CHEMTECH

SDG NARRATIVE

LAB NAME: CHEMTECH CONSULTING GROUP
CASE: 49672
SDG: EW2J7
CONTRACT: 68HERH20D0011
LAB CODE: CHM
CHEMTECH PROJECT: M3878
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	pH
M3878-01	EW2J7	1.0
M3878-02	EW2P3	1.0
M3878-04	EW2N2	1.0
M3878-05	EW2N3	1.0
M3878-06	EW2N4	1.0
M3878-07	EW2N5	1.0
M3878-08	EW2N6	1.0
M3878-09	EW2N7	1.0
M3878-10	EW2N8	1.0
M3878-11	EW2P4	1.0
M3878-12	EW2P5	1.0
M3878-13	EW2P6	1.0
M3878-14	EW2N7	
M3878-15MS	EW2N4MS	1.0
M3878-16MSD	EW2N4MSD	1.0

2 Water samples were delivered to the laboratory intact on 09/22/2021.
12 Water samples were delivered to the laboratory intact on 09/23/2021.
1 Water samples were delivered to the laboratory intact on 09/24/2021.

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

Sample Tags were not received with the samples.

The temperature of the samples was measured using an I R Gun. The samples temperature was 4.7, 4.3 degree Celsius for the samples received on 09/22/2021, 2.3, 2.2, 2.8, 2.5, 3.1, 2.4, 3.2, 3.8, 3.4 degree Celsius for the samples received on 09/23/2021, 5.6 degree Celsius for the samples received on 09/24/2021.

Shipping Discrepancies and/or QC issues:
Issue 1: Sample tags were not received with samples at the laboratory. Sample tag numbers may or may not be listed on the TR/COC.

Resolutions 1: The laboratory will note the samples with the missing tags in the SDG Narrative and proceed with the analysis of the samples. The resolution will be applied to all samples received for this Case.

Issue 2: The laboratory received sample TMW-03 with an airbill number listed on the attached COC as "1Z5490W42210101589;" however, this shipment was delivered under airbill 1Z5490W42210101598. The COC lists the incorrect airbill information.

Resolution 2: The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Issue 3: The laboratory has SDG EW2J7 with no sample designated for laboratory QC.

Resolution 3: In accordance with SFAM01.1, Exhibit A, Section 5.5.4.1, the laboratory can proceed with using the selected samples for laboratory QC.

Issue 4: The lab received the COC in an incorrect format. The lab requests a COC in the proper format.

Resolution 4: Per Region 5, attached is a corrected COC. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Issue 5: The lab received water samples with analysis key VOA; however, TVOA is scheduled for water samples.

Resolution 5: Per Region 5, the laboratory will analyze for TVOA as scheduled and note the issue in the SDG Narrative.

Trace Volatiles:

The analysis performed on instrument MSVOA_V were done using GC column DB-624UI 20m 0.18mm 1.0 um. Cat#121-1324UI. The Trap was supplied by OI Analytical, OI #10 Trap, OI Eclipse 4660 Concentrator.
The analysis of VOC-TRACE-SFAM was based on method SFAM01.1_Trace.

The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for
GB6W3 [Toluene-d8 - 70%],
GB6W8 [Toluene-d8 - 67%],
GB6W9 [Toluene-d8 - 69%],
GB6X0 [Toluene-d8 - 68%],
GB6X4 [Toluene-d8 - 69%],
GB6X8 [1,1-Dichloroethene-d2 - 53% and Toluene-d8 - 69%]. As per method, up to three surrogates are allowed to fail. No corrective action was taken.

The Retention Times met requirements.
The Internal Standards Areas met the acceptable requirements.

Instrument Performance Check met requirements.

The GB6W6MS recoveries met the requirements for all compounds.
The GB6W6MSD recoveries met the acceptable requirements.
The RPD met criteria.

The Tuning criteria met requirements.
The Initial Calibration met requirements.
The Continuing Calibration met requirements.

The Blank analysis indicated presence of Toluene [0.09ug/L] FileID:VV022279.D (VBLK209) {VV0923WBL01} due to possible lab contamination.
The Blank analysis indicated presence of Trichloroethene [0.12ug/L] FileID: VV022561.D (VBLK213) { VV1005WBL01 } due to possible lab contamination. As per method, less than the respective CRQL is allowed to fail for Toluene, Trichloroethene. therefore no further corrective action was taken.

The storage blank analysis indicated presence of Trichloroethene [0.080ug/L] FileID: VV022318.D {VHBLK001} due to lab contamination. As per method, less than the respective CRQL is allowed to fail for Trichloroethene. Therefore no further corrective action was taken.

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

Calculation:
Concentration in ug/L = $\dfrac{(Ax)\ (Is)\ (DF)}{(Ais)\ (RRF)\ (Vo)}$

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 **EW2P5** for **Acetone**:

Ax = 13104
Is = 125
RRF=0.058
DF = 1
Ais = 117860
Vo. = 25

Concentration in ug/L $= \dfrac{(13104)\ (125)\ (1)}{(117860)\ (0.058)\ (25)}$

Reported Result = 9.5ug/L

Relative Response Factor = **Dichlorodifluoromethane**: RUN **VV092321** for **0.5** ppb

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

$$RRF = \frac{4740}{126947} \quad X \quad \frac{5.0}{0.5}$$

RRF= 0.373

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..

Semis volatile Organic sample for water sample was extracted by Method SFAM01.1 on 09/25/2021. 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.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {EW2N4MS} recoveries met the requirements.
The MSD { EW2N4MSD} recoveries met the requirements.
The RPD for MSD { EW2N4MSD} met the requirements.
The Blank Spike for {PB139386BS} recoveries met the requirements for all compounds.
The Blank Spike for {PB139387BS} recoveries met the requirements for all compounds.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Tuning criteria met requirements.
The Continuous Calibration met the requirement.

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

Concentration of Water Sample:

Concentration ug/L = $\dfrac{(Ax)\ (Is)\ (Vt)\ (DF)\ (GPC)}{(Ais)\ (RRF)\ (Vo)\ (Vi)}$

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 = <u>Vin</u> = GPC factor (If no GPC is performed, GPC=1)
Vout = Volume of extract collected after GPC cleanup.

Example calculation of EW2N7 for Bis(2-ethylhexyl)phthalate:

Ax = 27659
Ais = 277198
Is = 20
Vo = 1000
Vi = 1
Vt = 1000
RRF = 0.698
GPC = 1

Concentration ug/L = <u>(27659) (20) (1000) (1) (1)</u>

(277198) (0.698) (1000) (1)

Reported Result = 2.9 ug/L

RRF Calculation of standard 20 ppb for **Naphthalene** with G instrument for method 09/30/2021.

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

   = 189071/173952 X 20/20

   = 1.087 (Reported RRF)

Pesticides:
The analyses for Pesticides were performed on instrument ECD D. The front column is ZB-Multi-Residue-2 which is 30 meters, 0.32 mm ID, 0.2 um df. The rear column ZB-Multi-Residue-1 which is 30 meters, 0.32 mm ID, 0.50 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 ALCS 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 09/25/2021 and analyzed on 09/29, 10/12, 10/13/2021. The sample was extracted and analyzed within contractual holding time.

The Surrogate recoveries met the acceptable.
EW2N4MS met the requirements.
EW2N4MSD 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 %RSD met requirement for initial Calibration except for beta-BHC (28.44%) in first column for the initial calibration dated 10/13/2021 with ECD_D instrument. (Please See Section 9.3.5.9 of Exhibit D Pesticide Analysis).
The Individual Mix A met the requirements.
The Individual Mix B met the requirements.
The PEM met the requirement.

Samples EW2N4 failed to meet the %D for the results between the two columns Criteria.

Calculation for the Concentration in Water Samples

Concentration ug/L = $\dfrac{(Ax)\ (Vt)\ (DF)\ (GPC)}{(CF)\ (Vo)\ (Vi)}$

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 = $\dfrac{Vin}{Vout}$ = 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.

Example of alpha-BHC calculation
Calibration Factor Calculation alpha-BHC in the first column

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

$= \dfrac{15576169}{5ng}$

$= 3115230$

Mean Calibration Factor = average of 5 point calibration factor

$$= 2966650$$

No target **Pesticdes** were detected in the samples.

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 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 09/27/2021 and analyzed on 09/27, 09/28/2021. 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.
EW2N4MS met the requirements except for AR1016 and AR1260 on both columns due to sample matrix interference. No corrective action is required for failure to meet the MS/MSD criteria by the SOW. (Section 12.2.5.5 of Exhibit D Aroclor Analysis).

EW2N4MSD met the requirements except for AR1016 and AR1260 on both columns due to sample matrix interference. No corrective action is required for failure to meet the MS/MSD criteria by the SOW. (Section 12.2.5.5 of Exhibit D Aroclor Analysis).
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:

Concentration ug/L = $\dfrac{(Ax)\ (Vt)\ (DF)\ (GPC)}{(CF)\ (Vo)\ (Vi)}$

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 = $\underline{Vin}$ = 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.
DF = Dilution Factor.

Example of AR1260 calculation for Peak 1

Calibration factor Peak 1 100ppb ISTD= $\underline{peak\ area}$
Column1   Mass injected ng

$$= \frac{25091632}{0.100}$$

= 250916320 calibration factor for Peak 1 100ppb

  Average of 5 peaks = 229724750

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.