

SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC CASE: 51953 SDG: C0AF9 CONTRACT: 68HERH20D0011 LAB CODE: ACE LAB ORDER ID: Q1086 MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	Test	pН
Q1086-01	C0AF9		1.0
Q1086-01DL	C0AF9DL	TVOA	1.0
Q1086-02	C0AG1		1.0
Q1086-03	C0AH2		1.0
Q1086-04	C0AH3		1.0
Q1086-04DL	C0AH3DL	TVOA	1.0
Q1086-06	COAE9		1.0
Q1086-06DL	C0AE9DL	TVOA	1.0
Q1086-07	C0AF8		1.0
Q1086-07DL	C0AF8DL	TVOA	1.0
Q1086-08	C0AG2		1.0
Q1086-09	C0AG4		1.0
Q1086-10	C0AH0		1.0
Q1086-10DL	C0AH0DL	TVOA	1.0
Q1086-11	C0AE6		1.0
Q1086-11DL	C0AE6DL	TVOA, SVOC	1.0
Q1086-11DL2	C0AE6DL2	TVOA	1.0
Q1086-12	C0AF0		1.0
Q1086-12DL	COAFODL	TVOA	1.0
Q1086-13	C0AF1		1.0
Q1086-13DL	C0AF1DL	TVOA	1.0
Q1086-14	C0AF5		1.0
Q1086-14DL	C0AF5DL	TVOA	1.0
Q1086-15	C0AF6		1.0
Q1086-15DL	C0AF6DL	TVOA, SVOC	1.0
Q1086-15DL2	C0AF6DL2	TVOA	1.0
Q1086-16	C0AF7		1.0
Q1086-16DL	C0AF7DL	TVOA	1.0
Q1086-17	C0AG3		1.0

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Q1086-18	COAE3		1.0
Q1086-18DL	C0AE3DL	TVOA	1.0
Q1086-19	COAE4		1.0
Q1086-19DL	C0AE4DL	TVOA	1.0
Q1086-19DL2	C0AE4DL2	TVOA	1.0
Q1086-20	COAE5		1.0
Q1086-20DL	COAE5DL	TVOA	1.0
Q1086-21	C0AD4		1.0
Q1086-21DL	C0AD4DL	TVOA	1.0
Q1086-22	C0AD5		1.0

06 Water samples were delivered to the laboratory intact on 01/15/2025.

12 Water samples were delivered to the laboratory intact on 01/16/2025.

03 Water samples were delivered to the laboratory intact on 01/17/2025.

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

The temperature of the samples was measured using an I R Gun. The samples temperature was 2.4, 11.1 degree Celsius for the samples received on 01/15/2025, 3.2, 3.1, 1.8, 2.1 degree Celsius for the samples received on 01/16/2025, 2.6, degree Celsius for the samples received on 01/17/2025,

Shipping Discrepancies and/or QC issues:

Issue 1: Laboratory QC is not scheduled for TVOA or 1,4-Dioxane for Case 51953, however the COC lists a QC sample for both TVOA and 1,4-Dioxane.

Resolution 1: As per SOW SFAM01.1 Exhibit A, Section 5.5.4.2, note the issue in the SDG Narrative and proceed with the analysis of the samples based on the scheduling instructions

Issue 2: "The Lab has received water samples for TVOA analysis where samples C0AF5 were found with very high concentration of target analytes and has very poor recovery of surrogates, possible due to matrix interference and possible of high contamination. Please see attached Raw data for your reference. In this Case, the lab would like to confirm that the lab will report the sample C0AF5 with surrogate failure, further dilution of the sample in final electronic deliverables.

The Lab performed the analysis for the samples C0AE6, C0AF0, C0AF1, C0AF5, C0AE3, C0AE4 in a continuous analytical sequence. where samples have high concentrations of target analytes and require dilution as well as you can review attached quant reports for the samples. Due to continuous analytical sequence, instrument blank was not analyzed in between the samples.

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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."

Resolution 2: "Inform ACE, Region 3 is in agreement with their below written approaches; have ACE make note of the issue in their 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 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-SFAM was based on method SFAM01.1_Trace.

Holding Times were met requirement.

The Surrogate recoveries met the acceptable criteria Except for, COAE9 [1,1-Dichloroethene-d2 - 48%, Toluene-d8 - 38%], COAE9DL [1,1,2,2-Tetrachloroethane-d2 - 121%, 1,1-Dichloroethene-d2 - 36%, Chloroethaned5 - 63%]. COAF8DL [Chloroethane-d5 - 60%, Toluene-d8 - 66%], COAH0 [1,1-Dichloroethene-d2 - 40%, Toluene-d8 - 29%], COAE6DL [Chloroethane-d5 - 63%], COAF5 [1,1-Dichloroethene-d2 - 10%, Toluene-d8 - 4%, trans-1,3-Dichloropropene-d4 - 50%, Vinyl Chloride-d3 - 19%]. COAF5DL [1,1-Dichloroethene-d2 - 54%], COAF6DL [Toluene-d8 - 58%], COAE4 [1,1-Dichloroethene-d2 - 59%, Toluene-d8 - 55%], COAE4DL [Chloroethane-d5 - 60%], COAE4DL2 [1,2-Dichlorobenzene-d4 - 76%, Toluene-d8 - 69%], E2944MSD [Chloroethane-d5 - 61%]. As per method, up to three surrogates are allowed to fail. No corrective action was taken. Lab has received water samples for TVOA analysis where samples C0AF5 were found with very high concentration of target analytes and has very poor recovery of surrogates, due to matrix interference and of high contamination, therefore lab reported the sample COAF5 with surrogate failure, further dilution of the sample in final Hard Copy, Please see EPA communication after

SDG Narrative.

The Internal Standards Areas met the acceptable requirements.

Instrument Performance Check met requirements.

The Retention Times met requirements.

The Tuning criteria met requirements.



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The Continuing Calibration (VSTD005102) file ID VU062756.D met the requirements except for Vinyl Chloride-d3 (-37.4%) and 1,1-Dichloroethene-d2 (-30.5%). 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 Continuing Calibration (VSTD005103) file ID VU062779.D met the requirements except for Vinyl Chloride-d3 (-36.4%) and 1,1-Dichloroethene-d2 (-26.1%). 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 (VSTD005104) file ID VU062803.D met the requirements except for 2-Butanone (-73.8%) and 2-Butanone-d5 (-69.4%). 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 Continuing Calibration (VSTD005336) file ID VV038524.D met the requirements except for Vinyl Chloride-d3 (-32%) and 1,1-Dichloroethene-d2 (-28.1%). 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 Continuing Calibration (VSTD005338) file ID VV038569.D met the requirements except for cis-1,3-Dichloropropene (-32%) and trans-1,3-Dichloropropene (-27.3%). 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.

Samples C0AF9, C0AH3, C0AE9, C0AF8, C0AH0, C0AE6, C0AE6DL, C0AF0, C0AF1, C0AF5, C0AF6, C0AF6DL, C0AF7, C0AE3, C0AE4, C0AE4DL, C0AE5 and C0AD4 were diluted due to high concentrations.

The Continuing Calibration file id (VSTD005109) VU062884.D was analyzed following the analysis of C0AH3 which had concentration above calibration levels for 1,1,1-Trichloroethane. A sample was reanalyzed at a diluted. The associate calibration is passing for this compound; therefore no instrument blank was required.

The sample C0AF8 was analyzed following the analysis of C0AE9. Both samples had common hit of compound with concentration above calibration levels for 1,1,1-Trichloroethane, It was reanalyzed at a diluted. As per method, no instrument blank was required and not analyzed.

The sample C0AG2 was analyzed following the analysis of C0AF8. Samples C0AF8 had hit of compound 1,1-Dichloroethane and 1,1,1-Trichloroethane with concentration above calibration levels. Sample C0AG2 have not detected of the compound 1,1-Dichloroethane and 1,1,1-Trichloroethane. Therefore, as per method no instrument blank was required.



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The sample C0AE6 was analyzed following the analysis of C0AH0. Both samples had common hit of compound with concentration above calibration levels for 1,1,1-Trichloroethane, It was reanalyzed at a diluted. As per method, no instrument blank was required and not analyzed.

The Samples COAE6, COAF0, COAF1 and COAF5 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 samples C0AF5, C0AF6, C0AF7 and C0AE3 were analyzed back to back in a continuous analytical sequence and samples had common hit of compound with concentration above calibration levels for Tetrachloroethene. It was reanalyzed at a diluted. As per method, no instrument blank was required and not analyzed.

The Samples COAE3 and COAE4 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 sample C0AE5 was analyzed following the analysis of C0AE4. Both samples had common hit of compound with concentration above calibration levels for 1,1-Dichloroethane and 1,1,1-Trichloroethane, It was reanalyzed at a diluted. As per method, no instrument blank was required and not analyzed.

The sample C0AF6DL was analyzed following the analysis of C0AE4DL. Both samples had common hit of compound with concentration above calibration levels for 1,1,1-Trichloroethane, It was reanalyzed at a diluted. As per method, no instrument blank was required and not analyzed.

The Continuing Calibration file id (VSTD005114) VU062951.D was analyzed following the analysis of C0AF6DL which had concentration above calibration levels for 1,1,1-Trichloroethane. 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

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 **C0AE3** for **Chloromethane**:

Ax= 7598 Is = 125 RRF= 0.320 DF= 1 Ais= 88786 Vo. = 25 Concentration in ug/L = $\frac{(7598)(125)(1)}{(88786)(0.320)(25)}$

Reported Result = 1.34 ug/L

Final Reported Result = 1.3 ug/L

Relative Response Factor = Dichlorodifluoromethane: RUN VU010225 for 0.5 ppb

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

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

RRF= 0.483



Semivolatiles:

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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 01/16/2025 and 01/17/2025, The analysis of SVOCMS Group4 was based on method SFAM01.1_SVOC.

The Holding Times were met for all analysis.

The Surrogate recoveries met the acceptable except criteria.

The Internal Standards Areas met the acceptable requirements.

The Retention Times were acceptable for all samples.

The Blank Spike for {PB166085BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB166087BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB166103BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB166118BS} 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 COAE6, COAF6 were diluted due to high concentrations.

PB166118BL analyzed twice in different instrument, first time in BNA_M and Second time in BNA_P. However our sample associated with this BL run in BNA_M, so BNA_P instrument raw data reported as Screening Data in the package.

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)



Example calculation of COAE6 for 1,4-Dioxane:

Ax = 1251576 Ais = 537496 Is = 20 DF = 1 Vo = 1000 Vi = 1 Vt = 1000 RRF = 0.574 GPC = 1

Concentration ug/L = $\frac{(1251576)(20)(1000)(1)(1)}{(537496)(0.574)(1000)(1)}$

= 81 ug/L

RRF Calculation of standard 20 ppb for 1,4-Dioxane with P instrument for method 01/14/2025.

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

= 125580/513940 X 20/8

= 0.611 (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 01/16/2025. The analysis of SVOCMS Group3 was based on method SFAM01.1_SIM.

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 {PB166086BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB166088BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB166105BS} recoveries met the requirements for all compounds.

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

The Tuning criteria met requirements.



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The Initial Calibration met the requirements. The Continues Calibration met the requirements.

AS per SOW Exhibit D section 10.4.1 "SIM analysis is not required for the target analyte 1,4-Dioxane when it is detected at or above the sample-adjusted Contract Required Quantitation Limit (CRQL) in the full scan analysis", so sample COAE6, COAF6, COAF7, COAE3, COAE4, COAE5 and COAD5 not analyzed for SIM.

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)

Example calculation of **C0AE9** for **1,4-Dioxane**:

Ax = 447 Ais = 1947 Is = 0.4 DF = 1 Vo = 1000 Vi = 1 Vt = 1000 RRF = 0.439 GPC = 1 Concentration ug/L = (447) (0.4) (1000) (1) (1) (1947) (0.439) (1000) (1) = 0.21 ug/L



RRF Calculation of standard 0.4 ppb **1,4-Dioxane** with instrument N for method 12/31/2024.

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

Area of Internal Standard Conc. of Compound

= 747/1741 X 0.4/0.4

= 0.429 (Reported RRF)

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.