SDG COVER PAGE

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

Lab Code: ACE Case No.: 51817 MA No.: 3225.1,3226.1 SDG No.: MYE490

SOW No. : SFAM01.1

EPA Sample No.	Lab Sample Id	Analysis Method ICP-AES	ICP-MS	Mercury	Cyanide
MYE490	P4480-01	X	X		
MYE491	P4480-02	X	X		
MYE492	P4480-03	X	X		
MYE493	P4480-04	X	X		
MYE494	P4480-05	X	X		
MYE494D	P4480-06	X	X		
MYE494S	P4480-07	X	X		
MYE495	P4480-08	X	X		
MYE496	P4480-09	X	X		
MYE497	P4480-10	X	X		
MYE498	P4480-11	X	X		
MYE499	P4480-12	X	X		
MYE4A0	P4480-13	X	X		
MYE4A1	P4480-14	X	X		
MYE4A2	P4480-15	X	X		
MYE4A3	P4480-16	X	X		
MYE4A4	P4480-17	X	X		
MYE4A5	P4480-18	X	X		
MYE4A6	P4480-19	X	X		
MYE4A7	P4480-20	X	X		
MYE4A8	P4480-21	X	X		
MYE4A9	P4480-22	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: 10/21/2024
CarrierName: FedEx
AirbillNo: 7793 0484 1991

CHAIN OF CUSTODY RECORD

Case #: 51817
Cooler #: EPA Cooler 02

No: 9-101424-084320-0136
Lab: Alliance Technical Group LLC
Lab Contact: Mohammad Ahmed
Lab Phone: 908-728-3151

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
90028-I-00010-01	MYE488	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7936 (None) (1)	90028-I-00010	04/23/2024 16:34	
90028-I-00010-02	MYE489	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7937 (None) (1)	90028-I-00010	04/23/2024 16:36	
90028-I-00011-01	MYE490	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7938 (None) (1)	90028-I-00011	04/23/2024 16:32	1
90028-I-00012-01	MYE491	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7939 (None) (1)	90028-I-00012	04/23/2024 16:22	2
90028-I-S0001-01	MYE492	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7940 (None) (1)	90028-I-S0001	04/23/2024 16:08	3
90028-I-S0002-01	MYE493	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7941 (None) (1)	90028-I-S0002	04/23/2024 16:16	4
90028-J-00001-03	MYE494	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7942 (None) (1)	90028-J-00001	04/23/2024 15:08	5 - QC
90028-J-00002-01	MYE495	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7943 (None) (1)	90028-J-00002	04/23/2024 15:00	6
90028-J-00003-01	MYE496	Soil/ ERT	Grab	ICP-AES and ICP-MS(21)	9-7944 (None) (1)	90028-J-00003	04/23/2024 15:09	7
90028-J-00005-01	MYE497	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7945 (None) (1)	90028-J-00005	04/23/2024 14:53	8
90028-J-00006-01	MYE498	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7946 (None) (1)	90028-J-00006	04/23/2024 15:05	9
90028-J-00007-01	MYE499	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7947 (None) (1)	90028-J-00007	04/23/2024 15:42	10
90028-J-00008-01	MYE4A0	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7948 (None) (1)	90028-J-00008	04/23/2024 15:38	11
90028-J-00009-01	MYE4A1	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7949 (None) (1)	90028-J-00009	04/23/2024 15:03	12
90028-J-00010-01	MYE4A2	Soil/ ERT	Grab	ICP-AES and ICP-MS(21)	9-7950 (None) (1)	90028-J-00010	04/23/2024 15:40	13
90028-J-00011-01	MYE4A3	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7951 (None) (1)	90028-J-00011	04/23/2024 15:37	14
90028-J-S0001-01	MYE4A4	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7952 (None) (1)	90028-J-S0001	04/23/2024 15:46	15
90028-J-S0002-01	MYE4A5	Soil/ REAC	null	ICP-AES and ICP-MS(21)	9-7953 (None) (1)	90028-J-S0002	04/23/2024 15:36	16
90028-K-00001-01	MYE4A6	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7954 (None) (1)	90028-K-00001	04/23/2024 14:46	17

Sample(s) to be used for Lab QC: 90028-J-00001-03 Tag 9-7942 - Special Instructions: 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 057869-70

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

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

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Larry Wathen R9 ESAT	10/18/24 15:58		10-22-24 1003	18.3°C IR GUN #1
					custody seal present
					NO TEMP BLK.

USEPA CLP COC (LAB COPY)
DateShipped: 10/21/2024
CarrierName: FedEx
AirbillNo: 7793 0484 1991

CHAIN OF CUSTODY RECORD

Case #: 51817
Cooler #: EPA Cooler 02

No: 9-101424-084320-0136
Lab: Alliance Technical Group LLC
Lab Contact: Mohammad Ahmed
Lab Phone: 908-728-3151

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
90028-L-00008-01	MYE4A7	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7955 (None) (1)	90028-L-00008	04/23/2024 14:06	18
90028-L-00009-01	MYE4A8	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7956 (None) (1)	90028-L-00009	04/23/2024 14:14	19
90028-L-00010-01	MYE4A9	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7957 (None) (1)	90028-L-00010	04/23/2024 14:11	20
90028-L-00011-01	MYE4B0	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7958 (None) (1)	90028-L-00011	04/23/2024 14:03	
90028-G-00011-01	MYE4B1	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7959 (None) (1)	90028-G-00011	04/23/2024 16:19	
90028-G-00012-01	MYE4B2	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7960 (None) (1)	90028-G-00012	04/23/2024 16:42	
90028-G-00012-02	MYE4B3	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7961 (None) (1)	90028-G-00012	04/23/2024 16:43	
90028-F-00004-01	MYE4B4	Soil/ ERT	Grab	ICP-AES and ICP-MS(21)	9-7962 (None) (1)	90028-F-00004	04/23/2024 11:59	
90028-F-00005-01	MYE4B5	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7963 (None) (1)	90028-F-00005	04/23/2024 12:00	
90028-F-00006-01	MYE4B6	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7964 (None) (1)	90028-F-00006	04/23/2024 11:52	
90028-F-00007-01	MYE4B7	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7965 (None) (1)	90028-F-00007	04/23/2024 11:50	
90028-F-00008-01	MYE4B8	Soil/ ERT	Grab	ICP-AES and ICP-MS(21)	9-7966 (None) (1)	90028-F-00008	04/23/2024 12:09	
90028-F-00009-01	MYE4B9	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7967 (None) (1)	90028-F-00009	04/23/2024 12:10	
90028-F-00010-01	MYE4C0	Soil/ ERT	Grab	ICP-AES and ICP-MS(21)	9-7968 (None) (1)	90028-F-00010	04/23/2024 11:51	
90028-F-00011-03	MYE4C1	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7969 (None) (1)	90028-F-00011	04/23/2024 12:09	
90028-F-00012-01	MYE4C2	Soil/ REAC	Grab	ICP-AES and ICP-MS(21)	9-7970 (None) (1)	90028-F-00012	04/23/2024 12:10	

Sample(s) to be used for Lab QC: 90028-F-00011-03 Tag 9-7969 - Special Instructions: 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 057869-70

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

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

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jerry Wuthen R9 ESAT	10/18/24 15:58		10-22-24 1003	18.3°C IR GUN #4
					custody seals intact
					NO Temp BM.

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page 1 of 1
Received By (Print Name) Bonge Megnon		Log-in Date **10/22/2024**
Received By (Signature)		
Case Number 51817	SDG No. MYE490	MA No. 3225.1,3226.1

Remarks:	
1. Custody Seal (s)	Present, Intact
2. Custody Seal Nos.	057869 70
3. Traffic Reports/Chain Of Custody Records	Present
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	779304841991 1
Shipping Container Temperature Indicator Bottle	Absent
7. Shipping Container Temperature	18.3 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	10/22/2024
12. Time Received	10:03

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MYE490	N/A	9-7938	P4480-01	Intact
2	MYE491	N/A	9-7939	P4480-02	Intact
3	MYE492	N/A	9-7940	P4480-03	Intact
4	MYE493	N/A	9-7941	P4480-04	Intact
5	MYE494	N/A	9-7942	P4480-05	Intact
6	MYE494D	N/A	9-7942	P4480-06	Intact
7	MYE494S	N/A	9-7942	P4480-07	Intact
8	MYE495	N/A	9-7943	P4480-08	Intact
9	MYE496	N/A	9-7944	P4480-09	Intact
10	MYE497	N/A	9-7945	P4480-10	Intact
11	MYE498	N/A	9-7946	P4480-11	Intact
12	MYE499	N/A	9-7947	P4480-12	Intact
13	MYE4A0	N/A	9-7948	P4480-13	Intact
14	MYE4A1	N/A	9-7949	P4480-14	Intact
15	MYE4A2	N/A	9-7950	P4480-15	Intact
16	MYE4A3	N/A	9-7951	P4480-16	Intact
17	MYE4A4	N/A	9-7952	P4480-17	Intact
18	MYE4A5	N/A	9-7953	P4480-18	Intact
19	MYE4A6	N/A	9-7954	P4480-19	Intact
20	MYE4A7	N/A	9-7955	P4480-20	Intact
21	MYE4A8	N/A	9-7956	P4480-21	Intact
22	MYE4A9	N/A	9-7957	P4480-22	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	10/22/24	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.	**51817**	SDG NO.	**MYE490**
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	334	✓	
Other Data				
10 . Standard and Reagent Preparation Logs	335	519	✓	
11 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	520	521	✓	
12 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	522	532	✓	
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	533	552	✓	
18 . Instrument raw data by instrument in analysis order	553	1413	✓	
Other Data				
19 . Standard and Reagent Preparation Logs	1414	1554	✓	
20 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	1555	1556	✓	
21 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	1557	1569	✓	
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)	1570	1570	✓	
Sample Tags	NA	NA	✓	
Sample Log-In Sheet (Lab)	1571	1573	✓	
45. Misc. Shipping/Receiving Records (list all individual records)				
	NA	NA	✓	
46. Internal Lab Sample Transfer Records and Tracking Sheets (describe or list)				
	1574	1577	✓	
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 # MYE490
CASE # 51817
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID # P4480
MODIFIED ANALYSIS #3225.1, 3226.1

A. Number of Samples and Date of Receipt

20 Soil samples were delivered to the laboratory intact on 10/22/2024.

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: 18.3^{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.

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 MYE490 For Antimony:

If C = 0.0082052 ppm
Vf = 100 ml
W = 1.26g
S = 0.931(93.1/100)
DF = 2

$$\text{Concentration (mg/kg)} = 0.0082052 \times \frac{100}{1.26 \times 0.931} \times 2$$

$$= 1.39893 \text{ mg/kg}$$

= 1.4 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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Mountainside, NJ 07092

Example Calculation For Sample MYE490 For Antimony :

If C = 2.44 ppb
Vf = 500 ml
W = 1.26 g
S = 0.931(93.1/100)
DF = 1

$$\text{Concentration (mg/kg)} = 2.44 \times \frac{500}{1.26 \times 0.931} \times 1 / 1000$$

= 1.0400 mg/kg

= 1.0 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 (MYE494SRE) did meet requirements except for Silver. Spike sample (MYE494S) did meet requirements except for Lead, Selenium. 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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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: 09/04/2024	**MA:** 3225.0	**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.
  - 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: 09/04/2024	**MA:** 3226.0	**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.
  - 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: 10/24/2024

OVENTEMP IN Celsius(°C): 107
Time IN: 12:50
In Date: 10/23/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103
Time OUT: 07:38
Out Date: 10/24/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC: LB133067

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
P4480-01	MYE490	1	1.16	8.56	9.72	9.13	93.1	
P4480-02	MYE491	2	1.16	8.61	9.77	9.51	97.0	
P4480-03	MYE492	3	1.14	8.52	9.66	9.02	92.5	
P4480-04	MYE493	4	1.15	8.81	9.96	9.15	90.8	
P4480-05	MYE494	5	1.13	8.62	9.75	9.33	95.1	
P4480-06	MYE494D	6	1.13	8.62	9.75	9.33	95.1	
P4480-07	MYE494S	7	1.13	8.62	9.75	9.33	95.1	
P4480-08	MYE495	8	1.14	8.38	9.52	9.21	96.3	
P4480-09	MYE496	9	1.15	8.46	9.61	9.15	94.6	
P4480-10	MYE497	10	1.17	8.48	9.65	9.28	95.6	
P4480-11	MYE498	11	1.15	8.62	9.77	9.59	97.9	
P4480-12	MYE499	12	1.17	8.52	9.69	9.42	96.8	
P4480-13	MYE4A0	13	1.16	8.39	9.55	9.33	97.4	
P4480-14	MYE4A1	14	1.17	8.46	9.63	9.24	95.4	
P4480-15	MYE4A2	15	1.17	8.44	9.61	9.17	94.8	
P4480-16	MYE4A3	16	1.16	8.76	9.92	9.53	95.5	
P4480-17	MYE4A4	17	1.15	8.66	9.81	9.42	95.5	
P4480-18	MYE4A5	18	1.17	8.71	9.88	9.57	96.4	
P4480-19	MYE4A6	19	1.17	8.53	9.7	9.42	96.7	
P4480-20	MYE4A7	20	1.16	8.37	9.53	9.31	97.4	
P4480-21	MYE4A8	21	1.15	8.55	9.7	9.52	97.9	
P4480-22	MYE4A9	22	1.15	8.76	9.91	9.69	97.5	

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

WORKLIST(Hardcopy Internal Chain)

WB 133067

WorkList Name : %1-p4480 **WorkList ID :** 184692 **Department :** Wet-Chemistry **Date :** 10-23-2024 09:35:15

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4480-01	MYE490	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-02	MYE491	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-03	MYE492	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-04	MYE493	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-05	MYE494	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-06	MYE494D	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-07	MYE494S	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-08	MYE495	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-09	MYE496	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-10	MYE497	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-11	MYE498	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-12	MYE499	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-13	MYE4A0	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-14	MYE4A1	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-15	MYE4A2	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-16	MYE4A3	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-17	MYE4A4	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-18	MYE4A5	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-19	MYE4A6	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-20	MYE4A7	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO
P4480-21	MYE4A8	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO

Date/Time 10/23/24 12:20

Raw Sample Received by: JD WC

Raw Sample Relinquished by: CR SM

Date/Time 10/23/24 12:55

Raw Sample Received by: CR SM

Raw Sample Relinquished by: JD WC

WORKLIST(Hardcopy Internal Chain)

WB133067

WorkList Name : %1-p4480 **WorkList ID :** 184692 **Department :** Wet-Chemistry **Date :** 10-23-2024 09:35:15

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4480-22	MYE4A9	Solid	Percent Solids	Cool 4 deg C	USEP01	Q11	04/23/2024	Chemtech -SO

Date/Time 10/23/24 12:20
Raw Sample Received by: JA CWC
Raw Sample Relinquished by: CP Sm

Date/Time 10/23/24 12:55
Raw Sample Received by: CP Sm
Raw Sample Relinquished by: JA CWC