SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51951
SDG: A44S2
CONTRACT: 68HERH20D0011
LAB CODE: ACE
CHEMTECH PROJECT: Q1190
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	Test	pH
Q1190-01	A44S2		
Q1190-02	A44S3		
Q1190-02DL	A44S3DL	SVOA	
Q1190-03	A44S4		
Q1190-03DL	A44S4DL	SVOA	
Q1190-03RE	A44S4RE	VOA	
Q1190-04	A44S5		
Q1190-05	A44S6		
Q1190-06MS	A44S6MS		
Q1190-07MSD	A44S6MSD		
Q1190-08	A44S7		
Q1190-08ME	A44S7ME	VOA	
Q1190-08RE	A44S7RE	VOA	
Q1190-09	A44S8		
Q1190-10	A44S9		
Q1190-10RE	A44S9RE	VOA	
Q1190-11	A44T0		
Q1190-11ME	A44T0ME	VOA	
Q1190-11RE	A44T0RE	VOA	
Q1190-12	A44T1		
Q1190-13	A44T2		
Q1190-14	A44T3		
Q1190-14ME	A44T3ME	VOA	
Q1190-14RE	A44T3RE	VOA	
Q1190-15	A44T4		
Q1190-15ME	A44T4ME	VOA	
Q1190-15RE	A44T4RE	VOA	
Q1190-16	A44T6		

Q1190-17	A44T7		
Q1190-17ME	A44T7ME	VOA	
Q1190-17RE	A44T7RE	VOA	
Q1190-18	A44X1		
Q1190-18DL	A44X1DL	VOA	
Q1190-19	A44X3		
Q1190-19DL	A44X3DL	SVOA	
Q1190-20	A44Y2		
Q1190-21	A44Y3		

21 Soil samples were delivered to the laboratory intact on 01/25/2025.

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

The temperature of the samples was measured using an I R Gun. The samples temperature was 1.8, 1.5, 2.1, 2.3, 2.8, 1.3 degree Celsius for the samples received on 01/25/2025.

Shipping Discrepancies and/or QC issues:

Issue 01: Lab is sending this email with regards to case 51951 and SDG A44S2.

Lab has received samples for SVOA analysis. As a precautionary step, Lab has analyzed sample A44S3 with straight dilution SVOA analysis. Sample found positive with high concentration of target analytes and required further dilution as you can see attached form1 with quant reports. In this case, Lab will report dilution analysis as first analysis and further dilution analysis for final electronic deliverables.

Resolution 01: “The laboratory’s proposal is accepted.”

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

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 ,
A44S2 [1,1,2,2-Tetrachloroethane-d2 - 148%, 2-Butanone-d5 - 171%, 2-Hexanone-d5 - 201%],
A44S3 [1,1,2,2-Tetrachloroethane-d2 - 182%, 2-Butanone-d5 - 252%, 2-Hexanone-d5 - 315%],

A44S4 [1,1,2,2-Tetrachloroethane-d2 - 140%, 1,2-Dichloropropane-d6 - 149%, 2-Butanone-d5 - 162%, 2-Hexanone-d5 - 226%],
A44S4RE [1,1,2,2-Tetrachloroethane-d2 - 143%, 1,2-Dichloropropane-d6 - 127%, 2-Butanone-d5 - 197%, 2-Hexanone-d5 - 258%],
A44S5 [1,1,2,2-Tetrachloroethane-d2 - 143%, 2-Butanone-d5 - 167%, 2-Hexanone-d5 - 205%],
A44S6 [2-Butanone-d5 - 152%, 2-Hexanone-d5 - 169%],
A44S6MS [1,1,2,2-Tetrachloroethane-d2 - 153%, 2-Butanone-d5 - 180%, 2-Hexanone-d5 - 237%],
A44S6MSD [1,1,2,2-Tetrachloroethane-d2 - 136%, 2-Butanone-d5 - 156%, 2-Hexanone-d5 - 203%],
A44S7 [1,1,2,2-Tetrachloroethane-d2 - 140%, 1,2-Dichloropropane-d6 - 186%, 2-Butanone-d5 - 164%, 2-Hexanone-d5 - 271%, Benzene-d6 - 174%],
A44S7RE [1,2-Dichloropropane-d6 - 138%, 2-Butanone-d5 - 150%, 2-Hexanone-d5 - 231%],
A44S8 [1,2-Dichloropropane-d6 - 137%, 2-Butanone-d5 - 147%, 2-Hexanone-d5 - 218%],
A44S9 [1,1,2,2-Tetrachloroethane-d2 - 170%, 1,2-Dichloropropane-d6 - 143%, 2-Butanone-d5 - 194%, 2-Hexanone-d5 - 254%],
A44S9RE [1,1,2,2-Tetrachloroethane-d2 - 162%, 1,2-Dichloropropane-d6 - 133%, 2-Butanone-d5 - 193%, 2-Hexanone-d5 - 244%],
A44T0 [1,1,2,2-Tetrachloroethane-d2 - 197%, 1,1-Dichloroethene-d2 - 141%, 1,2-Dichlorobenzene-d4 - 124%, 1,2-Dichloroethane-d4 - 154%, 1,2-Dichloropropane-d6 - 278%, 2-Butanone-d5 - 273%, 2-Hexanone-d5 - 320%, Benzene-d6 - 255%, Chloroethane-d5 - 167%, Chloroform-d - 151%, Toluene-d8 - 167%, trans-1,3-Dichloropropene-d4 - 141%, Vinyl Chloride-d3 - 158%],
A44T0RE [1,1,2,2-Tetrachloroethane-d2 - 190%, 1,1-Dichloroethene-d2 - 124%, 1,2-Dichloroethane-d4 - 145%, 1,2-Dichloropropane-d6 - 277%, 2-Butanone-d5 - 245%, 2-Hexanone-d5 - 316%, Benzene-d6 - 240%, Toluene-d8 - 150%],
A44T1 [1,1,2,2-Tetrachloroethane-d2 - 152%, 2-Butanone-d5 - 170%, 2-Hexanone-d5 - 204%],
A44T2 [2-Hexanone-d5 - 144%],
A44T3 [1,1,2,2-Tetrachloroethane-d2 - 171%, 1,2-Dichloropropane-d6 - 151%, 2-Butanone-d5 - 170%, 2-Hexanone-d5 - 246%, Benzene-d6 - 145%],
A44T3RE [1,1,2,2-Tetrachloroethane-d2 - 169%, 1,2-Dichloropropane-d6 - 214%, 2-Butanone-d5 - 201%, 2-Hexanone-d5 - 292%, Benzene-d6 - 196%, Toluene-d8 - 131%],
A44T4 [1,1,2,2-Tetrachloroethane-d2 - 175%, 1,2-Dichloropropane-d6 - 171%, 2-Butanone-d5 - 217%, 2-Hexanone-d5 - 285%, Benzene-d6 - 156%],
A44T4RE [1,1,2,2-Tetrachloroethane-d2 - 159%, 1,2-Dichloropropane-d6 - 159%, 2-Butanone-d5 - 178%, 2-Hexanone-d5 - 269%, Benzene-d6 - 145%],
A44T6 [2-Hexanone-d5 - 148%],
A44T7 [1,1,2,2-Tetrachloroethane-d2 - 151%, 1,2-Dichloropropane-d6 - 161%, 2-Butanone-d5 - 145%, 2-Hexanone-d5 - 200%, Benzene-d6 - 148%],
A44T7RE [1,1,2,2-Tetrachloroethane-d2 - 160%, 1,2-Dichloropropane-d6 - 144%, 2-Butanone-d5 - 172%, 2-Hexanone-d5 - 221%],
A44X1 [1,1,2,2-Tetrachloroethane-d2 - 128%, 2-Hexanone-d5 - 139%],
A44X1DL [1,1,2,2-Tetrachloroethane-d2 - 123%, 2-Hexanone-d5 - 138%] and
A44Y3 [2-Hexanone-d5 - 145%],

As per method, up to three surrogates are allowed to fail. No corrective action was taken. except Samples A44T3, A44T3, A44T7, A44S4, A44S7, A44S9 and A44T0 failed for more than three surrogates, as corrective action this sample was reanalyzed.

The Internal Standards Areas met the acceptable requirements except for A44S4RE, A44S7, A44S7RE, A44T0, A44T0RE, A44T3, A44T3RE, A44T4, A44T4RE, A44T7 and A44T7RE. Samples A44S7, A44T0, A44T3, A44T4 and A44T7 which failed for Internal Standards. as corrective action sample was reanalyzed and analyzed Medium Level all analysis reported. For Sample A44S4RE First analysis was Surrogate recoveries failed, as corrective action this sample was reanalyzed, however reanalyzed was fail forInternal standard recovery and both run are reported.

Instrument Performance Check met requirements.
The Retention Times were met for all samples.
The Tuning criteria met requirements.
The MS {A44S6MS} recovery met the requirements for all compounds.
The MSD {A44S6MSD} recovery met the requirements for all compounds.
The MSD {A44S6MSD} RPD met the requirements for all compounds.
The for initial Calibration criteria met requirements.

The End Continuing Calibration (VSTD050486) file ID VW031603.D met the requirements except for Vinyl Chloride-d3 (-55.9%). 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 End Continuing Calibration (VSTD025490) file ID VW031653.D met the requirements except for 2-Hexanone-d5 (-52.2%). 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 (VSTD050820) file ID VX044756.D met the requirements except for Chloroethane (25.4%). 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 Blank analysis did not indicated the presence of lab Contamination.
The Storage blank analysis did not indicated the presence of lab Contamination.

Sample A44Y0 directly run in Medium Level analysis as there is no Vial to take corrective action.

The Sample A44S4RE, A44S7ME and A44S8 have the concentration of target compound below Method detection limits, therefore it is not reported as Hit in Form1.

Sample A44X1 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 Level Soil/Sediment Calculation

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

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

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

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 **A44T3ME** for **Methyl Acetate:**

Ax	=	2943
Ais	=	254732
Is	=	250
S	=	84.0/100 = 0.840
$\overline{RRF}$	=	0.371
AV_t	=	6.68
Va	=	100
Ws	=	10.5
DF	=	1
Avt	=	5 + [10.5 (10.5 X 84.0/100)] = 6.68

$$\text{Concentration}(\mu g/Kg) = \frac{(2943)(250)(6.68)(1000)(1)}{(254732)(0.371)(100)(10.5)(0.840)}$$

Reported results = 58.963 ug/Kg

Final Reported results = 59 ug/Kg

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VX012825** for **5.0** ppb

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

$$RRF = \frac{10048}{329937} \times \frac{50}{5.0}$$

RRF= 0.305

Semivolatiles:

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_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 01/28/2025. 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,
A44S3 [4,6-Dinitro-2-methylphenol-d2 - 3%],
A44S3DL [4,6-Dinitro-2-methylphenol-d2 - 0%, 4-Chloroaniline-d4 - 0%, 4-Nitrophenol-d4 - 0%],
A44S4DL [4,6-Dinitro-2-methylphenol-d2 – 0%] and
A44S7 [4,6-Dinitro-2-methylphenol-d2 - 8%].The DMC recovery requirements do not apply to samples that have been diluted. 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 {A44S6MS} recovery met the requirements for all compounds.
The MSD {A44S6MSD} recovery met the requirements for all compounds.
The RPD {A44RS6MSD} RPD met the requirements for all compounds
The Blank Spike for {PB166295BS} 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 opening Continuous Calibration met the requirements.

The End Continuous Calibration (SSTD020089) with File ID BM049562.D,. met the requirement except for Hexachlorocyclopentadiene (-65.5%), 2,4-Dinitrophenol (-80.2, %), 4,6-Dinitro-2-methylphenol (-80.2%), 4,6-Dinitro-2-methylphenol-d2 (-80.6%), As per method, the %D up to six Compounds are allowed to fail to meet the minimum criteria No further corrective action was taken

Samples A44S3, A44S4 and A44X3 were diluted due to high concentrations.

The Sample A44S3DL, A44S4, A44S7, A44T0, A44T2 and A44T7 have the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.

PB166295BL analyzed twice in different instrument, first time in BNA_M and Second time in BNA_P. However our sample associated with this BL run in BNA_M, so BNA_P instrument raw data reported as Screening Data in the package.

Samples A44S3 was diluted with 10X , Sample found positive with high concentration of target analytes and required further dilution. In this case, Lab has reported dilution analysis as first analysis and further dilution analysis for final Hardcopy.

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 A44S2 for Phenol:

Ax = 71988
Ais = 494231
Is = 20
Vi = 1
Vt = 500
Wt = 30.1
Df = 1
RRF = 1.817
GPC = 2
D= 0.624

Concentration

$$\text{(dry weight basis) ug/Kg} = \frac{(71988)\,(20)\,(500)\,(1)\,(2)}{(494231)\,(1.817)\,(1)\,(30.1)\,(0.624)}$$

= 85 ug/Kg

RRF Calculation of standard 20 ppb for Naphthalene with M instrument for method 01/28/2025.

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

= 733886/607729 X 20/20

= 1.208 (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.