

SDG NARRATIVE**LAB NAME: CHEMTECH CONSULTING GROUP****CASE: 49666****SDG: C0AB6****CONTRACT: 68HERH20D0011****LAB CODE: CHM****CHEMTECH PROJECT: M4128****MODIFICATION REF. NUMBER: NA**

Sample ID	EPA Sample ID	pH
M4128-01	C0AB6	
M4128-02	C0AB7	
M4128-03	C0AB8	
M4128-04	C0AB9	
M4128-05	C0AC0	
M4128-06	C0AC1	
M4128-07	C0AC2	
M4128-08	C0AC5	
M4128-09	C0AC9	
M4128-10MS	C0AC9MS	
M4128-11MSD	C0AC9MSD	
M4128-12	C0AA3	
M4128-13	C0AD0	

11 Soil samples were delivered to the laboratory intact on 10/07/2021.

2 Water samples were delivered to the laboratory intact on 10/11/2021.

Test requested on the Chain of Custody was Semivolatile Organic and Pesticide 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 3.3 degree Celsius for the samples received on 10/07/2021, 11.7 degree Celsius for the samples received on 10/11/2021.

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.

Insufficient/inappropriate designation of laboratory QC

Issue 2: Laboratory QC is scheduled for PEST analysis; however, no sample is designated on the COC for QC and the laboratory would like to know when they can expect the next shipment with QC.

Resolution 2: Per Region 3, the laboratory will select a sample that is not a PE Sample or a Rinsate Blank to use as laboratory QC. The laboratory can use samples C0AD1 and C0AC9 for QC for their two SDGs. Please note the issue in the SDG Narrative and proceed with the analysis of the samples.

Issue 3: The laboratory received samples at 11.7 degree C with melted ice for this Case and would like to confirm that they may note the issue and proceed.

Resolution 3: Per Region 3, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

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 Soil were extracted by Method SFAM01.1 on 10/11/2021 and water were extracted by Method SFAM01.1 on 10/11/2021, the analysis of SVOC-SFAM was based on method SFAM01.1.

The Holding Times were met for all analysis.

The Surrogate recoveries met the acceptable criteria except for, C0AB7 [2-Nitrophenol-d4 - 124%] and

C0AB8 [2-Nitrophenol-d4 - 133%, Acenaphthylene-d8 - 125%]. As per method four surrogates are allowed to fail. Therefore no further corrective action was taken.

The Internal Standards Areas met the acceptable requirements.

The Retention Times were acceptable for all samples.

The Blank Spike for {PB139806BS} recoveries met the requirements for all compounds.

The Blank Spike for {PB139820BS} 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 acceptable requirements.

The Continuous Calibration met the acceptable requirements.

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

Concentration of Water Sample:

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

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.

Concentration of SOIL Sample:

Concentration ug/Kg,

$$(\text{dry weight basis}) = \frac{(A_x) (I_s) (V_t) (DF) (GPC)}{(A_{is}) (\overline{RRF}) (V_i) (W_t) (D)}$$

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_i = Volume of extract injected in microliters (uL)

V_t = Volume of concentrated extract in microliters (uL)

W_t = Weight of the original sample extracted in g

D_f = Dilution factor

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.

D = % dry weight or $\frac{100 - \% \text{Moisture}}{100}$

Example calculation of C0AA3 for 4-Chloro-3-methylphenol:

A_x = 56026

A_{is} = 1021801

I_s = 20

V_o = 1000

V_i = 1

V_t = 1000

RRF = 0.328

GPC = 1

Concentration ug/L = $\frac{(56026) (20) (1000) (1) (1)}{(1021801) (0.328) (1000) (1)}$

(1021801) (0.328) (1000) (1)

Reported Result = 3.3 ug/L

No positive target compounds were detected in the soil samples.

RRF Calculation of standard 20 ppb for Naphthalene with M instrument for method 10/05/2021.

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

= 1180405/1175900 X 20/20

= 1.004 (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 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 PLCS01(1)/PLCS01(2) respectively.

Pesticide sample was extracted by method SFAM01.1 on 10/11/2021 and analyzed on 10/13, 10/16/2021. The sample was extracted and analyzed within contractual holding time.

The soil sample was subjected to Florisil and GPC Cleanup.

The Surrogate recoveries met the acceptable criteria except C0AC9MS met the requirements.

C0AC9MSD met the requirements.

The RPD met the requirements.

The Instrument Blank analysis FileID: PD066291.D(PIBLK106) indicated presence of 4,4-DDE, Aldrin, beta-BHC, cis-Chlordane, delta-BHC, Endosulfan II, Endosulfan sulfate, Endrin aldehyde, Endrin ketone, Heptachlor epoxide and trans-Chlordane due to possible lab contamination. However it is below CRQL. (Please See Section 12.1.4.5.3 of Exhibit D Pesticide Analysis).

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.

Sample # C0AA3 have the concentration of target compound# Dieldrin, 4,4'-DDT, Endrin Aldehyde below Method detection limits, therefore it is not reported as hit in Form1.

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

DF = Dilution Factor.

Calculation for the Concentration in Soil Samples

$$\text{Concentration ug/Kg (Dry weight basis)} = \frac{(A_x) (V_t) (DF) (GPC)}{(CF) (V_i) (W_s) (D)}$$

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_t = Volume of the concentrated extract in uL

V_i = Volume of extract injected (uL). (If a single injection is made onto two columns, use ½ the volume in the syringe as the volume injected onto each column).

W_s = Weight of sample extracted (g).

D = % dry weight or $\frac{100 - \% \text{Moisture}}{100}$

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

DF = Dilution Factor.

Example of Endosulfan II calculation

Calibration Factor Calculation Endosulfan II in the second column

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

$$= \frac{76968625}{10\text{ng}}$$

$$= 7696860$$

Mean Calibration Factor = average of 5 point calibration factor

$$= 7126450$$

Sample **C0AB8**

$$A_x = 13895976$$

$$CF = 7126450$$

$$W_s = 30.0$$

$$V_i = 1.0$$

$$V_t = 5000$$

$$DF = 1.0$$

$$GPC = 2.0$$

$$D = 0.736$$

$$\begin{aligned} \text{Concentration ug/Kg (Dry weight basis)} &= \frac{(A_x) (V_t) (DF) (GPC)}{(CF) (V_i) (W_s) (D)} \\ &= \frac{(13895976) (5000) (1.0) (2.0)}{(7126450)(1.0)(30.0)(0.736)} \\ &= 0.883 \end{aligned}$$

Reported Results = 0.88 ug/kg

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.