SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51847
SDG: E28M0
CONTRACT: 68HERH20D0011
LAB CODE: ACE
LAB ORDER ID: P5066
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	Test	pH
P5066-01	E28M0		
P5066-01ME	E28M0ME	VOA	
P5066-01RX	E28M0RX	SVOA	
P5066-02	E28M1		
P5066-02DL	E28M1DL	VOA,SVOA	
P5066-03	E28M2		
P5066-03DL	E28M2DL	SVOA-SIM	
P5066-03ME	E28M2ME	VOA	
P5066-04	E28M3		
P5066-04ME	E28M3ME	VOA	
P5066-05	E28M4		
P5066-06	E28M5		
P5066-07	E28M6		
P5066-08	E28M7		
P5066-08ME	E28M7ME	VOA	
P5066-08RE	E28M7RE	VOA	
P5066-09	E28M8		
P5066-11	E28M9		
P5066-11ME	E28M9ME	VOA	
P5066-11RE	E28M9RE	VOA	
P5066-12	E28N0		
P5066-13	E28N1		
P5066-13ME	E28N1ME	VOA	
P5066-13RE	E28N1RE	VOA	
P5066-14	E28N2		
P5066-15	E28N3		
P5066-16	E28N4		

P5066-16ME	E28N4ME	VOA	
P5066-16RE	E28N4RE	VOA	
P5066-17	E28N5		
P5066-18	E28N6		
P5066-19	E28N7		
P5066-19ME	E28N7ME	VOA	
P5066-19RE	E28N7RE	VOA	
P5066-20	E28N8		
P5066-20ME	E28N8ME	VOA	
P5066-20RE	E28N8RE	VOA	
P5066-21MS	E28N8MS		
P5066-22MSD	E28N8MSD		

09 Soil samples were delivered to the laboratory intact on 12/03/2024.
12 Soil samples were delivered to the laboratory intact on 12/04/2024.

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 1.9 degree Celsius for the samples received on 12/03/2024. The samples temperature was 2.3 degree Celsius for the samples received on 12/04/2024.

Shipping Discrepancies and/or QC issues:

Issue 01: The laboratory received one vial broken for sample E28M8 and have one vial remaining for low level VOA analysis and one for medium level VOA analysis. There is no evidence of cross contamination and sufficient volume remaining for analysis.

Resolution 01: Per SFAM0.1.1 Exhibit A, Section 5.4.2., the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Issue 02: SDGs E28M0 and ME28M0 require Laboratory QC but a sample was not designated on the COC. The laboratory selected samples E28N8 and ME28N8 for Laboratory QC for ARO, SVOA, SVOA SIM, ICP-MS, ICP-AES, CN and Hg analysis and confirmed they are not blank, rinsate or PT samples.

Resolution 02: Per SFAM01.1 Exhibit A, Section 5.5.4.1., the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Issue 03: SDGs E28M0 and ME28M0 require Laboratory QC but a sample was not designated on the COC. There is no extra volume for soil VOA Laboratory QC and the laboratory would

like to proceed without Laboratory QC for soil VOA analysis.

Resolution 03: Per Region 5, the laboratory will note the issue in the SDG Narrative and proceed without Laboratory QC for soil VOA analysis.

LAB: "Lab has received soil samples for SVOA and SIM-PAH analysis. Lab has started extraction, and a strong gasoline odor was observed for the sample E28M0. Sample extract was not able to filter and/or concentrate during the extraction procedure and extraction could not be done. In this case, Lab would like to confirm that lab will proceed with medium level Extraction with 1g soil sample to perform the SVOA and SIM-PAH analysis.

Please let us know if you need any other information."

REGION: "Per the client, the lab's proposed plan of action is acceptable."

LAB: "Lab has analyzed few samples of this SDG for low level VOA analysis. During the analysis, the GC/MS filament was burnt out and analytical sequence was stopped. During this issue, data was not collected for the sample E28M6 and closing CCV was also not injected due to the issue. Based on the above analysis as Lab has used data as screening data.
Sample E28M1 was having very high concentration of the analytes therefore Lab has analyzed direct medium level analysis and required further dilution. In this case, Lab will report medium level VOA analysis as first analysis and further dilution in final electronic deliverables.
Samples E28M0 & E28M2 were re-analyzed for low level VOA analysis. Samples found positive with high concentration of target analytes and required medium level VOA analysis. However, reanalysis had internal standard and surrogate recoveries were outside the QC limits and Lab has not any sample volume left to perform the low level VOA analysis. In this case, Lab will report undiluted low level VOA re-analysis with internal standard and surrogate failure as first analysis and further dilution medium level VOA analysis for final electronic deliverables.
Sample E28M3 initially analyzed had internal standard recovery outside the QC limits as a corrective action, Lab has re-analyzed the sample for Low Level VOA analysis and similarly internal standard recovery outside of the QC limits. Therefore, lab has analyzed medium level analysis as further corrective action. In this case, Lab will report re-analysis low level VOA analysis and medium level analysis for final electronic deliverables.

Please see attached."

REGION: "The lab's proposed plan is acceptable."

Low Volatiles:

The analysis performed on instrument MSVOA_X were done using GC column DB-624UI 20m 0.18mm 1.0 um. Cat#121-1324UI.
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 performed on instrument MSVOA_D were done using GC column RTX-VMS

which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by SUPELCO, K (VOACARB 3000) , TEKMAR LSC-2000 Concentrator.
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 ,
E28M0 [1,2-Dichloropropane-d6 - 182%, 2-Hexanone-d5 - 260%, Benzene-d6 - 160%, trans-1,3-Dichloropropene-d4 - 164%],
E28M2 [1,1-Dichloroethene-d2 - 147%, 1,2-Dichloroethane-d4 - 140%, 1,2-Dichloropropane-d6 - 129%, 2-Hexanone-d5 - 180%, Chloroethane-d5 - 160%, Vinyl Chloride-d3 - 155%],
E28M3 [1,1,2,2-Tetrachloroethane-d2 - 130%, 1,2-Dichloropropane-d6 - 182%, Benzene-d6 - 163%],
E28M5 [1,2-Dichloroethane-d4 - 59%],
E28M7 [1,1,2,2-Tetrachloroethane-d2 - 177%, 1,2-Dichloroethane-d4 - 198%, 1,2-Dichloropropane-d6 - 143%, 2-Butanone-d5 - 693%, 2-Hexanone-d5 - 320%, Benzene-d6 - 170%],
E28M7RE [1,1,2,2-Tetrachloroethane-d2 - 176%, 1,2-Dichlorobenzene-d4 - 121%, 1,2-Dichloropropane-d6 - 246%, 2-Hexanone-d5 - 176%, Benzene-d6 - 229%],
E28M9 [1,1,2,2-Tetrachloroethane-d2 - 145%, 1,2-Dichloroethane-d4 - 137%, 1,2-Dichloropropane-d6 - 180%, Benzene-d6 - 150%],
E28M9RE [1,2-Dichlorobenzene-d4 - 74%, 1,2-Dichloroethane-d4 - 68%],
E28N1 [1,1,2,2-Tetrachloroethane-d2 - 229%, 1,1-Dichloroethene-d2 - 150%, 1,2-Dichloroethane-d4 - 154%, 1,2-Dichloropropane-d6 - 247%, 2-Butanone-d5 - 201%, 2-Hexanone-d5 - 213%, Benzene-d6 - 216%, Chloroethane-d5 - 173%, Vinyl Chloride-d3 - 183%],
E28N1RE [1,1,2,2-Tetrachloroethane-d2 - 126%, 1,2-Dichlorobenzene-d4 - 61%, 1,2-Dichloropropane-d6 - 120%, 2-Hexanone-d5 - 155%],
E28N4 [1,1,2,2-Tetrachloroethane-d2 - 727%, 1,1-Dichloroethene-d2 - 120%, 1,2-Dichlorobenzene-d4 - 130%, 1,2-Dichloroethane-d4 - 161%, 1,2-Dichloropropane-d6 - 708%, 2-Butanone-d5 - 278%, 2-Hexanone-d5 - 541%, Benzene-d6 - 454%, Chloroethane-d5 - 207%, Chloroform-d - 156%, Toluene-d8 - 168%, Vinyl Chloride-d3 - 238%],
E28N4RE [1,1,2,2-Tetrachloroethane-d2 - 239%, 1,2-Dichlorobenzene-d4 - 134%, 1,2-Dichloropropane-d6 - 182%, 2-Butanone-d5 - 159%, 2-Hexanone-d5 - 208%],
E28N5 [1,2-Dichlorobenzene-d4 - 61%],
E28N7 [1,1,2,2-Tetrachloroethane-d2 - 241%, 1,1-Dichloroethene-d2 - 118%, 1,2-Dichlorobenzene-d4 - 131%, 1,2-Dichloroethane-d4 - 135%, 1,2-Dichloropropane-d6 - 286%, 2-Butanone-d5 - 146%, 2-Hexanone-d5 - 251%, Benzene-d6 - 243%, Toluene-d8 - 133%],
E28N7RE [1,1,2,2-Tetrachloroethane-d2 - 181%, 1,2-Dichloropropane-d6 - 220%, 2-Hexanone-d5 - 160%, Benzene-d6 - 169%],
E28N8 [1,1,2,2-Tetrachloroethane-d2 - 1%, 1,1-Dichloroethene-d2 - 118%, 1,2-Dichloroethane-d4 - 143%, 1,2-Dichloropropane-d6 - 149%, Chloroethane-d5 - 154%, Chloroform-d - 13%],
E28N8RE [1,1,2 and2-Tetrachloroethane-d2 - 17%].,
As per method, up to three surrogates are allowed to fail. No corrective action was taken. except for Samples E28M7, E28M9 , E28N1 , E28N7 , E28N8 , E28N4 , E28M2 , E28M0 ,failed for more than three surrogates and both the run are Reported.

For Samples E28M7RE, E28N7RE, E28N4RE and E28N1RE First analysis was Internal Standard recoveries failed, as corrective action this samples were reanalyzed, however reanalyzed was fail for Surrogate and both run are reported.

The Internal Standards Areas met the acceptable requirements except for E28M0, E28M2, E28M3 ,E28M7, E28M7RE, E28M9, E28M9RE, E28N1, E28N1RE, E28N4, E28N4RE, E28N7 ,E28N7RE, E28N8 ,E28N8RE. Samples E28M7, E28M9, E28N1, E28N4,, E28N7 and E28N8 which failed for Internal Standards. as corrective action sample was reanalyzed and analyzed Medium Level all analysis reported.

Lab has analyzed few samples of this SDG for low level VOA analysis. During the analysis, the GC/MS filament was burnt out and analytical sequence was stopped. During this issue, data was not collected for the sample and closing CCV was also not injected due to the issue. Based on the above analysis, Samples E28M0 & E28M2 were re-analyzed for low level VOA analysis. Samples found positive with high concentration of target analytes and required medium level VOA analysis. However, reanalysis had internal standard and surrogate recoveries were outside the QC limits and Lab has not any sample volume left to perform the low level VOA analysis, therefore Lab reported undiluted low level VOA re-analysis with internal standard and surrogate failure as first analysis and further dilution medium level VOA analysis for final hard Copy, Please see EPA communication after SDG Narrative.

Sample E28M3 initially analyzed had internal standard recovery outside the QC limits as a corrective action, Lab has re-analyzed the sample for Low Level VOA analysis and similarly internal standard recovery outside of the QC limits. Therefore, lab has analyzed medium level analysis as further corrective action, therefore Lab reported re-analysis low level VOA analysis and medium level analysis for final hard Copy, Please see EPA communication after SDG Narrative.

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

The Initial Calibration criteria met requirements..

The Continuing Calibration (VSTD025579) file ID VW031139.D met the requirements except for Chloroethane (-28.3%). 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 (VSTD025581) file ID VW031160.D met the requirements except for Vinyl Chloride-d3 (-31.5%). 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 indicate the presence of Chloroform [3.9ug/Kg] File ID: VD080106.D { VD1205SBL01} (VBLK827) lab contamination. As per method, less than the respective CRQL is allowed to fail for Chloroform. Therefore, no further corrective action was taken.

The Storage blank analysis did not indicated the presence of Lab Contamination.

Sample E28M1 was having very high concentration of the analytes therefore Lab has analyzed direct medium level analysis and required further dilution. In this case Lab reported medium level VOA analysis as first analysis and further dilution in final Hard Copy, Please see EPA communication after SDG Narrative.

Samples E28M0, E28M1 and E28M2 were diluted due to high concentrations.

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

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

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 **E28M0ME** for **Tetrachloroethene:**

Ax	=	54499
Ais	=	200768
Is	=	250
S	=	93.1/100 = 0.931
$\overline{RRF}$	=	0.277
AV_t	=	5.32
Va	=	100
Ws	=	4.62
DF	=	1
Avt	=	5 + [4.62 (4.62 X 93.1/100)] = 5.32

$$\text{Concentration}(\mu g/Kg) = \frac{(54499)(250)(5.32)(1000)(1)}{(200768)(0.277)(100)(4.62)(0.931)}$$

Reported results = 3030.221 ug/Kg

Final Reported results = 3000 ug/Kg

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VX120524** for **5.0** ppb

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

$$RRF = \frac{8793}{234557} \times \frac{50}{5.0}$$

RRF= 0.375

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.

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 12/05/2024 and 12/13/2024, 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,
E28M0 [4,6-Dinitro-2-methylphenol-d2 - 1%, 4-Nitrophenol-d4 - 0%],
E28M0RX [2-Nitrophenol-d4 - 9%, 4,6-Dinitro-2-methylphenol-d2 - 0%, 4-Nitrophenol-d4 - 0%].
E28M1 [2,4-Dichlorophenol-d3 - 8%, 2-Chlorophenol-d4 - 9%, 4,6-Dinitro-2-methylphenol-d2 - 4%],
E28M1DL [2-Chlorophenol-d4 - 12%, 2-Nitrophenol-d4 - 0%, 4,6-Dinitro-2-methylphenol-d2 - 0%, 4-Nitrophenol-d4 - 0%],
E28M2 [4,6-Dinitro-2-methylphenol-d2 - 1%, 4-Nitrophenol-d4 - 1%],
E28N8 [4,6-Dinitro-2-methylphenol-d2 - 3%, 4-Nitrophenol-d4 - 8%],
E28N8MS [4,6-Dinitro-2-methylphenol-d2 - 7%],
E28N8MSD [4 and6-Dinitro-2-methylphenol-d2 - 6%].As per method four surrogates are allowed to fail. The DMC recovery requirements do not apply to samples that have been diluted. 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 {E28N8MS} recovery met the requirements for all compounds.
The MSD {E28N8MSD} recovery met the requirements for all compounds.
The RPD {E28N8MSD} RPD met the requirements for all compounds

The Blank Spike for {PB165438BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB165440BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB165624BS} 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 End Continuous Calibration (SSTD020559) with File ID BG063631.D met the requirement except for Butylbenzylphthalate (58.3%), Bis(2-ethylhexyl)phthalate (53.6%), Up to six target analytes and DMCs may fail to meet the maximum %D criteria listed in Exhibit D - SVOA, Table 5, for the Continuous Calibration Verification to be considered acceptable. No further corrective action was taken.

The End Continuous Calibration (SSTD020749) with File ID BP023427.D met the requirement except for Hexachlorocyclopentadiene (-52.7%), 2,4-Dinitrophenol (-66.0%), 4,6-Dinitro-2-methylphenol-d2 (-50.3%), Up to six target analytes and DMCs may fail to meet the maximum %D criteria listed in Exhibit D - SVOA, Table 5, for the Continuous Calibration Verification to be considered acceptable. No further corrective action was taken.

The Sample E28M0 and E28M0RX per method analyzed at 1 GM at Medium analysis. Lab has started extraction, and a strong gasoline odor was observed for the sample E28M0. Sample extract was not able to filter and/or concentrate during the extraction procedure and extraction could not be done. In this case, Lab has reported with medium level Extraction with 1g soil sample to perform the SVOA. Please see email communication after SDG narrative.

Sample E28M1 was diluted due to high concentration.

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 E28M1 for Naphthalene:

Ax = 735682
Ais = 356771
Is = 20
Vi = 1
Vt = 500
Wt = 30.0
Df = 1
RRF = 1.030
GPC = 2
D= 0.859

Concentration

$$\text{(dry weight basis) ug/Kg} = \frac{(735682)\,(20)\,(500)\,(1)\,(2)}{(356771)\,(1.030)\,(1)\,(30.0)\,(0.859)}$$

$$= 1600 \text{ ug/Kg}$$

RRF Calculation of standard 20 ppb for Naphthalene with G instrument for method 12/06/2024.

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

$$= 266837/254867 \times 20/20$$

$$= 1.047 \text{ (Reported RRF)}$$

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.

The samples were analyzed on instrument BNA_N 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 12/05/2024. The analysis of SVOC-SIM-SFAM 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 {E28N8MS} recovery met the requirements for all compounds.
The MSD {E28N8MSD} recovery met the requirements for all compounds.
The RPD {E28N8MSD} RPD met the requirements for all compounds
The Blank Spike for {PB165441BS} 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.

Sample E28M0 and E28M2 were diluted due to high concentration.

Samples E28M7, E28M8, E28N0, E28N2, E28N2, E28N4 and E28N5 have the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.

AS per SOW Exhibit D section 10.4.1“if any single PAH analyte or PCP exceeds the calibration range, do not proceed with the SIM method for any of the target analyte scheduled for SIM analysis.”, so sample E28M0 and E28M1 not analyzed for SIM.

PB165441BL analyzed twice in different instrument, first time in BNA_N and Second time in BNA_M. However our sample associated with this BL run in BNA_N, so BNA_M instrument raw data reported as Screening Data in the package.

Samples E28M2 was reported with compounds exceeding calibration range. This sample is not further diluted because this sample compounds results are greater than highest calibration range of SIM but less than Total SVOC CRQL.

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

Example calculation of E28M2 for Naphthalene:

Ax = 116444
Ais = 7870
Is = 0.4
Vi = 1
Vt = 500
Wt = 30.0
Df = 1
RRF = 1.025
GPC = 2
D= 0.846

Concentration

(dry weight basis) ug/Kg = $\frac{(116444)\,(0.4)\,(500)\,(1)\,(2)}{(7870)\,(1.025)\,(1)\,(30.0)\,(0.846)}$

= 230 ug/Kg

RRF Calculation of standard 0.4 ppb for **Naphthalene** with N instrument for method 11/16/2024.

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

= 6250/5912 X 0.4/0.4

= 1.057 (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 12/06/2024 and analyzed on 12/06/2024, 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
E28M0 [Decachlorobiphenyl(1) – 28%],
E28M9 [Decachlorobiphenyl(2) – 29%],
E28N5 [Decachlorobiphenyl(1) – 26%,Decachlorobiphenyl(2) – 24%],
The SOW allows one surrogate to fail to meet the criteria per column. ((Please See Section 11.3.6 of Exhibit D Aroclor Analysis).

E28N8MS met the requirements.
E28N8MSD 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.

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

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

DF = Dilution Factor

Example of AR1260 calculation for Peak 1

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

$= \frac{28412934}{0.100}$

= 284129340 calibration factor for Peak 1 100ppb

Average of 5 peaks = 253340942

Sample **E28M1**
Ax = 38153556
CF = 253340942
Vt = 10000
Vi = 1.0
Ws = 30.0
D = 0.859
GPC = 1.0
DF = 1.0

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

$= \frac{(38153556)\ (10000)\ (1.0)\ (1.0)}{(253340942)\ (1.0)\ (30.0)\ (0.859)}$

Peak 1 = 58.44

Average of 5 peaks = 47.26

Reported results = 47 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.