SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51951
SDG: A44Q3
CONTRACT: 68HERH20D0011
LAB CODE: ACE
CHEMTECH PROJECT: Q1189
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	Test	pH
Q1189-01	A44Q3		
Q1189-02	A44Q5		
Q1189-02DL	A44Q5DL	SVOA	
Q1189-02ME	A44Q5ME	VOA	
Q1189-02RE	A44Q5RE	VOA	
Q1189-03	A44Q6		
Q1189-03ME	A44Q6ME	VOA	
Q1189-03RE	A44Q6RE	VOA	
Q1189-04	A44Q7		
Q1189-05	A44Q8		
Q1189-05ME	A44Q8ME	VOA	
Q1189-05RE	A44Q8RE	VOA	
Q1189-06	A44Q9		
Q1189-07	A44R0		
Q1189-08	A44R1		
Q1189-08RE	A44R1RE	VOA	
Q1189-09MS	A44R1MS		
Q1189-10MSD	A44R1MSD		
Q1189-11	A44R2		
Q1189-11ME	A44R2ME	VOA	
Q1189-11MEDL	A44R2MEDL	VOA	
Q1189-12	A44R3		
Q1189-13	A44R4		
Q1189-13DL	A44R4DL	SVOA	
Q1189-13DL2	A44R4DL2	SVOA	
Q1189-13RE	A44R4RE	VOA	
Q1189-14	A44R5		
Q1189-14ME	A44R5ME	VOA	

Q1189-14RE	A44R5RE	VOA	
Q1189-15	A44R6		
Q1189-16	A44R7		
Q1189-17	A44R8		
Q1189-18	A44R9		
Q1189-19	A44S0		
Q1189-20	A44S1		
Q1189-21	A44T5		
Q1189-22	A44X0		
Q1189-22DL	A44X0DL	VOA	
Q1189-23	A44X2		
Q1189-23DL	A44X2DL	SVOA	

23 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 has received sample with higher sample volume then the required sample weight/volume for soil sample to perform the VOA analysis. Lab has analyzed sample A44R2 with 12.71g sample received for VOA analysis. Due to high sample volume, sample positive with high concentration of target analytes detected and also sample has internal standard and surrogate recoveries outside the QC limits as you can see attached quant report for your reference. In this case, Lab will report undiluted low level VOA analysis with surrogate and internal standard failure as first analysis and further dilution (medium level VOA) analysis for final electronic deliverables."

Resolution 01: "Please have the lab proceed as indicated below. Thanks!"

Issue 02: "The Lab has received soil samples for VOA analysis. The lab has received some samples with a very high volume. Lab analyzed undiluted Low level VOA analysis, where Sample A44Q5, A44Q6, A44Q8, A44R1, A44R4 and A44R5 Internal, and surrogate recovery were outside of QC limits due to possible high volume of the samples. As corrective action, the lab has reanalyzed the samples and confirmed the QC failure. Please see attached surrogate and internal summary and associate all reanalysis samples raw data for your reference. These samples are received at high volume as you can see in the attached preservation log. Due to the high volume of the sample associated closing CCV did not meet the requirements
As per SOW all sample failing on internal standard were reanalyzed as well as medium level

VOA analysis as correction as action. Since we have re-analyzed all the samples affected by the closing CCV, the lab would like to confirm that the lab should report both original and reanalysis with closing CCV failure and further medium analysis in the final electronic deliverable. Please see attached."

Resolution 02: "Please have the lab report the original low level analyses and their re-analysis, as well as the medium level analyses in the final EDD."

Issue 03: Soil and water PT samples were received without analysis instructions. The laboratory would like confirmation on how to process the PT samples.

Resolution 03: Per Region 1, please see the attached document for instructions for how to process the delivered PT samples. Please note the issue in the SDG Narrative and proceed with analysis of the samples.

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 ,
A44Q3 [2-Butanone-d5 - 141%, 2-Hexanone-d5 - 154%],
A44Q5 [1,1,2,2-Tetrachloroethane-d2 - 211%, 1,2-Dichloropropane-d6 - 129%, 2-Butanone-d5 - 260%, 2-Hexanone-d5 - 323%],
A44Q5RE [1,1,2,2-Tetrachloroethane-d2 - 207%, 2-Butanone-d5 - 340%, 2-Hexanone-d5 - 426%],
A44Q6 [1,1,2,2-Tetrachloroethane-d2 - 197%, 1,2-Dichloropropane-d6 - 136%, 2-Butanone-d5 - 233%, 2-Hexanone-d5 - 317%],
A44Q6RE [1,1,2,2-Tetrachloroethane-d2 - 187%, 2-Butanone-d5 - 329%, 2-Hexanone-d5 - 386%],
A44Q7 [1,1,2,2-Tetrachloroethane-d2 - 182%, 2-Butanone-d5 - 215%, 2-Hexanone-d5 - 271%],
A44Q8 [1,1,2,2-Tetrachloroethane-d2 - 187%, 1,2-Dichloropropane-d6 - 137%, 2-Butanone-d5 - 218%, 2-Hexanone-d5 - 331%],
A44Q8RE [1,2-Dichlorobenzene-d4 - 72%, 1,2-Dichloroethane-d4 - 58%, 2-Butanone-d5 - 244%, 2-Hexanone-d5 - 248%],
A44Q9 [1,1,2,2-Tetrachloroethane-d2 - 138%, 2-Butanone-d5 - 178%, 2-Hexanone-d5 - 226%],
A44R0 [2-Butanone-d5 - 139%, 2-Hexanone-d5 - 167%],

A44R1 [1,1,2,2-Tetrachloroethane-d2 - 123%, 1,2-Dichlorobenzene-d4 - 74%, 2-Butanone-d5 - 148%, 2-Hexanone-d5 - 165%],
A44R1RE [1,2-Dichlorobenzene-d4 - 74%],
A44R1MS [1,1,2,2-Tetrachloroethane-d2 - 120%, 2-Butanone-d5 - 137%, 2-Hexanone-d5 - 153%],
A44R1MSD [1,1,2,2-Tetrachloroethane-d2 - 130%, 2-Butanone-d5 - 154%, 2-Hexanone-d5 - 172%],
A44R2 [1,1,2,2-Tetrachloroethane-d2 - 371%, 1,1-Dichloroethene-d2 - 123%, 1,2-Dichloroethane-d4 - 228%, 1,2-Dichloropropane-d6 - 541%, 2-Butanone-d5 - 1090%, 2-Hexanone-d5 - 1091%, Benzene-d6 - 440%, Chloroethane-d5 - 259%, Chloroform-d - 217%, Toluene-d8 - 147%, Vinyl Chloride-d3 - 203%],
A44R3 [1,1,2,2-Tetrachloroethane-d2 - 147%, 2-Butanone-d5 - 196%, 2-Hexanone-d5 - 217%],
A44R4 [1,1,2,2-Tetrachloroethane-d2 - 183%, 1,2-Dichloropropane-d6 - 131%, 2-Butanone-d5 - 254%, 2-Hexanone-d5 - 361%],
A44R4RE [1,1,2,2-Tetrachloroethane-d2 - 160%, 2-Butanone-d5 - 204%, 2-Hexanone-d5 - 282%],
A44R5 [1,1,2,2-Tetrachloroethane-d2 - 279%, 1,2-Dichlorobenzene-d4 - 128%, 1,2-Dichloroethane-d4 - 133%, 1,2-Dichloropropane-d6 - 200%, 2-Butanone-d5 - 336%, 2-Hexanone-d5 - 527%, Benzene-d6 - 171%],
A44R5RE [1,2-Dichloroethane-d4 - 57%, 2-Butanone-d5 - 170%, 2-Hexanone-d5 - 151%],
A44R6 [1,1,2,2-Tetrachloroethane-d2 - 135%, 2-Butanone-d5 - 163%, 2-Hexanone-d5 - 191%],
A44R7 [1,1,2,2-Tetrachloroethane-d2 - 124%, 2-Butanone-d5 - 152%, 2-Hexanone-d5 - 182%],
A44R8 [1,1,2,2-Tetrachloroethane-d2 - 148%, 2-Butanone-d5 - 189%, 2-Hexanone-d5 - 205%],
A44R9 [1,2-Dichlorobenzene-d4 - 75%, 1,2-Dichloroethane-d4 - 51%],
A44S0 [1,2-Dichlorobenzene-d4 - 61%, 1,2-Dichloroethane-d4 - 46%, 1,2-Dichloropropane-d6 - 60%],
A44T5 [1,2-Dichloroethane-d4 - 66%],
As per method, up to three surrogates are allowed to fail. No corrective action was taken. except Samples A44R1, A44Q5, A44Q6, A44Q8, A44R4 and A44R5 failed for more than three surrogates, as corrective action this sample was reanalyzed.

The Internal Standards Areas met the acceptable requirements except for A44Q5, A44Q5RE, A44Q6, A44Q6RE, A44Q8, A44Q8RE, A44R2, A44R5 and A44R5RE.Samples A44Q5, A44Q6, A44Q8 and A44R5 which failed for Internal Standards. as corrective action sample was reanalyzed and analyzed Medium Level all analysis reported.
Lab has received sample with higher sample volume then the required sample weight/volume for soil sample to perform the VOA analysis. Lab has analyzed sample A44R2 with 12.71g sample received for VOA analysis. Due to high sample volume, sample positive with high concentration of target analytes detected and also sample has internal standard recoveries outside the QC limits,therefore Lab reported undiluted low level VOA analysis with internal standard failure as first analysis and further dilution (medium level VOA) 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 MS {A44R1MS} recovery met the requirements for all compounds.
The MSD {A44R1MSD} recovery met the requirements for all compounds.
The MSD {A44R1MSD} RPD met the requirements for all compounds.

The initial Calibration criteria met requirements.

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 End Continuing Calibration (VSTD025492) file ID VW031669.D met the requirements except for 1,1-Dichloroethene (51.9%), Acetone (93.1%) , 1,1,1-Trichloroethane (63.2%), Cyclohexane (111.6%), Carbon tetrachloride (78.9%) Methylcyclohexane (113.6%),. Tetrachloroethene (72.4%), 2-Hexanone (66.3%), Isopropylbenzene (67.9%), 2-Butanone-d5 (120.8%) and 2-Hexanone-d5 (103.4%),. Due to the high volume of the sample associated closing CCV did not meet the requirements.

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

Samples A44R2, A44R2ME and A44X0 were diluted due to high concentrations.

The Lab has received soil samples for VOA analysis. The lab has received some samples with a very high volume. Lab analyzed undiluted Low level VOA analysis, where Sample A44Q5, A44Q6, A44Q8, A44R1, A44R4 and A44R5 Internal, and surrogate recovery were outside of QC limits due to possible high volume of the samples. As corrective action, the lab has reanalyzed the samples and confirmed the QC failure, These samples are received at high volume, . Due to the high volume of the sample associated closing CCV did not meet the requirements, all samples failing on internal standard were reanalyzed as well as medium level VOA analysis as correction as action. Since we have re-analyzed all the samples affected by the closing CCV, therefore lab reported both original and reanalysis with closing CCV failure and further medium analysis in final Hard copy, Please see EPA communication after SDG Narrative.

The sample A44R3 was analyzed following the analysis of A44R2. Samples A44R3 had hit of compound 1,1,1-Trichloroethane with concentration above calibration levels. Sample A44R3 have not detected of the compound 1,1,1-Trichloroethane. Therefore, as per method no instrument blank was required.

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

Concentration(µg/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 **A44R2ME** for **1,1-Dichloroethane:**

Ax	=	274348
Ais	=	254732
Is	=	250
S	=	84.8/100 = 0.848
$\overline{RRF}$	=	0.634
AV_t	=	7.25
Va	=	100
Ws	=	10.5
DF	=	1
Avt	=	10 + [14.8 (14.8 X 84.8/100)] = 12.25

$$\text{Concentration}(\mu g/Kg) = \frac{(274348)(250)(7.25)(1000)(1)}{(258870)(0.634)(100)(14.8)(0.848)}$$

Reported results = 4145.220 ug/Kg

Final Reported results = 4100 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 01/27/2025. 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,
A44Q5DL [4,6-Dinitro-2-methylphenol-d2 - 0%],
A44R4DL [4,6-Dinitro-2-methylphenol-d2 - 0%] and
A44R4DL2 [1,4-Dioxane-d8 - 0%, 4,6-Dinitro-2-methylphenol-d2 - 0%, 4-Nitrophenol-d4 - 0%,]. The DMC recovery requirements do not apply to samples that have been diluted.

The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {A44R1MS} recovery met the requirements for all compounds.
The MSD {A44R1MSD} recovery met the requirements for all compounds.
The RPD {A44R1MSD} RPD met the requirements for all compounds
The Blank Spike for {PB166284BS} 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 (SSTD020081) with File ID BM049499.D met the requirement except for Benzaldehyde (42.0%), Under this Continuous Calibration no samples were analyzed, therefore no corrective action was taken.

Samples A44Q5, A44R4, A44R4DL and A44X2 were diluted due to high concentrations.

The Sample A44Q3, A44Q2, A44Q5DL, A44Q7, A44Q8, A44Q9, A44R2, A44R3, A44R4, A44R4DL, A44R6, A44R8 and A44R9 have the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.

PB166284BL 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.

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 A44Q3 for Phenol:

Ax = 42432
Ais = 241351
Is = 20
Vi = 1
Vt = 500
Wt = 30.1
Df = 1
RRF = 1.703
GPC = 2
D= 0.868

Concentration

$$\text{(dry weight basis) ug/Kg} = \frac{(42432)\,(20)\,(500)\,(1)\,(2)}{(241351)\,(1.703)\,(1)\,(30.1)\,(0.868)}$$

= 79 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.