

#### **SDG NARRATIVE**

LAB NAME: Alliance Technical Group, LLC CASE: 51747 SDG: EOAY2 CONTRACT: 68HERH20D0011 LAB CODE: ACE LAB ORDER ID: P4361 MODIFICATION REF. NUMBER: NA

| Sample ID   | EPA Sample ID | Test | pН  |
|-------------|---------------|------|-----|
| P4361-01    | EOAY2         |      | 1.0 |
| P4361-02    | EOAY3         |      |     |
| P4361-03    | EOAY4         |      |     |
| P4361-04    | EOAY6         |      |     |
| P4361-05    | EOAY7         |      |     |
| P4361-06    | EOAY8         |      |     |
| P4361-07    | EOAY9         |      |     |
| P4361-08    | EOAZ0         |      |     |
| P4361-09MS  | EOAZ0MS       |      |     |
| P4361-10MSD | EOAZ0MSD      |      |     |
| P4361-11    | EOAZ2         |      |     |
| P4361-12    | EOAZ3         |      |     |
| P4361-13    | EOAZ4         |      |     |
| P4361-13RX  | EOAZ4RX       | SVOA |     |
| P4361-14    | EOAZ5         |      |     |
| P4361-14RX  | EOAZ5RX       | SVOA |     |

01 Water sample was delivered to the laboratory intact on 10/09/2024.

13 Soil samples were delivered to the laboratory intact on 10/09/2024.

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

The temperature of the samples was measured using an I R Gun. The samples temperature was 2.3 degree Celsius for the samples received on 10/09/2024.

## Discrepancies with tags, jars, and/or COC

**Issue 01:** The laboratory received sediment samples and determined the percent solids for the samples below 30% for samples EOAY4, EOAY6, EOAY7, EOAZ0, and EOAZ4.



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**Issue 02:** "The lab has received sediment samples for SVOA analysis. We performed low-level SVOA analysis for samples EOAZ4 and EOAZ5, but due to matrix interference, the surrogate recoveries were low. As a corrective action, the lab re-extracted and re-analyzed these samples. In the re-extraction and re-analysis, the surrogate recoveries are within acceptable limits; however, they remain low, confirming the presence of matrix interference. Therefore, the lab would like to confirm that both analyses will be reported in the final data, as the re-extraction was performed outside the holding time, and the lab has only 10 days to complete the extraction and analysis.

Resolution 01: "Per the client, this is acceptable."

### Low Volatiles:

The analysis performed on instrument MSVOA\_V were done using GC column RXI-624SIL MS 30m 0.18mm 1.4 um. Cat#13868.

The analysis performed on instrument MSVOA\_W were done using GC column RXI-624SIL MS 30m 0.18mm 1.4 um. Cat#13868.

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, EOAY3 [1,1,2,2-Tetrachloroethane-d2 - 125%, 1,2-Dichloropropane-d6 - 124%, 2-Hexanone-d5 - 151%], EOAY4 [1,1-Dichloroethene-d2 - 43%, 1,2-Dichlorobenzene-d4 - 70%, 2-Hexanone-d5 - 156%], EOAY6 [2-Hexanone-d5 - 141%], EOAY7 [2-Hexanone-d5 - 149%], EOAY8 [2-Hexanone-d5 - 138%], EOAY9 [1,2-Dichloropropane-d6 - 122%, 2-Hexanone-d5 - 145%], EOAZ0MSD [1,2-Dichloropropane-d6 - 124%, 2-Hexanone-d5 - 152%], EOAZ3 [1,1,2,2-Tetrachloroethane-d2 - 124%, 1,2-Dichloropropane-d6 - 134%, 2-Hexanone-d5 - 143%], EOAZ5 [2-Hexanone-d5 - 147%], 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 MS {EOAZ0MS} recovery met the requirements for all compounds. The MSD {EOAZ0MSD} recovery met the requirements for all compounds. The RPD {EOAZ0MSD} RPD met the requirements for all compounds.

The Initial Calibration met the requirements.

The Continuing Calibration (VSTD025516) file ID VW030540.D met the requirements except for 1,1,2,2-Tetrachloroethane-d2 (25.1%). 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 f**or the manual integration information at the end of the case narrative.

# **Calculation:**

# Low/Med Water Level Calculation

Concentration in ug/L = (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

## Low/Med Level Soil/Sediment Calculation

Concentration in ug/Kg dry Weight basis) = (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



Example Calculation for sample: EOAY3 for Acetone:

Ax= 14206 Is= 250 RRF= 0.104 DF=1 Ais= 464685 Ws= 3.93 D= 0.333

Concentration in ug/KG = (14206)(250)(1)(464685) (0.104) (3.93) (0.333)

= 56.15 ug//Kg

Final Reported Results = 56 ug/Kg

Relative Response Factor = Dichlorodifluoromethane: RUN VW100924 for 2.5 ppb

 $RRF= \frac{Area of compound}{Area of Internal Standard} X \frac{Conc. of Internal Standard}{Conc. of Compound}$  $RRF= \frac{11869}{356470} X \frac{25}{2.5}$ 

RRF= 0.333

#### Semivolatiles:

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 10/16/2024, 10/22/2024, The analysis of SVOC-SFAM was based on method SFAM01.1\_SVOC.

The Holding Times were met for all analysis except for,

Samples EOAZ4RX, EOAZ5RX, due to matrix interference, the surrogate recoveries were low. As a corrective action, the lab re-extracted and re-analyzed these samples. In the re-extraction and re-analysis, the surrogate recoveries are within acceptable limits; however, they remain low, confirming the presence of matrix interference. Therefore, lab has reported in the final data, as the re-extraction was performed outside the holding time, and the lab has only 10 days to complete the extraction and analysis. Please see email communication after SDG narrative.



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The Surrogate recoveries met the acceptable criteria except for,

EOAY6 [4,6-Dinitro-2-methylphenol-d2 - 4%, 4-Nitrophenol-d4 - 5%],

EOAZ4 [1,4-Dioxane-d8 - 9%, 2-Chlorophenol-d4 - 11%, 4,6-Dinitro-2-methylphenol-d2 - 3%, 4-Methylphenol-d8 - 6%, 4-Nitrophenol-d4 - 4%, Acenaphthylene-d8 - 11%, Benzo(a)pyrene-d12 - 8%, Fluorene-d10 - 12%],

EOAZ4RX [4,6-Dinitro-2-methylphenol-d2 - 7%],

EOAZ5 [1,4-Dioxane-d8 - 11%, 2-Chlorophenol-d4 - 12%, 4,6-Dinitro-2-methylphenol-d2 - 4%, 4-Methylphenol-d8 - 8%, 4-Nitrophenol-d4 - 4%, Acenaphthylene-d8 - 13%, Benzo(a)pyrene-d12 - 9%, Fluorene-d10 - 14%] and

EOAZ5RX [4,6-Dinitro-2-methylphenol-d2 - 8%].As per method four surrogates are allowed to fail. Therefore no further corrective action was taken. Sample EOAZ4 and EOAZ5 has more than four surrogate failed, Samples was re extracted But Re extraction was out of hold so lab has reported both the analysis in hardcopy, due to matrix interference, the surrogate recoveries were low. As a corrective action, the lab re-extracted and re-analyzed these samples. In the re-extraction and re-analysis, the surrogate recoveries are within acceptable limits; however, they remain low, confirming the presence of matrix interference. Therefore, lab has reported in the final data, as the re-extraction was performed outside the holding time, and the lab has only 10 days to complete the extraction and analysis. Please see email communication after SDG narrative.

The Internal Standards Areas met the acceptable requirements.

The Retention Times were acceptable for all samples.

The MS {EOAZ0MS} recovery met the requirements for all compounds.

The MSD {EOAZ0MSD} recovery met the requirements for all compounds.

The RPD {EOAZ0MSD} RPD met the requirements for all compounds

The Blank Spike for {PB164183BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB164327BS} 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 (SSTD020664) with File ID BP022475.D met the requirements except for Fluoranthene (31.2%), As per method up to four target analytes and DMCs with maximum %D requirements of less than 40.0% may fail to meet the maximum %D criteria listed in Exhibit D – SVOA, Table 5, but these compounds must still meet the maximum %D requirement of 40.0%. No further corrective action was taken.

The Sample EOAY3, EOAY6, EOAY7, EOAY8, EOAZ4 and EOAZ4RX have the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.



#### **Concentration of SOIL Sample:**

Concentration ug/Kg,

(dry weight basis) = (Ax) (Is) (Vt) (DF) (GPC)

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 EOAY3 for Pyrene:**

Ax = 92114 Ais = 597639 Is = 20 Vi = 1 Vt = 500 Wt = 30.0 Df = 1 RRF = 1.303 GPC = 2 D = 0.333

Concentration

(dry weight basis) ug/Kg = (92114) (20) (500) (1) (2)

(597639) (1.303) (1) (30.0) (0.333)

= 240 ug/Kg

RRF Calculation of standard 20 ppb for Naphthalene with P instrument for method 10/07/2024.



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

= 326983/315808 X 20/20

= 1.035 (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.

Pesticide sample was extracted by method SFAM01.1 on 10/16/2024 and analyzed on 10/18 and 10/22/2024. The sample was extracted and analyzed within contractual holding time.

The soil sample was subjected to Florisil and GPC Cleanup.

The Surrogate recoveries met the acceptable criteria except for EOAY3 [Decachlorobiphenyl(1) - 24%, Decachlorobiphenyl(2) - 22%], EOAY4 [Decachlorobiphenyl(2) - 26%], EOAY6 [Decachlorobiphenyl(1) - 29%, Decachlorobiphenyl(2) - 26%], EOAY7 [Decachlorobiphenyl(1) - 27%, Decachlorobiphenyl(2) - 25%], EOAY8 [Decachlorobiphenyl(1) - 19%, Decachlorobiphenyl(2) - 20%], EOAY9 [Decachlorobiphenyl(1) - 21%, Decachlorobiphenyl(2) - 20%], EOAZ0 [Decachlorobiphenyl(1) - 19%, Decachlorobiphenyl(2) - 20%], EOAZ0 [Decachlorobiphenyl(1) - 16%, Decachlorobiphenyl(2) - 19%], EOAZ0MSS [Decachlorobiphenyl(1) - 16%, Decachlorobiphenyl(2) - 19%], EOAZ2 [Decachlorobiphenyl(1) - 16%, Decachlorobiphenyl(2) - 19%], EOAZ2 [Decachlorobiphenyl(1) - 16%, Decachlorobiphenyl(2) - 19%], EOAZ4 [Decachlorobiphenyl(1) - 26%, Decachlorobiphenyl(2) - 23%], The SOW allows one surrogate to fail to meet the criteria per column. ((Please See Section 11.3.6 of Exhibit D Pesticide Analysis).

EOAZ0MS met the requirements. EOAZ0MSD 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. 7 of 11



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 EOAY3, EOAY4, EOAY8, EOAY9, EOAZ0, EOAZ2, EOAZ4 and EOAZ5 failed to meet the %D for the results between the two columns Criteria.

Sample EOAY3 has the concentration of target compound - 4,4'-DDT, Samples EOAY4, EOAY9, EOAZ2 have the concentration of target compound - Dieldrin, Sample EOAZ3 has the concentration of target compound - Heptachlor, cis-chlordane, trans-chlordane, Dieldrin 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 Soil Samples**

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  $\frac{1}{2}$  the volume in the syringe as the volume injected onto each column).

Ws = Weight of sample extracted (g).

D = % dry weight or <u>100 - % Moisture</u>

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

DF = Dilution Factor.

## Example of 4,4'-DDD calculation

Calibration Factor Calculation 4,4'-DDD in the first column

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



= <u>11431716</u> 10ng

= 1143170

Mean Calibration Factor = average of 5 point calibration factor

= 1247440

Sample **EOAY6** <u>Ax</u> = 1121823 CF = 1247440 Ws = 30.1Vi = 1.0Vt = 5000DF = 1.0GPC = 2.0D = 0.231

Concentration ug/Kg (Dry weight basis) = (Ax) (Vt) (DF) (GPC)(CF) (Vi) (Ws) (D) = (1121823) (5000) (1.0) (2.0)(1247440)(1.0)(30.1)(0.231)

= 1.29

Reported Results = 1.3 ug/kg

#### Aroclors

The analyses were performed on instrument GC ECD\_Q. 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  $\mu$ m; 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 ALCSO1(1)/ALCSO1(2) respectively.

Aroclor sample was extracted by Method SFAM01.1 on 10/16/2024 and analyzed on 10/16/2024, 10/17/2024 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

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EOAY6 [Decachlorobiphenyl(1) – 24%], Decachlorobiphenyl(2) – 29%], EOAZ0MS [Decachlorobiphenyl(1) – 28%], Decachlorobiphenyl(2) – 24%], EOAZ0MSD [Decachlorobiphenyl(1) – 28%], 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).

EOAZOMS met the requirements. EOAZOMSD 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.

Samples EOAY8, EOAY9, EOAZ0MS, EOAZ0MSD failed to meet the %D for the results between the two columns Criteria.

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

## **Calculation for Concentration in Soil samples:**

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  $\frac{1}{2}$  the volume in the syringe as the volume injected onto each column).

Ws = Weight of sample extracted (g).

D = % dry weight or <u>100 - % Moisture</u>

 $GPC = \underline{Vin} = GPC$  factor (If no GPC is performed, GPC=1) Vout DF = Dilution Factor

## Example of AR1254 calculation for Peak 1

| Calibration factor Peak 1 100ppb ISTD= | <u>peak area</u> |
|--|------------------|
| Column2                                | Mass injected ng |



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 $=\frac{75608768}{0.100}$ 

= 756087680 calibration factor for Peak 1 100ppb

Average of 5 peaks = 658503567

Sample **EOAZ2** Ax = 18075880CF = 658503567Vt = 10000Vi = 1.0Ws = 30.1D = 0.325GPC = 1.0DF = 1.0

Concentration ug/Kg (Dry weight basis) = (Ax) (Vt) (DF) (GPC)(CF) (Vi) (Ws) (D)

 $= \frac{(18075880) (10000) (1.0) (1.0)}{(658503567) (1.0) (30.1) (0.325)}$ 

Peak 1 = 28.06

Average of 5 peaks = 22.55

Reported results = 23 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.