SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51835
SDG: BH6M7
CONTRACT: 68HERH20D0011
LAB CODE: ACE
LAB ORDER ID: P4621
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	Test	pH
P4621-01	BH6M7		6.0
P4621-02	BH6M8		6.0
P4621-03	BH6M9		6.0
P4621-04	BH6N0		6.0
P4621-05	BH6N1		6.0
P4621-06	BH6N2		6.0
P4621-06RE	BH6N2RE	VOA	6.0
P4621-07	BH6N3		6.0
P4621-07RE	BH6N3RE	VOA	6.0
P4621-08	BH6N4		6.0
P4621-09	BH6N5		6.0
P4621-09RE	BH6N5RE	VOA	6.0
P4621-10	BH6N6		6.0
P4621-10RE	BH6N6RE	VOA	6.0
P4621-11MS	BH6N6MS		
P4621-12MSD	BH6N6MSD		
P4621-13	BH6N7		6.0
P4621-14	BH8M6		6.0

14 Soil samples were delivered to the laboratory intact on 10/29/2024.

Test requested on the Chain of Custody was SPLP Volatile Organic, SPLP Semi volatile Organic and SPLP Pesticide by Method SFAM01.1.

The temperature of the samples was measured using an I R Gun. The samples temperature was 3.5, 2.4, 2.8 degree Celsius for the samples received on 10/29/2024.

Shipping Discrepancies and/or QC issues:

Issue 01: The attached COCs lists a 7-day TAT, but a 14-day TAT is scheduled for this Case.

Resolution 01: Per Region 2, the laboratory should note the issue in the SDG Narrative and proceed with the analysis of the samples as scheduled (14-day TAT).

Low Volatiles (SPLP VOA):

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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 SPLP VOA was based on method SFAM01.1_Low.

Holding Times were met requirement.

The Surrogate recoveries met the acceptable criteria except for
BH6M8 [1,1,2,2-Tetrachloroethane-d2 - 127%, 2-Butanone-d5 - 141%, 2-Hexanone-d5 - 130%],
BH6N1 [1,2-Dichlorobenzene-d4 - 131%, 2-Butanone-d5 - 135%, Chloroethane-d5 - 154%],
BH6N2 [1,1,2,2-Tetrachloroethane-d2 - 397%, 1,1-Dichloroethene-d2 - 263%, 1,2-Dichlorobenzene-d4 - 395%, 1,2-Dichloroethane-d4 - 358%, 1,2-Dichloropropane-d6 - 360%, 2-Butanone-d5 - 458%, 2-Hexanone-d5 - 435%, Benzene-d6 - 325%, Chloroethane-d5 - 312%, Chloroform-d - 331%, Toluene-d8 - 309%, trans-1,3-Dichloropropene-d4 - 335%, Vinyl Chloride-d3 - 263%],
BH6N2RE [1,1,2,2-Tetrachloroethane-d2 - 167%, 1,1-Dichloroethene-d2 - 149%, 1,2-Dichlorobenzene-d4 - 182%, 1,2-Dichloroethane-d4 - 163%, 1,2-Dichloropropane-d6 - 168%, 2-Butanone-d5 - 193%, 2-Hexanone-d5 - 171%, Benzene-d6 - 162%, Chloroethane-d5 - 192%, Chloroform-d - 162%, Toluene-d8 - 158%, trans-1,3-Dichloropropene-d4 - 144%, Vinyl Chloride-d3 - 166%],
BH6N3 [1,1,2,2-Tetrachloroethane-d2 - 136%, 1,2-Dichlorobenzene-d4 - 135%, 2-Butanone-d5 - 148%, 2-Hexanone-d5 - 132%],
BH6N3RE [1,1-Dichloroethene-d2 - 58%, 1,2-Dichlorobenzene-d4 - 75%, 1,2-Dichloropropane-d6 - 69%, Benzene-d6 - 67%, Chloroform-d - 66%, Toluene-d8 - 63%],
BH6N4 [1,1-Dichloroethene-d2 - 58%, Toluene-d8 - 69%, Vinyl Chloride-d3 - 58%],
BH6N5 [1,1,2,2-Tetrachloroethane-d2 - 142%, 1,2-Dichlorobenzene-d4 - 149%, 1,2-Dichloroethane-d4 - 134%, 1,2-Dichloropropane-d6 - 132%, 2-Butanone-d5 - 163%, 2-Hexanone-d5 - 151%],
BH6N5RE [1,2-Dichlorobenzene-d4 - 127%, 2-Butanone-d5 - 131%, Chloroethane-d5 - 138%],
BH6N6 [1,1,2,2-Tetrachloroethane-d2 - 209%, 1,1-Dichloroethene-d2 - 149%, 1,2-Dichlorobenzene-d4 - 221%, 1,2-Dichloroethane-d4 - 190%, 1,2-Dichloropropane-d6 - 195%, 2-Butanone-d5 - 233%, 2-Hexanone-d5 - 221%, Benzene-d6 - 180%, Chloroethane-d5 - 177%, Chloroform-d - 175%, Toluene-d8 - 175%, trans-1,3-Dichloropropene-d4 - 176%, Vinyl Chloride-d3 - 148%],

BH6N6RE [1,1,2,2-Tetrachloroethane-d2 - 126%, 1,2-Dichlorobenzene-d4 - 134%, 1,2-Dichloroethane-d4 - 126%, 1,2-Dichloropropane-d6 - 123%, 2-Butanone-d5 - 149%, 2-Hexanone-d5 - 130% and Chloroethane-d5 - 143%].
As per method, up to three surrogates are allowed to fail. No corrective action was taken except for Samples BH6N2, BH6N3, BH6N5 and BH6N6 failed for more than three surrogates as corrective action samples were reanalyzed and confirmed for failure.

The Internal Standards Areas met the acceptable requirements except for BH6N2 and BH6N5RE. as corrective action BH6N2 sample was reanalyzed, and both run are reported.
First analysis of BH6N5RE was Surrogate recoveries failed, as corrective action this sample was reanalyzed, however reanalyzed was fail for Internal Standards and both run are reported.

Instrument Performance Check met requirements.
The Retention Times met requirements.
The Tuning criteria met requirements.

The %RSD met requirement for initial Calibration except for Dibromochloromethane (20.5%) for the initial calibration dated 11/04/2024 with X instrument, As per method, the %RSD up to two Compounds are allowed to fail to meet the minimum criteria as long as the compound meets the maximum of 40% RSD. No further corrective action was taken.

The Continuing Calibration (VSTD050781) file ID VX043750.D met the requirements except for Chloroethane (36.0%). 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 Blank analysis did not indicate the presence of lab contamination.
The Storage blank 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 **BH6N2** for **Acetone**:

Ax= 15647
Is = 250
RRF= 0.162
DF= 1
Ais= 126608
Vo. = 5

$$\text{Concentration in ug/L} = \frac{(15647)(250)(1)}{(126608)(0.162)(5)}$$

Reported Result = 38.14 ug/L

Final Reported Result = 38 ug/L

Relative Response Factor = **Vinyl chloride**: RUN **VX110424** for **5.0** ppb

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

$$RRF = \frac{9818}{326218} \times \frac{50}{5.0}$$

RRF= 0.301

SPLP 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 analysis of SPLP BNA Group1 was based on method SFAM01.1. Semi volatile Organic samples were extracted by Method SFAM01.1 on 11/04/2024. Samples were received on 10/29/2024. SPLP extraction was done on 11/03/2024.

This standard solution has 3-Methylphenol and 4-Methylphenol at a concentration of 500 ug/mL each whereas all other compounds are present at a concentration of 1000 ug/mL concentration. 3-Methylphenol and 4-Methylphenol co-elute. Since 3-Methylphenol is not a Target Compound to be reported under the SFAM01.1 contract, 4-Methylphenol is reported on the forms using the RRF obtained from the 3+4-Methylphenols peak.

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 Blank Spike for {PB164769BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164803BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164804BS} 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 the requirements.
The Continuous Calibration met the requirements.

The Sample BH6N2 and BH8M6 have the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.

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

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

Example calculation of BH6M7 for Dimethylphthalate:

Ax = 89280
Ais = 264736
Is = 20
DF = 1
Vo = 1000
Vi = 1
Vt = 1000
RRF = 1.282
GPC = 1

Concentration ug/L = $\frac{(89280)\ (20)\ (1000)\ (1)\ (1)}{(264736)\ (1.282)\ (1000)\ (1)}$

= 5.3 ug/L

RRF Calculation of standard 20 ppb for Naphthalene with instrument M for method 11/07/2024.

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

= 563600/526355 X 20/20

= 1.071 (Reported RRF)

Pesticides:

The analyses for Pesticides were performed on instrument ECD_D. The front column is ZB-Multi-Residue-2 which is 30 meters, 0.32 mm ID, 0.2 um df. The rear column ZB-Multi-Residue-1 which is 30 meters, 0.32 mm ID, 0.50 um df.

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 PLCS are referenced as IBLK(1)/IBLK(2), MS(1)/MS(2), MSD(1)/MSD(2) and PLCS01(1) / PLCS01(2) respectively.

SPLP extraction was done on 11/03/2024 and Pesticide sample was extracted by method SFAM01.1 on 11/07/2024 and analyzed on 11/07/2024. The samples were extracted and analyzed within contractual holding time.

The Surrogate recoveries met the acceptable criteria.
BH6N6MS met the requirements.
BH6N6MSD met the requirements.
The RPD met the requirements
The Blank analysis did not indicate the presence of lab contamination.
Blank and Laboratory Control Sample met the requirements.
Retention Times met the requirements.
Florisil check met the requirements.
Resolution Check met the requirements.
The Retention Times were acceptable for all samples.
The Initial Calibration met the requirements.
The Individual Mix A met the requirements.
The Individual Mix B met the requirements.
The PEM met the requirement.

Samples BH6N3 have the concentration of target compounds - gamma-BHC (Lindane),

BH6N5 have the concentration of target compounds - delta-BHC, below Method detection limits therefore it is not reported as hit in Form1.

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

Calculation for the Concentration in Water Samples

$$\text{Concentration ug/L} = \frac{(Ax)\,(Vt)\,(DF)\,(GPC)}{(CF)\,(Vo)\,(Vi)}$$

Where,
Ax = Response (peak area or height) of the compound to be measured.
CF = Mean Calibration Factor from the initial calibration (area/ng).
Vo = Volume of water extracted in mL.
Vi = Volume of extract injected in uL.
Vt = Volume of the concentrated extract in uL

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

Vin = Volume of extract loaded onto GPC column.

Vout = Volume of extract collected after GPC cleanup.

Example alpha-BHC calculation
Calibration Factor Calculation alpha-BHC in the first column

$$\text{Calibration factor (CF)} = \frac{\text{peak area}}{\text{Mass injected in ng}}$$

$$= \frac{10927073}{5ng}$$

$$= 2185410$$

Mean Calibration Factor = average of 5 point calibration factor

$$= 2489400$$

No target Pesticides were detected in the samples.

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.