SDG NARRATIVE

LAB NAME: CHEMTECH CONSULTING GROUP
CASE: 48752
SDG: C5AW0
CONTRACT: EPW14030
LAB CODE: CHM
CHEMTECH PROJECT: L1422
MODIFICATION REF. NUMBER: NA

Sample ID	EPA Sample ID	pH
L1422-01	C5AW0	
L1422-02MS	C5AW0MS	
L1422-03MSD	C5AW0MSD	
L1422-04	C5AW7	
L1422-05	C5AW8	
L1422-06	C5AW9	
L1422-07	C5AX0	
L1422-08	C5AX1	
L1422-09	C5AX2	
L1422-10	C5AX3	
L1422-11	C5AX4	
L1422-12	C5AX5	
L1422-13	C5AX6	
L1422-14	C5AY1	
L1422-15	C5AY2	
L1422-16	C5B22	
L1422-17	C5B23	
L1422-18	C5AX7	
L1422-19	C5AX8	
L1422-20	C5AX9	
L1422-21	C5AY3	
L1422-22	C5AY4	

22 Soil samples were delivered to the laboratory intact on 02/06/2020.

Test requested on the Chain of Custody was Semivolatile Organic, and Pesticide, by Method SOM02.4.

The temperature of the samples was measured using an I R Gun. The samples temperature was 2.0, 3.1 & 2.5 degree Celsius for the samples received on 02/06/2020.

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 samples for Soil were extracted by Method SOM02.4 on 02/10/2020. The analysis of SVOC was based on method SOM02.4_SVOC.

The Holding Times were met for all analysis.

The Surrogate recoveries met the acceptable criteria except for
C5AW8 [1,4-Dioxane-d8 - 34%],
C5AX7 [1,4-Dioxane-d8 - 38%],
C5AX8 [1,4-Dioxane-d8 - 37%],
C5AY4 [1,4-Dioxane-d8 - 123%, 2-Nitrophenol-d4 - 126% and Acenaphthylene-d8 - 122%]. 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 analysis did not indicate the presence of lab contamination.
The Tuning criteria met requirements.
The Initial Calibration met the requirements.

The Continuous Calibration (SSTD02014) File ID BM024856.D met the requirements except for 2,2-oxybis(1-Chloropropane), As per method two compounds are allowed to fail, not exceed 40%. No further corrective action was taken.

The Continuous Calibration (SSTD02015) File ID BM024872.D met the requirements except for 2,2-oxybis(1-Chloropropane), Isophorone, 2,4-Dimethylphenol, Bis(2-Chloroethoxy)methane, 2,4-Dichlorophenol, 4-Chloroaniline, Caprolactam, 4-Chloro-3-methylphenol, 2-Nitroaniline, 3-Nitroaniline, 2,4-Dichlorophenol-d3, 4-Chloroaniline-d4, but this Calibration is not associated with Samples and QCs, therefore no further corrective action was taken.

The Continuous Calibration (SSTD02017) File ID BM024894.D met the requirements except for 2,2-oxybis(1-Chloropropane), Bis-(2-Chloroethyl)ether-d8, As per method two compounds are allowed to fail, not exceed 40%. No further corrective action was taken.

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.
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
Df = Dilution factor
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.

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

Example calculation of C5AW0 for Dimethylphthalate:

Ax = 217225
Ais = 914344
Is = 20
Vi = 1
Vt = 500
Wt = 30.0
Df = 1
RRF = 1.575
GPC = 2
D=0.805

Concentration

$$\text{(dry weight basis) ug/Kg} = \frac{(217225)\ (20)\ (500)\ (1)\ (2)}{(914344)\ (1.575)\ (1)\ (30.0)\ (0.805)}$$

$$= 120 \text{ ug/Kg}$$

RRF Calculation of standard 20 ppb for **Naphthalene** with instrument M for method 02/06/2020

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

= 849862/852485 X 20/20

= 0.997 (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.

Pesticide samples were extracted by method SOM02.4 on 02/07/2020 and analyzed on 02/12, 02/14/2020. The samples were extracted and analyzed within contractual holding time.

Samples were 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 8 and the form 1. This referrers to forms were both columns are reported. Form 1s for the IBLK, MS, MSD and PLCS have the -2 on the form.

The soil sample was subjected to Florisil and GPC Cleanup.
The Surrogate recoveries met the acceptable criteria.

C5AW0MS//MSD 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 and Mix B met the requirements.
The PEM met the requirement.

Samples C5AW0, C5AW0MS, C5AW0MSD, C5AW7, C5AX3, C5AX4, C5AX6, C5AY1, C5AY2, C5AX7, C5AX8 and C5AX9 failed to meet the %D for the results between the two columns Criteria.

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

Calculation for the Concentration in Soil Samples

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

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) = $\frac{\text{peak area}}{\text{Mass injected in ng}}$

$= \frac{7208031}{10ng}$

$= 720803$

Mean Calibration Factor = average of 5 point calibration factor

$= 692736$

Sample **C5AW0**
Ax = 1412631
CF = 692736
Ws =30.1
Vi = 1.0
Vt = 5000
DF = 1.0
GPC = 2.0
D = 0.805

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

$= \frac{(1412631)\ (5000)\ (1.0)\ (2.0)}{(692736)(1.0)(30.1)(0.805)}$

$= 0.842$

Reported Results = 0.84ug/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.