

**SDG NARRATIVE****LAB NAME: Alliance Technical Group, LLC****CASE: 51877****SDG: BH7T0****CONTRACT: 68HERH20D0011****LAB CODE: ACE****LAB ORDER ID: P5247****MODIFICATION REF. NUMBER: NA**

Sample ID	EPA Sample ID	Test	pH
P5247-01	BH7T0		1.0
P5247-01DL	BH7T0DL	Trace-VOA	1.0
P5247-02	BH7T2		1.0
P5247-03	BH7T4		1.0
P5247-04	BH7T5		1.0
P5247-05MS	BH7T5MS		
P5247-06MSD	BH7T5MSD		
P5247-07	BH7T6		1.0

07 Water samples were delivered to the laboratory intact on 12/10/2024.

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

The temperature of the samples was measured using an I R Gun. The samples temperature was 2.1, 1.9, 2.0 degree Celsius for the samples received on 12/10/2024.

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.

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 analysis did not indicate the presence of lab contamination.

Sample BH7T0 was diluted due to high concentration.

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

Calculation:

Low/Med Water Level Calculation

$$\text{Concentration in ug/L} = \frac{(A_x) (I_s) (DF)}{(A_{is}) (RRF) (V_o)}$$

Where,

A_x = Area of the characteristic ion (EICP) for the compound to be measured.

A_{is} = 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.

V_o = Total volume of water purged, in mL.

DF = Dilution Factor

Example calculation of **BH7T0** for **Methyl tert-butyl Ether**:

$$A_x = 21319$$

$$I_s = 125$$

$$RRF = 0.841$$

$$DF = 1$$

$$A_{is} = 91558$$

$$V_o = 25$$

$$\text{Concentration in ug/L} = \frac{(21319) (125) (1)}{(91558)(0.841)(25)}$$

$$\text{Reported Result} = 1.38 \text{ ug/L}$$

$$\text{Final Reported Result} = 1.4 \text{ ug/L}$$

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VU120924** for **0.5** ppb

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



$$\text{RRF} = \frac{5191}{109257} \times \frac{5.0}{0.5}$$

$$\text{RRF} = 0.475$$

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.

Semis volatile Organic sample for water sample was extracted by Method SFAM01.1 on 12/11/2024, 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 except criteria.

The Internal Standards Areas met the acceptable requirements.

The Retention Times were acceptable for all samples.

The Blank Spike for {PB165610BS} 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 %RSD met requirement for initial Calibration except for 2-Nitroaniline (25.8%) for the initial calibration dated 12/11/2024 with M instrument, Up to four target analytes and DMCs with maximum %RSD requirements of less than 40.0% may fail to meet the %RSD criteria listed in Exhibit D – SVOA, Table 5, but these compounds must still meet the maximum %RSD requirement of 40.0% for the initial calibration to be considered acceptable.

The Continuous Calibration met the requirements.

Concentration of Water Sample:

$$\text{Concentration ug/L} = \frac{(A_x) (I_s) (V_t) (DF) (GPC)}{(A_{is}) (\overline{\text{RRF}}) (V_o) (V_i)}$$

Where,

A_x = Area of the characteristic ion for the compound to be measured.

A_{is} = Area of the characteristic ion for the internal standard.

I_s = Amount of internal standard injected in ng.

V_o = Volume of water extracted in mL.

V_i = Volume of extract injected in uL.

V_t = Volume of the concentrated extract in uL

RRF = Mean Relative Response Factor determined from the initial calibration standard.

GPC = $\frac{V_{in}}{V_{out}}$ = GPC factor (If no GPC is performed, GPC=1)

V_{out} = Volume of extract collected after GPC cleanup.



No positive target compounds were detected in the samples.

RRF Calculation of standard 20 ppb for **Naphthalene** with M instrument for method 12/11/2024.

$$\begin{aligned} \text{RRF} &= \frac{\text{Area of compound}}{\text{Area of Internal Standard}} \times \frac{\text{Conc. of Internal Standard}}{\text{Conc. of Compound}} \\ &= 677227/622746 \times 20/20 \\ &= 1.087 \text{ (Reported RRF)} \end{aligned}$$

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 where 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 12/11/2024 and analyzed on 12/20/2024. The sample was extracted and analyzed within contractual holding time.

The Surrogate recoveries met the acceptable criteria.

BH7T5MS met the requirements.

BH7T5MSD 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.

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

Calculation for the Concentration in Water Samples

$$\text{Concentration ug/L} = \frac{(A_x) (V_t) (DF) (GPC)}{(CF) (V_o) (V_i)}$$

Where,

A_x = Response (peak area or height) of the compound to be measured.

CF = Mean Calibration Factor from the initial calibration (area/ng).

V_o = Volume of water extracted in mL.

V_i = Volume of extract injected in uL.

V_t = Volume of the concentrated extract in uL

$$GPC = \frac{V_{in}}{V_{out}} = \text{GPC factor (If no GPC is performed, GPC=1)}$$

V_{in} = Volume of extract loaded onto GPC column.

V_{out} = Volume of extract collected after GPC cleanup.

Example of beta-BHC calculation

Calibration Factor Calculation beta-BHC in the first column

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

$$= \frac{9199190}{5\text{ng}}$$

$$= 1839840$$

Mean Calibration Factor = average of 5 point calibration factor

$$= 1748660$$

Sample **BH7T2**

$$A_x = 1244211$$

$$CF = 1748660$$

$$W_s = 990$$

$$V_i = 1$$

$$V_t = 10000$$

$$DF = 1$$

$$GPC = 1$$

$$\begin{aligned}\text{Concentration ug/L (Dry weight basis)} &= \frac{(A_x) (V_t) (DF) (GPC)}{(CF) (V_i) (W_s)} \\ &= \frac{(1244211) (10000) (1.0) (1.0)}{(1748660)(1.0)(1000)} \\ &= 0.0712\end{aligned}$$

Reported Results (ug/L) = 0.072

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 where 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 12/11/2024 and analyzed on 12/13/2024. 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.

BH7T5MS met the requirements.

BH7T5MSD 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:

$$\text{Concentration ug/L} = \frac{(A_x) (V_t) (DF) (GPC)}{(CF) (V_o) (V_i)}$$

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 = $\frac{V_{in}}{V_{out}}$ = 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.

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

$$= \frac{4689759}{0.100}$$

= 46897590 calibration factor for Peak 1 100ppb

Average of 5 peaks = 41271310

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.