MYCZG9	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.	770494779210 2
6. Shipping Container Temperature Indicator Bottle	Absent
7. Shipping Container Temperature	9.1 Degree C
8. Sample Condition	Intact
9. Sample Tags Sample Tag Numbers	Absent 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		Remarks: Condition of Sample Shipment, etc.
			Sample Tag #	Assigned Lab #	
1	MYCZQ9	N/A	9-7358	P5188-11	Intact
2	MYCZR0	N/A	9-7359	P5188-12	Intact
3	MYCZR1	N/A	9-7360	P5188-13	Intact
4	MYCZR2	N/A	9-7361	P5188-14	Intact
5	MYCZR3	N/A	9-7362	P5188-15	Intact
6	MYCZR4	N/A	9-7363	P5188-16	Intact
7	MYCZR5	N/A	9-7364	P5188-17	Intact
8	MYCZR6	N/A	9-7365	P5188-18	Intact
9	MYCZR7	N/A	9-7366	P5188-19	Intact
10	MYCZR8	N/A	9-7367	P5188-20	Intact
11	MYCZR8D	N/A	9-7367	P5188-21	Intact
12	MYCZR8S	N/A	9-7367	P5188-22	Intact
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
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.	**MYCZG9**
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	5	✓	
4 . CSF Inventory Sheet (DC-2)	6	8	✓	
5 . SDG Narrative	9	18	✓	
6 . Communication Logs	NA	NA	✓	
7 . Percent Solids Log	19	21	✓	
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	22	41	✓	
9 . Instrument raw data by instrument in analysis order	42	364	✓	
Other Data				
10 . Standard and Reagent Preparation Logs	365	502	✓	
11 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	503	504	✓	
12 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	505	522	✓	
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	523	542	✓	
18 . Instrument raw data by instrument in analysis order	543	1316	✓	
Other Data				
19 . Standard and Reagent Preparation Logs	1317	1447	✓	
20 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	1448	1449	✓	
21 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	1450	1458	✓	
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 2)	1459	1460	✓	
Sample Tags	NA	NA	✓	
Sample Log-In Sheet (Lab)	1461	1463	✓	
45. Misc. Shipping/Receiving Records (list all individual records)				
	NA	NA	✓	
46. Internal Lab Sample Transfer Records and Tracking Sheets (describe or list)				
	1464	1467	✓	
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 # MYCZG9
CASE # 51779
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID # P5188
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, 9.1^{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.

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.

284 Sheffield Street
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 MYCZG9 For Antimony :

If C = 0.0206050 ppm
Vf = 100 ml
W = 1.22 g
S = 0.98(98.0 /100)
DF = 2

$$\text{Concentration (mg/kg)} = 0.0206050 \times \frac{100}{1.22 \times 0.98} \times 2$$

$$= 3.446804 \text{ mg/kg}$$

= 3.5 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)

284 Sheffield Street
Mountainside, NJ 07092

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

Example Calculation For Sample MYCZG9 For Arsenic:

If C = 44.68 ppb
Vf = 500 ml
W = 1.22 g
S = 0.98(98.0/100)
DF = 1

$$\text{Concentration (mg/kg)} = 44.68 \times \frac{500}{1.22 \times 0.98} \times 1 / 1000$$

= 18.68517 mg/kg

= 19 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. AES Spike sample did meet requirements except for Silver. MS Spike sample (MYCZR8S) did meet requirements except for Arsenic, Barium, Beryllium, Cobalt, Nickel, Selenium, Silver, Vanadium. Duplicate sample did meet requirements except for Aluminum, Arsenic, Barium, Calcium, Chromium, Iron, Lead, Magnesium, Manganese, Vanadium, Zinc. 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

284 Sheffield Street
Mountainside, NJ 07092

Cobalt	45Sc
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: 12:25
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: 07:33
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: LB133857

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
P5188-01	MYCZG9	1	1.16	8.64	9.8	9.63	98.0	
P5188-02	MYCZH0	2	1.17	8.56	9.73	9.51	97.4	
P5188-03	MYCZH1	3	1.17	8.41	9.58	9.4	97.9	
P5188-04	MYCZH2	4	1.18	8.71	9.89	9.64	97.1	
P5188-05	MYCZH3	5	1.16	8.39	9.55	8.97	93.1	
P5188-06	MYCZH4	6	1.17	8.35	9.52	9.26	96.9	
P5188-07	MYCZH5	7	1.16	8.46	9.62	9.41	97.5	
P5188-08	MYCZH6	8	1.16	8.62	9.78	9.61	98.0	
P5188-09	MYCZH7	9	1.18	8.52	9.7	9.54	98.1	
P5188-10	MYCZH8	10	1.17	8.60	9.77	9.57	97.7	
P5188-11	MYCZQ9	11	1.17	8.77	9.94	9.67	96.9	
P5188-12	MYCZR0	12	1.15	8.53	9.68	9.51	98.0	
P5188-13	MYCZR1	13	1.18	8.53	9.71	9.54	98.0	
P5188-14	MYCZR2	14	1.17	8.41	9.58	8.47	86.8	
P5188-15	MYCZR3	15	1.18	8.74	9.92	9.45	94.6	
P5188-16	MYCZR4	16	1.18	8.66	9.84	9.56	96.8	
P5188-17	MYCZR5	17	1.16	8.70	9.86	9.63	97.4	
P5188-18	MYCZR6	18	1.17	8.45	9.62	9.4	97.4	
P5188-19	MYCZR7	19	1.18	8.64	9.82	9.55	96.9	
P5188-20	MYCZR8	20	1.17	8.41	9.58	9.45	98.5	
P5188-21	MYCZR8D	21	1.17	8.41	9.58	9.45	98.5	
P5188-22	MYCZR8S	22	1.17	8.41	9.58	9.45	98.5	

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

WORKLIST(Hardcopy Internal Chain)

VB 133857

WorkList Name : %1-p5188 **WorkList ID :** 186178 **Department :** Wet-Chemistry **Date :** 12-10-2024 10:24:38

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P5188-01	MYCZG9	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/17/2024	Chemtech -SO
P5188-02	MYCZH0	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/17/2024	Chemtech -SO
P5188-03	MYCZH1	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/17/2024	Chemtech -SO
P5188-04	MYCZH2	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/17/2024	Chemtech -SO
P5188-05	MYCZH3	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/17/2024	Chemtech -SO
P5188-06	MYCZH4	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/17/2024	Chemtech -SO
P5188-07	MYCZH5	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/17/2024	Chemtech -SO
P5188-08	MYCZH6	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/17/2024	Chemtech -SO
P5188-09	MYCZH7	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/17/2024	Chemtech -SO
P5188-10	MYCZH8	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/17/2024	Chemtech -SO
P5188-11	MYCZQ9	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/17/2024	Chemtech -SO
P5188-12	MYCZR0	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/18/2024	Chemtech -SO
P5188-13	MYCZR1	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/18/2024	Chemtech -SO
P5188-14	MYCZR2	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/18/2024	Chemtech -SO
P5188-15	MYCZR3	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/18/2024	Chemtech -SO
P5188-16	MYCZR4	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/18/2024	Chemtech -SO
P5188-17	MYCZR5	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/18/2024	Chemtech -SO
P5188-18	MYCZR6	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/18/2024	Chemtech -SO
P5188-19	MYCZR7	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/18/2024	Chemtech -SO
P5188-20	MYCZR8	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/18/2024	Chemtech -SO
P5188-21	MYCZR8D	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/18/2024	Chemtech -SO

Date/Time 12-10-24 12:10

Raw Sample Received by: [illegible]

Raw Sample Relinquished by: CP SM

Date/Time 12-10-24 12:30

Raw Sample Received by: CP SM

Raw Sample Relinquished by: [illegible]

WORKLIST(Hardcopy Internal Chain)

VD 133857

WorkList Name : %1-p5188 **WorkList ID :** 186178 **Department :** Wet-Chemistry **Date :** 12-10-2024 10:24:38

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P5188-22	MYCZR8S	Solid	Percent Solids	Cool 4 deg C	USEP01	C33	09/18/2024	Chemtech -SO

Date/Time 12-10-24 12:10

Raw Sample Received by: [signature]

Raw Sample Relinquished by: CP SM

Date/Time 12-10-24 12:30

Raw Sample Received by: CP SM

Raw Sample Relinquished by: [signature]