SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51736
SDG: A4EA3
CONTRACT: 68HERH20D0011
LAB CODE: ACE
LAB ORDER ID: P4568
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	Test	pH
P4568-01	A4EA3		
P4568-02	A4EA4		
P4568-02DL	A4EA4DL	SVOA	
P4568-03	A4EF5		
P4568-04MS	A4EF5MS		
P4568-05MSD	A4EF5MSD		
P4568-06	A4EF6		
P4568-07	A4EF8		
P4568-08	A4EF9		
P4568-09	A4EG0		
P4568-10	A4EH4		
P4568-11	A4EK1		
P4568-11ME	A4EK1ME	VOA	
P4568-11RE	A4EK1RE	VOA	
P4568-12	A4EE2		
P4568-13	A4EE3		
P4568-14	A4EE4		
P4568-15	A4EE5		
P4568-16	A4EE6		
P4568-17	A4EF1		
P4568-18	A4EF2		
P4568-19	A4EF3		
P4568-20	A4EF4		
P4568-21	A4EF7		
P4568-22	A4FF2		5.0

21 Soil samples were delivered to the laboratory intact on 10/25/2024.
01 Water sample was delivered to the laboratory intact on 10/25/2024.

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, 2.3 degree Celsius for the samples received on 10/25/2024.

Discrepancies with tags, jars, and/or COC

Issue 01: "Lab has received trip blank samples without any preservation therefore, Lab would like to confirm that these trip blanks have pH more than 2 due to samples were not preserved."

Resolution 01: "Confirmed. Please have the lab proceed with analysis of these trip blanks."

Low Volatiles:

The analysis performed on instrument MSVOA_U 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
A4EF5 [1,1-Dichloroethene-d2 - 36%],
A4EF5MS [1,1-Dichloroethene-d2 - 33%, 1,2-Dichlorobenzene-d4 - 68%],
A4EF5MSD [1,1-Dichloroethene-d2 - 30%],
A4EF6 [1,1-Dichloroethene-d2 - 41%],
A4EF8 [1,1-Dichloroethene-d2 - 39%],
A4EF9 [1,1-Dichloroethene-d2 - 40%],
A4EG0 [1,1-Dichloroethene-d2 - 42%],
A4EH4 [1,1-Dichloroethene-d2 - 39%],
A4EK1 [1,1,2,2-Tetrachloroethane-d2 - 121%],
A4EK1ME [Chloroethane-d5 - 29%],
A4EK1RE [1,1,2,2-Tetrachloroethane-d2 - 155%],
A4EE2 [1,1-Dichloroethene-d2 - 42%],
A4EE3 [1,1-Dichloroethene-d2 - 41%],
A4EE4 [1,1-Dichloroethene-d2 - 29%, Vinyl Chloride-d3 - 30%],

A4EE5 [1,1-Dichloroethene-d2 - 28%, 1,2-Dichloroethane-d4 - 69%, Vinyl Chloride-d3 - 30%],
A4EE6 [1,1-Dichloroethene-d2 - 28%, 1,2-Dichloroethane-d4 - 69%, Vinyl Chloride-d3 - 28%],
A4EF1 [1,1-Dichloroethene-d2 - 39%],
A4EF1 [1,1,2,2-Tetrachloroethane-d2 - 122%, 1,1-Dichloroethene-d2 - 44%],
A4EF2 [1,1-Dichloroethene-d2 - 34%] and A4FF2 [Chloroethane-d5 - 47%].
As per method, up to three surrogates are allowed to fail. No corrective action was taken.

The Internal Standards Areas met the acceptable requirements except for A4EK1, A4EK1RE.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 MS {A4EF5MS} recovery met the requirements for all compounds.
The MSD {A4EF5MSD} recovery met the requirements for all compounds.
The RPD {A4EF5MSD} RPD met the requirements for all compounds.
The Initial Calibration met the requirements.

The Continuing Calibration (VSTD050539) file ID VW030781.D met the requirements except for Toluene-d8 (20.3%). 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 (VSTD025541) file ID VW030801.D met the requirements except for Carbon disulfide (-36.1%). 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 (VSTD025543) file ID VW030828.D met the requirements except for 1,1-Dichloroethene-d2 (-27.4%). 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 (VSTD025547) file ID VW030874.D met the requirements except for 1,2-Dichloroethane-d4 (25.9%). 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 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

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.

Low/Med Level Soil/Sediment Calculation

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: **A4EA3** for **Methylene chloride**:

Ax= 327117
Is= 250
RRF= 0.378
DF=1
Ais= 294577
Ws= 5.00
D= 1

Concentration in ug/KG = $\frac{(327117)\ (250)\ (1)}{(294577)\ (0.378)\ (5.00)\ (1)}$

= 146.88 ug//Kg

Final Reported Results = 150 ug/Kg

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

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

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

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 10/28/2024, The analysis of SVO-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,
A4EF6 [1,4-Dioxane-d8 - 12%],
A4EE2 [1,4-Dioxane-d8 - 14%, 4,6-Dinitro-2-methylphenol-d2 - 5%],
A4EE3 [1,4-Dioxane-d8 - 13%, 4,6-Dinitro-2-methylphenol-d2 - 6%, Benzo(a)pyrene-d12 - 9%, Fluorene-d10 - 19%],
A4EE4 [1,4-Dioxane-d8 - 12%, 4,6-Dinitro-2-methylphenol-d2 - 5%, Benzo(a)pyrene-d12 - 9%],
A4EE5 [4,6-Dinitro-2-methylphenol-d2 - 7%, 4-Nitrophenol-d4 - 9%, Benzo(a)pyrene-d12 - 9%] and
A4EE6 [1,4-Dioxane-d8 - 13%, 4,6-Dinitro-2-methylphenol-d2 - 8%, 4-Nitrophenol-d4 - 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 MS {A4EF5MS} recovery met the requirements for all compounds.
The MSD {A4EF5MSD} recovery met the requirements for all compounds.
The RPD {A4EF5MSD} RPD met the requirements for all compounds
The Blank Spike for {PB164662BS} 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 A4EA4 was diluted due to high concentration.

Samples A4EE2, A4EE3, A4EE5, A4EF1, A4EF4, A4EF6, A4EF7 and A4EH4 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 A4EA4 for Phenol:

Ax = 166685
Ais = 79682
Is = 20
Vi = 1
Vt = 500
Wt = 30.2
Df = 1
RRF = 1.752
GPC = 2
D= 1

Concentration

$$\text{(dry weight basis) ug/Kg} = \frac{(166685)\,(20)\,(500)\,(1)\,(2)}{(79682)\,(1.752)\,(1)\,(30.2)\,(1)}$$

= 790 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.