SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51900
SDG: E2931
CONTRACT: 68HERH20D0011
LAB CODE: ACE
LAB ORDER ID: Q1174
MODIFICATION REF. NUMBER: 3064.0

Sample ID	EPA Sample ID	Test	pH
Q1174-01	E2931		1.0
Q1174-01DL	E2931DL	SVOA,SVOA_SIM	
Q1174-02	E2932		1.0
Q1174-03	E2933		1.0
Q1174-04	E2934		1.0
Q1174-04DL	E2934DL	SVOA_SIM	
Q1174-05	E2935		1.0
Q1174-06	E2936		1.0
Q1174-07	E2937		1.0
Q1174-07DL	E2937DL	TVOA	1.0
Q1174-07DL	E2937DL	SVOA,SVOA_SIM	
Q1174-08	E2938		1.0
Q1174-08DL	E2938DL	SVOA,SVOA_SIM	
Q1174-08DL2	E2938DL2	SVOA	
Q1174-09	E2939		1.0
Q1174-09DL	E2939DL	SVOA,SVOA_SIM	
Q1174-09DL2	E2939DL2	SVOA	
Q1174-10	E2940		1.0
Q1174-11	E2941		1.0
Q1174-12	E2942		1.0
Q1174-13	E2943		1.0
Q1174-14	E2944		1.0
Q1174-15MS	E2944MS		1.0
Q1174-16MSD	E2944MSD		1.0
Q1174-17	E2945		1.0
Q1174-18	E2952		1.0
Q1174-20	E2950		
Q1174-21	E2951		

Q1174-22	E2953		
Q1174-22DL	E2953DL	SVOA,SVOA_SIM	
Q1174-23	E2954		
Q1174-23DL	E2954DL	SVOA,SVOA_SIM	
Q1174-24	E2950		1.0
Q1174-25	E2951		1.0
Q1174-26	E2953		1.0
Q1174-27	E2954		1.0

18 Water samples were delivered to the laboratory intact on 01/23/2025.
04 Water samples were delivered to the laboratory intact on 01/24/2025.
04 Water samples were delivered to the laboratory intact on 01/27/2025.

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

The temperature of the samples was measured using an I R Gun. The samples temperature was 1.3, 1.8, 1.4, 1.5, 2.1, 1.9, 2.3, 1.1, 2.0 degree Celsius for the samples received on 01/23/2025, 2.1, 1.8 degree Celsius for the samples received on 01/24/2025, 1.8 degree Celsius for the samples received on 01/27/2025.

Shipping Discrepancies and/or QC issues:

Issue 01: “Lab has received water samples for SVOA and SIM-PAH analysis. Lab has analyzed undiluted SVOA analysis for the samples E2938, E2939. Sample has huge matrix interference and presence of target analytes exceeding the highest calibration standard as you can see attached form-1 with quant report. Due to matrix interference, samples have one of the internal standard recoveries outside the QC limits therefore lab would like to confirm that lab will report undiluted SVOA analysis with internal standard failure and further dilution in final electronic deliverables.

Lab has analyzed undiluted SIM-PAH analysis for the samples E2931, E2934, E2937, E2938, E2939, E2953 & E2954. Based on the full scan SVOA analysis, samples are having matrix interference therefore, samples analyzed for SIM-PAH also having matrix interference and samples also required dilution to bring target analytes within calibration range. Due to matrix interference, samples have internal standard, and surrogate recoveries are outside the QC limits respectively therefore lab would like to confirm that lab will report undiluted SIM-PAH analysis with internal and/or surrogate recoveries outside the QC limits and further dilution analysis for final electronic deliverables.

Resolution 01: “Please have the lab report both the undiluted with surrogate failures and the diluted samples.”

Issue 02: The laboratory received a COC for Case 51847 which is complete.

Resolution 02: Per Region 5, the correct Case number is 51900. The laboratory will apply this resolution to all further samples received with the Case number 51847. Please note the issue in the SDG Narrative and proceed with the analysis of the 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 Except for,
E2931 [1,1-Dichloroethene-d2 - 52%, 1,2-Dichlorobenzene-d4 - 72%, Chloroethane-d5 - 53%],
E2932 [1,1-Dichloroethene-d2 - 49%, Chloroethane-d5 - 58%],
E2933 [1,1,2,2-Tetrachloroethane-d2 - 58%],
E2934 [Chloroethane-d5 - 55%, Chloroform-d - 69%],
E2936 [1,1,2,2-Tetrachloroethane-d2 - 124%, Vinyl Chloride-d3 - 138%],
E2937 [Chloroethane-d5 - 57%, Chloroform-d - 59%],
E2938 [Chloroform-d - 66%],
E2940 [Chloroform-d - 66%],
E2941 [1,1-Dichloroethene-d2 - 50%, Chloroethane-d5 - 53%],
E2944 [1,1-Dichloroethene-d2 - 49%, 1,2-Dichloropropane-d6 - 144%],
E2944MSD [Chloroethane-d5 - 61%],
E2951 [1,1-Dichloroethene-d2 - 60%], 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 {E2944MS} recovery met the requirements for all compounds.
The MSD {E2944MSD} recovery met the requirements for all compounds.
The MSD {E2944MSD} RPD met the requirements for all compounds.
The Initial Calibration met the requirements.

The Continuing Calibration (VSTD005117) file ID VU062983.D met the requirements except for Benzene (-21.3%) and Trichloroethene (-29.4%). 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 End Continuing Calibration (VSTD005118) file ID VU063005.D met the requirements except for Bromomethane (-63.7%). 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 analysis did not indicate the presence of lab contamination.

Sample E2937 was diluted due to high concentration.

The sample E2938 was analyzed following the analysis of E2937. Sample E2937 had hit of compound 1,1-Dichloroethane with concentration above calibration levels. Sample E2938 had concentration of this compound which is below CRQL. Therefore, as per method no instrument blank was required.

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 **E2932** for **Acetone**:

Ax= 17246
Is = 125
RRF= 0.045
DF= 1
Ais= 113958
Vo. = 25

$$\text{Concentration in ug/L} = \frac{(17246)\,(125)\,(1)}{(113958)(0.045)(25)}$$

Reported Result = 16.82 ug/L

Final Reported Result = 17 ug/L

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VU010225** for **0.5** ppb

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

$$RRF = \frac{4870}{100728} \times \frac{5.0}{0.5}$$

RRF= 0.483

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 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 01/23/2025 and 01/23/2025, 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,
E2938DL2 [4,6-Dinitro-2-methylphenol-d2 - 0%],
E2939DL2 [4-Nitrophenol-d4 - 0%], The DMC recovery requirements do not apply to samples that have been diluted.

The Internal Standards Areas met the acceptable requirements except for E2938, E2939.
Lab has received water samples for SVOA , Lab has analyzed undiluted SVOA analysis for the samples E2938, E2939. Sample has huge matrix interference and presence of target analytes exceeding the highest calibration standard , samples have one of the internal standard recoveries outside the QC limits therefore lab reported undiluted SVOA analysis with internal standard failure and further dilution in final Hard Copy, Please see EPA communication after SDG Narrative.

The Retention Times were acceptable for all samples.
The MS {E2944MS} recovery met the requirements for all compounds.
The MSD {E2944MSD} recovery met the requirements for all compounds.

The MSD {E2944MSD} RPD met the requirements for all compounds.
The Blank Spike for {PB166242BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166245BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166248BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166251BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166254BS} 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 E2931, E2937, E2938, E2938DL, E2939, E2939DL, E2953 and E2954 were diluted due to high concentrations.

The Sample E2934,E2937, E2937DL and E2938 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 = $\frac{Vin}{}$ = GPC factor (If no GPC is performed, GPC=1)
Vout = Volume of extract collected after GPC cleanup.

Example calculation of E2931 for 4-Methylphenol:

Ax = 803634
Ais = 696235
Is = 20
DF = 1
Vo = 1000
Vi = 1
Vt = 1000
RRF = 1.429
GPC = 1

Concentration ug/L = $\frac{(803634)\ (20)\ (1000)\ (1)\ (1)}{(696235)\ (1.429)\ (1000)\ (1)}$

= 16 ug/L

RRF Calculation of standard 20 ppb for **Naphthalene** with P instrument for method 01/22/2025.

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

= 2572842/2267664 X 20/20

= 1.135 (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 samples for Water were extracted by Method SFAM01.1 on 01/23/2025 and 01/24/2025. 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 except for,
E2939 [2-Methylnaphthalene-d10 - 29%], Lab has analyzed undiluted SIM-PAH analysis for the sample E2939 Based on the full scan SVOA analysis, samples are having matrix interference therefore, samples analyzed for SIM-PAH also having matrix interference and samples also required dilution to bring target analytes within calibration range. Due to matrix interference, sample having surrogate recoveries are outside the QC limits respectively therefore lab reported undiluted SIM-PAH analysis with surrogate recoveries outside the QC limits and further dilution analysis for final Hard Copy, Please see EPA communication after SDG Narrative.

And,

E2944MS [Fluoranthene-d10 - 136%],
E2944MSD [Fluoranthene-d10 - 131%], E2944MS/MSD which is not required the corrective action for failing Surrogate recoveries in MS/MSD.

The Internal Standards Areas met the acceptable requirements except for E2931, E2934, E2937, E2938, E2938DL, E2939, E2939DL, E2953 and E2954. Lab has analyzed undiluted SIM-PAH analysis for the samples E2931, E2934, E2937, E2938, E2939, E2953 and E2954 Based on the full scan SVOA analysis, samples are having matrix interference therefore, samples analyzed for SIM-PAH also having matrix interference and samples also required dilution to bring target

analytes within calibration range. Due to matrix interference, samples having surrogate recoveries are outside the QC limits respectively therefore lab reported undiluted SIM-PAH analysis with Internal standard recoveries outside the QC limits and further dilution analysis for final Hard Copy, Please see EPA communication after SDG Narrative. For E2938DL and E2939DL It is confirmed with original , no corrective action required.

The Retention Times were acceptable for all samples.
The MS {E2944MS} recovery met the requirements for all compounds.
The MSD {E2944MSD} recovery met the requirements for all compounds.
The MSD {E2944MSD} RPD met the requirements for all compounds.
The Blank Spike for {PB166243BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166246BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166249BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166252BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166255BS} 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 E2931, E2934, E2937, E2938, E2939, E2953 and E2954 were diluted due to high concentrations.

The Sample E2953DL has 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 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

Example calculation of **E2931** for **Naphthalene**:

Ax = 9643
Ais = 5468
Is = 0.4
DF = 1
Vo = 1000
Vi = 1
Vt = 1000
RRF = 1.102
GPC = 1

Concentration ug/L = $\frac{(9643)\ (0.4)\ (1000)\ (1)\ (1)}{(5468)\ (1.102)\ (1000)\ (1)}$

= 0.64 ug/L

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

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

Area of Internal Standard 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 01/24/2025 and analyzed on 01/27, 01/28 and 01/29/2025. The sample was extracted and analyzed within contractual holding time.

The Surrogate recoveries met the acceptable criteria except for
E2931 [Decachlorobiphenyl(1) - 29% , Decachlorobiphenyl(2) - 20%],
E2932 [Decachlorobiphenyl(1) - 19% , Decachlorobiphenyl(2) - 19%],
E2934 [Decachlorobiphenyl(1) - 28% , Decachlorobiphenyl(2) - 18%],
E2937 [Decachlorobiphenyl(2) - 21%],
E2938 [Tetrachloro-m-xylene(2)-223%],
E2939 [Tetrachloro-m-xylene(2)-268%],
E2940 [Decachlorobiphenyl(1) - 17% , Decachlorobiphenyl(2) - 15%],
E2941 [Decachlorobiphenyl(1) - 24% , Decachlorobiphenyl(2) - 25%],
E2953 [Decachlorobiphenyl(2) - 20%],
E2954 [Decachlorobiphenyl(2) - 20%],
The SOW allows one surrogate to fail to meet the criteria per column. ((Please See Section 11.3.6 of Exhibit D Pesticide Analysis)

E2944MS met the requirements.
E2944MSD 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 E2931, E2934, E2938, E2939, E2953 and E2954 failed to meet the %D for the results between the two columns Criteria.

Sample E2932 havs the concentration of target compound – gamma-BHC (Lindane), Heptachlor epoxide,
Samples E2934, E2940 have the concentration of target compound – Dieldrin,
Sample E2937 has the concentration of target compound – Endosulfan I,
Endosulfan Sulfate, 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 = 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 cis-Chlordane calculation

Calibration Factor Calculation cis-Chlordane in the second column

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

$$= \frac{96125174}{5\text{ng}}$$

$$= 19225000$$

Mean Calibration Factor = average of 5 point calibration factor

$$= 17307600$$

Sample **E2931**
Ax = 25127701
CF = 17307600
Ws = 990
Vi = 1
Vt = 10000
DF = 1
GPC = 1

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

$$= \frac{(25127701)\,(10000)\,(1.0)\,(1.0)}{(17307600)(1.0)(990)}$$

$$= 0.0146$$

Reported Results (ug/L) = 0.015

Aroclors:

The analyses were performed on instrument GCECD_R. 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 01/24/2025 and analyzed on 01/27/2025, 01/28/2025 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.
E2944MS met the requirements.
E2944MSD 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 = $\frac{Vin}{Vout}$ = 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

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

$$= \frac{4732373}{0.100}$$

= 47323730 calibration factor for Peak 1 100ppb

Average of 5 peaks = 41448588

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.