# SDG NARRATIVE

**LAB NAME: CHEMTECH CONSULTING GROUP**
**CASE: 49831**
**SDG: JCEN2**
**CONTRACT: 68HERH20D0011**
**LAB CODE: CHM**
**CHEMTECH PROJECT: M5246**
**MODIFICATION REF. NUMBER: NA**

| Sample ID | EPA Sample ID | Test | pH |
|---|---|---|---|
| M5246-01 | JCEN2 | | |
| M5246-01DL | JCEN2DL | SVOC-SIM | |

1 Soil samples were delivered to the laboratory intact on 12/28/2021.

Test requested on the Chain of Custody was Semivolatile Organic, Semivolatile Organic-SIM 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 2.1 degree Celsius for the samples received on 12/28/2021.

**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 has one open SDG without QC and there is insufficient volume to perform the QC for all organic analyses. The laboratory would like to know if a shipment will be received with QC in the next two days.

**Resolution 2:** Per Region 10, there will be no additional samples shipped for Case 49831 today or tomorrow, so no samples arriving by 1/5/2022. The laboratory may proceed without QC for organics analysis where there is insufficient volume. Please note the issue in the SDG Narrative and proceed with the analysis of the samples.

**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 Soil were extracted by Method SFAM01.1 on 01/03/2022, 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.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The Blank Spike for {PB141818BS} 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 SOIL Sample:**

Concentration ug/Kg,

$$\text{(dry weight basis)} = \frac{(Ax)\,(Is)\,(Vt)\,(DF)\,(GPC)}{(Ais)\,(\overline{RRF})\,(Vi)\,(Wt)\,(D)}$$

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.
Vi = Volume of extract injected in microliters (uL)
Vt = Volume of concentrated extract in microliters (uL)
Wt = Weight of the original sample extracted in g
Df = Dilution factor

$\overline{RRF}$ = Mean Relative Response Factor determined from the initial calibration standard.
GPC = $\frac{Vin}{Vout}$ = GPC factor (If no GPC is performed, GPC=1)
Vout = Volume of extract collected after GPC cleanup.
D = % dry weight or $\frac{100 - \%Moisture}{100}$

**Example calculation of JCEN2 for Anthracene:**

Ax = 16474
Ais = 217425
Is = 20
Vi = 1
Vt = 500
Wt = 30.1
Df = 1

RRF = 1.039
GPC = 2
D= 0.779

Concentration

(dry weight basis) ug/Kg = $\frac{(16474)\ (20)\ (500)\ (1)\ (2)}{(217425)\ (1.039)\ (1)\ (30.1)\ (0.779)}$

= 62 ug/Kg

RRF Calculation of standard 20 ppb for Naphthalene with G instrument for method 12/14/2021.

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

= 134010 /120663 X 20/20

= 1.111 (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 Soil was extracted by Method SFAM01.1 on 01/03/2022, the analysis of SVOC-SIM-SFAM was based on method SFAM01.1.

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 {PB141819BS} 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 requirements .
The Continuous Calibration met the requirements .

Sample JCEN2 was diluted due to high concentration
.
The Sample JCEN2DL have the concentration of target compound below method detection limits; therefore it is not reported as Hit in Form1.

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

**Concentration of SOIL Sample:**

Concentration ug/Kg,

(dry weight basis) = $\frac{(Ax)\,(Is)\,(Vt)\,(DF)\,(GPC)}{(Ais)\,(\overline{RRF})\,(Vi)\,(Wt)\,(D)}$

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.
Vi = Volume of extract injected in microliters (uL)
Vt = Volume of concentrated extract in microliters (uL)
Wt = Weight of the original sample extracted in g
Df = Dilution factor

$\overline{RRF}$ = Mean Relative Response Factor determined from the initial calibration standard.
GPC = $\frac{Vin}{Vout}$ = GPC factor (If no GPC is performed, GPC=1)
Vout = Volume of extract collected after GPC cleanup.

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

## Example calculation of JCEN2 for Naphthalene.

Ax = 4583
Ais = 15539
Is = 0.4
Vi = 1
Vt = 500
Wt = 30.1
Df = 1
RRF = 1.159
GPC = 2
D= 0.779

Concentration

(dry weight basis) ug/Kg = $\frac{(4583)\,(0.4)\,(500)\,(1)\,(2)}{(15539)\,(1.159)\,(1)\,(30.1)\,(0.779)}$

= 4.4 ug/Kg

RRF Calculation of standard 0.4 ppb for Naphthalene with M instrument for method 01/04/2022.

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

= 13675/12122 X 0.4/0.4

= 1.128 (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 PLCS are referenced as IBLK(1) / IBLK(2) and PLCS01(1) / PLCS01(2) respectively.

Pesticide sample was extracted by method SFAM01.1 on 01/03/2022 and analyzed on 01/04/2022. 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.
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 Soil Samples**

Concentration ug/Kg (Dry weight basis) = $\frac{(Ax)\ (Vt)\ (DF)\ (GPC)}{(CF)\ (Vi)\ (Ws)\ (D)}$

Where,
Ax = Response (peak area or height) of the compound to be measured.
CF = Mean Calibration Factor from the initial calibration (area/ng).
Vt = Volume of the concentrated extract in uL
Vi = 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).
Ws = Weight of sample extracted (g).
D = % dry weight or $\frac{100 - \%Moisture}{100}$
GPC = $\frac{Vin}{Vout}$ = GPC factor (If no GPC is performed, GPC=1)
DF = Dilution Factor.

**Example of 4,4'-DDD calculation**
Calibration Factor Calculation 4,4'-DDD in the first column

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

$= \frac{20087630}{10ng}$

= 2008760

Mean Calibration Factor = average of 5 point calibration factor

= 1992190

No target **Pesticides** 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.