SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51736
SDG: A4E87
CONTRACT: 68HERH20D0011
LAB CODE: ACE
LAB ORDER ID: P4414
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	Test	pH
P4414-01	A4E87		
P4414-02	A4E88		
P4414-02DL	A4E88DL	SVOA	
P4414-03	A4F70		
P4414-04	A4F71		
P4414-05	A4F77		
P4414-06	A4F91		
P4414-07	A4F95		
P4414-08	A4F98		
P4414-09	A4F99		
P4414-10	A4FA0		
P4414-11	A4FA2		
P4414-12	A4FA3		
P4414-13	A4FA8		
P4414-14	A4FB2		
P4414-15	A4FE5		1.0
P4414-18	A4F64		
P4414-19	A4F79		
P4414-20	A4F80		
P4414-21	A4F82		
P4414-21ME	A4F82ME	VOA	
P4414-21RE	A4F82RE	VOA	
P4414-22	A4F83		
P4414-23	A4F86		
P4414-24	A4F87		

14 Soil samples were delivered to the laboratory intact on 10/16/2024.
01 Water sample was delivered to the laboratory intact on 10/16/2024.

07 Soil samples were delivered to the laboratory intact on 10/17/2024.

Test requested on the Chain of Custody was Volatile Organic and Semivolatile Organic by Method SFAM01.1.

The temperature of the samples was measured using an I R Gun. The samples temperature was 2.1 degree Celsius for the samples received on 10/16/2024, 2.6 degree Celsius for the samples received on 10/17/2024.

Discrepancies with tags, jars, and/or COC

Issue 01: The laboratory has two open SDGs and extra volume was not received. The laboratory would like to confirm if proceeding without Laboratory QC for SDGs A4EX2 & A4ER7 is acceptable. The laboratory would also like to confirm that the resolution can be used for similar issues for this Case.

Resolution 01: Per Region 1, proceeding without Laboratory QC for SDGs A4EX2 snd A4ER7 is acceptable. The same resolution can be applied to similar issues for Case 51736. The laboratory should note the issue in the SDG narrative and proceed with the analysis of the samples.

Low Volatiles:

The analysis performed on instrument MSVOA_V were done using GC column RXI-624SIL MS 30m 0.18mm 1.4 um. Cat#13868.

The analysis performed on instrument MSVOA_W were done using GC column RXI-624SIL MS 30m 0.18mm 1.4 um. Cat#13868.

The analysis performed on instrument MSVOA_X were done using GC column RXI-624SIL MS 30m 0.18mm 1.4 um. Cat#13868.

The analysis of VOC-SFAM was based on method SFAM01.1_LOW.

The Holding Times were met for all analysis.

The Surrogate recoveries met the acceptable criteria except for
A4F77 [1,1-Dichloroethene-d2 - 43%],
A4F91 [1,1-Dichloroethene-d2 - 42%],
A4F95 [1,1-Dichloroethene-d2 - 40%],
A4F98 [1,1-Dichloroethene-d2 - 39%, 1,2-Dichlorobenzene-d4 - 69%, 1,2-Dichloroethane-d4 - 67%],
A4F99 [1,1-Dichloroethene-d2 - 39%, 1,2-Dichlorobenzene-d4 - 68%, 1,2-Dichloropropane-d6 - 68%],
A4FA2 [1,1-Dichloroethene-d2 - 40%, 1,2-Dichlorobenzene-d4 - 72%],

A4FA3 [1,1-Dichloroethene-d2 - 39%, 1,2-Dichlorobenzene-d4 - 71%],
A4FA8 [1,1-Dichloroethene-d2 - 40%, 1,2-Dichlorobenzene-d4 - 75%],
A4FB2 [1,1-Dichloroethene-d2 - 38%, 1,2-Dichlorobenzene-d4 - 72%],
A4FE5 [Toluene-d8 - 79%],
A4F79 [1,1-Dichloroethene-d2 - 41%],
A4F80 [1,1-Dichloroethene-d2 - 35%, 1,2-Dichlorobenzene-d4 - 73%, 1,2-Dichloropropane-d6 - 69%],
A4F82 [1,2-Dichlorobenzene-d4 - 0%, 1,2-Dichloropropane-d6 - 228%, 2-Butanone-d5 - 0%, 2-Hexanone-d5 - 0%, trans-1,3-Dichloropropene-d4 - 0%],
A4F83 [1,1-Dichloroethene-d2 - 39%, 1,2-Dichlorobenzene-d4 - 70%] and
A4F87 [1,1-Dichloroethene-d2 - 41%].
As per method, up to three surrogates are allowed to fail. No corrective action was taken except for Samples A4F82 failed for more than three surrogates as corrective action samples were reanalyzed however reanalyzed was fail for Internal Standard recoveries and analyzed Medium Level all run reported.

The Internal Standards Areas met the acceptable requirements except for A4F82 and A4F82RE. Sample A4F82 which failed for Internal Standards. as corrective action sample was reanalyzed and analyzed Medium Level all analysis reported.

Instrument Performance Check met requirements.
The Retention Times were met for all samples.
The Tuning criteria met requirements.
The Initial Calibration met the requirements.

The Continuing Calibration (VSTD025525) file ID VW030627.D met the requirements except for 1,1-Dichloroethene-d2 (-26.9%). As per method, up to two target analyte in opening and closing CCV are allowed to exceed the %D values. Therefore no further corrective action was taken.

The Continuing Calibration (VSTD025529) file ID VW030676.D met the requirements except for 1,1-Dichloroethene-d2 (-27.3%). As per method, up to two target analyte in opening and closing CCV are allowed to exceed the %D values. Therefore no further corrective action was taken.

The blank analysis did not indicate the presence of lab contamination.
The storage blank did not indicate the presence of lab contamination.

See **Manual Integration report f**or the manual integration information at the end of the case narrative.

Calculation:
Low/Med Water Level Calculation

$$\text{Concentration in ug/L} = \frac{(Ax)\,(Is)\,(DF)}{(Ais)\,(RRF)\,(Vo)}$$

Where,
Ax = Area of the characteristic ion (EICP) for the compound to be measured.
Ais = Area of the characteristic ion (EICP) for the internal standard.
Amount of internal standard added in ng.
RRF = Mean Relative Response Factor from the initial calibration standard.
Vo = Total volume of water purged, in mL.
DF = Dilution Factor

Low/Med Level Soil/Sediment Calculation

$$\text{Concentration in ug/Kg dry Weight basis)} = \frac{(Ax)(Is)(Df)}{(Ais)(RRF)(Ws)(D)}$$

Where,
Ax = Area for the compound to be measured
Ais = Area for the specific internal standard
Is = Amount of internal standard added in Nano grams (ng)
RRF = Relative response factor of the calibration standard.
Df = Dilution factor
Ws= Weight of sample

$$D = \frac{100 - \%\text{moisture}}{100}$$

Medium-Level Soil/Sediment Concentration

$$\text{Concentration}(\mu g/Kg = \frac{(Ax)(Iis)(AVt)(1000)(DF)}{(Ais)\overline{RRF})(Va)(Ws)(S)}$$

Where

Ax	=	Area for the compound to be measured
Ais	=	Area for the specific internal standard
Is	=	Amount of internal standard added in nanograms (ng)
S	=	% Solids/100
$\overline{RRF}$	=	Mean Relative Response Factor from the ambient temperature purge of the initial calibration standard

AV_t = Adjusted total volume of the methanol extract plus soil water in mL determined by: $AV_t = V_t + \{W_s - [W_s(S)]$.
Where Vt = total volume of methanol extract in mL. This volume is typically 5.0 mL, even though only 0.1 mL is transferred to the vial in Section 10.2.3.6. The quantity derived from {Ws - [Ws(S)]} is the soil water volume and is expressed in mL.

Va = Volume of the aliquot of the sample methanol extract (i.e., sample extract not including the methanol added to equal 100 µL), in µL added to reagent water for purging

Ws = Weight of soil/sediment extracted, in g

DF = Dilution Factor. The DF for analysis of soil/sediment sample extracts for volatiles by the medium-level method is defined as the ratio of the volume (µL) taken from the extract used to make the dilution plus the clean solvent added for the dilution (µL), to the volume taken from the extract used to make the dilution. For example, if 10 µL of the extract was taken and added to 90 µL of clean solvent, then ration would be (10 µL + 90 µL/10 µL)= a DF of 10.

Example sample **A4F82ME** for **Toluene:**

Ax	=	108122
Ais	=	218450
Is	=	250
S	=	82.6/100 = 0.826
$\overline{RRF}$	=	1.444
AV_t	=	5.97
Va	=	100
Ws	=	5.55
DF	=	1
Avt	=	5 + [5.55 - (5.55 X 82.6/100)] = 5.97

$$\text{Concentration}(\mu g/Kg) = \frac{(108122)(250)(5.97)(1000)(1)}{(218450)(1.444)(100)(5.55)(0.826)}$$

Reported results = 1115.92 ug/Kg

Final Reported results = 1100 ug/Kg

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VX102524** for **5.0** ppb

$$RRF = \frac{\text{Area of compound}}{\text{Area of Internal Standard}} \times \frac{\text{Conc. of Internal Standard}}{\text{Conc. of Compound}}$$

$$RRF = \frac{11561}{288641} \times \frac{50}{5.0}$$

RRF= 0.401

Semivolatiles:

The samples were analyzed on instrument BNA_P using GC Column ZB-GR Semi Volatiles Guardian which is 30 meters, 0.25 mm ID, 0.5 um df, Catalog # 7HG-G027-17-GGA.

Semis volatile Organic for soil sample was extracted by Method SFAM01.1 on 10/18/2024, The analysis of SVOC-SFAM was based on method SFAM01.1_SVOC.

The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for,
A4F91 [4,6-Dinitro-2-methylphenol-d2 - 7%],
A4F99 [4,6-Dinitro-2-methylphenol-d2 - 9%],
A4FA8 [4,6-Dinitro-2-methylphenol-d2 - 8%],
A4F80 [4,6-Dinitro-2-methylphenol-d2 - 7%] and
A4F82 [4,6-Dinitro-2-methylphenol-d2 - 9%]. As per method four surrogates are allowed to fail. Therefore no further corrective action was taken.

The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The Blank Spike for {PB164219BS} recoveries met the requirements for all compounds.
The Blank analysis did not indicate the presence of lab contamination.
The Tuning criteria met the requirements.
The Initial Calibration met the requirements.
The Continuous Calibration met the requirements.

Sample A4E88 was diluted due to high concentration.

The Sample AF470, A4F71, A4F80, A4F82, A4F83, A4F86, A4F87, A4F91, A4F99, A4FA3 have the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.

Concentration of SOIL Sample:

Concentration ug/Kg,

$$\text{(dry weight basis)} = \frac{(Ax)\,(Is)\,(Vt)\,(DF)\,(GPC)}{(Ais)\,(RRF)\,(Vi)\,(Wt)\,(D)}$$

Where,
Ax = Area of the characteristic ion for the compound to be measured.
Ais = Area of the characteristic ion for the internal standard.
Is = Amount of internal standard injected in ng.
Vi = Volume of extract injected in microliters (uL)
Vt = Volume of concentrated extract in microliters (uL)
Wt = Weight of the original sample extracted in g
Df = Dilution factor
RRF = Mean Relative Response Factor determined from the initial calibration standard.
GPC = Vin = GPC factor (If no GPC is performed, GPC=1)
Vout = Volume of extract collected after GPC cleanup.

$$D = \frac{100 - \%\text{moisture}}{100}$$

Example calculation of A4E88 for Phenol:

Ax = 257449
Ais = 89573
Is = 20
Vi = 1
Vt = 500
Wt = 30.2
Df = 1
RRF = 1.752
GPC = 2
D= 1

Concentration

$$\text{(dry weight basis) ug/Kg} = \frac{(257449)\,(20)\,(500)\,(1)\,(2)}{(89573)\,(1.752)\,(1)\,(30.2)\,(1)}$$

= 1100 ug/Kg

RRF Calculation of standard 20 ppb for Naphthalene with P instrument for method 10/07/2024.

$$RRF = \frac{\text{Area of compound}}{\text{Area of Internal Standard}} \times \frac{\text{Conc. of Internal Standard}}{\text{Conc. of Compound}}$$

= 326983/315808 X 20/20

= 1.035 (Reported RRF)

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. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature _____ Name: Nimisha Pandya.

Date: _____ Title: Document Control Officer.