SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51900
SDG: E2989
CONTRACT: 68HERH20D0011
LAB CODE: ACE
LAB ORDER ID: Q1229
MODIFICATION REF. NUMBER: 3064.0

Sample ID	EPA Sample ID	Test	pH
Q1229-01	E2989		
Q1229-02	E2991		
Q1229-03	E2996		
Q1229-03RE	E2996RE	SVOA-SIM	
Q1229-04	E2993		
Q1229-05MS	E2993MS		
Q1229-06MSD	E2993MSD		
Q1229-09	E29A9		
Q1229-10	E29B2		
Q1229-11	E29B5		
Q1229-11DL	E29B5DL	SVOA	
Q1229-12	E29B8		
Q1229-13	E29B9		
Q1229-13DL	E29B9DL	SVOA-SIM	
Q1229-14	E29C0		
Q1229-15	E29C1		
Q1229-16	E29C2		
Q1229-17	E29C3		
Q1229-18	E29C4		

06 Water samples were delivered to the laboratory intact on 01/30/2025.
02 Water samples were delivered to the laboratory intact on 02/01/2025.
08 Water samples were delivered to the laboratory intact on 02/04/2025.

Test requested on the Chain of Custody was 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 3.3, 3.0 degree Celsius for the samples received on 01/30/2025, 1.3 degree Celsius for the samples received on 02/01/2025, 2.3, 2.8, 2.6, 2.0 degree Celsius for the samples received on 02/04/2025.

Shipping Discrepancies and/or QC issues:

Issue: One amber for sample E29B2 was received, but SVOA, SVOA SIM, 1,4-Dioxane SIM, PEST and ARO analyses are all required. The laboratory would like direction on how to proceed with the limited volume.

Resolution: Per Region 5, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples for SVOA and SVOA SIM (including 1,4-Dioxane SIM). This resolution can be applied to all samples for this Case that have insufficient volume for all scheduled analyses.

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 sample for water sample was extracted by Method SFAM01.1 on 02/03/2025 and 02/04/2025, 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 E29A9 [Benzo(a)pyrene-d12 - 134%, Pyrene-d10 - 136%] and E29B5DL [4-Methylphenol-d8 - 24%, 4-Nitrophenol-d4 - 6%]. As per method four surrogates are allowed to fail. Therefore no further corrective action was taken. 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 {E2993MS} recovery met the requirements for all compounds.
The MSD {E2993MSD} recovery met the requirements for all compounds.
The MSD {E2993MSD} RPD met the requirements for all compounds.
The Blank Spike for {PB166542BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166547BS} recoveries met the requirements for all compounds.
The Blank Spike for (PB166550BS} recoveries met the requirements for all compounds.
The Blank Spike for (PB166554BS} 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.

Sample E29B5 was diluted due to high concentration

Samples E29B5, have the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.

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

Example calculation of E2989 for Phenol:

Ax = 74810
Ais = 423377
Is = 20
DF = 1
Vo =990
Vi = 1
Vt = 1000
RRF = 1.817
GPC = 1

$$\text{Concentration ug/L} = \frac{(74810)\,(20)\,(1000)\,(1)\,(1)}{(423377)\,(1.817)\,(990)\,(1)}$$

$$= 2.0 \text{ ug/L}$$

RRF Calculation of standard 20 ppb for **Naphthalene** with P instrument for method 01/29/2025.

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

$$= 2498726/2130098 \text{ X } 20/20$$

$$= 1.173 \text{ (Reported RRF)}$$

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.

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.

Semis volatile Organic samples for Water were extracted by Method SFAM01.1 on 02/03/2025, and 02/04/2025. The analysis of SVOCMS Group2 was based on method SFAM01.1_SIM. 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 except for E2996, As a Corrective Action sample was reanalyzed to confirm internal standard failure and both run were reported in Hard Copy.

The Retention Times were acceptable for all samples.
The MS {E2993MS} recovery met the requirements for all compounds.
The MSD {E2993MSD} recovery met the requirements for all compounds.
The MSD {E2993MSD} RPD met the requirements for all compounds.
The Blank Spike for {PB166543BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166548BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166552BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166555BS} 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 Continues Calibration met the requirements.

Samples E29B9, were diluted due to high concentrations.

The Sample E2996RE has the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.

PB166552BL analyzed twice in different instrument, first time in BNA_M and Second time in BNA_N. However our sample associated with this BL run in BNA_M, so BNA_N instrument raw data reported as Screening Data in the package.

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

Concentration of Water Sample:

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

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

Example calculation of **E29B5** for **Naphthalene**:

Ax = 25211
Ais = 31348
Is = 0.4
DF = 1
Vo = 1000
Vi = 1
Vt = 1000
RRF = 0.991
GPC = 1

$$\text{Concentration ug/L} = \frac{(25211)\,(0.4)\,(1000)\,(1)\,(1)}{(31348)\,(0.991)\,(1000)\,(1)}$$

$$= 0.33 \text{ ug/L}$$

RRF Calculation of standard 0.4 ppb **Naphthalene** with instrument N for method 01/21/2025.

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

= 5142/4615 X 0.4/0.4

= 1.114 (Reported RRF)

Pesticides:

The analyses for Pesticides were performed on instrument ECD_D. The front column is ZB-Multi-Residue-1 which is 30 meters, 0.32 mm ID, 0.50 um df. The rear column ZB-Multi-Residue-2 which is 30 meters, 0.32 mm ID, 0.25 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 02/04/2025 and analyzed on 02/04/2025. The sample was extracted and analyzed within contractual holding time.

The Surrogate recoveries met the acceptable criteria except for
E29B5 [Decachlorobiphenyl(1) - 18% , Decachlorobiphenyl(2) - 18%],
The SOW allows one surrogate to fail to meet the criteria per column. ((Please See Section 11.3.6 of Exhibit D Pesticide Analysis)

E2993MS met the requirements.
E2993MSD 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 E29B5 failed to meet the %D for the results between the two columns Criteria.

Sample E29C2 havs the concentration of target compound – gamma-BHC (Lindane), Methoxychlor,
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 of Methoxychlor calculation

Calibration Factor Calculation Methoxychlor in the first column

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

$$= \frac{82513626}{50\text{ng}}$$

$$= 1650270$$

Mean Calibration Factor = average of 5 point calibration factor

$$= 1584350$$

Sample **E29B5**
Ax = 6938015
CF = 1584350
Ws = 1000
Vi = 1
Vt = 10000
DF = 1
GPC = 1

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

$$= \frac{(6938015)\,(10000)\,(1.0)\,(1.0)}{(1584350)(1.0)(1000)}$$

$$= 0.0437$$

$$\text{Reported Results (ug/L)} = 0.044$$

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 µm; 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 ALCS01(1)/ALCS01(2) respectively.

Aroclor sample was extracted by Method SFAM01.1 on 02/04/2025 and analyzed on 02/05/2025. 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.
E2993MS met the requirements.
E2993MSD 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.

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

Calculation for 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.
DF = Dilution Factor.

Example of AR1260 calculation for Peak 1

$$\text{Calibration factor Peak 1 100ppb ISTD= Column1} = \frac{\text{peak area}}{\text{Mass injected ng}}$$

$$= \frac{37848535}{0.100}$$

= 378485350 calibration factor for Peak 1 100ppb

Average of 5 peaks = 346327350

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.

Date: 03/18/2021	**MA:** 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** ☐

The Laboratory shall:

- 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.
- 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.

IV. Special Reporting Requirements **Not applicable** ☒