SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51967
SDG: DCZJ6
CONTRACT: 68HERH20D0011
LAB CODE: ACE
LAB ORDER ID: Q1226
MODIFICATION REF. NUMBER: 3096.1

Sample ID	EPA Sample ID	Test	pH
Q1226-01	DCZJ6		
Q1226-01DL	DCZJ6DL	Trace-VOA	
Q1226-02	DCZJ7		
Q1226-02DL	DCZJ7DL	PEST	
Q1226-02DL2	DCZJ7DL2	PEST	
Q1226-03	DCZJ8		
Q1226-03DL	DCZJ8DL	SVOA	
Q1226-05	DCZK2		1.0
Q1226-06	DCZM3		1.0
Q1226-07	DCZK3		1.0
Q1226-08	DCZP0		1.0
Q1226-08DL	DCZP0DL	PEST	
Q1226-08RE	DCZP0RE	Trace-VOA-SIM	1.0
Q1226-09	DCZP1		1.0
Q1226-09DL	DCZP1DL	Trace-VOA	1.0
Q1226-09DL	DCZP1DL	PEST	
Q1226-09DL2	DCZP1DL2	PEST	
Q1226-10	DCZP5		1.0
Q1226-11	DCZK4		1.0
Q1226-12	DCZM4		1.0
Q1226-13	DCZN3		1.0
Q1226-13DL	DCZN3DL	Trace-VOA, Trace-VOA-SIM	1.0
Q1226-14	DCZP2		1.0
Q1226-16	DCZK5		1.0
Q1226-17	DCZN8		1.0
Q1226-17DL	DCZN8DL	Trace-VOA, Trace-VOA-SIM	1.0
Q1226-18MS	DCZN8MS		1.0

Q1226-19MSD	DCZN8MSD		1.0
Q1226-20	DCZK6		1.0
Q1226-21	DCZL6		1.0
Q1226-21DL	DCZL6DL	Trace-VOA	1.0
Q1226-21DL	DCZL6DL	SVOA	
Q1226-22	DCZL9		1.0
Q1226-22DL	DCZL9DL	Trace-VOA, Trace-VOA-SIM	1.0
Q1226-22DL	DCZL9DL	SVOA-SIM,PEST	
Q1226-23	DCZN9		1.0
Q1226-23DL	DCZN9DL	Trace-VOA, Trace-VOA-SIM	1.0
Q1226-24	DCZN2		1.0
Q1226-25	DCZN7		1.0
Q1226-26	DCZP4		1.0
Q1226-27	DCZP9		1.0

03 Water samples were delivered to the laboratory intact on 01/30/2025.
10 Water samples were delivered to the laboratory intact on 01/31/2025.
12 Water samples were delivered to the laboratory intact on 02/01/2025.

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

The temperature of the samples was measured using an I R Gun. The samples temperature was 13.2 degree Celsius for the samples received on 01/30/2025, 2.1, 2.0, 1.8 degree Celsius for the samples received on 01/31/2025, 1.5, 1.8, 2.1 degree Celsius for the samples received on 02/01/2025.

Shipping Discrepancies and/or QC issues:

Issue 1: The laboratory received samples for Case 51967 but the received COCs displays the Case number in the top left of the COC. Please confirm that these are samples for Case 51967.

Resolution 1: Per Region 4, 51967 is the Case number for samples in this shipment. Please note the issue in the SDG Narrative and proceed with analysis of the samples.

Issue 2: There is no airbill listed on the received COC. Please advise on how the laboratory may proceed.

Resolution 2: Per Region 4, the airbills used for coolers delivered to ACE on 01/31/2025 are 771665297622, 771665281450, and 771665148941. Please note the issue in the SDG Narrative and proceed with analysis of the samples.

Issue 3: The COC indicates that sample DCZN3 should be analyzed for SVOA, but not for PAH by SIM under MA 3096.1 as scheduled for this Case. Please confirm the analyses that should be performed for sample DCZN3.

Resolution 3: Per Region 4, the RPM believes the COC is correct, DCZN3 should be analyzed for SVOA. Some samples will have SVOA with SIM but some will not. The SVOA samples that do not include SIM level analysis are expected to be at higher levels. Please note the issue in the SDG Narrative and proceed with analysis of the samples.

LAB: "The lab has received water samples for TVOA-SIM analysis. The samples are positive with a very high concentration of target analytes and required further dilution to bring target analytes within calibration range. Due to high concentration of the sample surrogate recoveries outside of the QC limits for the samples DCZN3 and DCZL9. Please see attached samples raw data for your reference. Therefore, the lab would like to confirm that lab will report undiluted analysis for the sample DCZN3 and DCZL9 with surrogate failure and further dilution in the for final electronic deliverables.
Please see attachment for your reference."

REGION: "The Region concurs with the lab's decision to report undiluted analysis with surrogate failure and further dilution for final electronic deliverables."

LAB: "The Lab received water samples for TVOA analysis. The Lab performed the analysis for the samples DCZL9 and DCZN9 in continuous analytical sequence. where samples have high concentrations of target analytes and require dilution as well as you can See attached quant reports of the samples. Due to continuous analytical sequence, instrument blank was not analyzed in between the samples. There is no other lab QC failure for the associate samples. Therefore, the lab would like to confirm that the lab will report undiluted TVOA analysis without instrument blank in between the samples and further dilution analysis for final electronic deliverables.

Please see attached."

REGION: "The Region concurs with the lab's decision to report undiluted TVOA analysis without instrument blank in between the samples and further dilution analysis for final electronic deliverables."

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.

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 {DCZN8MS} recovery met the requirements for all compounds.
The MSD {DCZN8MSD} recovery met the requirements for all compounds.
The RPD {DCZN8MSD} RPD met the requirements for all compound.

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 DCZJ6, DCZP1, DCZN3, DCZN8, DCZL6, DCZL9 and DCZN9 were diluted due to high concentrations.

The sample DCZN8MS was analyzed following the analysis DCZN8. This sample DCZN8 had concentration for above calibration levels for Tetrachloroethene. The following sample was QC samples; therefore no corrective action was required.

The sample DCZP2 was analyzed following the analysis of DCZN3. Samples DCZN3 had hit of compound Tetrachloroethenewith concentration above calibration levels. Sample DCZP2 have not detected of the compound Tetrachloroethene. Therefore, as per method no instrument blank was required.

The sample DCZN2 was analyzed following the analysis of DCZL6. Sample DCZL6 had hit of compounds 1,3,5-Trimethylbenzene and 1,2,4-Trimethylbenzene with concentration above calibration levels. Sample DCZN2 had concentration of compound 1,2,4-Trimethylbenzene which is below CRQL and compound 1,3,5-Trimethylbenzene which is not detected. Therefore, as per method no instrument blank was required.

The Samples DCZL9 and DCZN9 were analyzed back to back in an continuous analytical sequence and samples found positive with high concentration of target analytes are detected and required dilution. However, instrument blanks were not analyzed in between them per SOW due to samples are analyzed in continuous analytical sequence, so Lab has reported both the analysis as undiluted analysis without instrument blanks and further dilution analysis. Please see EPA communication after SDG Narrative.

The Continuing Calibration file id (VSTD005131) VU063185.D was analyzed following the analysis of DCZN9 which had concentration above calibration levels for Tetrachloroethene. A sample was reanalyzed at a diluted. The associate calibration is passing for this compound; therefore 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 **DCZJ6** for **Vinyl chloride**:

Ax= 125182
Is = 125
RRF= 0.480
DF= 1
Ais= 85917
Vo. = 25

$$\text{Concentration in ug/L} = \frac{(125182)\,(125)\,(1)}{(85917)(0.480)(25)}$$

Reported Result = 15.18 ug/L

Final Reported Result = 15 ug/L

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VU020425** for **0.5** ppb

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

$$RRF = \frac{8234}{174097} \times \frac{5.0}{0.5}$$

RRF= 0.473

Trace Volatiles SIM:

The analysis performed on instrument MSVOA_V were done using GC column DB-624UI 20m 0.18mm 1.0 um. Cat#121-1324UI.
The analysis of VOC-SIM was based on method SFAM01.1_VOCSIM .

The Holding Times were met for all analysis.

The Surrogate recoveries met the acceptable criteria except for
DCZP0 [Toluene-d8 - 69%],
DCZP0RE [Toluene-d8 - 64%],
DCZN3 [Toluene-d8 - 69%] ,
DCZL9 [1,2-Dichloroethane-d4 - 66%, Toluene-d8 - 68%] corrective action was taken for Sample DCZP0 failed for more than three surrogates, as corrective action this sample was reanalyzed.

The lab has received water samples for TVOA-SIM analysis. The samples are positive with a very high concentration of target analytes and required further dilution to bring target analytes within calibration range. Due to high concentration of the sample surrogate recoveries outside of the QC limits for the samples DCZN3 and DCZL9. Therefore, the lab would like to confirm that lab will report undiluted analysis for the sample DCZN3 and DCZL9 with surrogate failure and further dilution in the for final hard copy. Please see EPA communication after SDG Narrative.

The Retention Times met requirements.
The Internal Standards Areas met the acceptable requirements.
Instrument Performance Check met requirements.
The Tuning criteria met requirements.

The Initial Calibration met requirements.
The Continuing Calibration met the requirements.

The Blank analysis did not indicate the presence of lab contamination.
The Storage Blank analysis did not indicate the presence of lab contamination.

Samples DCZN3, DCZN8, DCZL9 and DCZN9 were diluted due to high concentrations.

The sample DCZN9 was analyzed following the analysis of DCZL9. Both samples had common hit of compound with concentration above calibration levels for Trichloroethene, It was reanalyzed at a diluted. As per method, no instrument blank was required and not analyzed.

The SIM analysis is not required for a sample DCZP1 as per Exhibit D-Section10.1"If any single SIM analyte exceeds the calibration range in the full scan sample analysis, do not proceed with the SIM method for any of the other target analytes scheduled for SIM analysis for that sample.

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

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.
Is = 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 for sample **DCZL6** for **Trichloroethene**:

Ax = 918
Is = 12.5
RRF= 0.413
DF = 1
Ais = 5939
Vo. = 25
Concentration in ug/L = $\frac{(918)\ (12.5)\ (1)}{(5939)\ (0.413)\ (25)}$

= 0.187 ug/L

Reported Result = 0.19 ug/L

Relative Response Factor = **Vinyl chloride**: RUN **VV030524** for **0.05** ppb

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

RRF = $\frac{369}{6365}$ X $\frac{0.5}{0.05}$

RRF= 0.580

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 02/01/2025, 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,

DCZM3 [4-Chloroaniline-d4 - 0%, 4-Methylphenol-d8 - 13%, Acenaphthylene-d8 - 4%, Anthracene-d10 - 24%, Phenol-d5 - 9%]. As per method four surrogates are allowed to fail. Therefore no further corrective action was taken. DMC recovery 0% for 4-Chloroaniline-d4 is advisory as per SOW, therefore no corrective action was required.

The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {DCZN8MS} recovery met the requirements for all compounds.
The MSD {DCZN8MSD} recovery met the requirements for all compounds.
The MSD {DCZN8MSD} RPD met the requirements for all compounds.
The Blank Spike for {PB166495BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166502BS} recoveries met the requirements for all compounds.
The Blank Spike for (PB166504BS} recoveries met the requirements for all compounds.
The Blank Spike for (PB166510BS} recoveries met the requirements for all compounds.
The Blank Spike for (PB166547BS} 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 DCZJ8, DCZL6 were diluted due to high concentrations.

Samples DCZP0 has 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 = Vin = GPC factor (If no GPC is performed, GPC=1)
Vout = Volume of extract collected after GPC cleanup.

Example calculation of DCZJ8 for Nitrobenzene:

Ax = 1474199
Ais = 1559648
Is = 20
DF = 1
Vo = 1000
Vi = 1
Vt = 1000
RRF = 0.347
GPC = 1

$$\text{Concentration ug/L} = \frac{(1474199)\ (20)\ (1000)\ (1)\ (1)}{(1559648)\ (0.347)\ (1000)\ (1)}$$

$$= 54 \text{ ug/L}$$

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

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

$$= 2498726/2130098 \times 20/20$$

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

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.

Semis volatile Organic samples for Water were extracted by Method SFAM01.1 on 02/01/2025 and 02/03/2025. The analysis of SVOCMS Group2 was based on method SFAM01.1_SIM. using MA 3096.1 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 Blank Spike for {PB166496BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB166505BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166537BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB166538BS} 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 DCZL9 was diluted due to high concentrations.

The Sample DCZN2 have the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.

AS per SOW Exhibit D section 10.4.1"if any single PAH analyte or PCP exceeds the calibration range, do not proceed with the SIM method for any of the target analyte scheduled for SIM analysis.", So samples DCZP1, DCZN8 and DCZN9 not analyzed for SIM.

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 **DCZL9** for **Pentachlorophenol**:

Ax = 43919
Ais = 9403
Is = 0.4
DF = 1
Vo = 1000

Vi = 1
Vt = 1000
RRF = 0.140
GPC = 1

Concentration ug/L = $\frac{(43919)\ (0.4)\ (1000)\ (1)\ (1)}{(9403)\ (0.140)\ (1000)\ (1)}$

= 13 ug/L

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

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

Area of Internal Standard Conc. of Compound

= 742/4926 X 0.4/0.4

= 0.151 (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 02/03/2025 and analyzed on 02/03, 02/04 and 02/05/2025. The sample was extracted and analyzed within contractual holding time.

The Surrogate recoveries met the acceptable criteria except for
DCZL6 [Tetrachloro-m-xylene(2) - 8385%],
DCZN7 [Decachlorobiphenyl(1)- 28%],
DCZN8 [Tetrachloro-m-xylene(2) - 1068%],
DCZN8MS [Tetrachloro-m-xylene(2) - 992%],
DCZN8MSD [Tetrachloro-m-xylene(2) - 1026%],
DCZN9 [Tetrachloro-m-xylene(2) - 991%],
The SOW allows one surrogate to fail to meet the criteria per column. ((Please See Section 11.3.6 of Exhibit D Pesticide Analysis)

DCZN8MS met the requirements.
DCZN8MSD 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 DCZJ7, DCZJ7DL, DCZL9, DCZP0, DCZP1 and DCZP1DL were diluted due to high concentrations.

Samples DCZJ7, DCZJ7DL, DCZJ7DL2, DCZL6, DCZL9, DCZL9DL, DCZN3, DCZN7, DCZN8, DCZN8MS, DCZN8MSD, DCZN9, DCZP0, DCZP0DL, DCZP1, DCZP1DL, DCZP1DL2 and DCZP5 failed to meet the %D for the results between the two columns Criteria.

Sample DCZL6 have the concentration of target compound – Endosulfan II,
4,4'-DDD,
Sample DCZL9DL have the concentration of target compound – Methoxychlor,
Sample DCZN2 have the concentration of target compound – beta-BHC,
Sample DCZN7 have the concentration of target compound – Aldrin, Dieldrin, 4,4'-DDT,
Sample DCZN8 have the concentration of target compound – Endosulfan II,
Sample DCZP1DL have the concentration of target compound – cis-Chlordane, Methoxychlor,
Sample DCZP4 have the concentration of target compound – Dieldrin , Endrin , Endosulfan II, Endrin Aldehyde, 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 delta-BHC calculation
Calibration Factor Calculation delta-BHC in the second column

Calibration factor (CF) = peak area
Mass injected in ng

= 99007119
5ng

= 19801400

Mean Calibration Factor = average of 5 point calibration factor

= 18663800

Sample **DCZL6**
Ax = 368524332
CF = 18663800
Ws = 1000
Vi = 1
Vt = 10000
DF = 1
GPC = 1

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

= (368524332) (10000) (1.0) (1.0)
(18663800)(1.0)(1000)

= 0.197

Reported Results (ug/L) = 0.20

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.