

LAB NAME: Alliance Technical Group, LLC CASE: 51878 SDG: E29Z1 CONTRACT: 68HERH20D0011 LAB CODE: ACE LAB ORDER ID: P4875 MODIFICATION REF. NUMBER: 3064.0

Sample ID	EPA Sample ID	pН
P4875-01	E29Z1	1.0
P4875-02	E29Z3	1.0
P4875-03	E29Z5	1.0
P4875-04	E29Z7	1.0
P4875-05	E2A13	1.0
P4875-06	E2A15	1.0
P4875-07	E2A19	1.0
P4875-08	E2A22	1.0
P4875-09	E2A23	1.0
P4875-11	E29S9	1.0
P4875-12	E29Z9	1.0
P4875-13	E2A01	1.0
P4875-14MS	E2A01MS	1.0
P4875-15MSD	E2A01MSD	1.0
P4875-16	E2A03	1.0
P4875-17	E2A05	1.0
P4875-18	E2A07	1.0
P4875-19	E2A09	1.0
P4875-20	E2A16	1.0
P4875-21	E2A20	1.0
P4875-22	E2A24	1.0

09 Water samples were delivered to the laboratory intact on 11/15/2024. 12 Water samples were delivered to the laboratory intact on 11/16/2024.

Test requested on the Chain of Custody was Trace Volatile Organic, Semivolatile Organic, Semivolatile Organic-SIM, Pesticide and Aroclor by Method SFAM01.1.

The temperature of the samples was measured using an I R Gun. The samples temperature was



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1.6, 2.1, 1.8, 1.9, 2.3, 2.0, 1.7, 2.4 degree Celsius for the samples received on 11/15/2024, 2.3, 2.7, 1.7, 2.2, 2.4, 1.9, 1.6, 2.2, 1.8, 2.0, 2.1 degree Celsius for the samples received on 11/16/2024.

### **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.

The Surrogate recoveries met the acceptable criteria except for, E29Z5 [1,1-Dichloroethene-d2 - 126%], E29Z7 [1,1-Dichloroethene-d2 - 125%], E2A13 [1,1-Dichloroethene-d2 - 137%, Benzene-d6 - 127%, Toluene-d8 - 149%], E2A15 [1,1-Dichloroethene-d2 - 133%, Toluene-d8 - 133%], E2A19 [1,1-Dichloroethene-d2 - 135%, Toluene-d8 - 145%], E2A22 [1,1-Dichloroethene-d2 - 130%, Toluene-d8 - 136%], E2A23 [1,1-Dichloroethene-d2 - 137%], E29S9 [1,1-Dichloroethene-d2 - 129%, Benzene-d6 - 147%, Toluene-d8 - 148%], E2A01 [1,1-Dichloroethene-d2 - 136%], E2A01MS [1,1-Dichloroethene-d2 - 130%], E2A01MSD [1,1-Dichloroethene-d2 - 127%], E2A16 [1,1-Dichloroethene-d2 - 132%], E2A20 [1,1-Dichloroethene-d2 - 139%], E2A24 [1 and 1-Dichloroethene-d2 - 132%], 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 met requirements.

The Tuning criteria met requirements.

The MS {E2A01MS} recovery met the requirements for all compounds. The MSD {E2A01MSD} recovery met the requirements for all compounds. The RPD {E2A01MSD} RPD met the requirements for all compound.

The %RSD met requirement for initial Calibration except for 1,1,2,2-Tetrachloroethane (20.9%) for the initial calibration dated 11/20/2024 with U 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 (VSTD005163) file ID VU062018.D met the requirements except for Chloroethane (-35.6%) and Toluene-d8 (23.2%). 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.



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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

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

Example calculation of **E29S9** for **Methylene chloride**:

Ax= 16441 Is = 125 RRF= 0.403 DF= 1 Ais= 183783 Vo. = 25 Concentration in ug/L =  $\frac{(16441)(125)(1)}{(183783)(0.403)(25)}$ 

Reported Result = 1.11 ug/L

Final Reported Result = 1.1 ug/L

Relative Response Factor = Dichlorodifluoromethane: RUN VU112024 for 0.5 ppb

 RRF=
 Area of compound
 X
 Conc. of Internal Standard

 Area of Internal Standard
 Conc. of Compound
 Conc. of Compound

 $\begin{array}{rrrr} \text{RRF} = & \underline{7631} & \underline{5.0} \\ & 174068 & 0.5 \end{array}$ 



### RRF= 0.438

### Semivolatiles:

The samples were analyzed on instrument BNA\_G 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 sample for water sample was extracted by Method SFAM01.1 on 11/18/2024 and 11/19/2024, 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, E2A19 [4-Chloroaniline-d4 - 0%]. The %R limits for 4-Chloroaniline-d4 is advisory only. 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 {E2A01MS} recovery met the requirements for all compounds. The MSD {E2A01MSD} recovery met the requirements for all compounds. The RPD {E2A01MSD} RPD met the requirements for all compounds The Blank Spike for {PB165073BS} recoveries met the requirements for all compounds. The Blank Spike for {PB165076BS} recoveries met the requirements for all compounds. The Blank Spike for {PB165076BS} recoveries met the requirements for all compounds. The Blank Spike for {PB165085BS} recoveries met the requirements for all compounds. The Blank Spike for {PB165090BS} recoveries met the requirements for all compounds. The Blank Spike for {PB165114BS} 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.

Samples E2A19 has the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.

#### **Concentration of Water Sample:**

Concentration ug/L = (Ax) (Is) (Vt) (DF) (GPC)

(Ais) (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 =  $\underline{Vin}$  = GPC factor (If no GPC is performed, GPC=1) Vout = Volume of extract collected after GPC cleanup.

#### No positive target compounds were detected in the samples.

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

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

= 473946/423472 X 20/20

= 1.119 (Reported RRF)

### Semivolatiles SIM:

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 11/18/2024 and 11/19/2024. The analysis of SVOCMS Group2 was based on method SFAM01.1\_SVOC. using MA 3064.0 See the MA instructions at the end of the Case Narrative.

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 MS {E2A01MS} recovery met the requirements for all compounds.

The MSD {E2A01MSD} recovery met the requirements for all compounds.

The RPD {E2A01MSD} RPD met the requirements for all compounds

The Blank Spike for {PB165074BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB165077BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB165087BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB165092BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB165115BS} 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 requirements.

The Continuous Calibration (SSTD0.4348) with File ID BN035250.D met the requirements



except for Fluoranthene (32.7%) and Pyrene (30.1%). As per method, the %D up to two Compounds are allowed to fail to meet the minimum criteria as long as the compound meets the maximum of 40 %D. No further corrective action was taken

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The Continuous Calibration (SSTD0.4349) with File ID BN035266.D met the requirements except for Fluoranthene (33.0%). As per method, the %D up to two Compounds are allowed to fail to meet the minimum criteria as long as the compound meets the maximum of 40 %D. No further corrective action was taken

The Continuous Calibration (SSTD0.4354) with File ID BN035334.D met the requirements except for Fluoranthene (32.3%). As per method, the %D up to two Compounds are allowed to fail to meet the minimum criteria as long as the compound meets the maximum of 40 %D. No further corrective action was taken

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

## **Concentration of Water Sample:**

Concentration ug/L = (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.

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.

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

Vout

#### **Example calculation of E29Z9 for Phenanthrene:**

Ax = 684 Ais = 12625 Is = 0.4 DF = 1 Vo = 980 Vi = 1 Vt = 1000 RRF = 1.057GPC = 1



= 0.020 ug/L

RRF Calculation of standard 0.4 ppb for **Naphthalene** with N instrument for method 11/16/2024.

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

= 6250/5912 X 0.4/0.4

= 1.057 (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 11/19/2024 and analyzed on 11/21/2024. The sample was extracted and analyzed within contractual holding time.

The Surrogate recoveries met the acceptable criteria.

E2A01MS met the requirements. E2A01MSD 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.

Sample E29Z5 have the concentration of target compound - Endosulfan I, 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

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 = Vin = GPC factor (If no GPC is performed, GPC=1) Vout

Vin = Volume of extract loaded onto GPC column.

Vout = Volume of extract collected after GPC cleanup.

## **Example of Endosulfan I calculation**

Calibration Factor Calculation Endosulfan I in the first column

Calibration factor (CF) = <u>peak area</u> Mass injected in ng

$$= \frac{15086903}{5 \text{ng}}$$

Mean Calibration Factor = average of 5 point calibration factor

= 2973190

No target **Pesticides** were detected in the samples.



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### Aroclors:

The analyses were performed on instrument GCECD\_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 11/19/2024 and analyzed on 11/20/2024. 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 E2A24 [Decachlorobiphenyl(2) - 152%] The SOW allows one surrogate to fail to meet the criteria per column. ((Please See Section 11.3.6 of Exhibit D Aroclor Analysis).

E2A01MS met the requirements. E2A01MSD 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 E2A01MSD 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 Water Samples:**

Concentration ug/L = (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 = Vin = GPC factor (If no GPC is performed, GPC=1) Vout
Vin = Volume of extract loaded onto GPC column.
Vout = Volume of extract collected after GPC cleanup.
DF = Dilution Factor.

#### Example of AR1260 calculation for Peak 1

Calibration factor Peak 1 100ppb ISTD= <u>peak area</u> Column1 Mass injected ng

$$=\frac{33773685}{0.100}$$

#### = 337736850 calibration factor for Peak 1 100ppb

Average of 5 peaks = 306476823

No target **Aroclors** 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.

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Date: 03/18/2021	<b>MA:</b> 3064.0	Title: Semivolatiles by Selected Ion Monitoring (SIM)			
		Analysis			
Method Source: SFAM01.1	Method: Semivolatiles by SIM				
Matrix: Water, Soil and Sediment					
Summary of Modification					
The purpose of this modified analysis is to analyze samples for the complete Semivolatiles Target Analyte List (TAL) analytes at the CRQLs specified in Exhibit C, Section 2.0 of the SOW. The Laboratory shall proceed to the SVOA analysis by the Selected Ion Monitoring (SIM) procedure for Polynuclear Aromatic Hydrocarbon (PAH) and Pentachlorophenol (PCP) analytes that are either not detected or detected at concentrations below the sample adjusted CRQLs (with either "U" or "J" lab qualifier) in any sample analyzed by the full scan analysis. SVOA SIM analysis is required for a sample even if one or more PAH or PCP analytes with concentrations exceeding the initial calibration range (with "E" lab qualifier) are observed in the full scan analysis. Unless specified by this modification, all analyses, Quality Control (QC), and reporting requirements specified in the SOW listed in your current EPA agreement remain unchanged and in full force and effect.					
I. Analyte Modifications	Not applicable 🔀				
II. Calibration and QC Requirements		Not applicable 🔀			
III. Preparation and Method Modifications		Not applicable			
<ul> <li>The Laboratory shall:</li> <li>Proceed to the SVOA analysis by the SIM procedure for PAH and PCP analytes that are either not detected or detected at the concentrations below the sample adjusted CRQLs (with either "U" or "J" lab qualifier) in any sample analyzed by the full scan analysis.</li> <li>Proceed to the SVOA SIM analysis for a sample even if one or more PAH or PCP analytes with concentrations exceeding the initial calibration range (with "E" lab qualifier) are observed in the full scan analysis. This supersedes the requirement included in Section 1.2 in Exhibit D of the SOW.</li> </ul>					
IV. Special Reporting Requirements Not applicable					