SDG NARRATIVE

LAB NAME: Alliance Technical Group, LLC
CASE: 51871
SDG: BHJA0
CONTRACT: 68HERH20D0011
LAB CODE: ACE
Lab Order ID: P5109
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	pH
P5109-01	BHJA0	1.0
P5109-02	BHJA1	1.0
P5109-03	BHJA2	1.0
P5109-04MS	BHJA2MS	1.0
P5109-05MSD	BHJA2MSD	1.0
P5109-06	BHJA3	1.0
P5109-07	BHJB3	1.0
P5109-08	BHJB4	1.0
P5109-09	BHPD8	1.0
P5109-10	BHPD9	1.0
P5109-11	BHPE0	1.0
P5109-12	BHPE1	1.0
P5109-14	BHJ95	1.0
P5109-15	BHJA4	1.0
P5109-16	BHJA5	1.0
P5109-17	BHJA6	1.0
P5109-18	BHJA7	1.0
P5109-19	BHJA8	1.0
P5109-20	BHPE3	1.0

12 Water samples were delivered to the laboratory intact on 12/04/2024.
07 Water samples were delivered to the laboratory intact on 12/05/2024.

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 1.9, 2.2 degree Celsius for the samples received on 12/04/2024. The samples temperature was 1.9 degree Celsius for the samples received on 12/05/2024.

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
BHJA2MSD [Chloroethane-d5 - 65%].
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 {BHJA2MS} recovery met the requirements for all compounds.
The MSD {BHJA2MSD} recovery met the requirements for all compounds.
The RPD {BHJA2MSD} RPD met the requirements for all compounds.

The %RSD met requirement for initial Calibration except for 1,1,2,2-Tetrachloroethane (20.9%) for the initial calibration dated 11/20/2024 with U instrument, As per method, the %RSD up to two Compounds are allowed to fail to meet the minimum criteria as long as the compound meets the maximum of 40% RSD. No further corrective action was taken.

The Continuing Calibration (VSTD005173) file ID VU062123.D met the requirements except for Chloroethane (-31.8%). 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.

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 **BHJA0** for **cis-1,2-Dichloroethene**:

Ax= 13932
Is = 125
RRF= 0.399
DF= 1
Ais= 107840
Vo. = 25

$$\text{Concentration in ug/L} = \frac{(13932)\,(125)\,(1)}{(107840)(0.399)(25)}$$

Reported Result = 1.618 ug/L

Final Reported Result = 1.60 ug/L

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VU112024** for **0.5** ppb

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

$$RRF = \frac{7631}{174068} \times \frac{5.0}{0.5}$$

RRF= 0.438

Semivolatiles:

The samples were analyzed on instrument BNA_G 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 12/07/2024 and 12/09/2024, 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 MS {BHJA2MS} recovery met the requirements for all compounds.
The MSD {BHJA2MSD} recovery met the requirements for all compounds.
The RPD {BHJA2MSD} RPD met the requirements for all compounds
The Blank Spike for {PB165459BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB165469BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB165508BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB165510BS} 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.

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.

No positive target compounds were detected in the samples.

RRF Calculation of standard 20 ppb for **1,4-Dioxane** with G instrument for method 12/06/2024.

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

$$= 16173/61973 \times 20/8$$

$$= 0.652 \text{ (Reported RRF)}$$

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 sample for Water sample was extracted by Method SFAM01.1 on 12/07/2024 and 12/09/2024. The analysis of SVOCMS Group3 was based on method SFAM01.1_SVOC.

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 MS {BHJA2MS} recovery met the requirements for all compounds.
The MSD {BHJA2MSD} recovery met the requirements for all compounds.
The RPD {BHJA2MSD} RPD met the requirements for all compounds
The Blank Spike for {PB165460BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB165472BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB165509BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB165511BS} 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 requirements.
The Continuous Calibration met requirements.

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

Example calculation of BHJA6 for 1,4-Dioxane:

Ax = 604
Ais = 4951
Is = 0.4

DF = 1
Vo = 1000
Vi = 1
Vt = 1000
RRF = 0.541
GPC = 1

Concentration ug/L = $\frac{(604)\ (0.4)\ (1000)\ (1)\ (1)}{(4951)\ (0.541)\ (1000)\ (1)}$

= 0.090 ug/L

RRF Calculation of standard 0.4 ppb for **1,4-Dioxane** with M instrument for method 12/09/2024.

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

= 2264/3702 X 0.4/0.4

= 0.612 (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.