

## Cover Page

**Order ID :** Q2409

**Project ID :** Millville Sewage Treatment Plant - Field Sampling

**Client :** Coppola Services

**Lab Sample Number**

Q2409-01  
Q2409-02

**Client Sample Number**

COP-SOIL-PILE  
COP-SOIL-PILE

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. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : \_\_\_\_\_

Date: 7/3/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

## DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following “Results Qualifiers” are used:

|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Value | If the result is a value greater than or equal to the detection limit, report the value                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| U     | Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U, i.e. “10 U”. This is not necessarily the instrument detection limit attainable for this particular sample based on any concentration or dilution that may have been required.                                                                                                                                                                                                                                 |
| ND    | Indicates the analyte was analyzed for, but not detected                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| J     | Indicates an estimated value. This flag is used:<br>(1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.)<br>(2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L and a concentration of 3 ug/L was calculated report as 3 J. This flag is used when similar situation arise on any organic parameter i.e. Pest, PCB and others. |
| B     | Indicates the analyte was found in the blank as well as the sample report as “12 B”.                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| E     | Indicates the analyte ‘s concentration exceeds the calibrated range of the instrument for that specific analysis.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| D     | This flag identifies all compounds identified in an analysis at a secondary dilution factor.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| P     | This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns. The lower of the two values is reported on Form 1 and flagged with a “P”.                                                                                                                                                                                                                                                                                                                        |
| N     | This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It applies to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.                                                                                                                                                                                                                  |
| A     | This flag indicates that a Tentatively Identified Compound is a suspected aldol-condensation product.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Q     | Indicates the LCS did not meet the control limits requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## APPENDIX A

### QA REVIEW GENERAL DOCUMENTATION

Project #: Q2409

Completed

For thorough review, the report must have the following:

#### GENERAL:

Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)

✓

Check chain-of-custody for proper relinquish/return of samples

✓

Is the chain of custody signed and complete

✓

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts

✓

Collect information for each project id from server. Were all requirements followed

✓

#### COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody on login page

✓

Do lab numbers and client Ids on cover page agree with the Chain of Custody

✓

#### CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results

✓

Do requested analyses on Chain of Custody agree with the log-in page

✓

Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody

✓

Were the samples received within hold time

✓

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle

✓

#### ANALYTICAL:

Was method requirement followed?

✓

Was client requirement followed?

✓

Does the case narrative summarize all QC failure?

✓

All runlogs and manual integration are reviewed for requirements

✓

All manual calculations and /or hand notations verified

✓

QA Review Signature: PRADIP PRAJAPATI

Date: 07/03/2025

## LAB CHRONICLE

|                 |                  |                   |                                                   |
|-----------------|------------------|-------------------|---------------------------------------------------|
| <b>OrderID:</b> | Q2409            | <b>OrderDate:</b> | 6/24/2025 2:11:50 PM                              |
| <b>Client:</b>  | Coppola Services | <b>Project:</b>   | Millville Sewage Treatment Plant - Field Sampling |
| <b>Contact:</b> | Jeffrey Simpkins | <b>Location:</b>  | D51                                               |

| LabID    | ClientID      | Matrix | Test   | Method | Sample Date | Prep Date | Anal Date | Received |
|----------|---------------|--------|--------|--------|-------------|-----------|-----------|----------|
| Q2409-02 | COP-SOIL-PILE | SOIL   |        |        | 06/24/25    |           |           | 06/24/25 |
|          |               |        | PCB    | 8082A  |             | 06/26/25  | 06/26/25  |          |
|          |               |        | TPH GC | 8015D  |             | 06/30/25  | 06/30/25  |          |





# QC SUMMARY

**SOIL TPH GC SURROGATE RECOVERY**

Lab Name: Chemtech Client: Coppola Services  
Lab Code: CHEM Case No.: Q2409 SAS No.: Q2409 SDG No.: Q2409

| EPA<br>SAMPLE NO. | S1<br>TETRACOSANE-d50 | S2 | S3 | S4 | TOT<br>OUT |
|-------------------|-----------------------|----|----|----|------------|
| PIBLK-FF016032.D  | 104                   |    |    |    | 0          |
| PIBLK-FF016040.D  | 74                    |    |    |    | 0          |
| PB168659BL        | 76                    |    |    |    | 0          |
| PB168659BS        | 79                    |    |    |    | 0          |
| COP-SOIL-PILE     | 65                    |    |    |    | 0          |
| COP-SOIL-PILEMS   | 67                    |    |    |    | 0          |
| COP-SOIL-PILEMSD  | 58                    |    |    |    | 0          |

**QC LIMITS**

TETRACOSANE-d50

For Water : 29-130

For Soil : 37-130

# Column to be used to flag recovery values  
\* Values outside of contract required QC limits  
D Surrogate Diluted Out

**SOIL TPH GC MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY**

**Lab Name:** Chemtech **Client:** Coppola Services  
**Lab Code:** CHEM **Cas No:** Q2409 **SAS No :** Q2409 **SDG No:** Q2409  
**Client SampleID :** COP-SOIL-PILEMS **Datafile:** FF016038.D

| COMPOUND               | SPIKE<br>ADDED<br>ug/kg | SAMPLE<br>CONCENTRATION<br>ug/kg | MS/MSD<br>CONCENTRATION<br>ug/kg | % REC | Qual | QC LIMITS |
|------------------------|-------------------------|----------------------------------|----------------------------------|-------|------|-----------|
| Petroleum Hydrocarbons | 11745                   | 45400                            | 42271                            | -27%  | *    | 68-131    |

**SOIL TPH GC MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY**

**Lab Name:** Chemtech **Client:** Coppola Services  
**Lab Code:** CHEM **Cas No:** Q2409 **SAS No :** Q2409 **SDG No:** Q2409  
**Client SampleID :** COP-SOIL-PILEMSD **Datafile:** FF016039.D

| COMPOUND               | SPIKE<br>ADDED<br>ug/kg | SAMPLE<br>CONCENTRATION<br>ug/kg | MS/MSD<br>CONCENTRATION<br>ug/kg | % REC | Qual | QC LIMITS |
|------------------------|-------------------------|----------------------------------|----------------------------------|-------|------|-----------|
| Petroleum Hydrocarbons | 11725                   | 45400                            | 43807                            | -14%  | *    | 68-131    |

**MS/MSD % Recovery RPD : 65.3**

**SOIL TPH GC LABORATORY CONTROL SPIKE/LABORATORY CONTROL SPIKE DUPLICATE RECOVERY**

**Lab Name:** Chemtech **Client:** Coppola Services  
**Lab Code:** CHEM **Cas No:** Q2409 **SAS No :** Q2409 **SDG No:** Q2409  
**Matrix Spike - EPA Sample No :** PB168659BS **Datafile:** FF016036.D

| COMPOUND               | SPIKE<br>ADDED<br>ug/kg | CONCENTRATION<br>ug/kg | LCS/LCSD<br>CONCENTRATION<br>ug/kg | % REC | QC LIMITS |
|------------------------|-------------------------|------------------------|------------------------------------|-------|-----------|
| Petroleum Hydrocarbons | 11326                   | 0                      | 12270                              | 108   | 68-131    |

4B  
METHOD BLANK SUMMARY

EPA SAMPLE NO.

PB168659BL

Lab Name: CHEMTECH

Contract: COPP02

Lab Code: CHEM Case No.: Q2409

SAS No.: Q2409 SDG NO.: Q2409

Lab File ID: FF016035.D

Lab Sample ID: PB168659BL

Instrument ID: FF

Date Extracted: 06/30/2025

Matrix: (soil/water) Soil

Date Analyzed: 06/30/25

Level: (low/med) low

Time Analyzed: 13:39

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| EPA<br>SAMPLE NO. | LAB<br>SAMPLE ID | LAB<br>FILE ID | DATE<br>ANALYZED |
|-------------------|------------------|----------------|------------------|
| PB168659BS        | PB168659BS       | FF016036.D     | 06/30/25         |
| COP-SOIL-PILE     | Q2409-02         | FF016037.D     | 06/30/25         |
| COP-SOIL-PILEMS   | Q2409-02MS       | FF016038.D     | 06/30/25         |
| COP-SOIL-PILEMSD  | Q2409-02MSD      | FF016039.D     | 06/30/25         |

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_



# SAMPLE DATA

## Report of Analysis

|                    |                                                   |                    |          |
|--------------------|---------------------------------------------------|--------------------|----------|
| Client:            | Coppola Services                                  | Date Collected:    | 06/24/25 |
| Project:           | Millville Sewage Treatment Plant - Field Sampling | Date Received:     | 06/24/25 |
| Client Sample ID:  | COP-SOIL-PILE                                     | SDG No.:           | Q2409    |
| Lab Sample ID:     | Q2409-02                                          | Matrix:            | SOIL     |
| Analytical Method: | 8015D TPH                                         | % Solid:           | 96.4     |
| Sample Wt/Vol:     | 30.05                                             | Units:             | g        |
| Soil Aliquot Vol:  |                                                   |                    | uL       |
| Extraction Type:   |                                                   | Final Vol:         | 1        |
| GPC Factor :       |                                                   | Test:              | TPH GC   |
| Prep Method :      | SW3541                                            | Injection Volume : |          |

|                   |           |                |                |               |
|-------------------|-----------|----------------|----------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date      | Date Analyzed  | Prep Batch ID |
| FF016037.D        | 1         | 06/30/25 09:20 | 06/30/25 14:39 | PB168659      |

| CAS Number        | Parameter              | Conc. | Qualifier | MDL      | LOQ / CRQL | Units(Dry Weight) |
|-------------------|------------------------|-------|-----------|----------|------------|-------------------|
| <b>TARGETS</b>    |                        |       |           |          |            |                   |
| PHC               | Petroleum Hydrocarbons | 45400 |           | 398      | 2930       | ug/kg             |
| <b>SURROGATES</b> |                        |       |           |          |            |                   |
| 16416-32-3        | TETRACOSANE-d50        | 13.0  |           | 37 - 130 | 65%        | SPK: 20           |

### Comments:

U = Not Detected  
 LOQ = Limit of Quantitation  
 MDL = Method Detection Limit  
 LOD = Limit of Detection  
 E = Value Exceeds Calibration Range  
 P = Indicates >25% difference for detected concentrations between the two GC columns  
 Q = indicates LCS control criteria did not meet requirements  
 M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value  
 B = Analyte Found in Associated Method Blank  
 N = Presumptive Evidence of a Compound  
 \* = Values outside of QC limits  
 D = Dilution  
 S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.  
 () = Laboratory InHouse Limit



Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016037.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 14:39  
Operator : YP\AJ  
Sample : Q2409-02  
Misc :  
ALS Vial : 73 Sample Multiplier: 1

Instrument :  
FID\_F  
ClientSampleId :  
COP-SOIL-PILE

Integration File: autoint1.e  
Quant Time: Jul 01 03:14:37 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um

| Compound                      | R.T.   | Response | Conc Units   |
|-------------------------------|--------|----------|--------------|
| -----                         |        |          |              |
| System Monitoring Compounds   |        |          |              |
| 9) S TETRACOSANE-d50 (SURR... | 15.096 | 1565909  | 12.969 ug/ml |
| Target Compounds              |        |          |              |
| -----                         |        |          |              |

(f)=RT Delta > 1/2 Window

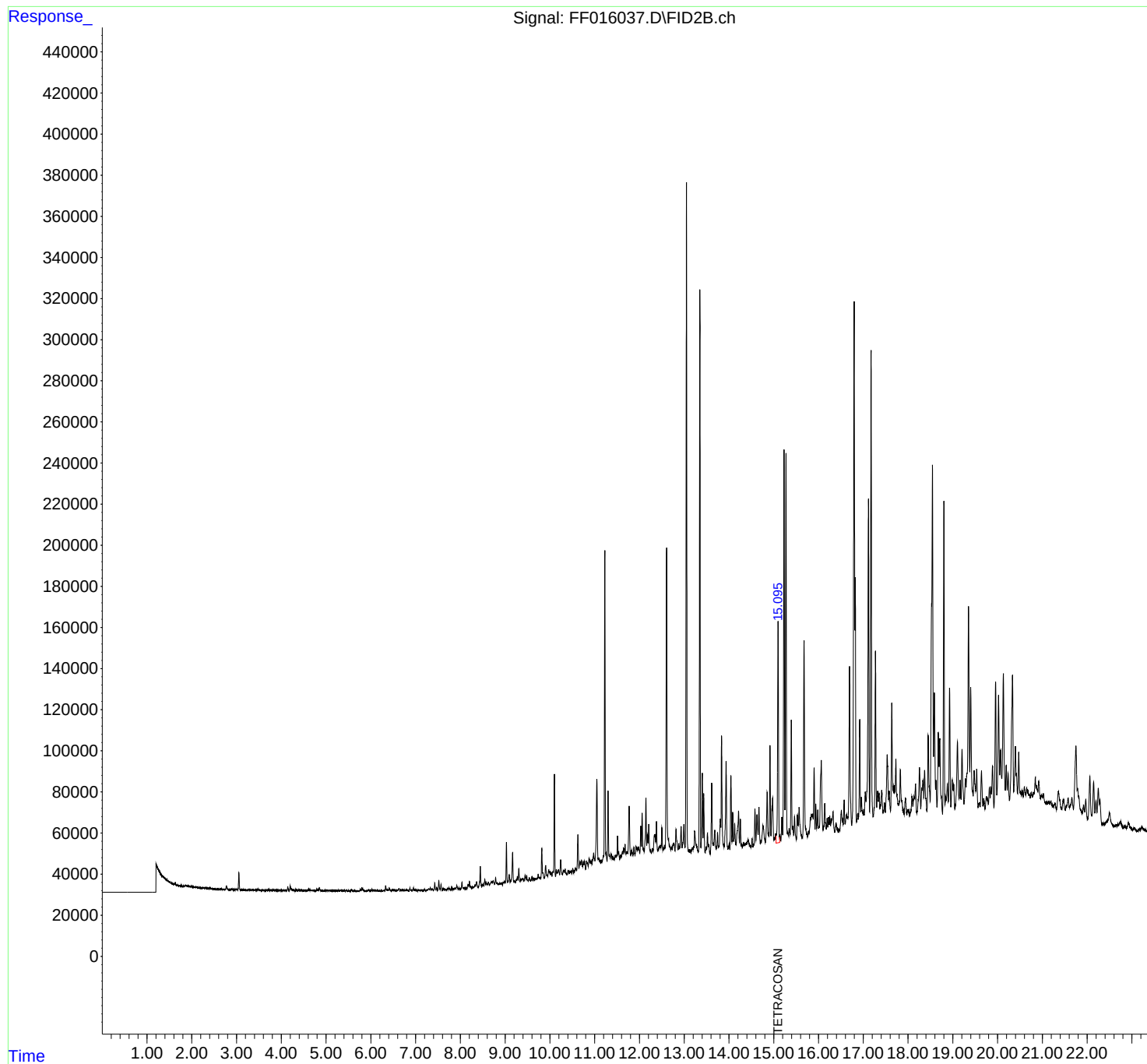
(m)=manual int.

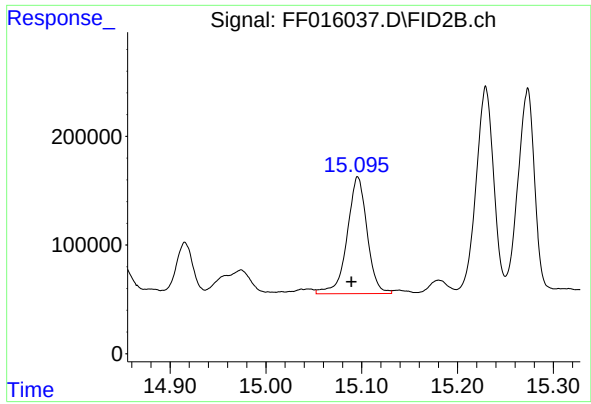
Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016037.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 14:39  
Operator : YP\AJ  
Sample : Q2409-02  
Misc :  
ALS Vial : 73 Sample Multiplier: 1

Instrument :  
FID\_F  
ClientSampleId :  
COP-SOIL-PILE

Integration File: autoint1.e  
Quant Time: Jul 01 03:14:37 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um





#9 TETRACOSANE-d50 (SURROGATE)

R.T.: 15.096 min  
Delta R.T.: 0.007 min  
Response: 1565909  
Conc: 12.97 ug/ml

Instrument :  
FID\_F  
ClientSampleId :  
COP-SOIL-PILE

rteres

## Area Percent Report

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
 Data File : FF016037.D  
 Signal(s) : FID2B.ch  
 Acq On : 30 Jun 2025 14:39  
 Sample : Q2409-02  
 Misc :  
 ALS Vial : 73 Sample Multiplier: 1

Integration File: Sample.e

Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
 Title :

Signal : FID2B.ch

| peak<br># | R.T.<br>min | Start<br>min | End<br>min | PK<br>TY | peak<br>height | peak<br>area | peak<br>% max. | % of<br>total |
|-----------|-------------|--------------|------------|----------|----------------|--------------|----------------|---------------|
| 1         | 1.920       | 1.900        | 1.949      | BV       | 173            | 2356         | 0.05%          | 0.001%        |
| 2         | 1.952       | 1.949        | 2.012      | PV       | 140            | 1555         | 0.04%          | 0.001%        |
| 3         | 2.016       | 2.012        | 2.055      | PV       | 76             | 811          | 0.02%          | 0.000%        |
| 4         | 2.070       | 2.055        | 2.079      | PV       | 126            | 1052         | 0.02%          | 0.001%        |
| 5         | 2.085       | 2.079        | 2.150      | VV       | 162            | 3049         | 0.07%          | 0.002%        |
| 6         | 2.153       | 2.150        | 2.168      | PV       | 139            | 825          | 0.02%          | 0.001%        |
| 7         | 2.181       | 2.168        | 2.218      | VV       | 179            | 2668         | 0.06%          | 0.002%        |
| 8         | 2.225       | 2.218        | 2.283      | VV       | 95             | 3107         | 0.07%          | 0.002%        |
| 9         | 2.295       | 2.283        | 2.355      | PV       | 367            | 8576         | 0.20%          | 0.005%        |
| 10        | 2.387       | 2.355        | 2.409      | VV       | 458            | 7595         | 0.17%          | 0.005%        |
| 11        | 2.413       | 2.409        | 2.489      | VV       | 296            | 5703         | 0.13%          | 0.003%        |
| 12        | 2.495       | 2.489        | 2.510      | PV       | 99             | 944          | 0.02%          | 0.001%        |
| 13        | 2.517       | 2.510        | 2.523      | VV       | 143            | 646          | 0.01%          | 0.000%        |
| 14        | 2.537       | 2.523        | 2.545      | VV       | 152            | 792          | 0.02%          | 0.000%        |
| 15        | 2.547       | 2.545        | 2.560      | VV       | 81             | 517          | 0.01%          | 0.000%        |
| 16        | 2.563       | 2.560        | 2.578      | VV       | 121            | 818          | 0.02%          | 0.001%        |
| 17        | 2.585       | 2.578        | 2.595      | VV       | 106            | 701          | 0.02%          | 0.000%        |
| 18        | 2.601       | 2.595        | 2.621      | PV       | 131            | 1126         | 0.03%          | 0.001%        |
| 19        | 2.624       | 2.621        | 2.643      | VV       | 195            | 876          | 0.02%          | 0.001%        |
| 20        | 2.664       | 2.643        | 2.701      | VV       | 537            | 7952         | 0.18%          | 0.005%        |
| 21        | 2.705       | 2.701        | 2.715      | PV       | 94             | 514          | 0.01%          | 0.000%        |
| 22        | 2.727       | 2.715        | 2.733      | VV       | 98             | 685          | 0.02%          | 0.000%        |
| 23        | 2.746       | 2.733        | 2.750      | VV       | 140            | 787          | 0.02%          | 0.000%        |
| 24        | 2.773       | 2.750        | 2.825      | VV       | 1886           | 30293        | 0.69%          | 0.019%        |
| 25        | 2.832       | 2.825        | 2.852      | VV       | 160            | 1522         | 0.03%          | 0.001%        |
| 26        | 2.857       | 2.852        | 2.875      | VV       | 110            | 990          | 0.02%          | 0.001%        |
| 27        | 2.883       | 2.875        | 2.896      | VV       | 209            | 1870         | 0.04%          | 0.001%        |
| 28        | 2.907       | 2.896        | 2.933      | VV       | 233            | 3123         | 0.07%          | 0.002%        |
| 29        | 2.938       | 2.933        | 2.943      | VV       | 151            | 605          | 0.01%          | 0.000%        |
| 30        | 2.947       | 2.943        | 2.965      | VV       | 157            | 1276         | 0.03%          | 0.001%        |
| 31        | 2.997       | 2.965        | 3.029      | VV       | 386            | 8704         | 0.20%          | 0.005%        |
| 32        | 3.052       | 3.029        | 3.088      | VV       | 8496           | 95949        | 2.18%          | 0.059%        |
| 33        | 3.103       | 3.088        | 3.115      | VV       | 205            | 2396         | 0.05%          | 0.001%        |
| 34        | 3.122       | 3.115        | 3.127      | VV       | 122            | 613          | 0.01%          | 0.000%        |
| 35        | 3.137       | 3.127        | 3.155      | VV       | 196            | 2057         | 0.05%          | 0.001%        |
| 36        | 3.163       | 3.155        | 3.185      | VV       | 168            | 2360         | 0.05%          | 0.001%        |

|    |       |       |       |    | rteres |       |       |        |
|----|-------|-------|-------|----|--------|-------|-------|--------|
| 37 | 3.193 | 3.185 | 3.204 | VV | 104    | 841   | 0.02% | 0.001% |
| 38 | 3.207 | 3.204 | 3.212 | VV | 163    | 433   | 0.01% | 0.000% |
| 39 | 3.217 | 3.212 | 3.234 | VV | 133    | 924   | 0.02% | 0.001% |
| 40 | 3.238 | 3.234 | 3.257 | PV | 101    | 1068  | 0.02% | 0.001% |
| 41 | 3.276 | 3.257 | 3.332 | VV | 399    | 9684  | 0.22% | 0.006% |
| 42 | 3.335 | 3.332 | 3.343 | VV | 183    | 859   | 0.02% | 0.001% |
| 43 | 3.361 | 3.343 | 3.398 | VV | 492    | 8297  | 0.19% | 0.005% |
| 44 | 3.401 | 3.398 | 3.410 | VV | 160    | 921   | 0.02% | 0.001% |
| 45 | 3.413 | 3.410 | 3.435 | VV | 155    | 1234  | 0.03% | 0.001% |
| 46 | 3.438 | 3.435 | 3.453 | VV | 113    | 653   | 0.01% | 0.000% |
| 47 | 3.456 | 3.453 | 3.460 | VV | 124    | 354   | 0.01% | 0.000% |
| 48 | 3.479 | 3.460 | 3.501 | VV | 541    | 7204  | 0.16% | 0.004% |
| 49 | 3.506 | 3.501 | 3.522 | VV | 228    | 1754  | 0.04% | 0.001% |
| 50 | 3.536 | 3.522 | 3.559 | VV | 186    | 2501  | 0.06% | 0.002% |
| 51 | 3.573 | 3.559 | 3.595 | PV | 173    | 2472  | 0.06% | 0.002% |
| 52 | 3.606 | 3.595 | 3.644 | VV | 154    | 2569  | 0.06% | 0.002% |
| 53 | 3.650 | 3.644 | 3.658 | VV | 132    | 624   | 0.01% | 0.000% |
| 54 | 3.677 | 3.658 | 3.688 | VV | 210    | 2061  | 0.05% | 0.001% |
| 55 | 3.711 | 3.688 | 3.750 | VV | 321    | 7347  | 0.17% | 0.004% |
| 56 | 3.762 | 3.750 | 3.779 | VV | 170    | 2172  | 0.05% | 0.001% |
| 57 | 3.783 | 3.779 | 3.788 | VV | 165    | 739   | 0.02% | 0.000% |
| 58 | 3.790 | 3.788 | 3.797 | VV | 163    | 642   | 0.01% | 0.000% |
| 59 | 3.818 | 3.797 | 3.841 | VV | 242    | 4466  | 0.10% | 0.003% |
| 60 | 3.848 | 3.841 | 3.873 | VV | 278    | 3702  | 0.08% | 0.002% |
| 61 | 3.876 | 3.873 | 3.881 | VV | 224    | 742   | 0.02% | 0.000% |
| 62 | 3.893 | 3.881 | 3.919 | VV | 248    | 3608  | 0.08% | 0.002% |
| 63 | 3.924 | 3.919 | 3.936 | VV | 162    | 1186  | 0.03% | 0.001% |
| 64 | 3.949 | 3.936 | 3.962 | VV | 349    | 3666  | 0.08% | 0.002% |
| 65 | 3.968 | 3.962 | 3.978 | VV | 287    | 1894  | 0.04% | 0.001% |
| 66 | 3.980 | 3.978 | 3.993 | VV | 182    | 1224  | 0.03% | 0.001% |
| 67 | 4.001 | 3.993 | 4.027 | VV | 125    | 1757  | 0.04% | 0.001% |
| 68 | 4.054 | 4.027 | 4.066 | PV | 270    | 4049  | 0.09% | 0.002% |
| 69 | 4.070 | 4.066 | 4.094 | VV | 179    | 2593  | 0.06% | 0.002% |
| 70 | 4.101 | 4.094 | 4.120 | VV | 207    | 2126  | 0.05% | 0.001% |
| 71 | 4.144 | 4.120 | 4.171 | VV | 1930   | 22099 | 0.50% | 0.014% |
| 72 | 4.197 | 4.171 | 4.246 | VV | 2395   | 40152 | 0.91% | 0.025% |
| 73 | 4.263 | 4.246 | 4.279 | VV | 607    | 9297  | 0.21% | 0.006% |
| 74 | 4.292 | 4.279 | 4.318 | VV | 371    | 6815  | 0.16% | 0.004% |
| 75 | 4.342 | 4.318 | 4.378 | VV | 513    | 11031 | 0.25% | 0.007% |
| 76 | 4.390 | 4.378 | 4.408 | VV | 485    | 6441  | 0.15% | 0.004% |
| 77 | 4.422 | 4.408 | 4.433 | VV | 378    | 4788  | 0.11% | 0.003% |
| 78 | 4.451 | 4.433 | 4.475 | VV | 400    | 7245  | 0.16% | 0.004% |
| 79 | 4.480 | 4.475 | 4.484 | VV | 191    | 773   | 0.02% | 0.000% |
| 80 | 4.503 | 4.484 | 4.509 | VV | 221    | 2420  | 0.06% | 0.001% |
| 81 | 4.515 | 4.509 | 4.529 | VV | 222    | 2226  | 0.05% | 0.001% |
| 82 | 4.532 | 4.529 | 4.551 | VV | 257    | 2518  | 0.06% | 0.002% |
| 83 | 4.558 | 4.551 | 4.578 | VV | 270    | 3169  | 0.07% | 0.002% |
| 84 | 4.591 | 4.578 | 4.600 | VV | 281    | 3339  | 0.08% | 0.002% |
| 85 | 4.621 | 4.600 | 4.645 | VV | 676    | 11006 | 0.25% | 0.007% |
| 86 | 4.656 | 4.645 | 4.682 | VV | 505    | 6689  | 0.15% | 0.004% |
| 87 | 4.699 | 4.682 | 4.706 | VV | 376    | 3591  | 0.08% | 0.002% |
| 88 | 4.709 | 4.706 | 4.720 | VV | 278    | 1863  | 0.04% | 0.001% |
| 89 | 4.735 | 4.720 | 4.761 | VV | 293    | 4599  | 0.10% | 0.003% |

|     |       |       |       |    |        |       |       |        |
|-----|-------|-------|-------|----|--------|-------|-------|--------|
|     |       |       |       |    | rteres |       |       |        |
| 90  | 4.790 | 4.761 | 4.803 | PV | 604    | 7814  | 0.18% | 0.005% |
| 91  | 4.819 | 4.803 | 4.830 | VV | 636    | 7164  | 0.16% | 0.004% |
| 92  | 4.850 | 4.830 | 4.890 | VV | 1739   | 24601 | 0.56% | 0.015% |
| 93  | 4.909 | 4.890 | 4.926 | VV | 346    | 3892  | 0.09% | 0.002% |
| 94  | 4.935 | 4.926 | 4.952 | VV | 224    | 2632  | 0.06% | 0.002% |
| 95  | 4.965 | 4.952 | 4.971 | VV | 223    | 1387  | 0.03% | 0.001% |
| 96  | 4.983 | 4.971 | 5.003 | VV | 364    | 4693  | 0.11% | 0.003% |
| 97  | 5.011 | 5.003 | 5.022 | VV | 333    | 3154  | 0.07% | 0.002% |
| 98  | 5.039 | 5.022 | 5.058 | VV | 395    | 5484  | 0.12% | 0.003% |
| 99  | 5.083 | 5.058 | 5.109 | VV | 486    | 8010  | 0.18% | 0.005% |
| 100 | 5.130 | 5.109 | 5.160 | VV | 382    | 6652  | 0.15% | 0.004% |
| 101 | 5.172 | 5.160 | 5.195 | VV | 180    | 2551  | 0.06% | 0.002% |
| 102 | 5.202 | 5.195 | 5.214 | VV | 210    | 1995  | 0.05% | 0.001% |
| 103 | 5.224 | 5.214 | 5.252 | VV | 316    | 4754  | 0.11% | 0.003% |
| 104 | 5.284 | 5.252 | 5.312 | VV | 476    | 8301  | 0.19% | 0.005% |
| 105 | 5.329 | 5.312 | 5.359 | VV | 435    | 7904  | 0.18% | 0.005% |
| 106 | 5.380 | 5.359 | 5.393 | VV | 424    | 5492  | 0.13% | 0.003% |
| 107 | 5.408 | 5.393 | 5.428 | VV | 551    | 7015  | 0.16% | 0.004% |
| 108 | 5.440 | 5.428 | 5.482 | VV | 435    | 8161  | 0.19% | 0.005% |
| 109 | 5.501 | 5.482 | 5.553 | VV | 292    | 7534  | 0.17% | 0.005% |
| 110 | 5.567 | 5.553 | 5.597 | VV | 1085   | 13223 | 0.30% | 0.008% |
| 111 | 5.604 | 5.597 | 5.621 | VV | 281    | 3495  | 0.08% | 0.002% |
| 112 | 5.637 | 5.621 | 5.655 | VV | 377    | 5229  | 0.12% | 0.003% |
| 113 | 5.665 | 5.655 | 5.681 | VV | 193    | 2166  | 0.05% | 0.001% |
| 114 | 5.686 | 5.681 | 5.690 | VV | 176    | 667   | 0.02% | 0.000% |
| 115 | 5.702 | 5.690 | 5.739 | VV | 260    | 3932  | 0.09% | 0.002% |
| 116 | 5.761 | 5.739 | 5.783 | PV | 780    | 11887 | 0.27% | 0.007% |
| 117 | 5.799 | 5.783 | 5.811 | VV | 1904   | 20760 | 0.47% | 0.013% |
| 118 | 5.818 | 5.811 | 5.870 | VV | 1324   | 18881 | 0.43% | 0.012% |
| 119 | 5.873 | 5.870 | 5.883 | VV | 190    | 1236  | 0.03% | 0.001% |
| 120 | 5.887 | 5.883 | 5.896 | VV | 184    | 1316  | 0.03% | 0.001% |
| 121 | 5.906 | 5.896 | 5.912 | VV | 187    | 1407  | 0.03% | 0.001% |
| 122 | 5.949 | 5.912 | 5.978 | VV | 828    | 14950 | 0.34% | 0.009% |
| 123 | 5.994 | 5.978 | 6.000 | VV | 381    | 4201  | 0.10% | 0.003% |
| 124 | 6.014 | 6.000 | 6.018 | VV | 609    | 5311  | 0.12% | 0.003% |
| 125 | 6.029 | 6.018 | 6.044 | VV | 713    | 8325  | 0.19% | 0.005% |
| 126 | 6.055 | 6.044 | 6.068 | VV | 681    | 7968  | 0.18% | 0.005% |
| 127 | 6.079 | 6.068 | 6.105 | VV | 591    | 10057 | 0.23% | 0.006% |
| 128 | 6.111 | 6.105 | 6.125 | VV | 396    | 3266  | 0.07% | 0.002% |
| 129 | 6.137 | 6.125 | 6.166 | VV | 568    | 9408  | 0.21% | 0.006% |
| 130 | 6.174 | 6.166 | 6.182 | VV | 221    | 1718  | 0.04% | 0.001% |
| 131 | 6.198 | 6.182 | 6.219 | VV | 321    | 4420  | 0.10% | 0.003% |
| 132 | 6.236 | 6.219 | 6.259 | PV | 466    | 6133  | 0.14% | 0.004% |
| 133 | 6.299 | 6.259 | 6.312 | VV | 600    | 10369 | 0.24% | 0.006% |
| 134 | 6.331 | 6.312 | 6.364 | VV | 2711   | 36793 | 0.84% | 0.023% |
| 135 | 6.370 | 6.364 | 6.385 | VV | 704    | 7087  | 0.16% | 0.004% |
| 136 | 6.413 | 6.385 | 6.464 | VV | 1421   | 32446 | 0.74% | 0.020% |
| 137 | 6.483 | 6.464 | 6.499 | VV | 1009   | 13050 | 0.30% | 0.008% |
| 138 | 6.511 | 6.499 | 6.550 | VV | 773    | 14663 | 0.33% | 0.009% |
| 139 | 6.564 | 6.550 | 6.578 | VV | 391    | 4726  | 0.11% | 0.003% |
| 140 | 6.594 | 6.578 | 6.609 | VV | 475    | 6962  | 0.16% | 0.004% |
| 141 | 6.631 | 6.609 | 6.651 | VV | 1145   | 18988 | 0.43% | 0.012% |

|     |       |       |       |    | rteres |        |       |        |
|-----|-------|-------|-------|----|--------|--------|-------|--------|
| 142 | 6.677 | 6.651 | 6.695 | VV | 552    | 11315  | 0.26% | 0.007% |
| 143 | 6.719 | 6.695 | 6.732 | VV | 583    | 9452   | 0.22% | 0.006% |
| 144 | 6.743 | 6.732 | 6.778 | VV | 415    | 8195   | 0.19% | 0.005% |
| 145 | 6.794 | 6.778 | 6.848 | VV | 672    | 14480  | 0.33% | 0.009% |
|     |       |       |       |    |        |        |       |        |
| 146 | 6.872 | 6.848 | 6.904 | VV | 1511   | 19125  | 0.44% | 0.012% |
| 147 | 6.920 | 6.904 | 6.932 | VV | 488    | 5625   | 0.13% | 0.003% |
| 148 | 6.949 | 6.932 | 6.972 | VV | 1489   | 17628  | 0.40% | 0.011% |
| 149 | 6.988 | 6.972 | 7.011 | VV | 659    | 8141   | 0.19% | 0.005% |
| 150 | 7.026 | 7.011 | 7.049 | VV | 355    | 4169   | 0.09% | 0.003% |
|     |       |       |       |    |        |        |       |        |
| 151 | 7.076 | 7.049 | 7.099 | VV | 577    | 8219   | 0.19% | 0.005% |
| 152 | 7.123 | 7.099 | 7.155 | VV | 510    | 8083   | 0.18% | 0.005% |
| 153 | 7.162 | 7.155 | 7.173 | VV | 191    | 933    | 0.02% | 0.001% |
| 154 | 7.199 | 7.173 | 7.227 | VV | 690    | 8924   | 0.20% | 0.005% |
| 155 | 7.298 | 7.227 | 7.310 | PV | 882    | 20997  | 0.48% | 0.013% |
|     |       |       |       |    |        |        |       |        |
| 156 | 7.327 | 7.310 | 7.350 | VV | 1050   | 17513  | 0.40% | 0.011% |
| 157 | 7.369 | 7.350 | 7.397 | VV | 1058   | 14715  | 0.34% | 0.009% |
| 158 | 7.427 | 7.397 | 7.455 | VV | 3674   | 43652  | 0.99% | 0.027% |
| 159 | 7.470 | 7.455 | 7.497 | VV | 1626   | 20206  | 0.46% | 0.012% |
| 160 | 7.518 | 7.497 | 7.550 | VV | 4714   | 60299  | 1.37% | 0.037% |
|     |       |       |       |    |        |        |       |        |
| 161 | 7.567 | 7.550 | 7.597 | VV | 2870   | 32938  | 0.75% | 0.020% |
| 162 | 7.618 | 7.597 | 7.635 | PV | 784    | 10135  | 0.23% | 0.006% |
| 163 | 7.647 | 7.635 | 7.659 | VV | 332    | 3901   | 0.09% | 0.002% |
| 164 | 7.665 | 7.659 | 7.679 | VV | 208    | 1797   | 0.04% | 0.001% |
| 165 | 7.719 | 7.679 | 7.732 | VV | 872    | 15262  | 0.35% | 0.009% |
|     |       |       |       |    |        |        |       |        |
| 166 | 7.744 | 7.732 | 7.773 | VV | 1067   | 15364  | 0.35% | 0.009% |
| 167 | 7.802 | 7.773 | 7.821 | VV | 1058   | 16682  | 0.38% | 0.010% |
| 168 | 7.833 | 7.821 | 7.850 | VV | 644    | 8482   | 0.19% | 0.005% |
| 169 | 7.879 | 7.850 | 7.891 | VV | 745    | 14081  | 0.32% | 0.009% |
| 170 | 7.921 | 7.891 | 7.950 | VV | 1867   | 34468  | 0.78% | 0.021% |
|     |       |       |       |    |        |        |       |        |
| 171 | 7.963 | 7.950 | 7.990 | VV | 665    | 9103   | 0.21% | 0.006% |
| 172 | 8.008 | 7.990 | 8.015 | PV | 450    | 4570   | 0.10% | 0.003% |
| 173 | 8.035 | 8.015 | 8.055 | VV | 3458   | 42353  | 0.96% | 0.026% |
| 174 | 8.060 | 8.055 | 8.075 | VV | 772    | 8070   | 0.18% | 0.005% |
| 175 | 8.086 | 8.075 | 8.102 | VV | 809    | 9329   | 0.21% | 0.006% |
|     |       |       |       |    |        |        |       |        |
| 176 | 8.131 | 8.102 | 8.146 | VV | 539    | 8064   | 0.18% | 0.005% |
| 177 | 8.170 | 8.146 | 8.187 | VV | 1898   | 29116  | 0.66% | 0.018% |
| 178 | 8.203 | 8.187 | 8.231 | VV | 3593   | 48292  | 1.10% | 0.030% |
| 179 | 8.235 | 8.231 | 8.252 | VV | 647    | 5911   | 0.13% | 0.004% |
| 180 | 8.273 | 8.252 | 8.293 | VV | 606    | 9368   | 0.21% | 0.006% |
|     |       |       |       |    |        |        |       |        |
| 181 | 8.328 | 8.293 | 8.341 | VV | 1768   | 26506  | 0.60% | 0.016% |
| 182 | 8.362 | 8.341 | 8.397 | VV | 3063   | 52072  | 1.19% | 0.032% |
| 183 | 8.445 | 8.397 | 8.482 | VV | 10372  | 143848 | 3.28% | 0.088% |
| 184 | 8.505 | 8.482 | 8.525 | VV | 1468   | 24746  | 0.56% | 0.015% |
| 185 | 8.546 | 8.525 | 8.562 | VV | 3813   | 47724  | 1.09% | 0.029% |
|     |       |       |       |    |        |        |       |        |
| 186 | 8.575 | 8.562 | 8.589 | VV | 2566   | 29858  | 0.68% | 0.018% |
| 187 | 8.597 | 8.589 | 8.601 | VV | 1379   | 10332  | 0.24% | 0.006% |
| 188 | 8.625 | 8.601 | 8.654 | VV | 2415   | 48403  | 1.10% | 0.030% |
| 189 | 8.676 | 8.654 | 8.680 | VV | 1848   | 21069  | 0.48% | 0.013% |
| 190 | 8.694 | 8.680 | 8.716 | VV | 2507   | 44444  | 1.01% | 0.027% |
|     |       |       |       |    |        |        |       |        |
| 191 | 8.733 | 8.716 | 8.761 | VV | 2323   | 49779  | 1.13% | 0.030% |
| 192 | 8.788 | 8.761 | 8.807 | VV | 4073   | 60994  | 1.39% | 0.037% |
| 193 | 8.822 | 8.807 | 8.835 | VV | 1641   | 21039  | 0.48% | 0.013% |
| 194 | 8.850 | 8.835 | 8.861 | VV | 1063   | 14306  | 0.33% | 0.009% |

|     |        |        |        |    |        |        |        |        |
|-----|--------|--------|--------|----|--------|--------|--------|--------|
|     |        |        |        |    | rteres |        |        |        |
| 195 | 8.874  | 8.861  | 8.888  | VV | 1076   | 15214  | 0.35%  | 0.009% |
| 196 | 8.915  | 8.888  | 8.920  | VV | 1101   | 17911  | 0.41%  | 0.011% |
| 197 | 8.923  | 8.920  | 8.940  | VV | 1047   | 9019   | 0.21%  | 0.006% |
| 198 | 8.958  | 8.940  | 8.971  | VV | 1418   | 19909  | 0.45%  | 0.012% |
| 199 | 8.986  | 8.971  | 9.003  | VV | 1949   | 29099  | 0.66%  | 0.018% |
| 200 | 9.030  | 9.003  | 9.051  | VV | 20781  | 224694 | 5.12%  | 0.138% |
| 201 | 9.060  | 9.051  | 9.067  | VV | 1646   | 14995  | 0.34%  | 0.009% |
| 202 | 9.091  | 9.067  | 9.114  | VV | 4946   | 81977  | 1.87%  | 0.050% |
| 203 | 9.127  | 9.114  | 9.133  | VV | 2148   | 20716  | 0.47%  | 0.013% |
| 204 | 9.167  | 9.133  | 9.190  | VV | 15487  | 231683 | 5.28%  | 0.142% |
| 205 | 9.202  | 9.190  | 9.211  | VV | 1502   | 17612  | 0.40%  | 0.011% |
| 206 | 9.216  | 9.211  | 9.230  | VV | 1501   | 13397  | 0.31%  | 0.008% |
| 207 | 9.248  | 9.230  | 9.258  | VV | 2201   | 25757  | 0.59%  | 0.016% |
| 208 | 9.273  | 9.258  | 9.288  | VV | 3614   | 49131  | 1.12%  | 0.030% |
| 209 | 9.305  | 9.288  | 9.334  | VV | 7291   | 100583 | 2.29%  | 0.062% |
| 210 | 9.352  | 9.334  | 9.364  | VV | 2187   | 32898  | 0.75%  | 0.020% |
| 211 | 9.376  | 9.364  | 9.382  | VV | 2186   | 22355  | 0.51%  | 0.014% |
| 212 | 9.396  | 9.382  | 9.412  | VV | 2508   | 36510  | 0.83%  | 0.022% |
| 213 | 9.447  | 9.412  | 9.466  | VV | 3871   | 75614  | 1.72%  | 0.046% |
| 214 | 9.482  | 9.466  | 9.520  | VV | 3570   | 62200  | 1.42%  | 0.038% |
| 215 | 9.539  | 9.520  | 9.564  | VV | 2541   | 42333  | 0.96%  | 0.026% |
| 216 | 9.599  | 9.564  | 9.618  | VV | 2926   | 51422  | 1.17%  | 0.031% |
| 217 | 9.632  | 9.618  | 9.646  | VV | 2162   | 25328  | 0.58%  | 0.016% |
| 218 | 9.664  | 9.646  | 9.673  | VV | 1602   | 23178  | 0.53%  | 0.014% |
| 219 | 9.686  | 9.673  | 9.702  | VV | 1667   | 25864  | 0.59%  | 0.016% |
| 220 | 9.716  | 9.702  | 9.722  | VV | 1727   | 18205  | 0.41%  | 0.011% |
| 221 | 9.738  | 9.722  | 9.770  | VV | 3694   | 67005  | 1.53%  | 0.041% |
| 222 | 9.783  | 9.770  | 9.797  | VV | 2002   | 27359  | 0.62%  | 0.017% |
| 223 | 9.819  | 9.797  | 9.840  | VV | 16162  | 205926 | 4.69%  | 0.126% |
| 224 | 9.844  | 9.840  | 9.879  | VV | 4268   | 58807  | 1.34%  | 0.036% |
| 225 | 9.904  | 9.879  | 9.931  | VV | 7469   | 135365 | 3.08%  | 0.083% |
| 226 | 9.939  | 9.931  | 9.952  | VV | 2702   | 32574  | 0.74%  | 0.020% |
| 227 | 9.972  | 9.952  | 9.984  | VV | 5265   | 76656  | 1.75%  | 0.047% |
| 228 | 9.996  | 9.984  | 10.016 | VV | 4349   | 72744  | 1.66%  | 0.045% |
| 229 | 10.029 | 10.016 | 10.046 | VV | 3925   | 55875  | 1.27%  | 0.034% |
| 230 | 10.071 | 10.046 | 10.078 | VV | 4219   | 69901  | 1.59%  | 0.043% |
| 231 | 10.100 | 10.078 | 10.125 | VV | 51506  | 554600 | 12.63% | 0.339% |
| 232 | 10.144 | 10.125 | 10.164 | VV | 5021   | 84399  | 1.92%  | 0.052% |
| 233 | 10.194 | 10.164 | 10.217 | VV | 4731   | 120325 | 2.74%  | 0.074% |
| 234 | 10.240 | 10.217 | 10.279 | VV | 9600   | 192709 | 4.39%  | 0.118% |
| 235 | 10.302 | 10.279 | 10.322 | VV | 4428   | 92335  | 2.10%  | 0.057% |
| 236 | 10.339 | 10.322 | 10.381 | VV | 4750   | 113503 | 2.58%  | 0.069% |
| 237 | 10.407 | 10.381 | 10.421 | VV | 4036   | 76421  | 1.74%  | 0.047% |
| 238 | 10.426 | 10.421 | 10.431 | VV | 3033   | 16480  | 0.38%  | 0.010% |
| 239 | 10.435 | 10.431 | 10.440 | VV | 2943   | 16672  | 0.38%  | 0.010% |
| 240 | 10.452 | 10.440 | 10.455 | VV | 3053   | 26558  | 0.60%  | 0.016% |
| 241 | 10.471 | 10.455 | 10.492 | VV | 3736   | 71931  | 1.64%  | 0.044% |
| 242 | 10.510 | 10.492 | 10.529 | VV | 4673   | 80213  | 1.83%  | 0.049% |
| 243 | 10.567 | 10.529 | 10.597 | VV | 4647   | 155253 | 3.54%  | 0.095% |
| 244 | 10.624 | 10.597 | 10.649 | VV | 20993  | 343000 | 7.81%  | 0.210% |
| 245 | 10.672 | 10.649 | 10.687 | VV | 7832   | 152153 | 3.46%  | 0.093% |
| 246 | 10.704 | 10.687 | 10.731 | VV | 8450   | 178804 | 4.07%  | 0.109% |



|     |        |        |        |    | rteres |         |        |        |
|-----|--------|--------|--------|----|--------|---------|--------|--------|
| 247 | 10.746 | 10.731 | 10.759 | VV | 7633   | 114440  | 2.61%  | 0.070% |
| 248 | 10.774 | 10.759 | 10.796 | VV | 7838   | 133146  | 3.03%  | 0.081% |
| 249 | 10.821 | 10.796 | 10.831 | VV | 7553   | 128224  | 2.92%  | 0.078% |
| 250 | 10.837 | 10.831 | 10.853 | VV | 6748   | 80376   | 1.83%  | 0.049% |
|     |        |        |        |    |        |         |        |        |
| 251 | 10.874 | 10.853 | 10.897 | VV | 8903   | 191380  | 4.36%  | 0.117% |
| 252 | 10.903 | 10.897 | 10.916 | VV | 7401   | 81730   | 1.86%  | 0.050% |
| 253 | 10.924 | 10.916 | 10.938 | VV | 7488   | 91924   | 2.09%  | 0.056% |
| 254 | 10.954 | 10.938 | 10.960 | VV | 8242   | 98458   | 2.24%  | 0.060% |
| 255 | 10.976 | 10.960 | 11.004 | VV | 11369  | 243317  | 5.54%  | 0.149% |
|     |        |        |        |    |        |         |        |        |
| 256 | 11.048 | 11.004 | 11.084 | VV | 46870  | 970165  | 22.09% | 0.594% |
| 257 | 11.090 | 11.084 | 11.112 | VV | 8680   | 133505  | 3.04%  | 0.082% |
| 258 | 11.124 | 11.112 | 11.137 | VV | 6956   | 100905  | 2.30%  | 0.062% |
| 259 | 11.147 | 11.137 | 11.153 | VV | 6765   | 59283   | 1.35%  | 0.036% |
| 260 | 11.156 | 11.153 | 11.160 | VV | 6727   | 27694   | 0.63%  | 0.017% |
|     |        |        |        |    |        |         |        |        |
| 261 | 11.194 | 11.160 | 11.201 | VV | 9558   | 196705  | 4.48%  | 0.120% |
| 262 | 11.226 | 11.201 | 11.249 | VV | 157506 | 1794757 | 40.87% | 1.099% |
| 263 | 11.254 | 11.249 | 11.277 | VV | 10818  | 151775  | 3.46%  | 0.093% |
| 264 | 11.299 | 11.277 | 11.322 | VV | 40917  | 554873  | 12.63% | 0.340% |
| 265 | 11.330 | 11.322 | 11.346 | VV | 9772   | 131662  | 3.00%  | 0.081% |
|     |        |        |        |    |        |         |        |        |
| 266 | 11.368 | 11.346 | 11.392 | VV | 9855   | 241852  | 5.51%  | 0.148% |
| 267 | 11.402 | 11.392 | 11.429 | VV | 8731   | 175042  | 3.99%  | 0.107% |
| 268 | 11.458 | 11.429 | 11.471 | VV | 8542   | 205574  | 4.68%  | 0.126% |
| 269 | 11.485 | 11.471 | 11.492 | VV | 9017   | 107140  | 2.44%  | 0.066% |
| 270 | 11.510 | 11.492 | 11.526 | VV | 18332  | 271562  | 6.18%  | 0.166% |
|     |        |        |        |    |        |         |        |        |
| 271 | 11.534 | 11.526 | 11.557 | VV | 10127  | 167357  | 3.81%  | 0.102% |
| 272 | 11.588 | 11.557 | 11.596 | VV | 8829   | 192694  | 4.39%  | 0.118% |
| 273 | 11.620 | 11.596 | 11.629 | VV | 10212  | 185954  | 4.23%  | 0.114% |
| 274 | 11.648 | 11.629 | 11.662 | VV | 11373  | 215935  | 4.92%  | 0.132% |
| 275 | 11.679 | 11.662 | 11.696 | VV | 13906  | 240358  | 5.47%  | 0.147% |
|     |        |        |        |    |        |         |        |        |
| 276 | 11.706 | 11.696 | 11.710 | VV | 9961   | 79168   | 1.80%  | 0.048% |
| 277 | 11.722 | 11.710 | 11.739 | VV | 10039  | 170354  | 3.88%  | 0.104% |
| 278 | 11.770 | 11.739 | 11.803 | VV | 32343  | 696146  | 15.85% | 0.426% |
| 279 | 11.828 | 11.803 | 11.854 | VV | 10997  | 291190  | 6.63%  | 0.178% |
| 280 | 11.877 | 11.854 | 11.900 | VV | 12126  | 277452  | 6.32%  | 0.170% |
|     |        |        |        |    |        |         |        |        |
| 281 | 11.923 | 11.900 | 11.957 | VV | 12464  | 369034  | 8.40%  | 0.226% |
| 282 | 11.982 | 11.957 | 12.007 | VV | 11388  | 318215  | 7.25%  | 0.195% |
| 283 | 12.030 | 12.007 | 12.044 | VV | 22045  | 338497  | 7.71%  | 0.207% |
| 284 | 12.060 | 12.044 | 12.084 | VV | 28423  | 437353  | 9.96%  | 0.268% |
| 285 | 12.095 | 12.084 | 12.109 | VV | 11102  | 153855  | 3.50%  | 0.094% |
|     |        |        |        |    |        |         |        |        |
| 286 | 12.145 | 12.109 | 12.163 | VV | 35286  | 640989  | 14.60% | 0.392% |
| 287 | 12.177 | 12.163 | 12.192 | VV | 17666  | 267906  | 6.10%  | 0.164% |
| 288 | 12.209 | 12.192 | 12.267 | VV | 22443  | 576854  | 13.13% | 0.353% |
| 289 | 12.288 | 12.267 | 12.304 | VV | 10604  | 211858  | 4.82%  | 0.130% |
| 290 | 12.333 | 12.304 | 12.364 | VV | 17183  | 514217  | 11.71% | 0.315% |
|     |        |        |        |    |        |         |        |        |
| 291 | 12.380 | 12.364 | 12.407 | VV | 23635  | 409536  | 9.33%  | 0.251% |
| 292 | 12.445 | 12.407 | 12.472 | VV | 11096  | 403854  | 9.20%  | 0.247% |
| 293 | 12.501 | 12.472 | 12.523 | VV | 20255  | 414477  | 9.44%  | 0.254% |
| 294 | 12.533 | 12.523 | 12.544 | VV | 10392  | 124110  | 2.83%  | 0.076% |
| 295 | 12.564 | 12.544 | 12.573 | VV | 11015  | 179787  | 4.09%  | 0.110% |
|     |        |        |        |    |        |         |        |        |
| 296 | 12.607 | 12.573 | 12.643 | VV | 156284 | 2335348 | 53.18% | 1.429% |
| 297 | 12.650 | 12.643 | 12.674 | VV | 14320  | 228279  | 5.20%  | 0.140% |
| 298 | 12.679 | 12.674 | 12.699 | VV | 10877  | 153361  | 3.49%  | 0.094% |
| 299 | 12.710 | 12.699 | 12.717 | VV | 9951   | 102406  | 2.33%  | 0.063% |

|     |        |        |        |    |        |         |        |        |
|-----|--------|--------|--------|----|--------|---------|--------|--------|
|     |        |        |        |    | rteres |         |        |        |
| 300 | 12.734 | 12.717 | 12.739 | VV | 10329  | 127695  | 2.91%  | 0.078% |
| 301 | 12.755 | 12.739 | 12.763 | VV | 12002  | 162134  | 3.69%  | 0.099% |
| 302 | 12.769 | 12.763 | 12.793 | VV | 11768  | 193787  | 4.41%  | 0.119% |
| 303 | 12.818 | 12.793 | 12.863 | VV | 18756  | 528330  | 12.03% | 0.323% |
| 304 | 12.879 | 12.863 | 12.893 | VV | 11694  | 187263  | 4.26%  | 0.115% |
| 305 | 12.931 | 12.893 | 12.953 | VV | 19664  | 468067  | 10.66% | 0.286% |
| 306 | 12.993 | 12.953 | 13.015 | VV | 20744  | 512296  | 11.66% | 0.314% |
| 307 | 13.051 | 13.015 | 13.097 | VV | 332377 | 3940068 | 89.71% | 2.412% |
| 308 | 13.112 | 13.097 | 13.126 | VV | 8478   | 131869  | 3.00%  | 0.081% |
| 309 | 13.142 | 13.126 | 13.154 | VV | 7679   | 122950  | 2.80%  | 0.075% |
| 310 | 13.180 | 13.154 | 13.196 | VV | 9045   | 209818  | 4.78%  | 0.128% |
| 311 | 13.209 | 13.196 | 13.214 | VV | 9486   | 96034   | 2.19%  | 0.059% |
| 312 | 13.236 | 13.214 | 13.313 | VV | 16908  | 634576  | 14.45% | 0.388% |
| 313 | 13.350 | 13.313 | 13.372 | VV | 280004 | 3169414 | 72.17% | 1.940% |
| 314 | 13.404 | 13.372 | 13.420 | VV | 44807  | 689378  | 15.70% | 0.422% |
| 315 | 13.435 | 13.420 | 13.466 | VV | 34782  | 525315  | 11.96% | 0.322% |
| 316 | 13.488 | 13.466 | 13.501 | VV | 8873   | 160028  | 3.64%  | 0.098% |
| 317 | 13.520 | 13.501 | 13.536 | VV | 15385  | 241202  | 5.49%  | 0.148% |
| 318 | 13.547 | 13.536 | 13.572 | VV | 9756   | 173901  | 3.96%  | 0.106% |
| 319 | 13.614 | 13.572 | 13.644 | VV | 39617  | 713415  | 16.24% | 0.437% |
| 320 | 13.682 | 13.644 | 13.716 | VV | 16466  | 469795  | 10.70% | 0.288% |
| 321 | 13.744 | 13.716 | 13.763 | VV | 15132  | 290561  | 6.62%  | 0.178% |
| 322 | 13.806 | 13.763 | 13.818 | VV | 21634  | 456128  | 10.39% | 0.279% |
| 323 | 13.834 | 13.818 | 13.892 | VV | 61969  | 1028694 | 23.42% | 0.630% |
| 324 | 13.935 | 13.892 | 13.972 | VV | 49547  | 974172  | 22.18% | 0.596% |
| 325 | 14.004 | 13.972 | 14.018 | VV | 9214   | 209660  | 4.77%  | 0.128% |
| 326 | 14.043 | 14.018 | 14.066 | VV | 42132  | 658246  | 14.99% | 0.403% |
| 327 | 14.083 | 14.066 | 14.104 | VV | 24275  | 365898  | 8.33%  | 0.224% |
| 328 | 14.127 | 14.104 | 14.159 | VV | 18559  | 399520  | 9.10%  | 0.245% |
| 329 | 14.213 | 14.159 | 14.234 | VV | 24506  | 696411  | 15.86% | 0.426% |
| 330 | 14.254 | 14.234 | 14.297 | VV | 20426  | 431820  | 9.83%  | 0.264% |
| 331 | 14.327 | 14.297 | 14.350 | VV | 9127   | 253851  | 5.78%  | 0.155% |
| 332 | 14.357 | 14.350 | 14.363 | VV | 8346   | 64285   | 1.46%  | 0.039% |
| 333 | 14.373 | 14.363 | 14.377 | VV | 8203   | 68174   | 1.55%  | 0.042% |
| 334 | 14.422 | 14.377 | 14.493 | VV | 10216  | 571226  | 13.01% | 0.350% |
| 335 | 14.515 | 14.493 | 14.540 | VV | 10328  | 229050  | 5.22%  | 0.140% |
| 336 | 14.580 | 14.540 | 14.600 | VV | 24859  | 475199  | 10.82% | 0.291% |
| 337 | 14.624 | 14.600 | 14.650 | VV | 21915  | 477147  | 10.86% | 0.292% |
| 338 | 14.669 | 14.650 | 14.697 | VV | 25485  | 454314  | 10.34% | 0.278% |
| 339 | 14.758 | 14.697 | 14.813 | VV | 16320  | 772042  | 17.58% | 0.473% |
| 340 | 14.852 | 14.813 | 14.876 | VV | 32354  | 685634  | 15.61% | 0.420% |
| 341 | 14.879 | 14.876 | 14.891 | VV | 11941  | 103953  | 2.37%  | 0.064% |
| 342 | 14.916 | 14.891 | 14.937 | VV | 54961  | 784424  | 17.86% | 0.480% |
| 343 | 14.974 | 14.937 | 15.011 | VV | 29431  | 808345  | 18.41% | 0.495% |
| 344 | 15.045 | 15.011 | 15.052 | VV | 11591  | 255003  | 5.81%  | 0.156% |
| 345 | 15.096 | 15.052 | 15.131 | VV | 114940 | 1906117 | 43.40% | 1.167% |
| 346 | 15.139 | 15.131 | 15.157 | VV | 10439  | 147197  | 3.35%  | 0.090% |
| 347 | 15.180 | 15.157 | 15.199 | VV | 19455  | 346863  | 7.90%  | 0.212% |
| 348 | 15.229 | 15.199 | 15.250 | VV | 197818 | 2649815 | 60.34% | 1.622% |
| 349 | 15.273 | 15.250 | 15.331 | VV | 194851 | 2709107 | 61.69% | 1.658% |
| 350 | 15.345 | 15.331 | 15.367 | VV | 13465  | 260468  | 5.93%  | 0.159% |
| 351 | 15.392 | 15.367 | 15.414 | VV | 66329  | 930231  | 21.18% | 0.569% |

| rteres |        |        |        |    |        |         |         |        |
|--------|--------|--------|--------|----|--------|---------|---------|--------|
| 352    | 15.425 | 15.414 | 15.444 | VV | 14416  | 227734  | 5.19%   | 0.139% |
| 353    | 15.464 | 15.444 | 15.502 | VV | 19109  | 435566  | 9.92%   | 0.267% |
| 354    | 15.527 | 15.502 | 15.549 | VV | 19783  | 404646  | 9.21%   | 0.248% |
| 355    | 15.567 | 15.549 | 15.643 | VV | 23325  | 768145  | 17.49%  | 0.470% |
| 356    | 15.677 | 15.643 | 15.753 | VV | 104187 | 1942188 | 44.22%  | 1.189% |
| 357    | 15.774 | 15.753 | 15.786 | VV | 11231  | 194014  | 4.42%   | 0.119% |
| 358    | 15.818 | 15.786 | 15.827 | VV | 17838  | 344916  | 7.85%   | 0.211% |
| 359    | 15.843 | 15.827 | 15.852 | VV | 19350  | 277239  | 6.31%   | 0.170% |
| 360    | 15.869 | 15.852 | 15.882 | VV | 19615  | 340769  | 7.76%   | 0.209% |
| 361    | 15.901 | 15.882 | 15.923 | VV | 41813  | 649796  | 14.80%  | 0.398% |
| 362    | 15.939 | 15.923 | 15.959 | VV | 24197  | 389184  | 8.86%   | 0.238% |
| 363    | 15.983 | 15.959 | 16.001 | VV | 21313  | 406973  | 9.27%   | 0.249% |
| 364    | 16.006 | 16.001 | 16.021 | VV | 13095  | 151496  | 3.45%   | 0.093% |
| 365    | 16.062 | 16.021 | 16.107 | VV | 44851  | 1322171 | 30.11%  | 0.809% |
| 366    | 16.139 | 16.107 | 16.175 | VV | 24102  | 643634  | 14.66%  | 0.394% |
| 367    | 16.192 | 16.175 | 16.207 | VV | 16686  | 274840  | 6.26%   | 0.168% |
| 368    | 16.225 | 16.207 | 16.241 | VV | 17048  | 297524  | 6.77%   | 0.182% |
| 369    | 16.252 | 16.241 | 16.266 | VV | 17852  | 229176  | 5.22%   | 0.140% |
| 370    | 16.281 | 16.266 | 16.290 | VV | 16426  | 211283  | 4.81%   | 0.129% |
| 371    | 16.298 | 16.290 | 16.302 | VV | 16135  | 119078  | 2.71%   | 0.073% |
| 372    | 16.325 | 16.302 | 16.359 | VV | 19750  | 508299  | 11.57%  | 0.311% |
| 373    | 16.392 | 16.359 | 16.416 | VV | 14125  | 398896  | 9.08%   | 0.244% |
| 374    | 16.427 | 16.416 | 16.448 | VV | 11371  | 208993  | 4.76%   | 0.128% |
| 375    | 16.470 | 16.448 | 16.477 | VV | 10889  | 176543  | 4.02%   | 0.108% |
| 376    | 16.511 | 16.477 | 16.531 | VV | 19669  | 501704  | 11.42%  | 0.307% |
| 377    | 16.539 | 16.531 | 16.551 | VV | 15365  | 175592  | 4.00%   | 0.107% |
| 378    | 16.573 | 16.551 | 16.599 | VV | 24751  | 494915  | 11.27%  | 0.303% |
| 379    | 16.623 | 16.599 | 16.648 | VV | 17332  | 472006  | 10.75%  | 0.289% |
| 380    | 16.653 | 16.648 | 16.659 | VV | 16487  | 105730  | 2.41%   | 0.065% |
| 381    | 16.693 | 16.659 | 16.742 | VV | 89381  | 1850537 | 42.14%  | 1.133% |
| 382    | 16.796 | 16.742 | 16.812 | VV | 265119 | 4391767 | 100.00% | 2.688% |
| 383    | 16.821 | 16.812 | 16.856 | VV | 132261 | 1588477 | 36.17%  | 0.972% |
| 384    | 16.877 | 16.856 | 16.892 | VV | 17673  | 343163  | 7.81%   | 0.210% |
| 385    | 16.921 | 16.892 | 16.942 | VV | 63179  | 1027034 | 23.39%  | 0.629% |
| 386    | 16.958 | 16.942 | 16.996 | VV | 25058  | 652652  | 14.86%  | 0.399% |
| 387    | 17.009 | 16.996 | 17.022 | VV | 19086  | 276483  | 6.30%   | 0.169% |
| 388    | 17.044 | 17.022 | 17.062 | VV | 27729  | 558548  | 12.72%  | 0.342% |
| 389    | 17.115 | 17.062 | 17.141 | VV | 170142 | 3051535 | 69.48%  | 1.868% |
| 390    | 17.174 | 17.141 | 17.223 | VV | 242017 | 3687900 | 83.97%  | 2.257% |
| 391    | 17.272 | 17.223 | 17.301 | VV | 95853  | 1801611 | 41.02%  | 1.103% |
| 392    | 17.321 | 17.301 | 17.342 | VV | 27300  | 607502  | 13.83%  | 0.372% |
| 393    | 17.354 | 17.342 | 17.370 | VV | 26308  | 389485  | 8.87%   | 0.238% |
| 394    | 17.411 | 17.370 | 17.444 | VV | 27736  | 968597  | 22.05%  | 0.593% |
| 395    | 17.473 | 17.444 | 17.490 | VV | 21390  | 515031  | 11.73%  | 0.315% |
| 396    | 17.534 | 17.490 | 17.567 | VV | 44675  | 1365766 | 31.10%  | 0.836% |
| 397    | 17.580 | 17.567 | 17.608 | VV | 26938  | 547672  | 12.47%  | 0.335% |
| 398    | 17.636 | 17.608 | 17.659 | VV | 69501  | 1270710 | 28.93%  | 0.778% |
| 399    | 17.672 | 17.659 | 17.685 | VV | 28895  | 421254  | 9.59%   | 0.258% |
| 400    | 17.698 | 17.685 | 17.709 | VV | 29351  | 410758  | 9.35%   | 0.251% |
| 401    | 17.727 | 17.709 | 17.776 | VV | 41992  | 1125519 | 25.63%  | 0.689% |
| 402    | 17.784 | 17.776 | 17.792 | VV | 20502  | 192280  | 4.38%   | 0.118% |
| 403    | 17.827 | 17.792 | 17.887 | VV | 36890  | 1360827 | 30.99%  | 0.833% |
| 404    | 17.894 | 17.887 | 17.911 | VV | 17433  | 228819  | 5.21%   | 0.140% |

|     |        |        |        |    |        |         |        |        |
|-----|--------|--------|--------|----|--------|---------|--------|--------|
|     |        |        |        |    | rteres |         |        |        |
| 405 | 17.940 | 17.911 | 17.971 | VV | 22472  | 669602  | 15.25% | 0.410% |
| 406 | 17.992 | 17.971 | 18.001 | VV | 16671  | 294052  | 6.70%  | 0.180% |
| 407 | 18.008 | 18.001 | 18.012 | VV | 16802  | 109189  | 2.49%  | 0.067% |
| 408 | 18.017 | 18.012 | 18.033 | VV | 16657  | 189086  | 4.31%  | 0.116% |
| 409 | 18.086 | 18.033 | 18.107 | VV | 23235  | 808495  | 18.41% | 0.495% |
| 410 | 18.130 | 18.107 | 18.143 | VV | 23120  | 451777  | 10.29% | 0.277% |
| 411 | 18.166 | 18.143 | 18.196 | VV | 29044  | 706384  | 16.08% | 0.432% |
| 412 | 18.254 | 18.196 | 18.283 | VV | 36927  | 1239897 | 28.23% | 0.759% |
| 413 | 18.308 | 18.283 | 18.312 | VV | 26840  | 397336  | 9.05%  | 0.243% |
| 414 | 18.331 | 18.312 | 18.351 | VV | 30474  | 642785  | 14.64% | 0.393% |
| 415 | 18.369 | 18.351 | 18.421 | VV | 35205  | 1025840 | 23.36% | 0.628% |
| 416 | 18.449 | 18.421 | 18.493 | VV | 51995  | 1323543 | 30.14% | 0.810% |
| 417 | 18.545 | 18.493 | 18.568 | VV | 183202 | 4265545 | 97.13% | 2.611% |
| 418 | 18.587 | 18.568 | 18.614 | VV | 72440  | 1409686 | 32.10% | 0.863% |
| 419 | 18.623 | 18.614 | 18.645 | VV | 29921  | 464888  | 10.59% | 0.285% |
| 420 | 18.675 | 18.645 | 18.692 | VV | 53015  | 1002618 | 22.83% | 0.614% |
| 421 | 18.708 | 18.692 | 18.769 | VV | 49653  | 1333731 | 30.37% | 0.816% |
| 422 | 18.801 | 18.769 | 18.824 | VV | 165241 | 2360221 | 53.74% | 1.445% |
| 423 | 18.838 | 18.824 | 18.852 | VV | 21694  | 344570  | 7.85%  | 0.211% |
| 424 | 18.880 | 18.852 | 18.899 | VV | 27586  | 647783  | 14.75% | 0.396% |
| 425 | 18.927 | 18.899 | 18.956 | VV | 73714  | 1338545 | 30.48% | 0.819% |
| 426 | 18.986 | 18.956 | 19.009 | VV | 29353  | 781100  | 17.79% | 0.478% |
| 427 | 19.021 | 19.009 | 19.044 | VV | 26942  | 468477  | 10.67% | 0.287% |
| 428 | 19.103 | 19.044 | 19.140 | VV | 47508  | 1584392 | 36.08% | 0.970% |
| 429 | 19.161 | 19.140 | 19.184 | VV | 28777  | 610705  | 13.91% | 0.374% |
| 430 | 19.205 | 19.184 | 19.249 | VV | 43626  | 1111959 | 25.32% | 0.681% |
| 431 | 19.282 | 19.249 | 19.296 | VV | 29035  | 676063  | 15.39% | 0.414% |
| 432 | 19.350 | 19.296 | 19.378 | VV | 112697 | 2686325 | 61.17% | 1.644% |
| 433 | 19.399 | 19.378 | 19.454 | VV | 73247  | 1788598 | 40.73% | 1.095% |
| 434 | 19.476 | 19.454 | 19.512 | VV | 32709  | 929971  | 21.18% | 0.569% |
| 435 | 19.534 | 19.512 | 19.565 | VV | 33134  | 756884  | 17.23% | 0.463% |
| 436 | 19.590 | 19.565 | 19.611 | VV | 16805  | 434520  | 9.89%  | 0.266% |
| 437 | 19.640 | 19.611 | 19.672 | VV | 32333  | 829487  | 18.89% | 0.508% |
| 438 | 19.688 | 19.672 | 19.723 | VV | 18697  | 489098  | 11.14% | 0.299% |
| 439 | 19.750 | 19.723 | 19.772 | VV | 19445  | 517652  | 11.79% | 0.317% |
| 440 | 19.778 | 19.772 | 19.793 | VV | 18189  | 214513  | 4.88%  | 0.131% |
| 441 | 19.816 | 19.793 | 19.833 | VV | 23673  | 483905  | 11.02% | 0.296% |
| 442 | 19.850 | 19.833 | 19.865 | VV | 23983  | 411034  | 9.36%  | 0.252% |
| 443 | 19.888 | 19.865 | 19.919 | VV | 33912  | 805931  | 18.35% | 0.493% |
| 444 | 19.956 | 19.919 | 19.982 | VV | 74790  | 1511098 | 34.41% | 0.925% |
| 445 | 20.021 | 19.982 | 20.048 | VV | 68124  | 1588465 | 36.17% | 0.972% |
| 446 | 20.068 | 20.048 | 20.096 | VV | 41443  | 979865  | 22.31% | 0.600% |
| 447 | 20.129 | 20.096 | 20.173 | VV | 78308  | 2053112 | 46.75% | 1.257% |
| 448 | 20.192 | 20.173 | 20.217 | VV | 33621  | 717564  | 16.34% | 0.439% |
| 449 | 20.235 | 20.217 | 20.264 | VV | 29644  | 670807  | 15.27% | 0.411% |
| 450 | 20.333 | 20.264 | 20.361 | VV | 77364  | 2373219 | 54.04% | 1.453% |
| 451 | 20.399 | 20.361 | 20.417 | VV | 42485  | 1071268 | 24.39% | 0.656% |
| 452 | 20.422 | 20.417 | 20.447 | VV | 29254  | 435115  | 9.91%  | 0.266% |
| 453 | 20.473 | 20.447 | 20.510 | VV | 39447  | 992562  | 22.60% | 0.608% |
| 454 | 20.517 | 20.510 | 20.535 | VV | 20368  | 289196  | 6.58%  | 0.177% |
| 455 | 20.555 | 20.535 | 20.575 | VV | 20622  | 464203  | 10.57% | 0.284% |
| 456 | 20.598 | 20.575 | 20.631 | VV | 22357  | 668346  | 15.22% | 0.409% |

|     |        |        |        |     |                                   |         |        |        |
|-----|--------|--------|--------|-----|-----------------------------------|---------|--------|--------|
|     |        |        |        |     |                                   | rters   |        |        |
| 457 | 20.650 | 20.631 | 20.666 | VV  | 21778                             | 415707  | 9.47%  | 0.254% |
| 458 | 20.682 | 20.666 | 20.705 | VV  | 20515                             | 455033  | 10.36% | 0.279% |
| 459 | 20.711 | 20.705 | 20.729 | VV  | 18476                             | 251172  | 5.72%  | 0.154% |
| 460 | 20.752 | 20.729 | 20.775 | VV  | 19214                             | 503128  | 11.46% | 0.308% |
| 461 | 20.794 | 20.775 | 20.809 | VV  | 18916                             | 368444  | 8.39%  | 0.226% |
| 462 | 20.843 | 20.809 | 20.859 | VV  | 26104                             | 658099  | 14.98% | 0.403% |
| 463 | 20.870 | 20.859 | 20.895 | VV  | 22485                             | 465926  | 10.61% | 0.285% |
| 464 | 20.917 | 20.895 | 20.962 | VV  | 24432                             | 803816  | 18.30% | 0.492% |
| 465 | 20.978 | 20.962 | 20.992 | VV  | 17501                             | 304489  | 6.93%  | 0.186% |
| 466 | 20.997 | 20.992 | 21.004 | VV  | 16739                             | 117248  | 2.67%  | 0.072% |
| 467 | 21.026 | 21.004 | 21.072 | VV  | 18159                             | 637239  | 14.51% | 0.390% |
| 468 | 21.084 | 21.072 | 21.118 | VV  | 13981                             | 365817  | 8.33%  | 0.224% |
| 469 | 21.141 | 21.118 | 21.165 | VV  | 14007                             | 379953  | 8.65%  | 0.233% |
| 470 | 21.188 | 21.165 | 21.242 | VV  | 13996                             | 589186  | 13.42% | 0.361% |
| 471 | 21.247 | 21.242 | 21.254 | VV  | 11511                             | 80256   | 1.83%  | 0.049% |
| 472 | 21.288 | 21.254 | 21.317 | VV  | 12710                             | 437403  | 9.96%  | 0.268% |
| 473 | 21.360 | 21.317 | 21.429 | VV  | 18556                             | 918970  | 20.92% | 0.562% |
| 474 | 21.469 | 21.429 | 21.508 | VV  | 14012                             | 543892  | 12.38% | 0.333% |
| 475 | 21.573 | 21.508 | 21.606 | VV  | 14576                             | 677300  | 15.42% | 0.415% |
| 476 | 21.662 | 21.606 | 21.694 | VV  | 14570                             | 620292  | 14.12% | 0.380% |
| 477 | 21.749 | 21.694 | 21.776 | VV  | 39645                             | 1235595 | 28.13% | 0.756% |
| 478 | 21.787 | 21.776 | 21.813 | VV  | 18833                             | 381089  | 8.68%  | 0.233% |
| 479 | 21.818 | 21.813 | 21.894 | VV  | 14872                             | 445512  | 10.14% | 0.273% |
| 480 | 21.921 | 21.894 | 21.944 | VV  | 10547                             | 260183  | 5.92%  | 0.159% |
| 481 | 21.969 | 21.944 | 22.012 | VV  | 13094                             | 328466  | 7.48%  | 0.201% |
| 482 | 22.060 | 22.012 | 22.096 | VV  | 24098                             | 599072  | 13.64% | 0.367% |
| 483 | 22.102 | 22.096 | 22.109 | VV  | 5230                              | 39326   | 0.90%  | 0.024% |
| 484 | 22.145 | 22.109 | 22.173 | VV  | 21267                             | 489885  | 11.15% | 0.300% |
| 485 | 22.198 | 22.173 | 22.220 | VV  | 12029                             | 260080  | 5.92%  | 0.159% |
| 486 | 22.249 | 22.220 | 22.269 | VV  | 18037                             | 379780  | 8.65%  | 0.232% |
| 487 | 22.286 | 22.269 | 22.334 | VV  | 12355                             | 246362  | 5.61%  | 0.151% |
| 488 | 22.348 | 22.334 | 22.353 | PV  | 360                               | 1805    | 0.04%  | 0.001% |
| 489 | 22.360 | 22.353 | 22.364 | VV  | 559                               | 2623    | 0.06%  | 0.002% |
| 490 | 22.368 | 22.364 | 22.376 | VV  | 647                               | 2761    | 0.06%  | 0.002% |
| 491 | 22.381 | 22.376 | 22.385 | VV  | 297                               | 997     | 0.02%  | 0.001% |
| 492 | 22.396 | 22.385 | 22.401 | PBA | 380                               | 17246   | 0.39%  | 0.011% |
|     |        |        |        |     | Sum of corrected areas: 163380374 |         |        |        |

FF061325.M Tue Jul 01 04:14:53 2025



# CALIBRATION SUMMARY

**TPH GC INITIAL CALIBRATION SUMMARY**

Lab Name: Chemtech Contract: COPP02  
 ProjectID: Millville Sewage Treatment Plant - Field Sampling  
 Lab Code: CHEM Case No.: Q2409 SAS No.: Q2409 SDG No.: Q2409

| Calibration Sequence : FF061325 |            | Test : TPH GC    |                  |
|---------------------------------|------------|------------------|------------------|
| Concentration (PPM)             | Area Count | Reference Factor | File ID          |
| 1700                            | 202708062  | 119240           | FF015964.D       |
| 850                             | 99337935   | 116868           | FF015965.D       |
| 340                             | 42126327   | 123901           | FF015966.D       |
| 170                             | 20873459   | 122785           | FF015967.D       |
| 85                              | 11262958   | 132505           | FF015968.D       |
| AVG RF : 123060                 |            | % RSD : 4.857    | AVG RT : 15.0944 |

**TPH GC CONTINUING CALIBRATION SUMMARY**

**50 PPM TRPH STD**

Lab Name: Chemtech Contract: COPP02  
ProjectID: Millville Sewage Treatment Plant - Field Sampling  
Lab Code: CHEM Case No.: Q2409 SAS No.: Q2409 SDG No.: Q2409  
DataFile: FF016033.D Analyst Name: YP\AJ Analyst Date: 06-30-2025

| Conc. (PPM) | Area Count | RF     | Average RF | %D    |
|-------------|------------|--------|------------|-------|
| 850         | 113825525  | 133912 | 123060     | 8.818 |



Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
 Data File : FF016033.D  
 Signal(s) : FID2B.ch  
 Acq On : 30 Jun 2025 10:11  
 Operator : YP\AJ  
 Sample : 50 PPM TRPH STD  
 Misc :  
 ALS Vial : 53 Sample Multiplier: 1

Instrument :  
 FID\_F  
 ClientSampleId :  
 50 PPM TRPH STD

Integration File: autoint1.e  
 Quant Time: Jul 01 03:13:51 2025  
 Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
 Quant Title :  
 QLast Update : Fri Jun 13 15:23:30 2025  
 Response via : Initial Calibration  
 Integrator: ChemStation

Volume Inj. : 1uL  
 Signal Phase : Rxi-1ms  
 Signal Info : 20mx0.18mmx0.18um

| Compound                      | R.T.   | Response | Conc Units   |
|-------------------------------|--------|----------|--------------|
| -----                         |        |          |              |
| System Monitoring Compounds   |        |          |              |
| 9) S TETRACOSANE-d50 (SURR... | 15.098 | 6623779  | 54.858 ug/ml |
| Target Compounds              |        |          |              |
| 1) N-OCTANE                   | 2.082  | 6764508  | 53.310 ug/ml |
| 2) N-DECANE                   | 4.622  | 7205857  | 54.997 ug/ml |
| 3) N-DODECANE                 | 6.798  | 7353264  | 55.222 ug/ml |
| 4) N-TETRADECANE              | 8.630  | 7464245  | 55.693 ug/ml |
| 5) N-HEXADECANE               | 10.238 | 7532896  | 55.776 ug/ml |
| 6) N-OCTADECANE               | 11.683 | 7687017  | 55.449 ug/ml |
| 7) N-EICOSANE                 | 12.996 | 7750870  | 55.507 ug/ml |
| 8) N-DOCOSANE                 | 14.197 | 7484943  | 55.090 ug/ml |
| 10) N-TETRACOSANE             | 15.303 | 7416988  | 54.726 ug/ml |
| 11) N-HEXACOSANE              | 16.326 | 7300732  | 54.387 ug/ml |
| 12) N-OCTACOSANE              | 17.277 | 7197320  | 54.517 ug/ml |
| 13) N-TRIACONTANE             | 18.166 | 7306594  | 55.326 ug/ml |
| 14) N-DOTRIACONTANE           | 19.001 | 6981906  | 54.877 ug/ml |
| 15) N-TETRATRIACONTANE        | 19.786 | 6196816  | 55.412 ug/ml |
| 16) N-HEXATRIACONTANE         | 20.527 | 5106532  | 54.618 ug/ml |
| 17) N-OCTATRIACONTANE         | 21.290 | 4079959  | 50.246 ug/ml |
| 18) N-TETRACONTANE            | 22.248 | 2995078  | 42.708 ug/ml |
| -----                         |        |          |              |

(f)=RT Delta > 1/2 Window

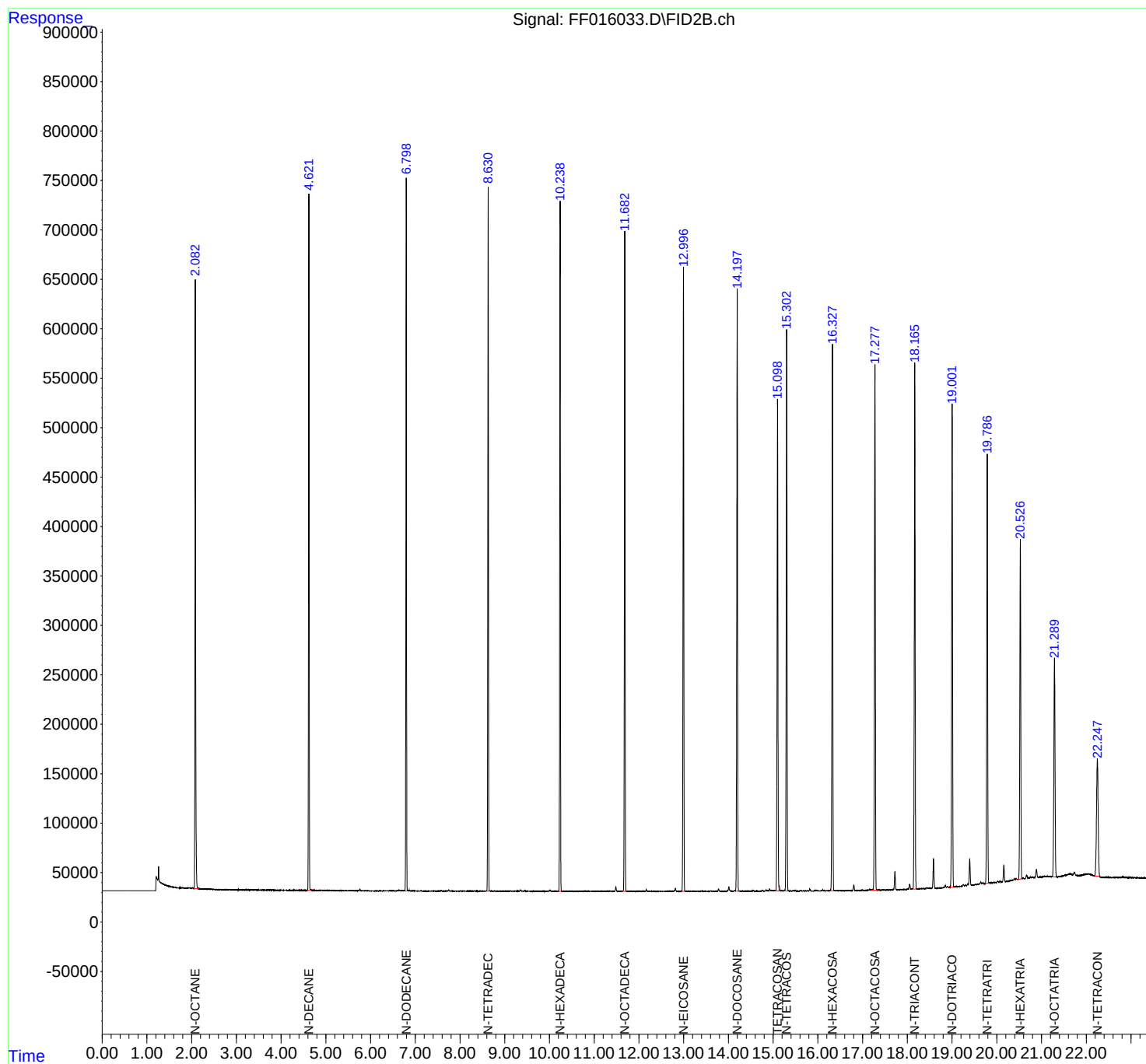
(m)=manual int.

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016033.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 10:11  
Operator : YP\AJ  
Sample : 50 PPM TRPH STD  
Misc :  
ALS Vial : 53 Sample Multiplier: 1

Instrument :  
FID\_F  
ClientSampleId :  
50 PPM TRPH STD

Integration File: autoint1.e  
Quant Time: Jul 01 03:13:51 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um



rteres

Area Percent Report

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016033.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 10:11  
Sample : 50 PPM TRPH STD  
Misc :  
ALS Vial : 53 Sample Multiplier: 1

Integration File: autoint1.e

Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Title :

Signal : FID2B.ch

| peak<br>#               | R.T.<br>min | Start<br>min | End<br>min | PK<br>TY | peak<br>height | peak<br>area | peak<br>% max. | % of<br>total |
|-------------------------|-------------|--------------|------------|----------|----------------|--------------|----------------|---------------|
| 1                       | 2.082       | 2.049        | 2.169      | BB       | 616180         | 6764508      | 87.27%         | 5.616%        |
| 2                       | 4.622       | 4.585        | 4.684      | BB       | 704825         | 7205857      | 92.97%         | 5.982%        |
| 3                       | 6.798       | 6.759        | 6.852      | BB       | 720594         | 7353264      | 94.87%         | 6.105%        |
| 4                       | 8.630       | 8.590        | 8.684      | BB       | 714254         | 7464245      | 96.30%         | 6.197%        |
| 5                       | 10.238      | 10.200       | 10.290     | BB       | 698235         | 7532896      | 97.19%         | 6.254%        |
| 6                       | 11.683      | 11.632       | 11.735     | BB       | 665774         | 7687017      | 99.18%         | 6.382%        |
| 7                       | 12.996      | 12.955       | 13.045     | BB       | 630558         | 7750870      | 100.00%        | 6.435%        |
| 8                       | 14.197      | 14.157       | 14.249     | VB       | 607770         | 7484943      | 96.57%         | 6.214%        |
| 9                       | 15.098      | 15.050       | 15.131     | BV       | 494906         | 6623779      | 85.46%         | 5.499%        |
| 10                      | 15.303      | 15.169       | 15.355     | VB       | 567505         | 7416988      | 95.69%         | 6.158%        |
| 11                      | 16.326      | 16.237       | 16.375     | BB       | 554824         | 7300732      | 94.19%         | 6.061%        |
| 12                      | 17.277      | 17.187       | 17.339     | BB       | 531110         | 7197320      | 92.86%         | 5.975%        |
| 13                      | 18.166      | 18.100       | 18.225     | BB       | 533027         | 7306594      | 94.27%         | 6.066%        |
| 14                      | 19.001      | 18.937       | 19.064     | BB       | 489033         | 6981906      | 90.08%         | 5.797%        |
| 15                      | 19.786      | 19.722       | 19.844     | BB       | 431384         | 6196816      | 79.95%         | 5.145%        |
| 16                      | 20.527      | 20.465       | 20.565     | BV       | 343847         | 5106532      | 65.88%         | 4.240%        |
| 17                      | 21.290      | 21.220       | 21.352     | BB       | 220902         | 4079959      | 52.64%         | 3.387%        |
| 18                      | 22.248      | 22.169       | 22.300     | BBA      | 118932         | 2995078      | 38.64%         | 2.487%        |
| Sum of corrected areas: |             |              |            |          |                | 120449303    |                |               |

FF061325.M Tue Jul 01 04:06:22 2025

**TPH GC CONTINUING CALIBRATION SUMMARY**

**50 PPM TRPH STD**

Lab Name: Chemtech Contract: COPP02  
ProjectID: Millville Sewage Treatment Plant - Field Sampling  
Lab Code: CHEM Case No.: Q2409 SAS No.: Q2409 SDG No.: Q2409  
DataFile: FF016041.D Analyst Name: YP\AJ Analyst Date: 06-30-2025

| Conc. (PPM) | Area Count | RF     | Average RF | %D    |
|-------------|------------|--------|------------|-------|
| 850         | 103469129  | 121728 | 123060     | 1.082 |

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
 Data File : FF016041.D  
 Signal(s) : FID2B.ch  
 Acq On : 30 Jun 2025 17:41  
 Operator : YP\AJ  
 Sample : 50 PPM TRPH STD  
 Misc :  
 ALS Vial : 53 Sample Multiplier: 1

Instrument :  
 FID\_F  
 ClientSampleId :  
 50 PPM TRPH STD

Integration File: autoint1.e  
 Quant Time: Jul 01 03:15:26 2025  
 Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
 Quant Title :  
 QLast Update : Fri Jun 13 15:23:30 2025  
 Response via : Initial Calibration  
 Integrator: ChemStation

Volume Inj. : 1uL  
 Signal Phase : Rxi-1ms  
 Signal Info : 20mx0.18mmx0.18um

| Compound                      | R.T.   | Response | Conc Units   |
|-------------------------------|--------|----------|--------------|
| -----                         |        |          |              |
| System Monitoring Compounds   |        |          |              |
| 9) S TETRACOSANE-d50 (SURR... | 15.098 | 5741346  | 47.550 ug/ml |
| Target Compounds              |        |          |              |
| 1) N-OCTANE                   | 2.080  | 5939884  | 46.812 ug/ml |
| 2) N-DECANE                   | 4.618  | 6362459  | 48.560 ug/ml |
| 3) N-DODECANE                 | 6.796  | 6504746  | 48.850 ug/ml |
| 4) N-TETRADECANE              | 8.629  | 6599538  | 49.242 ug/ml |
| 5) N-HEXADECANE               | 10.238 | 6629281  | 49.086 ug/ml |
| 6) N-OCTADECANE               | 11.683 | 6752367  | 48.707 ug/ml |
| 7) N-EICOSANE                 | 12.996 | 6798093  | 48.684 ug/ml |
| 8) N-DOCOSANE                 | 14.196 | 6565087  | 48.320 ug/ml |
| 10) N-TETRACOSANE             | 15.303 | 6509318  | 48.029 ug/ml |
| 11) N-HEXACOSANE              | 16.326 | 6433772  | 47.929 ug/ml |
| 12) N-OCTACOSANE              | 17.278 | 6383057  | 48.350 ug/ml |
| 13) N-TRIACONTANE             | 18.167 | 6546226  | 49.568 ug/ml |
| 14) N-DOTRIACONTANE           | 19.003 | 6347621  | 49.892 ug/ml |
| 15) N-TETRATRIACONTANE        | 19.788 | 5755288  | 51.464 ug/ml |
| 16) N-HEXATRIACONTANE         | 20.529 | 4956234  | 53.011 ug/ml |
| 17) N-OCTATRIACONTANE         | 21.294 | 4404243  | 54.240 ug/ml |
| 18) N-TETRACONTANE            | 22.255 | 3981915  | 56.779 ug/ml |
| -----                         |        |          |              |

(f)=RT Delta > 1/2 Window

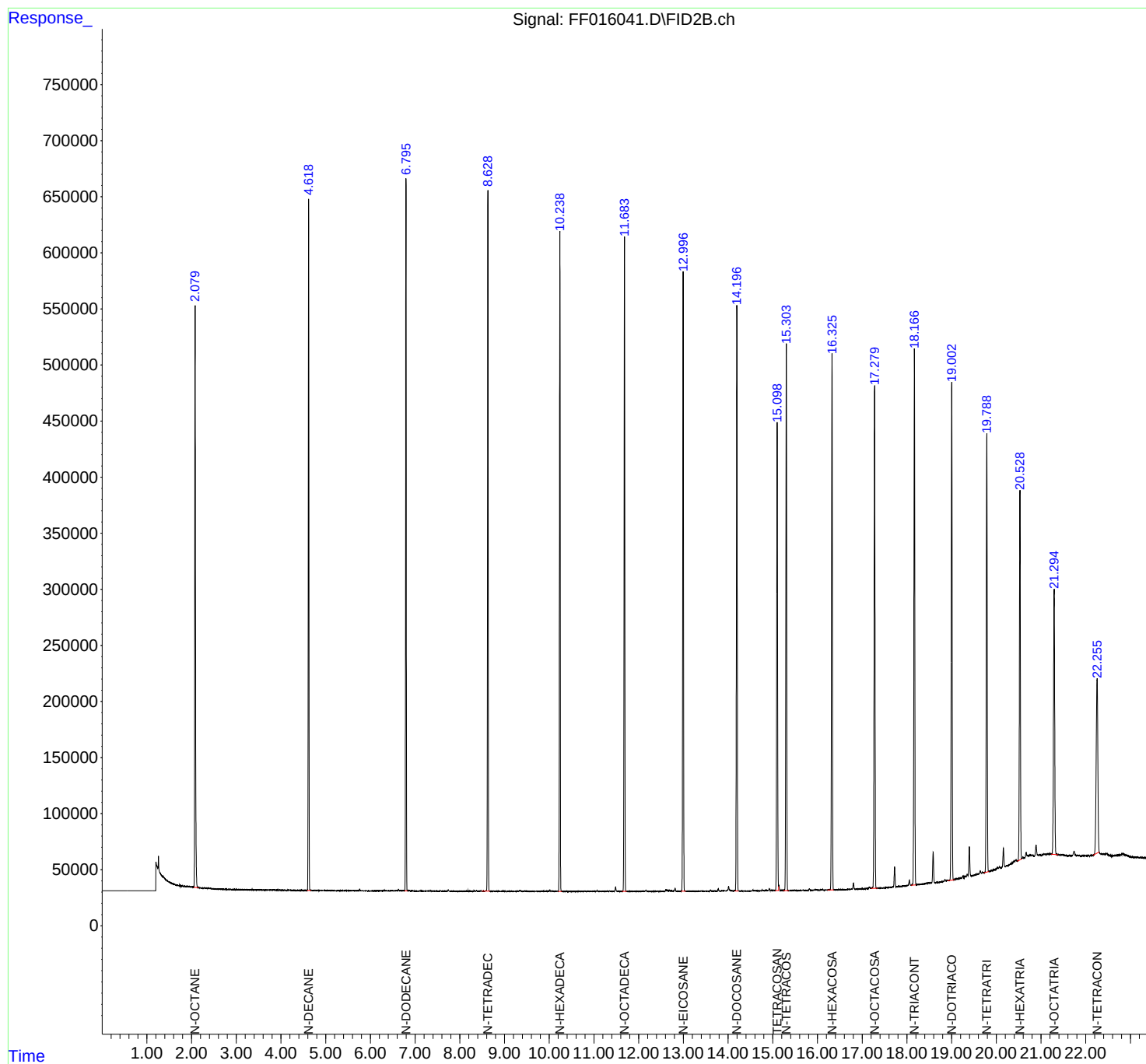
(m)=manual int.

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016041.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 17:41  
Operator : YP\AJ  
Sample : 50 PPM TRPH STD  
Misc :  
ALS Vial : 53 Sample Multiplier: 1

Instrument :  
FID\_F  
ClientSampleId :  
50 PPM TRPH STD

Integration File: autoint1.e  
Quant Time: Jul 01 03:15:26 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um



rteres

Area Percent Report

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016041.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 17:41  
Sample : 50 PPM TRPH STD  
Misc :  
ALS Vial : 53 Sample Multiplier: 1

Integration File: autoint1.e

Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Title :

Signal : FID2B.ch

| peak<br>#               | R.T.<br>min | Start<br>min | End<br>min | PK<br>TY | peak<br>height | peak<br>area | peak<br>% max. | % of<br>total |
|-------------------------|-------------|--------------|------------|----------|----------------|--------------|----------------|---------------|
| 1                       | 2.080       | 2.046        | 2.157      | BB       | 518534         | 5939884      | 87.38%         | 5.439%        |
| 2                       | 4.618       | 4.586        | 4.674      | BB       | 615718         | 6362459      | 93.59%         | 5.826%        |
| 3                       | 6.796       | 6.761        | 6.831      | BB       | 635664         | 6504746      | 95.68%         | 5.956%        |
| 4                       | 8.629       | 8.492        | 8.672      | BB       | 625454         | 6599538      | 97.08%         | 6.043%        |
| 5                       | 10.238      | 10.201       | 10.282     | BB       | 588232         | 6629281      | 97.52%         | 6.070%        |
| 6                       | 11.683      | 11.626       | 11.729     | BB       | 583207         | 6752367      | 99.33%         | 6.183%        |
| 7                       | 12.996      | 12.952       | 13.052     | BB       | 552393         | 6798093      | 100.00%        | 6.225%        |
| 8                       | 14.196      | 14.159       | 14.234     | VB       | 521265         | 6565087      | 96.57%         | 6.011%        |
| 9                       | 15.098      | 15.054       | 15.131     | BV       | 415556         | 5741346      | 84.46%         | 5.257%        |
| 10                      | 15.303      | 15.232       | 15.359     | BB       | 486520         | 6509318      | 95.75%         | 5.960%        |
| 11                      | 16.326      | 16.222       | 16.366     | BB       | 477941         | 6433772      | 94.64%         | 5.891%        |
| 12                      | 17.278      | 17.194       | 17.339     | BB       | 447313         | 6383057      | 93.89%         | 5.845%        |
| 13                      | 18.167      | 18.094       | 18.202     | BB       | 477371         | 6546226      | 96.30%         | 5.994%        |
| 14                      | 19.003      | 18.914       | 19.064     | BB       | 443551         | 6347621      | 93.37%         | 5.812%        |
| 15                      | 19.788      | 19.717       | 19.826     | BV       | 390922         | 5755288      | 84.66%         | 5.270%        |
| 16                      | 20.529      | 20.467       | 20.566     | BV       | 328816         | 4956234      | 72.91%         | 4.538%        |
| 17                      | 21.294      | 21.224       | 21.384     | BB       | 237036         | 4404243      | 64.79%         | 4.033%        |
| 18                      | 22.255      | 22.161       | 22.300     | BBA      | 156033         | 3981915      | 58.57%         | 3.646%        |
| Sum of corrected areas: |             |              |            |          |                | 109210474    |                |               |

FF061325.M Tue Jul 01 04:08:22 2025

## Analytical Sequence

**Client:** Coppola Services

**SDG No.:** Q2409

**Project:** Millville Sewage Treatment Plant - Field Sampling

**Instrument ID:** FID\_F

**GC Column:** RXI-1MS      **ID:** 0.18      (mm)

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES,  
AND STANDARDS IS GIVEN BELOW:

| MEAN SUROGATE RT FROM INITIAL CALIBRATION <b>15.0944</b> |                  |                           |            |        |   |
|----------------------------------------------------------|------------------|---------------------------|------------|--------|---|
| EPA<br>SAMPLE NO.                                        | LAB<br>SAMPLE ID | DATE AND TIME<br>ANALYZED | DATAFILE   | RT     | # |
| PIBLK01                                                  | LBLK01           | 30 Jun 2025 09:42         | FF016032.D | 15.094 |   |
| 50 PPM TRPH STD                                          | 50 PPM TRPH STD  | 30 Jun 2025 10:11         | FF016033.D | 15.098 |   |
| PB168659BL                                               | PB168659BL       | 30 Jun 2025 13:39         | FF016035.D | 15.093 |   |
| PB168659BS                                               | PB168659BS       | 30 Jun 2025 14:09         | FF016036.D | 15.094 |   |
| COP-SOIL-PILE                                            | Q2409-02         | 30 Jun 2025 14:39         | FF016037.D | 15.096 |   |
| COP-SOIL-PILEMS                                          | Q2409-02MS       | 30 Jun 2025 15:09         | FF016038.D | 15.096 |   |
| COP-SOIL-PILEMSD                                         | Q2409-02MSD      | 30 Jun 2025 15:39         | FF016039.D | 15.098 |   |
| PIBLK02                                                  | LBLK02           | 30 Jun 2025 16:09         | FF016040.D | 15.096 |   |
| 50 PPM TRPH STD                                          | 50 PPM TRPH STD  | 30 Jun 2025 17:41         | FF016041.D | 15.098 |   |





# QC SAMPLE DATA

## Report of Analysis

|                    |                                                   |                    |        |
|--------------------|---------------------------------------------------|--------------------|--------|
| Client:            | Coppola Services                                  | Date Collected:    |        |
| Project:           | Millville Sewage Treatment Plant - Field Sampling | Date Received:     |        |
| Client Sample ID:  | PB168659BL                                        | SDG No.:           | Q2409  |
| Lab Sample ID:     | PB168659BL                                        | Matrix:            | SOIL   |
| Analytical Method: | 8015D TPH                                         | % Solid:           | 100    |
| Sample Wt/Vol:     | 30.01                                             | Units:             | g      |
| Soil Aliquot Vol:  |                                                   |                    | uL     |
| Extraction Type:   |                                                   | Final Vol:         | 1      |
| GPC Factor :       |                                                   | Test:              | TPH GC |
| Prep Method :      | SW3541                                            | Injection Volume : |        |

|                   |           |                |                |               |
|-------------------|-----------|----------------|----------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date      | Date Analyzed  | Prep Batch ID |
| FF016035.D        | 1         | 06/30/25 09:20 | 06/30/25 13:39 | PB168659      |

| CAS Number        | Parameter              | Conc. | Qualifier | MDL      | LOQ / CRQL | Units(Dry Weight) |
|-------------------|------------------------|-------|-----------|----------|------------|-------------------|
| <b>TARGETS</b>    |                        |       |           |          |            |                   |
| PHC               | Petroleum Hydrocarbons | 384   | U         | 384      | 2830       | ug/kg             |
| <b>SURROGATES</b> |                        |       |           |          |            |                   |
| 16416-32-3        | TETRACOSANE-d50        | 15.2  |           | 37 - 130 | 76%        | SPK: 20           |

### Comments:

U = Not Detected  
 LOQ = Limit of Quantitation  
 MDL = Method Detection Limit  
 LOD = Limit of Detection  
 E = Value Exceeds Calibration Range  
 P = Indicates >25% difference for detected concentrations between the two GC columns  
 Q = indicates LCS control criteria did not meet requirements  
 M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value  
 B = Analyte Found in Associated Method Blank  
 N = Presumptive Evidence of a Compound  
 \* = Values outside of QC limits  
 D = Dilution  
 S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.  
 () = Laboratory InHouse Limit

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016035.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 13:39  
Operator : YP\AJ  
Sample : PB168659BL  
Misc :  
ALS Vial : 71 Sample Multiplier: 1

Instrument :  
FID\_F  
ClientSampleId :  
PB168659BL

Integration File: autoint1.e  
Quant Time: Jul 01 03:14:15 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um

| Compound                      | R.T.   | Response | Conc Units   |
|-------------------------------|--------|----------|--------------|
| -----                         |        |          |              |
| System Monitoring Compounds   |        |          |              |
| 9) S TETRACOSANE-d50 (SURR... | 15.093 | 1839507  | 15.235 ug/ml |

Target Compounds  
-----

(f)=RT Delta > 1/2 Window

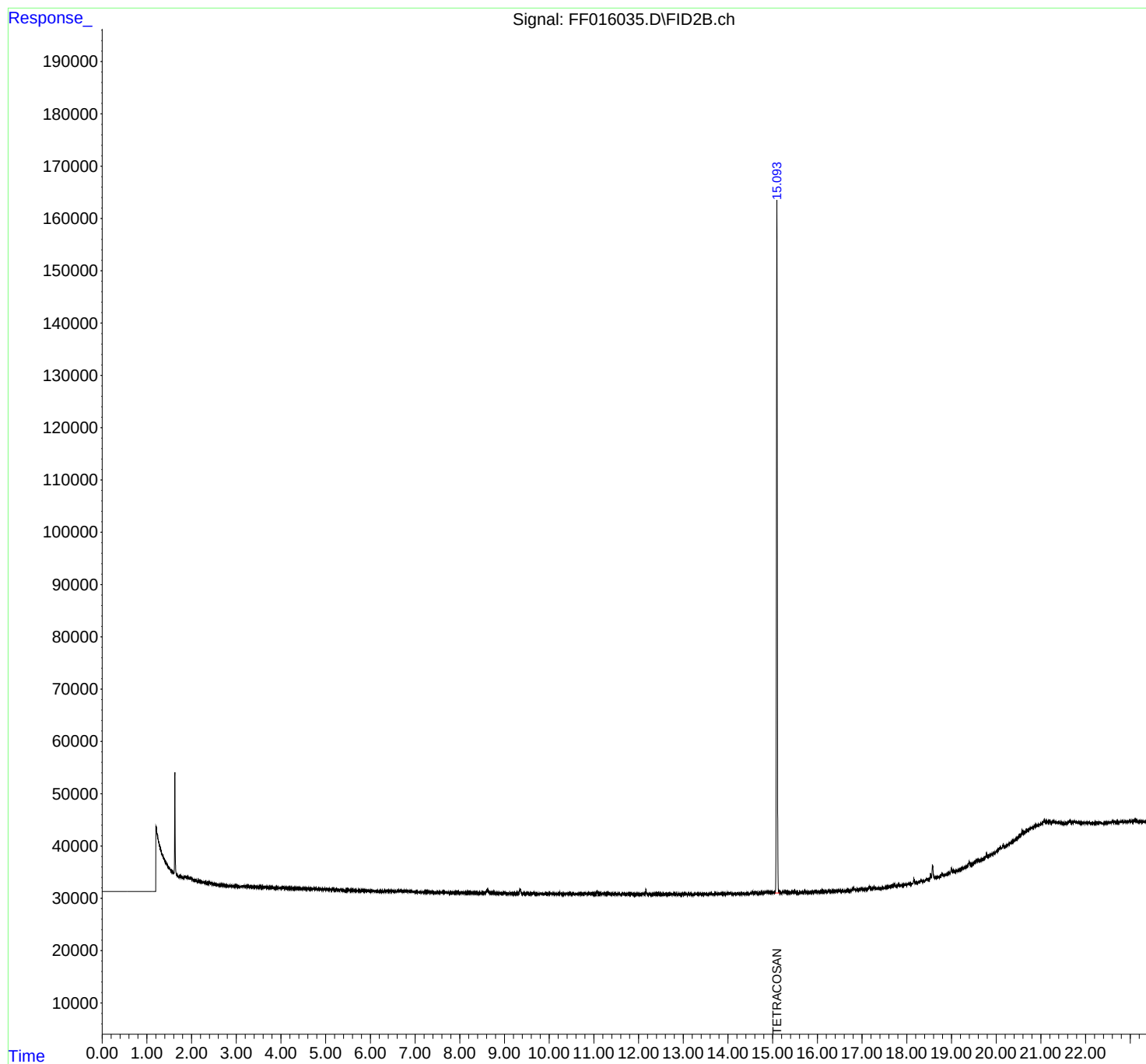
(m)=manual int.

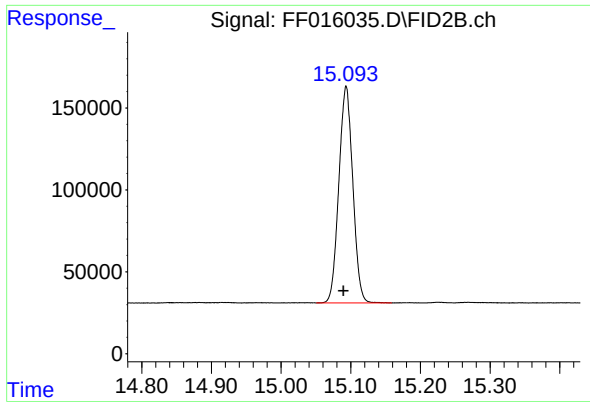
Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016035.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 13:39  
Operator : YP\AJ  
Sample : PB168659BL  
Misc :  
ALS Vial : 71 Sample Multiplier: 1

Instrument :  
FID\_F  
ClientSampleId :  
PB168659BL

Integration File: autoint1.e  
Quant Time: Jul 01 03:14:15 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um





#9 TETRACOSANE-d50 (SURROGATE)

R.T.: 15.093 min  
Delta R.T.: 0.004 min  
Response: 1839507  
Conc: 15.23 ug/ml

Instrument :  
FID\_F  
ClientSampleId :  
PB168659BL

rteres

Area Percent Report

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016035.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 13:39  
Sample : PB168659BL  
Misc :  
ALS Vial : 71 Sample Multiplier: 1

Integration File: autoint1.e

Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Title :

Signal : FID2B.ch

| peak<br>#               | R.T.<br>min | Start<br>min | End<br>min | PK<br>TY | peak<br>height | peak<br>area | peak<br>% max. | % of<br>total |
|-------------------------|-------------|--------------|------------|----------|----------------|--------------|----------------|---------------|
| 1                       | 15.093      | 15.050       | 15.159     | BB       | 132405         | 1839507      | 100.00%        | 100.000%      |
| Sum of corrected areas: |             |              |            |          |                | 1839507      |                |               |

FF061325.M Tue Jul 01 04:06:51 2025

## Report of Analysis

|                    |                                                   |                    |          |
|--------------------|---------------------------------------------------|--------------------|----------|
| Client:            | Coppola Services                                  | Date Collected:    | 06/30/25 |
| Project:           | Millville Sewage Treatment Plant - Field Sampling | Date Received:     | 06/30/25 |
| Client Sample ID:  | PIBLK-FF016032.D                                  | SDG No.:           | Q2409    |
| Lab Sample ID:     | I.BLK-FF016032.D                                  | Matrix:            | Water    |
| Analytical Method: | 8015D TPH                                         | % Solid:           | 0        |
| Sample Wt/Vol:     | 1000 Units: mL                                    | Decanted:          |          |
| Soil Aliquot Vol:  | uL                                                | Final Vol:         | 1 mL     |
| Extraction Type:   |                                                   | Test:              | TPH GC   |
| GPC Factor :       | PH :                                              | Injection Volume : |          |
| Prep Method :      | SW3510                                            |                    |          |

|                   |           |           |               |               |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| FF016032.D        | 1         |           | 06/30/25      | FF063025      |

| CAS Number        | Parameter              | Conc. | Qualifier | MDL      | LOQ / CRQL | Units   |
|-------------------|------------------------|-------|-----------|----------|------------|---------|
| <b>TARGETS</b>    |                        |       |           |          |            |         |
| PHC               | Petroleum Hydrocarbons | 12.0  | U         | 12.0     | 85.0       | ug/L    |
| <b>SURROGATES</b> |                        |       |           |          |            |         |
| 16416-32-3        | TETRACOSANE-d50        | 20.7  |           | 29 - 130 | 104%       | SPK: 20 |

### Comments:

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

E = Value Exceeds Calibration Range

P = Indicates >25% difference for detected concentrations between the two GC columns

Q = indicates LCS control criteria did not meet requirements

M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

\* = Values outside of QC limits

D = Dilution

S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

() = Laboratory InHouse Limit

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016032.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 09:42  
Operator : YP\AJ  
Sample : I.BLK  
Misc :  
ALS Vial : 52 Sample Multiplier: 1

Instrument :  
FID\_F  
ClientSampleId :  
I.BLK

Integration File: autoint1.e  
Quant Time: Jul 01 03:13:42 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um

| Compound                      | R.T.   | Response | Conc Units   |
|-------------------------------|--------|----------|--------------|
| -----                         |        |          |              |
| System Monitoring Compounds   |        |          |              |
| 9) S TETRACOSANE-d50 (SURR... | 15.094 | 2502132  | 20.723 ug/ml |
| Target Compounds              |        |          |              |
| -----                         |        |          |              |

(f)=RT Delta > 1/2 Window

(m)=manual int.

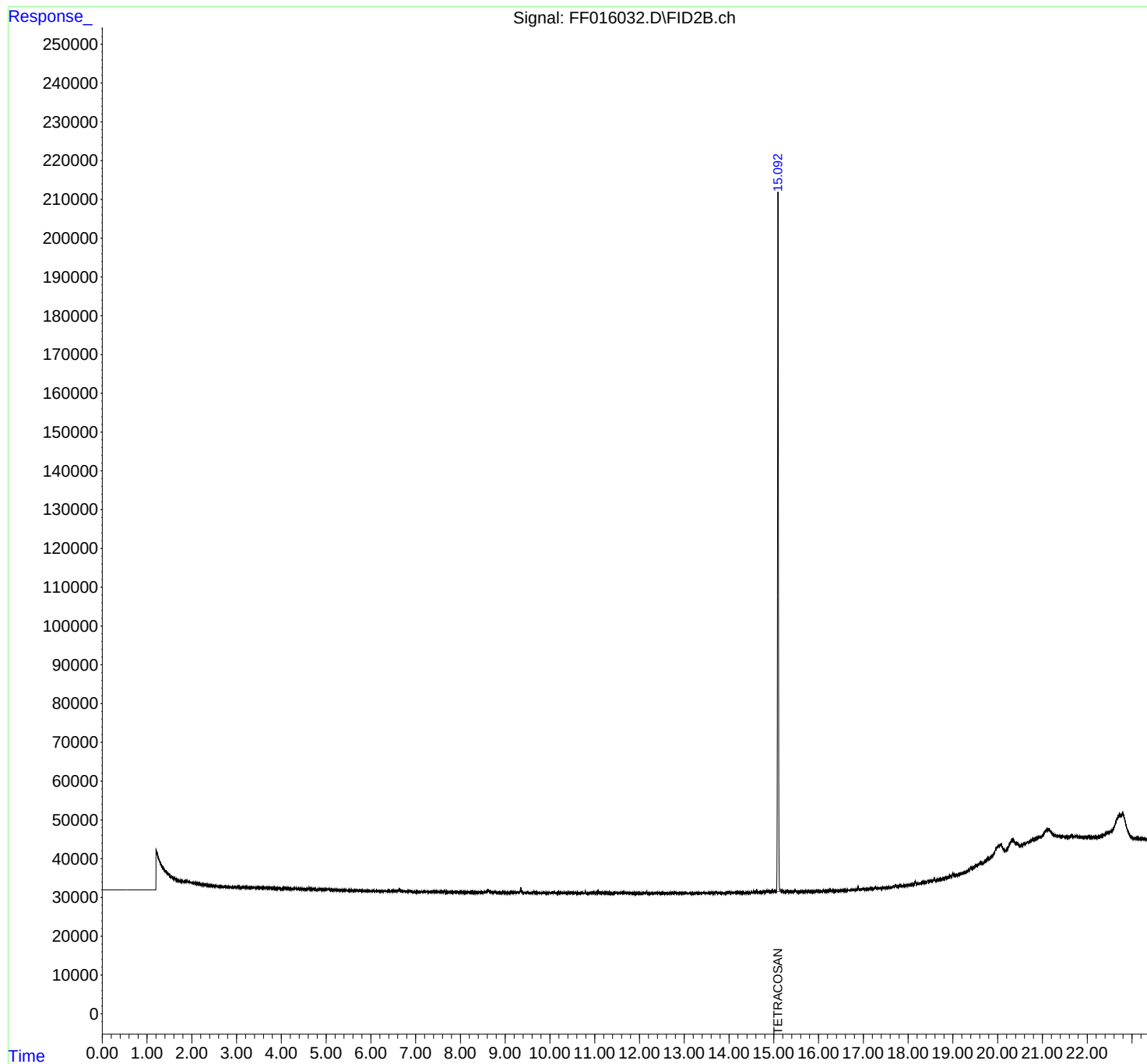


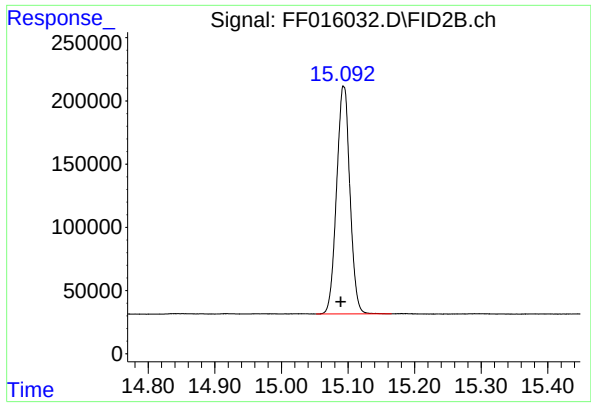
Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016032.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 09:42  
Operator : YP\AJ  
Sample : I.BLK  
Misc :  
ALS Vial : 52 Sample Multiplier: 1

Instrument :  
FID\_F  
ClientSampleId :  
I.BLK

Integration File: autoint1.e  
Quant Time: Jul 01 03:13:42 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um





#9 TETRACOSANE-d50 (SURROGATE)

R.T.: 15.094 min  
Delta R.T.: 0.004 min  
Response: 2502132  
Conc: 20.72 ug/ml

Instrument :  
FID\_F  
ClientSampleId :  
I.BLK

rteres

Area Percent Report

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016032.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 09:42  
Sample : I.BLK  
Misc :  
ALS Vial : 52 Sample Multiplier: 1

Integration File: autoint1.e

Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Title :

Signal : FID2B.ch

| peak<br>#               | R.T.<br>min | Start<br>min | End<br>min | PK<br>TY | peak<br>height | peak<br>area | peak<br>% max. | % of<br>total |
|-------------------------|-------------|--------------|------------|----------|----------------|--------------|----------------|---------------|
| 1                       | 15.094      | 15.052       | 15.165     | BB       | 179710         | 2502132      | 100.00%        | 100.000%      |
| Sum of corrected areas: |             |              |            |          |                | 2502132      |                |               |

FF061325.M Tue Jul 01 04:04:03 2025

## Report of Analysis

|                    |                                                   |                    |          |
|--------------------|---------------------------------------------------|--------------------|----------|
| Client:            | Coppola Services                                  | Date Collected:    | 06/30/25 |
| Project:           | Millville Sewage Treatment Plant - Field Sampling | Date Received:     | 06/30/25 |
| Client Sample ID:  | PIBLK-FF016040.D                                  | SDG No.:           | Q2409    |
| Lab Sample ID:     | I.BLK-FF016040.D                                  | Matrix:            | Water    |
| Analytical Method: | 8015D TPH                                         | % Solid:           | 0        |
| Sample Wt/Vol:     | 1000 Units: mL                                    | Decanted:          |          |
| Soil Aliquot Vol:  | uL                                                | Final Vol:         | 1 mL     |
| Extraction Type:   |                                                   | Test:              | TPH GC   |
| GPC Factor :       | PH :                                              | Injection Volume : |          |
| Prep Method :      | SW3510                                            |                    |          |

|                   |           |           |               |               |
|-------------------|-----------|-----------|---------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date | Date Analyzed | Prep Batch ID |
| FF016040.D        | 1         |           | 06/30/25      | FF063025      |

| CAS Number        | Parameter              | Conc. | Qualifier | MDL      | LOQ / CRQL | Units   |
|-------------------|------------------------|-------|-----------|----------|------------|---------|
| <b>TARGETS</b>    |                        |       |           |          |            |         |
| PHC               | Petroleum Hydrocarbons | 12.0  | U         | 12.0     | 85.0       | ug/L    |
| <b>SURROGATES</b> |                        |       |           |          |            |         |
| 16416-32-3        | TETRACOSANE-d50        | 14.7  |           | 29 - 130 | 74%        | SPK: 20 |

### Comments:

U = Not Detected  
 LOQ = Limit of Quantitation  
 MDL = Method Detection Limit  
 LOD = Limit of Detection  
 E = Value Exceeds Calibration Range  
 P = Indicates >25% difference for detected concentrations between the two GC columns  
 Q = indicates LCS control criteria did not meet requirements  
 M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value  
 B = Analyte Found in Associated Method Blank  
 N = Presumptive Evidence of a Compound  
 \* = Values outside of QC limits  
 D = Dilution  
 S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.  
 () = Laboratory InHouse Limit

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016040.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 16:09  
Operator : YP\AJ  
Sample : I.BLK  
Misc :  
ALS Vial : 52 Sample Multiplier: 1

Instrument :  
FID\_F  
ClientSampleId :  
I.BLK

Integration File: autoint1.e  
Quant Time: Jul 01 03:15:16 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um

| Compound                      | R.T.   | Response | Conc Units   |
|-------------------------------|--------|----------|--------------|
| -----                         |        |          |              |
| System Monitoring Compounds   |        |          |              |
| 9) S TETRACOSANE-d50 (SURR... | 15.096 | 1776455  | 14.713 ug/ml |

Target Compounds

-----

(f)=RT Delta > 1/2 Window

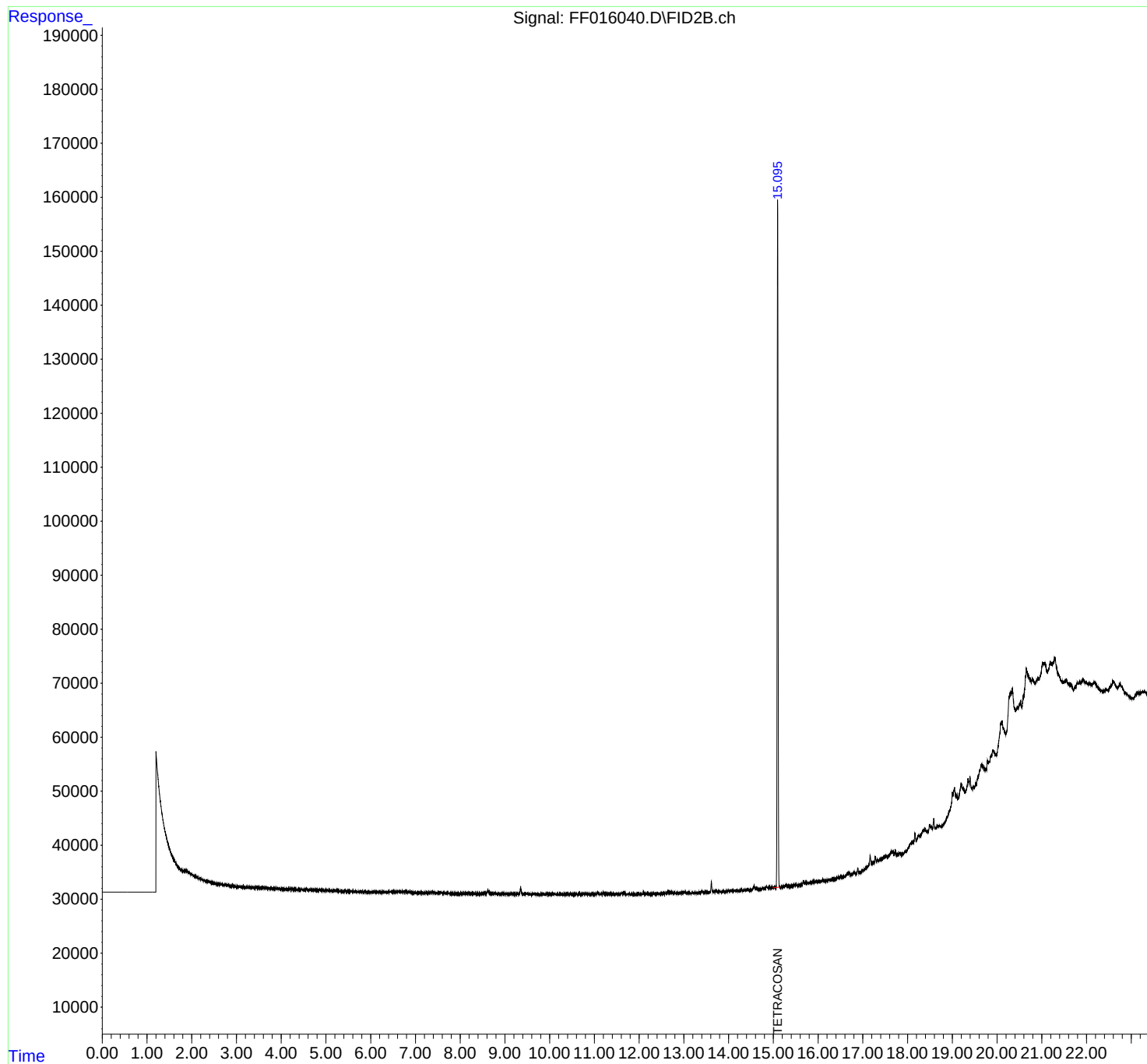
(m)=manual int.

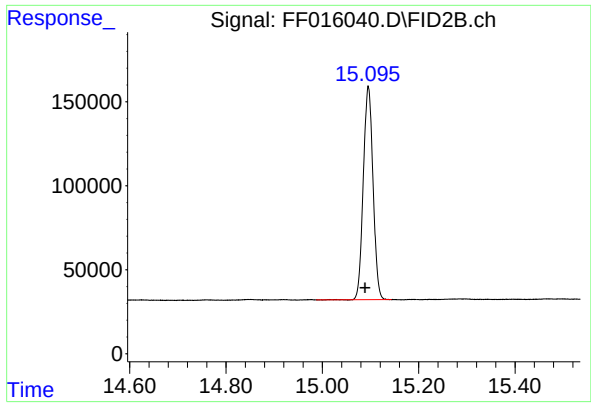
Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016040.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 16:09  
Operator : YP\AJ  
Sample : I.BLK  
Misc :  
ALS Vial : 52 Sample Multiplier: 1

Instrument :  
FID\_F  
ClientSampleId :  
I.BLK

Integration File: autoint1.e  
Quant Time: Jul 01 03:15:16 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um





#9 TETRACOSANE-d50 (SURROGATE)

R.T.: 15.096 min  
Delta R.T.: 0.006 min  
Response: 1776455  
Conc: 14.71 ug/ml

Instrument :  
FID\_F  
ClientSampleId :  
I.BLK

rteres

Area Percent Report

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016040.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 16:09  
Sample : I.BLK  
Misc :  
ALS Vial : 52 Sample Multiplier: 1

Integration File: autoint1.e

Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Title :

Signal : FID2B.ch

| peak<br>#               | R.T.<br>min | Start<br>min | End<br>min | PK<br>TY | peak<br>height | peak<br>area | peak<br>% max. | % of<br>total |
|-------------------------|-------------|--------------|------------|----------|----------------|--------------|----------------|---------------|
| 1                       | 15.096      | 14.987       | 15.144     | BB       | 127169         | 1776455      | 100.00%        | 100.000%      |
| Sum of corrected areas: |             |              |            |          |                | 1776455      |                |               |

FF061325.M Tue Jul 01 04:07:26 2025



## Report of Analysis

|                    |                                                   |                    |        |
|--------------------|---------------------------------------------------|--------------------|--------|
| Client:            | Coppola Services                                  | Date Collected:    |        |
| Project:           | Millville Sewage Treatment Plant - Field Sampling | Date Received:     |        |
| Client Sample ID:  | PB168659BS                                        | SDG No.:           | Q2409  |
| Lab Sample ID:     | PB168659BS                                        | Matrix:            | SOIL   |
| Analytical Method: | 8015D TPH                                         | % Solid:           | 100    |
| Sample Wt/Vol:     | 30.02                                             | Units:             | g      |
| Soil Aliquot Vol:  |                                                   |                    | uL     |
| Extraction Type:   |                                                   | Final Vol:         | 1      |
| GPC Factor :       |                                                   | Test:              | TPH GC |
| Prep Method :      | SW3541                                            | Injection Volume : |        |

|                   |           |                |                |               |
|-------------------|-----------|----------------|----------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date      | Date Analyzed  | Prep Batch ID |
| FF016036.D        | 1         | 06/30/25 09:20 | 06/30/25 14:09 | PB168659      |

| CAS Number        | Parameter              | Conc. | Qualifier | MDL      | LOQ / CRQL | Units(Dry Weight) |
|-------------------|------------------------|-------|-----------|----------|------------|-------------------|
| <b>TARGETS</b>    |                        |       |           |          |            |                   |
| PHC               | Petroleum Hydrocarbons | 12300 |           | 384      | 2830       | ug/kg             |
| <b>SURROGATES</b> |                        |       |           |          |            |                   |
| 16416-32-3        | TETRACOSANE-d50        | 15.8  |           | 37 - 130 | 79%        | SPK: 20           |

### Comments:

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

E = Value Exceeds Calibration Range

P = Indicates >25% difference for detected concentrations between the two GC columns

Q = indicates LCS control criteria did not meet requirements

M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

\* = Values outside of QC limits

D = Dilution

S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

() = Laboratory InHouse Limit

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
 Data File : FF016036.D  
 Signal(s) : FID2B.ch  
 Acq On : 30 Jun 2025 14:09  
 Operator : YP\AJ  
 Sample : PB168659BS  
 Misc :  
 ALS Vial : 72 Sample Multiplier: 1

Instrument :  
 FID\_F  
 ClientSampleId :  
 PB168659BS

Integration File: autoint1.e  
 Quant Time: Jul 01 03:14:24 2025  
 Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
 Quant Title :  
 QLast Update : Fri Jun 13 15:23:30 2025  
 Response via : Initial Calibration  
 Integrator: ChemStation

Volume Inj. : 1uL  
 Signal Phase : Rxi-1ms  
 Signal Info : 20mx0.18mmx0.18um

| Compound                      | R.T.   | Response | Conc Units   |
|-------------------------------|--------|----------|--------------|
| -----                         |        |          |              |
| System Monitoring Compounds   |        |          |              |
| 9) S TETRACOSANE-d50 (SURR... | 15.094 | 1909745  | 15.816 ug/ml |
| Target Compounds              |        |          |              |
| 1) N-OCTANE                   | 2.084  | 2874212  | 22.651 ug/ml |
| 2) N-DECANE                   | 4.620  | 3139172  | 23.959 ug/ml |
| 3) N-DODECANE                 | 6.795  | 3272270  | 24.574 ug/ml |
| 4) N-TETRADECANE              | 8.627  | 3215688  | 23.993 ug/ml |
| 5) N-HEXADECANE               | 10.236 | 3289138  | 24.354 ug/ml |
| 6) N-OCTADECANE               | 11.681 | 3407872  | 24.582 ug/ml |
| 7) N-EICOSANE                 | 12.993 | 3331386  | 23.857 ug/ml |
| 8) N-DOCOSANE                 | 14.193 | 3288687  | 24.205 ug/ml |
| 10) N-TETRACOSANE             | 15.299 | 3267439  | 24.109 ug/ml |
| 11) N-HEXACOSANE              | 16.324 | 3180493  | 23.693 ug/ml |
| 12) N-OCTACOSANE              | 17.275 | 3100410  | 23.485 ug/ml |
| 13) N-TRIACONTANE             | 18.164 | 2963413  | 22.439 ug/ml |
| 14) N-DOTRIACONTANE           | 18.999 | 2509746  | 19.726 ug/ml |
| 15) N-TETRATRIACONTANE        | 19.783 | 1623241  | 14.515 ug/ml |
| 16) N-HEXATRIACONTANE         | 20.524 | 1131269  | 12.100 ug/ml |
| 17) N-OCTATRIACONTANE         | 21.286 | 961158   | 11.837 ug/ml |
| 18) N-TETRACONTANE            | 22.247 | 772582   | 11.016 ug/ml |
| -----                         |        |          |              |

(f)=RT Delta > 1/2 Window

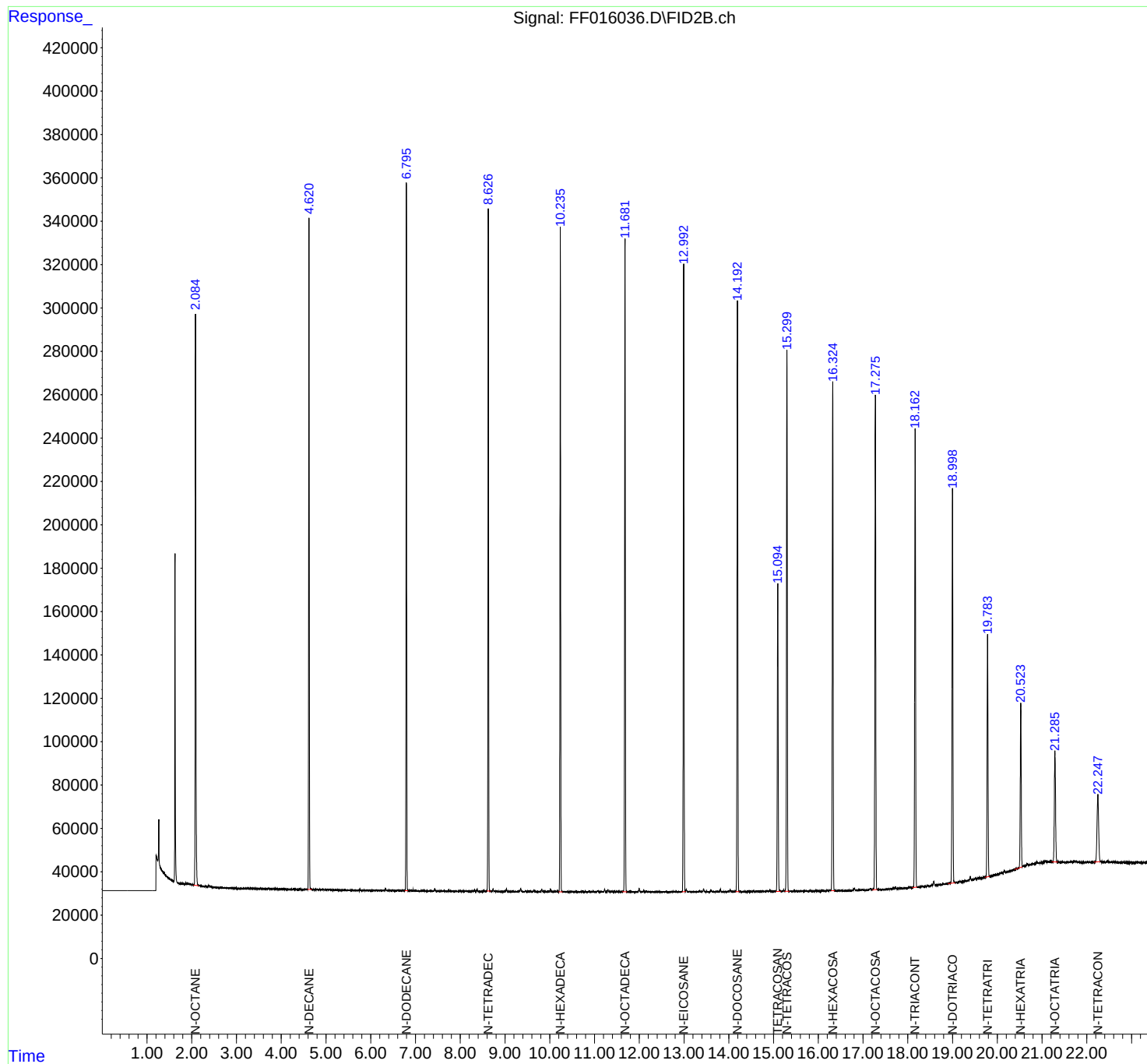
(m)=manual int.

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016036.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 14:09  
Operator : YP\AJ  
Sample : PB168659BS  
Misc :  
ALS Vial : 72 Sample Multiplier: 1

Instrument :  
FID\_F  
ClientSampleId :  
PB168659BS

Integration File: autoint1.e  
Quant Time: Jul 01 03:14:24 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um



rteres

# Area Percent Report

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
 Data File : FF016036.D  
 Signal(s) : FID2B.ch  
 Acq On : 30 Jun 2025 14:09  
 Sample : PB168659BS  
 Misc :  
 ALS Vial : 72 Sample Multiplier: 1

Integration File: autoint1.e

Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
 Title :

Signal : FID2B.ch

| peak<br>#               | R.T.<br>min | Start<br>min | End<br>min | PK<br>TY | peak<br>height | peak<br>area | peak<br>% max. | % of<br>total |
|-------------------------|-------------|--------------|------------|----------|----------------|--------------|----------------|---------------|
| 1                       | 2.084       | 2.042        | 2.157      | BB       | 263123         | 2874212      | 84.34%         | 6.085%        |
| 2                       | 4.620       | 4.587        | 4.679      | BB       | 309150         | 3139172      | 92.12%         | 6.645%        |
| 3                       | 6.795       | 6.757        | 6.836      | BB       | 326062         | 3272270      | 96.02%         | 6.927%        |
| 4                       | 8.627       | 8.594        | 8.676      | BB       | 314670         | 3215688      | 94.36%         | 6.807%        |
| 5                       | 10.236      | 10.199       | 10.287     | BB       | 306236         | 3289138      | 96.52%         | 6.963%        |
| 6                       | 11.681      | 11.624       | 11.726     | BB       | 301433         | 3407872      | 100.00%        | 7.214%        |
| 7                       | 12.993      | 12.956       | 13.031     | BV       | 288817         | 3331386      | 97.76%         | 7.052%        |
| 8                       | 14.193      | 14.152       | 14.237     | BB       | 271571         | 3288687      | 96.50%         | 6.962%        |
| 9                       | 15.094      | 15.056       | 15.162     | BB       | 141831         | 1909745      | 56.04%         | 4.043%        |
| 10                      | 15.299      | 15.251       | 15.357     | BB       | 249669         | 3267439      | 95.88%         | 6.917%        |
| 11                      | 16.324      | 16.282       | 16.369     | BB       | 234945         | 3180493      | 93.33%         | 6.733%        |
| 12                      | 17.275      | 17.204       | 17.317     | BB       | 228205         | 3100410      | 90.98%         | 6.563%        |
| 13                      | 18.164      | 18.104       | 18.207     | BB       | 211326         | 2963413      | 86.96%         | 6.273%        |
| 14                      | 18.999      | 18.899       | 19.059     | BB       | 182334         | 2509746      | 73.65%         | 5.313%        |
| 15                      | 19.783      | 19.719       | 19.825     | BB       | 111966         | 1623241      | 47.63%         | 3.436%        |
| 16                      | 20.524      | 20.391       | 20.562     | BV       | 75688          | 1131269      | 33.20%         | 2.395%        |
| 17                      | 21.286      | 21.219       | 21.349     | BB       | 51225          | 961158       | 28.20%         | 2.035%        |
| 18                      | 22.247      | 22.161       | 22.300     | BBA      | 31218          | 772582       | 22.67%         | 1.636%        |
| Sum of corrected areas: |             |              |            |          |                |              | 47237920       |               |

FF061325.M Tue Jul 01 04:07:08 2025

## Report of Analysis

|                    |                                                   |                    |          |
|--------------------|---------------------------------------------------|--------------------|----------|
| Client:            | Coppola Services                                  | Date Collected:    | 06/24/25 |
| Project:           | Millville Sewage Treatment Plant - Field Sampling | Date Received:     | 06/24/25 |
| Client Sample ID:  | COP-SOIL-PILEMS                                   | SDG No.:           | Q2409    |
| Lab Sample ID:     | Q2409-02MS                                        | Matrix:            | SOIL     |
| Analytical Method: | 8015D TPH                                         | % Solid:           | 96.4     |
| Sample Wt/Vol:     | 30.03                                             | Units:             | g        |
| Soil Aliquot Vol:  |                                                   |                    | uL       |
| Extraction Type:   |                                                   | Test:              | TPH GC   |
| GPC Factor :       |                                                   | Injection Volume : |          |
| Prep Method :      | SW3541                                            |                    |          |

|                   |           |                |                |               |
|-------------------|-----------|----------------|----------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date      | Date Analyzed  | Prep Batch ID |
| FF016038.D        | 1         | 06/30/25 09:20 | 06/30/25 15:09 | PB168659      |

| CAS Number        | Parameter              | Conc. | Qualifier | MDL      | LOQ / CRQL | Units(Dry Weight) |
|-------------------|------------------------|-------|-----------|----------|------------|-------------------|
| <b>TARGETS</b>    |                        |       |           |          |            |                   |
| PHC               | Petroleum Hydrocarbons | 42300 |           | 398      | 2940       | ug/kg             |
| <b>SURROGATES</b> |                        |       |           |          |            |                   |
| 16416-32-3        | TETRACOSANE-d50        | 13.5  |           | 37 - 130 | 67%        | SPK: 20           |

### Comments:

U = Not Detected

LOQ = Limit of Quantitation

MDL = Method Detection Limit

LOD = Limit of Detection

E = Value Exceeds Calibration Range

P = Indicates >25% difference for detected concentrations between the two GC columns

Q = indicates LCS control criteria did not meet requirements

M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value

B = Analyte Found in Associated Method Blank

N = Presumptive Evidence of a Compound

\* = Values outside of QC limits

D = Dilution

S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

() = Laboratory InHouse Limit

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
 Data File : FF016038.D  
 Signal(s) : FID2B.ch  
 Acq On : 30 Jun 2025 15:09  
 Operator : YP\AJ  
 Sample : Q2409-02MS  
 Misc :  
 ALS Vial : 74 Sample Multiplier: 1

Instrument :  
 FID\_F  
 ClientSampleId :  
 COP-SOIL-PILEMS

Manual Integrations  
 APPROVED

Reviewed By :Yogesh Patel 07/01/2025  
 Supervised By :mohammad ahmed 07/01/2025

Integration File: autoint1.e  
 Quant Time: Jul 01 03:14:51 2025  
 Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
 Quant Title :  
 QLast Update : Fri Jun 13 15:23:30 2025  
 Response via : Initial Calibration  
 Integrator: ChemStation

Volume Inj. : 1uL  
 Signal Phase : Rxi-1ms  
 Signal Info : 20mx0.18mmx0.18um

| Compound                      | R.T.   | Response | Conc Units    |
|-------------------------------|--------|----------|---------------|
| -----                         |        |          |               |
| System Monitoring Compounds   |        |          |               |
| 9) S TETRACOSANE-d50 (SURR... | 15.096 | 1628522  | 13.487 ug/ml  |
| Target Compounds              |        |          |               |
| 1) N-OCTANE                   | 2.085  | 1355378  | 10.682 ug/ml  |
| 2) N-DECANE                   | 4.620  | 1754376  | 13.390 ug/ml  |
| 3) N-DODECANE                 | 6.795  | 1937597  | 14.551 ug/ml  |
| 4) N-TETRADECANE              | 8.627  | 2028589  | 15.136 ug/ml  |
| 5) N-HEXADECANE               | 10.236 | 2134364  | 15.804 ug/ml  |
| 6) N-OCTADECANE               | 11.681 | 2209343  | 15.937 ug/ml  |
| 7) N-EICOSANE                 | 12.994 | 2294529  | 16.432 ug/ml  |
| 8) N-DOCOSANE                 | 14.194 | 2364986  | 17.407 ug/ml  |
| 10) N-TETRACOSANE             | 15.300 | 1997653  | 14.740 ug/ml  |
| 11) N-HEXACOSANE              | 16.325 | 2134986  | 15.905 ug/ml  |
| 12) N-OCTACOSANE              | 17.276 | 3223277  | 24.415 ug/ml  |
| 13) N-TRIACONTANE             | 18.167 | 2407486  | 18.230 ug/ml  |
| 14) N-DOTRIACONTANE           | 19.002 | 2184327  | 17.169 ug/ml  |
| 15) N-TETRATRIACONTANE        | 19.787 | 1711112  | 15.301 ug/ml  |
| 16) N-HEXATRIACONTANE         | 20.527 | 1131423  | 12.101 ug/ml  |
| 17) N-OCTATRIACONTANE         | 21.294 | 931820   | 11.476 ug/ml  |
| 18) N-TETRACONTANE            | 22.251 | 1212586  | 17.291 ug/mlm |
| -----                         |        |          |               |

(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016038.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 15:09  
Operator : YP\AJ  
Sample : Q2409-02MS  
Misc :  
ALS Vial : 74 Sample Multiplier: 1

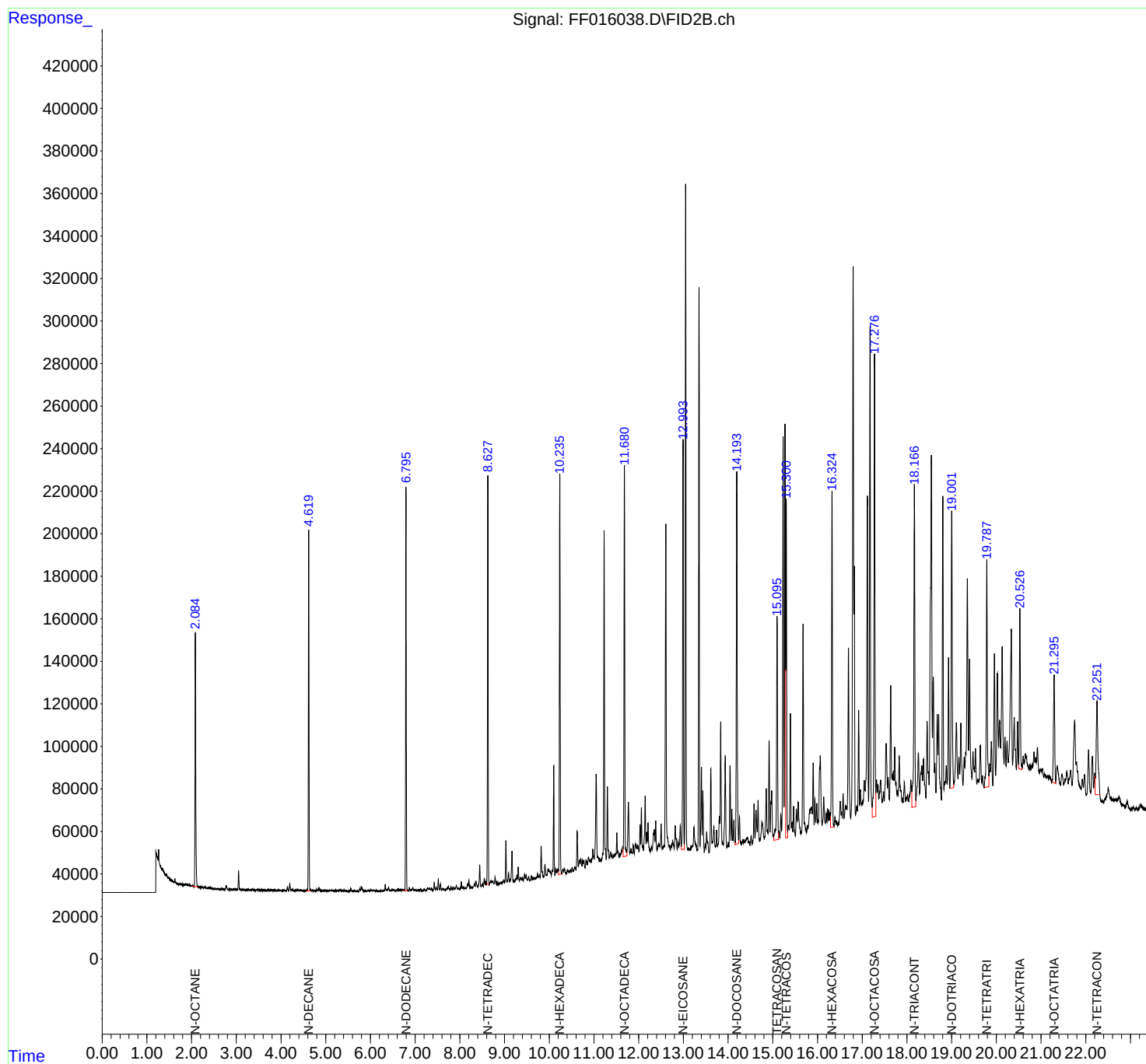
Instrument :  
FID\_F  
ClientSampleId :  
COP-SOIL-PILEMS

Manual Integrations  
APPROVED

Reviewed By :Yogesh Patel 07/01/2025  
Supervised By :mohammad ahmed 07/01/2025

Integration File: autoint1.e  
Quant Time: Jul 01 03:14:51 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um



rteres

Instrument :

FID\_F

ClientSampleId :

COP-SOIL-PILEMS

Area Percent Report

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF06302  
Data File : FF016038.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 15:09  
Sample : Q2409-02MS  
Misc :  
ALS Vial : 74 Sample Multiplier: 1

Integration File: Sample.e

Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Title :

Signal : FID2B.ch

| peak<br># | R.T.<br>min | Start<br>min | End<br>min | PK<br>TY | peak<br>height | peak<br>area | peak<br>% max. | % of<br>total |
|-----------|-------------|--------------|------------|----------|----------------|--------------|----------------|---------------|
| 1         | 1.912       | 1.900        | 1.918      | BV       | 152            | 811          | 0.02%          | 0.001%        |
| 2         | 1.922       | 1.918        | 1.958      | VV       | 169            | 1806         | 0.04%          | 0.001%        |
| 3         | 1.964       | 1.958        | 2.011      | VV       | 165            | 1291         | 0.03%          | 0.001%        |
| 4         | 2.022       | 2.011        | 2.040      | VV       | 290            | 2325         | 0.05%          | 0.002%        |
| 5         | 2.048       | 2.040        | 2.053      | PV       | 97             | 531          | 0.01%          | 0.000%        |
| 6         | 2.085       | 2.053        | 2.170      | VV       | 119189         | 1356141      | 32.08%         | 0.891%        |
| 7         | 2.174       | 2.170        | 2.218      | PV       | 78             | 1077         | 0.03%          | 0.001%        |
| 8         | 2.225       | 2.218        | 2.229      | PV       | 97             | 348          | 0.01%          | 0.000%        |
| 9         | 2.236       | 2.229        | 2.249      | VV       | 142            | 449          | 0.01%          | 0.000%        |
| 10        | 2.255       | 2.249        | 2.262      | VV       | 102            | 463          | 0.01%          | 0.000%        |
| 11        | 2.264       | 2.262        | 2.274      | VV       | 133            | 479          | 0.01%          | 0.000%        |
| 12        | 2.291       | 2.274        | 2.357      | PV       | 427            | 7814         | 0.18%          | 0.005%        |
| 13        | 2.377       | 2.357        | 2.400      | PV       | 584            | 6600         | 0.16%          | 0.004%        |
| 14        | 2.418       | 2.400        | 2.425      | VV       | 277            | 2687         | 0.06%          | 0.002%        |
| 15        | 2.431       | 2.425        | 2.486      | VV       | 293            | 5276         | 0.12%          | 0.003%        |
| 16        | 2.495       | 2.486        | 2.519      | PV       | 123            | 1442         | 0.03%          | 0.001%        |
| 17        | 2.532       | 2.519        | 2.577      | VV       | 173            | 2936         | 0.07%          | 0.002%        |
| 18        | 2.580       | 2.577        | 2.593      | VV       | 113            | 736          | 0.02%          | 0.000%        |
| 19        | 2.598       | 2.593        | 2.609      | VV       | 138            | 799          | 0.02%          | 0.001%        |
| 20        | 2.618       | 2.609        | 2.632      | VV       | 136            | 832          | 0.02%          | 0.001%        |
| 21        | 2.663       | 2.632        | 2.684      | PV       | 608            | 7541         | 0.18%          | 0.005%        |
| 22        | 2.689       | 2.684        | 2.694      | VV       | 130            | 457          | 0.01%          | 0.000%        |
| 23        | 2.714       | 2.694        | 2.723      | VV       | 170            | 1538         | 0.04%          | 0.001%        |
| 24        | 2.729       | 2.723        | 2.747      | VV       | 81             | 479          | 0.01%          | 0.000%        |
| 25        | 2.772       | 2.747        | 2.824      | PV       | 1950           | 31275        | 0.74%          | 0.021%        |
| 26        | 2.827       | 2.824        | 2.839      | VV       | 115            | 772          | 0.02%          | 0.001%        |
| 27        | 2.844       | 2.839        | 2.865      | VV       | 86             | 983          | 0.02%          | 0.001%        |
| 28        | 2.878       | 2.865        | 2.888      | VV       | 152            | 1820         | 0.04%          | 0.001%        |
| 29        | 2.895       | 2.888        | 2.910      | VV       | 224            | 2122         | 0.05%          | 0.001%        |
| 30        | 2.913       | 2.910        | 2.928      | VV       | 145            | 1025         | 0.02%          | 0.001%        |
| 31        | 2.951       | 2.928        | 2.962      | VV       | 281            | 3636         | 0.09%          | 0.002%        |
| 32        | 2.999       | 2.962        | 3.025      | VV       | 413            | 9612         | 0.23%          | 0.006%        |
| 33        | 3.051       | 3.025        | 3.086      | VV       | 8893           | 97803        | 2.31%          | 0.064%        |
| 34        | 3.096       | 3.086        | 3.114      | VV       | 243            | 2401         | 0.06%          | 0.002%        |
| 35        | 3.137       | 3.114        | 3.152      | VV       | 191            | 2844         | 0.07%          | 0.002%        |
| 36        | 3.155       | 3.152        | 3.161      | VV       | 188            | 758          | 0.02%          | 0.000%        |



|    |       |       |       |    | retention |         |        |        |  |
|----|-------|-------|-------|----|-----------|---------|--------|--------|--|
| 37 | 3.165 | 3.161 | 3.212 | VV | 225       | 2503    | 0.06%  | 0.002% |  |
| 38 | 3.221 | 3.212 | 3.251 | VV | 223       | 3124    | 0.06%  | 0.002% |  |
| 39 | 3.264 | 3.251 | 3.303 | PV | 386       | 6894    | 0.06%  | 0.002% |  |
| 40 | 3.305 | 3.303 | 3.311 | VV | 171       | 591     | 0.06%  | 0.002% |  |
| 41 | 3.320 | 3.311 | 3.338 | VV | 129       | 1467    | 0.04%  | 0.001% |  |
| 42 | 3.360 | 3.338 | 3.393 | VV | 492       | 8167    | 0.01%  | 0.000% |  |
| 43 | 3.411 | 3.393 | 3.431 | VV | 158       | 1792    | 0.01%  | 0.001% |  |
| 44 | 3.435 | 3.431 | 3.444 | VV | 125       | 559     | 0.01%  | 0.000% |  |
| 45 | 3.448 | 3.444 | 3.453 | VV | 86        | 290     | 0.01%  | 0.000% |  |
| 46 | 3.478 | 3.453 | 3.527 | VV | 540       | 9222    | 0.22%  | 0.006% |  |
| 47 | 3.534 | 3.527 | 3.540 | VV | 159       | 835     | 0.02%  | 0.001% |  |
| 48 | 3.542 | 3.540 | 3.547 | VV | 128       | 481     | 0.01%  | 0.000% |  |
| 49 | 3.569 | 3.547 | 3.593 | VV | 219       | 3405    | 0.08%  | 0.002% |  |
| 50 | 3.605 | 3.593 | 3.625 | VV | 223       | 2266    | 0.05%  | 0.001% |  |
| 51 | 3.630 | 3.625 | 3.649 | VV | 105       | 779     | 0.02%  | 0.001% |  |
| 52 | 3.651 | 3.649 | 3.663 | VV | 71        | 249     | 0.01%  | 0.000% |  |
| 53 | 3.680 | 3.663 | 3.692 | VV | 199       | 1878    | 0.04%  | 0.001% |  |
| 54 | 3.711 | 3.692 | 3.742 | VV | 384       | 6466    | 0.15%  | 0.004% |  |
| 55 | 3.756 | 3.742 | 3.777 | VV | 325       | 4235    | 0.10%  | 0.003% |  |
| 56 | 3.780 | 3.777 | 3.786 | VV | 184       | 746     | 0.02%  | 0.000% |  |
| 57 | 3.805 | 3.786 | 3.832 | VV | 273       | 5416    | 0.13%  | 0.004% |  |
| 58 | 3.850 | 3.832 | 3.865 | VV | 247       | 3652    | 0.09%  | 0.002% |  |
| 59 | 3.875 | 3.865 | 3.924 | VV | 187       | 4768    | 0.11%  | 0.003% |  |
| 60 | 3.947 | 3.924 | 3.966 | VV | 349       | 5684    | 0.13%  | 0.004% |  |
| 61 | 3.974 | 3.966 | 3.989 | VV | 260       | 2702    | 0.06%  | 0.002% |  |
| 62 | 3.994 | 3.989 | 4.029 | VV | 195       | 2462    | 0.06%  | 0.002% |  |
| 63 | 4.049 | 4.029 | 4.072 | PV | 332       | 4942    | 0.12%  | 0.003% |  |
| 64 | 4.078 | 4.072 | 4.122 | VV | 206       | 3736    | 0.09%  | 0.002% |  |
| 65 | 4.144 | 4.122 | 4.175 | PV | 2067      | 23255   | 0.55%  | 0.015% |  |
| 66 | 4.196 | 4.175 | 4.248 | VV | 3473      | 52483   | 1.24%  | 0.034% |  |
| 67 | 4.259 | 4.248 | 4.293 | VV | 575       | 9508    | 0.22%  | 0.006% |  |
| 68 | 4.296 | 4.293 | 4.308 | VV | 182       | 1234    | 0.03%  | 0.001% |  |
| 69 | 4.320 | 4.308 | 4.325 | VV | 272       | 1952    | 0.05%  | 0.001% |  |
| 70 | 4.342 | 4.325 | 4.352 | VV | 514       | 5514    | 0.13%  | 0.004% |  |
| 71 | 4.362 | 4.352 | 4.374 | VV | 375       | 4272    | 0.10%  | 0.003% |  |
| 72 | 4.389 | 4.374 | 4.425 | VV | 521       | 9560    | 0.23%  | 0.006% |  |
| 73 | 4.444 | 4.425 | 4.494 | VV | 413       | 8532    | 0.20%  | 0.006% |  |
| 74 | 4.507 | 4.494 | 4.533 | VV | 227       | 3289    | 0.08%  | 0.002% |  |
| 75 | 4.541 | 4.533 | 4.545 | VV | 151       | 686     | 0.02%  | 0.000% |  |
| 76 | 4.561 | 4.545 | 4.567 | VV | 307       | 2916    | 0.07%  | 0.002% |  |
| 77 | 4.578 | 4.567 | 4.592 | VV | 396       | 4278    | 0.10%  | 0.003% |  |
| 78 | 4.620 | 4.592 | 4.648 | VV | 169828    | 1753731 | 41.49% | 1.152% |  |
| 79 | 4.656 | 4.648 | 4.681 | VV | 547       | 6946    | 0.16%  | 0.005% |  |
| 80 | 4.693 | 4.681 | 4.721 | VV | 353       | 6491    | 0.15%  | 0.004% |  |
| 81 | 4.727 | 4.721 | 4.763 | VV | 294       | 4244    | 0.10%  | 0.003% |  |
| 82 | 4.787 | 4.763 | 4.806 | VV | 654       | 8914    | 0.21%  | 0.006% |  |
| 83 | 4.819 | 4.806 | 4.831 | VV | 671       | 7276    | 0.17%  | 0.005% |  |
| 84 | 4.849 | 4.831 | 4.893 | VV | 1797      | 27371   | 0.65%  | 0.018% |  |
| 85 | 4.907 | 4.893 | 4.924 | VV | 453       | 5692    | 0.13%  | 0.004% |  |
| 86 | 4.932 | 4.924 | 4.953 | VV | 320       | 3770    | 0.09%  | 0.002% |  |
| 87 | 4.987 | 4.953 | 5.001 | VV | 451       | 7350    | 0.17%  | 0.005% |  |
| 88 | 5.012 | 5.001 | 5.029 | VV | 364       | 4955    | 0.12%  | 0.003% |  |
| 89 | 5.036 | 5.029 | 5.053 | VV | 449       | 4715    | 0.11%  | 0.003% |  |

Instrument :

FID\_F

ClientSampleId :

COP-SOIL-PILEMS

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

|     |       |       |       |    |        |         |        |        |
|-----|-------|-------|-------|----|--------|---------|--------|--------|
| 90  | 5.081 | 5.053 | 5.109 | VV | 592    | 11807   | 0.28%  | 0.008% |
| 91  | 5.132 | 5.109 | 5.158 | VV | 493    | 8844    |        |        |
| 92  | 5.174 | 5.158 | 5.191 | VV | 300    | 4918    |        |        |
| 93  | 5.205 | 5.191 | 5.211 | VV | 312    | 2993    |        |        |
| 94  | 5.218 | 5.211 | 5.246 | VV | 365    | 5797    |        |        |
| 95  | 5.278 | 5.246 | 5.294 | VV | 474    | 8397    |        |        |
| 96  | 5.317 | 5.294 | 5.361 | VV | 679    | 15924   | 0.38%  | 0.010% |
| 97  | 5.380 | 5.361 | 5.397 | VV | 422    | 6352    | 0.15%  | 0.004% |
| 98  | 5.409 | 5.397 | 5.427 | VV | 555    | 7110    | 0.17%  | 0.005% |
| 99  | 5.433 | 5.427 | 5.457 | VV | 457    | 6297    | 0.15%  | 0.004% |
| 100 | 5.463 | 5.457 | 5.487 | VV | 222    | 2242    | 0.05%  | 0.001% |
| 101 | 5.505 | 5.487 | 5.525 | VV | 275    | 3534    | 0.08%  | 0.002% |
| 102 | 5.564 | 5.525 | 5.591 | VV | 1161   | 16156   | 0.38%  | 0.011% |
| 103 | 5.604 | 5.591 | 5.623 | VV | 340    | 4571    | 0.11%  | 0.003% |
| 104 | 5.635 | 5.623 | 5.658 | VV | 394    | 5213    | 0.12%  | 0.003% |
| 105 | 5.661 | 5.658 | 5.670 | VV | 176    | 1135    | 0.03%  | 0.001% |
| 106 | 5.703 | 5.670 | 5.732 | VV | 334    | 5740    | 0.14%  | 0.004% |
| 107 | 5.761 | 5.732 | 5.781 | PV | 1200   | 16854   | 0.40%  | 0.011% |
| 108 | 5.795 | 5.781 | 5.808 | VV | 2188   | 22179   | 0.52%  | 0.015% |
| 109 | 5.816 | 5.808 | 5.856 | VV | 1805   | 21043   | 0.50%  | 0.014% |
| 110 | 5.865 | 5.856 | 5.901 | VV | 352    | 5282    | 0.12%  | 0.003% |
| 111 | 5.906 | 5.901 | 5.915 | VV | 152    | 836     | 0.02%  | 0.001% |
| 112 | 5.947 | 5.915 | 5.976 | VV | 759    | 12379   | 0.29%  | 0.008% |
| 113 | 6.007 | 5.976 | 6.042 | VV | 862    | 19840   | 0.47%  | 0.013% |
| 114 | 6.052 | 6.042 | 6.065 | VV | 500    | 5553    | 0.13%  | 0.004% |
| 115 | 6.081 | 6.065 | 6.102 | VV | 691    | 8840    | 0.21%  | 0.006% |
| 116 | 6.113 | 6.102 | 6.118 | VV | 225    | 1677    | 0.04%  | 0.001% |
| 117 | 6.132 | 6.118 | 6.145 | VV | 557    | 5787    | 0.14%  | 0.004% |
| 118 | 6.149 | 6.145 | 6.165 | VV | 355    | 2630    | 0.06%  | 0.002% |
| 119 | 6.179 | 6.165 | 6.185 | VV | 166    | 1579    | 0.04%  | 0.001% |
| 120 | 6.200 | 6.185 | 6.224 | VV | 291    | 3409    | 0.08%  | 0.002% |
| 121 | 6.238 | 6.224 | 6.257 | PV | 536    | 5464    | 0.13%  | 0.004% |
| 122 | 6.294 | 6.257 | 6.314 | PV | 666    | 10312   | 0.24%  | 0.007% |
| 123 | 6.332 | 6.314 | 6.357 | VV | 3272   | 39342   | 0.93%  | 0.026% |
| 124 | 6.363 | 6.357 | 6.382 | VV | 665    | 8326    | 0.20%  | 0.005% |
| 125 | 6.406 | 6.382 | 6.430 | VV | 1892   | 29291   | 0.69%  | 0.019% |
| 126 | 6.441 | 6.430 | 6.458 | VV | 518    | 5786    | 0.14%  | 0.004% |
| 127 | 6.483 | 6.458 | 6.496 | VV | 945    | 11803   | 0.28%  | 0.008% |
| 128 | 6.516 | 6.496 | 6.547 | VV | 760    | 14599   | 0.35%  | 0.010% |
| 129 | 6.563 | 6.547 | 6.575 | VV | 349    | 3816    | 0.09%  | 0.003% |
| 130 | 6.589 | 6.575 | 6.607 | VV | 504    | 7173    | 0.17%  | 0.005% |
| 131 | 6.625 | 6.607 | 6.650 | VV | 1121   | 19659   | 0.47%  | 0.013% |
| 132 | 6.675 | 6.650 | 6.696 | VV | 577    | 11766   | 0.28%  | 0.008% |
| 133 | 6.717 | 6.696 | 6.732 | VV | 641    | 9794    | 0.23%  | 0.006% |
| 134 | 6.742 | 6.732 | 6.763 | VV | 531    | 7547    | 0.18%  | 0.005% |
| 135 | 6.795 | 6.763 | 6.844 | VV | 189880 | 1942659 | 45.96% | 1.276% |
| 136 | 6.869 | 6.844 | 6.895 | VV | 1615   | 18301   | 0.43%  | 0.012% |
| 137 | 6.922 | 6.895 | 6.933 | VV | 594    | 8329    | 0.20%  | 0.005% |
| 138 | 6.949 | 6.933 | 6.973 | VV | 1595   | 19716   | 0.47%  | 0.013% |
| 139 | 6.989 | 6.973 | 7.012 | VV | 706    | 8802    | 0.21%  | 0.006% |
| 140 | 7.024 | 7.012 | 7.044 | VV | 308    | 3605    | 0.09%  | 0.002% |
| 141 | 7.077 | 7.044 | 7.099 | VV | 593    | 9034    | 0.21%  | 0.006% |

Instrument :

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ClientSampleId :

COP-SOIL-PILEMS

0.28% 0.008%

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

|     |       |       |       |    | riteres |         |        |        |
|-----|-------|-------|-------|----|---------|---------|--------|--------|
| 142 | 7.122 | 7.099 | 7.151 | VV | 516     | 9583    | 0.23%  | 0.006% |
| 143 | 7.159 | 7.151 | 7.175 | VV | 109     | 1125    |        |        |
| 144 | 7.200 | 7.175 | 7.225 | VV | 691     | 9637    |        |        |
| 145 | 7.234 | 7.225 | 7.240 | VV | 95      | 629     |        |        |
| 146 | 7.278 | 7.240 | 7.311 | PV | 1360    | 29702   |        |        |
| 147 | 7.329 | 7.311 | 7.350 | VV | 1014    | 16715   |        |        |
| 148 | 7.368 | 7.350 | 7.400 | VV | 1079    | 15018   | 0.36%  | 0.010% |
| 149 | 7.427 | 7.400 | 7.448 | VV | 3744    | 42928   | 1.02%  | 0.028% |
| 150 | 7.469 | 7.448 | 7.497 | VV | 1615    | 23455   | 0.55%  | 0.015% |
| 151 | 7.518 | 7.497 | 7.550 | VV | 5029    | 62055   | 1.47%  | 0.041% |
| 152 | 7.567 | 7.550 | 7.596 | VV | 2931    | 34361   | 0.81%  | 0.023% |
| 153 | 7.617 | 7.596 | 7.636 | PV | 898     | 11472   | 0.27%  | 0.008% |
| 154 | 7.643 | 7.636 | 7.677 | VV | 414     | 5521    | 0.13%  | 0.004% |
| 155 | 7.719 | 7.677 | 7.727 | VV | 882     | 13617   | 0.32%  | 0.009% |
| 156 | 7.743 | 7.727 | 7.774 | VV | 1535    | 22821   | 0.54%  | 0.015% |
| 157 | 7.804 | 7.774 | 7.822 | VV | 1107    | 18018   | 0.43%  | 0.012% |
| 158 | 7.833 | 7.822 | 7.845 | VV | 650     | 6793    | 0.16%  | 0.004% |
| 159 | 7.877 | 7.845 | 7.895 | VV | 763     | 16614   | 0.39%  | 0.011% |
| 160 | 7.921 | 7.895 | 7.949 | VV | 1966    | 33775   | 0.80%  | 0.022% |
| 161 | 7.962 | 7.949 | 7.988 | VV | 671     | 9352    | 0.22%  | 0.006% |
| 162 | 8.034 | 7.988 | 8.055 | PV | 3443    | 45445   | 1.08%  | 0.030% |
| 163 | 8.061 | 8.055 | 8.072 | VV | 702     | 6221    | 0.15%  | 0.004% |
| 164 | 8.086 | 8.072 | 8.104 | VV | 824     | 10576   | 0.25%  | 0.007% |
| 165 | 8.129 | 8.104 | 8.145 | VV | 433     | 7021    | 0.17%  | 0.005% |
| 166 | 8.171 | 8.145 | 8.188 | VV | 2026    | 31662   | 0.75%  | 0.021% |
| 167 | 8.203 | 8.188 | 8.224 | VV | 3732    | 44754   | 1.06%  | 0.029% |
| 168 | 8.231 | 8.224 | 8.255 | VV | 686     | 7074    | 0.17%  | 0.005% |
| 169 | 8.273 | 8.255 | 8.291 | VV | 479     | 5329    | 0.13%  | 0.004% |
| 170 | 8.327 | 8.291 | 8.341 | VV | 1651    | 24495   | 0.58%  | 0.016% |
| 171 | 8.363 | 8.341 | 8.404 | VV | 2966    | 47928   | 1.13%  | 0.031% |
| 172 | 8.445 | 8.404 | 8.478 | VV | 10389   | 133971  | 3.17%  | 0.088% |
| 173 | 8.505 | 8.478 | 8.525 | VV | 1297    | 20306   | 0.48%  | 0.013% |
| 174 | 8.547 | 8.525 | 8.563 | VV | 3592    | 43766   | 1.04%  | 0.029% |
| 175 | 8.575 | 8.563 | 8.592 | VV | 2330    | 27836   | 0.66%  | 0.018% |
| 176 | 8.627 | 8.592 | 8.656 | VV | 192830  | 2059305 | 48.72% | 1.353% |
| 177 | 8.696 | 8.656 | 8.711 | VV | 2219    | 50667   | 1.20%  | 0.033% |
| 178 | 8.733 | 8.711 | 8.763 | VV | 1987    | 45953   | 1.09%  | 0.030% |
| 179 | 8.789 | 8.763 | 8.807 | VV | 3695    | 49288   | 1.17%  | 0.032% |
| 180 | 8.822 | 8.807 | 8.836 | VV | 1327    | 15877   | 0.38%  | 0.010% |
| 181 | 8.850 | 8.836 | 8.863 | VV | 726     | 8140    | 0.19%  | 0.005% |
| 182 | 8.875 | 8.863 | 8.888 | VV | 791     | 7744    | 0.18%  | 0.005% |
| 183 | 8.921 | 8.888 | 8.941 | VV | 1026    | 19068   | 0.45%  | 0.013% |
| 184 | 8.958 | 8.941 | 8.971 | VV | 1142    | 13169   | 0.31%  | 0.009% |
| 185 | 8.987 | 8.971 | 9.000 | VV | 1686    | 20609   | 0.49%  | 0.014% |
| 186 | 9.031 | 9.000 | 9.054 | VV | 20225   | 219365  | 5.19%  | 0.144% |
| 187 | 9.062 | 9.054 | 9.068 | VV | 1131    | 9434    | 0.22%  | 0.006% |
| 188 | 9.092 | 9.068 | 9.113 | VV | 4800    | 68415   | 1.62%  | 0.045% |
| 189 | 9.127 | 9.113 | 9.137 | VV | 1587    | 17875   | 0.42%  | 0.012% |
| 190 | 9.168 | 9.137 | 9.199 | VV | 14974   | 216542  | 5.12%  | 0.142% |
| 191 | 9.217 | 9.199 | 9.232 | VV | 946     | 14284   | 0.34%  | 0.009% |
| 192 | 9.249 | 9.232 | 9.259 | VV | 1797    | 18253   | 0.43%  | 0.012% |
| 193 | 9.274 | 9.259 | 9.289 | VV | 3035    | 39109   | 0.93%  | 0.026% |
| 194 | 9.306 | 9.289 | 9.330 | VV | 7086    | 86020   | 2.03%  | 0.057% |

Instrument :

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ClientSampleId :

COP-SOIL-PILEMS

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

|     |        |        |        |    |        |         |        |        |
|-----|--------|--------|--------|----|--------|---------|--------|--------|
| 195 | 9.351  | 9.330  | 9.367  | VV | 1847   | 27993   | 0.66%  | 0.018% |
| 196 | 9.379  | 9.367  | 9.383  | VV | 1539   | 14119   |        |        |
| 197 | 9.398  | 9.383  | 9.412  | VV | 1900   | 25205   |        |        |
| 198 | 9.448  | 9.412  | 9.467  | VV | 3225   | 58325   |        |        |
| 199 | 9.484  | 9.467  | 9.519  | VV | 3021   | 43137   |        |        |
| 200 | 9.539  | 9.519  | 9.565  | VV | 1790   | 24084   |        |        |
| 201 | 9.600  | 9.565  | 9.619  | VV | 2139   | 26926   | 0.64%  | 0.018% |
| 202 | 9.633  | 9.619  | 9.647  | PV | 1417   | 12379   | 0.29%  | 0.008% |
| 203 | 9.666  | 9.647  | 9.676  | VV | 899    | 11793   | 0.28%  | 0.008% |
| 204 | 9.690  | 9.676  | 9.704  | VV | 791    | 11324   | 0.27%  | 0.007% |
| 205 | 9.738  | 9.704  | 9.767  | VV | 2832   | 52411   | 1.24%  | 0.034% |
| 206 | 9.781  | 9.767  | 9.799  | VV | 1956   | 25044   | 0.59%  | 0.016% |
| 207 | 9.820  | 9.799  | 9.880  | VV | 15497  | 230008  | 5.44%  | 0.151% |
| 208 | 9.904  | 9.880  | 9.932  | VV | 6607   | 106268  | 2.51%  | 0.070% |
| 209 | 9.941  | 9.932  | 9.953  | VV | 1863   | 20147   | 0.48%  | 0.013% |
| 210 | 9.972  | 9.953  | 9.986  | VV | 4412   | 63005   | 1.49%  | 0.041% |
| 211 | 9.994  | 9.986  | 10.020 | VV | 3744   | 62383   | 1.48%  | 0.041% |
| 212 | 10.027 | 10.020 | 10.045 | VV | 3004   | 33474   | 0.79%  | 0.022% |
| 213 | 10.070 | 10.045 | 10.080 | VV | 3510   | 53590   | 1.27%  | 0.035% |
| 214 | 10.100 | 10.080 | 10.126 | VV | 52450  | 531776  | 12.58% | 0.349% |
| 215 | 10.145 | 10.126 | 10.160 | VV | 4064   | 53648   | 1.27%  | 0.035% |
| 216 | 10.166 | 10.160 | 10.172 | VV | 2584   | 17941   | 0.42%  | 0.012% |
| 217 | 10.193 | 10.172 | 10.208 | VV | 3750   | 67144   | 1.59%  | 0.044% |
| 218 | 10.236 | 10.208 | 10.281 | VV | 189449 | 2178089 | 51.53% | 1.431% |
| 219 | 10.304 | 10.281 | 10.324 | VV | 3105   | 61190   | 1.45%  | 0.040% |
| 220 | 10.341 | 10.324 | 10.380 | VV | 3481   | 69757   | 1.65%  | 0.046% |
| 221 | 10.408 | 10.380 | 10.432 | VV | 2798   | 55044   | 1.30%  | 0.036% |
| 222 | 10.446 | 10.432 | 10.457 | VV | 1975   | 25647   | 0.61%  | 0.017% |
| 223 | 10.474 | 10.457 | 10.492 | VV | 2182   | 40075   | 0.95%  | 0.026% |
| 224 | 10.512 | 10.492 | 10.529 | VV | 3281   | 51575   | 1.22%  | 0.034% |
| 225 | 10.570 | 10.529 | 10.578 | VV | 3349   | 68063   | 1.61%  | 0.045% |
| 226 | 10.583 | 10.578 | 10.599 | VV | 3147   | 34934   | 0.83%  | 0.023% |
| 227 | 10.624 | 10.599 | 10.651 | VV | 20076  | 302138  | 7.15%  | 0.198% |
| 228 | 10.673 | 10.651 | 10.692 | VV | 6431   | 130929  | 3.10%  | 0.086% |
| 229 | 10.706 | 10.692 | 10.732 | VV | 6983   | 131818  | 3.12%  | 0.087% |
| 230 | 10.746 | 10.732 | 10.761 | VV | 6236   | 88291   | 2.09%  | 0.058% |
| 231 | 10.774 | 10.761 | 10.800 | VV | 6033   | 103034  | 2.44%  | 0.068% |
| 232 | 10.822 | 10.800 | 10.857 | VV | 6214   | 156452  | 3.70%  | 0.103% |
| 233 | 10.878 | 10.857 | 10.895 | VV | 7234   | 137798  | 3.26%  | 0.091% |
| 234 | 10.907 | 10.895 | 10.919 | VV | 5736   | 76169   | 1.80%  | 0.050% |
| 235 | 10.925 | 10.919 | 10.941 | VV | 5617   | 68806   | 1.63%  | 0.045% |
| 236 | 10.975 | 10.941 | 11.005 | VV | 10529  | 279469  | 6.61%  | 0.184% |
| 237 | 11.049 | 11.005 | 11.077 | VV | 45784  | 862116  | 20.39% | 0.566% |
| 238 | 11.090 | 11.077 | 11.114 | VV | 6755   | 138374  | 3.27%  | 0.091% |
| 239 | 11.125 | 11.114 | 11.140 | VV | 5375   | 80346   | 1.90%  | 0.053% |
| 240 | 11.147 | 11.140 | 11.160 | VV | 5249   | 61018   | 1.44%  | 0.040% |
| 241 | 11.194 | 11.160 | 11.201 | VV | 8101   | 154180  | 3.65%  | 0.101% |
| 242 | 11.227 | 11.201 | 11.276 | VV | 159898 | 1885277 | 44.60% | 1.239% |
| 243 | 11.300 | 11.276 | 11.320 | VV | 39232  | 508325  | 12.02% | 0.334% |
| 244 | 11.325 | 11.320 | 11.342 | VV | 9228   | 100998  | 2.39%  | 0.066% |
| 245 | 11.372 | 11.342 | 11.391 | VV | 7901   | 194796  | 4.61%  | 0.128% |
| 246 | 11.406 | 11.391 | 11.422 | VV | 6942   | 116327  | 2.75%  | 0.076% |

Instrument :

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ClientSampleId :

COP-SOIL-PILEMS

0.66% 0.018%

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

| rteres |        |        |        |    |        |         |        |        |  |
|--------|--------|--------|--------|----|--------|---------|--------|--------|--|
| 247    | 11.436 | 11.422 | 11.442 | VV | 5773   | 67335   | 1.59%  | 0.044% |  |
| 248    | 11.459 | 11.442 | 11.473 | VV | 6926   | 119043  |        |        |  |
| 249    | 11.488 | 11.473 | 11.492 | VV | 7065   | 79610   |        |        |  |
| 250    | 11.512 | 11.492 | 11.529 | VV | 16894  | 245216  |        |        |  |
| 251    | 11.537 | 11.529 | 11.560 | VV | 8031   | 129710  |        |        |  |
| 252    | 11.580 | 11.560 | 11.600 | VV | 6867   | 151361  |        |        |  |
| 253    | 11.618 | 11.600 | 11.629 | VV | 8259   | 129517  | 3.06%  | 0.085% |  |
| 254    | 11.644 | 11.629 | 11.652 | VV | 9348   | 123536  | 2.92%  | 0.081% |  |
| 255    | 11.681 | 11.652 | 11.735 | VV | 189234 | 2470096 | 58.43% | 1.623% |  |
| 256    | 11.770 | 11.735 | 11.801 | VV | 30475  | 624367  | 14.77% | 0.410% |  |
| 257    | 11.828 | 11.801 | 11.856 | VV | 8552   | 237897  | 5.63%  | 0.156% |  |
| 258    | 11.876 | 11.856 | 11.902 | VV | 9823   | 215071  | 5.09%  | 0.141% |  |
| 259    | 11.925 | 11.902 | 11.932 | VV | 10476  | 151580  | 3.59%  | 0.100% |  |
| 260    | 11.940 | 11.932 | 11.959 | VV | 9955   | 148640  | 3.52%  | 0.098% |  |
| 261    | 11.979 | 11.959 | 12.009 | VV | 9441   | 251012  | 5.94%  | 0.165% |  |
| 262    | 12.031 | 12.009 | 12.045 | VV | 19168  | 274856  | 6.50%  | 0.181% |  |
| 263    | 12.061 | 12.045 | 12.082 | VV | 27238  | 372009  | 8.80%  | 0.244% |  |
| 264    | 12.092 | 12.082 | 12.108 | VV | 8841   | 126024  | 2.98%  | 0.083% |  |
| 265    | 12.145 | 12.108 | 12.164 | VV | 32309  | 571397  | 13.52% | 0.375% |  |
| 266    | 12.179 | 12.164 | 12.193 | VV | 15252  | 221040  | 5.23%  | 0.145% |  |
| 267    | 12.209 | 12.193 | 12.241 | VV | 19444  | 361823  | 8.56%  | 0.238% |  |
| 268    | 12.252 | 12.241 | 12.269 | VV | 7263   | 109689  | 2.59%  | 0.072% |  |
| 269    | 12.285 | 12.269 | 12.304 | VV | 8087   | 150291  | 3.56%  | 0.099% |  |
| 270    | 12.350 | 12.304 | 12.366 | VV | 15930  | 453899  | 10.74% | 0.298% |  |
| 271    | 12.382 | 12.366 | 12.408 | VV | 20123  | 325377  | 7.70%  | 0.214% |  |
| 272    | 12.451 | 12.408 | 12.476 | VV | 8902   | 323119  | 7.64%  | 0.212% |  |
| 273    | 12.503 | 12.476 | 12.525 | VV | 18152  | 329585  | 7.80%  | 0.217% |  |
| 274    | 12.533 | 12.525 | 12.545 | VV | 7435   | 83454   | 1.97%  | 0.055% |  |
| 275    | 12.563 | 12.545 | 12.575 | VV | 7714   | 127783  | 3.02%  | 0.084% |  |
| 276    | 12.608 | 12.575 | 12.679 | VV | 159215 | 2512206 | 59.43% | 1.650% |  |
| 277    | 12.684 | 12.679 | 12.700 | VV | 7740   | 88731   | 2.10%  | 0.058% |  |
| 278    | 12.733 | 12.700 | 12.740 | VV | 7196   | 161082  | 3.81%  | 0.106% |  |
| 279    | 12.757 | 12.740 | 12.795 | VV | 9295   | 260722  | 6.17%  | 0.171% |  |
| 280    | 12.817 | 12.795 | 12.834 | VV | 16147  | 265431  | 6.28%  | 0.174% |  |
| 281    | 12.839 | 12.834 | 12.861 | VV | 10295  | 132659  | 3.14%  | 0.087% |  |
| 282    | 12.878 | 12.861 | 12.894 | VV | 9099   | 142216  | 3.36%  | 0.093% |  |
| 283    | 12.931 | 12.894 | 12.954 | VV | 16198  | 359820  | 8.51%  | 0.236% |  |
| 284    | 12.994 | 12.954 | 13.020 | VV | 197621 | 2484413 | 58.77% | 1.632% |  |
| 285    | 13.052 | 13.020 | 13.092 | VV | 316450 | 3746088 | 88.62% | 2.461% |  |
| 286    | 13.108 | 13.092 | 13.124 | VV | 5138   | 87267   | 2.06%  | 0.057% |  |
| 287    | 13.142 | 13.124 | 13.155 | VV | 4537   | 81223   | 1.92%  | 0.053% |  |
| 288    | 13.188 | 13.155 | 13.199 | VV | 5904   | 135620  | 3.21%  | 0.089% |  |
| 289    | 13.236 | 13.199 | 13.322 | VV | 14585  | 521372  | 12.33% | 0.343% |  |
| 290    | 13.350 | 13.322 | 13.374 | VV | 268133 | 3020811 | 71.46% | 1.985% |  |
| 291    | 13.405 | 13.374 | 13.421 | VV | 42249  | 597575  | 14.14% | 0.393% |  |
| 292    | 13.436 | 13.421 | 13.470 | VV | 31075  | 441564  | 10.45% | 0.290% |  |
| 293    | 13.490 | 13.470 | 13.503 | VV | 5709   | 88246   | 2.09%  | 0.058% |  |
| 294    | 13.521 | 13.503 | 13.537 | VV | 11577  | 166476  | 3.94%  | 0.109% |  |
| 295    | 13.545 | 13.537 | 13.575 | VV | 6824   | 100647  | 2.38%  | 0.066% |  |
| 296    | 13.649 | 13.642 | 13.654 | VV | 6378   | 42900   | 1.01%  | 0.028% |  |
| 297    | 13.684 | 13.654 | 13.709 | VV | 13663  | 298469  | 7.06%  | 0.196% |  |
| 298    | 13.713 | 13.709 | 13.718 | VV | 4440   | 22418   | 0.53%  | 0.015% |  |
| 299    | 13.808 | 13.763 | 13.817 | VV | 18156  | 322103  | 7.62%  | 0.212% |  |

Instrument :

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ClientSampleId :

COP-SOIL-PILEMS

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

|     |        |        |        |    |        |         |        |        |  |
|-----|--------|--------|--------|----|--------|---------|--------|--------|--|
|     |        |        |        |    | rters  |         |        |        |  |
| 300 | 13.892 | 13.887 | 13.895 | VV | 4603   | 21547   | 0.51%  | 0.014% |  |
| 301 | 13.937 | 13.895 | 13.970 | VV | 45948  | 790605  | 18.45% | 1.679% |  |
| 302 | 14.004 | 13.970 | 14.018 | VV | 5190   | 114320  | 2.47%  | 0.069% |  |
| 303 | 14.044 | 14.018 | 14.067 | VV | 41078  | 573406  | 13.22% | 0.339% |  |
| 304 | 14.085 | 14.067 | 14.103 | VV | 20532  | 270644  | 6.75%  | 0.160% |  |
| 305 | 14.129 | 14.103 | 14.155 | VV | 15037  | 272847  | 6.08%  | 0.058% |  |
| 306 | 14.194 | 14.155 | 14.237 | VV | 178766 | 2555214 | 60.45% | 1.679% |  |
| 307 | 14.255 | 14.237 | 14.281 | VV | 16679  | 248683  | 5.88%  | 0.163% |  |
| 308 | 14.289 | 14.281 | 14.303 | VV | 4565   | 55171   | 1.31%  | 0.036% |  |
| 309 | 14.331 | 14.303 | 14.346 | VV | 5379   | 118226  | 2.80%  | 0.078% |  |
| 310 | 14.363 | 14.346 | 14.379 | VV | 4850   | 87824   | 2.08%  | 0.058% |  |
| 311 | 14.426 | 14.379 | 14.460 | VV | 6191   | 251408  | 5.95%  | 0.165% |  |
| 312 | 14.468 | 14.460 | 14.486 | VV | 4391   | 57193   | 1.35%  | 0.038% |  |
| 313 | 14.515 | 14.486 | 14.538 | VV | 7071   | 138076  | 3.27%  | 0.091% |  |
| 314 | 14.580 | 14.538 | 14.600 | VV | 21638  | 353909  | 8.37%  | 0.233% |  |
| 315 | 14.625 | 14.600 | 14.651 | VV | 18512  | 367331  | 8.69%  | 0.241% |  |
| 316 | 14.670 | 14.651 | 14.705 | VV | 23007  | 363683  | 8.60%  | 0.239% |  |
| 317 | 14.756 | 14.705 | 14.809 | VV | 12840  | 490308  | 11.60% | 0.322% |  |
| 318 | 14.853 | 14.809 | 14.892 | VV | 28060  | 626626  | 14.82% | 0.412% |  |
| 319 | 14.917 | 14.892 | 14.938 | VV | 50426  | 677502  | 16.03% | 0.445% |  |
| 320 | 14.959 | 14.938 | 14.963 | VV | 21239  | 230835  | 5.46%  | 0.152% |  |
| 321 | 14.976 | 14.963 | 15.020 | VV | 26653  | 447942  | 10.60% | 0.294% |  |
| 322 | 15.096 | 15.020 | 15.127 | VV | 108170 | 1840395 | 43.54% | 1.209% |  |
| 323 | 15.141 | 15.127 | 15.156 | VV | 6822   | 104458  | 2.47%  | 0.069% |  |
| 324 | 15.179 | 15.156 | 15.198 | VV | 14944  | 242992  | 5.75%  | 0.160% |  |
| 325 | 15.231 | 15.198 | 15.252 | VV | 192519 | 2561070 | 60.58% | 1.683% |  |
| 326 | 15.273 | 15.252 | 15.287 | VV | 198308 | 2390359 | 56.55% | 1.570% |  |
| 327 | 15.300 | 15.287 | 15.332 | VV | 163090 | 2095550 | 49.57% | 1.377% |  |
| 328 | 15.344 | 15.332 | 15.366 | VV | 9171   | 164497  | 3.89%  | 0.108% |  |
| 329 | 15.393 | 15.366 | 15.415 | VV | 61807  | 838128  | 19.83% | 0.551% |  |
| 330 | 15.429 | 15.415 | 15.445 | VV | 10253  | 156656  | 3.71%  | 0.103% |  |
| 331 | 15.465 | 15.445 | 15.503 | VV | 17949  | 323987  | 7.66%  | 0.213% |  |
| 332 | 15.527 | 15.503 | 15.548 | VV | 16441  | 292968  | 6.93%  | 0.192% |  |
| 333 | 15.568 | 15.548 | 15.627 | VV | 19627  | 516522  | 12.22% | 0.339% |  |
| 334 | 15.636 | 15.627 | 15.645 | VV | 5370   | 54158   | 1.28%  | 0.036% |  |
| 335 | 15.677 | 15.645 | 15.757 | VV | 102854 | 1706898 | 40.38% | 1.121% |  |
| 336 | 15.777 | 15.757 | 15.791 | VV | 8133   | 136120  | 3.22%  | 0.089% |  |
| 337 | 15.823 | 15.791 | 15.829 | VV | 14932  | 256628  | 6.07%  | 0.169% |  |
| 338 | 15.852 | 15.829 | 15.857 | VV | 16099  | 251257  | 5.94%  | 0.165% |  |
| 339 | 15.862 | 15.857 | 15.884 | VV | 16457  | 241420  | 5.71%  | 0.159% |  |
| 340 | 15.904 | 15.884 | 15.924 | VV | 37055  | 553983  | 13.11% | 0.364% |  |
| 341 | 15.940 | 15.924 | 15.962 | VV | 20014  | 319415  | 7.56%  | 0.210% |  |
| 342 | 15.985 | 15.962 | 16.008 | VV | 17787  | 344253  | 8.14%  | 0.226% |  |
| 343 | 16.062 | 16.008 | 16.102 | VV | 39847  | 1212081 | 28.67% | 0.796% |  |
| 344 | 16.140 | 16.102 | 16.171 | VV | 20485  | 498348  | 11.79% | 0.327% |  |
| 345 | 16.195 | 16.171 | 16.210 | VV | 12717  | 238530  | 5.64%  | 0.157% |  |
| 346 | 16.226 | 16.210 | 16.240 | VV | 14602  | 207191  | 4.90%  | 0.136% |  |
| 347 | 16.253 | 16.240 | 16.268 | VV | 14059  | 188360  | 4.46%  | 0.124% |  |
| 348 | 16.283 | 16.268 | 16.290 | VV | 12817  | 153355  | 3.63%  | 0.101% |  |
| 349 | 16.325 | 16.290 | 16.365 | VV | 162695 | 2391230 | 56.57% | 1.571% |  |
| 350 | 16.390 | 16.365 | 16.413 | VV | 10333  | 236856  | 5.60%  | 0.156% |  |
| 351 | 16.429 | 16.413 | 16.453 | VV | 8260   | 173806  | 4.11%  | 0.114% |  |

Instrument :

FID\_F

ClientSampleId :

COP-SOIL-PILEMS

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025



| rteres |        |        |        |    |        |         |         |        |  |
|--------|--------|--------|--------|----|--------|---------|---------|--------|--|
| 352    | 16.468 | 16.453 | 16.477 | VV | 7558   | 98753   | 2.34%   | 0.065% |  |
| 353    | 16.511 | 16.477 | 16.531 | VV | 17324  | 400322  |         |        |  |
| 354    | 16.539 | 16.531 | 16.554 | VV | 12088  | 155523  |         |        |  |
| 355    | 16.572 | 16.554 | 16.594 | VV | 20779  | 351538  |         |        |  |
| 356    | 16.693 | 16.661 | 16.745 | VV | 88434  | 1683837 | 39.13%  | 0.226% |  |
| 357    | 16.797 | 16.745 | 16.814 | VV | 266813 | 4227247 | 100.93% | 0.581% |  |
| 358    | 16.877 | 16.850 | 16.897 | VV | 13407  | 343700  | 8.13%   | 0.226% |  |
| 359    | 16.921 | 16.897 | 16.943 | VV | 58813  | 884902  | 20.93%  | 0.581% |  |
| 360    | 17.009 | 16.995 | 17.017 | VV | 16149  | 198952  | 4.71%   | 0.131% |  |
| 361    | 17.047 | 17.017 | 17.065 | VV | 25535  | 601874  | 14.24%  | 0.395% |  |
| 362    | 17.276 | 17.224 | 17.305 | VV | 225556 | 3603399 | 85.24%  | 2.367% |  |
| 363    | 17.321 | 17.305 | 17.339 | VV | 25033  | 456347  | 10.80%  | 0.300% |  |
| 364    | 17.352 | 17.339 | 17.370 | VV | 22755  | 378758  | 8.96%   | 0.249% |  |
| 365    | 17.412 | 17.370 | 17.443 | VV | 24488  | 860279  | 20.35%  | 0.565% |  |
| 366    | 17.478 | 17.443 | 17.494 | VV | 18827  | 486972  | 11.52%  | 0.320% |  |
| 367    | 17.536 | 17.494 | 17.566 | VV | 41560  | 1221003 | 28.88%  | 0.802% |  |
| 368    | 17.580 | 17.566 | 17.609 | VV | 25522  | 532334  | 12.59%  | 0.350% |  |
| 369    | 17.637 | 17.609 | 17.661 | VV | 68319  | 1230561 | 29.11%  | 0.808% |  |
| 370    | 17.675 | 17.661 | 17.682 | VV | 26903  | 318601  | 7.54%   | 0.209% |  |
| 371    | 17.697 | 17.682 | 17.710 | VV | 27911  | 426985  | 10.10%  | 0.281% |  |
| 372    | 17.727 | 17.710 | 17.748 | VV | 39356  | 695741  | 16.46%  | 0.457% |  |
| 373    | 17.754 | 17.748 | 17.775 | VV | 22395  | 327972  | 7.76%   | 0.215% |  |
| 374    | 17.789 | 17.775 | 17.799 | VV | 17969  | 249681  | 5.91%   | 0.164% |  |
| 375    | 17.828 | 17.799 | 17.860 | VV | 34512  | 872885  | 20.65%  | 0.573% |  |
| 376    | 17.864 | 17.860 | 17.889 | VV | 18383  | 275837  | 6.53%   | 0.181% |  |
| 377    | 17.902 | 17.889 | 17.916 | VV | 14587  | 222800  | 5.27%   | 0.146% |  |
| 378    | 17.942 | 17.916 | 17.966 | VV | 22251  | 523427  | 12.38%  | 0.344% |  |
| 379    | 17.989 | 17.966 | 17.998 | VV | 14880  | 266290  | 6.30%   | 0.175% |  |
| 380    | 18.015 | 17.998 | 18.037 | VV | 15569  | 342152  | 8.09%   | 0.225% |  |
| 381    | 18.089 | 18.037 | 18.110 | VV | 22578  | 757271  | 17.91%  | 0.497% |  |
| 382    | 18.167 | 18.110 | 18.199 | VV | 161154 | 2937229 | 69.48%  | 1.930% |  |
| 383    | 18.312 | 18.283 | 18.317 | VV | 25798  | 431860  | 10.22%  | 0.284% |  |
| 384    | 18.335 | 18.317 | 18.354 | VV | 28804  | 575561  | 13.62%  | 0.378% |  |
| 385    | 18.371 | 18.354 | 18.424 | VV | 31622  | 950550  | 22.49%  | 0.624% |  |
| 386    | 18.546 | 18.495 | 18.572 | VV | 174105 | 4225086 | 99.95%  | 2.776% |  |
| 387    | 18.589 | 18.572 | 18.615 | VV | 69878  | 1308183 | 30.95%  | 0.859% |  |
| 388    | 18.624 | 18.615 | 18.649 | VV | 29190  | 458595  | 10.85%  | 0.301% |  |
| 389    | 18.678 | 18.649 | 18.694 | VV | 51960  | 959251  | 22.69%  | 0.630% |  |
| 390    | 18.710 | 18.694 | 18.771 | VV | 51784  | 1249514 | 29.56%  | 0.821% |  |
| 391    | 18.843 | 18.827 | 18.847 | VV | 19315  | 222935  | 5.27%   | 0.146% |  |
| 392    | 18.881 | 18.847 | 18.901 | VV | 27091  | 712558  | 16.86%  | 0.468% |  |
| 393    | 19.002 | 18.958 | 19.045 | VV | 146535 | 3039045 | 71.89%  | 1.997% |  |
| 394    | 19.163 | 19.142 | 19.181 | VV | 30261  | 605017  | 14.31%  | 0.397% |  |
| 395    | 19.206 | 19.181 | 19.253 | VV | 46027  | 1260186 | 29.81%  | 0.828% |  |
| 396    | 19.282 | 19.253 | 19.296 | VV | 30085  | 637718  | 15.09%  | 0.419% |  |
| 397    | 19.351 | 19.296 | 19.380 | VV | 114144 | 2723655 | 64.43%  | 1.789% |  |
| 398    | 19.401 | 19.380 | 19.456 | VV | 75879  | 1814665 | 42.93%  | 1.192% |  |
| 399    | 19.480 | 19.456 | 19.512 | VV | 31974  | 869151  | 20.56%  | 0.571% |  |
| 400    | 19.533 | 19.512 | 19.566 | VV | 33419  | 790274  | 18.69%  | 0.519% |  |
| 401    | 19.584 | 19.566 | 19.599 | VV | 18826  | 361176  | 8.54%   | 0.237% |  |
| 402    | 19.604 | 19.599 | 19.610 | VV | 18643  | 113774  | 2.69%   | 0.075% |  |
| 403    | 19.691 | 19.674 | 19.727 | VV | 20209  | 547091  | 12.94%  | 0.359% |  |
| 404    | 19.889 | 19.866 | 19.922 | VV | 35799  | 863678  | 20.43%  | 0.567% |  |

Instrument :

FID\_F

ClientSampleId :

COP-SOIL-PILEMS

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

Instrument :

FID\_F

ClientSampleId :

COP-SOIL-PILEMS

rteres

|     |        |        |        |    |       |         |        |        |
|-----|--------|--------|--------|----|-------|---------|--------|--------|
| 405 | 19.958 | 19.922 | 19.985 | VV | 76610 | 1551819 | 36.71% | 1.019% |
| 406 | 20.025 | 19.985 | 20.051 | VV | 67264 | 1673794 | 39.13% | 0.531% |
| 407 | 20.130 | 20.098 | 20.173 | VV | 79550 | 2158655 | 51.13% | 0.299% |
| 408 | 20.194 | 20.173 | 20.219 | VV | 36919 | 818702  | 19.13% | 0.213% |
| 409 | 20.240 | 20.219 | 20.264 | VV | 34938 | 790452  | 18.69% | 0.348% |
| 410 | 20.401 | 20.364 | 20.447 | VV | 45575 | 1575778 | 37.13% | 0.283% |
| 411 | 20.601 | 20.575 | 20.621 | VV | 26871 | 656879  | 15.54% | 0.531% |
| 412 | 20.650 | 20.621 | 20.673 | VV | 27771 | 808641  | 19.13% | 0.299% |
| 413 | 20.677 | 20.673 | 20.705 | VV | 26093 | 454459  | 10.75% | 0.213% |
| 414 | 20.710 | 20.705 | 20.731 | VV | 22427 | 324932  | 7.69%  | 0.348% |
| 415 | 20.752 | 20.731 | 20.773 | VV | 22199 | 530431  | 12.55% | 0.283% |
| 416 | 20.798 | 20.773 | 20.807 | VV | 21830 | 430967  | 10.19% | 0.410% |
| 417 | 20.842 | 20.820 | 20.862 | VV | 28006 | 623606  | 14.75% | 0.303% |
| 418 | 20.874 | 20.862 | 20.894 | VV | 25011 | 460562  | 10.90% | 0.601% |
| 419 | 20.918 | 20.894 | 20.957 | VV | 29794 | 915122  | 21.65% | 0.232% |
| 420 | 20.976 | 20.957 | 20.989 | VV | 19562 | 353795  | 8.37%  | 0.163% |
| 421 | 21.000 | 20.989 | 21.010 | VV | 19442 | 247937  | 5.87%  | 0.351% |
| 422 | 21.027 | 21.010 | 21.060 | VV | 19681 | 533778  | 12.63% | 0.300% |
| 423 | 21.076 | 21.060 | 21.106 | VV | 17157 | 456102  | 10.79% | 0.106% |
| 424 | 21.111 | 21.106 | 21.124 | VV | 15896 | 161908  | 3.83%  | 0.254% |
| 425 | 21.138 | 21.124 | 21.165 | VV | 16004 | 385994  | 9.13%  | 0.439% |
| 426 | 21.187 | 21.165 | 21.242 | VV | 15717 | 667704  | 15.80% | 1.031% |
| 427 | 21.294 | 21.242 | 21.328 | VV | 62831 | 1569949 | 37.14% | 0.636% |
| 428 | 21.360 | 21.328 | 21.432 | VV | 19892 | 968353  | 22.91% | 0.407% |
| 429 | 21.467 | 21.432 | 21.510 | VV | 15842 | 618988  | 14.64% | 0.146% |
| 430 | 21.534 | 21.510 | 21.541 | VV | 12577 | 222961  | 5.27%  | 0.367% |
| 431 | 21.579 | 21.541 | 21.608 | VV | 16961 | 557881  | 13.20% | 0.480% |
| 432 | 21.661 | 21.608 | 21.698 | VV | 17058 | 731052  | 17.29% | 0.877% |
| 433 | 21.753 | 21.698 | 21.782 | VV | 40461 | 1334245 | 31.56% | 0.582% |
| 434 | 21.795 | 21.782 | 21.896 | VV | 20693 | 886392  | 20.97% | 0.197% |
| 435 | 21.921 | 21.896 | 21.947 | VV | 12100 | 300465  | 7.11%  | 0.252% |
| 436 | 21.972 | 21.947 | 22.019 | VV | 14170 | 383199  | 9.06%  | 0.440% |
| 437 | 22.063 | 22.019 | 22.110 | VV | 25391 | 670250  | 15.86% | 0.358% |
| 438 | 22.146 | 22.110 | 22.177 | VV | 22168 | 544211  | 12.87% | 0.177% |
| 439 | 22.202 | 22.177 | 22.215 | VV | 14131 | 269021  | 6.36%  | 0.951% |
| 440 | 22.251 | 22.215 | 22.354 | VV | 47961 | 1447584 | 34.24% | 0.003% |
| 441 | 22.364 | 22.354 | 22.375 | VV | 497   | 4184    | 0.10%  | 0.002% |
| 442 | 22.384 | 22.375 | 22.395 | VV | 516   | 3621    | 0.09%  |        |

Sum of corrected areas: 152216290

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

FF061325.M Tue Jul 01 05:13:49 2025



## Report of Analysis

|                    |                                                   |                    |          |
|--------------------|---------------------------------------------------|--------------------|----------|
| Client:            | Coppola Services                                  | Date Collected:    | 06/24/25 |
| Project:           | Millville Sewage Treatment Plant - Field Sampling | Date Received:     | 06/24/25 |
| Client Sample ID:  | COP-SOIL-PILEMSD                                  | SDG No.:           | Q2409    |
| Lab Sample ID:     | Q2409-02MSD                                       | Matrix:            | SOIL     |
| Analytical Method: | 8015D TPH                                         | % Solid:           | 96.4     |
| Sample Wt/Vol:     | 30.08                                             | Units:             | g        |
| Soil Aliquot Vol:  |                                                   |                    | uL       |
| Extraction Type:   |                                                   | Test:              | TPH GC   |
| GPC Factor :       |                                                   | Injection Volume : |          |
| Prep Method :      | SW3541                                            |                    |          |

|                   |           |                |                |               |
|-------------------|-----------|----------------|----------------|---------------|
| File ID/Qc Batch: | Dilution: | Prep Date      | Date Analyzed  | Prep Batch ID |
| FF016039.D        | 1         | 06/30/25 09:20 | 06/30/25 15:39 | PB168659      |

| CAS Number        | Parameter              | Conc. | Qualifier | MDL      | LOQ / CRQL | Units(Dry Weight) |
|-------------------|------------------------|-------|-----------|----------|------------|-------------------|
| <b>TARGETS</b>    |                        |       |           |          |            |                   |
| PHC               | Petroleum Hydrocarbons | 43800 |           | 397      | 2930       | ug/kg             |
| <b>SURROGATES</b> |                        |       |           |          |            |                   |
| 16416-32-3        | TETRACOSANE-d50        | 11.5  |           | 37 - 130 | 58%        | SPK: 20           |

### Comments:

U = Not Detected  
 LOQ = Limit of Quantitation  
 MDL = Method Detection Limit  
 LOD = Limit of Detection  
 E = Value Exceeds Calibration Range  
 P = Indicates >25% difference for detected concentrations between the two GC columns  
 Q = indicates LCS control criteria did not meet requirements  
 M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value  
 B = Analyte Found in Associated Method Blank  
 N = Presumptive Evidence of a Compound  
 \* = Values outside of QC limits  
 D = Dilution  
 S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.  
 () = Laboratory InHouse Limit

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
 Data File : FF016039.D  
 Signal(s) : FID2B.ch  
 Acq On : 30 Jun 2025 15:39  
 Operator : YP\AJ  
 Sample : Q2409-02MSD  
 Misc :  
 ALS Vial : 75 Sample Multiplier: 1

Instrument :  
 FID\_F  
 ClientSampleId :  
 COP-SOIL-PILEMSD

Manual Integrations  
 APPROVED

Reviewed By :Yogesh Patel 07/01/2025  
 Supervised By :mohammad ahmed 07/01/2025

Integration File: autoint1.e  
 Quant Time: Jul 01 03:15:04 2025  
 Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
 Quant Title :  
 QLast Update : Fri Jun 13 15:23:30 2025  
 Response via : Initial Calibration  
 Integrator: ChemStation

Volume Inj. : 1uL  
 Signal Phase : Rxi-1ms  
 Signal Info : 20mx0.18mmx0.18um

| Compound                      | R.T.   | Response | Conc Units    |
|-------------------------------|--------|----------|---------------|
| -----                         |        |          |               |
| System Monitoring Compounds   |        |          |               |
| 9) S TETRACOSANE-d50 (SURR... | 15.098 | 1389445  | 11.507 ug/ml  |
| Target Compounds              |        |          |               |
| 1) N-OCTANE                   | 2.083  | 1196277  | 9.428 ug/ml   |
| 2) N-DECANE                   | 4.620  | 1553105  | 11.854 ug/ml  |
| 3) N-DODECANE                 | 6.795  | 1717308  | 12.897 ug/ml  |
| 4) N-TETRADECANE              | 8.627  | 1804050  | 13.461 ug/ml  |
| 5) N-HEXADECANE               | 10.236 | 1898098  | 14.054 ug/ml  |
| 6) N-OCTADECANE               | 11.681 | 2030783  | 14.649 ug/ml  |
| 7) N-EICOSANE                 | 12.994 | 2148001  | 15.383 ug/ml  |
| 8) N-DOCOSANE                 | 14.194 | 2112442  | 15.548 ug/ml  |
| 10) N-TETRACOSANE             | 15.301 | 1811025  | 13.363 ug/ml  |
| 11) N-HEXACOSANE              | 16.326 | 1905932  | 14.198 ug/ml  |
| 12) N-OCTACOSANE              | 17.276 | 2908838  | 22.033 ug/ml  |
| 13) N-TRIACONTANE             | 18.168 | 2148955  | 16.272 ug/ml  |
| 14) N-DOTRIACONTANE           | 19.003 | 1977247  | 15.541 ug/ml  |
| 15) N-TETRATRIACONTANE        | 19.788 | 1547322  | 13.836 ug/ml  |
| 16) N-HEXATRIACONTANE         | 20.530 | 1024019  | 10.953 ug/ml  |
| 17) N-OCTATRIACONTANE         | 21.294 | 869141   | 10.704 ug/ml  |
| 18) N-TETRACONTANE            | 22.254 | 1037179  | 14.789 ug/mlm |
| -----                         |        |          |               |

(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF063025\  
Data File : FF016039.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 15:39  
Operator : YP\AJ  
Sample : Q2409-02MSD  
Misc :  
ALS Vial : 75 Sample Multiplier: 1

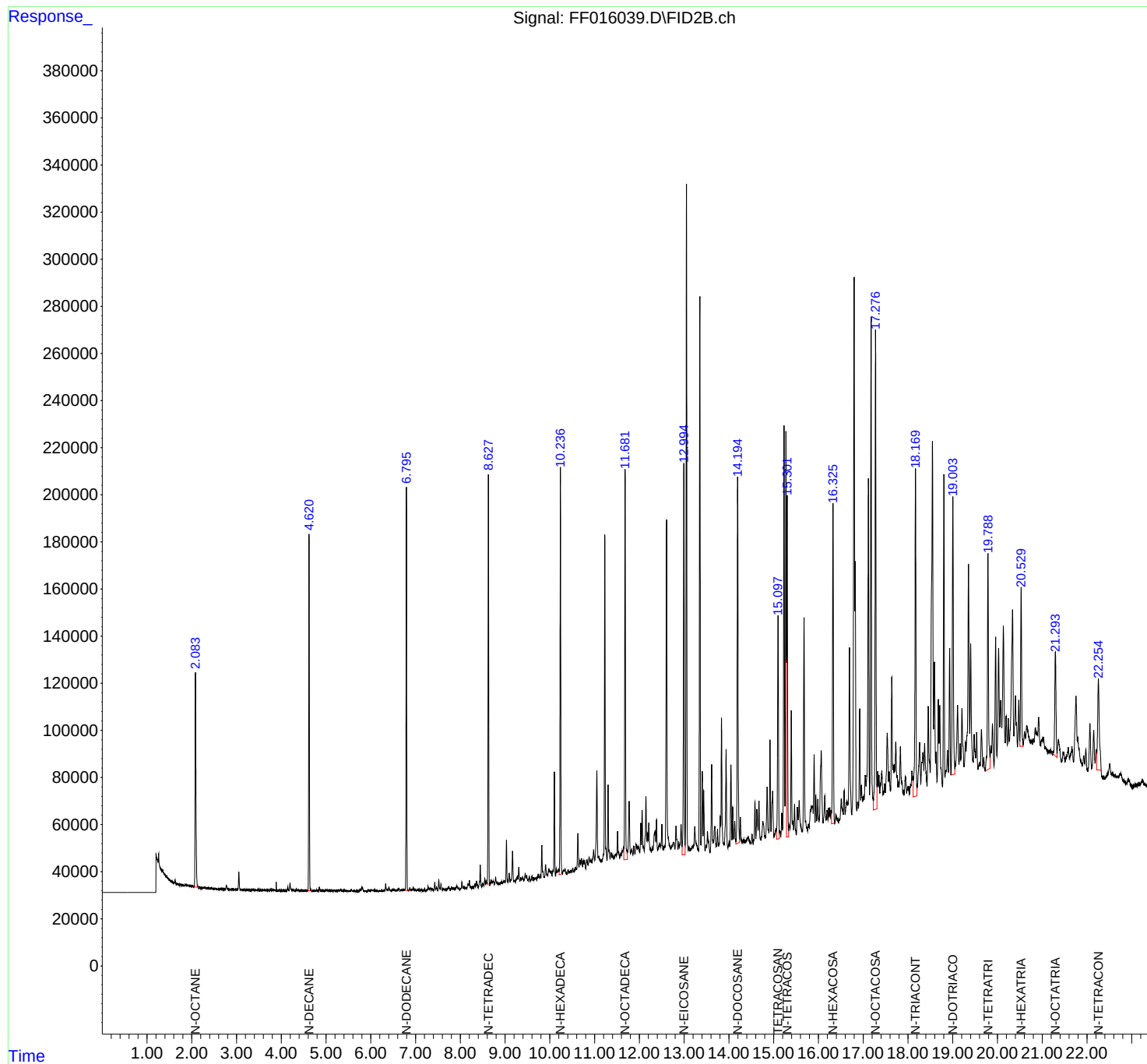
Instrument :  
FID\_F  
ClientSampleId :  
COP-SOIL-PILEMSD

Manual Integrations  
APPROVED

Reviewed By :Yogesh Patel 07/01/2025  
Supervised By :mohammad ahmed 07/01/2025

Integration File: autoint1.e  
Quant Time: Jul 01 03:15:04 2025  
Quant Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Quant Title :  
QLast Update : Fri Jun 13 15:23:30 2025  
Response via : Initial Calibration  
Integrator: ChemStation

Volume Inj. : 1uL  
Signal Phase : Rxi-1ms  
Signal Info : 20mx0.18mmx0.18um



rteres

Instrument :

FID\_F

ClientSampleId :

COP-SOIL-PILEMSD

Area Percent Report

Manual IntegrationsAPPROVED

Data Path : Z:\pestpcbsrv\HPCHEM1\FID\_F\Data\FF06302  
Data File : FF016039.D  
Signal(s) : FID2B.ch  
Acq On : 30 Jun 2025 15:39  
Sample : Q2409-02MSD  
Misc :  
ALS Vial : 75 Sample Multiplier: 1

Reviewed By :Yogesh Patel 07/01/2025  
Supervised By :mohammad ahmed 07/01/2025

Integration File: Sample.e

Method : Z:\pestpcbsrv\HPCHEM1\FID\_F\Method\FF061325.M  
Title :

Signal : FID2B.ch

| peak<br># | R.T.<br>min | Start<br>min | End<br>min | PK<br>TY | peak<br>height | peak<br>area | peak<br>% max. | % of<br>total |
|-----------|-------------|--------------|------------|----------|----------------|--------------|----------------|---------------|
| 1         | 1.948       | 1.930        | 1.960      | BV       | 100            | 104          | 0.00%          | 0.000%        |
| 2         | 1.963       | 1.960        | 1.972      | VV       | 78             | 324          | 0.01%          | 0.000%        |
| 3         | 1.976       | 1.972        | 2.008      | VV       | 66             | 799          | 0.02%          | 0.001%        |
| 4         | 2.021       | 2.008        | 2.049      | PV       | 207            | 2398         | 0.06%          | 0.002%        |
| 5         | 2.083       | 2.049        | 2.149      | PV       | 91091          | 1199420      | 32.45%         | 0.761%        |
| 6         | 2.153       | 2.149        | 2.224      | PV       | 138            | 1621         | 0.04%          | 0.001%        |
| 7         | 2.230       | 2.224        | 2.259      | PV       | 77             | 999          | 0.03%          | 0.001%        |
| 8         | 2.263       | 2.259        | 2.274      | PV       | 131            | 555          | 0.02%          | 0.000%        |
| 9         | 2.283       | 2.274        | 2.335      | VV       | 375            | 6817         | 0.18%          | 0.004%        |
| 10        | 2.338       | 2.335        | 2.352      | VV       | 125            | 609          | 0.02%          | 0.000%        |
| 11        | 2.376       | 2.352        | 2.411      | PV       | 505            | 7253         | 0.20%          | 0.005%        |
| 12        | 2.428       | 2.411        | 2.481      | VV       | 318            | 6231         | 0.17%          | 0.004%        |
| 13        | 2.489       | 2.481        | 2.497      | PV       | 93             | 591          | 0.02%          | 0.000%        |
| 14        | 2.500       | 2.497        | 2.518      | VV       | 117            | 816          | 0.02%          | 0.001%        |
| 15        | 2.529       | 2.518        | 2.599      | PV       | 133            | 2241         | 0.06%          | 0.001%        |
| 16        | 2.614       | 2.599        | 2.619      | PV       | 171            | 984          | 0.03%          | 0.001%        |
| 17        | 2.625       | 2.619        | 2.640      | VV       | 142            | 1157         | 0.03%          | 0.001%        |
| 18        | 2.661       | 2.640        | 2.684      | VV       | 555            | 7262         | 0.20%          | 0.005%        |
| 19        | 2.692       | 2.684        | 2.700      | VV       | 193            | 1162         | 0.03%          | 0.001%        |
| 20        | 2.704       | 2.700        | 2.721      | VV       | 168            | 1154         | 0.03%          | 0.001%        |
| 21        | 2.731       | 2.721        | 2.735      | PV       | 123            | 597          | 0.02%          | 0.000%        |
| 22        | 2.739       | 2.735        | 2.744      | VV       | 61             | 386          | 0.01%          | 0.000%        |
| 23        | 2.773       | 2.744        | 2.815      | VV       | 1687           | 29080        | 0.79%          | 0.018%        |
| 24        | 2.820       | 2.815        | 2.828      | VV       | 165            | 794          | 0.02%          | 0.001%        |
| 25        | 2.832       | 2.828        | 2.840      | VV       | 140            | 672          | 0.02%          | 0.000%        |
| 26        | 2.850       | 2.840        | 2.865      | VV       | 162            | 1713         | 0.05%          | 0.001%        |
| 27        | 2.871       | 2.865        | 2.877      | VV       | 258            | 1303         | 0.04%          | 0.001%        |
| 28        | 2.881       | 2.877        | 2.890      | VV       | 233            | 1462         | 0.04%          | 0.001%        |
| 29        | 2.901       | 2.890        | 2.924      | VV       | 543            | 3914         | 0.11%          | 0.002%        |
| 30        | 2.949       | 2.924        | 2.956      | VV       | 351            | 4251         | 0.11%          | 0.003%        |
| 31        | 2.969       | 2.956        | 2.986      | VV       | 374            | 4782         | 0.13%          | 0.003%        |
| 32        | 2.995       | 2.986        | 3.026      | VV       | 435            | 7203         | 0.19%          | 0.005%        |
| 33        | 3.051       | 3.026        | 3.081      | VV       | 7788           | 87951        | 2.38%          | 0.056%        |
| 34        | 3.096       | 3.081        | 3.114      | VV       | 241            | 3314         | 0.09%          | 0.002%        |
| 35        | 3.118       | 3.114        | 3.129      | VV       | 188            | 1231         | 0.03%          | 0.001%        |
| 36        | 3.136       | 3.129        | 3.157      | VV       | 199            | 2255         | 0.06%          | 0.001%        |

|    |       |       |       |    | retention |         |        |        |
|----|-------|-------|-------|----|-----------|---------|--------|--------|
| 37 | 3.163 | 3.157 | 3.191 | VV | 217       | 2141    | 0.06%  | 0.001% |
| 38 | 3.217 | 3.191 | 3.250 | PV | 270       | 4710    | 0.06%  | 0.001% |
| 39 | 3.262 | 3.250 | 3.295 | VV | 387       | 5935    | 0.06%  | 0.001% |
| 40 | 3.301 | 3.295 | 3.323 | VV | 222       | 2217    | 0.06%  | 0.001% |
| 41 | 3.326 | 3.323 | 3.337 | VV | 190       | 882     | 0.05%  | 0.001% |
| 42 | 3.359 | 3.337 | 3.424 | VV | 489       | 10390   | 0.05%  | 0.001% |
| 43 | 3.430 | 3.424 | 3.456 | VV | 260       | 2024    | 0.05%  | 0.001% |
| 44 | 3.479 | 3.456 | 3.498 | VV | 472       | 6694    | 0.18%  | 0.004% |
| 45 | 3.503 | 3.498 | 3.524 | VV | 258       | 2023    | 0.05%  | 0.001% |
| 46 | 3.527 | 3.524 | 3.553 | VV | 208       | 1830    | 0.05%  | 0.001% |
| 47 | 3.559 | 3.553 | 3.564 | VV | 139       | 761     | 0.02%  | 0.000% |
| 48 | 3.568 | 3.564 | 3.592 | VV | 204       | 2328    | 0.06%  | 0.001% |
| 49 | 3.595 | 3.592 | 3.601 | VV | 175       | 726     | 0.02%  | 0.000% |
| 50 | 3.605 | 3.601 | 3.626 | VV | 218       | 1441    | 0.04%  | 0.001% |
| 51 | 3.641 | 3.626 | 3.661 | PV | 172       | 1636    | 0.04%  | 0.001% |
| 52 | 3.671 | 3.661 | 3.686 | VV | 164       | 1646    | 0.04%  | 0.001% |
| 53 | 3.706 | 3.686 | 3.739 | VV | 356       | 5673    | 0.15%  | 0.004% |
| 54 | 3.769 | 3.739 | 3.799 | VV | 379       | 9617    | 0.26%  | 0.006% |
| 55 | 3.812 | 3.799 | 3.833 | VV | 347       | 5003    | 0.14%  | 0.003% |
| 56 | 3.851 | 3.833 | 3.873 | VV | 370       | 4935    | 0.13%  | 0.003% |
| 57 | 3.877 | 3.873 | 3.884 | VV | 164       | 792     | 0.02%  | 0.001% |
| 58 | 3.887 | 3.884 | 3.905 | VV | 3244      | 4084    | 0.11%  | 0.003% |
| 59 | 3.908 | 3.905 | 3.913 | VV | 155       | 458     | 0.01%  | 0.000% |
| 60 | 3.917 | 3.913 | 3.924 | VV | 81        | 496     | 0.01%  | 0.000% |
| 61 | 3.946 | 3.924 | 3.967 | VV | 332       | 4657    | 0.13%  | 0.003% |
| 62 | 3.976 | 3.967 | 3.990 | VV | 218       | 1570    | 0.04%  | 0.001% |
| 63 | 4.003 | 3.990 | 4.028 | PV | 190       | 1298    | 0.04%  | 0.001% |
| 64 | 4.047 | 4.028 | 4.086 | VV | 320       | 4142    | 0.11%  | 0.003% |
| 65 | 4.091 | 4.086 | 4.097 | VV | 109       | 526     | 0.01%  | 0.000% |
| 66 | 4.101 | 4.097 | 4.124 | VV | 112       | 896     | 0.02%  | 0.001% |
| 67 | 4.145 | 4.124 | 4.174 | VV | 1759      | 19594   | 0.53%  | 0.012% |
| 68 | 4.196 | 4.174 | 4.247 | VV | 3208      | 48040   | 1.30%  | 0.030% |
| 69 | 4.265 | 4.247 | 4.292 | VV | 467       | 6969    | 0.19%  | 0.004% |
| 70 | 4.307 | 4.292 | 4.318 | VV | 187       | 1977    | 0.05%  | 0.001% |
| 71 | 4.323 | 4.318 | 4.328 | VV | 266       | 1252    | 0.03%  | 0.001% |
| 72 | 4.343 | 4.328 | 4.371 | VV | 526       | 8777    | 0.24%  | 0.006% |
| 73 | 4.387 | 4.371 | 4.414 | VV | 441       | 6532    | 0.18%  | 0.004% |
| 74 | 4.426 | 4.414 | 4.430 | VV | 143       | 1106    | 0.03%  | 0.001% |
| 75 | 4.449 | 4.430 | 4.472 | VV | 303       | 4631    | 0.13%  | 0.003% |
| 76 | 4.476 | 4.472 | 4.488 | VV | 89        | 524     | 0.01%  | 0.000% |
| 77 | 4.496 | 4.488 | 4.504 | VV | 160       | 1010    | 0.03%  | 0.001% |
| 78 | 4.515 | 4.504 | 4.529 | VV | 192       | 1930    | 0.05%  | 0.001% |
| 79 | 4.533 | 4.529 | 4.539 | VV | 131       | 414     | 0.01%  | 0.000% |
| 80 | 4.546 | 4.539 | 4.567 | VV | 195       | 2454    | 0.07%  | 0.002% |
| 81 | 4.577 | 4.567 | 4.589 | VV | 292       | 3023    | 0.08%  | 0.002% |
| 82 | 4.620 | 4.589 | 4.651 | VV | 151471    | 1555275 | 42.08% | 0.986% |
| 83 | 4.657 | 4.651 | 4.678 | VV | 465       | 4222    | 0.11%  | 0.003% |
| 84 | 4.705 | 4.678 | 4.720 | VV | 250       | 3585    | 0.10%  | 0.002% |
| 85 | 4.731 | 4.720 | 4.753 | VV | 216       | 2501    | 0.07%  | 0.002% |
| 86 | 4.756 | 4.753 | 4.765 | VV | 96        | 637     | 0.02%  | 0.000% |
| 87 | 4.787 | 4.765 | 4.803 | VV | 542       | 6960    | 0.19%  | 0.004% |
| 88 | 4.819 | 4.803 | 4.831 | VV | 570       | 6218    | 0.17%  | 0.004% |
| 89 | 4.850 | 4.831 | 4.896 | VV | 1640      | 22175   | 0.60%  | 0.014% |

Instrument :

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ClientSampleId :

COP-SOIL-PILEMSD

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

|     |       |       |       |    |        |         |        |        |
|-----|-------|-------|-------|----|--------|---------|--------|--------|
| 90  | 4.908 | 4.896 | 4.916 | VV | 253    | 2375    | 0.06%  | 0.002% |
| 91  | 4.930 | 4.916 | 4.959 | VV | 260    | 4036    |        |        |
| 92  | 4.985 | 4.959 | 5.001 | VV | 420    | 6698    |        |        |
| 93  | 5.009 | 5.001 | 5.022 | VV | 368    | 3904    |        |        |
| 94  | 5.040 | 5.022 | 5.055 | VV | 405    | 5868    |        |        |
| 95  | 5.081 | 5.055 | 5.114 | VV | 456    | 9819    |        |        |
| 96  | 5.135 | 5.114 | 5.159 | VV | 408    | 7076    | 0.19%  | 0.004% |
| 97  | 5.172 | 5.159 | 5.197 | VV | 415    | 6307    | 0.17%  | 0.004% |
| 98  | 5.201 | 5.197 | 5.212 | VV | 246    | 2025    | 0.05%  | 0.001% |
| 99  | 5.222 | 5.212 | 5.249 | VV | 345    | 5137    | 0.14%  | 0.003% |
| 100 | 5.279 | 5.249 | 5.290 | VV | 365    | 6522    | 0.18%  | 0.004% |
| 101 | 5.297 | 5.290 | 5.302 | VV | 257    | 1234    | 0.03%  | 0.001% |
| 102 | 5.316 | 5.302 | 5.353 | VV | 706    | 13502   | 0.37%  | 0.009% |
| 103 | 5.356 | 5.353 | 5.360 | VV | 168    | 728     | 0.02%  | 0.000% |
| 104 | 5.378 | 5.360 | 5.393 | VV | 366    | 4830    | 0.13%  | 0.003% |
| 105 | 5.408 | 5.393 | 5.421 | VV | 539    | 5730    | 0.16%  | 0.004% |
| 106 | 5.434 | 5.421 | 5.459 | VV | 402    | 6633    | 0.18%  | 0.004% |
| 107 | 5.464 | 5.459 | 5.483 | VV | 240    | 1927    | 0.05%  | 0.001% |
| 108 | 5.503 | 5.483 | 5.524 | PV | 250    | 3632    | 0.10%  | 0.002% |
| 109 | 5.539 | 5.524 | 5.546 | VV | 234    | 2100    | 0.06%  | 0.001% |
| 110 | 5.565 | 5.546 | 5.593 | VV | 984    | 11817   | 0.32%  | 0.007% |
| 111 | 5.604 | 5.593 | 5.616 | VV | 299    | 3182    | 0.09%  | 0.002% |
| 112 | 5.633 | 5.616 | 5.655 | VV | 346    | 5133    | 0.14%  | 0.003% |
| 113 | 5.668 | 5.655 | 5.678 | VV | 205    | 1712    | 0.05%  | 0.001% |
| 114 | 5.703 | 5.678 | 5.721 | VV | 354    | 4271    | 0.12%  | 0.003% |
| 115 | 5.726 | 5.721 | 5.735 | VV | 51     | 457     | 0.01%  | 0.000% |
| 116 | 5.761 | 5.735 | 5.780 | PV | 1063   | 14246   | 0.39%  | 0.009% |
| 117 | 5.796 | 5.780 | 5.807 | VV | 1721   | 18869   | 0.51%  | 0.012% |
| 118 | 5.817 | 5.807 | 5.851 | VV | 1659   | 19123   | 0.52%  | 0.012% |
| 119 | 5.868 | 5.851 | 5.882 | VV | 258    | 3241    | 0.09%  | 0.002% |
| 120 | 5.890 | 5.882 | 5.919 | VV | 159    | 2085    | 0.06%  | 0.001% |
| 121 | 5.950 | 5.919 | 5.979 | VV | 662    | 11374   | 0.31%  | 0.007% |
| 122 | 6.006 | 5.979 | 6.044 | VV | 819    | 17836   | 0.48%  | 0.011% |
| 123 | 6.057 | 6.044 | 6.065 | VV | 431    | 4407    | 0.12%  | 0.003% |
| 124 | 6.077 | 6.065 | 6.100 | VV | 638    | 8233    | 0.22%  | 0.005% |
| 125 | 6.131 | 6.100 | 6.145 | VV | 473    | 7059    | 0.19%  | 0.004% |
| 126 | 6.149 | 6.145 | 6.164 | VV | 284    | 1845    | 0.05%  | 0.001% |
| 127 | 6.179 | 6.164 | 6.185 | VV | 195    | 1526    | 0.04%  | 0.001% |
| 128 | 6.205 | 6.185 | 6.221 | VV | 298    | 3670    | 0.10%  | 0.002% |
| 129 | 6.240 | 6.221 | 6.264 | PV | 439    | 5456    | 0.15%  | 0.003% |
| 130 | 6.299 | 6.264 | 6.310 | VV | 580    | 8166    | 0.22%  | 0.005% |
| 131 | 6.332 | 6.310 | 6.383 | VV | 3191   | 45607   | 1.23%  | 0.029% |
| 132 | 6.406 | 6.383 | 6.432 | VV | 1778   | 27091   | 0.73%  | 0.017% |
| 133 | 6.443 | 6.432 | 6.460 | VV | 437    | 5039    | 0.14%  | 0.003% |
| 134 | 6.482 | 6.460 | 6.495 | VV | 844    | 9967    | 0.27%  | 0.006% |
| 135 | 6.516 | 6.495 | 6.548 | VV | 784    | 15183   | 0.41%  | 0.010% |
| 136 | 6.590 | 6.548 | 6.604 | VV | 489    | 12038   | 0.33%  | 0.008% |
| 137 | 6.629 | 6.604 | 6.651 | VV | 1159   | 19694   | 0.53%  | 0.012% |
| 138 | 6.675 | 6.651 | 6.696 | VV | 513    | 10526   | 0.28%  | 0.007% |
| 139 | 6.719 | 6.696 | 6.729 | VV | 558    | 8665    | 0.23%  | 0.005% |
| 140 | 6.742 | 6.729 | 6.764 | VV | 565    | 9250    | 0.25%  | 0.006% |
| 141 | 6.795 | 6.764 | 6.830 | VV | 171531 | 1727829 | 46.75% | 1.096% |

Instrument :

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ClientSampleId :

COP-SOIL-PILEMSD

0.06% 0.002%

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

|     |       |       |       |    |        |         |        |        |
|-----|-------|-------|-------|----|--------|---------|--------|--------|
|     |       |       |       |    | rters  |         |        |        |
| 142 | 6.833 | 6.830 | 6.849 | VV | 284    | 2021    | 0.05%  | 0.001% |
| 143 | 6.871 | 6.849 | 6.902 | VV | 1419   | 19015   |        |        |
| 144 | 6.922 | 6.902 | 6.934 | VV | 576    | 8317    |        |        |
| 145 | 6.948 | 6.934 | 6.972 | VV | 1449   | 17718   |        |        |
| 146 | 6.990 | 6.972 | 7.011 | VV | 709    | 8957    |        |        |
| 147 | 7.024 | 7.011 | 7.041 | VV | 259    | 3045    |        |        |
| 148 | 7.078 | 7.041 | 7.103 | VV | 553    | 8899    | 0.24%  | 0.006% |
| 149 | 7.119 | 7.103 | 7.155 | VV | 423    | 8330    | 0.23%  | 0.005% |
| 150 | 7.161 | 7.155 | 7.175 | PV | 137    | 1051    | 0.03%  | 0.001% |
| 151 | 7.199 | 7.175 | 7.237 | VV | 610    | 9292    | 0.25%  | 0.006% |
| 152 | 7.276 | 7.237 | 7.313 | VV | 1747   | 31289   | 0.85%  | 0.020% |
| 153 | 7.329 | 7.313 | 7.350 | VV | 895    | 14103   | 0.38%  | 0.009% |
| 154 | 7.368 | 7.350 | 7.399 | VV | 875    | 12093   | 0.33%  | 0.008% |
| 155 | 7.428 | 7.399 | 7.450 | VV | 3269   | 37103   | 1.00%  | 0.024% |
| 156 | 7.468 | 7.450 | 7.499 | VV | 1334   | 19264   | 0.52%  | 0.012% |
| 157 | 7.518 | 7.499 | 7.550 | VV | 4355   | 53616   | 1.45%  | 0.034% |
| 158 | 7.567 | 7.550 | 7.595 | VV | 2640   | 29536   | 0.80%  | 0.019% |
| 159 | 7.619 | 7.595 | 7.636 | PV | 728    | 9465    | 0.26%  | 0.006% |
| 160 | 7.640 | 7.636 | 7.675 | VV | 283    | 3775    | 0.10%  | 0.002% |
| 161 | 7.721 | 7.675 | 7.731 | VV | 811    | 13249   | 0.36%  | 0.008% |
| 162 | 7.744 | 7.731 | 7.772 | VV | 1359   | 18201   | 0.49%  | 0.012% |
| 163 | 7.781 | 7.772 | 7.784 | VV | 311    | 1798    | 0.05%  | 0.001% |
| 164 | 7.801 | 7.784 | 7.820 | VV | 970    | 13289   | 0.36%  | 0.008% |
| 165 | 7.834 | 7.820 | 7.849 | VV | 535    | 7163    | 0.19%  | 0.005% |
| 166 | 7.859 | 7.849 | 7.864 | VV | 512    | 3931    | 0.11%  | 0.002% |
| 167 | 7.878 | 7.864 | 7.892 | VV | 600    | 8551    | 0.23%  | 0.005% |
| 168 | 7.921 | 7.892 | 7.949 | VV | 1727   | 30447   | 0.82%  | 0.019% |
| 169 | 7.966 | 7.949 | 7.990 | VV | 658    | 8256    | 0.22%  | 0.005% |
| 170 | 8.034 | 7.990 | 8.055 | PV | 3118   | 40268   | 1.09%  | 0.026% |
| 171 | 8.060 | 8.055 | 8.071 | VV | 666    | 5611    | 0.15%  | 0.004% |
| 172 | 8.087 | 8.071 | 8.104 | VV | 827    | 10926   | 0.30%  | 0.007% |
| 173 | 8.131 | 8.104 | 8.147 | VV | 345    | 6504    | 0.18%  | 0.004% |
| 174 | 8.172 | 8.147 | 8.187 | VV | 1802   | 28353   | 0.77%  | 0.018% |
| 175 | 8.203 | 8.187 | 8.224 | VV | 3455   | 40739   | 1.10%  | 0.026% |
| 176 | 8.229 | 8.224 | 8.253 | VV | 675    | 7178    | 0.19%  | 0.005% |
| 177 | 8.272 | 8.253 | 8.293 | VV | 429    | 5394    | 0.15%  | 0.003% |
| 178 | 8.328 | 8.293 | 8.344 | PV | 1496   | 23388   | 0.63%  | 0.015% |
| 179 | 8.362 | 8.344 | 8.402 | VV | 2730   | 42729   | 1.16%  | 0.027% |
| 180 | 8.445 | 8.402 | 8.477 | VV | 9371   | 123453  | 3.34%  | 0.078% |
| 181 | 8.507 | 8.477 | 8.525 | VV | 1238   | 21222   | 0.57%  | 0.013% |
| 182 | 8.547 | 8.525 | 8.563 | VV | 3344   | 40968   | 1.11%  | 0.026% |
| 183 | 8.576 | 8.563 | 8.593 | VV | 2076   | 27080   | 0.73%  | 0.017% |
| 184 | 8.627 | 8.593 | 8.656 | VV | 174689 | 1835780 | 49.67% | 1.164% |
| 185 | 8.695 | 8.656 | 8.715 | VV | 1990   | 50160   | 1.36%  | 0.032% |
| 186 | 8.733 | 8.715 | 8.764 | VV | 1808   | 40954   | 1.11%  | 0.026% |
| 187 | 8.789 | 8.764 | 8.810 | VV | 3335   | 47770   | 1.29%  | 0.030% |
| 188 | 8.824 | 8.810 | 8.838 | VV | 1164   | 14089   | 0.38%  | 0.009% |
| 189 | 8.852 | 8.838 | 8.866 | VV | 642    | 9215    | 0.25%  | 0.006% |
| 190 | 8.875 | 8.866 | 8.890 | VV | 608    | 7036    | 0.19%  | 0.004% |
| 191 | 8.923 | 8.890 | 8.943 | VV | 1220   | 21933   | 0.59%  | 0.014% |
| 192 | 8.958 | 8.943 | 8.972 | VV | 1107   | 12722   | 0.34%  | 0.008% |
| 193 | 8.986 | 8.972 | 9.004 | VV | 1562   | 20655   | 0.56%  | 0.013% |
| 194 | 9.032 | 9.004 | 9.052 | VV | 18581  | 195373  | 5.29%  | 0.124% |

Instrument :

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ClientSampleId :

COP-SOIL-PILEMSD

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

|     |        |        |        |    |        |         |        |        |
|-----|--------|--------|--------|----|--------|---------|--------|--------|
| 195 | 9.060  | 9.052  | 9.071  | VV | 1113   | 11296   | 0.31%  | 0.007% |
| 196 | 9.091  | 9.071  | 9.113  | VV | 4350   | 60602   |        |        |
| 197 | 9.129  | 9.113  | 9.136  | VV | 1486   | 15741   |        |        |
| 198 | 9.167  | 9.136  | 9.193  | VV | 13586  | 193187  |        |        |
| 199 | 9.203  | 9.193  | 9.209  | VV | 836    | 7253    |        |        |
| 200 | 9.215  | 9.209  | 9.233  | VV | 833    | 9356    |        |        |
| 201 | 9.249  | 9.233  | 9.259  | VV | 1636   | 16203   | 0.44%  | 0.010% |
| 202 | 9.276  | 9.259  | 9.290  | VV | 2770   | 36440   | 0.99%  | 0.023% |
| 203 | 9.307  | 9.290  | 9.332  | VV | 6400   | 78503   | 2.12%  | 0.050% |
| 204 | 9.354  | 9.332  | 9.365  | VV | 1782   | 25923   | 0.70%  | 0.016% |
| 205 | 9.397  | 9.365  | 9.412  | VV | 1875   | 36718   | 0.99%  | 0.023% |
| 206 | 9.448  | 9.412  | 9.469  | VV | 3026   | 55678   | 1.51%  | 0.035% |
| 207 | 9.484  | 9.469  | 9.520  | VV | 2566   | 37837   | 1.02%  | 0.024% |
| 208 | 9.539  | 9.520  | 9.567  | VV | 1569   | 21791   | 0.59%  | 0.014% |
| 209 | 9.601  | 9.567  | 9.618  | VV | 2016   | 24507   | 0.66%  | 0.016% |
| 210 | 9.634  | 9.618  | 9.649  | PV | 1297   | 11997   | 0.32%  | 0.008% |
| 211 | 9.665  | 9.649  | 9.674  | VV | 801    | 9329    | 0.25%  | 0.006% |
| 212 | 9.688  | 9.674  | 9.702  | VV | 834    | 11077   | 0.30%  | 0.007% |
| 213 | 9.719  | 9.702  | 9.725  | VV | 940    | 9368    | 0.25%  | 0.006% |
| 214 | 9.739  | 9.725  | 9.767  | VV | 2488   | 36792   | 1.00%  | 0.023% |
| 215 | 9.780  | 9.767  | 9.799  | VV | 1945   | 23934   | 0.65%  | 0.015% |
| 216 | 9.821  | 9.799  | 9.875  | VV | 14349  | 202243  | 5.47%  | 0.128% |
| 217 | 9.906  | 9.875  | 9.934  | VV | 5799   | 95846   | 2.59%  | 0.061% |
| 218 | 9.940  | 9.934  | 9.953  | VV | 1595   | 15388   | 0.42%  | 0.010% |
| 219 | 9.973  | 9.953  | 9.985  | VV | 3912   | 53736   | 1.45%  | 0.034% |
| 220 | 9.995  | 9.985  | 10.018 | VV | 3012   | 51108   | 1.38%  | 0.032% |
| 221 | 10.030 | 10.018 | 10.046 | VV | 2498   | 32538   | 0.88%  | 0.021% |
| 222 | 10.071 | 10.046 | 10.079 | VV | 2771   | 41788   | 1.13%  | 0.026% |
| 223 | 10.101 | 10.079 | 10.126 | VV | 44714  | 476313  | 12.89% | 0.302% |
| 224 | 10.145 | 10.126 | 10.162 | VV | 3511   | 45677   | 1.24%  | 0.029% |
| 225 | 10.195 | 10.162 | 10.208 | VV | 3124   | 67303   | 1.82%  | 0.043% |
| 226 | 10.236 | 10.208 | 10.282 | VV | 173475 | 1932955 | 52.30% | 1.226% |
| 227 | 10.307 | 10.282 | 10.325 | VV | 2355   | 48361   | 1.31%  | 0.031% |
| 228 | 10.341 | 10.325 | 10.382 | VV | 2788   | 53480   | 1.45%  | 0.034% |
| 229 | 10.407 | 10.382 | 10.431 | VV | 2147   | 39238   | 1.06%  | 0.025% |
| 230 | 10.446 | 10.431 | 10.456 | VV | 1425   | 18088   | 0.49%  | 0.011% |
| 231 | 10.472 | 10.456 | 10.494 | VV | 1802   | 30521   | 0.83%  | 0.019% |
| 232 | 10.511 | 10.494 | 10.531 | VV | 2694   | 37874   | 1.02%  | 0.024% |
| 233 | 10.571 | 10.531 | 10.598 | VV | 2766   | 75149   | 2.03%  | 0.048% |
| 234 | 10.625 | 10.598 | 10.650 | VV | 17014  | 255803  | 6.92%  | 0.162% |
| 235 | 10.675 | 10.650 | 10.689 | VV | 5463   | 101163  | 2.74%  | 0.064% |
| 236 | 10.705 | 10.689 | 10.732 | VV | 6195   | 114231  | 3.09%  | 0.072% |
| 237 | 10.746 | 10.732 | 10.759 | VV | 5151   | 68089   | 1.84%  | 0.043% |
| 238 | 10.774 | 10.759 | 10.800 | VV | 5079   | 87344   | 2.36%  | 0.055% |
| 239 | 10.823 | 10.800 | 10.857 | VV | 5202   | 124920  | 3.38%  | 0.079% |
| 240 | 10.876 | 10.857 | 10.900 | VV | 6152   | 124555  | 3.37%  | 0.079% |
| 241 | 10.909 | 10.900 | 10.920 | VV | 4535   | 50788   | 1.37%  | 0.032% |
| 242 | 10.924 | 10.920 | 10.940 | VV | 4442   | 49538   | 1.34%  | 0.031% |
| 243 | 10.977 | 10.940 | 11.004 | VV | 8873   | 229961  | 6.22%  | 0.146% |
| 244 | 11.049 | 11.004 | 11.087 | VV | 42374  | 783082  | 21.19% | 0.497% |
| 245 | 11.094 | 11.087 | 11.138 | VV | 5591   | 138587  | 3.75%  | 0.088% |
| 246 | 11.146 | 11.138 | 11.160 | VV | 4037   | 49149   | 1.33%  | 0.031% |

Instrument :

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ClientSampleId :

COP-SOIL-PILEMSD

0.31% 0.007%

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025



| rteres |        |        |        |    |        |         |        |        |  |
|--------|--------|--------|--------|----|--------|---------|--------|--------|--|
| 247    | 11.198 | 11.160 | 11.202 | VV | 6424   | 123660  | 3.35%  | 0.078% |  |
| 248    | 11.227 | 11.202 | 11.280 | VV | 141621 | 1673357 | 45.15% | 0.078% |  |
| 249    | 11.300 | 11.280 | 11.347 | VV | 35607  | 525740  | 14.33% | 0.078% |  |
| 250    | 11.369 | 11.347 | 11.388 | VV | 6538   | 134743  | 3.35%  | 0.078% |  |
| 251    | 11.405 | 11.388 | 11.420 | VV | 5456   | 96483   | 2.97%  | 0.071% |  |
| 252    | 11.435 | 11.420 | 11.441 | VV | 4721   | 55961   | 1.15%  | 0.071% |  |
| 253    | 11.469 | 11.441 | 11.478 | VV | 5550   | 111599  | 3.02%  | 0.071% |  |
| 254    | 11.485 | 11.478 | 11.491 | VV | 5668   | 42683   | 1.15%  | 0.071% |  |
| 255    | 11.513 | 11.491 | 11.563 | VV | 15233  | 318432  | 8.62%  | 0.202% |  |
| 256    | 11.588 | 11.563 | 11.600 | VV | 5467   | 109633  | 2.97%  | 0.070% |  |
| 257    | 11.617 | 11.600 | 11.630 | VV | 6783   | 106988  | 2.89%  | 0.068% |  |
| 258    | 11.648 | 11.630 | 11.653 | VV | 7934   | 99183   | 2.68%  | 0.063% |  |
| 259    | 11.681 | 11.653 | 11.733 | VV | 168097 | 2159578 | 58.43% | 1.369% |  |
| 260    | 11.771 | 11.733 | 11.799 | VV | 27097  | 529021  | 14.31% | 0.335% |  |
| 261    | 11.830 | 11.799 | 11.855 | VV | 6588   | 187308  | 5.07%  | 0.119% |  |
| 262    | 11.878 | 11.855 | 11.901 | VV | 7783   | 164780  | 4.46%  | 0.104% |  |
| 263    | 11.925 | 11.901 | 11.935 | VV | 8395   | 141260  | 3.82%  | 0.090% |  |
| 264    | 11.939 | 11.935 | 11.961 | VV | 8241   | 112301  | 3.04%  | 0.071% |  |
| 265    | 11.970 | 11.961 | 11.975 | VV | 7438   | 58273   | 1.58%  | 0.037% |  |
| 266    | 11.979 | 11.975 | 12.008 | VV | 7277   | 127083  | 3.44%  | 0.081% |  |
| 267    | 12.032 | 12.008 | 12.045 | VV | 17150  | 230543  | 6.24%  | 0.146% |  |
| 268    | 12.061 | 12.045 | 12.085 | VV | 22572  | 319286  | 8.64%  | 0.202% |  |
| 269    | 12.091 | 12.085 | 12.107 | VV | 7041   | 85704   | 2.32%  | 0.054% |  |
| 270    | 12.147 | 12.107 | 12.167 | VV | 28096  | 500799  | 13.55% | 0.318% |  |
| 271    | 12.180 | 12.167 | 12.193 | VV | 12563  | 172995  | 4.68%  | 0.110% |  |
| 272    | 12.211 | 12.193 | 12.244 | VV | 16795  | 303876  | 8.22%  | 0.193% |  |
| 273    | 12.250 | 12.244 | 12.266 | VV | 5498   | 68191   | 1.84%  | 0.043% |  |
| 274    | 12.288 | 12.266 | 12.307 | VV | 6025   | 127986  | 3.46%  | 0.081% |  |
| 275    | 12.352 | 12.307 | 12.368 | VV | 12953  | 367431  | 9.94%  | 0.233% |  |
| 276    | 12.383 | 12.368 | 12.409 | VV | 17572  | 259297  | 7.02%  | 0.164% |  |
| 277    | 12.456 | 12.409 | 12.477 | VV | 7008   | 245610  | 6.65%  | 0.156% |  |
| 278    | 12.503 | 12.477 | 12.525 | VV | 15261  | 259611  | 7.02%  | 0.165% |  |
| 279    | 12.540 | 12.525 | 12.548 | VV | 5447   | 71964   | 1.95%  | 0.046% |  |
| 280    | 12.562 | 12.548 | 12.575 | VV | 5803   | 86129   | 2.33%  | 0.055% |  |
| 281    | 12.608 | 12.575 | 12.673 | VV | 143907 | 2195520 | 59.40% | 1.392% |  |
| 282    | 12.677 | 12.673 | 12.701 | VV | 5908   | 89089   | 2.41%  | 0.056% |  |
| 283    | 12.732 | 12.701 | 12.736 | VV | 5363   | 102451  | 2.77%  | 0.065% |  |
| 284    | 12.771 | 12.736 | 12.794 | VV | 6705   | 204072  | 5.52%  | 0.129% |  |
| 285    | 12.818 | 12.794 | 12.863 | VV | 13527  | 316237  | 8.56%  | 0.201% |  |
| 286    | 12.879 | 12.863 | 12.894 | VV | 6712   | 93208   | 2.52%  | 0.059% |  |
| 287    | 12.933 | 12.894 | 12.954 | VV | 13806  | 279178  | 7.55%  | 0.177% |  |
| 288    | 12.994 | 12.954 | 13.022 | VV | 166966 | 2182979 | 59.06% | 1.384% |  |
| 289    | 13.053 | 13.022 | 13.099 | VV | 285181 | 3319960 | 89.82% | 2.105% |  |
| 290    | 13.108 | 13.099 | 13.126 | VV | 3550   | 47810   | 1.29%  | 0.030% |  |
| 291    | 13.144 | 13.126 | 13.155 | VV | 2936   | 44076   | 1.19%  | 0.028% |  |
| 292    | 13.184 | 13.155 | 13.196 | VV | 3895   | 80926   | 2.19%  | 0.051% |  |
| 293    | 13.211 | 13.196 | 13.219 | VV | 4490   | 52320   | 1.42%  | 0.033% |  |
| 294    | 13.238 | 13.219 | 13.303 | VV | 12132  | 303607  | 8.21%  | 0.193% |  |
| 295    | 13.309 | 13.303 | 13.321 | VV | 2257   | 21743   | 0.59%  | 0.014% |  |
| 296    | 13.352 | 13.321 | 13.374 | VV | 236468 | 2678904 | 72.48% | 1.699% |  |
| 297    | 13.406 | 13.374 | 13.422 | VV | 35027  | 501739  | 13.57% | 0.318% |  |
| 298    | 13.437 | 13.422 | 13.468 | VV | 26608  | 353606  | 9.57%  | 0.224% |  |
| 299    | 13.491 | 13.468 | 13.503 | VV | 3464   | 53789   | 1.46%  | 0.034% |  |

Instrument :

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ClientSampleId :

COP-SOIL-PILEMSD

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

|     |        |        |        |    |        |         |        |        |
|-----|--------|--------|--------|----|--------|---------|--------|--------|
|     |        |        |        |    | rters  |         |        |        |
| 300 | 13.521 | 13.503 | 13.575 | VV | 9160   | 185035  | 5.01%  | 0.117% |
| 301 | 13.615 | 13.575 | 13.653 | PV | 37261  | 538583  |        |        |
| 302 | 13.686 | 13.653 | 13.714 | VV | 10794  | 233840  |        |        |
| 303 | 13.719 | 13.714 | 13.727 | VV | 2504   | 17611   |        |        |
| 304 | 13.745 | 13.727 | 13.763 | VV | 9451   | 115637  |        |        |
| 305 | 13.774 | 13.763 | 13.780 | VV | 3179   | 28924   |        |        |
| 306 | 13.806 | 13.780 | 13.819 | VV | 14542  | 213678  | 5.78%  | 0.135% |
| 307 | 13.835 | 13.819 | 13.882 | VV | 56275  | 743162  | 20.11% | 0.471% |
| 308 | 13.888 | 13.882 | 13.896 | VV | 2958   | 21695   | 0.59%  | 0.014% |
| 309 | 13.937 | 13.896 | 13.976 | VV | 42592  | 638253  | 17.27% | 0.405% |
| 310 | 14.006 | 13.976 | 14.019 | VV | 2873   | 48485   | 1.31%  | 0.031% |
| 311 | 14.045 | 14.019 | 14.068 | VV | 35563  | 465990  | 12.61% | 0.295% |
| 312 | 14.085 | 14.068 | 14.105 | VV | 17562  | 209965  | 5.68%  | 0.133% |
| 313 | 14.129 | 14.105 | 14.155 | VV | 11302  | 187795  | 5.08%  | 0.119% |
| 314 | 14.194 | 14.155 | 14.237 | VV | 157019 | 2198104 | 59.47% | 1.394% |
| 315 | 14.255 | 14.237 | 14.279 | VV | 12657  | 170440  | 4.61%  | 0.108% |
| 316 | 14.289 | 14.279 | 14.305 | VV | 2819   | 36747   | 0.99%  | 0.023% |
| 317 | 14.331 | 14.305 | 14.345 | VV | 3079   | 55810   | 1.51%  | 0.035% |
| 318 | 14.360 | 14.345 | 14.379 | VV | 2444   | 39002   | 1.06%  | 0.025% |
| 319 | 14.402 | 14.379 | 14.407 | VV | 2828   | 40937   | 1.11%  | 0.026% |
| 320 | 14.425 | 14.407 | 14.460 | VV | 3674   | 89273   | 2.42%  | 0.057% |
| 321 | 14.466 | 14.460 | 14.491 | VV | 1731   | 20421   | 0.55%  | 0.013% |
| 322 | 14.518 | 14.491 | 14.541 | VV | 4447   | 58771   | 1.59%  | 0.037% |
| 323 | 14.581 | 14.541 | 14.601 | VV | 17930  | 248601  | 6.73%  | 0.158% |
| 324 | 14.625 | 14.601 | 14.652 | VV | 14716  | 259953  | 7.03%  | 0.165% |
| 325 | 14.671 | 14.652 | 14.707 | VV | 18130  | 263316  | 7.12%  | 0.167% |
| 326 | 14.716 | 14.707 | 14.720 | VV | 2079   | 15340   | 0.42%  | 0.010% |
| 327 | 14.756 | 14.720 | 14.814 | VV | 9107   | 287495  | 7.78%  | 0.182% |
| 328 | 14.854 | 14.814 | 14.874 | VV | 23363  | 390946  | 10.58% | 0.248% |
| 329 | 14.880 | 14.874 | 14.892 | VV | 5409   | 50437   | 1.36%  | 0.032% |
| 330 | 14.918 | 14.892 | 14.939 | VV | 43135  | 550368  | 14.89% | 0.349% |
| 331 | 14.976 | 14.939 | 15.010 | VV | 21143  | 473302  | 12.81% | 0.300% |
| 332 | 15.049 | 15.010 | 15.063 | VV | 4954   | 110234  | 2.98%  | 0.070% |
| 333 | 15.098 | 15.063 | 15.129 | VV | 95311  | 1405072 | 38.01% | 0.891% |
| 334 | 15.138 | 15.129 | 15.158 | VV | 3703   | 49837   | 1.35%  | 0.032% |
| 335 | 15.179 | 15.158 | 15.199 | VV | 11014  | 154141  | 4.17%  | 0.098% |
| 336 | 15.231 | 15.199 | 15.252 | VV | 175320 | 2227750 | 60.27% | 1.413% |
| 337 | 15.274 | 15.252 | 15.287 | VV | 172141 | 2076690 | 56.19% | 1.317% |
| 338 | 15.301 | 15.287 | 15.333 | VV | 145377 | 1839398 | 49.77% | 1.166% |
| 339 | 15.346 | 15.333 | 15.366 | VV | 5472   | 91003   | 2.46%  | 0.058% |
| 340 | 15.393 | 15.366 | 15.419 | VV | 53941  | 691590  | 18.71% | 0.439% |
| 341 | 15.426 | 15.419 | 15.450 | VV | 6952   | 90656   | 2.45%  | 0.057% |
| 342 | 15.467 | 15.450 | 15.507 | VV | 13746  | 198192  | 5.36%  | 0.126% |
| 343 | 15.529 | 15.507 | 15.550 | VV | 12417  | 194379  | 5.26%  | 0.123% |
| 344 | 15.569 | 15.550 | 15.643 | VV | 15001  | 351575  | 9.51%  | 0.223% |
| 345 | 15.679 | 15.643 | 15.708 | VV | 92225  | 1259275 | 34.07% | 0.798% |
| 346 | 15.713 | 15.708 | 15.735 | VV | 5982   | 75772   | 2.05%  | 0.048% |
| 347 | 15.741 | 15.735 | 15.758 | VV | 3239   | 32657   | 0.88%  | 0.021% |
| 348 | 15.776 | 15.758 | 15.794 | VV | 4249   | 68860   | 1.86%  | 0.044% |
| 349 | 15.820 | 15.794 | 15.832 | VV | 10276  | 174755  | 4.73%  | 0.111% |
| 350 | 15.844 | 15.832 | 15.854 | VV | 11503  | 143460  | 3.88%  | 0.091% |
| 351 | 15.865 | 15.854 | 15.884 | VV | 11958  | 196182  | 5.31%  | 0.124% |

Instrument :

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ClientSampleId :

COP-SOIL-PILEMSD

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

|     |        |        |        |    |        |         |        |        |
|-----|--------|--------|--------|----|--------|---------|--------|--------|
|     |        |        |        |    | rters  |         |        |        |
| 352 | 15.904 | 15.884 | 15.925 | VV | 33412  | 444931  | 12.04% | 0.282% |
| 353 | 15.941 | 15.925 | 15.962 | VV | 15718  | 223233  |        |        |
| 354 | 15.986 | 15.962 | 16.012 | VV | 14208  | 253297  |        |        |
| 355 | 16.063 | 16.012 | 16.106 | VV | 34270  | 922651  | 24.00% | 0.000% |
| 356 | 16.141 | 16.106 | 16.174 | VV | 15068  | 335469  | 9.00%  | 0.000% |
| 357 | 16.194 | 16.174 | 16.212 | VV | 8802   | 152346  | 4.00%  | 0.000% |
| 358 | 16.226 | 16.212 | 16.241 | VV | 9400   | 131050  | 3.55%  | 0.083% |
| 359 | 16.255 | 16.241 | 16.269 | VV | 9582   | 125865  | 3.41%  | 0.080% |
| 360 | 16.282 | 16.269 | 16.293 | VV | 8369   | 106806  | 2.89%  | 0.068% |
| 361 | 16.326 | 16.293 | 16.365 | VV | 138240 | 2022497 | 54.72% | 1.282% |
| 362 | 16.388 | 16.365 | 16.416 | VV | 6247   | 137964  | 3.73%  | 0.087% |
| 363 | 16.422 | 16.416 | 16.426 | VV | 4318   | 24492   | 0.66%  | 0.016% |
| 364 | 16.433 | 16.426 | 16.450 | VV | 4560   | 52751   | 1.43%  | 0.033% |
| 365 | 16.465 | 16.450 | 16.472 | VV | 4004   | 44958   | 1.22%  | 0.029% |
| 366 | 16.515 | 16.472 | 16.534 | VV | 12467  | 298915  | 8.09%  | 0.190% |
| 367 | 16.541 | 16.534 | 16.555 | VV | 8004   | 87144   | 2.36%  | 0.055% |
| 368 | 16.575 | 16.555 | 16.597 | VV | 15798  | 260156  | 7.04%  | 0.165% |
| 369 | 16.625 | 16.597 | 16.630 | VV | 10461  | 165885  | 4.49%  | 0.105% |
| 370 | 16.640 | 16.630 | 16.660 | VV | 10827  | 184496  | 4.99%  | 0.117% |
| 371 | 16.694 | 16.660 | 16.744 | VV | 75927  | 1392201 | 37.67% | 0.883% |
| 372 | 16.798 | 16.744 | 16.815 | VV | 231411 | 3690091 | 99.84% | 2.340% |
| 373 | 16.824 | 16.815 | 16.858 | VV | 112077 | 1273823 | 34.46% | 0.808% |
| 374 | 16.880 | 16.858 | 16.895 | VV | 9741   | 187885  | 5.08%  | 0.119% |
| 375 | 16.923 | 16.895 | 16.945 | VV | 49318  | 740900  | 20.05% | 0.470% |
| 376 | 16.962 | 16.945 | 17.000 | VV | 16292  | 412709  | 11.17% | 0.262% |
| 377 | 17.012 | 17.000 | 17.022 | VV | 11781  | 146226  | 3.96%  | 0.093% |
| 378 | 17.046 | 17.022 | 17.065 | VV | 20631  | 418875  | 11.33% | 0.266% |
| 379 | 17.117 | 17.065 | 17.144 | VV | 146297 | 2512389 | 67.97% | 1.593% |
| 380 | 17.177 | 17.144 | 17.227 | VV | 214426 | 3132133 | 84.74% | 1.986% |
| 381 | 17.276 | 17.227 | 17.308 | VV | 208814 | 3161659 | 85.54% | 2.005% |
| 382 | 17.324 | 17.308 | 17.339 | VV | 21278  | 330921  | 8.95%  | 0.210% |
| 383 | 17.354 | 17.339 | 17.374 | VV | 19511  | 334473  | 9.05%  | 0.212% |
| 384 | 17.390 | 17.374 | 17.395 | VV | 15997  | 190072  | 5.14%  | 0.121% |
| 385 | 17.417 | 17.395 | 17.443 | VV | 21081  | 479872  | 12.98% | 0.304% |
| 386 | 17.458 | 17.443 | 17.462 | VV | 12418  | 133471  | 3.61%  | 0.085% |
| 387 | 17.480 | 17.462 | 17.495 | VV | 15403  | 270650  | 7.32%  | 0.172% |
| 388 | 17.537 | 17.495 | 17.567 | VV | 36780  | 1017122 | 27.52% | 0.645% |
| 389 | 17.580 | 17.567 | 17.609 | VV | 20053  | 414414  | 11.21% | 0.263% |
| 390 | 17.639 | 17.609 | 17.664 | VV | 59989  | 1063213 | 28.77% | 0.674% |
| 391 | 17.674 | 17.664 | 17.687 | VV | 22520  | 297400  | 8.05%  | 0.189% |
| 392 | 17.696 | 17.687 | 17.709 | VV | 22637  | 282913  | 7.65%  | 0.179% |
| 393 | 17.727 | 17.709 | 17.748 | VV | 32329  | 585747  | 15.85% | 0.371% |
| 394 | 17.758 | 17.748 | 17.777 | VV | 18008  | 278572  | 7.54%  | 0.177% |
| 395 | 17.789 | 17.777 | 17.798 | VV | 15024  | 178464  | 4.83%  | 0.113% |
| 396 | 17.830 | 17.798 | 17.860 | VV | 29988  | 723004  | 19.56% | 0.458% |
| 397 | 17.866 | 17.860 | 17.886 | VV | 14965  | 203277  | 5.50%  | 0.129% |
| 398 | 17.897 | 17.886 | 17.913 | VV | 11318  | 163881  | 4.43%  | 0.104% |
| 399 | 17.945 | 17.913 | 17.972 | VV | 16923  | 467089  | 12.64% | 0.296% |
| 400 | 17.990 | 17.972 | 18.003 | VV | 12064  | 201623  | 5.45%  | 0.128% |
| 401 | 18.017 | 18.003 | 18.033 | VV | 12467  | 207573  | 5.62%  | 0.132% |
| 402 | 18.057 | 18.033 | 18.071 | VV | 13163  | 263271  | 7.12%  | 0.167% |
| 403 | 18.088 | 18.071 | 18.116 | VV | 18600  | 425451  | 11.51% | 0.270% |
| 404 | 18.168 | 18.116 | 18.201 | VV | 146690 | 2535145 | 68.59% | 1.607% |

Instrument :

FID\_F

ClientSampleId :

COP-SOIL-PILEMSD

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

Instrument :

FID\_F

ClientSampleId :

COP-SOIL-PILEMSD

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025

Supervised By :mohammad ahmed 07/01/2025

|     |        |        |        |    | rt     | Area    | Area%   | Height |
|-----|--------|--------|--------|----|--------|---------|---------|--------|
| 405 | 18.260 | 18.201 | 18.287 | VV | 30300  | 983752  | 26.62%  | 0.624% |
| 406 | 18.336 | 18.287 | 18.354 | VV | 25577  | 845822  | 22.22%  | 0.521% |
| 407 | 18.372 | 18.354 | 18.426 | VV | 29466  | 849641  | 22.22%  | 0.521% |
| 408 | 18.453 | 18.426 | 18.496 | VV | 44746  | 1088271 | 28.91%  | 0.677% |
| 409 | 18.547 | 18.496 | 18.571 | VV | 156898 | 3696134 | 100.00% | 1.000% |
| 410 | 18.590 | 18.571 | 18.616 | VV | 62988  | 1201307 | 32.32%  | 0.781% |
| 411 | 18.628 | 18.616 | 18.650 | VV | 24802  | 389347  | 10.53%  | 0.247% |
| 412 | 18.678 | 18.650 | 18.694 | VV | 47017  | 821184  | 22.22%  | 0.521% |
| 413 | 18.709 | 18.694 | 18.772 | VV | 44242  | 1068432 | 28.91%  | 0.677% |
| 414 | 18.803 | 18.772 | 18.827 | VV | 141760 | 2020817 | 54.67%  | 1.281% |
| 415 | 18.841 | 18.827 | 18.848 | VV | 16169  | 190018  | 5.14%   | 0.120% |
| 416 | 18.884 | 18.848 | 18.901 | VV | 24678  | 605880  | 16.39%  | 0.384% |
| 417 | 18.932 | 18.901 | 18.960 | VV | 67878  | 1231466 | 33.32%  | 0.781% |
| 418 | 19.003 | 18.960 | 19.048 | VV | 131872 | 2712587 | 73.39%  | 1.720% |
| 419 | 19.108 | 19.048 | 19.140 | VV | 42980  | 1434430 | 38.81%  | 0.910% |
| 420 | 19.164 | 19.140 | 19.183 | VV | 26460  | 579060  | 15.67%  | 0.367% |
| 421 | 19.206 | 19.183 | 19.251 | VV | 41047  | 1112629 | 30.10%  | 0.705% |
| 422 | 19.284 | 19.251 | 19.299 | VV | 26717  | 620997  | 16.80%  | 0.394% |
| 423 | 19.353 | 19.299 | 19.379 | VV | 101932 | 2411286 | 65.24%  | 1.529% |
| 424 | 19.401 | 19.379 | 19.460 | VV | 67908  | 1684054 | 45.56%  | 1.068% |
| 425 | 19.478 | 19.460 | 19.512 | VV | 29273  | 725749  | 19.64%  | 0.460% |
| 426 | 19.535 | 19.512 | 19.565 | VV | 29527  | 678080  | 18.35%  | 0.430% |
| 427 | 19.596 | 19.565 | 19.608 | VV | 16543  | 405816  | 10.98%  | 0.257% |
| 428 | 19.612 | 19.608 | 19.615 | VV | 16008  | 72686   | 1.97%   | 0.046% |
| 429 | 19.641 | 19.615 | 19.676 | VV | 30674  | 813419  | 22.01%  | 0.516% |
| 430 | 19.693 | 19.676 | 19.728 | VV | 18558  | 487905  | 13.20%  | 0.309% |
| 431 | 19.751 | 19.728 | 19.755 | VV | 18531  | 262397  | 7.10%   | 0.166% |
| 432 | 19.788 | 19.755 | 19.835 | VV | 104677 | 2133811 | 57.73%  | 1.353% |
| 433 | 19.853 | 19.835 | 19.866 | VV | 23253  | 390370  | 10.56%  | 0.248% |
| 434 | 19.888 | 19.866 | 19.922 | VV | 32433  | 800534  | 21.66%  | 0.508% |
| 435 | 19.959 | 19.922 | 19.989 | VV | 68929  | 1438042 | 38.91%  | 0.912% |
| 436 | 20.026 | 19.989 | 20.052 | VV | 63887  | 1511210 | 40.89%  | 0.958% |
| 437 | 20.072 | 20.052 | 20.099 | VV | 41693  | 998918  | 27.03%  | 0.633% |
| 438 | 20.132 | 20.099 | 20.175 | VV | 72903  | 2041088 | 55.22%  | 1.294% |
| 439 | 20.193 | 20.175 | 20.221 | VV | 34580  | 784993  | 21.24%  | 0.498% |
| 440 | 20.241 | 20.221 | 20.263 | VV | 33401  | 692724  | 18.74%  | 0.439% |
| 441 | 20.337 | 20.263 | 20.367 | VV | 79181  | 2787423 | 75.41%  | 1.767% |
| 442 | 20.404 | 20.367 | 20.420 | VV | 42479  | 1071058 | 28.98%  | 0.679% |
| 443 | 20.425 | 20.420 | 20.448 | VV | 30949  | 434749  | 11.76%  | 0.276% |
| 444 | 20.477 | 20.448 | 20.500 | VV | 40303  | 923080  | 24.97%  | 0.585% |
| 445 | 20.530 | 20.500 | 20.575 | VV | 87996  | 1942684 | 52.56%  | 1.232% |
| 446 | 20.604 | 20.575 | 20.619 | VV | 26203  | 634459  | 17.17%  | 0.402% |
| 447 | 20.655 | 20.619 | 20.725 | VV | 29014  | 1623121 | 43.91%  | 1.029% |
| 448 | 20.728 | 20.725 | 20.736 | VV | 21881  | 141468  | 3.83%   | 0.090% |
| 449 | 20.745 | 20.736 | 20.753 | VV | 22326  | 217354  | 5.88%   | 0.138% |
| 450 | 20.757 | 20.753 | 20.777 | VV | 22133  | 312948  | 8.47%   | 0.198% |
| 451 | 20.794 | 20.777 | 20.808 | VV | 22640  | 406151  | 10.99%  | 0.258% |
| 452 | 20.843 | 20.808 | 20.865 | VV | 27300  | 832358  | 22.52%  | 0.528% |
| 453 | 20.876 | 20.865 | 20.895 | VV | 25116  | 437829  | 11.85%  | 0.278% |
| 454 | 20.921 | 20.895 | 20.957 | VV | 31418  | 953528  | 25.80%  | 0.605% |
| 455 | 20.999 | 20.957 | 21.017 | VV | 21989  | 752832  | 20.37%  | 0.477% |
| 456 | 21.032 | 21.017 | 21.062 | VV | 22293  | 552730  | 14.95%  | 0.350% |

|     |        |        |        |    |                         |           |        |        |
|-----|--------|--------|--------|----|-------------------------|-----------|--------|--------|
|     |        |        |        |    | rters                   |           |        |        |
| 457 | 21.068 | 21.062 | 21.075 | VV | 18001                   | 133975    | 3.62%  | 0.085% |
| 458 | 21.080 | 21.075 | 21.120 | VV | 18061                   | 462869    | 12.23% | 0.125% |
| 459 | 21.123 | 21.120 | 21.129 | VV | 16087                   | 87809     | 2.34%  | 0.085% |
| 460 | 21.139 | 21.129 | 21.147 | VV | 16447                   | 177800    | 4.64%  | 0.085% |
| 461 | 21.150 | 21.147 | 21.161 | VV | 16379                   | 138458    | 3.81%  | 0.085% |
| 462 | 21.187 | 21.161 | 21.214 | VV | 16635                   | 499336    | 13.81% | 0.125% |
| 463 | 21.219 | 21.214 | 21.235 | VV | 15662                   | 197353    | 5.34%  | 0.125% |
| 464 | 21.294 | 21.235 | 21.332 | VV | 57735                   | 1671765   | 45.23% | 1.060% |
| 465 | 21.361 | 21.332 | 21.436 | VV | 20425                   | 992068    | 26.84% | 0.629% |
| 466 | 21.476 | 21.436 | 21.512 | VV | 14799                   | 580743    | 15.71% | 0.368% |
| 467 | 21.538 | 21.512 | 21.545 | VV | 12684                   | 237885    | 6.44%  | 0.151% |
| 468 | 21.582 | 21.545 | 21.608 | VV | 16257                   | 519594    | 14.06% | 0.329% |
| 469 | 21.632 | 21.608 | 21.637 | VV | 13230                   | 215245    | 5.82%  | 0.136% |
| 470 | 21.664 | 21.637 | 21.699 | VV | 16494                   | 496555    | 13.43% | 0.315% |
| 471 | 21.755 | 21.699 | 21.783 | VV | 37457                   | 1217891   | 32.95% | 0.772% |
| 472 | 21.795 | 21.783 | 21.819 | VV | 19503                   | 372987    | 10.09% | 0.237% |
| 473 | 21.822 | 21.819 | 21.897 | VV | 15150                   | 487034    | 13.18% | 0.309% |
| 474 | 21.927 | 21.897 | 21.949 | VV | 11566                   | 297807    | 8.06%  | 0.189% |
| 475 | 21.974 | 21.949 | 22.018 | VV | 14111                   | 370044    | 10.01% | 0.235% |
| 476 | 22.065 | 22.018 | 22.111 | VV | 24712                   | 668628    | 18.09% | 0.424% |
| 477 | 22.150 | 22.111 | 22.180 | VV | 21533                   | 538270    | 14.56% | 0.341% |
| 478 | 22.203 | 22.180 | 22.220 | VV | 13235                   | 261881    | 7.09%  | 0.166% |
| 479 | 22.254 | 22.220 | 22.344 | VV | 43148                   | 1290123   | 34.90% | 0.818% |
| 480 | 22.347 | 22.344 | 22.373 | VV | 862                     | 12530     | 0.34%  | 0.008% |
| 481 | 22.382 | 22.373 | 22.393 | VV | 573                     | 4723      | 0.13%  | 0.003% |
|     |        |        |        |    | Sum of corrected areas: | 157710549 |        |        |

Instrument :  
FID\_F  
ClientSampleId :  
COP-SOIL-PILEMSD

Manual IntegrationsAPPROVED

Reviewed By :Yogesh Patel 07/01/2025  
Supervised By :mohammad ahmed 07/01/2025

FF061325.M Tue Jul 01 04:17:07 2025

### Manual Integration Report

| Sample ID   | ClientID ID | File ID    | Sequence ID | Parameter      | Supervised By | Supervised On       | Reason                                  |
|-------------|-------------|------------|-------------|----------------|---------------|---------------------|-----------------------------------------|
| Q2409-02MS  |             | FF016038.D | FF063025    | N-TETRACONTANE | mohammad      | 7/1/2025 8:55:01 AM | Peak Integrated by Software incorrectly |
| Q2409-02MSD |             | FF016039.D | FF063025    | N-TETRACONTANE | mohammad      | 7/1/2025 8:55:01 AM | Peak Integrated by Software incorrectly |
| Q2413-01MS  |             | FF016048.D | FF063025    | N-TETRACOSANE  | mohammad      | 7/1/2025 8:55:01 AM | Peak Integrated by Software incorrectly |
|             |             |            |             |                |               |                     |                                         |

Instrument ID: FID\_F

**Daily Analysis Runlog For Sequence/QC Batch ID # FF061325**

|                                                                    |                                         |                   |                               |
|--------------------------------------------------------------------|-----------------------------------------|-------------------|-------------------------------|
| Review By                                                          | yogesh                                  | Review On         | 6/13/2025 11:34:17 AM         |
| Supervise By                                                       | mohammad                                | Supervise On      | 6/17/2025 3:40:22 AM          |
| SubDirectory                                                       | FF061325                                | HP Acquire Method | HP Processing Method FF061325 |
| <b>STD. NAME</b>                                                   | <b>STD REF.#</b>                        |                   |                               |
| Tune/Reschk<br>Initial Calibration Stds                            | PP24467,PP24469,PP24470,PP24471,PP24472 |                   |                               |
| CCC<br>Internal Standard/PEM                                       | PP24469                                 |                   |                               |
| ICV/I.BLK<br>Surrogate Standard<br>MS/MSD Standard<br>LCS Standard | PP24468,PP24473                         |                   |                               |

| Sr# | SampleId     | Data File Name | Date-Time         | Operator | Status |
|-----|--------------|----------------|-------------------|----------|--------|
| 1   | MECL2        | FF015962.D     | 13 Jun 2025 08:42 | YP\AJ    | Ok     |
| 2   | I.BLK        | FF015963.D     | 13 Jun 2025 12:37 | YP\AJ    | Ok     |
| 3   | 100 TRPH STD | FF015964.D     | 13 Jun 2025 13:06 | YP\AJ    | Ok     |
| 4   | 50 TRPH STD  | FF015965.D     | 13 Jun 2025 13:35 | YP\AJ    | Ok     |
| 5   | 20 TRPH STD  | FF015966.D     | 13 Jun 2025 14:05 | YP\AJ    | Ok     |
| 6   | 10 TRPH STD  | FF015967.D     | 13 Jun 2025 14:34 | YP\AJ    | Ok     |
| 7   | 5 TRPH STD   | FF015968.D     | 13 Jun 2025 15:03 | YP\AJ    | Ok     |
| 8   | FF061325ICV  | FF015969.D     | 13 Jun 2025 15:33 | YP\AJ    | Ok     |

M : Manual Integration

Instrument ID: FID\_F

**Daily Analysis Runlog For Sequence/QC Batch ID # FF063025**

|                                                                                                    |                                         |                   |                               |
|----------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------|-------------------------------|
| Review By                                                                                          | yogesh                                  | Review On         | 6/30/2025 11:39:29 AM         |
| Supervise By                                                                                       | mohammad                                | Supervise On      | 7/1/2025 8:55:01 AM           |
| SubDirectory                                                                                       | FF063025                                | HP Acquire Method | HP Processing Method FF061325 |
| <b>STD. NAME</b>                                                                                   | <b>STD REF.#</b>                        |                   |                               |
| Tune/Reschk<br>Initial Calibration Stds                                                            | PP24467,PP24469,PP24470,PP24471,PP24472 |                   |                               |
| CCC<br>Internal Standard/PEM<br>ICV/I.BLK<br>Surrogate Standard<br>MS/MSD Standard<br>LCS Standard | PP24469<br><br>PP24468,PP24473          |                   |                               |

| Sr# | SampleId        | Data File Name | Date-Time         | Operator | Status |
|-----|-----------------|----------------|-------------------|----------|--------|
| 1   | MECL2           | FF016031.D     | 30 Jun 2025 09:11 | YP\AJ    | Ok     |
| 2   | I.BLK           | FF016032.D     | 30 Jun 2025 09:42 | YP\AJ    | Ok     |
| 3   | 50 PPM TRPH STD | FF016033.D     | 30 Jun 2025 10:11 | YP\AJ    | Ok     |
| 4   | RT MARKER       | FF016034.D     | 30 Jun 2025 10:41 | YP\AJ    | Ok     |
| 5   | PB168659BL      | FF016035.D     | 30 Jun 2025 13:39 | YP\AJ    | Ok     |
| 6   | PB168659BS      | FF016036.D     | 30 Jun 2025 14:09 | YP\AJ    | Ok     |
| 7   | Q2409-02        | FF016037.D     | 30 Jun 2025 14:39 | YP\AJ    | Ok     |
| 8   | Q2409-02MS      | FF016038.D     | 30 Jun 2025 15:09 | YP\AJ    | Ok,M   |
| 9   | Q2409-02MSD     | FF016039.D     | 30 Jun 2025 15:39 | YP\AJ    | Ok,M   |
| 10  | I.BLK           | FF016040.D     | 30 Jun 2025 16:09 | YP\AJ    | Ok     |
| 11  | 50 PPM TRPH STD | FF016041.D     | 30 Jun 2025 17:41 | YP\AJ    | Ok     |
| 12  | I.BLK           | FF016042.D     | 30 Jun 2025 18:41 | YP\AJ    | Ok     |
| 13  | 50 PPM TRPH STD | FF016043.D     | 30 Jun 2025 19:11 | YP\AJ    | Ok     |
| 14  | RT MARKER       | FF016044.D     | 30 Jun 2025 20:11 | YP\AJ    | Ok     |
| 15  | PB168658BL      | FF016045.D     | 30 Jun 2025 20:41 | YP\AJ    | Ok     |
| 16  | PB168658BS      | FF016046.D     | 30 Jun 2025 21:11 | YP\AJ    | Ok     |
| 17  | Q2413-01        | FF016047.D     | 30 Jun 2025 21:40 | YP\AJ    | Ok     |
| 18  | Q2413-01MS      | FF016048.D     | 30 Jun 2025 22:10 | YP\AJ    | Ok,M   |
| 19  | Q2413-01MSD     | FF016049.D     | 30 Jun 2025 22:40 | YP\AJ    | Ok     |
| 20  | Q2413-02        | FF016050.D     | 30 Jun 2025 23:10 | YP\AJ    | Ok     |
| 21  | Q2413-03        | FF016051.D     | 30 Jun 2025 23:40 | YP\AJ    | Ok     |



Instrument ID: FID\_F

**Daily Analysis Runlog For Sequence/QC Batch ID # FF063025**

| Review By                                                          | yogesh                                  | Review On         | 6/30/2025 11:39:29 AM         |
|--------------------------------------------------------------------|-----------------------------------------|-------------------|-------------------------------|
| Supervise By                                                       | mohammad                                | Supervise On      | 7/1/2025 8:55:01 AM           |
| SubDirectory                                                       | FF063025                                | HP Acquire Method | HP Processing Method FF061325 |
| STD. NAME                                                          | STD REF.#                               |                   |                               |
| Tune/Reschk<br>Initial Calibration Stds                            | PP24467,PP24469,PP24470,PP24471,PP24472 |                   |                               |
| CCC<br>Internal Standard/PEM                                       | PP24469                                 |                   |                               |
| ICV/I.BLK<br>Surrogate Standard<br>MS/MSD Standard<br>LCS Standard | PP24468,PP24473                         |                   |                               |

|    |                 |            |                   |       |    |
|----|-----------------|------------|-------------------|-------|----|
| 22 | Q2413-04        | FF016052.D | 01 Jul 2025 00:09 | YP\AJ | Ok |
| 23 | Q2413-05        | FF016053.D | 01 Jul 2025 00:39 | YP\AJ | Ok |
| 24 | Q2413-06        | FF016054.D | 01 Jul 2025 01:09 | YP\AJ | Ok |
| 25 | I.BLK           | FF016055.D | 01 Jul 2025 01:38 | YP\AJ | Ok |
| 26 | 50 PPM TRPH STD | FF016056.D | 01 Jul 2025 02:08 | YP\AJ | Ok |

M : Manual Integration

Instrument ID: FID\_F

**Daily Analysis Runlog For Sequence/QC Batch ID # FF061325**

|              |          |                   |                               |
|--------------|----------|-------------------|-------------------------------|
| Review By    | yogesh   | Review On         | 6/13/2025 11:34:17 AM         |
| Supervise By | mohammad | Supervise On      | 6/17/2025 3:40:22 AM          |
| SubDirectory | FF061325 | HP Acquire Method | HP Processing Method FF061325 |

| STD. NAME                               | STD REF.#                               |
|-----------------------------------------|-----------------------------------------|
| Tune/Reschk<br>Initial Calibration Stds | PP24467,PP24469,PP24470,PP24471,PP24472 |
| CCC                                     | PP24469                                 |
| Internal Standard/PEM                   |                                         |
| ICV/I.BLK                               | PP24468,PP24473                         |
| Surrogate Standard                      |                                         |
| MS/MSD Standard                         |                                         |
| LCS Standard                            |                                         |

| Sr# | SampleID     | ClientID | Data File Name | Date-Time         | Comment | Operator | Status |
|-----|--------------|----------|----------------|-------------------|---------|----------|--------|
| 1   | MECL2        |          | FF015962.D     | 13 Jun 2025 08:42 |         | YP\AJ    | Ok     |
| 2   | I.BLK        |          | FF015963.D     | 13 Jun 2025 12:37 |         | YP\AJ    | Ok     |
| 3   | 100 TRPH STD |          | FF015964.D     | 13 Jun 2025 13:06 |         | YP\AJ    | Ok     |
| 4   | 50 TRPH STD  |          | FF015965.D     | 13 Jun 2025 13:35 |         | YP\AJ    | Ok     |
| 5   | 20 TRPH STD  |          | FF015966.D     | 13 Jun 2025 14:05 |         | YP\AJ    | Ok     |
| 6   | 10 TRPH STD  |          | FF015967.D     | 13 Jun 2025 14:34 |         | YP\AJ    | Ok     |
| 7   | 5 TRPH STD   |          | FF015968.D     | 13 Jun 2025 15:03 |         | YP\AJ    | Ok     |
| 8   | FF061325ICV  |          | FF015969.D     | 13 Jun 2025 15:33 |         | YP\AJ    | Ok     |

M : Manual Integration

Instrument ID: FID\_F

**Daily Analysis Runlog For Sequence/QC Batch ID # FF063025**

|              |          |                   |                               |
|--------------|----------|-------------------|-------------------------------|
| Review By    | yogesh   | Review On         | 6/30/2025 11:39:29 AM         |
| Supervise By | mohammad | Supervise On      | 7/1/2025 8:55:01 AM           |
| SubDirectory | FF063025 | HP Acquire Method | HP Processing Method FF061325 |

| STD. NAME                               | STD REF.#                               |
|-----------------------------------------|-----------------------------------------|
| Tune/Reschk<br>Initial Calibration Stds | PP24467,PP24469,PP24470,PP24471,PP24472 |
| CCC                                     | PP24469                                 |
| Internal Standard/PEM                   |                                         |
| ICV/I.BLK                               | PP24468,PP24473                         |
| Surrogate Standard                      |                                         |
| MS/MSD Standard                         |                                         |
| LCS Standard                            |                                         |

| Sr# | SampleID        | ClientID | Data File Name | Date-Time         | Comment | Operator | Status |
|-----|-----------------|----------|----------------|-------------------|---------|----------|--------|
| 1   | MECL2           |          | FF016031.D     | 30 Jun 2025 09:11 |         | YPIAJ    | Ok     |
| 2   | I.BLK           |          | FF016032.D     | 30 Jun 2025 09:42 |         | YPIAJ    | Ok     |
| 3   | 50 PPM TRPH STD |          | FF016033.D     | 30 Jun 2025 10:11 |         | YPIAJ    | Ok     |
| 4   | RT MARKER       |          | FF016034.D     | 30 Jun 2025 10:41 |         | YPIAJ    | Ok     |
| 5   | PB168659BL      |          | FF016035.D     | 30 Jun 2025 13:39 |         | YPIAJ    | Ok     |
| 6   | PB168659BS      |          | FF016036.D     | 30 Jun 2025 14:09 |         | YPIAJ    | Ok     |
| 7   | Q2409-02        |          | FF016037.D     | 30 Jun 2025 14:39 |         | YPIAJ    | Ok     |
| 8   | Q2409-02MS      |          | FF016038.D     | 30 Jun 2025 15:09 |         | YPIAJ    | Ok,M   |
| 9   | Q2409-02MSD     |          | FF016039.D     | 30 Jun 2025 15:39 |         | YPIAJ    | Ok,M   |
| 10  | I.BLK           |          | FF016040.D     | 30 Jun 2025 16:09 |         | YPIAJ    | Ok     |
| 11  | 50 PPM TRPH STD |          | FF016041.D     | 30 Jun 2025 17:41 |         | YPIAJ    | Ok     |
| 12  | I.BLK           |          | FF016042.D     | 30 Jun 2025 18:41 |         | YPIAJ    | Ok     |
| 13  | 50 PPM TRPH STD |          | FF016043.D     | 30 Jun 2025 19:11 |         | YPIAJ    | Ok     |
| 14  | RT MARKER       |          | FF016044.D     | 30 Jun 2025 20:11 |         | YPIAJ    | Ok     |
| 15  | PB168658BL      |          | FF016045.D     | 30 Jun 2025 20:41 |         | YPIAJ    | Ok     |
| 16  | PB168658BS      |          | FF016046.D     | 30 Jun 2025 21:11 |         | YPIAJ    | Ok     |
| 17  | Q2413-01        |          | FF016047.D     | 30 Jun 2025 21:40 |         | YPIAJ    | Ok     |
| 18  | Q2413-01MS      |          | FF016048.D     | 30 Jun 2025 22:10 |         | YPIAJ    | Ok,M   |

Instrument ID: FID\_F

**Daily Analysis Runlog For Sequence/QC Batch ID # FF063025**

|                                         |                                         |                   |                               |
|-----------------------------------------|-----------------------------------------|-------------------|-------------------------------|
| Review By                               | yogesh                                  | Review On         | 6/30/2025 11:39:29 AM         |
| Supervise By                            | mohammad                                | Supervise On      | 7/1/2025 8:55:01 AM           |
| SubDirectory                            | FF063025                                | HP Acquire Method | HP Processing Method FF061325 |
| <b>STD. NAME</b>                        | <b>STD REF.#</b>                        |                   |                               |
| Tune/Reschk<br>Initial Calibration Stds | PP24467,PP24469,PP24470,PP24471,PP24472 |                   |                               |
| CCC                                     | PP24469                                 |                   |                               |
| Internal Standard/PEM                   | PP24468,PP24473                         |                   |                               |
| ICV/I.BLK                               |                                         |                   |                               |
| Surrogate Standard                      |                                         |                   |                               |
| MS/MSD Standard                         |                                         |                   |                               |
| LCS Standard                            |                                         |                   |                               |

|    |                 |  |            |                   |  |       |    |
|----|-----------------|--|------------|-------------------|--|-------|----|
| 19 | Q2413-01MSD     |  | FF016049.D | 30 Jun 2025 22:40 |  | YPIAJ | Ok |
| 20 | Q2413-02        |  | FF016050.D | 30 Jun 2025 23:10 |  | YPIAJ | Ok |
| 21 | Q2413-03        |  | FF016051.D | 30 Jun 2025 23:40 |  | YPIAJ | Ok |
| 22 | Q2413-04        |  | FF016052.D | 01 Jul 2025 00:09 |  | YPIAJ | Ok |
| 23 | Q2413-05        |  | FF016053.D | 01 Jul 2025 00:39 |  | YPIAJ | Ok |
| 24 | Q2413-06        |  | FF016054.D | 01 Jul 2025 01:09 |  | YPIAJ | Ok |
| 25 | I.BLK           |  | FF016055.D | 01 Jul 2025 01:38 |  | YPIAJ | Ok |
| 26 | 50 PPM TRPH STD |  | FF016056.D | 01 Jul 2025 02:08 |  | YPIAJ | Ok |

M : Manual Integration

# PERCENT SOLID

Supervisor: Iwona  
Analyst: jignesh  
Date: 6/25/2025

OVENTEMP IN Celsius(°C): 108  
Time IN: 17:10  
In Date: 06/24/2025  
Weight Check 1.0g: 1.00  
Weight Check 10g: 10.00  
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103  
Time OUT: 08:15  
Out Date: 06/25/2025  
Weight Check 1.0g: 1.00  
Weight Check 10g: 10.00  
BalanceID: M SC-4  
Thermometer ID: % SOLID- OVEN

QC:LB136243

| Lab ID   | Client SampleID | Dish # | Dish Wt(g) (A) | Sample Wt(g) | Dish + Sample Wt(g) (B) | Dish+Dry Sample Wt(g) (C) | % Solid | Comments   |
|----------|-----------------|--------|----------------|--------------|-------------------------|---------------------------|---------|------------|
| Q2392-01 | S-1             | 1      | 1.15           | 10.05        | 11.2                    | 10.42                     | 92.2    |            |
| Q2392-02 | S-1A            | 2      | 1.18           | 10.49        | 11.67                   | 10.97                     | 93.3    |            |
| Q2393-01 | PARK AVE -1     | 3      | 1.17           | 10.34        | 11.51                   | 9.78                      | 83.3    |            |
| Q2393-02 | PARK AVE -1     | 4      | 1.15           | 10.07        | 11.22                   | 9.4                       | 81.9    |            |
| Q2393-03 | PARK AVE -2     | 5      | 1.13           | 10.85        | 11.98                   | 10.19                     | 83.5    |            |
| Q2393-04 | PARK AVE -2     | 6      | 1.19           | 10.26        | 11.45                   | 9.55                      | 81.5    |            |
| Q2393-05 | PARK AVE -3     | 7      | 1.12           | 10.25        | 11.37                   | 10.00                     | 86.6    |            |
| Q2393-06 | PARK AVE -3     | 8      | 1.15           | 10.84        | 11.99                   | 10.5                      | 86.3    |            |
| Q2393-07 | PARK AVE -4     | 9      | 1.16           | 10.70        | 11.86                   | 10.54                     | 87.7    |            |
| Q2393-08 | PARK AVE -4     | 10     | 1.19           | 9.86         | 11.05                   | 9.84                      | 87.7    |            |
| Q2393-09 | PARK AVE -5     | 11     | 1.15           | 10.84        | 11.99                   | 11.05                     | 91.3    |            |
| Q2393-10 | PARK AVE -5     | 12     | 1.15           | 9.95         | 11.1                    | 9.95                      | 88.4    |            |
| Q2393-11 | PARK AVE -6     | 13     | 1.19           | 10.23        | 11.42                   | 10.07                     | 86.8    |            |
| Q2393-12 | PARK AVE -6     | 14     | 1.17           | 10.52        | 11.69                   | 10.4                      | 87.7    |            |
| Q2394-01 | MH-K/L          | 15     | 1.18           | 10.49        | 11.67                   | 10.23                     | 86.3    |            |
| Q2394-02 | MH-K/L EPH      | 16     | 1.19           | 9.97         | 11.16                   | 9.58                      | 84.2    |            |
| Q2394-03 | MH-K/L VOC      | 17     | 1.13           | 10.86        | 11.99                   | 10.66                     | 87.8    |            |
| Q2394-04 | MH-K/L          | 18     | 1.18           | 10.49        | 11.67                   | 10.23                     | 86.3    |            |
| Q2396-01 | 245F53-1-1      | 19     | 1.00           | 1.00         | 2.00                    | 2.00                      | 100.0   | oilc       |
| Q2396-02 | 245F53-1-2      | 20     | 1.00           | 1.00         | 2.00                    | 2.00                      | 100.0   | oilc       |
| Q2396-03 | LAW-25-1A       | 21     | 1.00           | 1.00         | 2.00                    | 2.00                      | 100.0   | oilc       |
| Q2396-04 | LAW-25-1B       | 22     | 1.00           | 1.00         | 2.00                    | 2.00                      | 100.0   | oilc       |
| Q2396-05 | LAW-25-2A       | 23     | 1.00           | 1.00         | 2.00                    | 2.00                      | 100.0   | oilc       |
| Q2396-06 | LAW-25-2B       | 24     | 1.00           | 1.00         | 2.00                    | 2.00                      | 100.0   | oilc       |
| Q2396-07 | LAW-25-3A       | 25     | 1.00           | 1.00         | 2.00                    | 2.00                      | 100.0   | oilc       |
| Q2396-08 | LAW-25-3B       | 26     | 1.00           | 1.00         | 2.00                    | 2.00                      | 100.0   | oilc       |
| Q2398-01 | M00-25-0169     | 27     | 1.00           | 1.00         | 2.00                    | 2.00                      | 100.0   | oil sample |
| Q2398-03 | M00-25-0179     | 28     | 1.19           | 10.07        | 11.26                   | 7.63                      | 64.0    |            |

# PERCENT SOLID

Supervisor: Iwona  
Analyst: jignesh  
Date: 6/25/2025

OVENTEMP IN Celsius(°C): 108  
Time IN: 17:10  
In Date: 06/24/2025  
Weight Check 1.0g: 1.00  
Weight Check 10g: 10.00  
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103  
Time OUT: 08:15  
Out Date: 06/25/2025  
Weight Check 1.0g: 1.00  
Weight Check 10g: 10.00  
BalanceID: M SC-4  
Thermometer ID: % SOLID- OVEN

QC:LB136243

| Lab ID   | Client SampleID | Dish # | Dish Wt (g) (A) | Sample Wt (g) | Dish + Sample Wt (g) (B) | Dish+Dry Sample Wt (g) (C) | % Solid | Comments    |
|----------|-----------------|--------|-----------------|---------------|--------------------------|----------------------------|---------|-------------|
| Q2398-04 | M00-25-0179-E2  | 29     | 1.19            | 10.25         | 11.44                    | 7.68                       | 63.3    |             |
| Q2398-06 | ARS20-0036      | 30     | 1.19            | 10.53         | 11.72                    | 10.47                      | 88.1    |             |
| Q2398-07 | ARS20-0036-E2   | 31     | 1.12            | 10.77         | 11.89                    | 10.9                       | 90.8    |             |
| Q2399-01 | TP-13           | 32     | 1.13            | 10.84         | 11.97                    | 10.27                      | 84.3    |             |
| Q2399-02 | TP-13-EPH       | 33     | 1.19            | 10.36         | 11.55                    | 9.96                       | 84.7    |             |
| Q2399-03 | TP-13-VOC       | 34     | 1.15            | 10.84         | 11.99                    | 10.36                      | 85.0    |             |
| Q2399-04 | TP-13           | 35     | 1.13            | 10.84         | 11.97                    | 10.27                      | 84.3    |             |
| Q2399-05 | EP-7            | 36     | 1.19            | 10.47         | 11.66                    | 10.37                      | 87.7    |             |
| Q2399-06 | EP-7-EPH        | 37     | 1.19            | 10.47         | 11.66                    | 10.33                      | 87.3    |             |
| Q2399-07 | EP-7-VOC        | 38     | 1.16            | 10.57         | 11.73                    | 10.38                      | 87.2    |             |
| Q2399-08 | EP-13           | 39     | 1.19            | 10.47         | 11.66                    | 10.37                      | 87.7    |             |
| Q2400-01 | B-156-SB01      | 40     | 1.17            | 10.58         | 11.75                    | 10.11                      | 84.5    |             |
| Q2400-02 | B-134-SB01      | 41     | 1.19            | 10.00         | 11.19                    | 9.49                       | 83.0    |             |
| Q2403-03 | LAW-25-0093     | 42     | 1.18            | 10.24         | 11.42                    | 10.54                      | 91.4    |             |
| Q2403-04 | LAW-25-0093-E2  | 43     | 1.18            | 10.14         | 11.32                    | 10.42                      | 91.1    |             |
| Q2403-05 | Concrete-062325 | 44     | 1.15            | 10.84         | 11.99                    | 11.71                      | 97.4    |             |
| Q2403-07 | ARS 20-006      | 45     | 1.19            | 10.44         | 11.63                    | 11.13                      | 95.2    |             |
| Q2403-08 | ARS020-0006-E2  | 46     | 1.18            | 10.64         | 11.82                    | 11.09                      | 93.1    |             |
| Q2405-01 | MH-M/H          | 47     | 1.19            | 10.11         | 11.3                     | 10.37                      | 90.8    |             |
| Q2405-02 | MH-M/N-EPH      | 48     | 1.19            | 10.01         | 11.2                     | 10.15                      | 89.5    |             |
| Q2405-03 | MH-M/N-VOC      | 49     | 1.11            | 10.71         | 11.82                    | 10.9                       | 91.4    |             |
| Q2406-01 | PUMPING-PLANT   | 50     | 1.00            | 1.00          | 2.00                     | 2.00                       | 100.0   | oil sample  |
| Q2409-02 | COP-SOIL-PILE   | 51     | 1.18            | 10.58         | 11.76                    | 11.38                      | 96.4    |             |
| Q2410-01 | TRE-25-0021     | 52     | 1.00            | 1.00          | 2.00                     | 2.00                       | 100.0   | debris      |
| Q2411-01 | TRE-2002        | 53     | 1.00            | 1.00          | 2.00                     | 2.00                       | 100.0   | wipe sample |
| Q2412-01 | TR-05-062425    | 54     | 1.18            | 10.08         | 11.26                    | 10.94                      | 96.8    |             |
| Q2412-02 | TR-05-062425-E2 | 55     | 1.16            | 10.28         | 11.44                    | 11.23                      | 98.0    |             |

$$\% \text{ Solid} = \frac{(C-A) * 100}{(B-A)}$$

# WORKLIST(Hardcopy Internal Chain)

136243

WorkList Name : %1-062425

WorkList ID : 190342

Department : Wet-Chemistry

Date : 06-24-2025 08:17:18

| Sample   | Customer Sample | Matrix | Test           | Preservative | Customer | Raw Sample Storage Location | Collect Date | Method       |
|----------|-----------------|--------|----------------|--------------|----------|-----------------------------|--------------|--------------|
| Q2392-01 | S-1             | Solid  | Percent Solids | Cool 4 deg C | EARTH03  | A41                         | 06/23/2025   | Chemtech -SO |
| Q2392-02 | S-1A            | Solid  | Percent Solids | Cool 4 deg C | EARTH03  | A41                         | 06/23/2025   | Chemtech -SO |
| Q2393-01 | PARK AVE -1     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2393-02 | PARK AVE -1     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2393-03 | PARK AVE -2     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2393-04 | PARK AVE -2     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2393-05 | PARK AVE -3     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2393-06 | PARK AVE -3     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2393-07 | PARK AVE -4     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2393-08 | PARK AVE -4     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2393-09 | PARK AVE -5     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2393-10 | PARK AVE -5     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2393-11 | PARK AVE -6     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2393-12 | PARK AVE -6     | Solid  | Percent Solids | Cool 4 deg C | UNIO02   | A22                         | 06/23/2025   | Chemtech -SO |
| Q2394-01 | MH-K/L          | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A21                         | 06/23/2025   | Chemtech -SO |
| Q2394-02 | MH-K/L EPH      | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A21                         | 06/23/2025   | Chemtech -SO |
| Q2394-03 | MH-K/L VOC      | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A21                         | 06/23/2025   | Chemtech -SO |
| Q2394-04 | MH-K/L          | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A21                         | 06/23/2025   | Chemtech -SO |
| Q2396-01 | 245F53-1-1      | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A11                         | 06/23/2025   | Chemtech -SO |
| Q2396-02 | 245F53-1-2      | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A11                         | 06/23/2025   | Chemtech -SO |
| Q2396-03 | LAW-25-1A       | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A11                         | 06/23/2025   | Chemtech -SO |

Date/Time 06/24/25 15:10

Raw Sample Received by: [Signature]

Raw Sample Relinquished by: [Signature]

Date/Time 06/24/25

Raw Sample Received by: [Signature]

Raw Sample Relinquished by: [Signature]



# WORKLIST(Hardcopy Internal Chain)

136243

WorkList Name : %1-062425

WorkList ID : 190342

Department : Wet-Chemistry

Date : 06-24-2025 08:17:18

| Sample   | Customer Sample | Matrix | Test           | Preservative | Customer | Raw Sample Storage Location | Collect Date | Method       |
|----------|-----------------|--------|----------------|--------------|----------|-----------------------------|--------------|--------------|
| Q2396-04 | LAW-25-1B       | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A11                         | 06/23/2025   | Chemtech -SO |
| Q2396-05 | LAW-25-2A       | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A11                         | 06/23/2025   | Chemtech -SO |
| Q2396-06 | LAW-25-2B       | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A11                         | 06/23/2025   | Chemtech -SO |
| Q2396-07 | LAW-25-3A       | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A11                         | 06/23/2025   | Chemtech -SO |
| Q2396-08 | LAW-25-3B       | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A11                         | 06/23/2025   | Chemtech -SO |
| Q2398-01 | M00-25-0169     | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A33                         | 06/23/2025   | Chemtech -SO |
| Q2398-03 | M00-25-0179     | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A33                         | 06/23/2025   | Chemtech -SO |
| Q2398-04 | M00-25-0179-E2  | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A33                         | 06/23/2025   | Chemtech -SO |
| Q2398-06 | ARS20-0036      | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A33                         | 06/23/2025   | Chemtech -SO |
| Q2398-07 | ARS20-0036-E2   | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A33                         | 06/23/2025   | Chemtech -SO |
| Q2399-01 | TP-13           | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A41                         | 06/23/2025   | Chemtech -SO |
| Q2399-02 | TP-13-EPH       | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A41                         | 06/23/2025   | Chemtech -SO |
| Q2399-03 | TP-13-VOC       | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A41                         | 06/23/2025   | Chemtech -SO |
| Q2399-04 | TP-13           | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A41                         | 06/23/2025   | Chemtech -SO |
| Q2399-05 | EP-7            | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A41                         | 06/23/2025   | Chemtech -SO |
| Q2399-06 | EP-7-EPH        | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A41                         | 06/23/2025   | Chemtech -SO |
| Q2399-07 | EP-7-VOC        | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A41                         | 06/23/2025   | Chemtech -SO |
| Q2399-08 | EP-13           | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A41                         | 06/23/2025   | Chemtech -SO |
| Q2400-01 | B-156-SB01      | Solid  | Percent Solids | Cool 4 deg C | PORT06   | A42                         | 06/23/2025   | Chemtech -SO |
| Q2400-02 | B-134-SB01      | Solid  | Percent Solids | Cool 4 deg C | PORT06   | A42                         | 06/23/2025   | Chemtech -SO |
| Q2403-03 | LAW-25-0093     | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A32                         | 06/23/2025   | Chemtech -SO |

Date/Time

Raw Sample Received by:

Raw Sample Relinquished by:

Date/Time

Raw Sample Received by:

Raw Sample Relinquished by:

# WORKLIST(Hardcopy Internal Chain)

136243

WorkList Name : %1-062425

WorkList ID : 190342

Department : Wet-Chemistry

Date : 06-24-2025 08:17:18

| Sample   | Customer Sample | Matrix | Test           | Preservative | Customer | Raw Sample Storage Location | Collect Date | Method       |
|----------|-----------------|--------|----------------|--------------|----------|-----------------------------|--------------|--------------|
| Q2403-04 | LAW-25-0093-E2  | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A32                         | 06/23/2025   | Chemtech -SO |
| Q2403-05 | Concrete-062325 | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A32                         | 06/23/2025   | Chemtech -SO |
| Q2403-07 | ARS 20-006      | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A32                         | 06/23/2025   | Chemtech -SO |
| Q2403-08 | ARS020-0006-E2  | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | A32                         | 06/23/2025   | Chemtech -SO |
| Q2405-01 | MH-M/H          | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | D41                         | 06/24/2025   | Chemtech -SO |
| Q2405-02 | MH-M/N-EPH      | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | D41                         | 06/24/2025   | Chemtech -SO |
| Q2405-03 | MH-M/N-VOC      | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | D41                         | 06/24/2025   | Chemtech -SO |
| Q2406-01 | PUMPING-PLANT   | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | D41                         | 06/23/2025   | Chemtech -SO |
| Q2409-02 | COP-SOIL-PILE   | Solid  | Percent Solids | Cool 4 deg C | COPP02   | D51                         | 06/24/2025   | Chemtech -SO |
| Q2410-01 | TRE-25-0021     | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | D41                         | 06/24/2025   | Chemtech -SO |
| Q2411-01 | TRE-2002        | Solid  | Percent Solids | Cool 4 deg C | PSEG03   | D41                         | 06/24/2025   | Chemtech -SO |
| Q2412-01 | TR-05-062425    | Solid  | Percent Solids | Cool 4 deg C | PSEG05   | D41                         | 06/24/2025   | Chemtech -SO |
| Q2412-02 | TR-05-062425-E2 | Solid  | Percent Solids | Cool 4 deg C | PSEG05   | D41                         | 06/24/2025   | Chemtech -SO |

Date/Time 06/24/25 15:10  
 Raw Sample Received by: [Signature]  
 Raw Sample Relinquished by: [Signature]

Date/Time 06/24/25 17:20  
 Raw Sample Received by: [Signature]  
 Raw Sample Relinquished by: [Signature]

SOP ID: M3541-ASE Extraction-14

Clean Up SOP #: N/A

Extraction Start Date : 06/30/2025

Matrix : Solid

Extraction Start Time : 09:20

Weigh By: EH

Extraction By: RJ

Extraction End Date : 06/30/2025

Balance check: RJ

Filter By: RJ

Extraction End Time : 12:20

Balance ID: EX-SC-2

pH Meter ID: N/A

Concentration By: EH

pH Strip Lot#: N/A

Hood ID: 3,7

Supervisor By : RUPESH

Extraction Method: ☐ Separatory Funnel

☐ Continous Liquid/Liquid

☐ Sonication

☐ Waste Dilution

☒ Soxhlet

| Standard Name | MLS USED | Concentration ug/mL | STD REF. # FROM LOG |
|---------------|----------|---------------------|---------------------|
| Spike Sol 1   | 1.0ML    | 20 PPM              | PP24583             |
| Surrogate     | 1.0ML    | 20 PPM              | PP24596             |
| N/A           | N/A      | N/A                 | N/A                 |
| N/A           | N/A      | N/A                 | N/A                 |
| N/A           | N/A      | N/A                 | N/A                 |

| Chemical Used      | ML/SAMPLE USED | Lot Number |
|--------------------|----------------|------------|
| MeCl2/Acetone/1:1  | N/A            | EP2612     |
| Baked Na2SO4       | N/A            | EP2624     |
| Sand               | N/A            | E2865      |
| Methylene Chloride | N/A            | E3943      |
| N/A                | N/A            | N/A        |
| N/A                | N/A            | N/A        |
| N/A                | N/A            | N/A        |
| N/A                | N/A            | N/A        |
| N/A                | N/A            | N/A        |
| N/A                | N/A            | N/A        |
| N/A                | N/A            | N/A        |
| N/A                | N/A            | N/A        |
| N/A                | N/A            | N/A        |
| N/A                | N/A            | N/A        |
| N/A                | N/A            | N/A        |

## Extraction Conformance/Non-Conformance Comments:

1.5 ML Vial lot# 2210673.

KD Bath ID: N/A

Envap ID: NEVAP-02

KD Bath Temperature: N/A

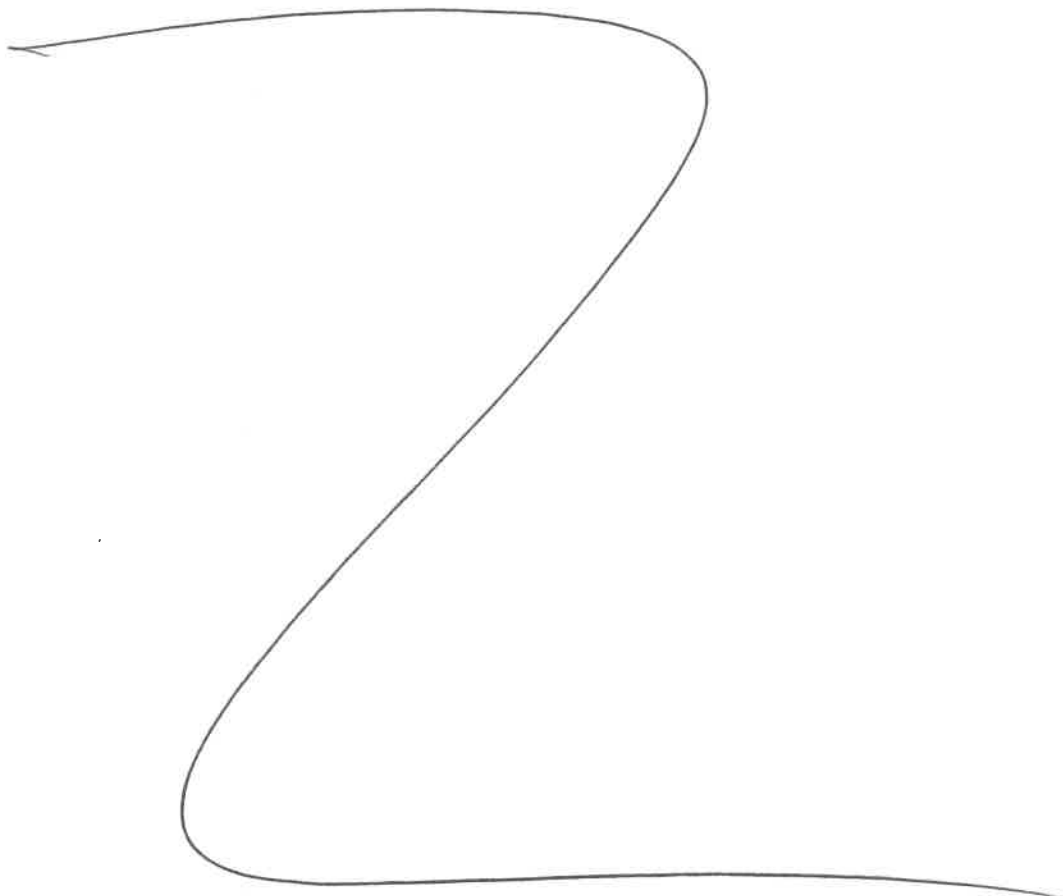
Envap Temperature: 40 °C

| Date / Time | Prepped Sample Relinquished By/Location | Received By/Location |
|-------------|-----------------------------------------|----------------------|
| 6/30/25     | RS (E-4 Lab)                            | Y-P-Pest/IPC         |
| 12:25       | Preparation Group                       | Analysis Group       |

Analytical Method: M3541-ASE Extraction-14

Concentration Date: 06/30/2025

| Sample ID       | Client Sample ID | Test   | g/mL  | PH  | Surr/Spike By: |            | Final Vol.<br>(mL) | JarID | Comments | Prep<br>Pos |
|-----------------|------------------|--------|-------|-----|----------------|------------|--------------------|-------|----------|-------------|
|                 |                  |        |       |     | AddedBy        | VerifiedBy |                    |       |          |             |
| PB168659BL      | PB168659BL       | TPH GC | 30.01 | N/A | ritesh         | Evelyn     | 1                  |       |          | U2-1        |
| PB168659BS      | PB168659BS       | TPH GC | 30.02 | N/A | ritesh         | Evelyn     | 1                  |       |          | 2           |
| Q2409-02        | COP-SOIL-PILE    | TPH GC | 30.05 | N/A | ritesh         | Evelyn     | 1                  | D     |          | 3           |
| Q2409-02MS      | COP-SOIL-PILEMS  | TPH GC | 30.03 | N/A | ritesh         | Evelyn     | 1                  | D     |          | 4           |
| Q2409-02MS<br>D | COP-SOIL-PILEMSD | TPH GC | 30.08 | N/A | ritesh         | Evelyn     | 1                  | D     |          | 5           |



RS  
6/30

1665  
0128

WORKLIST(Hardcopy Internal Chain)

WorkList Name : Q2409T      WorkList ID : 190458      Department : Extraction      Date : 06-30-2025 08:50:32

| Sample   | Customer Sample | Matrix | Test   | Preservative | Customer | Raw Sample Storage Location | Collect Date | Method |
|----------|-----------------|--------|--------|--------------|----------|-----------------------------|--------------|--------|
| Q2409-02 | COP-SOIL-PILE   | Solid  | TPH GC | Cool 4 deg C | COPP02   | D51                         | 06/24/2025   | 8015D  |

Date/Time 06/30/25 09:15  
Raw Sample Received by: RJ CFTT-1066  
Raw Sample Relinquished by: Op Sn

Date/Time 06/30/25 09:25  
Raw Sample Received by: Op Sn  
Raw Sample Relinquished by: RJ CFTT-1066

## Prep Standard - Chemical Standard Summary

**Order ID :** Q2409

**Test :** TPH GC

**Prepbatch ID :** PB168659,

**Sequence ID/Qc Batch ID:** FF063025,

**Standard ID :**

EP2612,EP2624,PP24467,PP24468,PP24469,PP24470,PP24471,PP24472,PP24473,PP24583,PP24596,

**Chemical ID :**

E2865,E3551,E3926,E3930,E3931,E3932,E3943,P11951,P11952,P13106,P13108,P13477,P13479,P13483,P13484,P13485,P13486,P13938,P13945,

## Extractions STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>                    | <u>NO.</u>             | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|--------------------------------|------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------|
| 2017             | 1:1 ACETONE/METHYLENE CHLORIDE | <a href="#">EP2612</a> | 05/09/2025       | 11/05/2025             | RUPESHKUMAR SHAH   | None           | None             | Riteshkumar Patel    |
|                  |                                |                        |                  |                        |                    |                |                  | 05/09/2025           |

**FROM** 8000.00000ml of E3930 + 8000.00000ml of E3932 = Final Quantity: 16000.000 ml

| <u>Recipe ID</u> | <u>NAME</u>          | <u>NO.</u>             | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u>      | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|----------------------|------------------------|------------------|------------------------|--------------------|---------------------|------------------|----------------------|
| 3923             | Baked Sodium Sulfate | <a href="#">EP2624</a> | 06/26/2025       | 12/04/2025             | RUPESHKUMAR SHAH   | Extraction_SC ALE_2 | None             | Riteshkumar Patel    |
|                  |                      |                        |                  |                        |                    | (EX-SC-2)           |                  | 06/26/2025           |

**FROM** 4000.00000gram of E3551 = Final Quantity: 4000.000 gram

## Pest/Pcb STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>              | <u>NO.</u>              | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|--------------------------|-------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------|
| 433              | 100/100 PPM DRO (Restek) | <a href="#">PP24467</a> | 04/22/2025       | 10/08/2025             | Yogesh Patel       | None           | None             | Abdul Mirza          |
|                  |                          |                         |                  |                        |                    |                |                  | 05/08/2025           |

**FROM** 1.00000ml of P11951 + 1.00000ml of P11952 + 1.00000ml of P13477 + 7.00000ml of E3926 = Final Quantity: 10.000 ml

| <u>Recipe ID</u> | <u>NAME</u>                  | <u>NO.</u>              | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|------------------------------|-------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------|
| 3979             | 100/100 PPM DRO ICV (RESTEK) | <a href="#">PP24468</a> | 04/22/2025       | 10/08/2025             | Yogesh Patel       | None           | None             | Abdul Mirza          |
|                  |                              |                         |                  |                        |                    |                |                  | 05/08/2025           |

**FROM** 1.00000ml of P13106 + 1.00000ml of P13108 + 1.00000ml of P13479 + 7.00000ml of E3926 = Final Quantity: 10.000 ml



## Pest/Pcb STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>                 | <u>NO.</u>              | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|-----------------------------|-------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------|
| 435              | 50 PPM ICC DRO STD (Restek) | <a href="#">PP24469</a> | 04/22/2025       | 10/08/2025             | Yogesh Patel       | None           | None             | Abdul Mirza          |
|                  |                             |                         |                  |                        |                    |                |                  | 05/08/2025           |

**FROM** 0.50000ml of E3926 + 0.50000ml of PP24467 = Final Quantity: 1.000 ml

| <u>Recipe ID</u> | <u>NAME</u>                 | <u>NO.</u>              | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|-----------------------------|-------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------|
| 437              | 20 PPM ICC DRO STD (Restek) | <a href="#">PP24470</a> | 04/22/2025       | 10/08/2025             | Yogesh Patel       | None           | None             | Abdul Mirza          |
|                  |                             |                         |                  |                        |                    |                |                  | 05/08/2025           |

**FROM** 0.80000ml of E3926 + 0.20000ml of PP24467 = Final Quantity: 1.000 ml

## Pest/Pcb STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>                 | <u>NO.</u>              | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|-----------------------------|-------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------|
| 438              | 10 PPM ICC DRO STD (Restek) | <a href="#">PP24471</a> | 04/22/2025       | 10/08/2025             | Yogesh Patel       | None           | None             | Abdul Mirza          |
|                  |                             |                         |                  |                        |                    |                |                  | 05/08/2025           |

**FROM** 0.90000ml of E3926 + 0.10000ml of PP24467 = Final Quantity: 1.000 ml

| <u>Recipe ID</u> | <u>NAME</u>                | <u>NO.</u>              | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|----------------------------|-------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------|
| 439              | 5 PPM ICC DRO STD (Restek) | <a href="#">PP24472</a> | 04/22/2025       | 10/08/2025             | Yogesh Patel       | None           | None             | Abdul Mirza          |
|                  |                            |                         |                  |                        |                    |                |                  | 05/08/2025           |

**FROM** 0.90000ml of E3926 + 0.10000ml of PP24469 = Final Quantity: 1.000 ml

## Pest/Pcb STANDARD PREPARATION LOG

| <u>Recipe ID</u> | <u>NAME</u>                 | <u>NO.</u>              | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|-----------------------------|-------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------|
| 3608             | 50 PPM ICV DRO STD (RESTEK) | <a href="#">PP24473</a> | 04/22/2025       | 10/08/2025             | Yogesh Patel       | None           | None             | Abdul Mirza          |
|                  |                             |                         |                  |                        |                    |                |                  | 05/08/2025           |

**FROM** 0.50000ml of E3926 + 0.50000ml of PP24468 = Final Quantity: 1.000 ml

| <u>Recipe ID</u> | <u>NAME</u>                        | <u>NO.</u>              | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u> |
|------------------|------------------------------------|-------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------|
| 3609             | 20 PPM DRO SPIKE SOLUTION (RESTEK) | <a href="#">PP24583</a> | 05/16/2025       | 11/16/2025             | Rahul Chavli       | None           | None             | Yogesh Patel         |
|                  |                                    |                         |                  |                        |                    |                |                  | 05/22/2025           |

**FROM** 0.70000ml of P13945 + 1.30000ml of P13938 + 48.00000ml of E3930 = Final Quantity: 50.000 ml



| <u>Recipe ID</u>                                                                                                                                             | <u>NAME</u>                         | <u>NO.</u>              | <u>Prep Date</u> | <u>Expiration Date</u> | <u>Prepared By</u> | <u>ScaleID</u> | <u>PipetteID</u> | <u>Supervised By</u>       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------|------------------|------------------------|--------------------|----------------|------------------|----------------------------|
| 147                                                                                                                                                          | 20 PPM DRO Surrogate Spike Solution | <a href="#">PP24596</a> | 05/20/2025       | 11/20/2025             | Abdul Mirza        | None           | None             | Yogesh Patel<br>05/22/2025 |
| <b><u>FROM</u></b> 1.00000ml of P13483 + 1.00000ml of P13484 + 1.00000ml of P13485 + 1.00000ml of P13486 + 196.00000ml of E3931 = Final Quantity: 200.000 ml |                                     |                         |                  |                        |                    |                |                  |                            |

## CHEMICAL RECEIPT LOG BOOK

| Supplier         | ItemCode / ItemName                      | Lot #      | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|------------------|------------------------------------------|------------|-----------------|-------------------------|-----------------------------|----------------|
| Seidler Chemical | BA-3382-05 / Sand, Purified (cs/4x2.5kg) | 0000243821 | 06/30/2026      | 04/30/2020 / RAJESH     | 04/28/2020 / RAJESH         | E2865          |

| Supplier                    | ItemCode / ItemName                                    | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|-----------------------------|--------------------------------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| PCI Scientific Supply, Inc. | PC19631-100 / SODIUM SULFATE, ANHYDROUS, PEST GRADE, 1 | 313201 | 12/04/2025      | 01/03/2024 / Rajesh     | 07/20/2023 / Rajesh         | E3551          |

| Supplier         | ItemCode / ItemName                                         | Lot #      | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|------------------|-------------------------------------------------------------|------------|-----------------|-------------------------|-----------------------------|----------------|
| Seidler Chemical | BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L) | 25A0262002 | 10/08/2025      | 04/08/2025 / Rajesh     | 02/07/2025 / Rajesh         | E3926          |

| Supplier         | ItemCode / ItemName                                         | Lot #      | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|------------------|-------------------------------------------------------------|------------|-----------------|-------------------------|-----------------------------|----------------|
| Seidler Chemical | BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L) | 25A0262002 | 02/20/2026      | 05/02/2025 / RUPESH     | 03/09/2025 / RUPESH         | E3930          |

| Supplier         | ItemCode / ItemName                                         | Lot #      | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|------------------|-------------------------------------------------------------|------------|-----------------|-------------------------|-----------------------------|----------------|
| Seidler Chemical | BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L) | 25A0262002 | 02/20/2026      | 05/02/2025 / RUPESH     | 03/09/2025 / RUPESH         | E3931          |

| Supplier         | ItemCode / ItemName                        | Lot #      | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|------------------|--------------------------------------------|------------|-----------------|-------------------------|-----------------------------|----------------|
| Seidler Chemical | BA-9254-03 / Acetone, Ultra Resi (cs/4x4L) | 24H1462005 | 11/05/2025      | 05/05/2025 / RUPESH     | 04/23/2025 / RUPESH         | E3932          |

## CHEMICAL RECEIPT LOG BOOK

| Supplier         | ItemCode / ItemName                                         | Lot #      | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|------------------|-------------------------------------------------------------|------------|-----------------|-------------------------|-----------------------------|----------------|
| Seidler Chemical | BA-9644-A4 / Methylene Chloride,U-Resi, Cycle-Tainer (215L) | 25A2862010 | 12/13/2025      | 06/13/2025 / Rajesh     | 02/28/2025 / Rajesh         | E3943          |

| Supplier | ItemCode / ItemName           | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 31266 / Florida TRPH Standard | A0186840 | 10/22/2025      | 04/22/2025 / yogesh     | 07/11/2022 / Yogesh         | P11951         |

| Supplier | ItemCode / ItemName           | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 31266 / Florida TRPH Standard | A0186840 | 10/22/2025      | 04/22/2025 / yogesh     | 07/11/2022 / Yogesh         | P11952         |

| Supplier | ItemCode / ItemName           | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 31266 / Florida TRPH Standard | A0204859 | 10/22/2025      | 04/22/2025 / yogesh     | 01/12/2024 / Yogesh         | P13106         |

| Supplier | ItemCode / ItemName           | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 31266 / Florida TRPH Standard | A0204859 | 10/22/2025      | 04/22/2025 / yogesh     | 01/12/2024 / Yogesh         | P13108         |

| Supplier                 | ItemCode / ItemName                   | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|---------------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 72072 / n-Tetracosane-d50, 1000 ug/ml | 101122 | 10/22/2025      | 04/22/2025 / yogesh     | 07/24/2024 / yogesh         | P13477         |

## CHEMICAL RECEIPT LOG BOOK

| Supplier                 | ItemCode / ItemName                   | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|---------------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 72072 / n-Tetracosane-d50, 1000 ug/ml | 101122 | 10/22/2025      | 04/22/2025 / yogesh     | 07/24/2024 / yogesh         | P13479         |

| Supplier                 | ItemCode / ItemName                   | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|---------------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 72072 / n-Tetracosane-d50, 1000 ug/ml | 101122 | 11/20/2025      | 05/20/2025 / Abdul      | 07/24/2024 / yogesh         | P13483         |

| Supplier                 | ItemCode / ItemName                   | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|---------------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 72072 / n-Tetracosane-d50, 1000 ug/ml | 101122 | 11/20/2025      | 05/20/2025 / Abdul      | 07/24/2024 / yogesh         | P13484         |

| Supplier                 | ItemCode / ItemName                   | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|---------------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 72072 / n-Tetracosane-d50, 1000 ug/ml | 101122 | 11/20/2025      | 05/20/2025 / Abdul      | 07/24/2024 / yogesh         | P13485         |

| Supplier                 | ItemCode / ItemName                   | Lot #  | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|--------------------------|---------------------------------------|--------|-----------------|-------------------------|-----------------------------|----------------|
| Absolute Standards, Inc. | 72072 / n-Tetracosane-d50, 1000 ug/ml | 101122 | 11/20/2025      | 05/20/2025 / Abdul      | 07/24/2024 / yogesh         | P13486         |

| Supplier | ItemCode / ItemName           | Lot #    | Expiration Date | Date Opened / Opened By | Received Date / Received By | Chemtech Lot # |
|----------|-------------------------------|----------|-----------------|-------------------------|-----------------------------|----------------|
| Restek   | 31266 / Florida TRPH Standard | A0217113 | 11/16/2025      | 05/16/2025 / Rahul      | 03/07/2025 / yogesh         | P13938         |

**CHEMICAL RECEIPT LOG BOOK**

| Supplier | ItemCode / ItemName              | Lot #    | Expiration Date | Date Opened /<br>Opened By | Received Date /<br>Received By | Chemtech<br>Lot # |
|----------|----------------------------------|----------|-----------------|----------------------------|--------------------------------|-------------------|
| Restek   | 31266 / Florida TRPH<br>Standard | A0217113 | 11/16/2025      | 05/16/2025 /<br>Rahul      | 03/07/2025 /<br>yogesh         | P13945            |



Sand  
Purified  
Washed and Ignited



Material No.: 3382-05  
Batch No.: 0000243821  
Manufactured Date: 2018/04/09  
Retest Date: 2025/04/07  
Revision No: 1

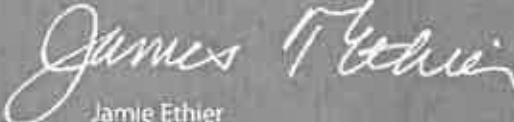
## Certificate of Analysis

| Test                      | Specification | Result |
|---------------------------|---------------|--------|
| Substances Soluble in HCl | $\leq 0.16\%$ | 0.01   |

For Laboratory, Research or Manufacturing Use  
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: US  
Packaging Site: Paris Mfg Ctr & DC

E 2865

  
Jamie Ethier  
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC  
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700



**PRODUCTOS  
QUÍMICOS  
MONTERREY, S.A. DE C.V.**

MIRADOR 201, COL. MIRADOR  
MONTERREY, N.L. MEXICO  
CP 64070  
TEL +52 81 13 52 57 57  
www.pqm.com.mx

## CERTIFICATE OF ANALYSIS

|                        |                                   |               |                                 |
|------------------------|-----------------------------------|---------------|---------------------------------|
| PRODUCT :              | SODIUM SULFATE CRYSTALS ANHYDROUS |               |                                 |
| QUALITY :              | ACS (CODE RMB3375)                | FORMULA :     | Na <sub>2</sub> SO <sub>4</sub> |
| SPECIFICATION NUMBER : | 6399                              | RELEASE DATE: | ABR/21/2023                     |
| LOT NUMBER :           | 313201                            |               |                                 |

| TEST                                     | SPECIFICATIONS | LOT VALUES  |
|------------------------------------------|----------------|-------------|
| Assay (Na <sub>2</sub> SO <sub>4</sub> ) | Min. 99.0%     | 99.7 %      |
| pH of a 5% solution at 25°C              | 5.2 - 9.2      | 6.1         |
| Insoluble matter                         | Max. 0.01%     | 0.005 %     |
| Loss on ignition                         | Max. 0.5%      | 0.1 %       |
| Chloride (Cl)                            | Max. 0.001%    | <0.001 %    |
| Nitrogen compounds (as N)                | Max. 5 ppm     | <5 ppm      |
| Phosphate (PO <sub>4</sub> )             | Max. 0.001%    | <0.001 %    |
| Heavy metals (as Pb)                     | Max. 5 ppm     | <5 ppm      |
| Iron (Fe)                                | Max. 0.001%    | <0.001 %    |
| Calcium (Ca)                             | Max. 0.01%     | 0.002 %     |
| Magnesium (Mg)                           | Max. 0.005%    | 0.001 %     |
| Potassium (K)                            | Max. 0.008%    | 0.003 %     |
| Extraction-concentration suitability     | Passes test    | Passes test |
| Appearance                               | Passes test    | Passes test |
| Identification                           | Passes test    | Passes test |
| Solubility and foreign matter            | Passes test    | Passes test |
| Retained on US Standard No. 10 sieve     | Max. 1%        | 0.1 %       |
| Retained on US Standard No. 60 sieve     | Min. 94%       | 97.3 %      |
| Through US Standard No. 60 sieve         | Max. 5%        | 2.5 %       |
| Through US Standard No. 100 sieve        | Max. 10%       | 0.1 %       |

### COMMENTS

QC: PhC Irma Belmares

If you need further details, please call our factory or contact our local distributor.

Recd. by R3 on 7/24/23 E 3551

RC-02-01, Ed. 3

Methylene Chloride  
ULTRA RESI-ANALYZED  
For Organic Residue Analysis  
(dichloromethane)

avantor



Material No.: 9266-A4  
Batch No.: 25A0262002  
Manufactured Date: 2024-11-21  
Expiration Date: 2026-02-20  
Revision No.: 0

## Certificate of Analysis

| Test                                                                                       | Specification  | Result     |
|--------------------------------------------------------------------------------------------|----------------|------------|
| FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)                       | $\leq 5$       | 1          |
| ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)                        | $\leq 10$      | 4          |
| Assay ( $\text{CH}_2\text{Cl}_2$ ) (by GC, exclusive of preservative, corrected for water) | $\geq 99.8\%$  | 99.9%      |
| Color (APHA)                                                                               | $\leq 10$      | 10         |
| Residue after Evaporation                                                                  | $\leq 1.0$ ppm | 0.8 ppm    |
| Titration Acid ( $\mu\text{eq/g}$ )                                                        | $\leq 0.3$     | $< 0.1$    |
| Chloride (Cl)                                                                              | $\leq 10$ ppm  | $< 5$ ppm  |
| Water (by KF, coulometric)                                                                 | $\leq 0.02\%$  | $< 0.01\%$ |

For Laboratory, Research, or Manufacturing Use  
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: United States  
Packaging Site: Phillipsburg Mfg Ctr & DC

E 3926

*J. Croak*

Jamie Croak  
Director Quality Operations, Bioscience Production

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA, 19087, U.S.A. Phone 610.386.1700

Methylene Chloride  
ULTRA RESI-ANALYZED  
For Organic Residue Analysis  
(dichloromethane)

avantor



Material No.: 9266-A4  
Batch No.: 25A0262002  
Manufactured Date: 2024-11-21  
Expiration Date: 2026-02-20  
Revision No.: 0

## Certificate of Analysis

| Test                                                                                             | Specification  | Result  |
|--------------------------------------------------------------------------------------------------|----------------|---------|
| FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)                             | $\leq 5$       | 1       |
| ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)                              | $\leq 10$      | 4       |
| Assay (CH <sub>2</sub> Cl <sub>2</sub> ) (by GC, exclusive of preservative, corrected for water) | $\geq 99.8\%$  | 99.9%   |
| Color (APHA)                                                                                     | $\leq 10$      | 10      |
| Residue after Evaporation                                                                        | $\leq 1.0$ ppm | 0.8 ppm |
| Titration Acid ( $\mu$ eq/g)                                                                     | $\leq 0.3$     | <0.1    |
| Chloride (Cl)                                                                                    | $\leq 10$ ppm  | <5 ppm  |
| Water (by KF, coulometric)                                                                       | $\leq 0.02\%$  | <0.01%  |

For Laboratory, Research, or Manufacturing Use  
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: United States  
Packaging Site: Phillipsburg Mfg Ctr & DC

E3930

*J. Croak*

Jamie Croak  
Director Quality Operations, Bioscience Production

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA, 19087, U.S.A. Phone 610.386.1700

Methylene Chloride  
ULTRA RESI-ANALYZED  
For Organic Residue Analysis  
(dichloromethane)

avantor



Material No.: 9266-A4  
Batch No.: 25A0262002  
Manufactured Date: 2024-11-21  
Expiration Date: 2026-02-20  
Revision No.: 0

## Certificate of Analysis

| Test                                                                                             | Specification  | Result  |
|--------------------------------------------------------------------------------------------------|----------------|---------|
| FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)                             | $\leq 5$       | 1       |
| ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)                              | $\leq 10$      | 4       |
| Assay (CH <sub>2</sub> Cl <sub>2</sub> ) (by GC, exclusive of preservative, corrected for water) | $\geq 99.8 \%$ | 99.9 %  |
| Color (APHA)                                                                                     | $\leq 10$      | 10      |
| Residue after Evaporation                                                                        | $\leq 1.0$ ppm | 0.8 ppm |
| Titration Acid (μeq/g)                                                                           | $\leq 0.3$     | <0.1    |
| Chloride (Cl)                                                                                    | $\leq 10$ ppm  | <5 ppm  |
| Water (by KF, coulometric)                                                                       | $\leq 0.02 \%$ | <0.01 % |

For Laboratory, Research, or Manufacturing Use  
MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: United States  
Packaging Site: Phillipsburg Mfg Ctr & DC

E3930

*J. Croak*

Jamie Croak  
Director Quality Operations, Bioscience Production

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA, 19087, U.S.A. Phone 610.386.1700

Acetone  
BAKER RESI-ANALYZED® Reagent  
For Organic Residue Analysis

 avantor™



Material No.: 9254-03

Batch No.: 24H1462005

Manufactured Date: 2024-05-24

Expiration Date: 2027-05-24

Revision No.: 0

## Certificate of Analysis

| Test                                                                    | Specification | Result      |
|-------------------------------------------------------------------------|---------------|-------------|
| Assay ((CH <sub>3</sub> ) <sub>2</sub> CO) (by GC, corrected for water) | >= 99.4 %     | 99.8 %      |
| Color (APHA)                                                            | <= 10         | 5           |
| Residue after Evaporation                                               | <= 1.0 ppm    | 0.2 ppm     |
| Substances Reducing Permanganate                                        | Passes Test   | Passes Test |
| Titration Acid (μeq/g)                                                  | <= 0.3        | 0.2         |
| Titration Base (μeq/g)                                                  | <= 0.6        | <0.1        |
| Water (H <sub>2</sub> O)                                                | <= 0.5 %      | 0.2 %       |
| FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)    | <= 5          | <1          |
| ECD Sensitive Impurities (as Heptachlor Epoxide) Single Peak (pg/mL)    | <= 10         | 1           |

For Laboratory, Research, or Manufacturing Use

MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

RS

Country of Origin: United States

Packaging Site: Phillipsburg Mfg Ctr & DC

E 3932



Jamie Croak  
Director Quality Operations, Bioscience Production

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials LLC

Methylene Chloride  
ULTRA RESI-ANALYZED  
For Organic Residue Analysis  
(dichloromethane)

avantor™



Material No.: 9266-A4

Batch No.: 25A2862010

Manufactured Date: 2024-12-18

Expiration Date: 2026-03-19

Revision No.: 0

## Certificate of Analysis

| Test                                                                                       | Specification          | Result  |
|--------------------------------------------------------------------------------------------|------------------------|---------|
| FID-Sensitive Impurities (as 2-Octanol) Single Impurity Peak (ng/mL)                       | $\leq 5$               | <1      |
| ECD Sensitive Impurities (as HeptachlorEpoxide) Single Peak (pg/mL)                        | $\leq 10$              | 2       |
| Assay ( $\text{CH}_2\text{Cl}_2$ ) (by GC, exclusive of preservative, corrected for water) | $\geq 99.8 \%$         | 99.9 %  |
| Color (APHA)                                                                               | $\leq 10$              | 5       |
| Residue after Evaporation                                                                  | $\leq 1.0 \text{ ppm}$ | 0.3 ppm |
| Titration Acid ( $\mu\text{eq/g}$ )                                                        | $\leq 0.3$             | <0.1    |
| Chloride (Cl)                                                                              | $\leq 10 \text{ ppm}$  | <5 ppm  |
| Water (by KF, coulometric)                                                                 | $\leq 0.02 \%$         | <0.01 % |

For Laboratory, Research, or Manufacturing Use

MEETS SPECIFICATIONS WITHIN THE EXPIRATION PERIOD

Country of Origin: United States

Packaging Site: Phillipsburg Mfg Ctr & DC

E3942

Jamie Croak  
Director Quality Operations, Bioscience Production

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials LLC



# CERTIFIED REFERENCE MATERIAL

110 Benner Circle

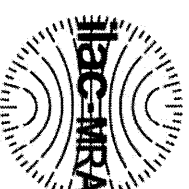
Bellefonte, PA 16823-8812

Tel: (800)356-1688

Fax: (814)353-1309

www.restek.com

## Certificate of Analysis



### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

*This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.*

Catalog No. : 31266

Lot No.: A0186840

Description : Florida TRPH Standard

Florida TRPH Standard 500µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL

Pkg Amt: > 1 mL

Expiration Date : July 31, 2029

Storage: 25°C nominal

Handling: Sonicate prior to use.

Ship: Ambient

### CERTIFIED VALUES

| Elution Order | Compound                                            | Grav. Conc.<br>(weight/volume) | Expanded Uncertainty<br>(95% C.L.; K=2)                    |                                                  |
|---------------|-----------------------------------------------------|--------------------------------|------------------------------------------------------------|--------------------------------------------------|
| 1             | n-Octane (C8)<br>CAS # 111-65-9<br>Purity 99%       | 505.0 µg/mL                    | +/- 2.9995 µg/mL<br>+/- 12.5465 µg/mL<br>+/- 15.0390 µg/mL | Gravimetric Unstressed<br>Unstressed<br>Stressed |
| 2             | n-Decane (C10)<br>CAS # 124-18-5<br>Purity 99%      | 503.0 µg/mL                    | +/- 2.9877 µg/mL<br>+/- 12.4968 µg/mL<br>+/- 14.9795 µg/mL | Gravimetric Unstressed<br>Unstressed<br>Stressed |
| 3             | n-Dodecane (C12)<br>CAS # 112-40-3<br>Purity 99%    | 503.5 µg/mL                    | +/- 2.9906 µg/mL<br>+/- 12.5092 µg/mL<br>+/- 14.9944 µg/mL | Gravimetric Unstressed<br>Unstressed<br>Stressed |
| 4             | n-Tetradecane (C14)<br>CAS # 629-59-4<br>Purity 99% | 505.0 µg/mL                    | +/- 2.9995 µg/mL<br>+/- 12.5465 µg/mL<br>+/- 15.0390 µg/mL | Gravimetric Unstressed<br>Unstressed<br>Stressed |
| 5             | n-Hexadecane (C16)<br>CAS # 544-76-3<br>Purity 98%  | 504.7 µg/mL                    | +/- 2.9978 µg/mL<br>+/- 12.5390 µg/mL<br>+/- 15.0301 µg/mL | Gravimetric Unstressed<br>Unstressed<br>Stressed |
| 6             | n-Octadecane (C18)<br>CAS # 593-45-3<br>Purity 97%  | 504.4 µg/mL                    | +/- 2.9960 µg/mL<br>+/- 12.5316 µg/mL<br>+/- 15.0212 µg/mL | Gravimetric Unstressed<br>Unstressed<br>Stressed |
| 7             | n-Eicosane (C20)<br>CAS # 112-95-8<br>Purity 99%    | 503.5 µg/mL                    | +/- 2.9906 µg/mL<br>+/- 12.5092 µg/mL<br>+/- 14.9944 µg/mL | Gravimetric Unstressed<br>Unstressed<br>Stressed |

P11948 } 7.8  
P11962 } 07/11/16



|    |                                                                          |                  |             |                                          |                         |                                       |
|----|--------------------------------------------------------------------------|------------------|-------------|------------------------------------------|-------------------------|---------------------------------------|
| 8  | n-Docosane (C22)<br><b>CAS #</b> 629-97-0<br><b>Purity</b> 99%           | (Lot MKCL8918)   | 504.5 µg/mL | +/- 2.9966<br>+/- 12.5340<br>+/- 15.0241 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 9  | n-Tetracosane (C24)<br><b>CAS #</b> 646-31-1<br><b>Purity</b> 99%        | (Lot MKCN2863)   | 503.5 µg/mL | +/- 2.9906<br>+/- 12.5092<br>+/- 14.9944 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 10 | n-Hexacosane (C26)<br><b>CAS #</b> 630-01-3<br><b>Purity</b> 99%         | (Lot MKCD4540)   | 504.0 µg/mL | +/- 2.9936<br>+/- 12.5216<br>+/- 15.0093 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 11 | n-Octacosane (C28)<br><b>CAS #</b> 630-02-4<br><b>Purity</b> 99%         | (Lot BCCG0084)   | 504.5 µg/mL | +/- 2.9966<br>+/- 12.5340<br>+/- 15.0241 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 12 | n-Triacontane (C30)<br><b>CAS #</b> 638-68-6<br><b>Purity</b> 99%        | (Lot MKCN9321)   | 505.0 µg/mL | +/- 2.9995<br>+/- 12.5465<br>+/- 15.0390 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 13 | n-Dotriacontane (C32)<br><b>CAS #</b> 544-85-4<br><b>Purity</b> 99%      | (Lot BCBW0661)   | 505.0 µg/mL | +/- 2.9995<br>+/- 12.5465<br>+/- 15.0390 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 14 | n-Tetratriacontane (C34)<br><b>CAS #</b> 14167-59-0<br><b>Purity</b> 99% | (Lot OML4N)      | 504.5 µg/mL | +/- 2.9966<br>+/- 12.5340<br>+/- 15.0241 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 15 | n-Hexatriacontane (C36)<br><b>CAS #</b> 630-06-8<br><b>Purity</b> 99%    | (Lot U25B014)    | 504.0 µg/mL | +/- 2.9936<br>+/- 12.5216<br>+/- 15.0093 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 16 | n-Octatriacontane (C38)<br><b>CAS #</b> 7194-85-6<br><b>Purity</b> 97%   | (Lot 0000127235) | 504.4 µg/mL | +/- 2.9960<br>+/- 12.5316<br>+/- 15.0212 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 17 | n-Tetracontane (C40)<br><b>CAS #</b> 4181-95-7<br><b>Purity</b> 98%      | (Lot PADGI)      | 504.7 µg/mL | +/- 2.9978<br>+/- 12.5390<br>+/- 15.0301 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |

**Solvent:** Hexane  
**CAS #** 110-54-3  
**Purity** 99%

**Column:**

30m x 0.25mm x 0.25µm  
Rtx-5 (cat.#10223)

**Carrier Gas:**

hydrogen-constant pressure 10 psi.

**Temp. Program:**

40°C (hold 2 min.) to 330°C  
@ 10°C/min. (hold 10 min.)

**Inj. Temp:**

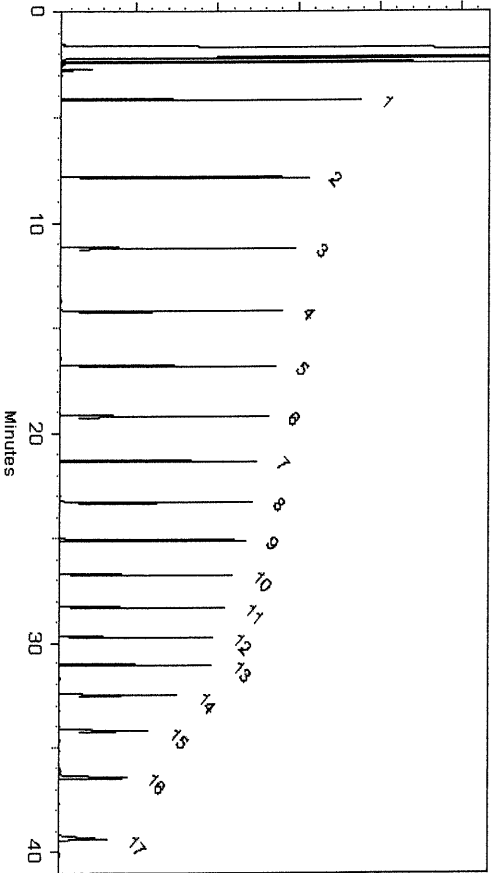
250°C

**Det. Temp:**

330°C

**Det. Type:**

FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

*Brittany Federinko*  
**Brittany Federinko - Operations Tech I**

**Date Mixed:** 29-Jun-2022

**Balance:** 1128360905

*Christie Mills*  
**Christie Mills - Operations Tech II - ARM QC**

**Date Passed:** 01-Jul-2022

Manufactured under Restek's ISO 9001:2015  
Registered Quality System  
Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value ( includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k \sqrt{U_{gravimetric}^2 + U_{homogeneity}^2 + U_{storage\ stability}^2 + U_{shipping\ stability}^2}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at [www.restek.com/Contact-US](http://www.restek.com/Contact-US) for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

| Label Conditions                                          | Standard Conditions | Non-Standard Conditions |
|-----------------------------------------------------------|---------------------|-------------------------|
| 25°C Nominal (Room Temperature)                           | < 60°C              | ≥ 60°C up to 7 days     |
| 10°C or colder (Refrigerate)                              | < 40°C              | ≥ 40°C up to 7 days     |
| 0°C or colder (Freezer)<br>-20°C or colder (Deep Freezer) | < 25°C              | ≥ 25°C up to 7 days     |

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at [www.restek.com/Contact-US](http://www.restek.com/Contact-US).
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.



# CERTIFIED REFERENCE MATERIAL

110 Benner Circle

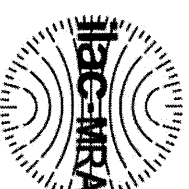
Bellefonte, PA 16823-8812

Tel: (800)356-1688

Fax: (814)353-1309

www.restek.com

## Certificate of Analysis



### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

*This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.*

Catalog No. : 31266

Lot No.: A0186840

Description :

Florida TRPH Standard

Florida TRPH Standard 500µg/mL, Hexane, 1mL/ampul

Container Size :

2 mL

Pkg Amt: > 1 mL

Expiration Date :

July 31, 2029

Storage: 25°C nominal

Handling:

Sonicate prior to use.

Ship: Ambient

### CERTIFIED VALUES

| Elution Order | Compound                                            | Grav. Conc.<br>(weight/volume) | Expanded Uncertainty<br>(95% C.L.; K=2)                    |                                    |
|---------------|-----------------------------------------------------|--------------------------------|------------------------------------------------------------|------------------------------------|
| 1             | n-Octane (C8)<br>CAS # 111-65-9<br>Purity 99%       | 505.0 µg/mL                    | +/- 2.9995 µg/mL<br>+/- 12.5465 µg/mL<br>+/- 15.0390 µg/mL | Gravimetric Unstressed<br>Stressed |
| 2             | n-Decane (C10)<br>CAS # 124-18-5<br>Purity 99%      | 503.0 µg/mL                    | +/- 2.9877 µg/mL<br>+/- 12.4968 µg/mL<br>+/- 14.9795 µg/mL | Gravimetric Unstressed<br>Stressed |
| 3             | n-Dodecane (C12)<br>CAS # 112-40-3<br>Purity 99%    | 503.5 µg/mL                    | +/- 2.9906 µg/mL<br>+/- 12.5092 µg/mL<br>+/- 14.9944 µg/mL | Gravimetric Unstressed<br>Stressed |
| 4             | n-Tetradecane (C14)<br>CAS # 629-59-4<br>Purity 99% | 505.0 µg/mL                    | +/- 2.9995 µg/mL<br>+/- 12.5465 µg/mL<br>+/- 15.0390 µg/mL | Gravimetric Unstressed<br>Stressed |
| 5             | n-Hexadecane (C16)<br>CAS # 544-76-3<br>Purity 98%  | 504.7 µg/mL                    | +/- 2.9978 µg/mL<br>+/- 12.5390 µg/mL<br>+/- 15.0301 µg/mL | Gravimetric Unstressed<br>Stressed |
| 6             | n-Octadecane (C18)<br>CAS # 593-45-3<br>Purity 97%  | 504.4 µg/mL                    | +/- 2.9960 µg/mL<br>+/- 12.5316 µg/mL<br>+/- 15.0212 µg/mL | Gravimetric Unstressed<br>Stressed |
| 7             | n-Eicosane (C20)<br>CAS # 112-95-8<br>Purity 99%    | 503.5 µg/mL                    | +/- 2.9906 µg/mL<br>+/- 12.5092 µg/mL<br>+/- 14.9944 µg/mL | Gravimetric Unstressed<br>Stressed |

P11948 } 7.8  
P11962 } 07/11/16

|    |                                                                          |                  |             |                                          |                         |                                       |
|----|--------------------------------------------------------------------------|------------------|-------------|------------------------------------------|-------------------------|---------------------------------------|
| 8  | n-Docosane (C22)<br><b>CAS #</b> 629-97-0<br><b>Purity</b> 99%           | (Lot MKCL8918)   | 504.5 µg/mL | +/- 2.9966<br>+/- 12.5340<br>+/- 15.0241 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 9  | n-Tetracosane (C24)<br><b>CAS #</b> 646-31-1<br><b>Purity</b> 99%        | (Lot MKCN2863)   | 503.5 µg/mL | +/- 2.9906<br>+/- 12.5092<br>+/- 14.9944 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 10 | n-Hexacosane (C26)<br><b>CAS #</b> 630-01-3<br><b>Purity</b> 99%         | (Lot MKCD4540)   | 504.0 µg/mL | +/- 2.9936<br>+/- 12.5216<br>+/- 15.0093 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 11 | n-Octacosane (C28)<br><b>CAS #</b> 630-02-4<br><b>Purity</b> 99%         | (Lot BCCG0084)   | 504.5 µg/mL | +/- 2.9966<br>+/- 12.5340<br>+/- 15.0241 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 12 | n-Triacontane (C30)<br><b>CAS #</b> 638-68-6<br><b>Purity</b> 99%        | (Lot MKCN9321)   | 505.0 µg/mL | +/- 2.9995<br>+/- 12.5465<br>+/- 15.0390 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 13 | n-Dotriacontane (C32)<br><b>CAS #</b> 544-85-4<br><b>Purity</b> 99%      | (Lot BCBW0661)   | 505.0 µg/mL | +/- 2.9995<br>+/- 12.5465<br>+/- 15.0390 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 14 | n-Tetratriacontane (C34)<br><b>CAS #</b> 14167-59-0<br><b>Purity</b> 99% | (Lot OML4N)      | 504.5 µg/mL | +/- 2.9966<br>+/- 12.5340<br>+/- 15.0241 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 15 | n-Hexatriacontane (C36)<br><b>CAS #</b> 630-06-8<br><b>Purity</b> 99%    | (Lot U25B014)    | 504.0 µg/mL | +/- 2.9936<br>+/- 12.5216<br>+/- 15.0093 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 16 | n-Octatriacontane (C38)<br><b>CAS #</b> 7194-85-6<br><b>Purity</b> 97%   | (Lot 0000127235) | 504.4 µg/mL | +/- 2.9960<br>+/- 12.5316<br>+/- 15.0212 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |
| 17 | n-Tetracontane (C40)<br><b>CAS #</b> 4181-95-7<br><b>Purity</b> 98%      | (Lot PADGI)      | 504.7 µg/mL | +/- 2.9978<br>+/- 12.5390<br>+/- 15.0301 | µg/mL<br>µg/mL<br>µg/mL | Gravimetric<br>Unstressed<br>Stressed |

**Solvent:** Hexane  
**CAS #** 110-54-3  
**Purity** 99%

**Column:**

30m x 0.25mm x 0.25µm  
Rtx-5 (cat.#10223)

**Carrier Gas:**

hydrogen-constant pressure 10 psi.

**Temp. Program:**

40°C (hold 2 min.) to 330°C  
@ 10°C/min. (hold 10 min.)

**Inj. Temp:**

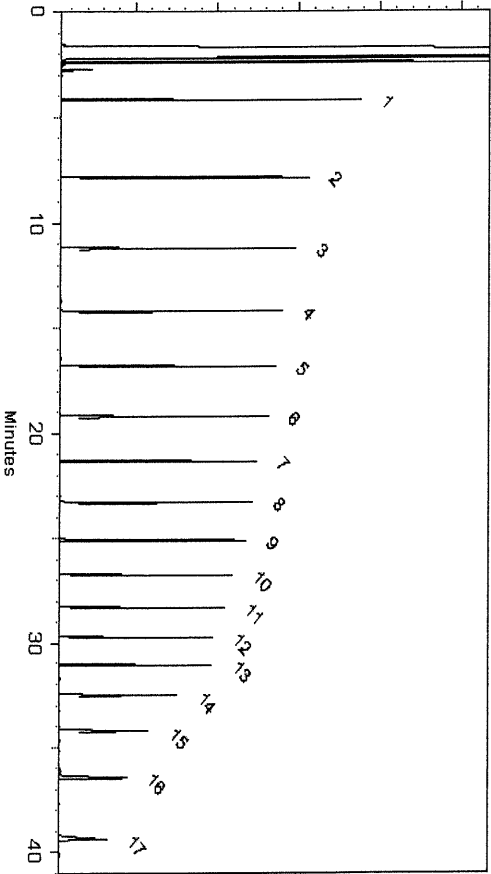
250°C

**Det. Temp:**

330°C

**Det. Type:**

FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

*Brittany Federinko*

Brittany Federinko - Operations Tech I

Date Mixed: 29-Jun-2022

Balance: 1128360905

*Christie Mills*

Christie Mills - Operations Tech II - ARM QC

Date Passed: 01-Jul-2022

Manufactured under Restek's ISO 9001:2015  
Registered Quality System  
Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value ( includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k \sqrt{U_{gravimetric}^2 + U_{homogeneity}^2 + U_{storage\ stability}^2 + U_{shipping\ stability}^2}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at [www.restek.com/Contact-US](http://www.restek.com/Contact-US) for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

| Label Conditions                                          | Standard Conditions | Non-Standard Conditions |
|-----------------------------------------------------------|---------------------|-------------------------|
| 25°C Nominal (Room Temperature)                           | < 60°C              | ≥ 60°C up to 7 days     |
| 10°C or colder (Refrigerate)                              | < 40°C              | ≥ 40°C up to 7 days     |
| 0°C or colder (Freezer)<br>-20°C or colder (Deep Freezer) | < 25°C              | ≥ 25°C up to 7 days     |

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at [www.restek.com/Contact-US](http://www.restek.com/Contact-US).
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.



110 Benner Circle  
Bellefonte, PA 16823-8812  
Tel: 1-814-353-1300  
Fax: 1-814-353-1309

www.restek.com

## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

*chromatographic plus*



### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

*This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.*

**Catalog No. :** 31266 **Lot No.:** A0204859

**Description :** Florida TRPH Standard

Florida TRPH Standard 500µg/mL, Hexane, 1mL/ampul

**Container Size :** 2 mL **Pkg Amt:** > 1 mL

**Expiration Date :** December 31, 2030 **Storage:** 25°C nominal

**Handling:** Sonicate prior to use. **Ship:** Ambient

P13103 } Y.P.  
↓  
P13112 } 01/12/2024

### CERTIFIED VALUES

| Elution Order | Compound                 | CAS #      | Lot #      | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|--------------------------|------------|------------|--------|-----------------------------|----------------------------------------|
| 1             | n-Octane (C8)            | 111-65-9   | SHBP9758   | 99%    | 504.4 µg/mL                 | +/- 13.0305                            |
| 2             | n-Decane (C10)           | 124-18-5   | SHBQ1342   | 99%    | 503.6 µg/mL                 | +/- 13.0098                            |
| 3             | n-Dodecane (C12)         | 112-40-3   | SHBP7054   | 99%    | 503.6 µg/mL                 | +/- 13.0098                            |
| 4             | n-Tetradecane (C14)      | 629-59-4   | STBK5437   | 99%    | 504.0 µg/mL                 | +/- 13.0201                            |
| 5             | n-Hexadecane (C16)       | 544-76-3   | SHBP8192   | 99%    | 504.0 µg/mL                 | +/- 13.0201                            |
| 6             | n-Octadecane (C18)       | 593-45-3   | UE5NG      | 98%    | 504.1 µg/mL                 | +/- 13.0230                            |
| 7             | n-Eicosane (C20)         | 112-95-8   | MKCN8767   | 97%    | 504.0 µg/mL                 | +/- 13.0204                            |
| 8             | n-Docosane (C22)         | 629-97-0   | MKCQ3882   | 99%    | 503.6 µg/mL                 | +/- 13.0098                            |
| 9             | n-Tetracosane (C24)      | 646-31-1   | MKCQ8345   | 99%    | 504.0 µg/mL                 | +/- 13.0201                            |
| 10            | n-Hexacosane (C26)       | 630-01-3   | MKCQ4814   | 99%    | 504.0 µg/mL                 | +/- 13.0201                            |
| 11            | n-Octacosane (C28)       | 630-02-4   | BCCG0084   | 99%    | 504.0 µg/mL                 | +/- 13.0201                            |
| 12            | n-Triacontane (C30)      | 638-68-6   | MKCQ9436   | 97%    | 504.0 µg/mL                 | +/- 13.0204                            |
| 13            | n-Dotriacontane (C32)    | 544-85-4   | BCBW0661   | 99%    | 504.0 µg/mL                 | +/- 13.0201                            |
| 14            | n-Tetratriacontane (C34) | 14167-59-0 | OML4N      | 99%    | 504.4 µg/mL                 | +/- 13.0305                            |
| 15            | n-Hexatriacontane (C36)  | 630-06-8   | Z27H018    | 99%    | 504.0 µg/mL                 | +/- 13.0201                            |
| 16            | n-Octatriacontane (C38)  | 7194-85-6  | 0000145137 | 96%    | 503.8 µg/mL                 | +/- 13.0152                            |
| 17            | n-Tetracontane (C40)     | 4181-95-7  | OKEGA      | 99%    | 503.6 µg/mL                 | +/- 13.0098                            |



**Solvent:** Hexane  
**CAS #** 110-54-3  
**Purity** 99%

## Quality Confirmation Test

**Column:**  
30m x 0.25mm x 0.25µm  
Rtx-5 (cat.#10223)

**Carrier Gas:**  
hydrogen-constant pressure 10 psi.

**Temp. Program:**  
40°C (hold 2 min.) to 330°C  
@ 10°C/min. (hold 10 min.)

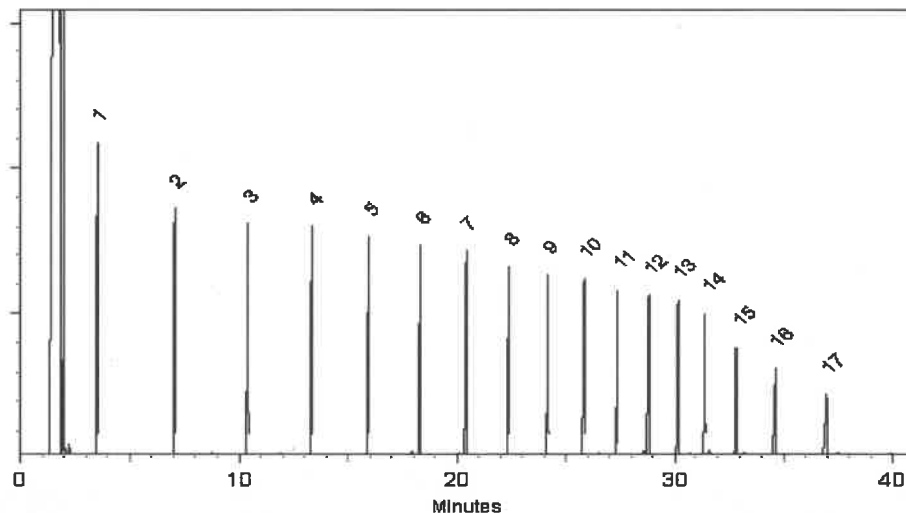
**Inj. Temp:**  
250°C

**Det. Temp:**  
330°C

**Det. Type:**  
FID

**Split Vent:**  
2 ml/min.

**Inj. Vol**  
1µl

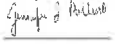


This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

  
Dakota Parson - Operations Technician I

**Date Mixed:** 29-Nov-2023

**Balance Serial #** B442140311

  
Jennifer Pollino - Operations Tech III - ARM QC

**Date Passed:** 01-Dec-2023

Manufactured under Restek's ISO 9001:2015  
Registered Quality System  
Certificate #FM 80397

## General Certified Reference Material Notes

### Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

### Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/ $\mu$ ECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

### Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage\ stability}^2 + u_{shipping\ stability}^2}$$

$k$  is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

### Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

### Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.





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## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

*chromatographic plus*



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*This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.*

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**Description :** Florida TRPH Standard

Florida TRPH Standard 500µg/mL, Hexane, 1mL/ampul

**Container Size :** 2 mL **Pkg Amt:** > 1 mL

**Expiration Date :** December 31, 2030 **Storage:** 25°C nominal

**Handling:** Sonicate prior to use. **Ship:** Ambient

P13103 } Y.P.  
↓  
P13112 } 01/12/2024

### CERTIFIED VALUES

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|---------------|--------------------------|------------|------------|--------|-----------------------------|----------------------------------------|
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**Solvent:** Hexane  
**CAS #** 110-54-3  
**Purity** 99%

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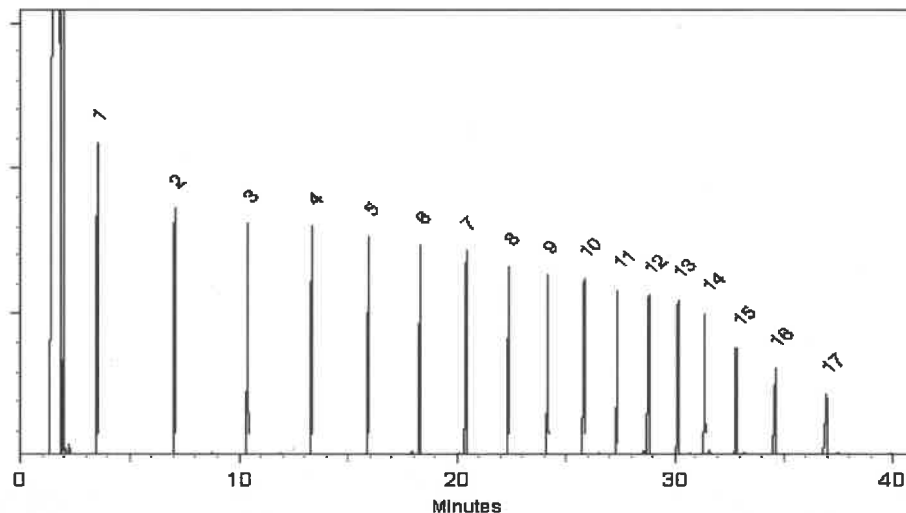
**Inj. Temp:**  
250°C

**Det. Temp:**  
330°C

**Det. Type:**  
FID

**Split Vent:**  
2 ml/min.

**Inj. Vol**  
1µl

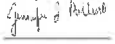


This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

  
Dakota Parson - Operations Technician I

**Date Mixed:** 29-Nov-2023

**Balance Serial #** B442140311

  
Jennifer Pollino - Operations Tech III - ARM QC

**Date Passed:** 01-Dec-2023

Manufactured under Restek's ISO 9001:2015  
Registered Quality System  
Certificate #FM 80397

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$k$  is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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### Manufacturing Notes:

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### Handling Notes:

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- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.



# ABSOLUTE STANDARDS, INC.

ISO - 17034



## Certificate of Analysis



### Certified Reference Material (CRM)

**Conformance:** The "Certificate of Analysis" is applicable for CRM's, fulfilling the requirements in the current version of: ISO 17034.

**Health & Safety:** See the attached SDS & Certified Weight Report before use.

**Intended Use:** This Certified Reference Material (CRM) is intended primarily for use in the characterization of unknowns and the establishment of analyzer or instrument response factors by qualified personnel. Typical instrumental organic assays include: GC & LC, and inorganic assays include: ICP & AA. This product is for laboratory use only.

**Characterization Values:** In production, gravimetric/volumetric readings are certified to be within  $\pm 0.5\%$  of the stated value & are valid between 18 °C & 30 °C. The measured characterization of uncertainty can be found on the Certified Weight Report. All product weighings are performed on an analytical balance that is calibrated to NIST Traceable standard weights & certified by the manufacturer. The volumetric glassware used is Class "A" type & conforms to ASTM E-288 unless otherwise stated. The solvents & compounds used are of the highest practical purity & typically meet or exceed ACS Reagent Grade & ACS Standards Grade specifications. The expanded uncertainty field on Certified Wt. Report represents CRM uncertainty as described in ISO 17034.

**Homogeneity:** Uncertainties that are due to the analytical procedure(s) are within  $\pm 5\%$  unless specifically stated on the Certified Wt. Report.

**Verification:** Uncertainties that are due to the analytical procedure(s) are within  $\pm 5\%$  unless specifically stated on the Certified Wt. Report.

**Stability:** Uncertainties for short-term stability are determined in accordance with ISO 17034. Long-term stability is determined in accordance with ISO 17034. The shelf life is limited by the stated expiration for each product. Expiration dates and additional technical information can be found on the Certified Weight Report and on the product label.

**Uncertainty:** UCRM is the expanded uncertainty which utilizes a  $K = 2$  (coverage factor of 2), in accordance with ISO 17034 as listed above (Characterization, Homogeneity, Verification, and Stability).

**Purity & Identity:** Organic solutions are typically formulated from neat materials whose purity & identity have been characterized by GC-MSD & LC-PDA techniques with comparison to a NIST Traceable library of mass spectra when available. Additional characterization techniques may include but are not limited to: refractive index measurements of liquids, melting point measurements of solids, & GC-FID, ECD, PID, ELCD, LC-PDA measurements for purity. Inorganic solutions & neats are typically formulated from materials whose purity & identity have been characterized by ICPMS with comparison to a NIST SRM® when available. Additional characterization techniques may include but are not limited to: titrimetry, and densitometry.

**Storage:** Sealed ampules and other containers should be stored in the dark and at temperatures indicated on the Certified Weight Report or product label. Certification by Absolute Standards, Inc. is typically valid for 3 years from the date of manufacture. Each product will show its own expiration date as the limit of certification. Certified values are not applicable to opened ampules or for any materials stored in re-sealable containers. Please see the "Certified Weight Report" for specific values and any exceptions.

**Usage:** Ampules & bottles should be brought to room temperature (18 to 30 °C) before opening. Sonication may be required for high concentration solutions or solutions that may precipitate during storage. After opening, care should be exercised to avoid concentration changes owing to evaporation of the solvent or essential components. We recommend that a suitable re-sealable container be available before opening an ampule to decant the standard for short-term storage and use.

**Minimum Sample Size:** 0.5 uL for analytical applications.

**Legal Notice:** Warranty of products are as described when shipped. No warranty as to fitness for any particular application is expressed or implied. Errant shipments and/or quality claims must be made within 10 days of receipt. Liability is limited solely to the replacement of the product or refund of purchase price.

**Certifying Officer:** Stephen J. Arpie, M.S., Director General

Page 1 of 2



Absolute Standards, Inc. • 44 Rossotto Drive • Hamden, CT 06514  
Voice: 800-368-1131 • Fax: 800-410-2577 • eMail: StephenArpie@AbsoluteStandards.com  
Document Identification: Certificate of Analysis Rev 14, Date Issued: 05/30/2019





# ABSOLUTE STANDARDS, INC.

ISO - 17034

## Understanding the Certified Weight Report

Each Certified Reference Material (CRM) is supported by a Certified Weight Report. Assigned values for concentrations and associated uncertainties are based upon NIST traceable masses & volumes used in production.

**Absolute Standards, Inc.**  
800-368-1131  
www.absolutestandards.com

**Certified Reference Material CRM**

ISO 17034 Accredited  
Scope: http://AbsoluteStandards.com

**CERTIFIED WEIGHT REPORT**

Part # 10009R  
Lot # 070716  
Shelf Life Description: CLP Priority Pollutant Internal Standards  
GC/MS Calibration - 6 components  
070721  
Expiration Date: Ambient (20 °C)  
Recommended Storage: 4000  
Nominal Concentration (µg/mL): 822-275872-11  
NIST Test ID#: 5E-05 Balance Uncertainty  
0.058 Mass Uncertainty

Solvent(s): Methylene chloride  
Lot# 78782

Formulated By: Paul Barron  
Reviewed By: Pedro L. Rentes

070716  
070716

Weight(s) shown below were combined and diluted to (mL): 500.0

| Compound                  | SMW | Lot Number        | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity | Target Weight (µg) | Actual Weight (µg) | Actual Conc (µg/mL) | Expanded Uncertainty (µg/mL) | CAS#       | MSDS Information (Solvent Safety Info. On Attached pg.) | OSHA PEL (TWA) | LD50           |
|---------------------------|-----|-------------------|----------------------|------------|--------------------|--------------------|--------------------|---------------------|------------------------------|------------|---------------------------------------------------------|----------------|----------------|
| 1. 1,4-Dichlorobenzene-d4 | 118 | PR-1845M07287CB1  | 4000                 | 98         | 0.2                | 2.04093            | 2.04335            | 4004.7              | 15.4                         | 2055-02-1  | N/A                                                     | N/A            | or-nr 500mg/kg |
| 2. Naphthalene-d8         | 223 | PR-2339M031612HP1 | 4000                 | 99         | 0.2                | 2.02032            | 2.02084            | 4001.0              | 15.2                         | 1146-85-2  | 10 ppm (50mg/m3/8h)                                     | N/A            | or-nr 400mg/kg |
| 3. Acenaphthene-d10       | 2   | PR-25444          | 4000                 | 99         | 0.2                | 2.02032            | 2.02245            | 4004.2              | 15.2                         | 15067-28-2 | N/A                                                     | N/A            | or-nr 500mg/kg |
| 4. Phenanthrene-d10       | 248 | PR-2305M081711PM1 | 4000                 | 98         | 0.2                | 2.04093            | 2.04135            | 4000.8              | 15.4                         | 1517-25-2  | N/A                                                     | N/A            | N/A            |
| 5. Chrysene-d12           | 92  | I-19290           | 4000                 | 98         | 0.2                | 2.04093            | 2.04159            | 4001.3              | 15.4                         | 1719-03-5  | N/A                                                     | N/A            | N/A            |
| 6. Perylene-d12           | 247 | PR-24113          | 4000                 | 98         | 0.2                | 2.04093            | 2.04158            | 4001.2              | 15.4                         | 1503-58-3  | N/A                                                     | N/A            | N/A            |

Run 35, "P10009R L070716 [4000µg/mL in MeCl2]"  
Run Length: 40.00 min, 23900 points at 10 points/second.  
Created: Sat, Jul 9, 2016 at 1:54:53 PM.  
Sampled: Sequence "070716-GC/MS", Method "GC-MS".  
Analyzed using Method "GC-MS".

Comments:  
GC-MS Analysis by Melissa Siciric  
Column ID SPB-5 30 meter x 0.53mm x 1.5um Film Thickness.  
Flow rates: Total Flow = 300 mL/min, Helium (carrier) = 0.5 mL, Helium (make-up) = 25 mL.  
Hydrogen (detector) = 30 mL, Air (detector) = 300 mL, Oven Temp 1 = 50°C (1 min).  
Rise = 10°C/min, Oven Temp 2 = 300°C (14 min), Total Run Time = 40 Minutes, Injector Temp = 250°C.  
FID Temp = 300°C, FID Signal = sData Channel 1.  
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 µL, Range = 4

Peak No. Name FID RT (min)

|   |                        |       |
|---|------------------------|-------|
| 1 | 1,4-Dichlorobenzene-d4 | 8.34  |
| 2 | Naphthalene-d8         | 8.98  |
| 3 | Acenaphthene-d10       | 12.97 |
| 4 | Phenanthrene-d10       | 16.37 |
| 5 | Chrysene-d12           | 22.62 |
| 6 | Perylene-d12           | 25.75 |

Printed: 5/8/2019, 12:55:50 PM

Formulator  
Reviewer

Actual  
Concentration  
Uncertainty  
Values

Health &  
Safety

3rd Party  
Comparison

For More Information, Contact:

StephenArpie@AbsoluteStandards.com

Page 2 of 2



CERTIFIED WEIGHT REPORT

Part Number: **72072**  
Lot Number: **101122**  
Description: **n-Tetracosane-d50**

Solvent(s):  
Methylene chloride  
Lot#  
105345

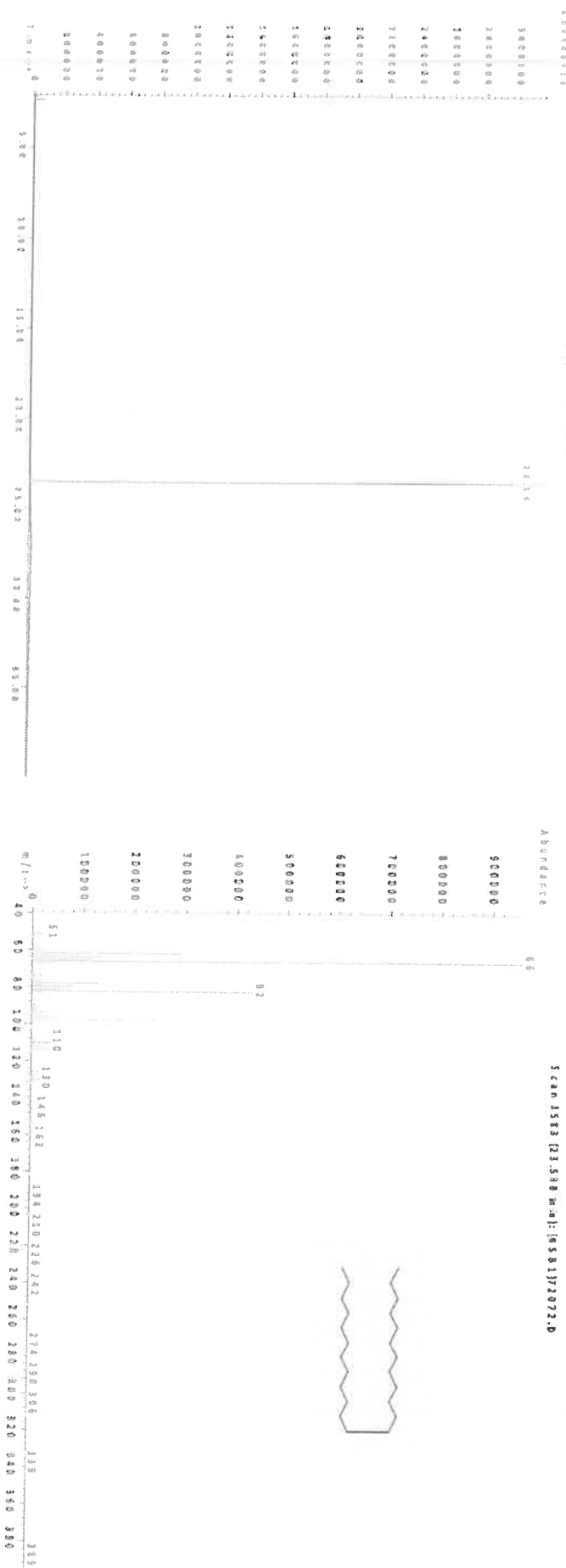
Expiration Date: **101132**  
Recommended Storage: **Ambient (20 °C)**  
Nominal Concentration (µg/mL): **1000**  
NIST Test ID#: **6UB3**  
Weight(s) shown below were combined and diluted to (mL): **200.0**  
**5E-05 Balance Uncertainty**  
**0.058 Flask Uncertainty**

**P13437**  
**13436**  
**07/24/24**  
**X.F.**

|                |                         |        |
|----------------|-------------------------|--------|
| Formulated By: | <i>Prashant Chauhan</i> | 101122 |
| Reviewed By:   | <i>Pedro L. Rentas</i>  | 101122 |
|                | Pedro L. Rentas         | DATE   |

| Compound             | RM#  | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity (%) | Assay (%) | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/mL) | Expanded Uncertainty (+/-) (µg/mL) | SDS Information (Solvent Safety Info. On Attached pg.) | LD50 |
|----------------------|------|------------|----------------------|------------|------------------------|-----------|------------------|------------------|---------------------|------------------------------------|--------------------------------------------------------|------|
| 1. n-Tetracosane-d50 | 2072 | PR-26606   | 1000                 | 98.7       | 0.2                    | 99.0      | 0.20471          | 0.20482          | 1000.6              | 4.1                                | 16416-32-3                                             | N/A  |

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B = 250°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Candice Warren.



- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N., and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).



# ABSOLUTE STANDARDS, INC.

ISO - 17034



## Certificate of Analysis



### Certified Reference Material (CRM)

**Conformance:** The "Certificate of Analysis" is applicable for CRM's, fulfilling the requirements in the current version of: ISO 17034.

**Health & Safety:** See the attached SDS & Certified Weight Report before use.

**Intended Use:** This Certified Reference Material (CRM) is intended primarily for use in the characterization of unknowns and the establishment of analyzer or instrument response factors by qualified personnel. Typical instrumental organic assays include: GC & LC, and inorganic assays include: ICP & AA. This product is for laboratory use only.

**Characterization Values:** In production, gravimetric/volumetric readings are certified to be within  $\pm 0.5\%$  of the stated value & are valid between 18 °C & 30 °C. The measured characterization of uncertainty can be found on the Certified Weight Report. All product weighings are performed on an analytical balance that is calibrated to NIST Traceable standard weights & certified by the manufacturer. The volumetric glassware used is Class "A" type & conforms to ASTM E-288 unless otherwise stated. The solvents & compounds used are of the highest practical purity & typically meet or exceed ACS Reagent Grade & ACS Standards Grade specifications. The expanded uncertainty field on Certified Wt. Report represents CRM uncertainty as described in ISO 17034.

**Homogeneity:** Uncertainties that are due to the analytical procedure(s) are within  $\pm 5\%$  unless specifically stated on the Certified Wt. Report.

**Verification:** Uncertainties that are due to the analytical procedure(s) are within  $\pm 5\%$  unless specifically stated on the Certified Wt. Report.

**Stability:** Uncertainties for short-term stability are determined in accordance with ISO 17034. Long-term stability is determined in accordance with ISO 17034. The shelf life is limited by the stated expiration for each product. Expiration dates and additional technical information can be found on the Certified Weight Report and on the product label.

**Uncertainty:** UCRM is the expanded uncertainty which utilizes a  $K = 2$  (coverage factor of 2), in accordance with ISO 17034 as listed above (Characterization, Homogeneity, Verification, and Stability).

**Purity & Identity:** Organic solutions are typically formulated from neat materials whose purity & identity have been characterized by GC-MSD & LC-PDA techniques with comparison to a NIST Traceable library of mass spectra when available. Additional characterization techniques may include but are not limited to: refractive index measurements of liquids, melting point measurements of solids, & GC-FID, ECD, PID, ELCD, LC-PDA measurements for purity. Inorganic solutions & neats are typically formulated from materials whose purity & identity have been characterized by ICPMS with comparison to a NIST SRM® when available. Additional characterization techniques may include but are not limited to: titrimetry, and densitometry.

**Storage:** Sealed ampules and other containers should be stored in the dark and at temperatures indicated on the Certified Weight Report or product label. Certification by Absolute Standards, Inc. is typically valid for 3 years from the date of manufacture. Each product will show its own expiration date as the limit of certification. Certified values are not applicable to opened ampules or for any materials stored in re-sealable containers. Please see the "Certified Weight Report" for specific values and any exceptions.

**Usage:** Ampules & bottles should be brought to room temperature (18 to 30 °C) before opening. Sonication may be required for high concentration solutions or solutions that may precipitate during storage. After opening, care should be exercised to avoid concentration changes owing to evaporation of the solvent or essential components. We recommend that a suitable re-sealable container be available before opening an ampule to decant the standard for short-term storage and use.

**Minimum Sample Size:** 0.5 uL for analytical applications.

**Legal Notice:** Warranty of products are as described when shipped. No warranty as to fitness for any particular application is expressed or implied. Errant shipments and/or quality claims must be made within 10 days of receipt. Liability is limited solely to the replacement of the product or refund of purchase price.

**Certifying Officer:** Stephen J. Arpie, M.S., Director General

Page 1 of 2



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Voice: 800-368-1131 • Fax: 800-410-2577 • eMail: StephenArpie@AbsoluteStandards.com  
Document Identification: Certificate of Analysis Rev 14, Date Issued: 05/30/2019



# ABSOLUTE STANDARDS, INC.

ISO - 17034

## Understanding the Certified Weight Report

Each Certified Reference Material (CRM) is supported by a Certified Weight Report. Assigned values for concentrations and associated uncertainties are based upon NIST traceable masses & volumes used in production.

**Absolute Standards, Inc.**  
800-368-1131  
www.absolutestandards.com

**Certified Reference Material CRM**

ISO 17034 Accredited  
Scope: http://AbsoluteStandards.com

**CERTIFIED WEIGHT REPORT**

Part # 10009R  
Lot # 070716  
Shelf Life Description: CLP Priority Pollutant Internal Standards  
GC/MS Calibration - 6 components  
070721  
Expiration Date: Ambient (20 °C)  
Recommended Storage: 4000  
Nominal Concentration (µg/mL): 822-275872-11  
NIST Test ID#: 5E-05 Balance Uncertainty  
0.058 Mass Uncertainty

Solvent(s): Methylene chloride  
Lot# 78782

Formulated By: Paul Barron  
Reviewed By: Pedro L. Rentes

070716  
070716

Weight(s) shown below were combined and diluted to (mL): 500.0

| Compound                  | SMW | Lot Number        | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity | Target Weight (µg) | Actual Weight (µg) | Actual Conc (µg/mL) | Expanded Uncertainty (µg/mL) | CAS#       | MSDS Information (Solvent Safety Info. On Attached pg.) | OSHA PEL (TWA) | LD50           |
|---------------------------|-----|-------------------|----------------------|------------|--------------------|--------------------|--------------------|---------------------|------------------------------|------------|---------------------------------------------------------|----------------|----------------|
| 1. 1,4-Dichlorobenzene-d4 | 118 | PR-1845M07287CB1  | 4000                 | 98         | 0.2                | 2.04093            | 2.04335            | 4004.7              | 15.4                         | 2055-02-1  | N/A                                                     | N/A            | or-nr 500mg/kg |
| 2. Naphthalene-d8         | 223 | PR-2339M031612HP1 | 4000                 | 99         | 0.2                | 2.02032            | 2.02084            | 4001.0              | 15.2                         | 1146-85-2  | 10 ppm (50mg/m3/8h)                                     | N/A            | or-nr 400mg/kg |
| 3. Acenaphthene-d10       | 2   | PR-25444          | 4000                 | 99         | 0.2                | 2.02032            | 2.02245            | 4004.2              | 15.2                         | 15067-28-2 | N/A                                                     | N/A            | or-nr 500mg/kg |
| 4. Phenanthrene-d10       | 248 | PR-2305M081711PM1 | 4000                 | 98         | 0.2                | 2.04093            | 2.04135            | 4000.8              | 15.4                         | 1517-25-2  | N/A                                                     | N/A            | N/A            |
| 5. Chrysene-d12           | 92  | I-19290           | 4000                 | 98         | 0.2                | 2.04093            | 2.04150            | 4001.3              | 15.4                         | 1719-03-5  | N/A                                                     | N/A            | N/A            |
| 6. Perylene-d12           | 247 | PR-24113          | 4000                 | 98         | 0.2                | 2.04093            | 2.04155            | 4001.2              | 15.4                         | 1503-58-3  | N/A                                                     | N/A            | N/A            |

Run 35, "P10009R L070716 [4000µg/mL in MeCl2]"

Run Length: 40.00 min, 23900 points at 10 points/second.  
Created: Sat, Jul 9, 2016 at 1:54:53 PM.  
Sampled: Sequence "070716-GC/MS", Method "GC-MS".  
Analyzed using Method "GC-MS".

Comments:  
GC-MS Analysis by Melissa Siciric  
Column ID SPB-5 30 meter x 0.53mm x 1.5um Film Thickness.  
Flow rates: Total Flow = 300 mL/min, Helium (carrier) = 0.5 mL, Helium (make-up) = 25 mL.  
Hydrogen (detector) = 30 mL, Air (detector) = 300 mL, Oven Temp 1 = 50°C (1 min).  
Rise = 10°C/min, Oven Temp 2 = 300°C (14 min). Total Run Time = 40 Minutes. Injector Temp = 250°C.  
FID Temp = 300°C, FID Signal = sData Channel 1.  
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 µL, Range = 4

Peak No. Name FID RT (min)

|   |                        |       |
|---|------------------------|-------|
| 1 | 1,4-Dichlorobenzene-d4 | 6.34  |
| 2 | Naphthalene-d8         | 8.98  |
| 3 | Acenaphthene-d10       | 12.97 |
| 4 | Phenanthrene-d10       | 16.37 |
| 5 | Chrysene-d12           | 22.62 |
| 6 | Perylene-d12           | 25.75 |

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Part # 10009R Lot # 041219

Formulator  
Reviewer

Actual  
Concentration

Uncertainty  
Values

Health &  
Safety

3rd Party  
Comparison

For More Information, Contact:

StephenArpie@AbsoluteStandards.com

Page 2 of 2



CERTIFIED WEIGHT REPORT

Part Number: **72072**  
Lot Number: **101122**  
Description: **n-Tetracosane-d50**

Solvent(s):  
Methylene chloride  
Lot#  
105345

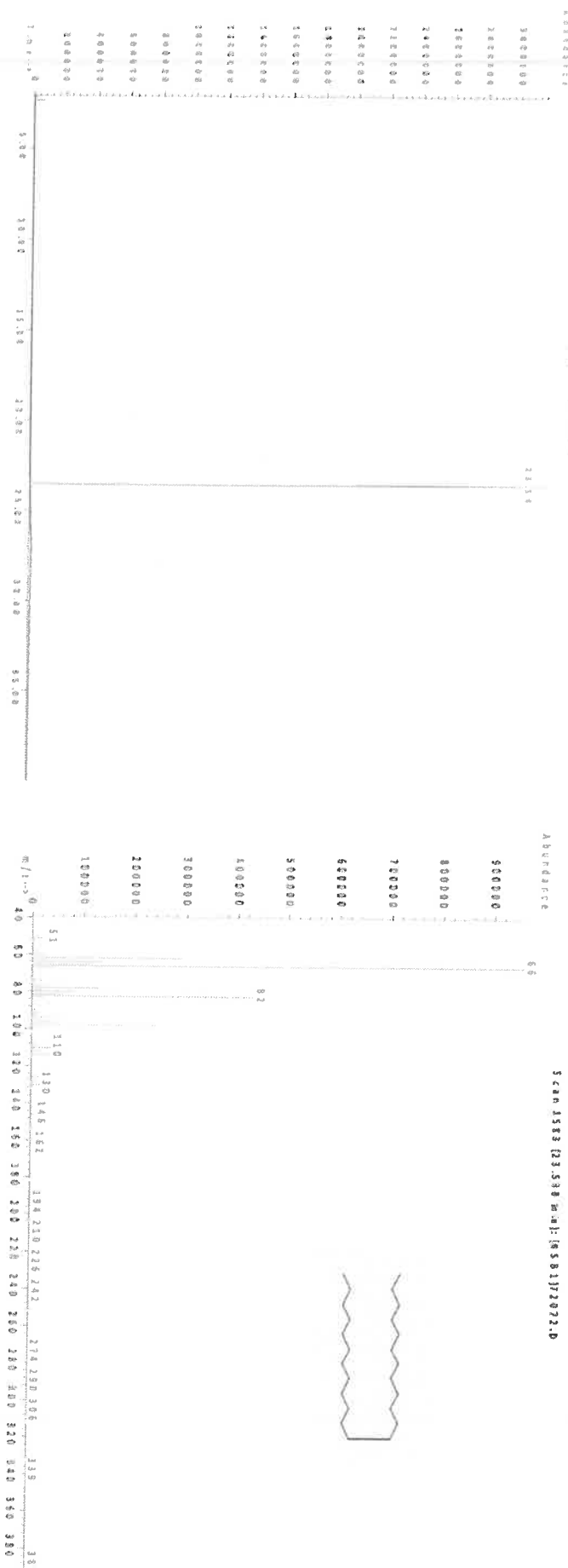
Expiration Date: **101132**  
Recommended Storage: **Ambient (20 °C)**  
Nominal Concentration (µg/mL): **1000**  
NIST Test ID#: **6UB3**  
Weight(s) shown below were combined and diluted to (mL): **200.0**  
**5E-05 Balance Uncertainty**  
**0.058 Flask Uncertainty**

**P13437**  
**13436**  
**07/24/24**  
**X.F.**

|                |                         |        |
|----------------|-------------------------|--------|
| Formulated By: | <i>Prashant Chauhan</i> | 101122 |
| Reviewed By:   | <i>Pedro L. Rentas</i>  | 101122 |
|                | Pedro L. Rentas         | DATE   |

| Compound             | RM#  | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity (%) | Assay (%D) | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/mL) | Expanded Uncertainty (+/-) (µg/mL) | SDS Information (Solvent Safety Info. On Attached pg.) | LD50 |
|----------------------|------|------------|----------------------|------------|------------------------|------------|------------------|------------------|---------------------|------------------------------------|--------------------------------------------------------|------|
| 1. n-Tetracosane-d50 | 2072 | PR-26606   | 1000                 | 98.7       | 0.2                    | 99.0       | 0.20471          | 0.20482          | 1000.6              | 4.1                                | 16416-32-3                                             | N/A  |

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B = 250°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Candice Warren.





# ABSOLUTE STANDARDS, INC.

ISO - 17034



## Certificate of Analysis



### Certified Reference Material (CRM)

**Conformance:** The "Certificate of Analysis" is applicable for CRM's, fulfilling the requirements in the current version of: ISO 17034.

**Health & Safety:** See the attached SDS & Certified Weight Report before use.

**Intended Use:** This Certified Reference Material (CRM) is intended primarily for use in the characterization of unknowns and the establishment of analyzer or instrument response factors by qualified personnel. Typical instrumental organic assays include: GC & LC, and inorganic assays include: ICP & AA. This product is for laboratory use only.

**Characterization Values:** In production, gravimetric/volumetric readings are certified to be within  $\pm 0.5\%$  of the stated value & are valid between 18 °C & 30 °C. The measured characterization of uncertainty can be found on the Certified Weight Report. All product weighings are performed on an analytical balance that is calibrated to NIST Traceable standard weights & certified by the manufacturer. The volumetric glassware used is Class "A" type & conforms to ASTM E-288 unless otherwise stated. The solvents & compounds used are of the highest practical purity & typically meet or exceed ACS Reagent Grade & ACS Standards Grade specifications. The expanded uncertainty field on Certified Wt. Report represents CRM uncertainty as described in ISO 17034.

**Homogeneity:** Uncertainties that are due to the analytical procedure(s) are within  $\pm 5\%$  unless specifically stated on the Certified Wt. Report.

**Verification:** Uncertainties that are due to the analytical procedure(s) are within  $\pm 5\%$  unless specifically stated on the Certified Wt. Report.

**Stability:** Uncertainties for short-term stability are determined in accordance with ISO 17034. Long-term stability is determined in accordance with ISO 17034. The shelf life is limited by the stated expiration for each product. Expiration dates and additional technical information can be found on the Certified Weight Report and on the product label.

**Uncertainty:** UCRM is the expanded uncertainty which utilizes a  $K = 2$  (coverage factor of 2), in accordance with ISO 17034 as listed above (Characterization, Homogeneity, Verification, and Stability).

**Purity & Identity:** Organic solutions are typically formulated from neat materials whose purity & identity have been characterized by GC-MSD & LC-PDA techniques with comparison to a NIST Traceable library of mass spectra when available. Additional characterization techniques may include but are not limited to: refractive index measurements of liquids, melting point measurements of solids, & GC-FID, ECD, PID, ELCD, LC-PDA measurements for purity. Inorganic solutions & neats are typically formulated from materials whose purity & identity have been characterized by ICPMS with comparison to a NIST SRM® when available. Additional characterization techniques may include but are not limited to: titrimetry, and densitometry.

**Storage:** Sealed ampules and other containers should be stored in the dark and at temperatures indicated on the Certified Weight Report or product label. Certification by Absolute Standards, Inc. is typically valid for 3 years from the date of manufacture. Each product will show its own expiration date as the limit of certification. Certified values are not applicable to opened ampules or for any materials stored in re-sealable containers. Please see the "Certified Weight Report" for specific values and any exceptions.

**Usage:** Ampules & bottles should be brought to room temperature (18 to 30 °C) before opening. Sonication may be required for high concentration solutions or solutions that may precipitate during storage. After opening, care should be exercised to avoid concentration changes owing to evaporation of the solvent or essential components. We recommend that a suitable re-sealable container be available before opening an ampule to decant the standard for short-term storage and use.

**Minimum Sample Size:** 0.5 uL for analytical applications.

**Legal Notice:** Warranty of products are as described when shipped. No warranty as to fitness for any particular application is expressed or implied. Errant shipments and/or quality claims must be made within 10 days of receipt. Liability is limited solely to the replacement of the product or refund of purchase price.

**Certifying Officer:** Stephen J. Arpie, M.S., Director General

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Document Identification: Certificate of Analysis Rev 14, Date Issued: 05/30/2019





# ABSOLUTE STANDARDS, INC.

ISO - 17034

## Understanding the Certified Weight Report

Each Certified Reference Material (CRM) is supported by a Certified Weight Report. Assigned values for concentrations and associated uncertainties are based upon NIST traceable masses & volumes used in production.

**Absolute Standards, Inc.**  
800-368-1131  
www.absolutestandards.com

**Certified Reference Material CRM**

ISO 17034 Accredited  
Scope: http://AbsoluteStandards.com

**CERTIFIED WEIGHT REPORT**

Part # 10009R  
Lot # 070716  
Shelf Life Description: CLP Priority Pollutant Internal Standards  
GC/MS Calibration - 6 components  
070721  
Expiration Date: Ambient (20 °C)  
Recommended Storage: 4000  
Nominal Concentration (µg/mL): 822-275872-11  
NIST Test ID#: 5E-05 Balance Uncertainty  
0.058 Mass Uncertainty

Solvent(s): Methylene chloride  
Lot# 78782

Formulated By: Paul Barron  
Reviewed By: Pedro L. Rentes

070716  
070716

Weight(s) shown below were combined and diluted to (mL): 500.0

| Compound                  | SMW | Lot Number        | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity | Target Weight (µg) | Actual Weight (µg) | Actual Conc (µg/mL) | Expanded Uncertainty (µg/mL) | CAS#       | MSDS Information (Solvent Safety Info. On Attached pg.) | OSHA PEL (TWA) | LD50            |
|---------------------------|-----|-------------------|----------------------|------------|--------------------|--------------------|--------------------|---------------------|------------------------------|------------|---------------------------------------------------------|----------------|-----------------|
| 1. 1,4-Dichlorobenzene-d4 | 118 | PR-1845M07287CB1  | 4000                 | 98         | 0.2                | 2.04093            | 2.04335            | 4004.7              | 15.4                         | 2055-02-1  | N/A                                                     | N/A            | or-rat 500mg/kg |
| 2. Naphthalene-d8         | 223 | PR-2339M031612HP1 | 4000                 | 99         | 0.2                | 2.02032            | 2.02084            | 4001.0              | 15.2                         | 1146-85-2  | 10 ppm (50mg/m3/8h)                                     | N/A            | or-rat 400mg/kg |
| 3. Acenaphthene-d10       | 2   | PR-25444          | 4000                 | 99         | 0.2                | 2.02032            | 2.02245            | 4004.2              | 15.2                         | 15067-28-2 | N/A                                                     | N/A            | or-rat 500mg/kg |
| 4. Phenanthrene-d10       | 248 | PR-2305M081711PM1 | 4000                 | 98         | 0.2                | 2.04093            | 2.04135            | 4000.8              | 15.4                         | 1517-25-2  | N/A                                                     | N/A            | N/A             |
| 5. Chrysene-d12           | 92  | I-19290           | 4000                 | 98         | 0.2                | 2.04093            | 2.04159            | 4001.3              | 15.4                         | 1719-03-5  | N/A                                                     | N/A            | N/A             |
| 6. Perylene-d12           | 247 | PR-24113          | 4000                 | 98         | 0.2                | 2.04093            | 2.04158            | 4001.2              | 15.4                         | 1503-58-3  | N/A                                                     | N/A            | N/A             |

Run 35, "P10009R L070716 [4000µg/mL in MeCl2]"

Run Length: 40.00 min, 23900 points at 10 points/second.  
Created: Sat, Jul 9, 2016 at 1:54:53 PM.  
Sampled: Sequence "070716-GC/MS", Method "GC-MS".  
Analyzed using Method "GC-MS".

Comments:  
GC-MS Analysis by Melissa Siciric  
Column ID SPB-5 30 meter x 0.53mm x 1.5um Film Thickness.  
Flow rates: Total Flow = 300 mL/min, Helium (carrier) = 0.5 mL, Helium (make-up) = 25 mL.  
Hydrogen (detector) = 30 mL, Air (detector) = 300 mL, Oven Temp 1 = 50°C (1 min).  
Rise = 10°C/min, Oven Temp 2 = 300°C (14 min), Total Run Time = 40 Minutes, Injector Temp = 250°C.  
FID Temp = 300°C, FID Signal = sData Channel 1.  
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 µL, Range = 4

Peak No. Name FID RT (min)

|   |                        |       |
|---|------------------------|-------|
| 1 | 1,4-Dichlorobenzene-d4 | 6.34  |
| 2 | Naphthalene-d8         | 8.98  |
| 3 | Acenaphthene-d10       | 12.97 |
| 4 | Phenanthrene-d10       | 16.37 |
| 5 | Chrysene-d12           | 22.62 |
| 6 | Perylene-d12           | 25.75 |

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Formulator  
Reviewer

Actual  
Concentration

Uncertainty  
Values

Health &  
Safety

3rd Party  
Comparison

For More Information, Contact:

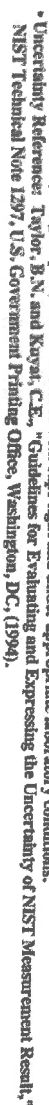
StephenArpie@AbsoluteStandards.com

Page 2 of 2

| Solvent(s):       | Lot#   |
|-------------------|--------|
| ethylene chloride | 105345 |

|       |                     |
|-------|---------------------|
| 5E-05 | Balance Uncertainty |
| 0.058 | Flask Uncertainty   |

LD50

[illegible]



# ABSOLUTE STANDARDS, INC.

ISO - 17034



## Certificate of Analysis



### Certified Reference Material (CRM)

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**Characterization Values:** In production, gravimetric/volumetric readings are certified to be within  $\pm 0.5\%$  of the stated value & are valid between 18 °C & 30 °C. The measured characterization of uncertainty can be found on the Certified Weight Report. All product weighings are performed on an analytical balance that is calibrated to NIST Traceable standard weights & certified by the manufacturer. The volumetric glassware used is Class "A" type & conforms to ASTM E-288 unless otherwise stated. The solvents & compounds used are of the highest practical purity & typically meet or exceed ACS Reagent Grade & ACS Standards Grade specifications. The expanded uncertainty field on Certified Wt. Report represents CRM uncertainty as described in ISO 17034.

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**Usage:** Ampules & bottles should be brought to room temperature (18 to 30 °C) before opening. Sonication may be required for high concentration solutions or solutions that may precipitate during storage. After opening, care should be exercised to avoid concentration changes owing to evaporation of the solvent or essential components. We recommend that a suitable re-sealable container be available before opening an ampule to decant the standard for short-term storage and use.

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**Certifying Officer:** Stephen J. Arpie, M.S., Director General

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Document Identification: Certificate of Analysis Rev 14, Date Issued: 05/30/2019



# ABSOLUTE STANDARDS, INC.

ISO - 17034



## Understanding the Certified Weight Report



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**Absolute Standards, Inc.**  
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www.absolutestandards.com

**Certified Reference Material CRM**

ISO 17034 Accredited  
Scope: http://AbsoluteStandards.com

**CERTIFIED WEIGHT REPORT**

Part # 10009R  
Lot # 070716  
Shelf Life 070716

Part Number: 10009R  
Lot Number: 070716  
Description: CLP Priority Pollutant Internal Standards  
GC/MS Calibration - 6 components  
070721  
Expiration Date:  
Recommended Storage: Ambient (20 °C)  
Nominal Concentration (µg/mL): 4000  
NIST Test ID#: 822-275872-11  
Weight(s) shown below were combined and diluted to (mL): 500.0

Solvent(s): Methylene chloride  
Lot# 78782

5E-05 Balance Uncertainty  
0.058 Peak Uncertainty

Formulated By: Paul Barron  
Reviewed By: Pedro L. Rentes

070716  
070716

**MSDS Information**  
(Solvent Safety Info. On Attached pg.)

| Compound                  | SMW | Lot Number        | Nominal Conc (µg/mL) | Purity (%) | Uncertainty (%) | Target Weight (µg) | Actual Weight (µg) | Actual Conc (µg/mL) | Expanded Uncertainty (µg/mL) | CAS#       | OSHA PEL (TWA)      | LD50            |
|---------------------------|-----|-------------------|----------------------|------------|-----------------|--------------------|--------------------|---------------------|------------------------------|------------|---------------------|-----------------|
| 1. 1,4-Dichlorobenzene-d4 | 118 | PR-1848M07287CB1  | 4000                 | 98         | 0.2             | 2.04093            | 2.04335            | 4004.7              | 15.4                         | 2055-02-1  | N/A                 | or-rat 500mg/kg |
| 2. Naphthalene-d8         | 223 | PR-2339M031612HP1 | 4000                 | 99         | 0.2             | 2.02032            | 2.02084            | 4001.0              | 15.2                         | 1146-85-2  | 10 ppm (50mg/m3/8h) | or-rat 400mg/kg |
| 3. Acenaphthene-d10       | 2   | PR-25444          | 4000                 | 99         | 0.2             | 2.02032            | 2.02245            | 4004.2              | 15.2                         | 15067-28-2 | N/A                 | or-rat 500mg/kg |
| 4. Phenanthrene-d10       | 248 | PR-2305M081711PM1 | 4000                 | 98         | 0.2             | 2.04093            | 2.04135            | 4000.8              | 15.4                         | 1517-25-2  | N/A                 | N/A             |
| 5. Chrysene-d12           | 92  | I-19280           | 4000                 | 98         | 0.2             | 2.04093            | 2.04150            | 4001.3              | 15.4                         | 1719-03-5  | N/A                 | N/A             |
| 6. Perylene-d12           | 247 | PR-24113          | 4000                 | 98         | 0.2             | 2.04093            | 2.04155            | 4001.2              | 15.4                         | 1503-58-3  | N/A                 | N/A             |

Run 35, "P10009R L070716 [4000µg/mL in MeCl2]"  
Run Length: 40.00 min, 23900 points at 10 points/second.  
Created: Sat, Jul 9, 2016 at 1:54:53 PM.  
Sampled: Sequence "070716-GC/MS", Method "GC-MS".  
Analyzed using Method "GC-MS".

**Comments**  
GC-MS Analysis by Melissa Siciric  
Column ID SPB-5 30 meter x 0.53mm x 1.5um Film Thickness.  
Flow rates: Total Flow = 300 mL/min, Helium (carrier) = 0.5 mL, Helium (make-up) = 25 mL.  
Hydrogen (detector) = 30 mL, Air (detector) = 300 mL, Oven Temp 1 = 50°C (1 min).  
Rise = 10°C/min, Oven Temp 2 = 300°C (14 min), Total Run Time = 40 Minutes, Injector Temp = 250°C.  
FID Temp = 300°C, FID Signal = sData Channel 1.  
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 µL, Range = 4

**Peak Data**

| Peak No. | Name                   | RT (min) |
|----------|------------------------|----------|
| 1        | 1,4-Dichlorobenzene-d4 | 6.34     |
| 2        | Naphthalene-d8         | 8.98     |
| 3        | Acenaphthene-d10       | 12.97    |
| 4        | Phenanthrene-d10       | 16.37    |
| 5        | Chrysene-d12           | 22.62    |
| 6        | Perylene-d12           | 25.75    |

**Qualitative Quantitative**

**3rd Party Comparison**

| Analyte                | Sup/Abs Dev (%) |
|------------------------|-----------------|
| 1,4-Dichlorobenzene-d4 | 2.55            |
| Naphthalene-d8         | 2.43            |
| Acenaphthene-d10       | 2.74            |
| Phenanthrene-d10       | 0.65            |
| Chrysene-d12           | 1.93            |
| Perylene-d12           | -1.72           |
| Total                  | -0.55           |

Printed: 5/8/2019, 12:55:50 PM

For More Information, Contact:

StephenArpie@AbsoluteStandards.com





CERTIFIED WEIGHT REPORT

Part Number: **72072**  
Lot Number: **101122**  
Description: **n-Tetracosane-d50**

Solvent(s):  
Methylene chloride  
Lot#  
105345

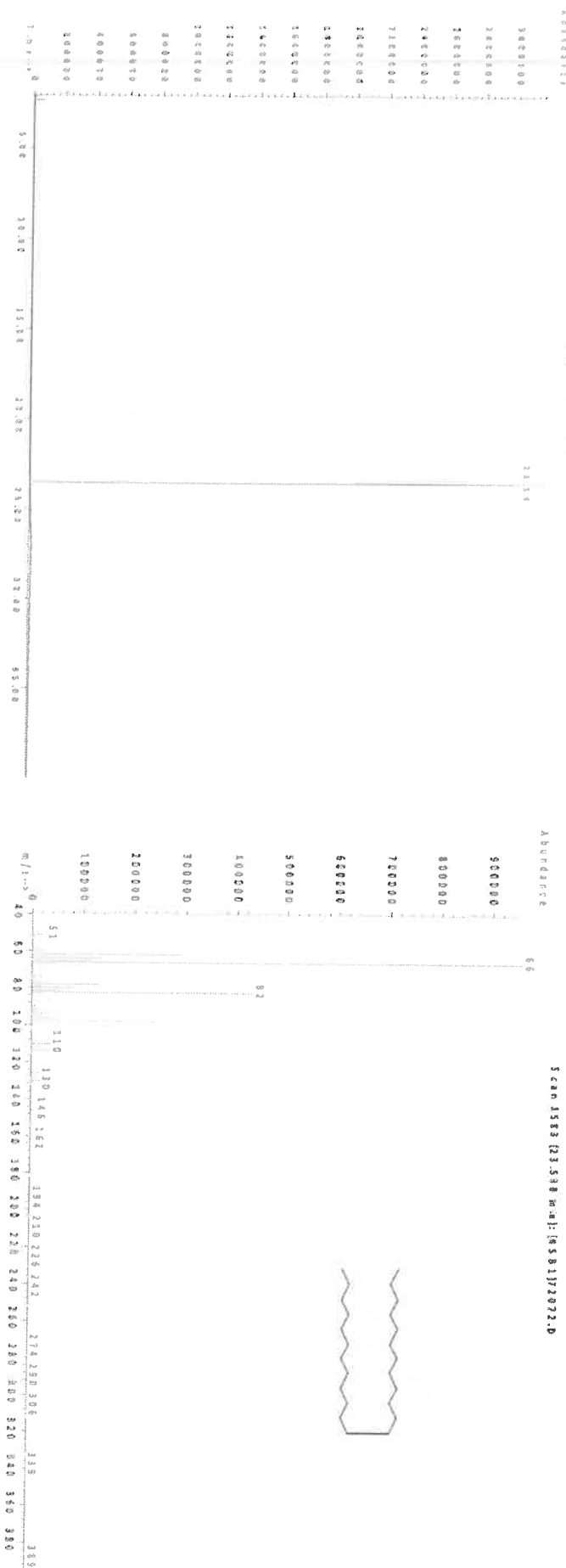
Expiration Date: **101132**  
Recommended Storage: **Ambient (20 °C)**  
Nominal Concentration (µg/mL): **1000**  
NIST Test ID#: **6UB3**  
Weight(s) shown below were combined and diluted to (mL): **200.0**  
**5E-05 Balance Uncertainty**  
**0.058 Flask Uncertainty**

**P13437**  
**13436**  
**07/24/24**  
**X.F.**

|                |                         |        |
|----------------|-------------------------|--------|
| Formulated By: | <i>Prashant Chauhan</i> | 101122 |
| Reviewed By:   | <i>Pedro L. Rentas</i>  | 101122 |
|                | Pedro L. Rentas         | DATE   |

| Compound             | RM#  | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity (%) | Assay (%) | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/mL) | Expanded Uncertainty (+/-) (µg/mL) | SDS Information (Solvent Safety Info. On Attached pg.) | LD50 |
|----------------------|------|------------|----------------------|------------|------------------------|-----------|------------------|------------------|---------------------|------------------------------------|--------------------------------------------------------|------|
| 1. n-Tetracosane-d50 | 2072 | PR-26606   | 1000                 | 98.7       | 0.2                    | 99.0      | 0.20471          | 0.20482          | 1000.6              | 4.1                                | 16416-32-3                                             | N/A  |

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B = 250°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Candice Warren.



- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N., and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).



# ABSOLUTE STANDARDS, INC.

ISO - 17034



## Certificate of Analysis



### Certified Reference Material (CRM)

**Conformance:** The "Certificate of Analysis" is applicable for CRM's, fulfilling the requirements in the current version of: ISO 17034.

**Health & Safety:** See the attached SDS & Certified Weight Report before use.

**Intended Use:** This Certified Reference Material (CRM) is intended primarily for use in the characterization of unknowns and the establishment of analyzer or instrument response factors by qualified personnel. Typical instrumental organic assays include: GC & LC, and inorganic assays include: ICP & AA. This product is for laboratory use only.

**Characterization Values:** In production, gravimetric/volumetric readings are certified to be within  $\pm 0.5\%$  of the stated value & are valid between 18 °C & 30 °C. The measured characterization of uncertainty can be found on the Certified Weight Report. All product weighings are performed on an analytical balance that is calibrated to NIST Traceable standard weights & certified by the manufacturer. The volumetric glassware used is Class "A" type & conforms to ASTM E-288 unless otherwise stated. The solvents & compounds used are of the highest practical purity & typically meet or exceed ACS Reagent Grade & ACS Standards Grade specifications. The expanded uncertainty field on Certified Wt. Report represents CRM uncertainty as described in ISO 17034.

**Homogeneity:** Uncertainties that are due to the analytical procedure(s) are within  $\pm 5\%$  unless specifically stated on the Certified Wt. Report.

**Verification:** Uncertainties that are due to the analytical procedure(s) are within  $\pm 5\%$  unless specifically stated on the Certified Wt. Report.

**Stability:** Uncertainties for short-term stability are determined in accordance with ISO 17034. Long-term stability is determined in accordance with ISO 17034. The shelf life is limited by the stated expiration for each product. Expiration dates and additional technical information can be found on the Certified Weight Report and on the product label.

**Uncertainty:** UCRM is the expanded uncertainty which utilizes a  $K = 2$  (coverage factor of 2), in accordance with ISO 17034 as listed above (Characterization, Homogeneity, Verification, and Stability).

**Purity & Identity:** Organic solutions are typically formulated from neat materials whose purity & identity have been characterized by GC-MSD & LC-PDA techniques with comparison to a NIST Traceable library of mass spectra when available. Additional characterization techniques may include but are not limited to: refractive index measurements of liquids, melting point measurements of solids, & GC-FID, ECD, PID, ELCD, LC-PDA measurements for purity. Inorganic solutions & neats are typically formulated from materials whose purity & identity have been characterized by ICPMS with comparison to a NIST SRM® when available. Additional characterization techniques may include but are not limited to: titrimetry, and densitometry.

**Storage:** Sealed ampules and other containers should be stored in the dark and at temperatures indicated on the Certified Weight Report or product label. Certification by Absolute Standards, Inc. is typically valid for 3 years from the date of manufacture. Each product will show its own expiration date as the limit of certification. Certified values are not applicable to opened ampules or for any materials stored in re-sealable containers. Please see the "Certified Weight Report" for specific values and any exceptions.

**Usage:** Ampules & bottles should be brought to room temperature (18 to 30 °C) before opening. Sonication may be required for high concentration solutions or solutions that may precipitate during storage. After opening, care should be exercised to avoid concentration changes owing to evaporation of the solvent or essential components. We recommend that a suitable re-sealable container be available before opening an ampule to decant the standard for short-term storage and use.

**Minimum Sample Size:** 0.5 uL for analytical applications.

**Legal Notice:** Warranty of products are as described when shipped. No warranty as to fitness for any particular application is expressed or implied. Errant shipments and/or quality claims must be made within 10 days of receipt. Liability is limited solely to the replacement of the product or refund of purchase price.

**Certifying Officer:** Stephen J. Arpie, M.S., Director General

Page 1 of 2



Absolute Standards, Inc. • 44 Rossotto Drive • Hamden, CT 06514  
Voice: 800-368-1131 • Fax: 800-410-2577 • eMail: StephenArpie@AbsoluteStandards.com  
Document Identification: Certificate of Analysis Rev 14, Date Issued: 05/30/2019





# ABSOLUTE STANDARDS, INC.

ISO - 17034

## Understanding the Certified Weight Report

Each Certified Reference Material (CRM) is supported by a Certified Weight Report. Assigned values for concentrations and associated uncertainties are based upon NIST traceable masses & volumes used in production.

**Absolute Standards, Inc.**  
800-368-1131  
www.absolutestandards.com

**Certified Reference Material CRM**

ISO 17034 Accredited  
Scope: http://AbsoluteStandards.com

**CERTIFIED WEIGHT REPORT**

Part # 10009R  
Lot # 070716  
Shelf Life Description: CLP Priority Pollutant Internal Standards  
GC/MS Calibration - 6 components  
070721  
Expiration Date: Ambient (20 °C)  
Recommended Storage: 4000  
Nominal Concentration (µg/mL): 822-275872-11  
NIST Test ID#: 5E-05 Balance Uncertainty  
0.058 Mass Uncertainty

Solvent(s): Methylene chloride  
Lot# 78782

Formulated By: Paul Barron  
Reviewed By: Pedro L. Rentes

070716  
070716

Weight(s) shown below were combined and diluted to (mL): 500.0

| Compound                  | SMW | Lot Number        | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity | Target Weight (µg) | Actual Weight (µg) | Actual Conc (µg/mL) | Expanded Uncertainty (µg/mL) | CAS#       | MSDS Information (Solvent Safety Info. On Attached pg.) | OSHA PEL (TWA) | LD50           |
|---------------------------|-----|-------------------|----------------------|------------|--------------------|--------------------|--------------------|---------------------|------------------------------|------------|---------------------------------------------------------|----------------|----------------|
| 1. 1,4-Dichlorobenzene-d4 | 118 | PR-1845M07287CB1  | 4000                 | 98         | 0.2                | 2.04093            | 2.04335            | 4004.7              | 15.4                         | 2055-02-1  | N/A                                                     | N/A            | or-nr 500mg/kg |
| 2. Naphthalene-d8         | 223 | PR-2339M031612HP1 | 4000                 | 99         | 0.2                | 2.02032            | 2.02084            | 4001.0              | 15.2                         | 1146-85-2  | 10 ppm (50mg/m3/8h)                                     | N/A            | or-nr 400mg/kg |
| 3. Acenaphthene-d10       | 2   | PR-25444          | 4000                 | 99         | 0.2                | 2.02032            | 2.02245            | 4004.2              | 15.2                         | 15067-28-2 | N/A                                                     | N/A            | or-nr 500mg/kg |
| 4. Phenanthrene-d10       | 248 | PR-2305M081711PM1 | 4000                 | 98         | 0.2                | 2.04093            | 2.04135            | 4000.8              | 15.4                         | 1517-25-2  | N/A                                                     | N/A            | N/A            |
| 5. Chrysene-d12           | 92  | I-19290           | 4000                 | 98         | 0.2                | 2.04093            | 2.04150            | 4001.3              | 15.4                         | 1719-03-5  | N/A                                                     | N/A            | N/A            |
| 6. Perylene-d12           | 247 | PR-24113          | 4000                 | 98         | 0.2                | 2.04093            | 2.04155            | 4001.2              | 15.4                         | 1503-58-3  | N/A                                                     | N/A            | N/A            |

Run 35, "P10009R L070716 [4000µg/mL in MeCl2]"  
Run Length: 40.00 min, 23900 points at 10 points/second.  
Created: Sat, Jul 9, 2016 at 1:54:53 PM.  
Sampled: Sequence "070716-GC/MS", Method "GC-MS".  
Analyzed using Method "GC-MS".

Comments:  
GC-MS Analysis by Melissa Sicrari  
Column ID SPB-5 30 meter x 0.53mm x 1.5um Film Thickness.  
Flow rates: Total Flow = 300 mL/min, Helium (carrier) = 0.5 mL, Helium (make-up) = 25 mL.  
Hydrogen (detector) = 30 mL, Air (detector) = 300 mL, Oven Temp 1 = 50°C (1 min).  
Rise = 10°C/min, Oven Temp 2 = 300°C (14 min), Total Run Time = 40 Minutes, Injector Temp = 250°C.  
FID Temp = 300°C, FID Signal = sData Channel 1.  
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 µL, Range = 4

Peak No. Name FID RT (min)

|   |                        |       |
|---|------------------------|-------|
| 1 | 1,4-Dichlorobenzene-d4 | 8.34  |
| 2 | Naphthalene-d8         | 8.98  |
| 3 | Acenaphthene-d10       | 12.97 |
| 4 | Phenanthrene-d10       | 16.37 |
| 5 | Chrysene-d12           | 22.62 |
| 6 | Perylene-d12           | 25.75 |

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Part # 10009R Lot # 041219 1 of 2

Formulator  
Reviewer

Actual  
Concentration  
Uncertainty  
Values

Health &  
Safety

3rd Party  
Comparison

For More Information, Contact:

StephenArpie@AbsoluteStandards.com

Page 2 of 2



CERTIFIED WEIGHT REPORT

Part Number: **72072**  
Lot Number: **101122**  
Description: **n-Tetracosane-d50**

Solvent(s):  
Methylene chloride  
Lot#  
105345

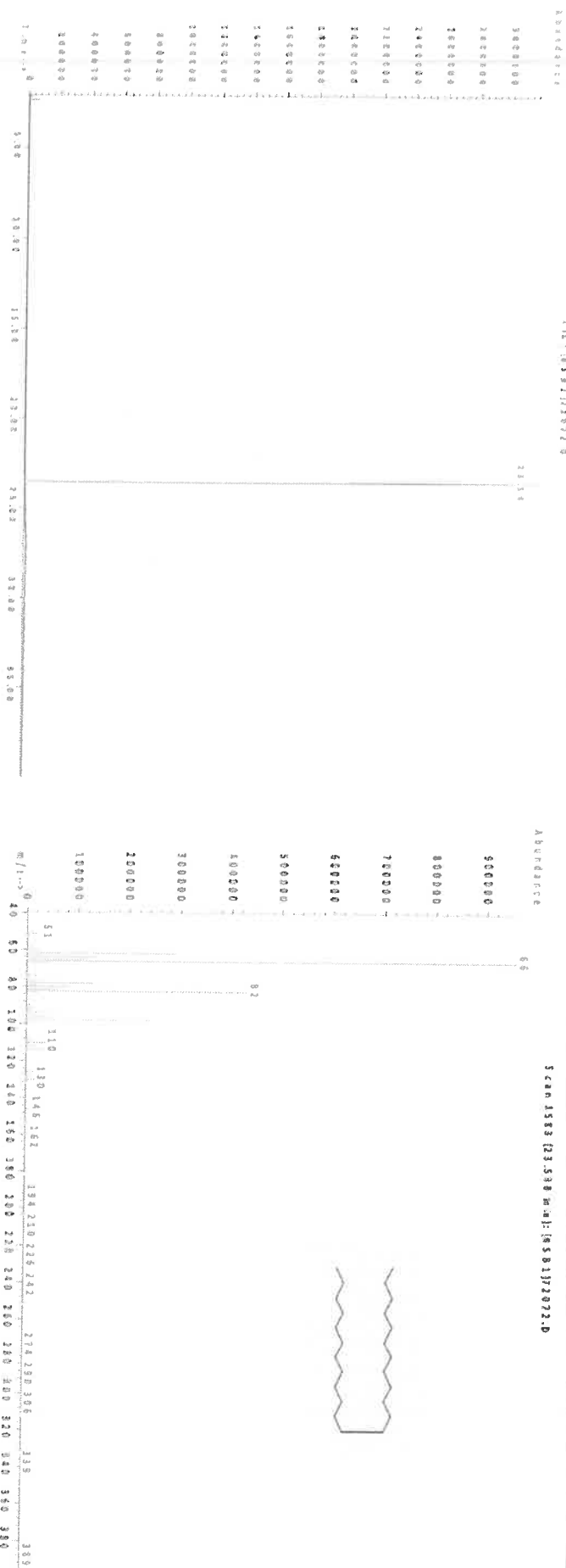
Expiration Date: **101132**  
Recommended Storage: **Ambient (20 °C)**  
Nominal Concentration (µg/mL): **1000**  
NIST Test ID#: **6UB3**  
Weight(s) shown below were combined and diluted to (mL): **200.0**  
**5E-05 Balance Uncertainty**  
**0.058 Flask Uncertainty**

**P13437**  
**13436**  
**07/24/24**  
**X.F.**

|                |                         |        |
|----------------|-------------------------|--------|
| Formulated By: | <i>Prashant Chauhan</i> | 101122 |
| Reviewed By:   | <i>Pedro L. Rentas</i>  | 101122 |
| DATE           |                         |        |

| Compound             | RM#  | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity (%) | Assay (%D) | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/mL) | Expanded Uncertainty (+/-) (µg/mL) | SDS Information (Solvent Safety Info. On Attached pg.) | LD50 |
|----------------------|------|------------|----------------------|------------|------------------------|------------|------------------|------------------|---------------------|------------------------------------|--------------------------------------------------------|------|
| 1. n-Tetracosane-d50 | 2072 | PR-26606   | 1000                 | 98.7       | 0.2                    | 99.0       | 0.20471          | 0.20482          | 1000.6              | 4.1                                | 16416-32-3                                             | N/A  |

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B = 250°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Candice Warren.



- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N., and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).



# ABSOLUTE STANDARDS, INC.

ISO - 17034



## Certificate of Analysis



### Certified Reference Material (CRM)

**Conformance:** The "Certificate of Analysis" is applicable for CRM's, fulfilling the requirements in the current version of: ISO 17034.

**Health & Safety:** See the attached SDS & Certified Weight Report before use.

**Intended Use:** This Certified Reference Material (CRM) is intended primarily for use in the characterization of unknowns and the establishment of analyzer or instrument response factors by qualified personnel. Typical instrumental organic assays include: GC & LC, and inorganic assays include: ICP & AA. This product is for laboratory use only.

**Characterization Values:** In production, gravimetric/volumetric readings are certified to be within  $\pm 0.5\%$  of the stated value & are valid between 18 °C & 30 °C. The measured characterization of uncertainty can be found on the Certified Weight Report. All product weighings are performed on an analytical balance that is calibrated to NIST Traceable standard weights & certified by the manufacturer. The volumetric glassware used is Class "A" type & conforms to ASTM E-288 unless otherwise stated. The solvents & compounds used are of the highest practical purity & typically meet or exceed ACS Reagent Grade & ACS Standards Grade specifications. The expanded uncertainty field on Certified Wt. Report represents CRM uncertainty as described in ISO 17034.

**Homogeneity:** Uncertainties that are due to the analytical procedure(s) are within  $\pm 5\%$  unless specifically stated on the Certified Wt. Report.

**Verification:** Uncertainties that are due to the analytical procedure(s) are within  $\pm 5\%$  unless specifically stated on the Certified Wt. Report.

**Stability:** Uncertainties for short-term stability are determined in accordance with ISO 17034. Long-term stability is determined in accordance with ISO 17034. The shelf life is limited by the stated expiration for each product. Expiration dates and additional technical information can be found on the Certified Weight Report and on the product label.

**Uncertainty:** UCRM is the expanded uncertainty which utilizes a  $K = 2$  (coverage factor of 2), in accordance with ISO 17034 as listed above (Characterization, Homogeneity, Verification, and Stability).

**Purity & Identity:** Organic solutions are typically formulated from neat materials whose purity & identity have been characterized by GC-MSD & LC-PDA techniques with comparison to a NIST Traceable library of mass spectra when available. Additional characterization techniques may include but are not limited to: refractive index measurements of liquids, melting point measurements of solids, & GC-FID, ECD, PID, ELCD, LC-PDA measurements for purity. Inorganic solutions & neats are typically formulated from materials whose purity & identity have been characterized by ICPMS with comparison to a NIST SRM® when available. Additional characterization techniques may include but are not limited to: titrimetry, and densitometry.

**Storage:** Sealed ampules and other containers should be stored in the dark and at temperatures indicated on the Certified Weight Report or product label. Certification by Absolute Standards, Inc. is typically valid for 3 years from the date of manufacture. Each product will show its own expiration date as the limit of certification. Certified values are not applicable to opened ampules or for any materials stored in re-sealable containers. Please see the "Certified Weight Report" for specific values and any exceptions.

**Usage:** Ampules & bottles should be brought to room temperature (18 to 30 °C) before opening. Sonication may be required for high concentration solutions or solutions that may precipitate during storage. After opening, care should be exercised to avoid concentration changes owing to evaporation of the solvent or essential components. We recommend that a suitable re-sealable container be available before opening an ampule to decant the standard for short-term storage and use.

**Minimum Sample Size:** 0.5 uL for analytical applications.

**Legal Notice:** Warranty of products are as described when shipped. No warranty as to fitness for any particular application is expressed or implied. Errant shipments and/or quality claims must be made within 10 days of receipt. Liability is limited solely to the replacement of the product or refund of purchase price.

**Certifying Officer:** Stephen J. Arpie, M.S., Director General

Page 1 of 2



Absolute Standards, Inc. • 44 Rossotto Drive • Hamden, CT 06514  
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Document Identification: Certificate of Analysis Rev 14, Date Issued: 05/30/2019



# ABSOLUTE STANDARDS, INC.

ISO - 17034

## Understanding the Certified Weight Report

Each Certified Reference Material (CRM) is supported by a Certified Weight Report. Assigned values for concentrations and associated uncertainties are based upon NIST traceable masses & volumes used in production.

**Absolute Standards, Inc.**  
800-368-1131  
www.absolutestandards.com

**Certified Reference Material CRM**

ISO 17034 Accredited  
Scope: http://AbsoluteStandards.com

**CERTIFIED WEIGHT REPORT**

Part # 10009R  
Lot # 070716  
Shelf Life Description: CLP Priority Pollutant Internal Standards  
GC/MS Calibration - 6 components  
070721  
Expiration Date: Ambient (20 °C)  
Recommended Storage: 4000  
Nominal Concentration (µg/mL): 822-275872-11  
NIST Test ID#: 5E-05 Balance Uncertainty  
0.058 Mass Uncertainty

Solvent(s): Methylene chloride  
Lot# 78782

Formulated By: Paul Barron  
Reviewed By: Pedro L. Rentes

070716  
070716

Weight(s) shown below were combined and diluted to (mL): 500.0

| Compound                  | SMW | Lot Number        | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity | Target Weight (µg) | Actual Weight (µg) | Actual Conc (µg/mL) | Expanded Uncertainty (µg/mL) | CAS#       | MSDS Information (Solvent Safety Info. On Attached pg.) | OSHA PEL (TWA) | LD50 |
|---------------------------|-----|-------------------|----------------------|------------|--------------------|--------------------|--------------------|---------------------|------------------------------|------------|---------------------------------------------------------|----------------|------|
| 1. 1,4-Dichlorobenzene-d4 | 118 | PR-1845M07287CB1  | 4000                 | 98         | 0.2                | 2.04093            | 2.04335            | 4004.7              | 15.4                         | 2055-02-1  | N/A                                                     | en-ra 500mg/kg |      |
| 2. Naphthalene-d8         | 223 | PR-2339M031612HP1 | 4000                 | 99         | 0.2                | 2.02032            | 2.02084            | 4001.0              | 15.2                         | 1146-85-2  | 10 ppm (50mg/m3/8h)                                     | en-ra 400mg/kg |      |
| 3. Acenaphthene-d10       | 2   | PR-25444          | 4000                 | 99         | 0.2                | 2.02032            | 2.02245            | 4004.2              | 15.2                         | 15067-28-2 | N/A                                                     | en-ra 500mg/kg |      |
| 4. Phenanthrene-d10       | 248 | PR-2305M081711PM1 | 4000                 | 98         | 0.2                | 2.04093            | 2.04135            | 4000.8              | 15.4                         | 1517-25-2  | N/A                                                     | N/A            |      |
| 5. Chrysene-d12           | 92  | I-19290           | 4000                 | 98         | 0.2                | 2.04093            | 2.04150            | 4001.3              | 15.4                         | 1719-03-5  | N/A                                                     | N/A            |      |
| 6. Perylene-d12           | 247 | PR-24113          | 4000                 | 98         | 0.2                | 2.04093            | 2.04155            | 4001.2              | 15.4                         | 1503-58-3  | N/A                                                     | N/A            |      |

Run 35, "P10009R L070716 [4000µg/mL in MeCl2]"  
Run Length: 40.00 min, 23900 points at 10 points/second.  
Created: Sat, Jul 9, 2016 at 1:54:53 PM.  
Sampled: Sequence "070716-GC/MS", Method "GC-MS".  
Analyzed using Method "GC-MS".

Comments:  
GC-MS Analysis by Melissa Siciric  
Column ID SPB-5 30 meter x 0.53mm x 1.5um Film Thickness.  
Flow rates: Total Flow = 300 mL/min, Helium (carrier) = 0.5 mL, Helium (make-up) = 25 mL.  
Hydrogen (detector) = 30 mL, Air (detector) = 300 mL, Oven Temp 1 = 50°C (1 min).  
Rise = 10°C/min, Oven Temp 2 = 300°C (14 min), Total Run Time = 40 Minutes, Injector Temp = 250°C.  
FID Temp = 300°C, FID Signal = aDaq Channel 1.  
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 µL, Range = 4

Peak No. Name FID RT (min)

|   |                        |       |
|---|------------------------|-------|
| 1 | 1,4-Dichlorobenzene-d4 | 8.34  |
| 2 | Naphthalene-d8         | 8.98  |
| 3 | Acenaphthene-d10       | 12.97 |
| 4 | Phenanthrene-d10       | 16.37 |
| 5 | Chrysene-d12           | 22.62 |
| 6 | Perylene-d12           | 25.75 |

Printed: 5/8/2019, 12:55:50 PM

Part # 10009R Lot # 041219 1 of 2

Formulator  
Reviewer

Actual  
Concentration  
Uncertainty  
Values

Health &  
Safety

3rd Party  
Comparison

For More Information, Contact:

StephenArpie@AbsoluteStandards.com

Page 2 of 2



CERTIFIED WEIGHT REPORT

Part Number: **72072**  
Lot Number: **101122**  
Description: **n-Tetracosane-d50**

Solvent(s):  
Methylene chloride  
Lot#  
105345

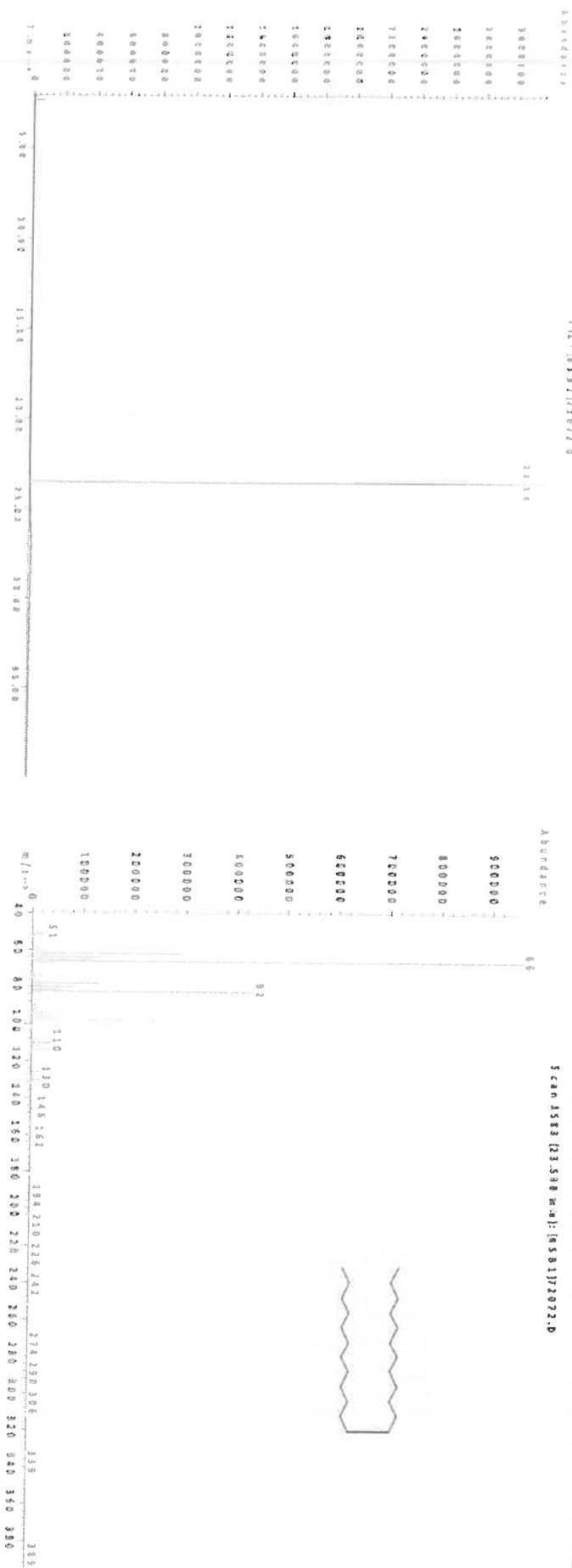
Expiration Date: **101132**  
Recommended Storage: **Ambient (20 °C)**  
Nominal Concentration (µg/mL): **1000**  
NIST Test ID#: **6UB3**  
Weight(s) shown below were combined and diluted to (mL): **200.0**  
**5E-05 Balance Uncertainty**  
**0.058 Flask Uncertainty**

**P13437**  
**13436**  
**07/24/24**  
**X.F.**

|                |                         |        |
|----------------|-------------------------|--------|
| Formulated By: | <i>Prashant Chauhan</i> | 101122 |
| Reviewed By:   | <i>Pedro L. Rentas</i>  | 101122 |
| DATE           |                         |        |

| Compound             | RM#  | Lot Number | Nominal Conc (µg/mL) | Purity (%) | Uncertainty Purity (%) | Assay (%D) | Target Weight(g) | Actual Weight(g) | Actual Conc (µg/mL) | Expanded Uncertainty (+/-) (µg/mL) | SDS Information (Solvent Safety Info. On Attached pg.) | LD50 |
|----------------------|------|------------|----------------------|------------|------------------------|------------|------------------|------------------|---------------------|------------------------------------|--------------------------------------------------------|------|
| 1. n-Tetracosane-d50 | 2072 | PR-26606   | 1000                 | 98.7       | 0.2                    | 99.0       | 0.20471          | 0.20482          | 1000.6              | 4.1                                | 16416-32-3                                             | N/A  |

Method GC8MSD-3.M: Column:SPB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9min.), Rate = 10°C/min., Injector B = 250°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Candice Warren.



- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N., and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).





110 Benner Circle  
Bellefonte, PA 16823-8812  
Tel: 1-814-353-1300  
Fax: 1-814-353-1309

www.restek.com

## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

chromatographic plus



### FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

*This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.*

Catalog No. : 31266

Lot No.: A0217113

Description : Florida TRPH Standard

Florida TRPH Standard 500µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL

Pkg Amt: > 1 mL

Expiration Date : October 31, 2031

Storage: 25°C nominal

Handling: Sonicate prior to use.

Ship: Ambient

P031937  
\*  
P031946  
Y.P.  
03/07/25

### CERTIFIED VALUES

| Elution Order | Compound                 | CAS #      | Lot #      | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|--------------------------|------------|------------|--------|-----------------------------|----------------------------------------|
| 1             | n-Octane (C8)            | 111-65-9   | SHBR0789   | 99%    | 502.0 µg/mL                 | +/- 12.9685                            |
| 2             | n-Decane (C10)           | 124-18-5   | SHBQ1342   | 99%    | 501.5 µg/mL                 | +/- 12.9555                            |
| 3             | n-Dodecane (C12)         | 112-40-3   | SHBP7054   | 99%    | 502.5 µg/mL                 | +/- 12.9814                            |
| 4             | n-Tetradecane (C14)      | 629-59-4   | STBL0465   | 99%    | 500.5 µg/mL                 | +/- 12.9297                            |
| 5             | n-Hexadecane (C16)       | 544-76-3   | SHBR0669   | 99%    | 500.0 µg/mL                 | +/- 12.9168                            |
| 6             | n-Octadecane (C18)       | 593-45-3   | UB5NG      | 99%    | 500.5 µg/mL                 | +/- 12.9297                            |
| 7             | n-Eicosane (C20)         | 112-95-8   | MKCN8767   | 97%    | 500.0 µg/mL                 | +/- 12.9177                            |
| 8             | n-Docosane (C22)         | 629-97-0   | MKCQ3882   | 99%    | 500.5 µg/mL                 | +/- 12.9297                            |
| 9             | n-Tetracosane (C24)      | 646-31-1   | MKCS9978   | 99%    | 500.5 µg/mL                 | +/- 12.9297                            |
| 10            | n-Hexacosane (C26)       | 630-01-3   | MKCQ4814   | 99%    | 502.0 µg/mL                 | +/- 12.9685                            |
| 11            | n-Octacosane (C28)       | 630-02-4   | BCCJ4566   | 99%    | 501.0 µg/mL                 | +/- 12.9426                            |
| 12            | n-Triacontane (C30)      | 638-68-6   | MKCV7007   | 98%    | 499.8 µg/mL                 | +/- 12.9116                            |
| 13            | n-Dotriacontane (C32)    | 544-85-4   | BCBW0661   | 99%    | 500.0 µg/mL                 | +/- 12.9168                            |
| 14            | n-Tetratriacontane (C34) | 14167-59-0 | D3MZN      | 99%    | 501.5 µg/mL                 | +/- 12.9555                            |
| 15            | n-Hexatriacontane (C36)  | 630-06-8   | Z27H018    | 99%    | 500.5 µg/mL                 | +/- 12.9297                            |
| 16            | n-Octatriacontane (C38)  | 7194-85-6  | 0000145137 | 96%    | 500.2 µg/mL                 | +/- 12.9209                            |
| 17            | n-Tetracontane (C40)     | 4181-95-7  | OKEGA      | 99%    | 503.5 µg/mL                 | +/- 13.0072                            |



**Solvent:** Hexane  
**CAS #** 110-54-3  
**Purity** 99%

## Quality Confirmation Test

**Column:**  
30m x 0.25mm x 0.25µm  
Rtx-5 (cat.#10223)

**Carrier Gas:**  
hydrogen-constant pressure 10 psi.

**Temp. Program:**  
40°C (hold 2 min.) to 330°C  
@ 10°C/min. (hold 10 min.)

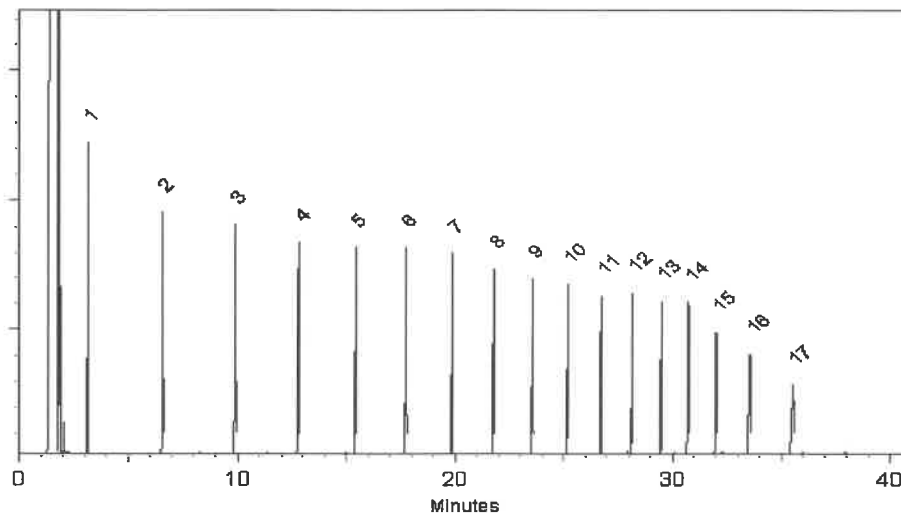
**Inj. Temp:**  
250°C

**Det. Temp:**  
330°C

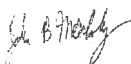
**Det. Type:**  
FID

**Split Vent:**  
2 ml/min.

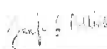
**Inj. Vol**  
1µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

  
Josh McCloskey - Operations Technician I

**Date Mixed:** 26-Sep-2024      **Balance Serial #** 1128353505

  
Jennifer Pollino - Operations Tech III - ARM QC

**Date Passed:** 10-Oct-2024

Manufactured under Restek's ISO 9001:2015  
Registered Quality System  
Certificate #FM 80397

## General Certified Reference Material Notes

### Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

### Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/ $\mu$ ECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

### Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified expanded uncertainty value includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ uncertainty} = k \sqrt{u_{gravimetric}^2 + u_{homogeneity}^2 + u_{storage\ stability}^2 + u_{shipping\ stability}^2}$$

$k$  is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- The packaged amount is the minimum sample size for which uncertainty is valid. The ampuls are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

### Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

### Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampuls. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.
- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.





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## CERTIFIED REFERENCE MATERIAL

# Certificate of Analysis

### chromatographic plus



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*This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.*

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Lot No.: A0217113

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Florida TRPH Standard 500µg/mL, Hexane, 1mL/ampul

Container Size : 2 mL

Pkg Amt: > 1 mL

Expiration Date : October 31, 2031

Storage: 25°C nominal

Handling: Sonicate prior to use.

Ship: Ambient

P031937  
\*  
P031946  
Y.P.  
03/07/25

### CERTIFIED VALUES

| Elution Order | Compound                 | CAS #      | Lot #      | Purity | Grav. Conc. (weight/volume) | Expanded Uncertainty * (95% C.L.; K=2) |
|---------------|--------------------------|------------|------------|--------|-----------------------------|----------------------------------------|
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| 17            | n-Tetracontane (C40)     | 4181-95-7  | OKEGA      | 99%    | 503.5 µg/mL                 | +/- 13.0072                            |

**Solvent:** Hexane  
**CAS #** 110-54-3  
**Purity** 99%

## Quality Confirmation Test

**Column:**  
30m x 0.25mm x 0.25µm  
Rtx-5 (cat.#10223)

**Carrier Gas:**  
hydrogen-constant pressure 10 psi.

**Temp. Program:**  
40°C (hold 2 min.) to 330°C  
@ 10°C/min. (hold 10 min.)

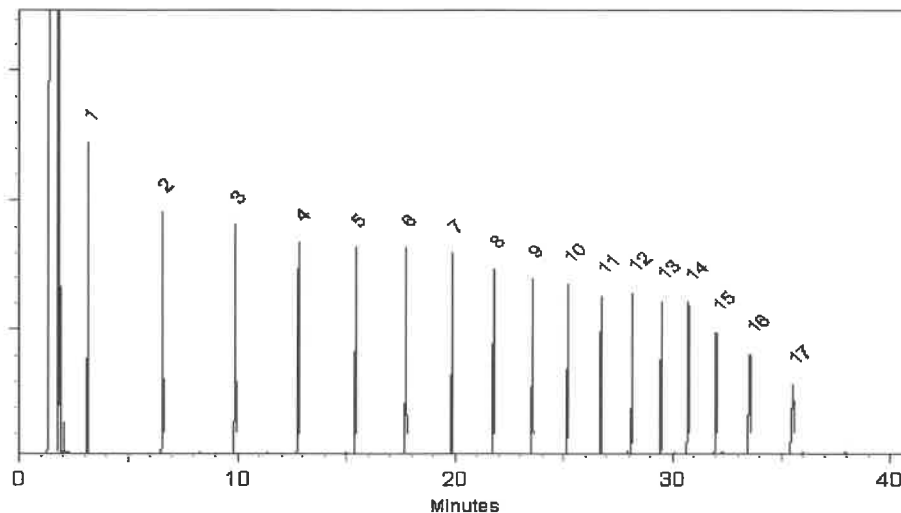
**Inj. Temp:**  
250°C

**Det. Temp:**  
330°C

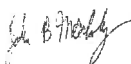
**Det. Type:**  
FID

**Split Vent:**  
2 ml/min.

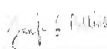
**Inj. Vol**  
1µl



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

  
Josh McCloskey - Operations Technician I

**Date Mixed:** 26-Sep-2024 **Balance Serial #** 1128353505

  
Jennifer Pollino - Operations Tech III - ARM QC

**Date Passed:** 10-Oct-2024

Manufactured under Restek's ISO 9001:2015  
Registered Quality System  
Certificate #FM 80397

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$k$  is a coverage factor of 2, which gives a level of confidence of approximately 95%.

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### Manufacturing Notes:

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- If any undissolved material is visible inside the ampul, sonicate the unopened ampul until the material is completely dissolved.





# SHIPPING DOCUMENTS



CLIENT INFORMATION

CLIENT PROJECT INFORMATION

CLIENT BILLING INFORMATION

REPORT TO BE SENT TO:

COMPANY: Coppola Services

ADDRESS: 355 Fowser Rd

CITY: Millville STATE: NJ ZIP:

ATTENTION: Jeffrey Simpkins

PHONE: FAX:

PROJECT NAME: Coppla Services

PROJECT NO.: LOCATION:

PROJECT MANAGER:

e-mail:

PHONE: FAX:

BILL TO: PO#:

ADDRESS:

CITY STATE: ZIP:

ATTENTION: PHONE:

ANALYSIS

DATA TURNAROUND INFORMATION

FAX (RUSH) \_\_\_\_\_ DAYS\*  
HARDCOPY (DATA PACKAGE): \_\_\_\_\_ DAYS\*  
EDD: \_\_\_\_\_ DAYS\*

\*TO BE APPROVED BY CHEMTECH

STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS

DATA DELIVERABLE INFORMATION

☐ Level 1 (Results Only) ☐ Level 4 (QC + Full Raw Data)  
☐ Level 2 (Results + QC) ☐ NJ Reduced ☐ US EPA CLP  
☐ Level 3 (Results + QC) ☐ NYS ASP A ☐ NYS ASP B  
+ Raw Data ☐ Other \_\_\_\_\_  
☐ EDD FORMAT \_\_\_\_\_

1. TCLP VOA  
2. Corrosivity  
3. Ignitability  
4. Reactive CN  
5. Reactive Sulfide  
6. TCLP Metals + Cadmium  
7. TCLP BNA / TVS  
8. TCLP Residues (GCL)  
9. TPH GC

| ALLIANCE<br>SAMPLE<br>ID | PROJECT<br>SAMPLE IDENTIFICATION | SAMPLE<br>MATRIX | SAMPLE<br>TYPE |      | SAMPLE<br>COLLECTION |      | # OF BOTTLES | PRESERVATIVES |   |   |   |   |   |   |   |   | COMMENTS                                                                   |  |
|--------------------------|----------------------------------|------------------|----------------|------|----------------------|------|--------------|---------------|---|---|---|---|---|---|---|---|----------------------------------------------------------------------------|--|
|                          |                                  |                  | COMP           | GRAB | DATE                 | TIME |              | 1             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | ← Specify Preservatives<br>A-HCl D-NaOH<br>B-HNO3 E-ICE<br>C-H2SO4 F-OTHER |  |
| 1.                       | Cop-Soil Pile                    | Soil             |                | X    | 6-24-25              | 858  | 2            | X             |   |   |   |   |   |   |   |   | 1.2 ppm                                                                    |  |
| 2.                       | Cop-Soil Pile                    |                  | X              |      |                      | 904  | 6            |               | X | X | X | X | X | X | X | X |                                                                            |  |
| 3.                       |                                  |                  |                |      |                      |      |              |               |   |   |   |   |   |   |   |   |                                                                            |  |
| 4.                       |                                  |                  |                |      |                      |      |              |               |   |   |   |   |   |   |   |   |                                                                            |  |
| 5.                       |                                  |                  |                |      |                      |      |              |               |   |   |   |   |   |   |   |   |                                                                            |  |
| 6.                       |                                  |                  |                |      |                      |      |              |               |   |   |   |   |   |   |   |   |                                                                            |  |
| 7.                       |                                  |                  |                |      |                      |      |              |               |   |   |   |   |   |   |   |   |                                                                            |  |
| 8.                       |                                  |                  |                |      |                      |      |              |               |   |   |   |   |   |   |   |   |                                                                            |  |
| 9.                       |                                  |                  |                |      |                      |      |              |               |   |   |   |   |   |   |   |   |                                                                            |  |
| 10.                      |                                  |                  |                |      |                      |      |              |               |   |   |   |   |   |   |   |   |                                                                            |  |

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

|                                            |                            |                                |                                                                                                                                                                               |
|--------------------------------------------|----------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RELINQUISHED BY SAMPLER:<br>1. JT          | DATE/TIME: 9:25<br>6-24-25 | RECEIVED BY:<br>1. [Signature] | Conditions of bottles or coolers at receipt: <input checked="" type="checkbox"/> COMPLIANT <input type="checkbox"/> NON COMPLIANT <input type="checkbox"/> COOLER TEMP 3.8 °C |
| RELINQUISHED BY SAMPLER:<br>2. [Signature] | DATE/TIME:                 | RECEIVED BY:<br>2. [Signature] | Comments:                                                                                                                                                                     |
| RELINQUISHED BY SAMPLER:<br>3. JT          | DATE/TIME: 1:43<br>6-24-25 | RECEIVED BY:<br>3. [Signature] | Page ____ of CLIENT: <input type="checkbox"/> Hand Delivered <input type="checkbox"/> Other Shipment Complete <input type="checkbox"/> YES <input type="checkbox"/> NO        |

# CHEMTECH

Environmental Laboratory

www.chemtech.net | EMAIL: [PM@chemtech.net](mailto:PM@chemtech.net)

Project Name: Coppola Services

Chemtech Order ID: \_\_\_\_\_

Service Order #: \_\_\_\_\_

Sampler Name: JT

Work Order #: \_\_\_\_\_

Client Project Coordinator & Phone:  
Jeffrey Simpkins

Labor WBS #: \_\_\_\_\_

Page #: 1 of 1

Facility/Site: Sewage Utility of Millville

Site Address: 355 Fowler Rd

Arrive Date: 6-24-25

Millville NJ

Arrive Time: 845

Depart Time: 925

Waste Stream (circle one): drum / roll-off / soil pile / in-situ / linear construction / frac-tank

Sample Matrices (circle all that apply): Water / Soil / NAPL / Concrete / Wipe

Collection Depths: NA

Temp (range): 3.8 °C PID Readings (range): 1, 2 PPM Dimensions/CY: 14 x 11 x 5

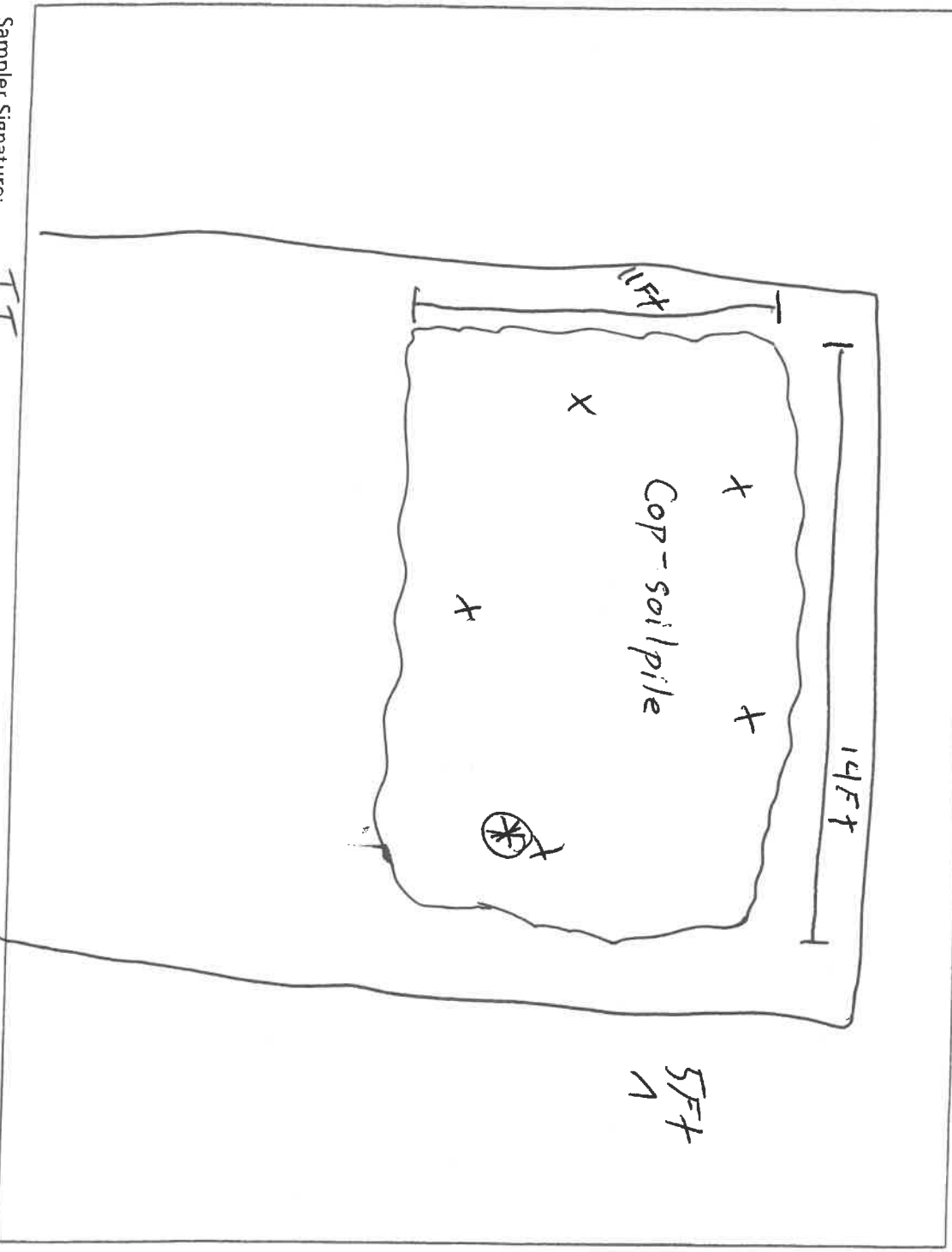
Sample Description: Dry grayish soil - some Rocks

Odor: Y / 0 Color: Y / 0

Field Observations: 1 small soil pile

Grid/Area Composite Map:

QA Control # A3041134



Sampler Signature: JT

Supervisor Review/Date: \_\_\_\_\_

Client Signature: \_\_\_\_\_

Date/Time Arrived at Lab: \_\_\_\_\_

### Laboratory Certification

| Certified By         | License No.      |
|----------------------|------------------|
|                      |                  |
| CAS EPA CLP Contract | 68HERH20D0011    |
|                      |                  |
| Connecticut          | PH-0830          |
|                      |                  |
| DOD ELAP (ANAB)      | L2219            |
|                      |                  |
| Maine                | 2024021          |
|                      |                  |
| Maryland             | 296              |
|                      |                  |
| New Hampshire        | 255424 Rev 1     |
|                      |                  |
| New Jersey           | 20012            |
|                      |                  |
| New York             | 11376            |
|                      |                  |
| Pennsylvania         | 68-00548         |
|                      |                  |
| Soil Permit          | 525-24-234-08441 |
|                      |                  |
| Texas                | T104704488       |