



*CERTIFICATE OF ANALYSIS*

Mark Dennen  
RIDEM - Office of Waste Management  
235 Promenade Street  
Providence, RI 02908

**RE: PLF (N/A)**  
**ESS Laboratory Work Order Number: 1409279**

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

LAUREL STODDARD  
Laboratory Director

**REVIEWED**  
*By ESS Laboratory at 1:41 pm, Sep 23, 2014*

**Analytical Summary**

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



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Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**SAMPLE RECEIPT**

The following samples were received on September 15, 2014 for the analyses specified on the enclosed Chain of Custody Record.

**All samples for Low Level VOA were received outside of the freezing holding time.**

<b>Lab Number</b>	<b>Sample Name</b>	<b>Matrix</b>	<b>Analysis</b>
1409279-01	SS-01	Soil	6010C, 7010, 7471A, 8260B Low, 8270D
1409279-02	SS-02	Soil	6010C, 7010, 7471A, 8260B Low, 8270D



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**PROJECT NARRATIVE**

**5035/8260B Volatile Organic Compounds / Low Level**

CI41628-BS1 Blank Spike recovery is above upper control limit (B+).

Acetone (164% @ 70-130%)

CI41628-BSD1 Blank Spike recovery is above upper control limit (B+).

Acetone (147% @ 70-130%)

**8270C Semi-Volatile Organic Compounds**

CXI0257-CCV1 Calibration required quadratic regression (Q).

2,4-Dinitrophenol (106% @ 80-120%)

CXI0257-CCV1 Continuing Calibration recovery is above upper control limit (C+).

2-Nitrophenol (132% @ 80-120%), Aniline (121% @ 80-120%), Di-n-octylphthalate (124% @ 80-120%)

CXI0257-CCV1 Initial Calibration Verification recovery is outside of control limit (ICV).

Hexachlorocyclopentadiene

CXI0266-CCV1 Calibration required quadratic regression (Q).

2,4-Dinitrophenol (73% @ 80-120%), Benzoic Acid (106% @ 80-120%), Dibenzo(a,h)Anthracene (112% @ 80-120%), Indeno(1,2,3-cd)Pyrene (113% @ 80-120%), Pentachlorophenol (88% @ 80-120%)

CXI0266-CCV1 Continuing Calibration recovery is above upper control limit (C+).

N-Nitrosodimethylamine (136% @ 80-120%), Pyridine (135% @ 80-120%)

CXI0266-CCV1 Continuing Calibration recovery is below lower control limit (C-).

2,4,6-Tribromophenol (75% @ 80-120%), 2,4-Dinitrophenol (73% @ 80-120%),  
4,6-Dinitro-2-Methylphenol (67% @ 80-120%)

CXI0266-CCV1 Initial Calibration Verification recovery is outside of control limit (ICV).

4-Chloroaniline , Benzoic Acid , Hexachlorocyclopentadiene

**Total Metals**

CI41606-BS1 Blank Spike recovery is below lower control limit (B-).

Selenium (76% @ 80-120%)

CI41606-BSD1 Blank Spike recovery is below lower control limit (B-).

Arsenic (76% @ 80-120%), Barium (74% @ 80-120%), Chromium (77% @ 80-120%), Lead (75% @ 80-120%)

**No other observations noted.**

**End of Project Narrative.**



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Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**DATA USABILITY LINKS**

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)

**CURRENT SW-846 METHODOLOGY VERSIONS**

**Analytical Methods**

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015D - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

**Prep Methods**

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035 - Solid Purge and Trap



## CERTIFICATE OF ANALYSIS

Client Name: RIDEM - Office of Waste Management  
 Client Project ID: PLF  
 Client Sample ID: SS-01  
 Date Sampled: 09/12/14 15:20  
 Percent Solids: 88

ESS Laboratory Work Order: 1409279  
 ESS Laboratory Sample ID: 1409279-01  
 Sample Matrix: Soil  
 Units: mg/kg dry

Extraction Method: 3050B

### Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	8.5 (2.3)		6010C		1	KJK	09/17/14 13:49	2.53	100	CI41606
Barium	39.1 (2.3)		6010C		1	KJK	09/17/14 13:49	2.53	100	CI41606
Cadmium	ND (0.45)		6010C		1	KJK	09/17/14 13:49	2.53	100	CI41606
Chromium	53.4 (0.9)		6010C		1	KJK	09/17/14 13:49	2.53	100	CI41606
Lead	153 (4.5)		6010C		1	KJK	09/17/14 13:49	2.53	100	CI41606
Mercury	0.226 (0.035)		7471A		1	BJV	09/17/14 13:05	0.65	40	CI41608
Selenium	ND (2.26)		7010		5	KJK	09/19/14 21:02	2.53	100	CI41606
Silver	ND (0.45)		6010C		1	KJK	09/17/14 13:49	2.53	100	CI41606



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF  
Client Sample ID: SS-01  
Date Sampled: 09/12/14 15:20  
Percent Solids: 88  
Initial Volume: 6.6  
Final Volume: 10  
Extraction Method: 5035

ESS Laboratory Work Order: 1409279  
ESS Laboratory Sample ID: 1409279-01  
Sample Matrix: Soil  
Units: mg/kg dry  
Analyst: NMS

**5035/8260B Volatile Organic Compounds / Low Level**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,1,1-Trichloroethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,1,2,2-Tetrachloroethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,1,2-Trichloroethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,1-Dichloroethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,1-Dichloroethene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,1-Dichloropropene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,2,3-Trichlorobenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,2,3-Trichloropropane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,2,4-Trichlorobenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,2,4-Trimethylbenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,2-Dibromo-3-Chloropropane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,2-Dibromoethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,2-Dichlorobenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,2-Dichloroethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,2-Dichloropropane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,3,5-Trimethylbenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,3-Dichlorobenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,3-Dichloropropane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,4-Dichlorobenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1,4-Dioxane	ND (0.0865)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
1-Chlorohexane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
2,2-Dichloropropane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
2-Butanone	ND (0.0432)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
2-Chlorotoluene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
2-Hexanone	ND (0.0432)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
4-Chlorotoluene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
<b>4-Isopropyltoluene</b>	<b>0.0292</b> (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
4-Methyl-2-Pentanone	ND (0.0432)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
<b>Acetone</b>	<b>0.0680</b> (0.0432)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Benzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628





## CERTIFICATE OF ANALYSIS

Client Name: RIDEM - Office of Waste Management  
 Client Project ID: PLF  
 Client Sample ID: SS-01  
 Date Sampled: 09/12/14 15:20  
 Percent Solids: 88  
 Initial Volume: 6.6  
 Final Volume: 10  
 Extraction Method: 5035

ESS Laboratory Work Order: 1409279  
 ESS Laboratory Sample ID: 1409279-01  
 Sample Matrix: Soil  
 Units: mg/kg dry  
 Analyst: NMS

### 5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Bromochloromethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Bromodichloromethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Bromoform	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Bromomethane	ND (0.0086)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Carbon Disulfide	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Carbon Tetrachloride	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Chlorobenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Chloroethane	ND (0.0086)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Chloroform	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Chloromethane	ND (0.0086)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
cis-1,2-Dichloroethene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
cis-1,3-Dichloropropene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Dibromochloromethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Dibromomethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Dichlorodifluoromethane	ND (0.0086)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Diethyl Ether	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Di-isopropyl ether	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Ethyl tertiary-butyl ether	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Ethylbenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Hexachlorobutadiene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Isopropylbenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Methyl tert-Butyl Ether	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Methylene Chloride	ND (0.0216)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
<b>Naphthalene</b>	<b>0.0442</b> (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
n-Butylbenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
n-Propylbenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
sec-Butylbenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Styrene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
tert-Butylbenzene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Tertiary-amyl methyl ether	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628



## CERTIFICATE OF ANALYSIS

Client Name: RIDEM - Office of Waste Management  
 Client Project ID: PLF  
 Client Sample ID: SS-01  
 Date Sampled: 09/12/14 15:20  
 Percent Solids: 88  
 Initial Volume: 6.6  
 Final Volume: 10  
 Extraction Method: 5035

ESS Laboratory Work Order: 1409279  
 ESS Laboratory Sample ID: 1409279-01  
 Sample Matrix: Soil  
 Units: mg/kg dry  
 Analyst: NMS

### 5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrachloroethene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Tetrahydrofuran	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Toluene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
trans-1,2-Dichloroethene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
trans-1,3-Dichloropropene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Trichloroethene	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Trichlorofluoromethane	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Vinyl Acetate	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Vinyl Chloride	ND (0.0086)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Xylene O	ND (0.0043)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Xylene P,M	ND (0.0086)		8260B Low		1	09/15/14 18:34	CXI0204	CI41628
Xylenes (Total)	ND (0.0086)		8260B Low		1	09/15/14 18:34		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	108 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	102 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	103 %		70-130
<i>Surrogate: Toluene-d8</i>	99 %		70-130





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Client Name: RIDEM - Office of Waste Management  
 Client Project ID: PLF  
 Client Sample ID: SS-01  
 Date Sampled: 09/12/14 15:20  
 Percent Solids: 88  
 Initial Volume: 15.2  
 Final Volume: 0.5  
 Extraction Method: 3546

ESS Laboratory Work Order: 1409279  
 ESS Laboratory Sample ID: 1409279-01  
 Sample Matrix: Soil  
 Units: mg/kg dry  
 Analyst: IBM  
 Prepared: 9/18/14 11:45

### 8270C Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
1,2,4-Trichlorobenzene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
1,2-Dichlorobenzene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
1,3-Dichlorobenzene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
1,4-Dichlorobenzene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2,3,4,6-Tetrachlorophenol	ND (1.88)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2,4,5-Trichlorophenol	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2,4,6-Trichlorophenol	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2,4-Dichlorophenol	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2,4-Dimethylphenol	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2,4-Dinitrophenol	ND (1.88)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2,4-Dinitrotoluene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2,6-Dinitrotoluene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2-Chloronaphthalene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2-Chlorophenol	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2-Methylnaphthalene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2-Methylphenol	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2-Nitroaniline	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
2-Nitrophenol	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
3,3'-Dichlorobenzidine	ND (0.751)		8270D		1	09/19/14 20:25	CXI0266	CI41808
3+4-Methylphenol	ND (0.751)		8270D		1	09/19/14 20:25	CXI0266	CI41808
3-Nitroaniline	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
4,6-Dinitro-2-Methylphenol	ND (1.88)		8270D		1	09/19/14 20:25	CXI0266	CI41808
4-Bromophenyl-phenylether	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
4-Chloro-3-Methylphenol	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
4-Chloroaniline	ND (0.751)		8270D		1	09/19/14 20:25	CXI0266	CI41808
4-Chloro-phenyl-phenyl ether	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
4-Nitroaniline	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
4-Nitrophenol	ND (1.88)		8270D		1	09/19/14 20:25	CXI0266	CI41808
<b>Acenaphthene</b>	<b>0.534</b> (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Acenaphthylene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808



## CERTIFICATE OF ANALYSIS

Client Name: RIDEM - Office of Waste Management  
 Client Project ID: PLF  
 Client Sample ID: SS-01  
 Date Sampled: 09/12/14 15:20  
 Percent Solids: 88  
 Initial Volume: 15.2  
 Final Volume: 0.5  
 Extraction Method: 3546

ESS Laboratory Work Order: 1409279  
 ESS Laboratory Sample ID: 1409279-01  
 Sample Matrix: Soil  
 Units: mg/kg dry  
 Analyst: IBM  
 Prepared: 9/18/14 11:45

### 8270C Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Acetophenone	ND (0.751)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Aniline	ND (0.751)		8270D		1	09/19/14 20:25	CXI0266	CI41808
<b>Anthracene</b>	<b>0.906</b> (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Azobenzene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
<b>Benzo(a)anthracene</b>	<b>0.547</b> (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
<b>Benzo(a)pyrene</b>	<b>0.208</b> (0.188)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Benzo(b)fluoranthene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Benzo(g,h,i)perylene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Benzo(k)fluoranthene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Benzoic Acid	ND (1.88)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Benzyl Alcohol	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
bis(2-Chloroethoxy)methane	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
bis(2-Chloroethyl)ether	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
bis(2-chloroisopropyl)Ether	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
<b>bis(2-Ethylhexyl)phthalate</b>	<b>0.723</b> (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Butylbenzylphthalate	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Carbazole	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
<b>Chrysene</b>	<b>0.449</b> (0.188)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Dibenzo(a,h)Anthracene	ND (0.188)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Dibenzofuran	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Diethylphthalate	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Dimethylphthalate	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Di-n-butylphthalate	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Di-n-octylphthalate	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
<b>Fluoranthene</b>	<b>2.71</b> (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
<b>Fluorene</b>	<b>0.528</b> (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Hexachlorobenzene	ND (0.188)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Hexachlorobutadiene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Hexachlorocyclopentadiene	ND (1.88)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Hexachloroethane	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Indeno(1,2,3-cd)Pyrene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808



## CERTIFICATE OF ANALYSIS

Client Name: RIDEM - Office of Waste Management  
 Client Project ID: PLF  
 Client Sample ID: SS-01  
 Date Sampled: 09/12/14 15:20  
 Percent Solids: 88  
 Initial Volume: 15.2  
 Final Volume: 0.5  
 Extraction Method: 3546

ESS Laboratory Work Order: 1409279  
 ESS Laboratory Sample ID: 1409279-01  
 Sample Matrix: Soil  
 Units: mg/kg dry  
 Analyst: IBM  
 Prepared: 9/18/14 11:45

### 8270C Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Isophorone	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Naphthalene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Nitrobenzene	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
N-Nitrosodimethylamine	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
N-Nitroso-Di-n-Propylamine	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
N-nitrosodiphenylamine	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Pentachlorophenol	ND (1.88)		8270D		1	09/19/14 20:25	CXI0266	CI41808
<b>Phenanthrene</b>	<b>2.28</b> (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Phenol	ND (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
<b>Pyrene</b>	<b>1.48</b> (0.375)		8270D		1	09/19/14 20:25	CXI0266	CI41808
Pyridine	ND (1.88)		8270D		1	09/19/14 20:25	CXI0266	CI41808

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	64 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	63 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	74 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	70 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	74 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	83 %		30-130
<i>Surrogate: Phenol-d6</i>	76 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	71 %		30-130



### CERTIFICATE OF ANALYSIS

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF  
Client Sample ID: SS-02  
Date Sampled: 09/12/14 15:30  
Percent Solids: 87

ESS Laboratory Work Order: 1409279  
ESS Laboratory Sample ID: 1409279-02  
Sample Matrix: Soil  
Units: mg/kg dry

Extraction Method: 3050B

### Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	7.9 (2.2)		6010C		1	KJK	09/17/14 13:55	2.64	100	CI41606
Barium	30.3 (2.2)		6010C		1	KJK	09/17/14 13:55	2.64	100	CI41606
Cadmium	ND (0.44)		6010C		1	KJK	09/17/14 13:55	2.64	100	CI41606
Chromium	56.7 (0.9)		6010C		1	KJK	09/17/14 13:55	2.64	100	CI41606
Lead	165 (4.4)		6010C		1	KJK	09/17/14 13:55	2.64	100	CI41606
Mercury	0.199 (0.037)		7471A		1	BJV	09/17/14 13:07	0.61	40	CI41608
Selenium	ND (2.18)		7010		5	KJK	09/19/14 21:07	2.64	100	CI41606
Silver	ND (0.44)		6010C		1	KJK	09/17/14 13:55	2.64	100	CI41606



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
 Client Project ID: PLF  
 Client Sample ID: SS-02  
 Date Sampled: 09/12/14 15:30  
 Percent Solids: 87  
 Initial Volume: 6.5  
 Final Volume: 10  
 Extraction Method: 5035

ESS Laboratory Work Order: 1409279  
 ESS Laboratory Sample ID: 1409279-02  
 Sample Matrix: Soil  
 Units: mg/kg dry  
 Analyst: NMS

**5035/8260B Volatile Organic Compounds / Low Level**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,1,1-Trichloroethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,1,2,2-Tetrachloroethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,1,2-Trichloroethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,1-Dichloroethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,1-Dichloroethene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,1-Dichloropropene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,2,3-Trichlorobenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,2,3-Trichloropropane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,2,4-Trichlorobenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,2,4-Trimethylbenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,2-Dibromo-3-Chloropropane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,2-Dibromoethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,2-Dichlorobenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,2-Dichloroethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,2-Dichloropropane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,3,5-Trimethylbenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,3-Dichlorobenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,3-Dichloropropane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,4-Dichlorobenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1,4-Dioxane	ND (0.0884)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
1-Chlorohexane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
2,2-Dichloropropane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
2-Butanone	ND (0.0442)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
2-Chlorotoluene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
2-Hexanone	ND (0.0442)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
4-Chlorotoluene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
4-Isopropyltoluene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
4-Methyl-2-Pentanone	ND (0.0442)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
<b>Acetone</b>	<b>0.0547</b> (0.0442)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Benzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628





## CERTIFICATE OF ANALYSIS

Client Name: RIDEM - Office of Waste Management  
 Client Project ID: PLF  
 Client Sample ID: SS-02  
 Date Sampled: 09/12/14 15:30  
 Percent Solids: 87  
 Initial Volume: 6.5  
 Final Volume: 10  
 Extraction Method: 5035

ESS Laboratory Work Order: 1409279  
 ESS Laboratory Sample ID: 1409279-02  
 Sample Matrix: Soil  
 Units: mg/kg dry  
 Analyst: NMS

### 5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Bromochloromethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Bromodichloromethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Bromoform	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Bromomethane	ND (0.0088)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Carbon Disulfide	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Carbon Tetrachloride	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Chlorobenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Chloroethane	ND (0.0088)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Chloroform	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Chloromethane	ND (0.0088)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
cis-1,2-Dichloroethene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
cis-1,3-Dichloropropene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Dibromochloromethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Dibromomethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Dichlorodifluoromethane	ND (0.0088)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Diethyl Ether	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Di-isopropyl ether	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Ethyl tertiary-butyl ether	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Ethylbenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Hexachlorobutadiene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Isopropylbenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Methyl tert-Butyl Ether	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Methylene Chloride	ND (0.0221)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Naphthalene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
n-Butylbenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
n-Propylbenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
sec-Butylbenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Styrene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
tert-Butylbenzene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Tertiary-amyl methyl ether	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628





## CERTIFICATE OF ANALYSIS

Client Name: RIDEM - Office of Waste Management  
 Client Project ID: PLF  
 Client Sample ID: SS-02  
 Date Sampled: 09/12/14 15:30  
 Percent Solids: 87  
 Initial Volume: 6.5  
 Final Volume: 10  
 Extraction Method: 5035

ESS Laboratory Work Order: 1409279  
 ESS Laboratory Sample ID: 1409279-02  
 Sample Matrix: Soil  
 Units: mg/kg dry  
 Analyst: NMS

### 5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrachloroethene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Tetrahydrofuran	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Toluene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
trans-1,2-Dichloroethene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
trans-1,3-Dichloropropene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Trichloroethene	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Trichlorofluoromethane	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Vinyl Acetate	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Vinyl Chloride	ND (0.0088)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Xylene O	ND (0.0044)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Xylene P,M	ND (0.0088)		8260B Low		1	09/15/14 19:03	CXI0204	CI41628
Xylenes (Total)	ND (0.0088)		8260B Low		1	09/15/14 19:03		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	106 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	101 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	100 %		70-130
<i>Surrogate: Toluene-d8</i>	100 %		70-130



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF  
Client Sample ID: SS-02  
Date Sampled: 09/12/14 15:30  
Percent Solids: 87  
Initial Volume: 14.6  
Final Volume: 0.5  
Extraction Method: 3546

ESS Laboratory Work Order: 1409279  
ESS Laboratory Sample ID: 1409279-02  
Sample Matrix: Soil  
Units: mg/kg dry  
Analyst: IBM  
Prepared: 9/18/14 11:45

**8270C Semi-Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1-Biphenyl	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
1,2,4-Trichlorobenzene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
1,2-Dichlorobenzene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
1,3-Dichlorobenzene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
1,4-Dichlorobenzene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2,3,4,6-Tetrachlorophenol	ND (1.97)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2,4,5-Trichlorophenol	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2,4,6-Trichlorophenol	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2,4-Dichlorophenol	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2,4-Dimethylphenol	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2,4-Dinitrophenol	ND (1.97)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2,4-Dinitrotoluene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2,6-Dinitrotoluene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2-Chloronaphthalene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2-Chlorophenol	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2-Methylnaphthalene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2-Methylphenol	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2-Nitroaniline	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
2-Nitrophenol	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
3,3'-Dichlorobenzidine	ND (0.788)		8270D		1	09/19/14 21:00	CXI0266	CI41808
3+4-Methylphenol	ND (0.788)		8270D		1	09/19/14 21:00	CXI0266	CI41808
3-Nitroaniline	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
4,6-Dinitro-2-Methylphenol	ND (1.97)		8270D		1	09/19/14 21:00	CXI0266	CI41808
4-Bromophenyl-phenylether	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
4-Chloro-3-Methylphenol	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
4-Chloroaniline	ND (0.788)		8270D		1	09/19/14 21:00	CXI0266	CI41808
4-Chloro-phenyl-phenyl ether	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
4-Nitroaniline	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
4-Nitrophenol	ND (1.97)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Acenaphthene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Acenaphthylene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808



## CERTIFICATE OF ANALYSIS

Client Name: RIDEM - Office of Waste Management  
 Client Project ID: PLF  
 Client Sample ID: SS-02  
 Date Sampled: 09/12/14 15:30  
 Percent Solids: 87  
 Initial Volume: 14.6  
 Final Volume: 0.5  
 Extraction Method: 3546

ESS Laboratory Work Order: 1409279  
 ESS Laboratory Sample ID: 1409279-02  
 Sample Matrix: Soil  
 Units: mg/kg dry  
 Analyst: IBM  
 Prepared: 9/18/14 11:45

### 8270C Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Acetophenone	ND (0.788)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Aniline	ND (0.788)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Anthracene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Azobenzene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
<b>Benzo(a)anthracene</b>	<b>0.602</b> (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
<b>Benzo(a)pyrene</b>	<b>0.398</b> (0.197)		8270D		1	09/19/14 21:00	CXI0266	CI41808
<b>Benzo(b)fluoranthene</b>	<b>0.417</b> (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Benzo(g,h,i)perylene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Benzo(k)fluoranthene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Benzoic Acid	ND (1.97)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Benzyl Alcohol	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
bis(2-Chloroethoxy)methane	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
bis(2-Chloroethyl)ether	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
bis(2-chloroisopropyl)Ether	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
<b>bis(2-Ethylhexyl)phthalate</b>	<b>0.643</b> (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Butylbenzylphthalate	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Carbazole	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
<b>Chrysene</b>	<b>0.547</b> (0.197)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Dibenzo(a,h)Anthracene	ND (0.197)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Dibenzofuran	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Diethylphthalate	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Dimethylphthalate	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Di-n-butylphthalate	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Di-n-octylphthalate	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
<b>Fluoranthene</b>	<b>1.25</b> (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Fluorene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Hexachlorobenzene	ND (0.197)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Hexachlorobutadiene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Hexachlorocyclopentadiene	ND (1.97)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Hexachloroethane	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Indeno(1,2,3-cd)Pyrene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808



## CERTIFICATE OF ANALYSIS

Client Name: RIDEM - Office of Waste Management  
 Client Project ID: PLF  
 Client Sample ID: SS-02  
 Date Sampled: 09/12/14 15:30  
 Percent Solids: 87  
 Initial Volume: 14.6  
 Final Volume: 0.5  
 Extraction Method: 3546

ESS Laboratory Work Order: 1409279  
 ESS Laboratory Sample ID: 1409279-02  
 Sample Matrix: Soil  
 Units: mg/kg dry  
 Analyst: IBM  
 Prepared: 9/18/14 11:45

### 8270C Semi-Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Isophorone	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Naphthalene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Nitrobenzene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
N-Nitrosodimethylamine	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
N-Nitroso-Di-n-Propylamine	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
N-nitrosodiphenylamine	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Pentachlorophenol	ND (1.97)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Phenanthrene	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Phenol	ND (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
<b>Pyrene</b>	<b>0.888</b> (0.393)		8270D		1	09/19/14 21:00	CXI0266	CI41808
Pyridine	ND (1.97)		8270D		1	09/19/14 21:00	CXI0266	CI41808

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	63 %		30-130
<i>Surrogate: 2,4,6-Tribromophenol</i>	63 %		30-130
<i>Surrogate: 2-Chlorophenol-d4</i>	73 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	70 %		30-130
<i>Surrogate: 2-Fluorophenol</i>	73 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	81 %		30-130
<i>Surrogate: Phenol-d6</i>	75 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	69 %		30-130



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**Total Metals**

**Batch C141606 - 3050B**

**Blank**

Arsenic	ND	2.5	mg/kg wet							
Barium	ND	2.5	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.0	mg/kg wet							
Lead	ND	5.0	mg/kg wet							
Selenium	ND	0.50	mg/kg wet							
Silver	ND	0.50	mg/kg wet							

**LCS**

Arsenic	125	8.3	mg/kg wet	139.0		90	80-120			
Barium	181	8.3	mg/kg wet	203.0		89	80-120			
Cadmium	84.3	1.67	mg/kg wet	96.00		88	80-120			
Chromium	124	3.3	mg/kg wet	136.0		91	80-120			
Lead	121	16.7	mg/kg wet	133.0		91	80-120			
Selenium	134	83.3	mg/kg wet	177.0		76	80-120			B-
Silver	36.8	1.67	mg/kg wet	40.20		91	80-120			

**LCS Dup**

Arsenic	106	7.8	mg/kg wet	139.0		76	80-120	16	20	B-
Barium	151	7.8	mg/kg wet	203.0		74	80-120	18	20	B-
Cadmium	76.8	1.56	mg/kg wet	96.00		80	80-120	9	20	
Chromium	105	3.1	mg/kg wet	136.0		77	80-120	16	20	B-
Lead	100	15.6	mg/kg wet	133.0		75	80-120	18	20	B-
Selenium	144	78.1	mg/kg wet	177.0		81	80-120	7	20	

**Batch C141608 - 7471A**

**Blank**

Mercury	ND	0.010	mg/kg wet							
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**LCS**

Mercury	11.9	1.65	mg/kg wet	12.90		93	80-120			
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**LCS Dup**

Mercury	12.5	1.50	mg/kg wet	12.90		97	80-120	5	20	
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**5035/8260B Volatile Organic Compounds / Low Level**

**Batch C141628 - 5035**

**Blank**

1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

**Batch C141628 - 5035**

1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							





**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

**Batch C141628 - 5035**

Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Xylenes (Total)	ND	0.0100	mg/kg wet							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0535</i>		mg/kg wet	<i>0.05000</i>		<i>107</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0521</i>		mg/kg wet	<i>0.05000</i>		<i>104</i>	<i>70-130</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>0.0502</i>		mg/kg wet	<i>0.05000</i>		<i>100</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0505</i>		mg/kg wet	<i>0.05000</i>		<i>101</i>	<i>70-130</i>			

**LCS**

1,1,1,2-Tetrachloroethane	0.0486	0.0050	mg/kg wet	0.05000		97	70-130			
1,1,1-Trichloroethane	0.0469	0.0050	mg/kg wet	0.05000		94	70-130			
1,1,2,2-Tetrachloroethane	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
1,1,2-Trichloroethane	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
1,1-Dichloroethane	0.0471	0.0050	mg/kg wet	0.05000		94	70-130			
1,1-Dichloroethene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
1,1-Dichloropropene	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
1,2,3-Trichlorobenzene	0.0459	0.0050	mg/kg wet	0.05000		92	70-130			
1,2,3-Trichloropropane	0.0451	0.0050	mg/kg wet	0.05000		90	70-130			
1,2,4-Trichlorobenzene	0.0460	0.0050	mg/kg wet	0.05000		92	70-130			
1,2,4-Trimethylbenzene	0.0420	0.0050	mg/kg wet	0.05000		84	70-130			
1,2-Dibromo-3-Chloropropane	0.0433	0.0050	mg/kg wet	0.05000		87	70-130			
1,2-Dibromoethane	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
1,2-Dichlorobenzene	0.0425	0.0050	mg/kg wet	0.05000		85	70-130			
1,2-Dichloroethane	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
1,2-Dichloropropane	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
1,3,5-Trimethylbenzene	0.0437	0.0050	mg/kg wet	0.05000		87	70-130			



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

**Batch C141628 - 5035**

1,3-Dichlorobenzene	0.0423	0.0050	mg/kg wet	0.05000		85	70-130			
1,3-Dichloropropane	0.0540	0.0050	mg/kg wet	0.05000		108	70-130			
1,4-Dichlorobenzene	0.0442	0.0050	mg/kg wet	0.05000		88	70-130			
1,4-Dioxane	0.999	0.100	mg/kg wet	1.000		100	70-130			
1-Chlorohexane	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
2,2-Dichloropropane	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
2-Butanone	0.249	0.0500	mg/kg wet	0.2500		99	70-130			
2-Chlorotoluene	0.0424	0.0050	mg/kg wet	0.05000		85	70-130			
2-Hexanone	0.302	0.0500	mg/kg wet	0.2500		121	70-130			
4-Chlorotoluene	0.0431	0.0050	mg/kg wet	0.05000		86	70-130			
4-Isopropyltoluene	0.0427	0.0050	mg/kg wet	0.05000		85	70-130			
4-Methyl-2-Pentanone	0.237	0.0500	mg/kg wet	0.2500		95	70-130			
Acetone	0.409	0.0500	mg/kg wet	0.2500		164	70-130			B+
Benzene	0.0460	0.0050	mg/kg wet	0.05000		92	70-130			
Bromobenzene	0.0449	0.0050	mg/kg wet	0.05000		90	70-130			
Bromochloromethane	0.0506	0.0050	mg/kg wet	0.05000		101	70-130			
Bromodichloromethane	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
Bromoform	0.0453	0.0050	mg/kg wet	0.05000		91	70-130			
Bromomethane	0.0574	0.0100	mg/kg wet	0.05000		115	70-130			
Carbon Disulfide	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
Carbon Tetrachloride	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
Chlorobenzene	0.0459	0.0050	mg/kg wet	0.05000		92	70-130			
Chloroethane	0.0456	0.0100	mg/kg wet	0.05000		91	70-130			
Chloroform	0.0477	0.0050	mg/kg wet	0.05000		95	70-130			
Chloromethane	0.0505	0.0100	mg/kg wet	0.05000		101	70-130			
cis-1,2-Dichloroethene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
cis-1,3-Dichloropropene	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
Dibromochloromethane	0.0456	0.0050	mg/kg wet	0.05000		91	70-130			
Dibromomethane	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
Dichlorodifluoromethane	0.0486	0.0100	mg/kg wet	0.05000		97	70-130			
Diethyl Ether	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
Di-isopropyl ether	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
Ethyl tertiary-butyl ether	0.0453	0.0050	mg/kg wet	0.05000		91	70-130			
Ethylbenzene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Hexachlorobutadiene	0.0476	0.0050	mg/kg wet	0.05000		95	70-130			
Isopropylbenzene	0.0403	0.0050	mg/kg wet	0.05000		81	70-130			
Methyl tert-Butyl Ether	0.0447	0.0050	mg/kg wet	0.05000		89	70-130			
Methylene Chloride	0.0518	0.0250	mg/kg wet	0.05000		104	70-130			
Naphthalene	0.0387	0.0050	mg/kg wet	0.05000		77	70-130			
n-Butylbenzene	0.0442	0.0050	mg/kg wet	0.05000		88	70-130			
n-Propylbenzene	0.0402	0.0050	mg/kg wet	0.05000		80	70-130			
sec-Butylbenzene	0.0407	0.0050	mg/kg wet	0.05000		81	70-130			
Styrene	0.0471	0.0050	mg/kg wet	0.05000		94	70-130			
tert-Butylbenzene	0.0410	0.0050	mg/kg wet	0.05000		82	70-130			



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

**Batch C141628 - 5035**

Tertiary-amyI methyl ether	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
Tetrachloroethene	0.0392	0.0050	mg/kg wet	0.05000		78	70-130			
Tetrahydrofuran	0.0561	0.0050	mg/kg wet	0.05000		112	70-130			
Toluene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
trans-1,2-Dichloroethene	0.0485	0.0050	mg/kg wet	0.05000		97	70-130			
trans-1,3-Dichloropropene	0.0438	0.0050	mg/kg wet	0.05000		88	70-130			
Trichloroethene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
Trichlorofluoromethane	0.0419	0.0050	mg/kg wet	0.05000		84	70-130			
Vinyl Acetate	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
Vinyl Chloride	0.0533	0.0100	mg/kg wet	0.05000		107	70-130			
Xylene O	0.0486	0.0050	mg/kg wet	0.05000		97	70-130			
Xylene P,M	0.0940	0.0100	mg/kg wet	0.1000		94	70-130			
Xylenes (Total)	0.143	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0551		mg/kg wet	0.05000		110	70-130			
Surrogate: 4-Bromofluorobenzene	0.0554		mg/kg wet	0.05000		111	70-130			
Surrogate: Dibromofluoromethane	0.0552		mg/kg wet	0.05000		110	70-130			
Surrogate: Toluene-d8	0.0535		mg/kg wet	0.05000		107	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	7	25	
1,1,1-Trichloroethane	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	10	25	
1,1,1,2,2-Tetrachloroethane	0.0496	0.0050	mg/kg wet	0.05000		99	70-130	5	25	
1,1,2-Trichloroethane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	7	25	
1,1-Dichloroethane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130	11	25	
1,1-Dichloroethene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
1,1-Dichloropropene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	10	25	
1,2,3-Trichlorobenzene	0.0486	0.0050	mg/kg wet	0.05000		97	70-130	6	25	
1,2,3-Trichloropropane	0.0478	0.0050	mg/kg wet	0.05000		96	70-130	6	25	
1,2,4-Trichlorobenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130	6	25	
1,2,4-Trimethylbenzene	0.0456	0.0050	mg/kg wet	0.05000		91	70-130	8	25	
1,2-Dibromo-3-Chloropropane	0.0441	0.0050	mg/kg wet	0.05000		88	70-130	2	25	
1,2-Dibromoethane	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	6	25	
1,2-Dichlorobenzene	0.0456	0.0050	mg/kg wet	0.05000		91	70-130	7	25	
1,2-Dichloroethane	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
1,2-Dichloropropane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	9	25	
1,3,5-Trimethylbenzene	0.0478	0.0050	mg/kg wet	0.05000		96	70-130	9	25	
1,3-Dichlorobenzene	0.0457	0.0050	mg/kg wet	0.05000		91	70-130	8	25	
1,3-Dichloropropane	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	7	25	
1,4-Dichlorobenzene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130	7	25	
1,4-Dioxane	1.04	0.100	mg/kg wet	1.000		104	70-130	4	20	
1-Chlorohexane	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	9	25	
2,2-Dichloropropane	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	10	25	
2-Butanone	0.251	0.0500	mg/kg wet	0.2500		101	70-130	1	25	
2-Chlorotoluene	0.0463	0.0050	mg/kg wet	0.05000		93	70-130	9	25	
2-Hexanone	0.295	0.0500	mg/kg wet	0.2500		118	70-130	2	25	



**CERTIFICATE OF ANALYSIS**

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ESS Laboratory Work Order: 1409279

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

**Batch C141628 - 5035**

4-Chlorotoluene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130	9	25	
4-Isopropyltoluene	0.0468	0.0050	mg/kg wet	0.05000		94	70-130	9	25	
4-Methyl-2-Pentanone	0.245	0.0500	mg/kg wet	0.2500		98	70-130	3	25	
Acetone	0.367	0.0500	mg/kg wet	0.2500		147	70-130	11	25	B+
Benzene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130	9	25	
Bromobenzene	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	9	25	
Bromochloromethane	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	7	25	
Bromodichloromethane	0.0512	0.0050	mg/kg wet	0.05000		102	70-130	8	25	
Bromoform	0.0470	0.0050	mg/kg wet	0.05000		94	70-130	4	25	
Bromomethane	0.0605	0.0100	mg/kg wet	0.05000		121	70-130	5	25	
Carbon Disulfide	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	11	25	
Carbon Tetrachloride	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	9	25	
Chlorobenzene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	7	25	
Chloroethane	0.0508	0.0100	mg/kg wet	0.05000		102	70-130	11	25	
Chloroform	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	10	25	
Chloromethane	0.0557	0.0100	mg/kg wet	0.05000		111	70-130	10	25	
cis-1,2-Dichloroethene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	9	25	
cis-1,3-Dichloropropene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130	8	25	
Dibromochloromethane	0.0491	0.0050	mg/kg wet	0.05000		98	70-130	7	25	
Dibromomethane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	7	25	
Dichlorodifluoromethane	0.0536	0.0100	mg/kg wet	0.05000		107	70-130	10	25	
Diethyl Ether	0.0557	0.0050	mg/kg wet	0.05000		111	70-130	7	25	
Di-isopropyl ether	0.0527	0.0050	mg/kg wet	0.05000		105	70-130	9	25	
Ethyl tertiary-butyl ether	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	8	25	
Ethylbenzene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	9	25	
Hexachlorobutadiene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	9	25	
Isopropylbenzene	0.0440	0.0050	mg/kg wet	0.05000		88	70-130	9	25	
Methyl tert-Butyl Ether	0.0480	0.0050	mg/kg wet	0.05000		96	70-130	7	25	
Methylene Chloride	0.0582	0.0250	mg/kg wet	0.05000		116	70-130	12	25	
Naphthalene	0.0407	0.0050	mg/kg wet	0.05000		81	70-130	5	25	
n-Butylbenzene	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	9	25	
n-Propylbenzene	0.0441	0.0050	mg/kg wet	0.05000		88	70-130	9	25	
sec-Butylbenzene	0.0447	0.0050	mg/kg wet	0.05000		89	70-130	9	25	
Styrene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	8	25	
tert-Butylbenzene	0.0450	0.0050	mg/kg wet	0.05000		90	70-130	9	25	
Tertiary-amyl methyl ether	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
Tetrachloroethene	0.0431	0.0050	mg/kg wet	0.05000		86	70-130	10	25	
Tetrahydrofuran	0.0576	0.0050	mg/kg wet	0.05000		115	70-130	3	25	
Toluene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	9	25	
trans-1,2-Dichloroethene	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	10	25	
trans-1,3-Dichloropropene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130	8	25	
Trichloroethene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	10	25	
Trichlorofluoromethane	0.0464	0.0050	mg/kg wet	0.05000		93	70-130	10	25	
Vinyl Acetate	0.0576	0.0050	mg/kg wet	0.05000		115	70-130	7	25	



**CERTIFICATE OF ANALYSIS**

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ESS Laboratory Work Order: 1409279

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**5035/8260B Volatile Organic Compounds / Low Level**

**Batch C141628 - 5035**

Vinyl Chloride	0.0598	0.0100	mg/kg wet	0.05000		120	70-130	11	25	
Xylene O	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	9	25	
Xylene P,M	0.103	0.0100	mg/kg wet	0.1000		103	70-130	9	25	
Xylenes (Total)	0.156	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0554		mg/kg wet	0.05000		111	70-130			
Surrogate: 4-Bromofluorobenzene	0.0555		mg/kg wet	0.05000		111	70-130			
Surrogate: Dibromofluoromethane	0.0548		mg/kg wet	0.05000		110	70-130			
Surrogate: Toluene-d8	0.0534		mg/kg wet	0.05000		107	70-130			

**8270C Semi-Volatile Organic Compounds**

**Batch C141808 - 3546**

**Blank**

1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3'-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							



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**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8270C Semi-Volatile Organic Compounds**

**Batch C141808 - 3546**

Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	2.20		mg/kg wet	3.333		66	30-130			
Surrogate: 2,4,6-Tribromophenol	4.07		mg/kg wet	5.000		81	30-130			
Surrogate: 2-Chlorophenol-d4	3.65		mg/kg wet	5.000		73	30-130			





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Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8270C Semi-Volatile Organic Compounds**

**Batch C141808 - 3546**

Surrogate: 2-Fluorobiphenyl	2.68		mg/kg wet	3.333		80	30-130			
Surrogate: 2-Fluorophenol	3.71		mg/kg wet	5.000		74	30-130			
Surrogate: Nitrobenzene-d5	2.65		mg/kg wet	3.333		79	30-130			
Surrogate: Phenol-d6	3.87		mg/kg wet	5.000		77	30-130			
Surrogate: p-Terphenyl-d14	2.75		mg/kg wet	3.333		83	30-130			

**LCS**

1,1-Biphenyl	2.53	0.333	mg/kg wet	3.333		76	40-140			
1,2,4-Trichlorobenzene	2.66	0.333	mg/kg wet	3.333		80	40-140			
1,2-Dichlorobenzene	2.73	0.333	mg/kg wet	3.333		82	40-140			
1,3-Dichlorobenzene	2.89	0.333	mg/kg wet	3.333		87	40-140			
1,4-Dichlorobenzene	2.82	0.333	mg/kg wet	3.333		84	40-140			
2,3,4,6-Tetrachlorophenol	2.75	1.67	mg/kg wet	3.333		83	30-130			
2,4,5-Trichlorophenol	2.81	0.333	mg/kg wet	3.333		84	30-130			
2,4,6-Trichlorophenol	3.00	0.333	mg/kg wet	3.333		90	30-130			
2,4-Dichlorophenol	2.83	0.333	mg/kg wet	3.333		85	30-130			
2,4-Dimethylphenol	3.02	0.333	mg/kg wet	3.333		91	30-130			
2,4-Dinitrophenol	2.44	1.67	mg/kg wet	3.333		73	30-130			
2,4-Dinitrotoluene	2.56	0.333	mg/kg wet	3.333		77	40-140			
2,6-Dinitrotoluene	2.61	0.333	mg/kg wet	3.333		78	40-140			
2-Chloronaphthalene	2.53	0.333	mg/kg wet	3.333		76	40-140			
2-Chlorophenol	2.91	0.333	mg/kg wet	3.333		87	30-130			
2-Methylnaphthalene	2.53	0.333	mg/kg wet	3.333		76	40-140			
2-Methylphenol	2.93	0.333	mg/kg wet	3.333		88	30-130			
2-Nitroaniline	2.33	0.333	mg/kg wet	3.333		70	40-140			
2-Nitrophenol	3.03	0.333	mg/kg wet	3.333		91	30-130			
3,3'-Dichlorobenzidine	2.46	0.667	mg/kg wet	3.333		74	40-140			
3+4-Methylphenol	5.50	0.667	mg/kg wet	6.667		82	30-130			
3-Nitroaniline	2.50	0.333	mg/kg wet	3.333		75	40-140			
4,6-Dinitro-2-Methylphenol	2.71	1.67	mg/kg wet	3.333		81	30-130			
4-Bromophenyl-phenylether	2.87	0.333	mg/kg wet	3.333		86	40-140			
4-Chloro-3-Methylphenol	2.83	0.333	mg/kg wet	3.333		85	30-130			
4-Chloroaniline	2.27	0.667	mg/kg wet	3.333		68	40-140			
4-Chloro-phenyl-phenyl ether	2.49	0.333	mg/kg wet	3.333		75	40-140			
4-Nitroaniline	2.77	0.333	mg/kg wet	3.333		83	40-140			
4-Nitrophenol	2.82	1.67	mg/kg wet	3.333		85	30-130			
Acenaphthene	2.45	0.333	mg/kg wet	3.333		73	40-140			
Acenaphthylene	2.54	0.333	mg/kg wet	3.333		76	40-140			
Acetophenone	2.97	0.667	mg/kg wet	3.333		89	40-140			
Aniline	2.84	0.667	mg/kg wet	3.333		85	40-140			
Anthracene	2.72	0.333	mg/kg wet	3.333		82	40-140			
Azobenzene	2.82	0.333	mg/kg wet	3.333		85	40-140			
Benzo(a)anthracene	2.76	0.333	mg/kg wet	3.333		83	40-140			
Benzo(a)pyrene	2.82	0.167	mg/kg wet	3.333		84	40-140			



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
<b>8270C Semi-Volatile Organic Compounds</b>										
<b>Batch C141808 - 3546</b>										
Benzo(b)fluoranthene	2.79	0.333	mg/kg wet	3.333		84	40-140			
Benzo(g,h,i)perylene	2.65	0.333	mg/kg wet	3.333		79	40-140			
Benzo(k)fluoranthene	2.55	0.333	mg/kg wet	3.333		77	40-140			
Benzoic Acid	2.25	1.67	mg/kg wet	3.333		67	40-140			
Benzyl Alcohol	2.89	0.333	mg/kg wet	3.333		87	40-140			
bis(2-Chloroethoxy)methane	2.71	0.333	mg/kg wet	3.333		81	40-140			
bis(2-Chloroethyl)ether	2.62	0.333	mg/kg wet	3.333		79	40-140			
bis(2-chloroisopropyl)Ether	2.83	0.333	mg/kg wet	3.333		85	40-140			
bis(2-Ethylhexyl)phthalate	2.97	0.333	mg/kg wet	3.333		89	40-140			
Butylbenzylphthalate	2.87	0.333	mg/kg wet	3.333		86	40-140			
Carbazole	2.78	0.333	mg/kg wet	3.333		83	40-140			
Chrysene	2.82	0.167	mg/kg wet	3.333		85	40-140			
Dibenzo(a,h)Anthracene	2.68	0.167	mg/kg wet	3.333		80	40-140			
Dibenzofuran	2.49	0.333	mg/kg wet	3.333		75	40-140			
Diethylphthalate	2.57	0.333	mg/kg wet	3.333		77	40-140			
Dimethylphthalate	2.54	0.333	mg/kg wet	3.333		76	40-140			
Di-n-butylphthalate	2.71	0.333	mg/kg wet	3.333		81	40-140			
Di-n-octylphthalate	2.89	0.333	mg/kg wet	3.333		87	40-140			
Fluoranthene	3.06	0.333	mg/kg wet	3.333		92	40-140			
Fluorene	2.52	0.333	mg/kg wet	3.333		76	40-140			
Hexachlorobenzene	2.71	0.167	mg/kg wet	3.333		81	40-140			
Hexachlorobutadiene	2.63	0.333	mg/kg wet	3.333		79	40-140			
Hexachlorocyclopentadiene	2.98	1.67	mg/kg wet	3.333		89	40-140			
Hexachloroethane	2.51	0.333	mg/kg wet	3.333		75	40-140			
Indeno(1,2,3-cd)Pyrene	2.75	0.333	mg/kg wet	3.333		83	40-140			
Isophorone	2.82	0.333	mg/kg wet	3.333		85	40-140			
Naphthalene	2.60	0.333	mg/kg wet	3.333		78	40-140			
Nitrobenzene	2.92	0.333	mg/kg wet	3.333		88	40-140			
N-Nitrosodimethylamine	3.07	0.333	mg/kg wet	3.333		92	40-140			
N-Nitroso-Di-n-Propylamine	2.37	0.333	mg/kg wet	3.333		71	40-140			
N-nitrosodiphenylamine	2.82	0.333	mg/kg wet	3.333		85	40-140			
Pentachlorophenol	3.08	1.67	mg/kg wet	3.333		92	30-130			
Phenanthrene	2.68	0.333	mg/kg wet	3.333		80	40-140			
Phenol	2.75	0.333	mg/kg wet	3.333		82	30-130			
Pyrene	2.71	0.333	mg/kg wet	3.333		81	40-140			
Pyridine	2.13	1.67	mg/kg wet	3.333		64	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	2.65		mg/kg wet	3.333		80	30-130			
Surrogate: 2,4,6-Tribromophenol	4.47		mg/kg wet	5.000		89	30-130			
Surrogate: 2-Chlorophenol-d4	4.24		mg/kg wet	5.000		85	30-130			
Surrogate: 2-Fluorobiphenyl	2.60		mg/kg wet	3.333		78	30-130			
Surrogate: 2-Fluorophenol	4.39		mg/kg wet	5.000		88	30-130			
Surrogate: Nitrobenzene-d5	2.81		mg/kg wet	3.333		84	30-130			
Surrogate: Phenol-d6	4.37		mg/kg wet	5.000		87	30-130			
Surrogate: p-Terphenyl-d14	2.97		mg/kg wet	3.333		89	30-130			



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
<b>8270C Semi-Volatile Organic Compounds</b>										
<b>Batch C141808 - 3546</b>										
<b>LCS Dup</b>										
1,1-Biphenyl	2.75	0.333	mg/kg wet	3.333		82	40-140	8	30	
1,2,4-Trichlorobenzene	2.52	0.333	mg/kg wet	3.333		76	40-140	5	30	
1,2-Dichlorobenzene	2.64	0.333	mg/kg wet	3.333		79	40-140	3	30	
1,3-Dichlorobenzene	2.76	0.333	mg/kg wet	3.333		83	40-140	5	30	
1,4-Dichlorobenzene	2.67	0.333	mg/kg wet	3.333		80	40-140	5	30	
2,3,4,6-Tetrachlorophenol	3.21	1.67	mg/kg wet	3.333		96	30-130	15	30	
2,4,5-Trichlorophenol	3.00	0.333	mg/kg wet	3.333		90	30-130	6	30	
2,4,6-Trichlorophenol	3.22	0.333	mg/kg wet	3.333		96	30-130	7	30	
2,4-Dichlorophenol	2.74	0.333	mg/kg wet	3.333		82	30-130	4	30	
2,4-Dimethylphenol	2.88	0.333	mg/kg wet	3.333		87	30-130	5	30	
2,4-Dinitrophenol	2.64	1.67	mg/kg wet	3.333		79	30-130	8	30	
2,4-Dinitrotoluene	2.80	0.333	mg/kg wet	3.333		84	40-140	9	30	
2,6-Dinitrotoluene	2.84	0.333	mg/kg wet	3.333		85	40-140	8	30	
2-Chloronaphthalene	2.74	0.333	mg/kg wet	3.333		82	40-140	8	30	
2-Chlorophenol	2.76	0.333	mg/kg wet	3.333		83	30-130	5	30	
2-Methylnaphthalene	2.44	0.333	mg/kg wet	3.333		73	40-140	4	30	
2-Methylphenol	2.73	0.333	mg/kg wet	3.333		82	30-130	7	30	
2-Nitroaniline	2.62	0.333	mg/kg wet	3.333		78	40-140	11	30	
2-Nitrophenol	2.98	0.333	mg/kg wet	3.333		89	30-130	2	30	
3,3'-Dichlorobenzidine	2.39	0.667	mg/kg wet	3.333		72	40-140	3	30	
3+4-Methylphenol	5.16	0.667	mg/kg wet	6.667		77	30-130	6	30	
3-Nitroaniline	2.69	0.333	mg/kg wet	3.333		81	40-140	7	30	
4,6-Dinitro-2-Methylphenol	2.67	1.67	mg/kg wet	3.333		80	30-130	2	30	
4-Bromophenyl-phenylether	2.82	0.333	mg/kg wet	3.333		85	40-140	1	30	
4-Chloro-3-Methylphenol	2.65	0.333	mg/kg wet	3.333		79	30-130	7	30	
4-Chloroaniline	2.20	0.667	mg/kg wet	3.333		66	40-140	3	30	
4-Chloro-phenyl-phenyl ether	2.73	0.333	mg/kg wet	3.333		82	40-140	9	30	
4-Nitroaniline	2.72	0.333	mg/kg wet	3.333		81	40-140	2	30	
4-Nitrophenol	3.18	1.67	mg/kg wet	3.333		95	30-130	12	30	
Acenaphthene	2.65	0.333	mg/kg wet	3.333		79	40-140	8	30	
Acenaphthylene	2.78	0.333	mg/kg wet	3.333		83	40-140	9	30	
Acetophenone	2.83	0.667	mg/kg wet	3.333		85	40-140	5	30	
Aniline	2.66	0.667	mg/kg wet	3.333		80	40-140	7	30	
Anthracene	2.62	0.333	mg/kg wet	3.333		79	40-140	4	30	
Azobenzene	2.73	0.333	mg/kg wet	3.333		82	40-140	3	30	
Benzo(a)anthracene	2.68	0.333	mg/kg wet	3.333		80	40-140	3	30	
Benzo(a)pyrene	2.73	0.167	mg/kg wet	3.333		82	40-140	3	30	
Benzo(b)fluoranthene	2.73	0.333	mg/kg wet	3.333		82	40-140	2	30	
Benzo(g,h,i)perylene	2.49	0.333	mg/kg wet	3.333		75	40-140	6	30	
Benzo(k)fluoranthene	2.45	0.333	mg/kg wet	3.333		74	40-140	4	30	
Benzoic Acid	2.31	1.67	mg/kg wet	3.333		69	40-140	3	30	
Benzyl Alcohol	2.65	0.333	mg/kg wet	3.333		79	40-140	9	30	
bis(2-Chloroethoxy)methane	2.61	0.333	mg/kg wet	3.333		78	40-140	4	30	



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
<b>8270C Semi-Volatile Organic Compounds</b>										
<b>Batch C141808 - 3546</b>										
bis(2-Chloroethyl)ether	2.51	0.333	mg/kg wet	3.333		75	40-140	4	30	
bis(2-chloroisopropyl)Ether	2.60	0.333	mg/kg wet	3.333		78	40-140	8	30	
bis(2-Ethylhexyl)phthalate	2.86	0.333	mg/kg wet	3.333		86	40-140	4	30	
Butylbenzylphthalate	2.78	0.333	mg/kg wet	3.333		83	40-140	3	30	
Carbazole	2.69	0.333	mg/kg wet	3.333		81	40-140	3	30	
Chrysene	2.75	0.167	mg/kg wet	3.333		82	40-140	3	30	
Dibenzo(a,h)Anthracene	2.56	0.167	mg/kg wet	3.333		77	40-140	4	30	
Dibenzofuran	2.70	0.333	mg/kg wet	3.333		81	40-140	8	30	
Diethylphthalate	2.81	0.333	mg/kg wet	3.333		84	40-140	9	30	
Dimethylphthalate	2.70	0.333	mg/kg wet	3.333		81	40-140	6	30	
Di-n-butylphthalate	2.65	0.333	mg/kg wet	3.333		80	40-140	2	30	
Di-n-octylphthalate	2.83	0.333	mg/kg wet	3.333		85	40-140	2	30	
Fluoranthene	2.70	0.333	mg/kg wet	3.333		81	40-140	13	30	
Fluorene	2.78	0.333	mg/kg wet	3.333		84	40-140	10	30	
Hexachlorobenzene	2.62	0.167	mg/kg wet	3.333		79	40-140	4	30	
Hexachlorobutadiene	2.50	0.333	mg/kg wet	3.333		75	40-140	5	30	
Hexachlorocyclopentadiene	3.38	1.67	mg/kg wet	3.333		101	40-140	13	30	
Hexachloroethane	2.39	0.333	mg/kg wet	3.333		72	40-140	5	30	
Indeno(1,2,3-cd)Pyrene	2.66	0.333	mg/kg wet	3.333		80	40-140	4	30	
Isophorone	2.63	0.333	mg/kg wet	3.333		79	40-140	7	30	
Naphthalene	2.50	0.333	mg/kg wet	3.333		75	40-140	4	30	
Nitrobenzene	2.71	0.333	mg/kg wet	3.333		81	40-140	8	30	
N-Nitrosodimethylamine	2.91	0.333	mg/kg wet	3.333		87	40-140	5	30	
N-Nitroso-Di-n-Propylamine	2.22	0.333	mg/kg wet	3.333		67	40-140	6	30	
N-nitrosodiphenylamine	2.70	0.333	mg/kg wet	3.333		81	40-140	4	30	
Pentachlorophenol	2.95	1.67	mg/kg wet	3.333		89	30-130	4	30	
Phenanthrene	2.57	0.333	mg/kg wet	3.333		77	40-140	4	30	
Phenol	2.54	0.333	mg/kg wet	3.333		76	30-130	8	30	
Pyrene	2.62	0.333	mg/kg wet	3.333		79	40-140	3	30	
Pyridine	2.04	1.67	mg/kg wet	3.333		61	40-140	5	30	
Surrogate: 1,2-Dichlorobenzene-d4	2.42		mg/kg wet	3.333		73	30-130			
Surrogate: 2,4,6-Tribromophenol	4.28		mg/kg wet	5.000		86	30-130			
Surrogate: 2-Chlorophenol-d4	3.93		mg/kg wet	5.000		79	30-130			
Surrogate: 2-Fluorobiphenyl	2.81		mg/kg wet	3.333		84	30-130			
Surrogate: 2-Fluorophenol	4.01		mg/kg wet	5.000		80	30-130			
Surrogate: Nitrobenzene-d5	2.64		mg/kg wet	3.333		79	30-130			
Surrogate: Phenol-d6	3.98		mg/kg wet	5.000		80	30-130			
Surrogate: p-Terphenyl-d14	2.77		mg/kg wet	3.333		83	30-130			



*CERTIFICATE OF ANALYSIS*

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**Notes and Definitions**

- U Analyte included in the analysis, but not detected
- Q Calibration required quadratic regression (Q).
- ICV Initial Calibration Verification recovery is outside of control limit (ICV).
- D Diluted.
- C+ Continuing Calibration recovery is above upper control limit (C+).
- C- Continuing Calibration recovery is below lower control limit (C-).
- B+ Blank Spike recovery is above upper control limit (B+).
- B- Blank Spike recovery is below lower control limit (B-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report



**CERTIFICATE OF ANALYSIS**

Client Name: RIDEM - Office of Waste Management  
Client Project ID: PLF

ESS Laboratory Work Order: 1409279

**ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS**

**ENVIRONMENTAL**

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)  
A2LA Accredited: Testing Cert# 2864.01  
<http://www.a2la.org/scopepdf/2864-01.pdf>

Rhode Island Potable and Non Potable Water: LAI00179  
<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750  
[http://www.ct.gov/dph/lib/dph/environmental\\_health/environmental\\_laboratories/pdf/OutOfStateCommercialLaboratories.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf)

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002  
<http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls>

Massachusetts Potable and Non Potable Water: M-RI002  
<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424  
<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313  
<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006  
[http://datamine2.state.nj.us/DEP\\_OPRA/OpraMain/pi\\_main?mode=pi\\_by\\_site&sort\\_order=PI\\_NAMEA&Select+a+Site:=58715](http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715)

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752  
[http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory\\_accreditation\\_program/590095](http://www.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095)

**CHEMISTRY**

A2LA Accredited: Testing Cert # 2864.01  
Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)  
<http://www.A2LA.org/dirsearchnew/newsearch.cfm>

CPSC ID# 1141  
Lead Paint, Lead in Children's Metals Jewelry  
<http://www.cpsc.gov/cgi-bin/labapplist.aspx>



**Sample and Cooler Receipt Checklist**

Client: RIDEM  
 Client Project ID: \_\_\_\_\_  
 Shipped/Delivered Via: Client

ESS Project ID: 14090279  
 Date Project Due: 9/22/2014  
 Days For Project: 5 Day

**Items to be checked upon receipt:**

- |  |                               |   |   |
|--|-------------------------------|---|---|
| 1. Air Bill Manifest Present?          | <input type="checkbox"/> * No | 10. Are the samples properly preserved?   | <input type="checkbox"/> Yes  |
| Air No.:                               |                               | 11. Proper sample containers used?        | <input type="checkbox"/> Yes  |
| 2. Were Custody Seals Present?         | <input type="checkbox"/> No   | 12. Any air bubbles in the VOA vials?     | <input type="checkbox"/> N/A  |
| 3. Were Custody Seals Intact?          | <input type="checkbox"/> N/A  | 13. Holding times exceeded? <u>YES</u>    | <input type="checkbox"/> No <u>9/15/14</u>                          |
| 4. Is Radiation count < 100 CPM?       | <input type="checkbox"/> Yes  | 14. Sufficient sample volumes?            | <input type="checkbox"/> Yes  |
| 5. Is a cooler present?                | <input type="checkbox"/> Yes  | 15. Any Subcontracting needed?            | <input type="checkbox"/> No   |
| Cooler Temp: <u>4.6</u>                |                               | 16. Are ESS labels on correct containers? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Iced With: <u>Icepacks</u>             |                               | 17. Were samples received intact?         | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 6. Was COC included with samples?      | <input type="checkbox"/> Yes  | ESS Sample IDs: _____                     |   |
| 7. Was COC signed and dated by client? | <input type="checkbox"/> Yes  | Sub Lab: _____                            |   |
| 8. Does the COC match the sample       | <input type="checkbox"/> Yes  | Analysis: _____                           |   |
| 9. Is COC complete and correct?        | <input type="checkbox"/> Yes  | TAT: _____                                |   |

18. Was there need to call project manager to discuss status? If yes, please explain.  
11 vials frozen @ 1135 hrs 9/15/14  
COC = SS-01 Label = PL-9-12-14 -SS1 W/ 9/15/14  
VIALS NOT FROZEN WITHIN 48 hr HT W/ 9/15/14  
 Who was called?: \_\_\_\_\_ By whom? \_\_\_\_\_

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	4 oz Soil Jar	1	NP
1	Yes	40 ml - VOA	1	MeOH
1	Yes	40 ml - VOA	2	other
2	Yes	4 oz Soil Jar	1	NP
2	Yes	40 ml - VOA	1	MeOH
2	Yes	40 ml - VOA	2	other

Completed By: [Signature] Date/Time: 9/15/14 1105  
 Reviewed By: [Signature] Date/Time: 9/15/14 1125

# ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211

Tel. (401) 461-7181 Fax (401) 461-4486

www.esslaboratory.com

# CHAIN OF CUSTODY

Page 1 of 1

Turn Time \_\_\_\_\_ Standard \_\_\_\_\_ Other \_\_\_\_\_  
 If faster than 5 days, prior approval by laboratory is required # \_\_\_\_\_  
 State where samples were collected from:  
 MA RI CT NH NJ NY ME Other \_\_\_\_\_  
 Is this project for any of the following: USACE Other \_\_\_\_\_  
 MA-MCP Navy

Reporting Limits \_\_\_\_\_  
 Electronic Deliverable Yes \_\_\_\_\_ No \_\_\_\_\_  
 Format: Excel \_\_\_\_\_ Access \_\_\_\_\_ PDF \_\_\_\_\_ Other \_\_\_\_\_  
 ESS LAB PROJECT ID  
1409279

Co. Name	Project #	Project Name (20 Char. or less)	Write Required Analysis									
RI DEM/ Waste Mgmt		PLF										
Contact Person	Address	Zip										
Mark Penner	235 Promenade St.	02908										
City	State	PO#										
Providence	RI											
Telephone #	Fax #	Email Address										
401 222-2797	401 222-3812	mark.dennn@dem.ri.gov										
ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	VOC	S VOC	RCPA & Metals - Total
1	9/12/2014	15:30	X	S		SS-01		4	6	X	X	X
2	9/12/2014	15:30	X			SS-02		4	6	X	X	X

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present  Yes  No Internal Use Only  Yes  No NA:  Y  [ ] Pickup  [ ] Technicians \_\_\_\_\_

Seals Intact  Yes  No

Cooler Temp: 4.6 ice pack AWB 0115/14

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
<u>Mark Penner</u>	9/15/14 10:48	<u>Mark Penner</u>	9/15/14 10:48
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

Comments: \_\_\_\_\_

Relinquished by: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Relinquished by: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Received by: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Received by: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_

Preservation Code 1- NP, 2- HCl, 3- H<sub>2</sub>SO<sub>4</sub>, 4- HNO<sub>3</sub>, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAct, 9- \_\_\_\_\_

Sampled by: \_\_\_\_\_