SDG COVER PAGE

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

Lab Code: ACE Case No.: 51772 MA No.: 3225.1,3226.1 SDG No.: MYDA53

SOW No. : SFAM01.1

EPA Sample No.	Lab Sample Id	Analysis Method ICP-AES	ICP-MS	Mercury	Cyanide
MYDA53	P4297-01	X	X		
MYDA54	P4297-02	X	X		
MYDA55	P4297-03	X	X		
MYDA56	P4297-04	X	X		
MYDA57	P4297-05	X	X		
MYDA58	P4297-06	X	X		
MYDA59	P4297-07	X	X		
MYDA60	P4297-08	X	X		
MYDA61	P4297-09	X	X		
MYDA62	P4297-10	X	X		
MYDA63	P4297-11	X	X		
MYDA64	P4297-12	X	X		
MYDA65	P4297-13	X	X		
MYDA66	P4297-14	X	X		
MYDA66D	P4297-15	X	X		
MYDA66S	P4297-16	X	X		
MYDA67	P4297-17	X	X		
MYDA68	P4297-18	X	X		
MYDA69	P4297-19	X	X		
MYDA70	P4297-20	X	X		
MYDA71	P4297-21	X	X		
MYDA72	P4297-22	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 # MYDA53

USEPA CLP COC (LAB COPY)

DateShipped: 10/3/2024
CarrierName: FedEx
AirbillNo: 7790 0057 3333

CHAIN OF CUSTODY RECORD

Case #: 51772
Cooler #: 51772-073

No: 9-061924-140935-0073
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
90376-A-0004-01	MYDA43	Soil/ REAC	Grab	ICP-AES 11(21)	9-5001 (None) (1)	90376-A-0004	06/18/2024 15:30	
90376-D-0006-01	MYDA44	Soil/ REAC	Grab	ICP-AES 11(21)	9-5002 (None) (1)	90376-D-0006	06/18/2024 14:55	
90376-B-0010-01	MYDA45	Soil/ REAC	Grab	ICP-AES 11(21)	9-5003 (None) (1)	90376-B-0010	06/18/2024 15:34	
90376-B-0012-01	MYDA46	Soil/ REAC	Grab	ICP-AES 11(21)	9-5004 (None) (1)	90376-B-0012	06/18/2024 15:35	
90376-A-0009-01	MYDA47	Soil/ REAC	Grab	ICP-AES 11(21)	9-5005 (None) (1)	90376-A-0009	06/18/2024 15:38	
90376-A-0001-01	MYDA48	Soil/ REAC	Grab	ICP-AES 11(21)	9-5006 (None) (1)	90376-A-0001	06/18/2024 15:39	
90376-A-0007-01	MYDA49	Soil/ REAC	Grab	ICP-AES 11(21)	9-5007 (None) (1)	90376-A-0007	06/18/2024 15:40	
90376-A-0003-01	MYDA50	Soil/ REAC	Grab	ICP-AES 11(21)	9-5008 (None) (1)	90376-A-0003	06/18/2024 15:42	
90376-B-0002-01	MYDA51	Soil/ REAC	Grab	ICP-AES 11(21)	9-5009 (None) (1)	90376-B-0002	06/18/2024 15:44	
90376-A-0010-01	MYDA52	Soil/ REAC	Grab	ICP-AES 11(21)	9-5010 (None) (1)	90376-A-0010	06/18/2024 15:29	
90376-D-0004-01	MYDA53	Soil/ REAC	Grab	ICP-AES 11(21)	9-5011 (None) (1)	90376-D-0004	06/18/2024 14:42	✓
90376-A-0008-01	MYDA54	Soil/ REAC	Grab	ICP-AES 11(21)	9-5012 (None) (1)	90376-A-0008	06/18/2024 15:45	✓
90376-F-0005-01	MYDA55	Soil/ REAC	Grab	ICP-AES 11(21)	9-5013 (None) (1)	90376-F-0005	06/18/2024 14:30	✓
90376-F-0008-01	MYDA56	Soil/ REAC	Grab	ICP-AES 11(21)	9-5014 (None) (1)	90376-F-0008	06/18/2024 14:32	✓
90376-D-0002-01	MYDA57	Soil/ REAC	Grab	ICP-AES 11(21)	9-5015 (None) (1)	90376-D-0002	06/18/2024 14:34	✓
90376-D-0010-01	MYDA58	Soil/ REAC	Grab	ICP-AES 11(21)	9-5016 (None) (1)	90376-D-0010	06/18/2024 14:35	✓
90376-D-0010-02	MYDA59	Soil/ REAC	Grab	ICP-AES 11(21)	9-5017 (None) (1)	90376-D-0010	06/18/2024 14:36	✓
90376-D-0003-01	MYDA60	Soil/ REAC	Grab	ICP-AES 11(21)	9-5018 (None) (1)	90376-D-0003	06/18/2024 14:38	✓
90376-F-0003-01	MYDA61	Soil/ REAC	Grab	ICP-AES 11(21)	9-5019 (None) (1)	90376-F-0003	06/18/2024 14:59	✓

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

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: ICP-AES 11=ICP-AES 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	Olivia Warren WESTON	10/3/24 @ 1600		939 10-4-24	IR-Gun # 1 20.8° C
					Custody Seal Intact
					No Temp Blank
					no ICE

68HERH20D0011

SDG # MYDA53

USEPA CLP COC (LAB COPY)

DateShipped: 10/3/2024
CarrierName: FedEx
AirbillNo: 7790 0057 3333

CHAIN OF CUSTODY RECORD

Case #: 51772
Cooler #: 51772-073

No: 9-061924-140935-0073
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
90376-D-0007-01	MYDA62	Soil/ REAC	Grab	ICP-AES 11(21)	9-5020 (None) (1)	90376-D-0007	06/18/2024 14:40	
90376-E-0003-01	MYDA63	Soil/ REAC	Grab	ICP-AES 11(21)	9-5021 (None) (1)	90376-E-0003	06/18/2024 14:58	
90376-D-0012-01	MYDA64	Soil/ REAC	Grab	ICP-AES 11(21)	9-5022 (None) (1)	90376-D-0012	06/18/2024 14:45	
90376-D-0005-01	MYDA65	Soil/ REAC	Grab	ICP-AES 11(21)	9-5023 (None) (1)	90376-D-0005	06/18/2024 14:46	
90376-E-0008-03	MYDA66	Soil/ REAC	Grab	ICP-AES 11(21)	9-5024 (None) (1)	90376-E-0008	06/18/2024 14:48	
90376-D-0009-01	MYDA67	Soil/ REAC	Grab	ICP-AES 11(21)	9-5025 (None) (1)	90376-D-0009	06/18/2024 14:50	
90376-D-0011-01	MYDA68	Soil/ REAC	Grab	ICP-AES 11(21)	9-5026 (None) (1)	90376-D-0011	06/18/2024 14:52	
90376-D-0001-01	MYDA69	Soil/ REAC	Grab	ICP-AES 11(21)	9-5027 (None) (1)	90376-D-0001	06/18/2024 14:53	
90376-F-0009-01	MYDA70	Soil/ REAC	Grab	ICP-AES 11(21)	9-5028 (None) (1)	90376-F-0009	06/18/2024 14:26	
90376-D-0008-01	MYDA71	Soil/ REAC	Grab	ICP-AES 11(21)	9-5029 (None) (1)	90376-D-0008	06/18/2024 14:39	
90377-E-0001-01	MYDA72	Soil/ REAC	Grab	ICP-AES 11(21)	9-5030 (None) (1)	90377-E-0001	06/18/2024 15:25	
90377-C-0008-01	MYDA73	Soil/ REAC	Grab	ICP-AES 11(21)	9-5031 (None) (1)	90377-C-0008	06/18/2024 14:25	
90377-B-0002-01	MYDA74	Soil/ REAC	Grab	ICP-AES 11(21)	9-5032 (None) (1)	90377-B-0002	06/18/2024 16:00	
90377-A-0003-02	MYDA75	Soil/ REAC	Grab	ICP-AES 11(21)	9-5033 (None) (1)	90377-A-0003	06/18/2024 15:57	
90377-A-0003-01	MYDA76	Soil/ REAC	Grab	ICP-AES 11(21)	9-5034 (None) (1)	90377-A-0003	06/18/2024 15:56	
90377-A-S0001-01	MYDA77	Soil/ REAC	Grab	ICP-AES 11(21)	9-5035 (None) (1)	90377-A-S0001	06/18/2024 15:52	
90377-A-0010-01	MYDA78	Soil/ REAC	Grab	ICP-AES 11(21)	9-5036 (None) (1)	90377-A-0010	06/18/2024 15:50	
90377-E-0002-01	MYDA79	Soil/ REAC	Grab	ICP-AES 11(21)	9-5037 (None) (1)	90377-E-0002	06/18/2024 15:43	

Sample(s) to be used for Lab QC: 90376-E-0008-03 Tag 9-5024 - 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

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: ICP-AES 11=ICP-AES 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	Olin Harren WESTON	10/3/24@ 1600		939 10-4-24	IR-Gun #1 20.3°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 1
Received By (Print Name)		Log-in Date 10/4/2024
Received By (Signature)		
Case Number 51772	SDG No. MYDA53	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.	779000573333 1
6. Shipping Container Temperature Indicator Bottle	Absent
7. Shipping Container Temperature	20.3 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	10/04/2024
12.Time Received	09:39

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding		Remarks: Condition of Sample Shipment, etc.
			Sample Tag #	Assigned Lab #	
1	MYDA53	N/A	9-5011	P4297-01	Intact
2	MYDA54	N/A	9-5012	P4297-02	Intact
3	MYDA55	N/A	9-5013	P4297-03	Intact
4	MYDA56	N/A	9-5014	P4297-04	Intact
5	MYDA57	N/A	9-5015	P4297-05	Intact
6	MYDA58	N/A	9-5016	P4297-06	Intact
7	MYDA59	N/A	9-5017	P4297-07	Intact
8	MYDA60	N/A	9-5018	P4297-08	Intact
9	MYDA61	N/A	9-5019	P4297-09	Intact
10	MYDA62	N/A	9-5020	P4297-10	Intact
11	MYDA63	N/A	9-5021	P4297-11	Intact
12	MYDA64	N/A	9-5022	P4297-12	Intact
13	MYDA65	N/A	9-5023	P4297-13	Intact
14	MYDA66	N/A	9-5024	P4297-14	Intact
15	MYDA66D	N/A	9-5024	P4297-15	Intact
16	MYDA66S	N/A	9-5024	P4297-16	Intact
17	MYDA67	N/A	9-5025	P4297-17	Intact
18	MYDA68	N/A	9-5026	P4297-18	Intact
19	MYDA69	N/A	9-5027	P4297-19	Intact
20	MYDA70	N/A	9-5028	P4297-20	Intact
21	MYDA71	N/A	9-5029	P4297-21	Intact
22	MYDA72	N/A	9-5030	P4297-22	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	10/4/24	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.	**51772**	SDG NO.	**MYDA53**
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	576	✓	
Other Data				
10 . Standard and Reagent Preparation Logs	577	728	✓	
11 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	729	730	✓	
12 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	731	759	✓	
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	760	779	✓	
18 . Instrument raw data by instrument in analysis order	780	2291	✓	
Other Data				
19 . Standard and Reagent Preparation Logs	2292	2432	✓	
20 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	2433	2434	✓	
21 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	2435	2451	✓	
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)	2452	2452	✓	
Sample Tags	NA	NA	✓	
Sample Log-In Sheet (Lab)	2453	2455	✓	
45. Misc. Shipping/Receiving Records (list all individual records)				
	NA	NA	✓	
46. Internal Lab Sample Transfer Records and Tracking Sheets (describe or list)				
	2456	2459	✓	
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 # MYDA53
CASE # 51772
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID # P4297
MODIFIED ANALYSIS #3225.1, 3226.1

A. Number of Samples and Date of Receipt

20 Soil samples were delivered to the laboratory intact on 10/04/2024.

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: 20.3^{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.

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 MYDA53 For Antimony:

If C = 0.0090669 ppm
Vf = 100 ml
W = 1.15g
S = 0.987(98.7/100)
DF = 2

$$\text{Concentration (mg/kg)} = 0.0090669 \times \frac{100}{1.15 \times 0.987} \times 2$$

$$= 1.59762 \text{ mg/kg}$$

= 1.6 mg/kg (Reported Result with Signification)

Calculation for ICP-MS Soil Sample:

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

$$\text{Concentration (mg/kg)} = C \times \frac{Vf}{W \times S} \times DF / 1000$$

Where,

C = Instrument value in ppb (The average of all replicate integrations)
Vf = Final digestion volume (mL)
W = Initial aliquot amount (g) (Fraction of Sample amount taken in prep)

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

Example Calculation For Sample MYDA53 For Antimony :

If C = 1.42 ppb
Vf = 500 ml
W = 1.15 g
S = 0.987(98.7/100)
DF = 1

$$\text{Concentration (mg/kg)} = 1.42 \times \frac{500}{1.15 \times 0.987} \times 1 / 1000$$

= 0.62552 mg/kg

= 0.63 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 Antimony, Arsenic, Selenium. MS Spike sample (MYDA66SRE) did meet requirements except for Silver. .MS Spike sample (MYDA66S) did meet requirements except for Lead. 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

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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: 09/04/2024	**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: 10/7/2024

OVENTEMP IN Celsius(°C): 107
Time IN: 15:25
In Date: 10/06/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103
Time OUT: 08:17
Out Date: 10/07/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC: LB132793

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
P4297-01	MYDA53	1	1.15	8.78	9.93	9.82	98.7	
P4297-02	MYDA54	2	1.18	8.40	9.58	9.47	98.7	
P4297-03	MYDA55	3	1.19	8.63	9.82	9.68	98.4	
P4297-04	MYDA56	4	1.18	8.51	9.69	9.53	98.1	
P4297-05	MYDA57	5	1.19	8.63	9.82	9.52	96.5	
P4297-06	MYDA58	6	1.18	8.40	9.58	9.51	99.2	
P4297-07	MYDA59	7	1.17	8.40	9.57	9.47	98.8	
P4297-08	MYDA60	8	1.15	8.82	9.97	9.8	98.1	
P4297-09	MYDA61	9	1.19	8.56	9.75	9.65	98.8	
P4297-10	MYDA62	10	1.13	8.70	9.83	9.72	98.7	
P4297-11	MYDA63	11	1.16	8.70	9.86	9.74	98.6	
P4297-12	MYDA64	12	1.18	8.47	9.65	9.47	97.9	
P4297-13	MYDA65	13	1.18	8.74	9.92	9.82	98.9	
P4297-14	MYDA66	14	1.17	8.54	9.71	9.55	98.1	
P4297-15	MYDA66D	15	1.17	8.54	9.71	9.55	98.1	
P4297-16	MYDA66S	16	1.17	8.54	9.71	9.55	98.1	
P4297-17	MYDA67	17	1.15	8.78	9.93	9.83	98.9	
P4297-18	MYDA68	18	1.15	8.43	9.58	9.47	98.7	
P4297-19	MYDA69	19	1.16	8.68	9.84	9.74	98.8	
P4297-20	MYDA70	20	1.18	8.42	9.6	9.54	99.3	
P4297-21	MYDA71	21	1.19	8.64	9.83	9.72	98.7	
P4297-22	MYDA72	22	1.15	8.82	9.97	9.84	98.5	

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

WORKLIST(Hardcopy Internal Chain)

VB132793

WorkList Name : %1-p4297 **WorkList ID :** 184172 **Department :** Wet-Chemistry **Date :** 10-06-2024 12:21:14

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4297-01	MYDA53	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-02	MYDA54	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-03	MYDA55	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-04	MYDA56	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-05	MYDA57	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-06	MYDA58	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-07	MYDA59	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-08	MYDA60	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-09	MYDA61	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-10	MYDA62	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-11	MYDA63	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-12	MYDA64	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-13	MYDA65	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-14	MYDA66	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-15	MYDA66D	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-16	MYDA66S	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-17	MYDA67	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-18	MYDA68	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-19	MYDA69	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-20	MYDA70	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO
P4297-21	MYDA71	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO

Date/Time 10/06/24 14:30
Raw Sample Received by: [signature]
Raw Sample Relinquished by: CP SM

Date/Time 10/06/24 15:30
Raw Sample Received by: CP SM
Raw Sample Relinquished by: [signature]

WORKLIST(Hardcopy Internal Chain)

VB132793

WorkList Name : %1-p4297 **WorkList ID :** 184172 **Department :** Wet-Chemistry **Date :** 10-06-2024 12:21:14

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4297-22	MYDA72	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/18/2024	Chemtech -SO

Date/Time 10/06/24 14:30
Raw Sample Received by: JA Weeks
Raw Sample Relinquished by: AP SM

Date/Time 10/06/24 15:30
Raw Sample Received by: AP SM
Raw Sample Relinquished by: JA Weeks