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.: MYDAT3

SOW No. : SFAM01.1

EPA Sample No.	Lab Sample Id	Analysis Method ICP-AES	ICP-MS	Mercury	Cyanide
MYDAT3	P4310-01	X	X		
MYDAT4	P4310-02	X	X		
MYDAT5	P4310-03	X	X		
MYDAT5D	P4310-04	X	X		
MYDAT5S	P4310-05	X	X		
MYDAT6	P4310-06	X	X		
MYDAT7	P4310-07	X	X		
MYDAT8	P4310-08	X	X		
MYDAT9	P4310-09	X	X		
MYDAW0	P4310-10	X	X		
MYDAW1	P4310-11	X	X		
MYDAW2	P4310-12	X	X		
MYDAW3	P4310-13	X	X		
MYDAW4	P4310-14	X	X		
MYDAW5	P4310-15	X	X		
MYDAW6	P4310-16	X	X		
MYDAW7	P4310-17	X	X		
MYDAW8	P4310-18	X	X		
MYDAW9	P4310-19	X	X		
MYDAX0	P4310-20	X	X		
MYDAX1	P4310-21	X	X		
MYDAX2	P4310-22	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 # MYDAT3

USEPA CLP COC (LAB COPY)

DateShipped: 10/3/2024
CarrierName: FedEx
AirbillNo: 7790 0057 5575

CHAIN OF CUSTODY RECORD

Case #: 51772
Cooler #: 51772-077

No: 9-062024-122449-0077

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
90299-A-0003-01	MYDAR8	Soil/ REAC	Grab	ICP-AES 11(21)	9-5216 (None) (1)	90299-A-0003	06/19/2024 11:01	
90299-C-0002-01	MYDAR9	Soil/ REAC	Grab	ICP-AES 11(21)	9-5217 (None) (1)	90299-C-0002	06/19/2024 10:19	
90299-C-0010-01	MYDAS0	Soil/ REAC	Grab	ICP-AES 11(21)	9-5218 (None) (1)	90299-C-0010	06/19/2024 10:16	
90299-C-0007-01	MYDAS1	Soil/ REAC	Grab	ICP-AES 11(21)	9-5219 (None) (1)	90299-C-0007	06/19/2024 10:12	
90299-C-0009-01	MYDAS2	Soil/ REAC	Grab	ICP-AES 11(21)	9-5220 (None) (1)	90299-C-0009	06/19/2024 10:14	
90299-C-0001-01	MYDAS3	Soil/ REAC	Grab	ICP-AES 11(21)	9-5221 (None) (1)	90299-C-0001	06/19/2024 10:22	
90299-C-0003-01	MYDAS4	Soil/ REAC	Grab	ICP-AES 11(21)	9-5222 (None) (1)	90299-C-0003	06/19/2024 10:29	
90299-C-0005-01	MYDAS5	Soil/ REAC	Grab	ICP-AES 11(21)	9-5223 (None) (1)	90299-C-0005	06/19/2024 10:25	
90299-A-0009-01	MYDAS6	Soil/ REAC	Grab	ICP-AES 11(21)	9-5224 (None) (1)	90299-A-0009	06/19/2024 10:54	
90299-E-0009-01	MYDAS7	Soil/ REAC	Grab	ICP-AES 11(21)	9-5225 (None) (1)	90299-E-0009	06/19/2024 14:30	
90299-C-0004-01	MYDAS8	Soil/ REAC	Grab	ICP-AES 11(21)	9-5226 (None) (1)	90299-C-0004	06/19/2024 10:08	
90299-A-0001-01	MYDAS9	Soil/ REAC	Grab	ICP-AES 11(21)	9-5227 (None) (1)	90299-A-0001	06/19/2024 10:48	
90299-A-0007-01	MYDAT0	Soil/ REAC	Grab	ICP-AES 11(21)	9-5228 (None) (1)	90299-A-0007	06/19/2024 10:37	
90299-A-0008-01	MYDAT1	Soil/ REAC	Grab	ICP-AES 11(21)	9-5229 (None) (1)	90299-A-0008	06/19/2024 10:42	
90299-A-0010-01	MYDAT2	Soil/ REAC	Grab	ICP-AES 11(21)	9-5230 (None) (1)	90299-A-0010	06/19/2024 10:40	
90299-A-0004-01	MYDAT3	Soil/ REAC	Grab	ICP-AES 11(21)	9-5231 (None) (1)	90299-A-0004	06/19/2024 10:45	1
90299-E-0002-01	MYDAT4	Soil/ REAC	Grab	ICP-AES 11(21)	9-5232 (None) (1)	90299-E-0002	06/19/2024 14:36	2
90299-E-0005-03	MYDAT5	Soil/ REAC	Grab	ICP-AES 11(21)	9-5233 (None) (1)	90299-E-0005	06/19/2024 14:40	3 - QC
90299-E-0006-01	MYDAT6	Soil/ REAC	Grab	ICP-AES 11(21)	9-5234 (None) (1)	90299-E-0006	06/19/2024 14:38	4

Sample(s) to be used for Lab QC: 90299-E-0005-03 Tag 9-5233 - 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 Horton WESTON	10/3/24 @ 1600		939 10-4-24	FR Cooler #1 21.4°
					Custody Seal Intact
					No Temp Blank
					No ICE

68HERH20D0011

SDG # MYDAT3

USEPA CLP COC (LAB COPY)

DateShipped: 10/3/2024
CarrierName: FedEx
AirbillNo: 7790 0057 5575

CHAIN OF CUSTODY RECORD

Case #: 51772
Cooler #: 51772-077

No: 9-062024-122449-0077
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
90299-E-0004-01	MYDAT7	Soil/ REAC	Grab	ICP-AES 11(21)	9-5235 (None) (1)	90299-E-0004	06/19/2024 14:46	1
90299-D-0005-01	MYDAT8	Soil/ REAC	Grab	ICP-AES 11(21)	9-5236 (None) (1)	90299-D-0005	06/19/2024 14:10	2
90299-D-0009-01	MYDAT9	Soil/ REAC	Grab	ICP-AES 11(21)	9-5237 (None) (1)	90299-D-0009	06/19/2024 14:30	3
90299-D-0002-01	MYDAW0	Soil/ REAC	Grab	ICP-AES 11(21)	9-5238 (None) (1)	90299-D-0002	06/19/2024 14:14	4
90299-D-0004-01	MYDAW1	Soil/ REAC	Grab	ICP-AES 11(21)	9-5239 (None) (1)	90299-D-0004	06/19/2024 14:27	9
90299-D-0010-01	MYDAW2	Soil/ REAC	Grab	ICP-AES 11(21)	9-5240 (None) (1)	90299-D-0010	06/19/2024 14:25	10
90299-E-0001-01	MYDAW3	Soil/ REAC	Grab	ICP-AES 11(21)	9-5241 (None) (1)	90299-E-0001	06/19/2024 14:25	11
90299-D-0003-01	MYDAW4	Soil/ REAC	Grab	ICP-AES 11(21)	9-5242 (None) (1)	90299-D-0003	06/19/2024 14:23	12
90299-E-0008-01	MYDAW5	Soil/ REAC	Grab	ICP-AES 11(21)	9-5243 (None) (1)	90299-E-0008	06/19/2024 14:23	13
90299-D-0008-01	MYDAW6	Soil/ REAC	Grab	ICP-AES 11(21)	9-5244 (None) (1)	90299-D-0008	06/19/2024 14:21	14
90299-D-0001-01	MYDAW7	Soil/ REAC	Grab	ICP-AES 11(21)	9-5245 (None) (1)	90299-D-0001	06/19/2024 14:19	15
90299-E-0003-01	MYDAW8	Soil/ REAC	Grab	ICP-AES 11(21)	9-5246 (None) (1)	90299-E-0003	06/19/2024 14:18	16
90299-E-0010-01	MYDAW9	Soil/ REAC	Grab	ICP-AES 11(21)	9-5247 (None) (1)	90299-E-0010	06/19/2024 14:18	17
90299-D-0006-01	MYDAX0	Soil/ REAC	Grab	ICP-AES 11(21)	9-5248 (None) (1)	90299-D-0006	06/19/2024 14:17	18
90299-C-0008-01	MYDAX1	Soil/ REAC	Grab	ICP-AES 11(21)	9-5249 (None) (1)	90299-C-0008	06/19/2024 10:11	19
90299-E-0007-01	MYDAX2	Soil/ REAC	Grab	ICP-AES 11(21)	9-5250 (None) (1)	90299-E-0007	06/19/2024 14:32	20

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 Warren WESTON	10/3/24 @ 1600		939 10-4-24	TH-Gun #1 21.4°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) Cassandra Lee		Log-in Date 10/4/2024
Received By (Signature)		
Case Number 51772	SDG No. MYDAT3	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.	779000575575 1
6. Shipping Container Temperature Indicator Bottle	Absent
7. Shipping Container Temperature	21.4 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	MYDAT3	N/A	9-5231	P4310-01	Intact
2	MYDAT4	N/A	9-5232	P4310-02	Intact
3	MYDAT5	N/A	9-5233	P4310-03	Intact
4	MYDAT5D	N/A	9-5233	P4310-04	Intact
5	MYDAT5S	N/A	9-5233	P4310-05	Intact
6	MYDAT6	N/A	9-5234	P4310-06	Intact
7	MYDAT7	N/A	9-5235	P4310-07	Intact
8	MYDAT8	N/A	9-5236	P4310-08	Intact
9	MYDAT9	N/A	9-5237	P4310-09	Intact
10	MYDAW0	N/A	9-5238	P4310-10	Intact
11	MYDAW1	N/A	9-5239	P4310-11	Intact
12	MYDAW2	N/A	9-5240	P4310-12	Intact
13	MYDAW3	N/A	9-5241	P4310-13	Intact
14	MYDAW4	N/A	9-5242	P4310-14	Intact
15	MYDAW5	N/A	9-5243	P4310-15	Intact
16	MYDAW6	N/A	9-5244	P4310-16	Intact
17	MYDAW7	N/A	9-5245	P4310-17	Intact
18	MYDAW8	N/A	9-5246	P4310-18	Intact
19	MYDAW9	N/A	9-5247	P4310-19	Intact
20	MYDAX0	N/A	9-5248	P4310-20	Intact
21	MYDAX1	N/A	9-5249	P4310-21	Intact
22	MYDAX2	N/A	9-5250	P4310-22	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.	**MYDAT3**
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	721	✓	
Other Data				
10 . Standard and Reagent Preparation Logs	722	876	✓	
11 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	877	878	✓	
12 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	879	896	✓	
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	897	916	✓	
18 . Instrument raw data by instrument in analysis order	917	2404	✓	
Other Data				
19 . Standard and Reagent Preparation Logs	2405	2545	✓	
20 . Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	2546	2547	✓	
21 . Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	2548	2566	✓	
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)	2567	2567	✓	
Sample Tags	NA	NA	✓	
Sample Log-In Sheet (Lab)	2568	2570	✓	
45. Misc. Shipping/Receiving Records (list all individual records)				
	NA	NA	✓	
46. Internal Lab Sample Transfer Records and Tracking Sheets (describe or list)				
	2571	2574	✓	
47. Other Records and related Communication Logs (describe or list)				
	NA	NA	✓	

48. Comments:

Completed by:
(CLP Lab)

(Signature)	Nimisha Pandya, Document Control Officer (Print Name & Title)	(Date)

Audited by:
(EPA)

(Signature)	(Print Name & Title)	(Date)

284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # MYDAT3
CASE # 51772
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID # P4310
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: 21.4^{o}C

D. Detail Documentation (related to Sample Handling Shipping, Analytical Problem, Temp of Cooler etc):

Issue: A "P" or "M" prefix was listed at the beginning of a CLP sample ID.

E. Corrective Action taken for above:

Resolution: To maintain COC integrity, ASB requests no changes to the Sample IDs. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

F. Analytical Techniques:

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

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Mountainside, NJ 07092

Inter Element correction factors (IECs) are determined annually and correction factor are applied during ICP-AES analysis.

G. Calculation:

Calculation for ICP-AES Soil Sample:

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

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

Where,

C = Instrument value in ppm (The average of all replicate exposures)
Vf = Final digestion volume (mL)
W = Initial aliquot amount (g) (Sample amount taken in prep)
S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

Example Calculation For Sample MYDAT3 For Antimony:

If C = 0.0072801 ppm
Vf = 100 ml
W = 1.08g
S = 0.969(96.9/100)
DF = 2

$$\text{Concentration (mg/kg)} = 0.0072801 \times \frac{100}{1.08 \times 0.969} \times 2$$

$$= 1.391296 \text{ mg/kg}$$

$$= 1.4 \text{ mg/kg (Reported Result with Signification)}$$

Calculation for ICP-MS Soil Sample:

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

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

Where,

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

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

Example Calculation For Sample MYDAT3 For Antimony:

If C = 1.38 ppb
Vf = 500 ml
W = 1.08 g
S = 0.969(96.9/100)
DF = 1

$$\text{Concentration (mg/kg)} = 1.38 \times \frac{500}{1.08 \times 0.969} \times 1 / 1000$$

= 0.6593 mg/kg

= 0.66 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 did meet requirements except for Antimony, Arsenic, Lead, Selenium, Zinc. Spike sample(MYDAT5SRE) did meet requirements except for Lead. Spike sample(MYDAT5S) did meet requirements except for Arsenic, 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: 09/11/2024	**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: 10/10/2024

OVENTEMP IN Celsius(°C): 107
Time IN: 12:25
In Date: 10/09/2024
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: 10/10/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC: LB132839

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
P4310-01	MYDAT3	1	1.14	8.58	9.72	9.45	96.9	
P4310-02	MYDAT4	2	1.15	8.37	9.52	9.38	98.3	
P4310-03	MYDAT5	3	1.18	8.50	9.68	9.51	98.0	
P4310-04	MYDAT5D	4	1.18	8.50	9.68	9.51	98.0	
P4310-05	MYDAT5S	5	1.18	8.50	9.68	9.51	98.0	
P4310-06	MYDAT6	6	1.17	8.55	9.72	9.55	98.0	
P4310-07	MYDAT7	7	1.13	8.80	9.93	9.68	97.2	
P4310-08	MYDAT8	8	1.18	8.60	9.78	9.61	98.0	
P4310-09	MYDAT9	9	1.18	8.62	9.8	9.7	98.8	
P4310-10	MYDAW0	10	1.18	8.47	9.65	9.53	98.6	
P4310-11	MYDAW1	11	1.18	8.70	9.88	9.72	98.2	
P4310-12	MYDAW2	12	1.17	8.59	9.76	9.57	97.8	
P4310-13	MYDAW3	13	1.16	8.61	9.77	9.57	97.7	
P4310-14	MYDAW4	14	1.18	8.55	9.73	9.6	98.5	
P4310-15	MYDAW5	15	1.16	8.40	9.56	9.37	97.7	
P4310-16	MYDAW6	16	1.17	8.49	9.66	9.53	98.5	
P4310-17	MYDAW7	17	1.18	8.63	9.81	9.71	98.8	
P4310-18	MYDAW8	18	1.14	8.40	9.54	9.34	97.6	
P4310-19	MYDAW9	19	1.18	8.45	9.63	9.5	98.5	
P4310-20	MYDAX0	20	1.15	8.73	9.88	9.77	98.7	
P4310-21	MYDAX1	21	1.18	8.44	9.62	9.3	96.2	
P4310-22	MYDAX2	22	1.18	8.75	9.93	9.78	98.3	

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

WORKLIST(Hardcopy Internal Chain)

VB 132839

WorkList Name : %1-p4310 **WorkList ID :** 184271 **Department :** Wet-Chemistry **Date :** 10-09-2024 10:13:01

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4310-01	MYDAT3	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-02	MYDAT4	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-03	MYDAT5	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-04	MYDAT5D	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-05	MYDAT5S	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-06	MYDAT6	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-07	MYDAT7	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-08	MYDAT8	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-09	MYDAT9	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-10	MYDAW0	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-11	MYDAW1	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-12	MYDAW2	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-13	MYDAW3	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-14	MYDAW4	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-15	MYDAW5	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-16	MYDAW6	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-17	MYDAW7	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-18	MYDAW8	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-19	MYDAW9	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-20	MYDAX0	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO
P4310-21	MYDAX1	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO

Date/Time 10/09/24 12:00

Raw Sample Received by: WC

Raw Sample Relinquished by: SM

Date/Time 10/09/24 12:30

Raw Sample Received by: SM

Raw Sample Relinquished by: WC

VB 132839

WORKLIST(Hardcopy Internal Chain)

WorkList Name : %1-p4310 **WorkList ID :** 184271 **Department :** Wet-Chemistry **Date :** 10-09-2024 10:13:01

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4310-22	MYDAX2	Solid	Percent Solids	Cool 4 deg C	USEP01	A11	06/19/2024	Chemtech -SO

Date/Time 10/09/24 12:00

Raw Sample Received by: [signature]

Raw Sample Relinquished by: [signature] STL

Date/Time 10/09/24 12:30

Raw Sample Received by: [signature] STL

Raw Sample Relinquished by: [signature]