SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51791
SDG: E27G9
CONTRACT: 68HERH20D0011
LAB CODE: ACE
CHEMTECH PROJECT: P4380
MODIFICATION REF. NUMBER: 3064.0

Sample ID	EPA Sample ID	Test	pH
P4380-01	E27H4		1.0
P4380-02MS	E27H4MS		1.0
P4380-03MSD	E27H4MSD		1.0
P4380-04	E27H5		1.0
P4380-04DL	E27H5DL	TVOA,SVOA_SIM	1.0
P4380-04RX	E27H5RX	SVOA	
P4380-05	E27H6		1.0
P4380-05DL	E27H6DL	SVOA_SIM	
P4380-06	E27H7		1.0
P4380-06DL	E27H7DL	SVOA_SIM	
P4380-06RX	E27H7RX	SVOA	
P4380-06RXDL	E27H7RXDL	SVOA	
P4380-07	E27H9		1.0
P4380-07DL	E27H9DL	SVOA,SVOA_SIM	
P4380-08	E27J0		1.0
P4380-08DL	E27J0DL	TVOA,SVOA_SIM	1.0
P4380-08RX	E27J0RX	SVOA	
P4380-09	E27J2		1.0
P4380-10	E27J6		1.0
P4380-11	E27K0		1.0
P4380-12	E27G9		1.0
P4380-12DL	E27G9DL	SVOA,SVOA_SIM	
P4380-13	E27H2		1.0
P4380-13RX	E27H2RX	SVOA	
P4380-14	E27H3		1.0
P4380-14DL	E27H3DL	SVOA_SIM	
P4380-15	E27H8		1.0
P4380-16	E27J1		1.0

P4380-16DL	E27J1DL	SVOA_SIM	
P4380-17	E27J3		1.0
P4380-18	E27J7		1.0
P4380-19	E27K1		1.0
P4380-21	E27G6		1.0
P4380-22	E27G7		1.0
P4380-22DL	E27G7DL	TVOA,SVOA,SVOA_SIM	1.0
P4380-23	E27G8		1.0
P4380-23DL	E27G8DL	SVOA_SIM	
P4380-23RX	E27G8RX	SVOA	

19 Water samples were delivered to the laboratory intact on 10/10/2024.
03 Water samples were delivered to the laboratory intact on 10/11/2024.

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

The temperature of the samples was measured using an I R Gun. The samples temperature was 2.3, 2.3, 2.0, 2.5, 2.4, 2.1, 2.4, 2.3, 2.2, 2.6, 1.8, 2.1 degree Celsius for the samples received on 10/10/2024, 2.1, 2.3, 2.3, 1.9 degree Celsius for the samples received on 10/11/2024.

Shipping Discrepancies and/or QC issues:

Issue 01: "Lab has received water samples for SVOA-SIM analysis. Lab has performed undiluted SVOA-SIM analysis for the samples E27G9 & E27J1 and samples found positive with high concentration of target analytes detected and required dilution as you can see attached form-1 with quant report. Due to high concentration of target analytes and 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-SIM analysis with internal standard failure and further dilution in final electronic deliverables.

Resolution 01: "The lab's proposal is acceptable."

Issue 02: "Lab has received water samples for SVOA analysis. Lab has analyzed low level SVOA analysis for these samples and samples had two and/or more of the surrogates were not recovered and also samples were originally received with pH more than 12. As part of corrective action, Lab has re-extracted these samples for SVOA analysis and in re-extraction/re-analysis, samples have all surrogates recovered. However, re-extraction is done outside the holding time as Lab has only 5 days holding time for water samples from VTSR. In this case, lab will report both the data in final electronic deliverables."

Resolution 02: "The lab's proposal is acceptable."

Issue 03: The laboratory received water samples for Case 51791 and some samples are listed with only SVOA analysis, but both SVOA and SVOA SIM analysis are scheduled. The laboratory would like direction on how to proceed.

Resolution 03: Per Region 5, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples for SVOA as listed on the COC. This resolution can be applied to all samples for this Case.

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 E27H4 [1,1,2,2-Tetrachloroethane-d2 - 121%, 1 and2-Dichlorobenzene-d4 - 127%]. 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 initial Calibration criteria met requirements.
The Continuing Calibration criteria met requirements.
The Blank analysis did not indicate the presence of lab contamination.
The storage blank did not indicate the presence of lab contamination.

Samples E27H5, E27J0 and E27G7 were diluted due to high concentrations.

The sample E27G8 was analyzed following the analysis of E27G7. Samples E27G7 had hit of compound Tetrachloroethene with concentration above calibration levels. Sample E27G8 have not detected of the compound Tetrachloroethene. 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

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 **E27G6** for **Chloroethane**:

Ax= 35156
Is = 125
RRF= 0.214
DF= 1
Ais= 154857
Vo. = 25
Concentration in ug/L = $\frac{(35156)\ (125)\ (1)}{(154857)(0.214)(25)}$

Reported Result = 5.30 ug/L

Final Reported Result = 5.3 ug/L

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VU100124** for **0.5** ppb

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

RRF= $\frac{4045}{194460}$ X $\frac{5.0}{0.5}$

RRF= 0.208

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_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_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 10/10/2024, 10/11/2024, 10/18/2024,10/21/2024, The analysis of SVOC-SFAM was based on method SFAM01.1_SVOC.

The Holding Times were met for all analysis except for,
Samples E27G8RX, E27H2RX, E27H5RX, E27H7RX, E27H7RXDL, E27J0RX, Lab has analyzed low level SVOA analysis for these samples and samples had two and/or more of the surrogates were not recovered and also samples were originally received with pH more than 12. As part of corrective action, Lab has re-extracted these samples for SVOA analysis and in re-extraction/re-analysis, samples have all surrogates recovered. However, re-extraction is done outside the holding time as Lab has only 5 days holding time for water samples from VTSR. In this case, lab has reported both the data in final Hardcopy."please see email communication after SDG narrative.

The Surrogate recoveries met the acceptable except criteria except for,
E27H4 [4-Methylphenol-d8 - 1%],
E27H7RXDL [4,6-Dinitro-2-methylphenol-d2 - 0%],
E27H9DL [4-Nitrophenol-d4 - 0%],
E27G9DL [4-Nitrophenol-d4 - 0%],
E27J1 [2-Nitrophenol-d4 - 136%], As per method four surrogates are allowed to fail. Therefore no further corrective action was taken.

And

E27H5 [2,4-Dichlorophenol-d3 - 9%, 2-Chlorophenol-d4 - 11%, 2-Nitrophenol-d4 - 9%, 4,6-Dinitro-2-methylphenol-d2 - 0%, 4-Nitrophenol-d4 - 0%],
E27H7 [2,4-Dichlorophenol-d3 - 1%, 2-Chlorophenol-d4 - 1%, 2-Nitrophenol-d4 - 1%, 4,6-Dinitro-2-methylphenol-d2 - 0%, 4-Methylphenol-d8 - 17%, 4-Nitrophenol-d4 - 0%, Phenol-d5 - 3%],
E27J0 [2,4-Dichlorophenol-d3 - 0%, 2-Chlorophenol-d4 - 0%, 2-Nitrophenol-d4 - 0%, 4,6-Dinitro-2-methylphenol-d2 - 0%, 4-Methylphenol-d8 - 2%, 4-Nitrophenol-d4 - 0%, Phenol-d5 - 0%],
E27H2 [2,4-Dichlorophenol-d3 - 0%, 2-Chlorophenol-d4 - 1%, 2-Nitrophenol-d4 - 0%, 4,6-Dinitro-2-methylphenol-d2 - 0%, 4-Methylphenol-d8 - 8%, 4-Nitrophenol-d4 - 0%, Phenol-d5 - 1%],
E27G8 [2,4-Dichlorophenol-d3 - 0%, 2-Chlorophenol-d4 - 1%, 2-Nitrophenol-d4 - 1%, 4,6-Dinitro-2-methylphenol-d2 - 0%, 4-Methylphenol-d8 - 8%, 4-Nitrophenol-d4 - 0%, Phenol-d5 - 1%], Lab has analyzed low level SVOA analysis for these samples and samples had two and/or more of the surrogates were not recovered and also samples were originally received with pH

more than 12. As part of corrective action, Lab has re-extracted these samples for SVOA analysis and in re-extraction/re-analysis, samples have all surrogates recovered. However, re-extraction is done outside the holding time as Lab has only 5 days holding time for water samples from VTSR. In this case, lab has reported both the data in final Hardcopy."please see email communication after SDG narrative. 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 {E27H4MS} recovery met the requirements for all compounds.
The MSD {E27H4MSD} recovery met the requirements for all compounds.
The RPD {E27H4MSD} RPD met the requirements for all compounds
The Blank Spike for {PB164041BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164043BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164048BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164050BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164094BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164251BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164300BS} 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 E27H7RX, E27H9, E27G9 and E27G7 were diluted due to high concentrations.

Samples E27G7, E27G9, E27G9DL, E27H5, E27H5RX, E27H6, E27H7, E27H7RX, E27H9, E27J0, E27J0RX, E27J1 and E27J3 have the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.

PB164094BL analyzed twice in different instrument, first time in BNA_N and Second time in BNA_P. However our sample associated with this BL run in BNA_N, so BNA_P instrument raw data reported as Screening Data in the package.

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 = Volume of extract collected after GPC cleanup.

Example calculation of E27G7 for Phenol:

Ax = 171550
Ais = 339344
Is = 20
DF = 1
Vo = 1000
Vi = 1
Vt = 1000
RRF = 1.714
GPC = 1

$$\text{Concentration ug/L} = \frac{(171550)\,(20)\,(1000)\,(1)\,(1)}{(339344)\,(1.714)\,(1000)\,(1)}$$

= 5.9 ug/L

RRF Calculation of standard 20 ppb for **Naphthalene** with M instrument for method 10/17/2024.

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

= 1147826/1016523 X 20/20

= 1.129 (Reported RRF)

Semivolatiles SIM:

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 10/10/2024, 10/11/2024. 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,
E27J1DL [Fluoranthene-d10 - 144%]. The DMC recovery requirements do not apply to samples that have been diluted.

The Internal Standards Areas met the acceptable requirements except for ,
Sample E27G9, E27J1, samples found positive with high concentration of target analytes detected and required dilution. Due to high concentration of target analytes and due to matrix interference, samples have one of the internal standard recoveries outside the QC limits therefore lab has reported undiluted SVOA-SIM analysis with internal standard failure and further dilution in final Hardcopy. Please see email communication after SDG narrative.

The Retention Times were acceptable for all samples.
The MS {E27H4MS} recovery met the requirements for all compounds.
The MSD {E27H4MSD} recovery met the requirements for all compounds.
The RPD {E27H4MSD} RPD met the requirements for all compounds
The Blank Spike for {PB164042BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164044BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164049BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164051BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB164095BS} 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 E27H5, E27H6, E27H7, E27H9, E27J0, E27G9, E27H3, E27J1, E27G7 and E27G8 were diluted due to high concentrations.

Samples E27H6DL, E27H7DL, E27H9DL, E27G9DL, E27H3DL, E27J1DL and E27G7DL were reported with compounds exceeding calibration range. This sample is not further diluted because this sample compounds results are greater than highest calibration range of SIM but less than Total SVOC CRQL.

Samples E27H6DL, E27H3DL, E27J1DL and E27G7DL 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 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 E27G7 for Naphthalene:

Ax = 9690747
Ais = 20548
Is = 0.4
DF = 1
Vo = 1000
Vi = 1
Vt = 1000
RRF = 1.087
GPC = 1

Concentration ug/L = $\frac{(9690747)\ (0.4)\ (1000)\ (1)\ (1)}{(20548)\ (1.087)\ (1000)\ (1)}$

= 170 ug/L

RRF Calculation of standard 0.4 ppb **Naphthalene** with instrument M for method 10/18/2024.

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

Area of Internal Standard Conc. of Compound

= 18031/17248 X 0.4/0.4

= 1.045 (Reported RRF)

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 10/11/2024 and analyzed on 10/11/2024 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
E27G6 [Tetrachloro-m-xylene(1) – 160%],
The SOW allows one surrogate to fail to meet the criteria per column. ((Please See Section 11.3.6 of Exhibit D Aroclor Analysis.

E27H4MS met the requirements.
E27H4MSD 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

$$= \frac{52273157}{0.100}$$

= 522731570 calibration factor for Peak 1 100ppb

Average of 5 peaks = 488893157

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.