SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51860
SDG: YE680
CONTRACT: 68HERH20D0011
LAB CODE: ACE
LAB ORDER ID: P5325
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	pH
P5325-01	YE680	
P5325-02MS	YE680MS	
P5325-03MSD	YE680MSD	
P5325-04	YE682	

04 Soil samples were delivered to the laboratory intact on 12/18/2024.

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

The temperature of the samples was measured using an I R Gun. The samples temperature was 2.4, 2.3, degree Celsius for the samples received on 12/18/2024.

Low Volatiles:

The analysis performed on instrument MSVOA_W were done using GC column RXI-624SIL MS 30m 0.25mm 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
YE680 [1,2-Dichlorobenzene-d4 - 70%],
YE680MS [1,2-Dichlorobenzene-d4 - 68%],
YE680MSD [1,2-Dichlorobenzene-d4 - 63%, 1,2-Dichloroethane-d4 - 68%] and
YE682 [1,2-Dichlorobenzene-d4 - 63%, 1,2-Dichloropropane-d6 - 70%].
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 {YE680MS} recovery met the requirements for all compounds.
The MSD {YE680MSD} recovery met the requirements for all compounds.
The RPD {YE680MSD} RPD met the requirements for all compounds.

The initial Calibration met the requirements for all compounds.

The Continuing Calibration (VSTD025601) file ID VW031437.D met the requirements except for 1,1,2,2-Tetrachloroethane-d2 (25.4%) and 1,1,2,2-Tetrachloroethane (32.0%). 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 (VSTD050606) file ID VW031498.D met the requirements except for Chloroethane (27.8%) and trans-1,3-Dichloropropene-d4 (-31.8%). 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 indicated the presence of lab Contamination.
The Storage blank analysis did not indicated 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 Level Soil/Sediment Calculation

Concentration in ug/Kg dry Weight basis) = $\frac{(A_x)(I_s)(D_f)}{(Ais)(RRF)(Ws)(D)}$ ____

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: **YE680** for **1,1-Dichloroethene**:

Ax= 35326
Is= 250
RRF= 0.306
DF=1
Ais= 910648
Ws= 6.07
D= 0.857

Concentration in ug/KG = $\frac{(35326)\ (250)\ (1)}{(910648)\ (0.306)\ (6.07)\ (0.857)}$

= 6.09 ug//Kg

Final Reported Results = 6.1 ug/Kg

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VW121324** 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= $\frac{15586}{760150} \times \frac{25}{2.5}$

RRF= 0.205

Semivolatiles:

The samples were analyzed on instrument BNA_G 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 12/18/2024 and 12/26/2024, The analysis of SVOCMS Group4 was based on method SFAM01.1_SVOC.

The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {YE680MS} recovery met the requirements for all compounds.
The MSD {YE680MSD} recovery met the requirements for all compounds.
The RPD {YE680MSD} RPD met the requirements for all compounds.
The Blank Spike for {PB165853BS} 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.

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.

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

No positive target compounds were detected in the samples.

RRF Calculation of standard 20 ppb for 1,4-Dioxane with G instrument for method 12/11/2024.

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

$$= 36937/134078 \times 20/8$$

$$= 0.689 \text{ (Reported RRF)}$$

Semivolatiles SIM:

The samples were analyzed on instrument BNA_M 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 sample for Soil sample was extracted by Method SFAM01.1 on 12/26/2024. The analysis of SVOCMS Grop3 was based on method SFAM01.1_SVOC.

The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {YE680MS} recovery met the requirements for all compounds.
The MSD {YE680MSD} recovery met the requirements for all compounds.
The RPD {YE680MSD} RPD met the requirements for all compounds
The Blank Spike for {PB165854BS} recoveries met the requirements for all compounds.
The Blank analysis did not indicate the presence of lab contamination.
The Tuning criteria met requirements.
The Initial Calibration met requirements.
The Continuous Calibration met requirements.

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

Concentration of SOIL Sample:

Concentration ug/Kg,

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

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 = $\frac{Vin}{Vout}$ = GPC factor (If no GPC is performed, GPC=1)
Vout = Volume of extract collected after GPC cleanup.
D= $\frac{100 - \%moisture}{100}$

Example calculation of YE680 for 1,4-Dioxane:

Ax = 388
Ais = 5215
Is = 0.4
Vi = 1
Vt = 500

Wt = 30.0
Df = 1
RRF = 0.539
GPC = 2
D= 0.857

Concentration

(dry weight basis) ug/Kg = $\frac{(388)\ (0.4)\ (500)\ (1)\ (2)}{(5215)\ (0.539)\ (1)\ (30.0)\ (0.857)}$

= 2.1 ug/Kg

RRF Calculation of standard 0.4 ppb for **1,4-Dioxane** with M instrument for method 12/18/2024.

RRF = Area of compound / Area of Internal Standard X Conc. of Internal Standard / Conc. of Compound

= 3185/4849 X 0.4/0.4

= 0.657 (Reported RRF)

Aroclors:

The analyses were performed on instrument GC ECD_R. The front column is ZB-MR1 which is 30 meters, 0.32 mm ID, 0.5 um df, Catalogue # 7HM-G016-17. The rear column is ZB-MR2 which is 30 meters, 0.32 mm ID, 0.25 µm; Catalogue # 7HM-G017-11.

The sample was analyzed on a single injection dual column system. To distinguish the second column analysis from the first column a -2 suffix was added to the file id on the form 1. These refer to forms were both columns are reported. Form 1s for the IBLK and ALCS are referenced as IBLK(1)/IBLK(2), MS(1)/MS(2), MSD(1)/MSD(2) and ALCS01(1)/ALCS01(2) respectively.

Aroclor sample was extracted by Method SFAM01.1 on 12/26/2024 and analyzed on 12/26/2024 All the samples were subjected to a Sulfuric acid cleanup. The sample was extracted and analyzed within contractual holding time.

The Surrogate recoveries met the acceptable criteria except for
YE680 [Decachlorobiphenyl(1) – 29%, Decachlorobiphenyl(2) – 28%],
The SOW allows one surrogate to fail to meet the criteria per column. ((Please See Section 11.3.6 of Exhibit D Aroclor Analysis).
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YE680MS met the requirements.
YE680MSD met the requirements.
The RPD met the requirements.
The Laboratory Control Sample met requirements.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuing Calibrations met the requirements.
The Retention Times were acceptable for all samples.

Sample YE682 failed to meet the %D for the results between the two columns Criteria.

See Manual Integration report for the manual integration information at the end of the Case narrative.

Calculation for Concentration in Soil samples:

$$\text{Concentration ug/Kg (Dry weight basis)} = \frac{(Ax)\,(Vt)\,(DF)\,(GPC)}{(CF)\,(Vi)\,(Ws)\,(D)}$$

Where,
Ax = Response (peak area or height) of the compound to be measured.
CF = Mean Calibration Factor from the initial calibration (area/ng).
Vt = Volume of the concentrated extract in uL
Vi = Volume of extract injected (uL). (If a single injection is made onto two columns, use ½ the volume in the syringe as the volume injected onto each column).
Ws = Weight of sample extracted (g).

$$D = \%\text{ dry weight or } \frac{100 - \%\text{Moisture}}{100}$$

$$GPC = \frac{Vin}{Vout} = \text{GPC factor (If no GPC is performed, GPC=1)}$$

DF = Dilution Factor

Example of AR1260 calculation for Peak 1

$$\text{Calibration factor Peak 1 100ppb ISTD= Column2} = \frac{\text{peak area}}{\text{Mass injected ng}}$$

$$= \frac{28057044}{0.100}$$

= 280570440 calibration factor for Peak 1 100ppb

Average of 5 peaks = 235212482

Sample **YE680**
Ax = 141472395
CF = 235212482
Vt = 10000
Vi = 1.0
Ws = 30.1
D = 0.857
GPC = 1.0
DF = 1.0

Concentration ug/Kg (Dry weight basis) = $\frac{(Ax)\ (Vt)\ (DF)\ (GPC)}{(CF)\ (Vi)\ (Ws)\ (D)}$

$= \frac{(141472395)\ (10000)\ (1.0)\ (1.0)}{(235212482)\ (1.0)\ (30.1)\ (0.857)}$

Peak 1 = 233.17

Average of 5 peaks = 208.40

Reported results = 210 ug/kg

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.