SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51951
SDG: A44W4
CONTRACT: 68HERH20D0011
LAB CODE: ACE
CHEMTECH PROJECT: Q1191
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	pH
Q1191-01	A44W4	1.0
Q1191-02	A44W7	1.0
Q1191-03	A44Y0	
Q1191-04	A44Y1	
Q1191-05	A44W5	1.0
Q1191-06	A44W6	1.0
Q1191-07	A44W8	1.0

05 Water samples were delivered to the laboratory intact on 01/25/2025.
02 Soil samples were delivered to the laboratory intact on 01/25/2025.

Test requested on the Chain of Custody was Trace Volatile Organic, 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, 1.3 degree Celsius for the samples received on 01/25/2025.

Shipping Discrepancies and/or QC issues:

Issue: Per Region 1, Samples A44W4, A44W5, A44W6, A44W7, and A44W8 listed on COCs 1-012425-121346-0019 and 1-012425-132130-0023 for TVOA analysis should have been listed for VOA analysis. The laboratory has already performed TVOA analysis on the samples, and they are now out of holding time for VOA analysis.

Resolution: Per Region 1, Samples A44W4, A44W5, A44W6, A44W7, and A44W8 are rinse blanks and/or trip blanks associated with the soil samples. Please note the issue in the SDG Narrative and proceed with reporting TVOA results for these samples.

Trace Volatiles:

The analysis performed on instrument MSVOA_U 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_Trace.
Holding Times were met requirement.

The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements.
Instrument Performance Check met requirements.
The Retention Times met requirements.
The Tuning criteria met requirements.

The Initial Calibration met the requirements.
The Continuing Calibration met the requirements.

The Blank analysis did not indicate the presence of lab contamination.
The storage blank analysis did not indicate the presence of lab contamination.

See **Manual Integration report** for 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

Example calculation of **A44W4** for **Acetone**:

Ax= 4709
Is = 125
RRF= 0.034
DF= 1
Ais= 93469
Vo. = 25

$$\text{Concentration in ug/L} = \frac{(4709)\,(125)\,(1)}{(93469)(0.034)(25)}$$

Reported Result = 7.41 ug/L

Final Reported Result = 7.5 ug/L

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VU012725** for **0.5** ppb

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

$$\text{RRF} = \frac{4631}{103472} \times \frac{5.0}{0.5}$$

RRF= 0.448

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
A44Y1 [1,1,2,2-Tetrachloroethane-d2 - 161%, 2-Butanone-d5 - 179% and 2-Hexanone-d5 - 195%],
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 initial Calibration criteria met requirements.

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.

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

Calculation:
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

$$\text{Concentration in ug/Kg dry Weight basis)} = \frac{(Ax)(Is)(Df)}{(Ais)(RRF)(Ws)(D)}$$

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

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

Example Calculation for sample: **A44Y1** for **Acetone**:

Ax= 8893
Is= 250
RRF= 0.049
DF=1
Ais= 536891
Ws= 5.00
D= 1.00

$$\text{Concentration in ug/KG} = \frac{(8893)\ (250)\ (1)}{(536891)\ (0.049)\ (5.00)\ (1.0)}$$

$$= 16.9\ \text{ug//Kg}$$

Final Reported Results = 17 ug/Kg

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VW0110425** for **5.0** ppb

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

$$\text{RRF} = \frac{41305}{622364} \times \frac{25}{5.0}$$

RRF= 0.332

Semivolatiles:

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 water sample was extracted by Method SFAM01.1 on 01/29/2025, 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 except criteria.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The Blank Spike for {PB166340BS} 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 Water Sample:

$$\text{Concentration ug/L} = \frac{(Ax)\ (Is)\ (Vt)\ (DF)\ (GPC)}{(Ais)\ (\overline{RRF})\ (Vo)\ (Vi)}$$

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.
Vo = Volume of water extracted in mL.
Vi = Volume of extract injected in uL.
Vt = Volume of the concentrated extract in uL
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.

Example calculation of A44W5 for 4-Chloro-3-methylphenol:

Ax = 12507
Ais = 444422
Is = 20
DF = 1
Vo = 1000
Vi = 1
Vt = 1000
RRF = 0.381
GPC = 1

$$\text{Concentration ug/L} = \frac{(12507)\ (20)\ (1000)\ (1)\ (1)}{(444422)\ (0.381)\ (1000)\ (1)}$$

$$= 1.5 \text{ ug/L}$$

RRF Calculation of standard 20 ppb for **Naphthalene** with G instrument for method 01/30/2025.

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

= 461206/396712 X 20/20

= 1.163 (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.