SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51736
SDG: A4E90
CONTRACT: 68HERH20D0011
LAB CODE: ACE
LAB ORDER ID: P4415
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	Test	pH
P4415-01	A4E90		
P4415-01DL	A4E90DL	VOA	
P4415-02	A4E91		
P4415-02DL	A4E91DL	SVOA	
P4415-04	A4F50		
P4415-05	A4F51		
P4415-06	A4F54		
P4415-07	A4F55		
P4415-08	A4F60		
P4415-09	A4F61		
P4415-10	A4F65		
P4415-11	A4F68		
P4415-12	A4F69		
P4415-13	A4F81		
P4415-14	A4F88		
P4415-15	A4F92		
P4415-16	A4F97		
P4415-17	A4FE8		5.0
P4415-19	A4F42		
P4415-20	A4F43		
P4415-21	A4F44		
P4415-22MS	A4F44MS		
P4415-23MSD	A4F44MSD		
P4415-24	A4F45		

02 Soil samples were delivered to the laboratory intact on 10/16/2024.
13 Soil samples were delivered to the laboratory intact on 10/19/2024.
01 Water sample was delivered to the laboratory intact on 10/19/2024.

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

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 2.3 degree Celsius for the samples received on 10/19/2024, 2.1 degree Celsius for the samples received on 10/16/2024, 5.9 degree Celsius for the samples received on 10/22/2024.

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
A4F60 [1,1-Dichloroethene-d2 - 43%, 1,2-Dichlorobenzene-d4 - 71%, 1,2-Dichloroethane-d4 - 68%],
A4F65 [1,1-Dichloroethene-d2 - 43%],
A4F81 [1,2-Dichlorobenzene-d4 - 72%],
A4F88 [1,1-Dichloroethene-d2 - 41%, 1,2-Dichlorobenzene-d4 - 73%],
A4F92 [1,1-Dichloroethene-d2 - 43%, 1,2-Dichlorobenzene-d4 - 72%],
A4F97 [1,1-Dichloroethene-d2 - 39%],
A4FE8 [Toluene-d8 - 70%],
A4F42 [1,1-Dichloroethene-d2 - 41%],
A4F44 [1,1-Dichloroethene-d2 - 42%],
A4F44MS [1,1-Dichloroethene-d2 - 42%, 2-Hexanone-d5 - 136%],
A4F44MSD [1,1-Dichloroethene-d2 - 43%],
A4F45 [1,1-Dichloroethene-d2 - 37%, 1 and2-Dichlorobenzene-d4 - 71%].

As per method, up to three surrogates are allowed to fail. No corrective action was taken.

The Internal Standards Areas met the acceptable requirements.
.Instrument Performance Check met requirements.
The Retention Times were met for all samples.
The Tuning criteria met requirements.

The MS {A4F44MS} recovery met the requirements for all compounds.
The MSD {A4F44MSD} recovery met the requirements for all compounds.
The RPD {A4F44MSD} RPD met the requirements for all compounds.

The Initial Calibration met the requirements.

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 Continuing Calibration (VSTD025533) file ID VW030717.D met the requirements except for 1,1-Dichloroethene-d2 (-28.7%). 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.

Sample A4E90 was diluted due to high concentration.

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

Example Calculation for sample: **A4E90** for **Methylene chloride**:

Ax= 325611
Is= 250
RRF= 0.378
DF=1
Ais= 252255
Ws= 5.0
D= 1

Concentration in ug/KG = $\frac{(325611)\ (250)\ (1)}{(252255)\ (0.378)\ (5.0)\ (1)}$

= 170.74 ug//Kg

Final Reported Results = 170 ug/Kg

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VW100924** for **2.5** ppb

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

RRF= $\frac{11869}{356470} \times \frac{25}{2.5}$

RRF= 0.333

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 10/22/2024, 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,
A4F50 [1,4-Dioxane-d8 - 13%, 4,6-Dinitro-2-methylphenol-d2 - 5%, 4-Nitrophenol-d4 - 9%, Fluorene-d10 - 16%],
A4F51 [1,4-Dioxane-d8 - 14%, 4,6-Dinitro-2-methylphenol-d2 - 6%, 4-Nitrophenol-d4 - 9%, Fluorene-d10 - 17%],
A4F60 [1,4-Dioxane-d8 - 12%, 2-Chlorophenol-d4 - 14%, 4,6-Dinitro-2-methylphenol-d2 - 4%, 4-Nitrophenol-d4 - 7%, Fluorene-d10 - 15%],
A4F61 [1,4-Dioxane-d8 - 14%, 4,6-Dinitro-2-methylphenol-d2 - 7%],
A4F68 [1,4-Dioxane-d8 - 14%, 4,6-Dinitro-2-methylphenol-d2 - 5%, Fluorene-d10 - 19%],
A4F69 [1,4-Dioxane-d8 - 14%, 4,6-Dinitro-2-methylphenol-d2 - 7%, Fluorene-d10 - 19%],
A4F97 [1,4-Dioxane-d8 - 13%, 4,6-Dinitro-2-methylphenol-d2 - 6%, Fluorene-d10 - 18%, Pyridine-d5 - 3%], A4F43 [4,6-Dinitro-2-methylphenol-d2 - 7%],
A4F44MS [1,4-Dioxane-d8 - 13%],
A4F44MSD [1,4-Dioxane-d8 - 14%] and
A4F45 [4,6-Dinitro-2-methylphenol-d2 - 9%].As per method four surrogates are allowed to fail. The %R limits for 1,4-Dioxane-d8 (soil/sediment/waste) is advisory. Therefore no further corrective action was taken.

The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {A4F44MS} recovery met the requirements for all compounds.
The MSD {A4F44MSD} recovery met the requirements for all compounds.
The RPD {A4F44MSD} RPD met the requirements for all compounds
The Blank Spike for {PB164325BS} 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 A4E91 was diluted due to high concentration.

The Sample A4F43, A4F51, A4F61, A4F81, A4F88 and A4F97 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 A4E91 for Phenol:

Ax = 252109
Ais = 110519
Is = 20
Vi = 1
Vt = 500
Wt = 30.0
Df = 1
RRF = 1.752
GPC = 2
D= 1

Concentration

$$\text{(dry weight basis) ug/Kg} = \frac{(252109)\,(20)\,(500)\,(1)\,(2)}{(110519)\,(1.752)\,(1)\,(30.0)\,(1)}$$

= 870 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.