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Additionally, access to the work zones was limited, and passage of trespassers/workers through the work zones during excavation was observed to be minimal. Exposure to dust by potential receptors was further limited as site workers (other than construction workers) within the RAM area consisted mostly of people within cars driving through the exterior parking areas.

2.3 GROUNDWATER MANAGEMENT

As discussed previously, groundwater was encountered during excavation activities completed for the installation of the wastewater tight tank adjacent to Building 1; however, it was determined that dewatering was not necessary to complete construction activities in this area. To date, the management of groundwater has not been necessary as part of this RAM.

Section 5

/6 3 2SLQDRQG &HUWLILL

The seal and signature of David Austin, the LSP of this RAM Status Report No. 1, is included in

Section 6

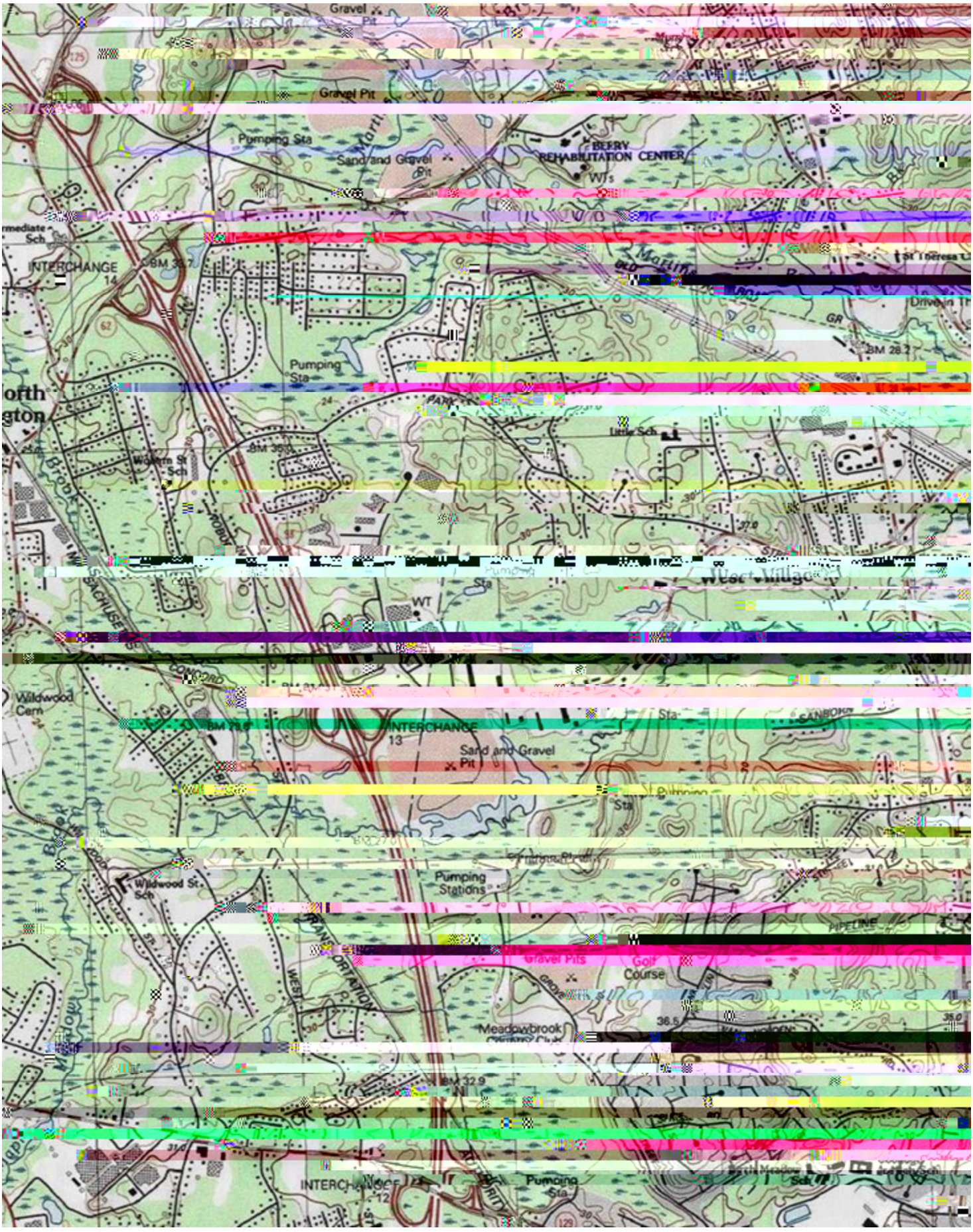
5 H I H U H Q F H

1. AECOM, 2017. Release Abatement Measure Plan, Former General Electric Facility, 50 Fordham Road, Wilmington, MA, RTN 3-0518. July 2017.

2. MassDEP, 1997. Real-Time Air Monitoring at Construction and Remediation Sites To Estimate Risks of Contaminated Dust Migration, October 1997.

3. MassDEP, 2014. Massachusetts Contingency Plan, 310 CMR 40.0000, December 31, 2007, Amended April 25, 2014 and June 20, 2014.

FIGURES


Gravel Pit
Gravel Pit
Pumping Sta
Sand and Gravel Pit
BERRY REHABILITATION CENTER
WTs
INTERCHANGE 14
BM 38.7
Pumping Sta
BM 28.2
Little Sch
Wilcox St Sch
BM 35.5
Pumping Sta
WT
West Village
Wildwood Cem
BM 29.6
INTERCHANGE 13
Sand and Gravel Pit
Pumping Sta
Wildwood St Sch
Pumping Stations
Gravel Pits
Golf Course
Meadowbrook
BM 32.9
INTERCHANGE 12
Pumping Sta

WETLANDS AREA

WETLANDS AREA

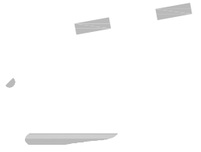


Table 2-1
Summary of Soil Analytical Results - RAM Stockpile Sampling
Former GE Facility, 50 Fordham Rd, Wilmington, MA

Stockpile ID	Soil Excavation Location	Stockpile Generation Date(s)	Approx. Volume (cy)	Stockpile Sample Date	Sample Results Received	Stockpile Sample ID	Sample Results	Soil End Use	Final Soil Location	Stockpile Discrete Sample Screening (ranges in ppm)
1	Swale near GZA-102 wells	7/6/17-7/10/17	240	7/10/2017	7/15/2017	SP1_071017-1	All < S1	Re-use on-site	Southern re-use area	5 samples: (0.0 - 0.2)
2	Drainage trench by loading dock	7/10/2017	12	7/10/2017	7/15/2017	SP2_071017-1	All < S1	Re-use on-site	Southern re-use area	5 samples: (0.2 - 2.3)
3	Southern area of swales east of EPL	7/11/17 - 7/18/17	200	7/18/2017	7/24/2017	SP3_071817-1	All < S1	Re-use on-site	Northern re-use area	5 samples: (0.0 - 0.1)
4	Tight tank soils 0-5 ft bgs	7/12/2017	20	7/12/2017	7/19/2017	SP4_071217-1	All < S1	Re-use on-site	Northern re-use area	5 samples: (0.0 - 0.1)
5	Tight tank soils 5-8.5 ft bgs	7/12/2017	20	7/12/2017	7/19/2017	SP5_071217-1	All < S1	Re-use on-site	Northern re-use area	5 samples: (13.2 - 335.8)
6	Southern middle area of swales east of EPL	7/18/17-7/26/17	200	7/26/2017	8/2/2017	SP6_072617-1	All < S1	Re-use on-site	Southern re-use area and lot east of Building 1	5 samples: (all 0.0)

				0.994	< 0.328	< 0.342	< 0.591	**19**	< 0.543	< 0.288			
Total Metals SW846 6010C (mg/kg)													
Arsenic	20	20	20	**7.44**	**8.16**	**8.34**	**7.2**	**7.72**	**10.2**	**11.8**			
Chromium	100	100	100	**9.89**	**10.9**	**13**	**17.7**	**12.3**	**10.7**	**21.1**			
Copper	NE	NE	NE	**6.09**	**6.25**	**7.16**	**11.9**	**10.9**	**9.27**	**8.52**			
Lead	200	200	200	**11.8**	**6.17**	**10.8**	**10.1**	**10.4**	**15**	**7.56**			
Zinc	1000	1000	1000	**34.5**	**19.5**	**21.9**	**44.8**	**25.4**	**20.4**	**20.9**			
Total Cyanide SW9010C													
Cyanide	30	30	30	< 0.54	< 0.53	<0.54	<0.53	<0.46	<0.55	<0.56			
VOC SW846 8260C (µg/kg)													
1,1,2-Trichlorotrifluoroethane (Freon 113)	NE	NE	NE	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
Acetone	6000	50000	400000	< 46.4	< 48.2	< 50.0	< 76.6	< 66.8	< 49.0	< 55.1			
Benzene	2000	40000	40000	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
Bromobenzene	NE	NE	NE	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
Bromochloromethane	NE	NE	NE	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 9.64	< 10.0	< 15.3	< 13.4	
Dibromochloromethane						5	30	20000	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68
1,2-Dibromoethane (EDB)						100	100	1000	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68
Dibromomethane						NE	NE	NE	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68
1,2-Dichlorobenzene						9000	100000	300000					
				< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
1,3-Dichlorobenzene	3000	100000	100000	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
1,4-Dichlorobenzene	700	1000	80000	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
Dichlorodifluoromethane (Freon12)	NE	NE	NE	< 9.29	< 9.64	< 10.0	< 15.3	< 13.4	< 9.80	< 11.0			
1,1-Dichloroethane	400	9000	500000	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
1,2-Dichloroethane	100	100	20000	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
1,1-Dichloroethene	3000	40000	500000	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
cis-1,2-Dichloroethene	300	100	100000	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
trans-1,2-Dichloroethene	1000	1000	500000	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
1,2-Dichloropropane	100	100	30000	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
1,3-Dichloropropane	NE	NE	NE	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
2,2-Dichloropropane	NE	NE	NE	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
1,1-Dichloropropene	NE	NE	NE	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
cis-1,3-Dichloropropene	NE	NE	NE	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
trans-1,3-Dichloropropene	NE	NE	NE	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
Ethylbenzene	40000	500000	500000			589 >>1 (0TJ EMC </P <8							
1,1,2,2-Tetrachloroethane											5	20	10
Tetrachloroethene											1000	10000	30
Toluene											30000	500000	500
1,2,3-Trichlorobenzene											NE	NE	N
1,2,4-Trichlorobenzene											2000	6000	700
1,1,1-Trichloroethane											30000	500000	500
1,1,2-Trichloroethane											100	2000	40
Trichloroethene											300	300	30
Trichlorofluoromethane (Freon 11)											NE	NE	N
1,2,3-Trichloropropane											NE		
		NE	NE	< 4.64	< 4.82	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
1,2,4-Trimethylbenzene	NE	NE	NE	< 4.64	**18.6**	< 5.00	< 7.66	< 6.68	< 4.90	< 5.51			
1,3,5-Trimethylbenzene	NE	NE	NE	< 4.64	**5.02**	< 5.00	< 7.66	< 6.68	< 5.00				

Table 2-2
Summary of Soil Analytical Results - RAM Stockpile Sampling
Former GE Facility, 50 Fordham Rd, Wilmington, MA

Client ID:			
Lab ID:			
Matrix:			
Sample Date:			
MADEP EPH 5/2004 R (mg/kg dry)			
C9-C18 Aliphatic Hydrocarbons	1000	1000	1000
C19-C36 Aliphatic Hydrocarbons	3000	3000	3000
C11-C22 Aromatic Hydrocarbons	1000	1000	1000
MADEP VPH 5/2004 Rev. 1.1 (mg/kg)			
C5-C8 Aliphatic Hydrocarbons	100	100	100
C9-C12 Aliphatic Hydrocarbons	1000	1000	1000
C9-C10 Aromatic Hydrocarbons	100	100	100
Total Metals SW846 6010C (mg/kg)			
Arsenic	20	20	20
Chromium	100	100	100
Copper	NE	NE	NE
Lead	200	200	200
Zinc	1000	1000	1000
Total Cyanide SW9010C			

APPENDIX A – LABORATORY ANALYTICAL REPORTS

☐ Final Report
☑ Revised Report

Report Date:
20-Jul-17 14:32

Sample Summary

Work Order : SC36812

Project: LMC-Wilmington- 40 Fordham Rd. - MA

Project Number: 60478638.5.01

Laboratory ID	Client Sample ID

The following outlines the condition of all lVPH samplnes cotalind withins tis2 rport upionlaboratory2 rceiptl.lMatriceslCcotalinrsl

MassDEP Analytical Protocol Certification Form

Laboratory Name: Eurofins Spectrum Analytical, Inc.			Project #: 60478638.5.01		
Project Location: LMC-Wilmington - 40 Fordham Rd. - MA			RTN:		
This form provides certifications for the following data set			SC36812-01 through SC36812-03		
Matrices: Methanol/DI Soil					
CAM Protocol					
8260 VOC CAM II A	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	8082 PCB CAM V A			

CASE NARRATIVE :

LPTj 0.000651451 Tc 24.6274 0 Td (Thas bpublishd asl 3strof analytictl m

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

MADEP EPH 5/2004 R

Laboratory Control Samples:

1711803 BSD

C19-C36 Aliphatic Hydrocarbons RPD 53% (25%) is outside individual acceptance criteria.

C9-C18 Aliphatic Hydrocarbons RPD 65% (25%) is outside individual acceptance criteria.

SW846 8260C

Calibration:

1707022

Analyte quantified by quadratic equation type calibration.

1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
2-Hexanone (MBK)
4-Isopropyltoluene
Bromoform
cis-1,3-Dichloropropene
Ethyl tert-butyl ether
Naphthalene
n-Butylbenzene
o-Xylene
sec-Butylbenzene
Styrene
Tert-amyl methyl ether
-Ss 1 eth26 Tc 18.674mples:

SW846 8260C

Samples:

S706203-CCV1

This affected the following samples:

1711813-BLK1
1711813-BS1
1711813-BSD1
SP2_071017-1
TB-071017

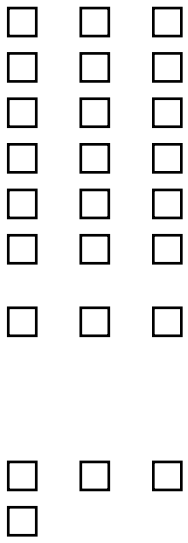
S706238-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

1,1,1-Trichloroethane (22.1%)
1,1-Dichloropropene (21.0%)
2,2-Dichloropropane (29.4%)
Bromomethane (32.0%)
Carbon tetrachloride (24.5%)
n-Propylbenzene (23.0%)
Trichlorofluoromethane (Freon 11) (26.3%)

This affected the following samples:

1711929-BLK1
1711929-BS1
1711929-BSD1
SP1_071017-1



Summary of Hits

Lab ID: SC36812-02 Client ID: SP2_071017-1

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Unadjusted C9-C12 Aliphatic Hydrocarbons	0.619	D	0.328	mg/kg	MADEP VPH 5/2004 Rev. 1.1
Arsenic	8.16		1.57	mg/kg	SW846 6010C
Chromium	10.9		1.05	mg/kg	SW846 6010C
Copper	6.25		1.05	mg/kg	SW846 6010C
Lead	6.17		1.57	mg/kg	SW846 6010C
Zinc	19.5		1.05	mg/kg	SW846 6010C
1,2,4-Trimethylbenzene	18.6		4.82	µg/kg	SW846 8260C
1,3,5-Trimethylbenzene	5.02		4.82	µg/kg	SW846 8260C
m,p-Xylene	11.6		9.64	µg/kg	SW846 8260C
Naphthalene	11.9		4.82	µg/kg	SW846 8260C
o-Xylene			4.82		SW846 8260C

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
TB-071017	60478638.5.01	Methanol/DI	10-Jul-17 13:00	11-Jul-17
SC36812-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260 Prepared by method SW846 5035A Soil (low level)													
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	< 5.00		µg/kg wet	5.00	2.54	1	SW846 8260C	12-Jul-17	12-Jul-17	GMA	1711813	
67-64-1	Acetone	< 50.0		µg/kg wet	50.0	20.0	1	"	"	"	"	"	
71-43-2	Benzene	< 5.00		µg/kg wet	5.00	1.32	1	"	"	"	"	"	
108-86-1	Bromobenzene	< 5.00		µg/kg wet	5.00	1.34	1	"	"	"	"	"	
74-97-5	Bromochloromethane	< 5.00		µg/kg wet	5.00	2.52	1	"	"	"	"	"	
75-27-4	Bromodichloromethane	< 5.00		µg/kg wet	5.00	3.34	1	"	"	"	"	"	
75-25-2	Bromoform	< 5.00		µg/kg wet	5.00	4.77	1	"	"	"	"	"	
74-83-9	Bromomethane	< 10.0		µg/kg wet	10.0	4.52	1	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	< 10.0		µg/kg wet	10.0	8.94	1	"	"	"	"	"	
104-51-8	n-Butylbenzene	< 5.00		µg/kg wet	5.00	1.43	1	"	"	"	"	"	
135-98-8	sec-Butylbenzene	< 5.00		µg/kg wet	5.00	0.91	1	"	"	"	"	"	
98-06-6	tert-Butylbenzene	< 5.00		µg/kg wet	5.00	1.12	1	"	"	"	"	"	
75-15-0	Carbon disulfide	< 10.0		µg/kg wet	10.0	3.20	1	"	"	"	"	"	
56-23-5	Carbon tetrachloride	< 5.00		µg/kg wet	5.00	4.09	1	"	"	"	"	"	
108-90-7	Chlorobenzene	< 5.00		µg/kg wet	5.00	1.56	1	"	"	"	"	"	
75-00-3	Chloroethane	< 10.0		µg/kg wet	10.0	2.78	1	"	"	"	"	"	
67-66-3	Chloroform	< 5.00		µg/kg wet	5.00	2.68	1	"	"	"	"	"	
74-87-3	Chloromethane	< 10.0		µg/kg wet	10.0	2.06	1	"	"	"	"	"	
95-49-8	2-Chlorotoluene	< 5.00		µg/kg wet	5.00	1.24	1	"	"	"	"	"	
106-43-4	4-Chlorotoluene	< 5.00		µg/kg wet	5.00	1.18	1	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	< 10.0		µg/kg wet	10.0	7.22	1	"	"	"	"	"	
124-48-1	Dibromochloromethane	< 5.00		µg/kg wet	5.00	3.39	1	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	< 5.00		µg/kg wet	5.00	3.36	1	"	"	"	"	"	
74-95-3	Dibromomethane	< 5.00		µg/kg wet	5.00	2.60	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	< 5.00		µg/kg wet	5.00	1.30	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	< 5.00		µg/kg wet	5.00	1.08	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	< 5.00		µg/kg wet	5.00	1.48	1	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	< 10.0		µg/kg wet	10.0	1.90	1	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	< 5.00		µg/kg wet	5.00	1.31	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 5.00		µg/kg wet	5.00	1.79	1	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	< 5.00		µg/kg wet	5.00	2.62	1	"	"	"	"	"	
1-00		< 5.00		µg/kg wet	5.00			"	"	"			

1.34 1 " "

" "

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
TB-071017 SC36812-01	60478638.5.01	Methanol/DI	10-Jul-17 13:00	11-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.

Volatile Organic Compounds

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP2_071017-1 SC36812-02	60478638.5.01	Soil	10-Jul-17 13:30	11-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260							Initial weight: 5.87 g						
87-68-3	Hexachlorobutadiene	< 4.82		µg/kg dry	4.82	2.42	1	SW846 8260C	12-Jul-17	12-Jul-17	GMA	1711813	
591-78-6	2-Hexanone (MBK)	< 9.64		µg/kg dry	9.64	5.91	1	"	"	"	"	"	
98-82-8	Isopropylbenzene	< 4.82		µg/kg dry	4.82	0.95	1	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	< 4.82		µg/kg dry	4.82	1.04	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 4.82		µg/kg dry	4.82	1.77	1	"	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	< 9.64		µg/kg dry	9.64	2.48	1	"	"	"	"	"	
75-09-2	Methylene chloride	< 9.64		µg/kg dry	9.64	1.91	1	"	"	"	"	"	
91-20-3	Naphthalene	11.9		µg/kg dry	4.82	2.87	1	"	"	"	"	"	
103-65-1	n-Propylbenzene	< 4.82		µg/kg dry	4.82	0.78	1	"	"	"	"	"	
100-42-5	Styrene	< 4.82		µg/kg dry	4.82	0.97	1	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	< 4.82		µg/kg dry	4.82	4.10	1	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	< 4.82		µg/kg dry	4.82	4.08	1	"	"	"	"	"	
127-18-4	Tetrachloroethene	< 4.82		µg/kg dry	4.82	1.65	1	"	"	"	"	"	
108-88-3	Toluene	< 4.82		µg/kg dry	4.82	1.56	1	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	< 4.82		µg/kg dry	4.82	1.69	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	< 4.82		µg/kg dry	4.82	3.55	1	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	< 4.82		µg/kg dry	4.82	1.60	1	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	< 4.82		µg/kg dry	4.82	3.49	1	"	"	"	"	"	
79-01-6	Trichloroethene	< 4.82		µg/kg dry	4.82	1.32	1	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	< 4.82		µg/kg dry	4.82	2.60	1	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	< 4.82		µg/kg dry	4.82	3.61	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	18.6		µg/kg dry	4.82	1.17	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	5.02		µg/kg dry	4.82	0.83	1	"	"	"	"	"	
75-01-4	Vinyl chloride	< 4.82		µg/kg dry	4.82	1.63	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	11.6		µg/kg dry	9.64	0.87	1	"	"	"	"	"	
95-47-6	o-Xylene	6.32		µg/kg dry	4.82	1.35	1	"	"	"	"	"	
109-99-9	Tetrahydrofuran	< 9.64		µg/kg dry	9.64	7.59	1	"	"	"	"	"	
60-29-7	Ethyl ether	< 4.82		µg/kg dry	4.82	4.37	1	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	< 4.82		µg/kg dry	4.82	1.61	1	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	< 4.82		µg/kg dry	4.82	2.60	1	"	"	"	"	"	
108-20-3	Di-isopropyl ether	< 4.82		µg/kg dry	4.82	0.90	1	"	"	"	"	"	
123-91-1	1,4-Dioxane	< 96.4		µg/kg dry	96.4	83.7	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	4-Bromofluorobenzene	100			70-130 %			"	"	"	"	"	
2037-26-5	Toluene-d8	102			70-130 %			"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	115			70-130 %			"	"	"	"	"	
1868-53-7	Dibromofluoromethane	101			70-130 %			"	"	"	"	"	
MADEP VPH Carbon Ranges Prepared by method VPH - EPA 5035A Soil							Initial weight: 12.7 g						
	C5-C8 Aliphatic Hydrocarbons	< 4.92	D	mg/kg dry	4.92	0.191	50	MADEP VPH 5/2004 Rev. 1.1	13-Jul-17	13-Jul-17	SD	1711913	
	C9-C12 Aliphatic Hydrocarbons	< 0.328	D	mg/kg dry	0.328	0.137	50	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP2_071017-1 SC36812-02	60478638.5.01	Soil	10-Jul-17 13:30	11-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
MADEP VPH Carbon Ranges													
						Initial weight: 12.7 g							
	C9-C10 Aromatic Hydrocarbons	< 0.328	D	mg/kg dry	0.328	0.0398	50	MADEP VPH 5/2004 Rev. 1.1	13-Jul-17	13-Jul-17	SD	1711913	
	Unadjusted C5-C8 Aliphatic Hydrocarbons	< 4.92	D	mg/kg dry	4.92	0.153	50	"	"	"	"	"	
	Unadjusted C9-C12 Aliphatic Hydrocarbons	0.619	D	mg/kg dry	0.328	0.174	50	"	"	"	"	"	
Surrogate recoveries:													
615-59-8	2,5-Dibromotoluene (FID)	91			70-130 %			"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	81			70-130 %			"	"	"	"	"	
Extractable Petroleum Hydrocarbons													
MADEP EPH Carbon Ranges													
Prepared by method SW846 3546													
	C9-C18 Aliphatic Hydrocarbons	< 10.4		mg/kg dry	10.4	1.46	1	MADEP EPH 5/2004 R	12-Jul-17	14-Jul-17	EDT	1711803	
	C19-C36 Aliphatic Hydrocarbons	< 10.4		mg/kg dry	10.4	1.47	1	"	"	"	"	"	
	C11-C22 Aromatic Hydrocarbons	< 10.4		mg/kg dry	10.4	4.98	1	"	"	"	"	"	
	Unadjusted C11-C22 Aromatic Hydrocarbons	< 10.4		mg/kg dry	10.4	4.98	1	"	"	"	"	"	
Surrogate recoveries:													
3386-33-2	1-Chlorooctadecane	89			40-140 %			"	"	"	"	"	
84-15-1	Ortho-Terphenyl	73			40-140 %			"	"	"	"	"	
321-60-8	2-Fluorobiphenyl	79			40-140 %			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
Prepared by method SW846 3051A													
7440-38-2	Arsenic	8.16		mg/kg dry	1.57	0.199	1	SW846 6010C	12-Jul-17	12-Jul-17	JMW/TBC	1711786	
7440-47-3	Chromium	10.9		mg/kg dry	1.05	0.139	1	"	"	"	"	"	
7440-50-8	Copper	6.25		mg/kg dry	1.05	0.251	1	"	"	13-Jul-17	"	"	
7439-92-1	Lead	6.17		mg/kg dry	1.57	0.222	1	"	"	12-Jul-17	"	"	
7440-66-6	Zinc	19.5		mg/kg dry	1.05	0.809	1	"	"	"	"	"	
General Chemistry Parameters													
	% Solids	94.3		%			1	SM2540 G (11) Mod.	12-Jul-17	12-Jul-17	BD	1711828	

SubcontractedAnalyses

Analysis performed by Phoenix Envi

Sample Identification	Matrix	Collection Date/Time
SP1_071017-1		10-Jul-17 14:50

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP1_071017-1 SC36812-03	60478638.5.01	Soil	10-Jul-17 14:50	11-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
MADEP VPH Carbon Ranges													
					Initial weight: 11.77 g								
	C9-C10 Aromatic Hydrocarbons	0.994	D	mg/kg dry	0.348	0.0423	50	MADEP VPH 5/2004 Rev. 1.1	13-Jul-17	13-Jul-17	SD	1711913	
	Unadjusted C5-C8 Aliphatic Hydrocarbons	< 5.22	D	mg/kg dry	5.22	0.162	50	"	"	"	"	"	
	Unadjusted C9-C12 Aliphatic Hydrocarbons	2.58	D	mg/kg dry	0.348	0.185	50	"	"	"	"	"	
Surrogate recoveries:													
615-59-8	2,5-Dibromotoluene (FID)	87			70-130 %			"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	77			70-130 %			"	"	"	"	"	
Extractable Petroleum Hydrocarbons													
MADEP EPH Carbon Ranges													
Prepared by method SW846 3546													
	C9-C18 Aliphatic Hydrocarbons	< 10.4		mg/kg dry	10.4	1.45	1	MADEP EPH 5/2004 R	12-Jul-17	14-Jul-17	EDT	1711803	
	C19-C36 Aliphatic Hydrocarbons	19.5		mg/kg dry	10.4	1.47	1	"	"	"	"	"	
	C11-C22 Aromatic Hydrocarbons	16.9		mg/kg dry	10.4	4.96	1	"	"	"	"	"	
	Unadjusted C11-C22 Aromatic Hydrocarbons	16.9		mg/kg dry	10.4	4.96	1	"	"	"	"	"	
Surrogate recoveries:													
3386-33-2	1-Chlorooctadecane	84			40-140 %			"	"	"	"	"	
84-15-1	Ortho-Terphenyl	89			40-140 %			"	"	"	"	"	
321-60-8	2-Fluorobiphenyl	102			40-140 %			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
Prepared by method SW846 3051A													
7440-38-2	Arsenic	7.44		mg/kg dry	1.56	0.197	1	SW846 6010C	12-Jul-17	12-Jul-17	JMW/TBC	1711786	
7440-47-3	Chromium	9.89		mg/kg dry	1.04	0.138	1	"	"	"	"	"	
7440-50-8	Copper	6.09		mg/kg dry	1.04	0.249	1	"	"	13-Jul-17	"	"	
7439-92-1	Lead	11.8		mg/kg dry	1.56	0.220	1	"	"	12-Jul-17	"	"	
7440-66-6	Zinc	34.5		mg/kg dry	1.04	0.804	1	"	"	"	"	"	
General Chemistry Parameters													
	% Solids	95.0		%			1	SM2540 G (11) Mod.	12-Jul-17	12-Jul-17	BD	1711828	
Subcontracted Analyses													
Analysis performed by Phoenix Environmental Labs, Inc. * - CT007													
	Percent Solid	93		%			1	SW846-%Solid		12-Jul-17 10:47	MACT0	'[none]'	
Prepared by method 393461-													
Analysis performed by Phoenix Environmental Labs, Inc. * - CT007													
57-12-5	Total Cyanide (SW9010C Distill.)	< 0.54		mg/Kg	0.54	0.54	1	SW9012B	12-Jul-17	13-Jul-17 07:18	MACT0	393461A	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADEP VPH 5/2004 Rev. 1.1										
Batch 1711913 -VPH - EPA 5035A Soil										
Blank (17 11913-BLK1)							Prepared & Analyzed: 13-Jul-17			
C5-C8 Aliphatic Hydrocarbons	< 3.75	D	mg/kg wet	3.75						
C9-C12 Aliphatic Hydrocarbons	< 0.250	D	mg/kg wet	0.250						
C9-C10 Aromatic Hydrocarbons	< 0.250	D	mg/kg wet	0.250						
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 3.75	D	mg/kg wet	3.75						
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.250	D	mg/kg wet	0.250						
Surrogate: 2,5-Dibromotoluene (FID)	48.6		µg/kg		50.0		97	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	42.3		µg/kg		50.0		85	70-130		
LCS (1711913-BS1)							Prepared & Analyzed: 13-Jul-17			
C5-C8 Aliphatic Hydrocarbons	77.5	D	µg/kg		60.0		129	70-130		
C9-C12 Aliphatic Hydrocarbons	57.2	D	µg/kg		60.0		95	70-130		
C9-C10 Aromatic Hydrocarbons	23.2	D	µg/kg		20.0		116	70-130		
Unadjusted C5-C8 Aliphatic Hydrocarbons	237	D	µg/kg		200		118	70-130		
Unadjusted C9-C12 Aliphatic Hydrocarbons	80.4	D	µg/kg		80.0		101	70-130		
Surrogate: 2,5-Dibromotoluene (FID)	52.5		µg/kg		50.0		105	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	46.2		µg/kg		50.0		92	70-130		
LCS Dup (17 11913-BSD1)							Prepared & Analyzed: 13-Jul-17			
C5-C8 Aliphatic Hydrocarbons	72.7	D	µg/kg		60.0		121	70-130	6	25
C9-C12 Aliphatic Hydrocarbons	60.1	D	µg/kg		60.0		100	70-130	5	25
C9-C10 Aromatic Hydrocarbons	22.1	D	µg/kg		20.0		110	70-130	5	25
Unadjusted C5-C8 Aliphatic Hydrocarbons	224	D	µg/kg		200		112	70-130	6	25
Unadjusted C9-C12 Aliphatic Hydrocarbons	82.1	D	µg/kg		80.0		103	70-130	2	25
Surrogate: 2,5-Dibromotoluene (FID)	50.9		µg/kg		50.0		102	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	45.0		µg/kg		50.0		90	70-130		
SW846 8260C										
Batch 1711813 - SW846 5035										

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1711813 - SW846 5035 Soil (low level)										
Blank (17 11813-BLK1)						Prepared & Analyzed: 12-Jul-17				
Dibromochloromethane	< 5.00		µg/kg wet	5.00						

Volatile Organic Compounds - Quality Control

	Result	Units	Spike Level	Source Result

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1711813 - SW846 5035 Soil (low level)										
LCS Dup (1711813-BSD1)					Prepared & Analyzed: 12-Jul-17					
Chloromethane	21.1		µg/kg		20.0		106	70-130	4	30
2-Chlorotoluene	21.6		µg/kg		20.0		108	70-130	0.7	30
4-Chlorotoluene	20.4		µg/kg		20.0		102	70-130	2	30
1,2-Dibromo-3-chloropropane	18.6		µg/kg		20.0		93	70-130	1	30
Dibromochloromethane	19.7		µg/kg		20.0		98	70-130	0.1	30
1,2-Dibromoethane (EDB)	20.8		µg/kg		20.0		104	70-130	2	30
Dibromomethane	21.0		µg/kg		20.0		105	70-130	3	30
1,2-Dichlorobenzene	19.8		µg/kg		20.0		99	70-130	1	30
1,3-Dichlorobenzene	21.1		µg/kg		20.0		106	70-130	2	30
1,4-Dichlorobenzene	20.4		µg/kg		20.0		102	70-130	1	30
Dichlorodifluoromethane (Freon12)	21.9		µg/kg		20.0		110	70-130	2	30
1,1-Dichloroethane	21.4		µg/kg		20.0		107	70-130	2	30
1,2-Dichloroethane	20.1		µg/kg		20.0		101	70-130	4	30
1,1-Dichloroethene	21.6		µg/kg		20.0		108	70-130	3	30
cis-1,2-Dichloroethene	21.4		µg/kg		20.0		107	70-130	1	30
trans-1,2-Dichloroethene	21.3		µg/kg		20.0		106	70-130	0.7	30
1,2-Dichloropropane	21.0		µg/kg		20.0		105	70-130	1	30
1,3-Dichloropropane	20.3		µg/kg		20.0		101	70-130	0.5	30
2,2-Dichloropropane	21.2		µg/kg		20.0		106	70-130	3	30
1,1-Dichloropropene	21.6		µg/kg		20.0		108	70-130	0.6	30
cis-1,3-Dichloropropene	18.7		µg/kg		20.0		94	70-130	0.7	30
trans-1,3-Dichloropropene	21.6		µg/kg		20.0		108	70-130	0.5	30
Ethylbenzene	21.4		µg/kg		20.0		107	70-130	2	30
	19.4		µg/kg		20.0			70-130	0.8	30

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1711813 - SW846 5035 Soil (low level)										
LCS Dup (1711813-BSD1)					Prepared & Analyzed: 12-Jul-17					
	22.0		µg/kg		20.0		110	70-130	2	30

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1711929 - SW846 5035 Soil (low level)										
Blank (1711										

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1711929 - SW846 5035 Soil (low level)										
LCS Dup (1711929-BSD1)					Prepared & Analyzed: 13-Jul-17					
2,2-Dichloropropane	24.9		µg/kg		20.0		125	70-130	4	30
1,1-Dichloropropene	23.1		µg/kg		20.0		116	70-130	6	30
cis-1,3-Dichloropropene	20.1		µg/kg		20.0		100	70-130	0.1	30
trans-1,3-Dichloropropene	23.0		µg/kg		20.0		115	70-130	3	30
Ethylbenzene	22.4		µg/kg		20.0		112	70-130	2	30
Hexachlorobutadiene	21.2		µg/kg		20.0		106	70-130	12	30
2-Hexanone (MBK)	20.5		µg/kg		20.0		103	70-130	3	30
Isopropylbenzene	22.1		µg/kg		20.0		111	70-130	3	30
4-Isopropyltoluene	21.4		µg/kg		20.0		107	70-130	6	30
Methyl tert-butyl ether	21.1		µg/kg		20.0		105	70-130	0.3	30
4-Methyl-2-pentanone (MIBK)	19.9		µg/kg		20.0		100	70-130	2	30
Methylene chloride	21.2		µg/kg		20.0		106	70-130	1	30
Naphthalene	21.2		µg/kg		20.0		106	70-130	1	30
n-Propylbenzene	23.4		µg/kg		20.0		117	70-130	5	30
Styrene	20.3		µg/kg		20.0		102	70-130	1	30
1,1,1,2-7	18.2		µg/kg		20.0		91.0	70-134	13	30
1,1,2,2-7	21.4		µg/kg		20.0		107	70-130	0.3	30
1,2,3-Trichlorobenzene	21.2		µg/kg		20.0		106	70-130	2	30
1,2,3-Trichloropropane	21.2		µg/kg		20.0		106	70-130	1	30
1,2,4-Trichlorobenzene	21.2		µg/kg		20.0		106	70-130	1	30
1,2,4-Trimethylbenzene	22.1		µg/kg		20.0		111	70-130	3	30
1,3,5-Trimethylbenzene	22.1		µg/kg		20.0		111	70-130	3	30
1,3-Dichlorobenzene	21.2		µg/kg		20.0		106	70-130	1	30
1,3-Dichloropropane	21.2		µg/kg		20.0		106	70-130	1	30
1,4-Dichlorobenzene	21.2		µg/kg		20.0		106	70-130	1	30
2-Chlorotoluene	21.2		µg/kg		20.0		106	70-130	1	30
4-Chlorotoluene	21.2		µg/kg		20.0		106	70-130	1	30
Acetone	21.2		µg/kg		20.0		106	70-130	1	30
Benzene	21.2		µg/kg		20.0		106	70-130	1	30
Bromobenzene	21.2		µg/kg		20.0		106	70-130	1	30
Bromochloromethane	21.2		µg/kg		20.0		106	70-130	1	30
Bromodichloromethane	21.2		µg/kg		20.0		106	70-130	1	30
Bromoform	21.2		µg/kg		20.0		106	70-130	1	30
Bromomethane	21.2		µg/kg		20.0		106	70-130	1	30
Carbon disulfide	21.2		µg/kg		20.0		106	70-130	1	30
Carbon tetrachloride	21.2		µg/kg		20.0		106	70-130	1	30
Chlorobenzene	21.2		µg/kg		20.0		106	70-130	1	30
Chloroethane	21.2		µg/kg		20.0		106	70-130	1	30
Chloroform	21.2		µg/kg		20.0		106	70-130	1	30
Chloromethane	21.2		µg/kg		20.0		106	70-130	1	30
Dibromochloromethane	21.2		µg/kg		20.0		106	70-130	1	30
Dibromomethane	21.2		µg/kg		20.0		106	70-130	1	30
Dichlorodifluoromethane	21.2		µg/kg		20.0		106	70-130	1	30
Ethyl methacrylate	21.2		µg/kg		20.0		106	70-130	1	30
Hexane	21.2		µg/kg		20.0		106	70-130	1	30
Methyl acrylonitrile	21.2		µg/kg		20.0		106	70-130	1	30
Methyl methacrylate	21.2		µg/kg		20.0		106	70-130	1	30
Propionitrile	21.2		µg/kg		20.0		106	70-130	1	30
Tetrachloroethene	21.2		µg/kg		20.0		106	70-130	1	30
Toluene	21.2		µg/kg		20.0		106	70-130	1	30
Trichloroethene	21.2		µg/kg		20.0		106	70-130	1	30
Trichlorofluoromethane	21.2		µg/kg		20.0		106	70-130	1	30
Vinyl acetate	21.2		µg/kg		20.0		106	70-130	1	30
Vinyl chloride	21.2		µg/kg		20.0		106	70-130	1	30
Xylenes, total	66.4		µg/kg		60.0		111	70-130	3	30
Surrogate: 1,2-Dichloroethane-d4	21.4		µg/kg		20.0		107	70-130		
Surrogate: 4-Bromofluorobenzene	20.8		µg/kg		20.0		104	70-130		
Surrogate: Toluene-d8	21.2		µg/kg		20.0		106	70-130		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADEP EPH 5/2004 R										
Batch 1711803 - SW846 3546										
Blank (17 11803-BLK1)										

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 6010C										
Batch 17111786 - SW846 3051A										
Blank (17 11786-BLK1)					Prepared: 12-Jul-17 Analyzed: 13-Jul-17					
Copper	< 0.944		mg/kg wet	0.944						
Arsenic	< 1.42		mg/kg wet	1.42						
Che827miumj -0.000343323 Tc 285.1 0 Td (0.944)Tj 0.000406388 Tc -46.45 0 Td (mg/kg wet)Tj 0.000106176 Tc -68.55 0 Td (< 1.42)Tj -0.000307719 Tc /R 1.42										

Analyte(s)	Average RF	CCRF	% D	Limit
Batch S706301				
Calibration Check (S706301-CCV1)				
C9-C18 Aliphatic Hydrocarbons	221358.9	235455.8	17.9	25
C19-C36 Aliphatic Hydrocarbons	199237.2	157321.2	0.1	25
Unadjusted C11-C22 Aromatic Hydrocarbons	188677	208506.5	21.8	25
Calibration Check (S706301-CCV2)				
C9-C18 Aliphatic Hydrocarbons	221358.9	232810.9	16.6	25
C19-C36 Aliphatic Hydrocarbons	199237.2	145517.2	-7.6	25
Unadjusted C11-C22 Aromatic Hydrocarbons	188677	175542.8	2.7	25

The following list indicates the date and time low-level VOC soil/sediment samples were placed in the freezer at the lab:

SC36812-02	SP2_071017-1	7/11/2017 4:40 PM
SC36812-03	SP1_071017-1	7/11/2017 4:40 PM

# of Amber Glass

Batch Summary

'[none]'

Subcontracted Analyses

SC36812-02 (SP2_071017-1)
SC36812-03 (SP1_071017-1)

1711786

Total Metals by EPA 6000/7000 Series Methods

1711786-BLK1
1711786-SRM1
1711786-SRM2
SC36812-02 (SP2_071017-1)
SC36812-03 (SP1_071017-1)

1711803

Extractable Petroleum Hydrocarbons

1711803-BLK1
1711803-BS1
1711803-BS2
1711803-BSD1
SC36812-02 (SP2_071017-1)
SC36812-03 (SP1_071017-1)

1711813

Volatile Organic Compounds

1711813-BLK1
1711813-BS1
1711813-BSD1
SC36812-01 (TB-071017)
SC36812-02 (SP2_071017-1)

1711828

General Chemistry Parameters

SC36812-02 (SP2_071017-1)
SC36812-03 (SP1_071017-1)

1711913

Volatile Organic Compounds

1711913-BLK1
1711913-BS1
1711913-BSD1
SC36812-02 (SP2_071017-1)
SC36812-03 (SP1_071017-1)

1711929

Volatile Organic Compounds

1711929-BLK1
1711929-BS1
1711929-BSD1
SC36812-03 (SP1_071017-1)

393461A

Subcontracted Analyses

BY57405-BLK
BY57405-DUP
BY57405-LCS
BY57405-MS
SC36812-02 (SP2_071017-1)
SC36812-03 (SP1_071017-1)

S704286

Volatile Organic Compounds

S704286-CAL1
S704286-CAL2
S704286-CAL3
S704286-CAL4
S704286-CAL5
S704286-CAL6
S704286-CAL7
S704286-ICV1
S704286-LCV1

S705195

Extractable Petroleum Hydrocarbons

S705195-CAL1
S705195-CAL2
S705195-CAL3
S705195-CAL4
S705195-CAL5
S705195-CAL6
S705195-CAL7
S705195-CAL8
S705195-CAL9
S705195-ICV1
S705195-LCV1

S706189

Volatile Organic Compounds

S706189-CAL1
S706189-CAL2
S706189-CAL3
S706189-CAL4
S706189-CAL5
S706189-CAL6
S706189-CAL7
S706189-CAL8
S706189-CAL9
S706189-ICV1
S706189-LCV1
S706189-TUN1

S706203

Volatile Organic Compounds

S706203-CCV1
S706203-TUN1

S706227

Volatile Organic Compounds

S706227-CCV1
S706227-CCV2

S706238

Volatile Organic Compounds

S706238-CCV1
S706238-TUN1

S706301

Extractable Petroleum Hydrocarbons

S706301-CCV1
S706301-CCV2

☐ Final Report
☑ Revised Report

Report Date:
20-Jul-17 14:35

Sample Summary

Work Order : SC36934

Project: LMC-Wilmington- 40 Fordham Rd. - MA

Project Number: 60478638.5.01

Laboratory ID	Client Sample ID	Matrix

The following outlines the condition of aVPH samples contained within this report upon laboratory receipt

Matrices	Soil		
Containers	ü Satisfactory		
Sample Preservative	Aqueous (acid preserved)	ü N/A pH≤2 pH>2	
	Soil or Sediment	N/A	

MADE P EPH 5/2004 R

Calibration:

S706321-ICV3

This affected the following samples

SW846 8260C

Calibration:

1707022

Analyte quantified by quadratic equation type calibration.

1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
2-Hexanone (MBK)
4-Isopropyltoluene
Bromoform
cis-1,3-Dichloropropene
Ethyl tert-butyl ether
Naphthalene
n-Butylbenzene
o-Xylene
sec-Butylbenzene
Styrene
Tert-amyl methyl ether
tert-Butylbenzene

This affected the following samples:

1712161-BLK1
1712161-BS1
1712161-BSD1
S706189-ICV1
S706318-CCV1
SP4-071217-1
SP5-071217-1
TB-071217

Laboratory Control Samples:

1712161 BS/BSD

Carbon tetrachloride percent recoveries (136/135) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

SP4-071217-1
SP5-071217-1
TB-071217

Samples:

S706318-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

1,1,1,2-Tetrachloroethane (22.7%)
1,1,1-Trichloroethane (22.0%)
Bromomethane (25.9%)
Carbon tetrachloride (34.9%)
Trichlorofluoromethane (Freon 11) (22.6%)

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

Bromoform (30.0%)

SW846 8260C

Samples:

S706318-CCV1

This affected the following samples:

1712161-BLK1
1712161-BS1
1712161-BSD1
SP4-071217-1
SP5-071217-1
TB-071217

SC36934-03 SP5-071217-1

Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogates with three required by program methods.

4-Bromofluorobenzene

SampleAcceptance Check Form

Client:	AECOM Environment - Chelmsford, MA
Project:	LMC-Wilmington- 40 Fordham Rd. - M / 60478638.5.01
Work Order	SC36934
Sample(s) received on:	7/13/2017

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
Were custody seals present?	☐	☑	☐
Were custody seals intact?	☐	☐	☑
Were samples received at a temperature of 6°C?	☑	☐	☐
Were samples cooled on ice upon transfer to laboratory representative?	☑	☐	☐
W Were samples receivedwithainmethodW	☐	☐	☐
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐

Summary of Hits

Lab ID: SC36934-02 Client ID: SP4-071217-1

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
C11-C22Aromatic Hydrocarbons	35.4		10.4	mg/kg	MADEP EPH 5/2004 R
C19-C36Aliphatic Hydrocarbons	51.2		10.4	mg/kg	MADEP EPH 5/2004 R
Unadjusted C11-C22 Aromatic Hydrocarbons	35.6		10.4	mg/kg	MADEP EPH 5/2004 R
Total Solids @ 104C	93.6		0.1	%	SM2540B-97
Arsenic	7.20		1.60	mg/kg	SW846 6010C
Chromium	17.7		1.07	mg/kg	SW846 6010C
Copper	11.9		1.07	mg/kg	SW846 6010C
Lead	10.1		1.60	mg/kg	SW846 6010C
Zinc	44.8		1.07	mg/kg	SW846 6010C

Lab ID: SC36934-03 Client ID: SP5-071217-1

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
C11-C22Aromatic Hydrocarbons	18.4		10.8	mg/kg	MADEP EPH 5/2004 R
C19-C36Aliphatic Hydrocarbons	18.0		10.8	mg/kg	MADEP EPH 5/2004 R
Unadjusted C11-C22 Aromatic Hydrocarbons	18.4		10.8	mg/kg	MADEP EPH 5/2004 R
C5-C8Aliphatic Hydrocarbons	3.40	D	1.82	mg/kg	MADEP VPH 5/2004 Rev. 1.1
C9-C10Aromatic Hydrocarbons	19.0	D	0.606	mg/kg	MADEP VPH 5/2004 Rev. 1.1
C9-C12Aliphatic Hydrocarbons	10.1	20.0	DC22 Aromat88 Tc -57.7 mg/kg		MADEP VPH 5/2004 Rev. 1.1

Solids @ 104C 93.6 10.4 % SM2540B-97

c 51.2 mg/kg

17.7 0 T07 mg/kg SW846 6010C

0.960 mg/kg SW846 6010C

mg/kg

SW846 6010C

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
TB-071217	60478638.5.01	Methanol/DI	12-Jul-17 12:00	13-Jul-17

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
TB-071217 SC36934-01	60478638.5.01	Methanol/DI	12-Jul-17 12:00	13-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260													
99-87-6	4-Isopropyltoluene	< 5.00		µg/kg wet	5.00	1.08	1	SW846 8260C	17-Jul-17	17-Jul-17	MP	1712161	
1634-04-4	Methyl tert-butyl ether	< 5.00		µg/kg wet	5.00	1.84	1	"	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	< 10.0		µg/kg wet	10.0	2.57	1	"	"	"	"	"	
75-09-2	Methylene chloride	< 10.0		µg/kg wet	10.0	1.98	1	"	"	"	"	"	
91-20-3	Naphthalene	< 5.00		µg/kg wet	5.00	2.98	1	"	"	"	"	"	
103-65-1	n-Propylbenzene	< 5.00		µg/kg wet	5.00	0.81	1	"	"	"	"	"	
100-42-5	Styrene	< 5.00		µg/kg wet	5.00	1.00	1	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	< 5.00		µg/kg wet	5.00	4.25	1	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	< 5.00		µg/kg wet	5.00	4.23	1	"	"	"	"	"	
127-18-4	Tetrachloroethene	< 5.00		µg/kg wet	5.00	1.71	1	"	"	"	"	"	
108-88-3	Toluene	< 5.00		µg/kg wet	5.00	1.62	1	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	< 5.00		µg/kg wet	5.00	1.76	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	< 5.00		µg/kg wet	5.00	3.68	1	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	< 5.00		µg/kg wet	5.00	1.66	1	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	< 5.00		µg/kg wet	5.00	3.62	1	"	"	"	"	"	
79-01-6	Trichloroethene	< 5.00		µg/kg wet	5.00	1.36	1	"	"	"	"	"	
75-69-4	T	< 5.00		µg/kg wet	5.00			"	"	"			

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP4-071217-1 SC36934-02	60478638.5.01	Soil	12-Jul-17 12:40	13-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.

Volatile Organic Compounds

Volatile Organic Compounds by SW846 8260

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP4-071217-1 SC36934-02	60478638.5.01	Soil	12-Jul-17 12:40	13-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
MADEP VPH Carbon Ranges			VC10										

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP5-071217-1 SC36934-03	60478638.5.01	Soil	12-Jul-17 13:30	13-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Prepared by method Volatiles													
	VOC Extraction	Field extracted		N/A			1	VOC Soil Extraction			BD	1712115	
Volatile Organic Compounds by SW846 8260													
Prepared by method SW846 5035A Soil (low level)							Initial weight: 4.36 g						
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	< 6.68		µg/kg dry	6.68	3.39	1	SW846 8260C	17-Jul-17	17-Jul-17	MP	1712161	
67-64-1	Acetone	< 66.8		µg/kg dry	66.8	26.7	1	"	"	"	"	"	
71-43-2	Benzene	< 6.68		µg/kg dry	6.68	1.77	1	"	"	"	"	"	
108-86-1	Bromobenzene	< 6.68		µg/kg dry	6.68	1.78	1	"	"	"	"	"	
74-97-5	Bromochloromethane	< 6.68		µg/kg dry	6.68	3.37	1	"	"	"	"	"	
75-27-4	Bromodichloromethane	< 6.68		µg/kg dry	6.68	4.46	1	"	"	"	"	"	
75-25-2	Bromoform	< 6.68		µg/kg dry	6.68	6.37	1	"	"	"	"	"	
74-83-9	Bromomethane	< 13.4		µg/kg dry	13.4	6.03	1	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	< 13.4		µg/kg dry	13.4	11.9	1	"	"	"	"	"	
104-51-8	n-Butylbenzene	< 6.68		µg/kg dry	6.68	1.91	1	"	"	"	"	"	
135-98-8	sec-Butylbenzene	< 6.68		µg/kg dry	6.68	1.22	1	"	"	"	"	"	
98-06-6	tert-Butylbenzene	< 6.68		µg/kg dry	6.68	1.50	1	"	"	"	"	"	
75-15-0	Carbon disulfide	< 13.4		µg/kg dry	13.4	4.28	1	"	"	"	"	"	
56-23-5	Carbon tetrachloride	< 6.68		µg/kg dry	6.68	5.47	1	"	"	"	"	"	
108-90-7	Chlorobenzene	< 6.68		µg/kg dry	6.68	2.09	1	"	"	"	"	"	
75-00-3	Chloroethane	< 13.4		µg/kg dry	13.4	3.71	1	"	"	"	"	"	
67-66-3	Chloroform	< 6.68		µg/kg dry	6.68	3.59	1	"	"	"	"	"	
74-87-3	Chloromethane	< 13.4		µg/kg dry	13.4	2.76	1	"	"	"	"	"	
95-49-8	2-Chlorotoluene	< 6.68		µg/kg dry	6.68	1.66	1	"	"	"	"	"	
106-43-4	4-Chlorotoluene	< 6.68		µg/kg dry	6.68	1.57	1	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	< 13.4		µg/kg dry	13.4	9.65	1	"	"	"	"	"	
124-48-1	Dibromochloromethane	< 6.68		µg/kg dry	6.68	4.53	1	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	< 6.68		µg/kg dry	6.68	4.48	1	"	"	"	"	"	
74-95-3	Dibromomethane	< 6.68		µg/kg dry	6.68	3.47	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	< 6.68		µg/kg dry	6.68	1.74	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	< 6.68		µg/kg dry	6.68	1.45	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	< 6.68		µg/kg dry	6.68	1.98	1	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	< 13.4		µg/kg dry	13.4	2.53	1	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	< 6.68		µg/kg dry	6.68	1.75	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 6.68		µg/kg dry	6.68	2.39	1	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	< 6.68		µg/kg dry	6.68	3.49	1	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	< 6.68		µg/kg dry	6.68	2.48	1	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	< 6.68		µg/kg dry	6.68	3.54	1	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	< 6.68		µg/kg dry	6.68	3.50	1	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	< 6.68		µg/kg dry	6.68	3.46	1	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	< 6.68		µg/kg dry	6.68	3.15	1	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	< 6.68		µg/kg dry	6.68	2.15	1	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	< 6.68		µg/kg dry	6.68	4.03	1	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	< 6.68		µg/kg dry	6.68	3.51	1	"	"	"	"	"	
100-41-4	Ethylbenzene	< 6.68		µg/kg dry	6.68	0.96	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP5-071217-1 SC36934-03	60478638.5.01	Soil	12-Jul-17 13:30	13-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260							Initial weight: 4.36 g						
87-68-3	Hexachlorobutadiene	< 6.68		µg/kg dry	6.68	3.35	1	SW846 8260C	17-Jul-17	17-Jul-17	MP	1712161	
591-78-6	2-Hexanone (MBK)	< 13.4		µg/kg dry	13.4	8.20	1	"	"	"	"	"	
98-82-8	Isopropylbenzene	< 6.68		µg/kg dry	6.68	1.32	1	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	< 6.68		µg/kg dry	6.68	1.44	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 6.68		µg/kg dry	6.68	2.46	1	"	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	< 13.4		µg/kg dry	13.4	3.43	1	"	"	"	"	"	
75-09-2	Methylene chloride	< 13.4		µg/kg dry	13.4	2.65	1	"	"	"	"	"	
91-20-3	Naphthalene	< 6.68		µg/kg dry	6.68	3.98	1	"	"	"	"	"	
103-65-1	n-Propylbenzene	< 6.68		µg/kg dry	6.68	1.08	1	"	"	"	"	"	
100-42-5	Styrene	< 6.68		µg/kg dry	6.68	1.34	1	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	< 6.68		µg/kg dry	6.68	5.68	1	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	< 6.68		µg/kg dry	6.68	5.65	1	"	"	"	"	"	
127-18-4	Tetrachloroethene	< 6.68		µg/kg dry	6.68	2.28	1	"	"	"	"	"	
108-88-3	Toluene	< 6.68		µg/kg dry	6.68	2.16	1	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	< 6.68		µg/kg dry	6.68	2.35	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	< 6.68		µg/kg dry	6.68	4.92	1	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	< 6.68		µg/kg dry	6.68	2.22	1	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	< 6.68		µg/kg dry	6.68	4.84	1	"	"	"	"	"	
79-01-6	Trichloroethene	< 6.68		µg/kg dry	6.68	1.82	1	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	< 6.68		µg/kg dry	6.68	3.60	1	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	< 6.68		µg/kg dry	6.68	5.01	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	< 6.68		µg/kg dry	6.68	1.62	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	< 6.68		µg/kg dry	6.68	1.15	1	"	"	"	"	"	
75-01-4	Vinyl chloride	< 6.68		µg/kg dry	6.68	2.26	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 13.4		µg/kg dry	13.4	1.20	1	"	"	"	"	"	
95-47-6	o-Xylene	< 6.68		µg/kg dry	6.68	1.87	1	"	"	"	"	"	
109-99-9	Tetrahydrofuran	< 13.4		µg/kg dry	13.4	10.5	1	"	"	"	"	"	
60-29-7	Ethyl ether	< 6.68		µg/kg dry	6.68	6.05	1	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	< 6.68		µg/kg dry	6.68	2.23	1	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	< 6.68		µg/kg dry	6.68	3.60	1	"	"	"	"	"	
108-20-3	Di-isopropyl ether	< 6.68		µg/kg dry	6.68	1.24	1	"	"	"	"	"	
123-91-1	1,4-Dioxane	< 134		µg/kg dry	134	116	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	4-Bromofluorobenzene	254	SGCMS VOC		70-130 %			"	"	"	"	"	
2037-26-5	Toluene-d8	106			70-130 %			"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	122			70-130 %			"	"	"	"	"	
1868-53-7	Dibromofluoromethane	113			70-130 %			"	"	"	"	"	
MADEP VPH Carbon Ranges			VC10										
Prepared by method VPH - EPA 5035A Soil							Initial weight: 6.99 g						
	C5-C8 Aliphatic Hydrocarbons	3.40	D	mg/kg dry	1.82	0.352	50	MADEP VPH 5/2004 Rev. 1.1	17-Jul-17	17-Jul-17	SD	1712047	
	C9-C12 Aliphatic Hydrocarbons	20.0	D	mg/kg dry	0.606	0.252	50	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP5-071217-1 SC36934-03	60478638.5.01	Soil	12-Jul-17 13:30	13-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
MADEP VPH Carbon Ranges													

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADE										

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712161 - SW846 5035 Soil (low level)										
Blank (1712161-BLK1)					Prepared & Analyzed: 17-Jul-17					
Dibromochloromethane	< 5.00		µg/kg wet	5.00						
1,2-Dibromoethane (EDB)	< 5.00		µg/kg wet	5.00						
Dibromomethane	< 5.00		µg/kg wet	5.00						
1,2-Di0 1 28a< 5.0235796 TcTc 2i oTc 287.1 0 Td (5.00)Tj 0.00003454 Tc -47.55 42.2 Td (5.00)Tj 0.000106176 Tc -69.45 0 Td (< 5.00)Tj -0.00052620,2- 5 7.55										
	< 5.00		µg/kg wet						5.00	
						< 5.00		µg/kg wet		
										< 5.00

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712161 - SW846 5035 Soil (low level)										
Blank (1712161-BLK1)					Prepared &					

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712161 - SW846 5035 Soil (low level)										
LCS (1712161-BS1)					Prepared & Analyzed: 17-Jul-17					
Methyl tert-butyl ether	19.1		µg/kg		20.0		96	70-130		
4-Methyl-2-pentanone (MIBK)	17.0		µg/kg		20.0		85	70-130		
Methylene chloride	21.2		µg/kg		20.0		106	70-130		
Naphthalene	19.2		µg/kg		20.0		96	70-130		
n-Propylbenzene	23.6		µg/kg		20.0		118	70-130		
Styrene	20.4		µg/kg		20.0		102	70-130		
1,1,1,2-Tetrachloroethane	24.7		µg/kg		20.0		124	70-130		
1,1,2,2-Tetrachloroethane	20.5		µg/kg		20.0		102	70-130		
Tetrachloroethene	22.2		µg/kg		20.0		111	70-130		
Toluene	21.8		µg/kg		20.0		109	70-130		
1,2,3-Trichlorobenzene	19.1		µg/kg		20.0		96	70-130		
1,2,4-Trichlorobenzene	18.9		µg/kg		20.0		95	70-130		
1,1,1-Trichloroethane	24.6		µg/kg		20.0		123	70-130		
1,1,2-Trichloroethane	20.6		µg/kg		20.0		103	70-130		
Trichloroethene	22.5		µg/kg		20.0		112	70-130		
Trichlorofluoromethane (Freon 11)	25.0		µg/kg		20.0		125	70-130		
1,2,3-Trichloropropane	21.8		µg/kg		20.0		109	70-130		
1,2,4-Trimethylbenzene	20.8		µg/kg		20.0		104	70-130		
1,3,5-Trimethylbenzene	21.3		µg/kg		20.0		107	70-130		
Vinyl chloride	22.7		µg/kg		20.0		113	70-130		
m,p-Xylene	23.3		µg/kg		20.0		117	70-130		
o-Xylene	20.3		µg/kg		20.0		102	70-130		
Tetrahydrofuran	19.5		µg/kg		20.0		98	70-130		
Ethyl ether	17.4		µg/kg		20.0		87	70-130		
T	20.2		µg/kg		20.0		101	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712161 - SW846 5035 Soil (low level)										
LCS Dup (1712161-BSD1)					Prepared & Analyzed: 17-Jul-17					
Chloromethane	21.0		µg/kg		20.0		105	70-130	2	30
2-Chlorotoluene	22.4		µg/kg		20.0		112	70-130	1	30
4-Chlorotoluene	21.3		µg/kg		20.0		106	70-130	2	30
1,2-Dibromo-3-chloropropane	18.2		µg/kg		20.0		91	70-130	2	30
Dibromochloromethane	23.3		µg/kg		20.0		117	70-130	2	30
1,2-Dibromoethane (EDB)	21.4		µg/kg		20.0		107	70-130	2	30
Dibromomethane	21.5		µg/kg		20.0		107	70-130	0.3	30
1,2-Dichlorobenzene	20.0		µg/kg		20.0		100	70-130	2	30
1,3-Dichlorobenzene	22.7		µg/kg		20.0		114	70-130	2	30
1,4-Dichlorobenzene	20.6		µg/kg		20.0		103	70-130	2	30
Dichlorodifluoromethane (Freon12)	22.6		µg/kg		20.0		113	70-130	0.8	30
1,1-Dichloroethane	22.4		µg/kg		20.0		112	70-130	0.04	30
1,2-Dichloroethane	20.8		µg/kg		20.0		104	70-130	0.3	30
1,1-Dichloroethene	22.4		µg/kg		20.0		112	70-130	10	30
cis-1,2-Dichloroethene	22.4		µg/kg		20.0		112	70-130	0.09	30
trans-1,2-Dichloroethene	22.1		µg/kg		20.0		111	70-130	0.1	30
1,2-Dichloropropane	21.1		µg/kg		20.0		106	70-130	0.9	30
1,3-Dichloropropane	20.3		µg/kg		20.0		102	70-130	2	30
2,2-Dichloropropane	22.5		µg/kg		20.0		112	70-130	1	30
1,1-Dichloropropene	22.9		µg/kg		20.0		114	70-130	0.7	30
cis-1,3-Dichloropropene	19.2		µg/kg		20.0		96	70-130	0.6	30
trans-1,3-Dichloropropene	22.6		µg/kg		20.0		113	70-130	0.7	30
Ethylbenzene	22.6		µg/kg		20.0		113	70-130	1	30
Hexachlorobutadiene	20.2		µg/kg		20.0		101	70-130	6	30
2-Hexanone (MBK)	18.2		µg/kg		20.0		91	70-130	6	30
Isopropylbenzene	22.0		µg/kg		20.0		110	70-130	2	30
4-Isopropyltoluene	19.8		µg/kg		20.0		99	70-130	3	30
Methyl tert-butyl ether	20.1		µg/kg		20.0		101	70-130	5	30
4-Methyl-2-pentanone (MIBK)	17.4		µg/kg		20.0		87	70-130	2	30
Methylene chloride	21.4		µg/kg		20.0		107	70-130	1	30
Naphthalene	18.9		µg/kg		20.0		94	70-130	2	30
n-Propylbenzene	22.7		µg/kg		20.0		114	70-130	4	30
Styrene	20.4		µg/kg		20.0		102	70-130	0.05	30
1,1,1,2-Tetrachloroethane	24.5		µg/kg		20.0		123	70-130	0.7	30
1,1,2,2-Tetrachloroethane	21.1		µg/kg		20.0		106	70-130	3	30
Tetrachloroethene	21.8		µg/kg		20.0		109	70-130	2	30
Toluene	22.1		µg/kg		20.0		111	70-130	1	30
1,2,3-Trichlorobenzene	18.8		µg/kg		20.0		94	70-130	2	30
1,2,4-Trichlorobenzene	18.3		µg/kg		20.0		91	70-130	3	30
1,1,1-Trichloroethane	24.4		µg/kg		20.0		122	70-130	0.7	30
1,1,2-Trichloroethane	21.3		µg/kg		20.0		107	70-130	3	30
Trichloroethene	22.3		µg/kg		20.0		111	70-130	0.9	30
Trichlorofluoromethane (Freon 11)	24.5		µg/kg		20.0		123	70-130	2	30
	22.2	20m180	µg/kg		20.0			70-130	1	30

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712161 - SW846 5035 Soil (low level)										
LCS Dup (1712161-BSD1)					Prepared & Analyzed: 17-Jul-17					
Ethyl ether	21.7		µg/kg		20.0		108	70-130	22	30
Tert-amyl methyl ether	20.8		µg/kg		20.0		104	70-130	3	30
Ethyl tert-butyl ether	19.6		µg/kg		20.0		98	70-130	2	30
Di-isopropyl ether	19.0		µg/kg		20.0		95	70-130	2	30
1,4-Dioxane	187		µg/kg		200		93	70-130	2	30
Surrogate: 4-Bromofluorobenzene	52.2		µg/kg		50.0		104	70-130		
Surrogate: Toluene-d8	49.7		µg/kg		50.0		99	70-130		
Surrogate: 1,2-Dichloroethane-d4	47.4		µg/kg		50.0		95	70-130		
Surrogate: Dibromofluoromethane	51.0		µg/kg		50.0		102	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SM2540 G (11) Mod.										
Batch 1712052 - General Preparation										
Duplicate (1712052-DUP1)			Source: SC36934-02			Prepared & Analyzed: 14-Jul-17				
% Solids	93.3		%			92.4			1	5
Duplicate (1712052-DUP2)			Source: SC36934-03			Prepared & Analyzed: 14-Jul-17				
% Solids	91.8		%			91.9			0.07	5

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SM2540B-97										
Batch 393815A - 393815-SM2										
BLK (BY58468-BLK)						Prepared & Analyzed: 17-Jul-17				
Total Solids @ 104C	< 0.1		%	0.1	100			-		
DUP (BY58468-DUP)			Source: BY58468			Prepared: Analyzed: 17-Jul-17				
Total Solids @ 104C	25.8		%	0.1	100			-	1.2	30
LCS (BY58468-LCS)						Prepared: Analyzed: 17-Jul-17				
Total Solids @ 104C	100.0		%	0.1	100		100	75-125		30
SW9012B										
Batch 393958A - 393958-										
BLK (BY57146-BLK)						Prepared: 16-Jul-17 Analyzed: 17-Jul-17				
Total Cyanide (SW9010C Distill.)	< 0.50		mg/Kg	0.50				-		
DUP (BY57146-DUP)			Source: BY57146			Prepared: 16-Jul-17 Analyzed: 17-Jul-17				
Total Cyanide (SW9010C Distill.)	< 0.50		mg/Kg	0.50				-	NC	20
LCS (BY57146-LCS)						Prepared: 16-Jul-17 Analyzed: 17-Jul-17				
Total Cyanide (SW9010C Distill.)	0.3030		mg/Kg	0.50	999984741		101	80-120		20
MS (BY57146-MS)			Source: BY57146			Prepared: 16-Jul-17 Analyzed: 17-Jul-17				
Total Cyanide (SW9010C Distill.)	10.50		mg/Kg	0.50	00000149(		105	75-125		20

The following list indicates the date and time lowlevel

Notes and Definitions

D	Data reported from a dilution
QC2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QR6	The RPD exceeded the QC control limits; however precision is demonstrated with acceptable RPD values for MS/MSD.
SGCMSVOC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogates with three required by program methods.
VC10	The VOC preserved soil sample is not within the 1:1 weight to volume ratio as recommended by SW846 method 5035A but may be within the 1:1 volume to volume ratio. This variance may affect the final reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analyte(s), which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL is the RDL

Batch Summary

1712047

Volatile Organic Compounds

1712047-BLK1
1712047-BS1
1712047-BSD1
SC36934-02 (SP4-071217-1)
SC36934-03 (SP5-071217-1)

1712052

General Chemistry Parameters

1712052-DUP1
1712052-DUP2
SC36934-02 (SP4-071217-1)
SC36934-03 (SP5-071217-1)

1712055

Total Metals by EPA 6000/7000 Series Methods

1712055-BLK1
1712055-DUP1
1712055-MS1
1712055-MSD1
1712055-PS1
1712055-SRM1
1712055-SRM2
SC36934-02 (SP4-071217-1)
SC36934-03 (SP5-071217-1)

1712068

Extractable Petroleum Hydrocarbons

1712068-BLK1
1712068-BS1
1712068-BS2
1712068-BSD1
SC36934-02 (SP4-071217-1)
SC36934-03 (SP5-071217-1)

1712161

Volatile Organic Compounds

1712161-BLK1
1712161-BS1
1712161-BSD1
SC36934-01 (TB-071217)
SC36934-02 (SP4-071217-1)
SC36934-03 (SP5-071217-1)

393815A

Subcontracted Analyses

BY58468-BLK
BY58468-DUP
BY58468-LCS
SC36934-02 (SP4-071217-1)
SC36934-03 (SP5-071217-1)

393958A

Subcontracted Analyses

BY57146-BLK
BY57146-DUP
BY57146-LCS
BY57146-MS
SC36934-02 (SP4-071217-1)
SC36934-03 (SP5-071217-1)

S703723

Volatile Organic Compounds

S703723-CAL1
S703723-CAL2
S703723-CAL3
S703723-CAL4
S703723-CAL5
S703723-CAL6
S703723-CAL7
S703723-ICV1
S703723-LCV1

S706189

Volatile Organic Compounds

S706189-CAL1
S706189-CAL2
S706189-CAL3
S706189-CAL4
S706189-CAL5
S706189-CAL6
S706189-CAL7
S706189-CAL8
S706189-CAL9
S706189-ICV1
S706189-LCV1
S706189-TUN1

S706315

Volatile Organic Compounds

S706315-CCV1
S706315-CCV2

S706318

Volatile Organic Compounds

S706318-CCV1
S706318-TUN1

S706321

Extractable Petroleum Hydrocarbons

S706321-CAL1
S706321-CAL2
S706321-CAL3
S706321-CAL4
S706321-CAL5
S706321-CAL6
S706321-CAL7
S706321-CAL8
S706321-CAL9
S706321-CALA
S706321-CALB
S706321-CALC
S706321-CALD
S706321-CALE
S706321-CALF
S706321-CALG
S706321-CALH
S706321-CALI
S706321-CALJ
S706321-ICV1
S706321-ICV2
S706321-ICV3
S706321-LCV1
S706321-LCV2
S706321-TUN1

S706395

Extractable Petroleum Hydrocarbons

S706395-CCV1
S706395-CCV2
S706395-TUN1

S706399

Extractable Petroleum Hydrocarbons

S706399-CCV1
S706399-CCV2
S706399-TUN1

S706402

Extractable Petroleum Hydrocarbons

S706402-CCV1
S706402-CCV2
S706402-TUN1

☑ Final Report
☐ Revised Report

Report Date:
21-Jul-17 17:37

Laboratory Report
SC37123

AECOM Environment
250 Apollo Drive
Chelmsford, MA 01824
Attn: Art Taddeo

Project: LMC-W

Project #:

Sample Summary

Work Order : SC37123

Project: LMC-Wilmington- 40 Fordham Rd. - MA

Project Number: 60478638.5.01

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SC37123-01	TB-071817	Methanol/DI	18-Jul-17 13:15	18-Jul-17 17:12
SC37123-02	SP3_071817-1	Soil	18-Jul-17 13:30	18-Jul-17 17:12

The following outlines the condition of all VPH samples contained within this report upon laboratory receipt.

Matrices	Soil			
Containers	ü Satisfactory			
Sample Preservative	Aqueous (acid preserved)	ü N/A	pH≤2	pH>2
	Soil or Sediment	N/A	Samples not received in Methanol	ml Methanol/g soil
		ü Samples received in Methanol:	ü covering soil/sediment not covering soil/sediment	ü 1:1 +/-25% Other
		Samples received in air-tight container		
Temperature	ü Received on ice	ü Received at 4 ± 2 ºC		

Were all QA/QC procedures followed as required by the VPH method? Yes
Were any significant modifications made to the VPH method as specified in section 11.3? No
Were all performance acceptance standards for required QA/QC procedures achieved? Yes

The following outlines the condition of all EPH samples contained within this report upon laboratory receipt.

Matrices	Soil				
Containers	ü Satisfactory				
Aqueous Preservative	ü N/A	pH≤2	pH>2	pH adjusted to <2 in lab	
Temperature	ü Received on ice	ü Received at 4 ± 2 ºC			

Were all QA/QC procedures followed as required by the EPH method? Yes
Were any significant modifications made to the EPH method as specified in Section 11.3? No
Were all performance acceptance standards for required QA/QC procedures achieved? Yes

I attest that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Authorized by:

Christina A. White
Laboratory Director

MassDEP Analytical Protocol Certification Form

Laboratory Name: Eurofins Spectrum Analytical, Inc.			Project #: 60478638.5.01		
Project Location: LMC-Wilmington - 40 Fordham Rd. - MA			RTN:		
This form provides certifications for the following data set			SC37123-01 through SC37123-02		
Matrices: Methanol/DI Soil					
CAM Protocol					
8260 VOC CAM II A	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	8082 PCB CAM V A			

CASE NARRATIVE :

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the reporting limit are reported as “<” (less than) the reporting limit in this report.

The samples were received 4.4 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

MADEP has published a list of analytical methods

MADEP EPH 5/2004 R

Laboratory Control Samples:

1712429 BSD

Unadjusted C11-C22 Aromatic Hydrocarbons RPD 63% (25%) is outside individual acceptance criteria.

SW846 8260C

Calibration:

1707042

Analyte quantified by quadratic equation type calibration.

1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,2-Dibromo-3-chloropropane
1,4-Dioxane
2-Hexanone (MBK)
4-Methyl-2-pentanone (MIBK)
Bromoform
Dibromochloromethane
Naphthalene
trans-1,3-Dichloropropene

This affected the following samples:

1712340-BLK1
1712340-BS1
1712340-BSD1
S706417-CCV1
S706452-ICV1
SP3_071817-1
TB-071817

Laboratory Control Samples:

1712340 BS/BSD

Tetrahydrofuran percent recoveries (64/67) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

SP3_071817-1
TB-071817

Samples:

S706417-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

Bromomethane (-26.8%)
Carbon disulfide (-20.1%)
cis-1,3-Dichloropropene (-20.9%)
Methyl tert-butyl ether (-20.3%)

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

1,4-Dioxane (-24.9%)
2-Hexanone (MBK) (-25.2%)
4-Methyl-2-pentanone (MIBK) (-28.2%)
Dibromochloromethane (-23.2%)
Naphthalene (-24.9%)
Tetrahydrofuran (-25.2%)
trans-1,3-Dichloropropene (-24.0%)

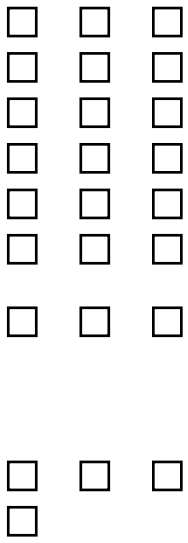
SW846 8260C

Samples:

S706417-CCV1

This affected the following samples:

1712340-BLK1
1712340-BS1
1712340-BSD1
SP3_071817-1
TB-071817



Summary of Hits

Lab ID: SC37123-02 Client ID: SP3_071817-1

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
C11-C22 Aromatic Hydrocarbons	11.3		10.7	mg/kg	MADEP EPH 5/2004 R
Unadjusted C11-C22 Aromatic Hydrocarbons	11.3		10.7	mg/kg	MADEP EPH 5/2004 R
Arsenic	8.34		1.55	mg/kg	SW846 6010C
Chromium	13.0		1.04	mg/kg	SW846 6010C
Copper	7.16		1.04	mg/kg	SW846 6010C
Lead	10.8		1.55	mg/kg	SW846 6010C
Zinc	21.9		1.04	mg/kg	SW846 6010C

Please note that because there are no reporting limits associated with hazardous waste characterizations or microanalyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
TB-071817	60478638.5.01	Methanol/DI	18-Jul-17 13:15	18-Jul-17
SC37123-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260 Prepared by method SW846 5035A Soil (low level)													
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	< 5.00		µg/kg wet	5.00	2.54	1	SW846 8260C	20-Jul-17	20-Jul-17	MP	1712340	
67-64-1	Acetone	< 50.0		µg/kg wet	50.0	20.0	1	"	"	"	"	"	
71-43-2	Benzene	< 5.00		µg/kg wet	5.00	1.32	1	"	"	"	"	"	
108-86-1	Bromobenzene	< 5.00		µg/kg wet	5.00	1.34	1	"	"	"	"	"	
74-97-5	Bromochloromethane	< 5.00		µg/kg wet	5.00	2.52	1	"	"	"	"	"	
75-27-4	Bromodichloromethane	< 5.00		µg/kg wet	5.00	3.34	1	"	"	"	"	"	
75-25-2	Bromoform	< 5.00		µg/kg wet	5.00	4.77	1	"	"	"	"	"	
74-83-9	Bromomethane	< 10.0		µg/kg wet	10.0	4.52	1	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	< 10.0		µg/kg wet	10.0	8.94	1	"	"	"	"	"	
104-51-8	n-Butylbenzene	< 5.00		µg/kg wet	5.00	1.43	1	"	"	"	"	"	
135-98-8	sec-Butylbenzene	< 5.00		µg/kg wet	5.00	0.91	1	"	"	"	"	"	
98-06-6	tert-Butylbenzene	< 5.00		µg/kg wet	5.00	1.12	1	"	"	"	"	"	
75-15-0	Carbon disulfide	< 10.0		µg/kg wet	10.0	3.20	1	"	"	"	"	"	
56-23-5	Carbon tetrachloride	< 5.00		µg/kg wet	5.00	4.09	1	"	"	"	"	"	
108-90-7	Chlorobenzene	< 5.00		µg/kg wet	5.00	1.56	1	"	"	"	"	"	
75-00-3	Chloroethane	< 10.0		µg/kg wet	10.0	2.78	1	"	"	"	"	"	
67-66-3	Chloroform	< 5.00		µg/kg wet	5.00	2.68	1	"	"	"	"	"	
74-87-3	Chloromethane	< 10.0		µg/kg wet	10.0	2.06	1	"	"	"	"	"	
95-49-8	2-Chlorotoluene	< 5.00		µg/kg wet	5.00	1.24	1	"	"	"	"	"	
106-43-4	4-Chlorotoluene	< 5.00		µg/kg wet	5.00	1.18	1	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	< 10.0		µg/kg wet	10.0	7.22	1	"	"	"	"	"	
124-48-1	Dibromochloromethane	< 5.00		µg/kg wet	5.00	3.39	1	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	< 5.00		µg/kg wet	5.00	3.36	1	"	"	"	"	"	
74-95-3	Dibromomethane	< 5.00		µg/kg wet	5.00	2.60	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	< 5.00		µg/kg wet	5.00	1.30	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	< 5.00		µg/kg wet	5.00	1.08	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	< 5.00		µg/kg wet	5.00	1.48	1	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	< 10.0		µg/kg wet	10.0	1.90	1	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	< 5.00		µg/kg wet	5.00	1.31	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 5.00		µg/kg wet	5.00	1.79	1	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	< 5.00		µg/kg wet	5.00	2.62	1	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	< 5.00		µg/kg wet	5.00	1.86	1	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	< 5.00		µg/kg wet	5.00	2.65	1	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	< 5.00	"	µg/kg wet	5.00	2.62	1	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	< 5.00		µg/kg wet	5.00	2.59	1	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	< 5.00		µg/kg wet	5.00	2.36	1	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	< 5.00		µg/kg wet	5.00	1.61	1	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	< 5.00		µg/kg wet	5.00	3.02	1	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	< 5.00		µg/kg wet	5.00	2.62	1	"	"	"	"	"	
100-41-4	Ethylbenzene	< 5.00		µg/kg wet	5.00	0.72	1	"	"	"	"	"	
87-68-3		< 5.00		µg/kg wet	5.00			"	"	"			

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP3_071817-1	60478638.5.01		18-Jul-17 13:30	18-Jul-17

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP3_071817-1 SC37123-02	60478638.5.01	Soil	18-Jul-17 13:30	18-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260													
						Initial weight: 6.05 g							
87-68-3	Hexachlorobutadiene	< 4.79		µg/kg dry	4.79	2.41	1	SW846 8260C	20-Jul-17	20-Jul-17	MP	1712340	
591-78-6	2-Hexanone (MBK)	< 9.58		µg/kg dry	9.58	5.88	1	"	"	"	"	"	
98-82-8	Isopropylbenzene	< 4.79		µg/kg dry	4.79	0.94	1	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	< 4.79		µg/kg dry	4.79	1.03	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 4.79		µg/kg dry	4.79	1.76	1	"	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	< 9.58		µg/kg dry	9.58	2.46	1	"	"	"	"	"	
75-09-2	Methylene chloride	< 9.58		µg/kg dry	9.58	1.90	1	"	"	"	"	"	
91-20-3	Naphthalene	< 4.79		µg/kg dry	4.79	2.85	1	"	"	"	"	"	
103-65-1	n-Propylbenzene	< 4.79		µg/kg dry	4.79	0.78	1	"	"	"	"	"	
100-42-5	Styrene	< 4.79		µg/kg dry	4.79	0.96	1	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	< 4.79		µg/kg dry	4.79	4.07	1	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	< 4.79		µg/kg dry	4.79	4.05	1	"	"	"	"	"	
127-18-4	Tetrachloroethene	< 4.79		µg/kg dry	4.79	1.64	1	"	"	"	"	"	
108-88-3	Toluene	< 4.79		µg/kg dry	4.79	1.55	1	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	< 4.79		µg/kg dry	4.79	1.68	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	<"4.79		µg/kg dry	4.79	6 T84R	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP3_071817-1 SC37123-02	60478638.5.01	Soil	18-Jul-17 13:30	18-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
MADEP VPH Carbon Ranges													
						Initial weight: 12.43 g							
	C9-C10 Aromatic Hydrocarbons	< 0.342	D	mg/kg dry	0.342	0.0415	50	MADEP VPH 5/2004 Rev. 1.1	20-Jul-17	20-Jul-17	SD	1712481	
	Unadjusted C5-C8 Aliphatic Hydrocarbons	< 1.02	D	mg/kg dry	1.02	0.159	50	"	"	"	"	"	
	Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.342	D	mg/kg dry	0.342	0.181	50	"	"	"	"	"	
Surrogate recoveries:													
615-59-8	2,5-Dibromotoluene (FID)	76			70-130 %			"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	86			70-130 %			"	"	"	"	"	
Extractable Petroleum Hydrocarbons													
MADEP EPH Carbon Ranges													
Prepared by method SW846 3546													
	C9-C18 Aliphatic Hydrocarbons	< 10.7		mg/kg dry	10.7	1.49	1	MADEP EPH 5/2004 R	20-Jul-17	21-Jul-17	EDT	1712429	
	C19-C36 Aliphatic Hydrocarbons	< 10.7		mg/kg dry	10.7	1.51	1	"	"	"	"	"	
	C11-C22 Aromatic Hydrocarbons	11.3		mg/kg dry	10.7	5.10	1	"	"	"	"	"	
	Unadjusted C11-C22 Aromatic Hydrocarbons	11.3		mg/kg dry	10.7	5.10	1	"	"	"	"	"	
Surrogate recoveries:													
3386-33-2	1-Chlorooctadecane	65			40-140 %			"	"	"	"	"	
84-15-1	Ortho-Terphenyl	88			40-140 %			"	"	"	"	"	
321-60-8	2-Fluorobiphenyl	85			40-140 %			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
Prepared by method SW846 3050B													
7440-38-2	Arsenic	8.34		mg/kg dry	1.55	0.197	1	SW846 6010C	19-Jul-17	20-Jul-17	JLC	1712365	
7440-47-3	Chromium	13.0		mg/kg dry	1.04	0.138	1	"	"	"	"	"	
7440-50-8	Copper	7.16		mg/kg dry	1.04	0.248	1	"	"	"	"	"	
7439-92-1	Lead	10.8		mg/kg dry	1.55	0.219	1	"	"	"	"	"	
7440-66-6	Zinc	21.9		mg/kg dry	1.04	0.801	1	"	"	"	"	"	
General Chemistry Parameters													
	% Solids	93.3		%			1	SM2540 G (11) Mod.	19-Jul-17	19-Jul-17	BD	1712370	
Subcontracted Analyses													
Analysis performed by Phoenix Environmental Labs, Inc. * - CT007													
	Percent Solid	93		%			1	SW846-%Solid		20-Jul-17 22:45	MACT0	'[none]'	
Prepared by method 394688-													
Analysis performed by Phoenix Environmental Labs, Inc. * - CT007													
57-12-5	Total Cyanide (SW9010C Distill.)	< 0.54		mg/Kg	0.54	0.54	1	SW9012B	20-Jul-17	21-Jul-17 07:39	MACT0	394688A	

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADEP VPH 5/2004 Rev. 1.1										
Batch 1712481 - VPH - EPA 5035A Soil										
Blank (1712481-BLK1)						Prepared & Analyzed: 20-Jul-17				
C5-C8	< 0.750	D	mg/kg wet							

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712340 - SW846 5035 Soil (low level)										
Blank (1712340-BLK1)					Prepared & Analyzed: 20-Jul-17					
Dibromochloromethane	< 5.00		µg/kg wet	5.00						
1,2-Dibromoethane (EDB)	< 5.00		µg/kg wet	5.00						
Dibromomethane	< 5.00		µg/kg wet	5.00						
1,2-Di0 1 28a< 5.0235796 TcTc 2i oTc 287.1 0 Td (5.00)Tj 0.00003454 Tc -47.55 42.2 Td (5.00)Tj 0.000106176 Tc -69.45 0 Td (< 5.00)Tj -0.00052620,2- 5 7.55										
	< 5.00		µg/kg wet						5.00	
						< 5.00		µg/kg wet		
										< 5.00

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712340 - SW846 5035 Soil (low level)										
Blank (1712340-BLK1)					Prepared & Analyzed: 20-Jul-17					
1,4-Dioxane	< 100		µg/kg wet	100						
Surrogate: 4-Bromofluorobenzene	44.9		µg/kg		50.0		90	70-130		
Surrogate: Toluene-d8	44.9		µg/kg		50.0		90	70-130		
Surrogate: 1,2-Dichloroethane-d4	57.9		µg/kg		50.0		116	70-130		
Surrogate: Dibromofluoromethane	49.1		µg/kg		50.0		98	70-130		
LCS (1712340-BS1)					Prepared & Analyzed: 20-Jul-17					
1,1,2-Trichlorotrifluoroethane (Freon 113)	16.1		µg/kg		20.0		80	70-130		
Acetone	17.0		µg/kg		20.0		85	70-130		
Benzene	17.1		µg/kg		20.0		85	70-130		
Bromobenzene	21.8		µg/kg		20.0		109	70-130		
Bromochloromethane	16.5		µg/kg		20.0		82	70-130		
Bromodichloromethane	15.5		µg/kg		20.0		77	70-130		
Bromoform	17.8		µg/kg		20.0		89	70-130		
Bromomethane	13.9		µg/kg		20.0		70	70-130		
2-Butanone (MEK)	19.7		µg/kg		20.0		99	70-130		
n-Butylbenzene	21.6		µg/kg		20.0		108	70-130		
sec-Butylbenzene	22.2		µg/kg		20.0		111	70-130		
tert-Butylbenzene	22.3		µg/kg		20.0		111	70-130		
Carbon disulfide	14.9		µg/kg		20.0		74	70-130		
Carbon tetrachloride	15.3		µg/kg		20.0		77	70-130		
Chlorobenzene	21.5		µg/kg		20.0		108	70-130		
Chloroethane	14.3		µg/kg		20.0		72	70-130		
Chloroform	16.4		µg/kg		20.0		82	70-130		
Chloromethane	16.8		µg/kg		20.0		84	70-130		
2-Chlorotoluene	18.7		µg/kg		20.0		93	70-130		
4-Chlorotoluene	22.3		µg/kg		20.0		111	70-130		
1,2-Dibromo-3-chloropropane	20.0		µg/kg		20.0		100	70-130		
Dibromochloromethane	14.7		µg/kg		20.0		74	70-130		
1,2-Dibromoethane (EDB)	16.3		µg/kg		20.0		82	70-130		
Dibromomethane	16.4		µg/kg		20.0		82	70-130		
1,2-Dichlorobenzene	23.3		µg/kg		20.0		117	70-130		
1,3-Dichlorobenzene	22.2		µg/kg		20.0		111	70-130		
1,4-Dichlorobenzene	22.0		µg/kg		20.0		110	70-130		
Dichlorodifluoromethane (Freon12)	18.2		µg/kg		20.0		91	70-130		
1,1-Dichloroethane	16.6		µg/kg		20.0		83	70-130		
1,2-Dichloroethane	16.1		µg/kg		20.0		80	70-130		
1,1-Dichloroethene	16.7		µg/kg		20.0		84	70-130		
cis-1,2-Dichloroethene	17.3		µg/kg		20.0		86	70-130		
trans-1,2-Dichloroethene	16.4		µg/kg		20.0		82	70-130		
1,2-Dichloropropane	16.4		µg/kg		20.0		82	70-130		
1,3-Dichloropropane	16.0		µg/kg		20.0		80	70-130		
2,2-Dichloropropane	15.4		µg/kg		20.0		77	70-130		
1,1-Dichloropropene	16.0		µg/kg		20.0		80	70-130		
cis-1,3-Dichloropropene	14.8		µg/kg		20.0		74	70-130		
trans-1,3-Dichloropropene	14.4		µg/kg		20.0		72	70-130		
Ethylbenzene	22.3		µg/kg		20.0		112	70-130		
Hexachlorobutadiene	21.4		µg/kg		20.0		107	70-130		
2-Hexanone (MBK)	15.0		µg/kg		20.0		75	70-130		
Isopropylbenzene	22.6		µg/kg		20.0		113	70-130		
4-Isopropyltoluene	23.2		µg/kg		20.0		116	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712340 - SW846 5035 Soil (low level)										
LCS (1712340-BS1)					Prepared & Analyzed: 20-Jul-17					
Methyl tert-butyl ether	15.6		µg/kg		20.0		78	70-130		
4-Methyl-2-pentanone (MIBK)	14.7		µg/kg		20.0		74	70-130		
Methylene chloride	15.8		µg/kg		20.0		79	70-130		
Naphthalene	18.0		µg/kg		20.0		90	70-130		
n-Propylbenzene	22.3		µg/kg		20.0		111	70-130		
Styrene	20.7		µg/kg		20.0		103	70-130		
1,1,1,2-Tetrachloroethane	21.1		µg/kg		20.0		105	70-130		
1,1,2,2-Tetrachloroethane	20.8		µg/kg		20.0		104	70-130		
			µg/kg		20.0			70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712340 - SW846 5035 Soil (low level)										
LCS Dup (1712340-BSD1)					Prepared & Analyzed: 20-Jul-17					
Chloromethane	17.3		µg/kg		20.0		86	70-130	3	30
2-Chlorotoluene	18.6		µg/kg		20.0		93	70-130	0.3	30
4-Chlorotoluene	22.0		µg/kg		20.0		110	70-130	1	30
1,2-Dibromo-3-chloropropane	21.4		µg/kg		20.0		107	70-130	6	30
Dibromochloromethane	14.6		µg/kg		20.0		73	70-130	1	30
1,2-Dibromoethane (EDB)	16.2		µg/kg		20.0		81	70-130	0.7	30
Dibromomethane	16.6		µg/kg		20.0		83	70-130	0.8	30
1,2-Dichlorobenzene	23.4		µg/kg		20.0		117	70-130	0.4	30
1,3-Dichlorobenzene	22.2		µg/kg		20.0		111	70-130	0.09	30
1,4-Dichlorobenzene	22.7		µg/kg		20.0		114	70-130	3	30
Dichlorodifluoromethane (Freon12)	17.5		µg/kg		20.0		88	70-130	4	30
1,1-Dichloroethane	16.3		µg/kg		20.0		81	70-130	2	30
1,2-Dichloroethane	15.8		µg/kg		20.0		79	70-130	2	30
1,1-Dichloroethene	16.6		µg/kg		20.0		83	70-130	1	30
cis-1,2-Dichloroethene	17.1		µg/kg		20.0		85	70-130	1	30
trans-1,2-Dichloroethene	16.2		µg/kg		20.0		81	70-130	0.7	30
1,2-Dichloropropane	16.4		µg/kg		20.0		82	70-130	0.1	30
1,3-Dichloropropane	16.3		µg/kg		20.0		82	70-130	2	30
2,2-Dichloropropane	15.0		µg/kg		20.0		75	70-130	3	30
1,1-Dichloropropene	15.8		µg/kg		20.0		79	70-130	1	30
cis-1,3-Dichloropropene	14.8		µg/kg		20.0		74	70-130	0.3	30
trans-1,3-Dichloropropene	14.6		µg/kg		20.0		73	70-130	1	30
Ethylbenzene	22.1		µg/kg		20.0		110	70-130	1	30
Hexachlorobutadiene	20.8		µg/kg		20.0		104	70-130	3	30
2-Hexanone (MBK)	15.1		µg/kg		20.0		75	70-130	0.2	30
Isopropylbenzene	22.6		µg/kg		20.0		113	70-130	0.2	30
4-Isopropyltoluene	23.0		µg/kg		20.0		115	70-130	0.9	30
Methyl tert-butyl ether	15.7		µg/kg		20.0		79	70-130	0.8	30
4-Methyl-2-pentanone (MIBK)	14.1		µg/kg		20.0		70	70-130	5	30
Methylene chloride	15.7		µg/kg		20.0		78	70-130	0.6	30
Naphthalene	19.0		µg/kg		20.0		95	70-130	5	30
n-Propylbenzene	22.1		µg/kg		20.0		110	70-130	1	30
Styrene	20.6		µg/kg		20.0		103	70-130	0.3	30
1,1,1,2-Tetrachloroethane	20.9		µg/kg		20.0		105	70-130	0.7	30
1,1,2,2-Tetrachloroethane	21.7		µg/kg		20.0		109	70-130	4	30
Tetrachloroethene	16.6		µg/kg		20.0		83	70-130	1	30
Toluene	16.5		µg/kg		20.0		83	70-130	1	30
1,2,3-Trichlorobenzene	21.1		µg/kg		20.0		106	70-130	1	30
1,2,4-Trichlorobenzene	20.2		µg/kg		20.0		101	70-130	2	30
1,1,1-Trichloroethane	16.1		µg/kg		20.0		81	70-130	2	30
1,1,2-Trichloroethane	16.9		µg/kg		20.0		84	70-130	3	30
Trichloroethene	16.6		µg/kg		20.0		83	70-130	2	30
Trichlorofluoromethane (Freon 11)	18.5		µg/kg		20.0		92	70-130	2	30
1,2,3-Trichloropropane	21.3		µg/kg		20.0		107	70-130	3	30
1,2,4-Trimethylbenzene	21.7		µg/kg		20.0		109	70-130	0.3	30
1,3,5-Trimethylbenzene	20.8		µg/kg		20.0		104	70-130	0.9	30
Vinyl chloride	16.6		µg/kg		20.0		83	70-130	3	30
m,p-Xylene	22.0		µg/kg		20.0		110	70-130	0.8	30
o-Xylene	22.1		µg/kg		20.0		111	70-130	3	30
Tetrahydrofuran	13.4	QM9	µg/kg		20.0		67	70-130	11	30

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712340 - SW846 5035 Soil (low level)										
LCS Dup (1712340-BSD1)					Prepared & Analyzed: 20-Jul-17					
Ethyl ether	17.5		µg/kg		20.0		87	70-130	2	30
Tert-amyl methyl ether	16.0		µg/kg		20.0		80	70-130	0.8	30
Ethyl tert-butyl ether	16.0		µg/kg		20.0		80	70-130	0.7	30
Di-isopropyl ether	16.0		µg/kg		20.0		80	70-130	1	30
1,4-Dioxane	157		µg/kg		200		79	70-130	5	30
Surrogate: 4-Bromofluorobenzene	48.4		µg/kg		50.0		97	70-130		
Surrogate: Toluene-d8	43.5		µg/kg		50.0		87	70-130		
Surrogate: 1,2-Dichloroethane-d4	48.4		µg/kg		50.0		97	70-130		
Surrogate: Dibromofluoromethane	46.4		µg/kg		50.0		93	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADE P EPH 5/2004 R										
Batch 1712429 - SW846 3546										
Blank (1712429-BLK1)					Prepared: 20-Jul-17 Analyzed: 21-Jul-17					
C9-C18 Aliphatic Hydrocarbons	< 9.83		mg/kg wet	9.83						
C19-C36 Aliphatic Hydrocarbons	< 9.83		mg/kg wet	9.83						
C11-C22 Aromatic Hydrocarbons	< 9.83		mg/kg wet	9.83						
Unadjusted C11-C22 Aromatic Hydrocarbons	< 9.83		mg/kg wet	9.83						
Total Petroleum Hydrocarbons	< 29.5		mg/kg wet	29.5						
Unadjusted Total Petroleum Hydrocarbons	< 29.5		mg/kg wet	29.5						
Naphthalene (aliphatic fraction)	0.00		mg/kg wet							
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet							
Surrogate: 1-Chlorooctadecane	1.95		mg/kg wet		3.28		60	40-140		
Surrogate: Ortho-Terphenyl	2.98		mg/kg wet		3.28		91	40-140		
Surrogate: 2-Fluorobiphenyl	2.30		mg/kg wet		2.62		88	40-140		
LCS (1712429-BS1)					Prepared: 20-Jul-17 Analyzed: 21-Jul-17					
C9-C18 Aliphatic Hydrocarbons	19.3		mg/kg wet	9.94	39.8		48	40-140		
C19-C36 Aliphatic Hydrocarbons	24.6		mg/kg wet	9.94	53.0		46	40-140		
Unadjusted C11-C22 Aromatic Hydrocarbons	41.5		mg/kg wet	9.94	45.1		92	40-140		
Naphthalene (aliphatic fraction)	0.00		mg/kg wet		2.65			0-200		
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet		2.65			0-200		
Surrogate: 1-Chlorooctadecane	2.19		mg/kg wet		3.31		66	40-140		
Surrogate: Ortho-Terphenyl	2.40		mg/kg wet		3.31		72	40-140		
Surrogate: 2-Fluorobiphenyl	2.41		mg/kg wet		2.65		91	40-140		
LCS (1712429-BS2)					Prepared: 20-Jul-17 Analyzed: 21-Jul-17					
C9-C18 Aliphatic Hydrocarbons	16.2		mg/kg wet	10.0	20.0		81	40-140		
C19-C36 Aliphatic Hydrocarbons	21.4		mg/kg wet	10.0	26.7		80	40-140		
Unadjusted C11-C22 Aromatic Hydrocarbons	44.4		mg/kg wet	10.0	45.3		98	40-140		
Naphthalene (aliphatic fraction)	0.00		mg/kg wet		2.67			0-200		
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet		2.67			0-200		
Surrogate: 1-Chlorooctadecane	2.15		mg/kg wet		3.33		64	40-140		
Surrogate: Ortho-Terphenyl	2.58		mg/kg wet		3.33		77	40-140		
Surrogate: 2-Fluorobiphenyl	2.55		mg/kg wet		2.67		96	40-140		
LCS Dup (1712429-BSD1)					Prepared: 20-Jul-17 Analyzed: 21-Jul-17					
C9-C18 Aliphatic Hydrocarbons	18.5		mg/kg wet	9.92	39.7		47	40-140	4	25
C19-C36 Aliphatic Hydrocarbons	22.3		mg/kg wet	9.92	52.9		42	40-140	10	25
Unadjusted C11-C22 Aromatic Hydrocarbons	79.6	QR2	mg/kg wet	9.92	90.0		88	40-140	63	25
Naphthalene (aliphatic fraction)	0.00		mg/kg wet		5.29			0-200		200
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet		5.29			0-200		200
Surrogate: 1-Chlorooctadecane	2.72		mg/kg wet		6.62		41	40-140		
Surrogate: Ortho-Terphenyl	8.79		mg/kg wet		6.62		133	40-140		
Surrogate: 2-Fluorobiphenyl	4.57		mg/kg wet		5.29		86	40-140		

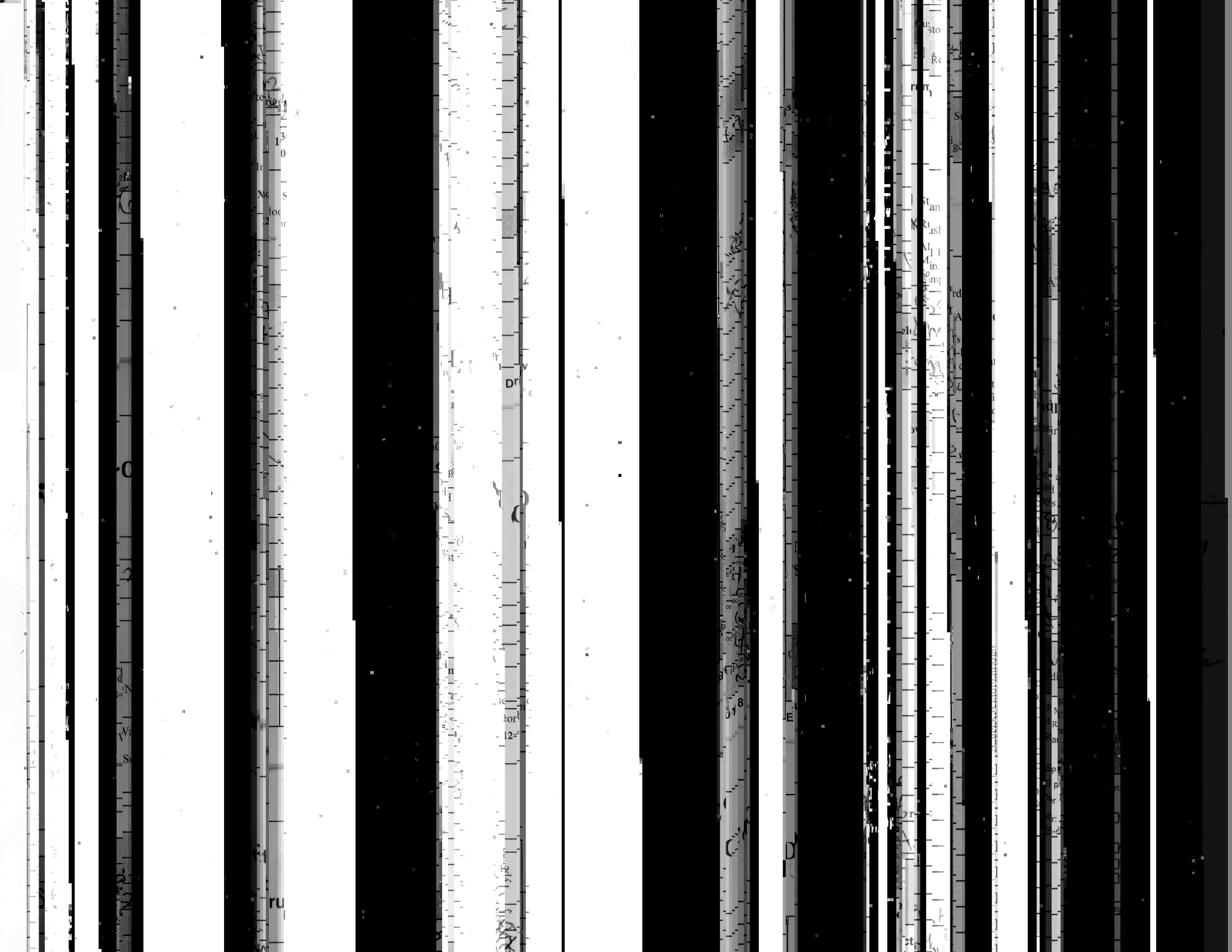
Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW9012B										
Batch 394688A - 394688-										
BLK (BY64651-BLK)						Prepared: 20-Jul-17 Analyzed: 21-Jul-17				
Total Cyanide (SW9010C Distill.)	< 0.50		mg/Kg	0.50				-		
DUP (BY64651-DUP)			Source: BY64651			Prepared: 20-Jul-17 Analyzed: 21-Jul-17				
Total Cyanide (SW9010C Distill.)	< 0.50		mg/Kg	0.50				-	NC	20
LCS (BY64651-LCS)						Prepared: 20-Jul-17 Analyzed: 21-Jul-17				
Total Cyanide (SW9010C Distill.)	0.3150		mg/Kg	0.50	999984741		106	80-120		20
MS (BY64651-MS)			Source: BY64651			Prepared: 20-Jul-17 Analyzed: 21-Jul-17				
Total Cyanide (SW9010C Distill.)	10.20		mg/Kg	0.50	00000149(		102	75-125		20

Extractable Petroleum Hydrocarbons - CCV Evaluation Report

	Average RF	CCRF	% D	Limit

The following list indicates the date and time low-level VOC soil/sediment samples were placed in the freezer at the lab:

SC37123-02	SP3_071817-1	7/18/2017 5:12 PM



S706487

Extractable Petroleum Hydrocarbons

S706487-CAL1
S706487-CAL2
S706487-CAL3
S706487-CAL4
S706487-CAL5
S706487-CAL6
S706487-CAL7
S706487-CAL8
S706487-CAL9
S706487-CALA
S706487-CALB
S706487-CALC
S706487-CALD
S706487-ICV1
S706487-ICV2
S706487-LCV1

S706517

Extractable Petroleum Hydrocarbons

S706517-CCV1
S706517-CCV2

☑ Final Report
☐ Revised Report

Report Date:
26-Jul-1711:07

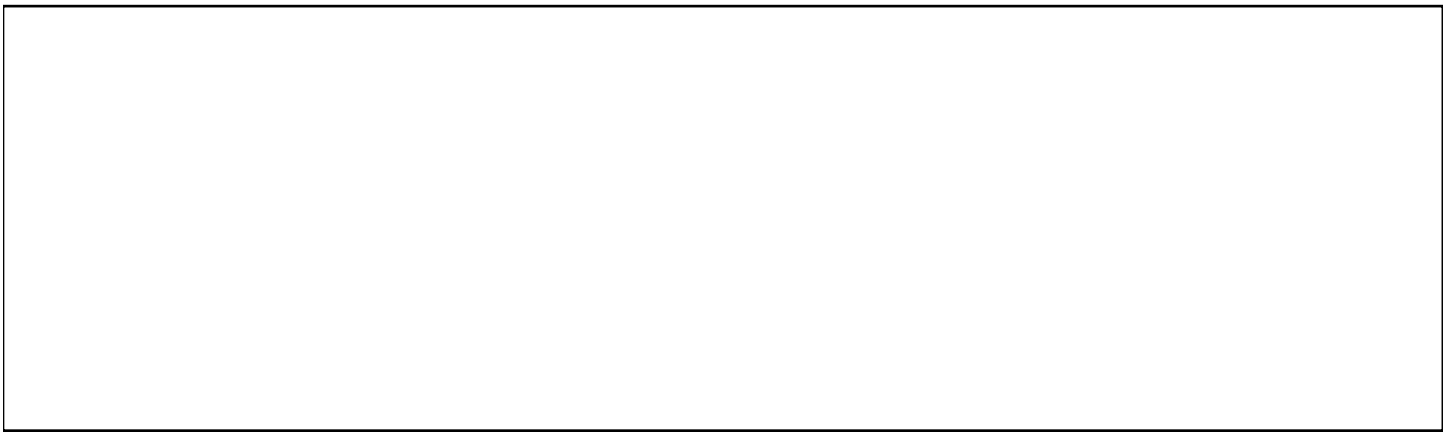
Sample Summary

Work Order : SC37220

Project: LMC-Wilmington- 40 Fordham Rd. - MA

Project Number: 60478638.5.01

Laboratory ID	Client Sample ID	Matrix	Date Sampled



MassDEP Analytical Protocol Certification Form

Laboratory Name: Eurofins Spectrum Analytical, Inc.	Project #: 60478638.5.01
Project Location: LMC-Wilmington - 40 Fordham Rd. - MA	RTN:
This form provides certifications for the following data set	SC37220-01 through SC37220-02
Matrices: Methanol/DI Soil	

CAM Protocol

ü 8260 VOC CAM II A	7470/7471 Hg CAM III B	ü MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	ü MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
ü 6010 Metals CAM III A	6020 Metals CAM III D	8082 PCB CAM V A	ü 9012 Total Cyanide/PAC CAM VI A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	ü Yes	No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	ü Yes	No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	ü Yes	No
D	Does the laboratory report comply with all the reporting requirements specified in WSC-CAM, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	ü Yes	No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	ü Yes Yes	No No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to questions A through E)?	ü Yes	No

Responses to questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	Yes ü	No

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	Yes ü	No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ü	No

All negative responses are addressed in a case narrative on the cover page of this report.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Christina A. White
Laboratory Director
Date: 7/26/2017

CASE NARRATIVE :

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the reporting limit are reported as “<” (less than) the reporting limit in this report.

The samples were received 1.0 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions

P

SW846 8260C

Calibration:

1707042

Analyte quantified by quadratic equation type calibration.

1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,2-Dibromo-3-chloropropane
1,4-Dioxane
2-Hexanone (MBK)
4-Methyl-2-pentanone (MIBK)
Bromoform
Dibromochloromethane
Naphthalene
trans-1,3-Dichloropropene

This affected the following samples:

1712571-BLK1
1712571-BS1
1712571-BSD1
S706452-ICV1
S706545-CCV1
SP7_072017-1
TB_072017

Laboratory Control Samples:

1712571 BS/BSD

Acetone percent recoveries (146/125) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

SP7_072017-1
TB_072017

Hexachlorobutadiene percent recoveries (130/132) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

SP7_072017-1
TB_072017

Samples:

S706545-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

1,2-Dichlorobenzene (25.3%)
4-Isopropyltoluene (29.7%)
Hexachlorobutadiene (32.5%)
Isopropylbenzene (26.0%)
n-Butylbenzene (25.5%)
n-Propylbenzene (25.6%)
Trichlorofluoromethane (Freon 11) (-20.4%)

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

4-Methyl-2-pentanone (MIBK) (-23.2%)
Acetone (24.8%)
Dibromochloromethane (-20.2%)

SW846 8260C

Samples:

S706545-CCV1

This affected the following samples:

1712571-BLK1
1712571-BS1
1712571-BSD1
SP7_072017-1
TB_072017

SW9012B

SampleAcceptance Check Form

Client:	AECOM Environment - Chelmsford, MA
Project:	LMC-Wilmington- 40 Fordham Rd. - M / 60478638.5.01
Work Order	SC37220
Sample(s) received on:	7/20/2017

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
Were custody seals present?	☐	☑	☐
Were custody seals intact?	☐	☐	☑
Were samples received at a temperature of 6°C?	☑	☐	☐
Were samples cooled on ice upon transfer to laboratory representative?	☑	☐	☐
Were sample containers received intact?	☑	☐	☐
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
Were samples accompanied by a Chain of Custody document?	☑	☐	☐
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
Did sample container labels agree with Chain of Custody document?	☑	☐	☐
Were samples received within method-specific holding times?	☑	☐	☐

Summary of Hits

Lab ID: SC37220-02 Client ID: SP7_072017-1

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Arsenic	11.8		1.55	mg/kg	SW846 6010C
Chromium	21.1		1.03	mg/kg	SW846 6010C
Copper	8.52		1.03	mg/kg	SW846 6010C
Lead	7.56		1.55	mg/kg	SW846 6010C
Zinc	20.9		1.03	mg/kg	SW846 6010C

Please note that because there are no reporting limits associated with hazardous waste characterizations or microbiological analyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP7_072017-1 SC37220-02	60478638.5.01	Soil	20-Jul-17 12:40	20-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Prepared by method Volatiles													
	VOC Extraction	Field extracted		N/A			1	VOC Soil Extraction			BD	1712539	
Volatile Organic Compounds by SW846 8260													
Prepared by method SW846 5035A Soil (low level)							Initial weight: 5.73 g						
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	< 5.51		µg/kg dry	5.51		1	SW846 8260C	21-Jul-17	24-Jul-17		1712571	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP7_072017-1 SC37220-02	60478638.5.01	Soil	20-Jul-17 12:40	20-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260							Initial weight: 5.73 g						
87-68-3	Hexachlorobutadiene	< 5.51		µg/kg dry	5.51	2.77	1	SW846 8260C	21-Jul-17	24-Jul-17	MP	1712571	
591-78-6	2-Hexanone (MBK)	< 11.0		µg/kg dry	11.0	6.76	1	"	"	"	"	"	
98-82-8	Isopropylbenzene	< 5.51		µg/kg dry	5.51	1.09	1	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	< 5.51		µg/kg dry	5.51	1.18	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 5.51		µg/kg dry	5.51	2.03	1	"	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	< 11.0		µg/kg dry	11.0	2.83	1	"	"	"	"	"	
75-09-2	Methylene chloride	< 11.0		µg/kg dry	11.0	2.19	1	"	"	"	"	"	
91-20-3	Naphthalene	< 5.51		µg/kg dry	5.51	3.28	1	"	"	"	"	"	
103-65-1	n-Propylbenzene	< 5.51		µg/kg dry	5.51	0.89	1	"	"	"	"	"	
100-42-5	Styrene	< 5.51		µg/kg dry	5.51	1.11	1	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	< 5.51		µg/kg dry	5.51	4.68	1	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	< 5.51		µg/kg dry	5.51	4.66	1	"	"	"	"	"	
127-18-4	Tetrachloroethene	< 5.51		µg/kg dry	5.51	1.88	1	"	"	"	"	"	
108-88-3	Toluene	< 5.51		µg/kg dry	5.51	1.78	1	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	< 5.51		µg/kg dry	5.51	1.93	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	< 5.51		µg/kg dry	5.51	4.06	1	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	< 5.51		µg/kg dry	5.51	1.83	1	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	< 5.51		µg/kg dry	5.51	3.99	1	"	"	"	"	"	
79-01-6	Trichloroethene	< 5.51		µg/kg dry	5.51	1.50	1	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	< 5.51		µg/kg dry	5.51	2.97	1	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	< 5.51		µg/kg dry	5.51	4.13	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	< 5.51		µg/kg dry	5.51	1.34	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	< 5.51		µg/kg dry	5.51	0.95	1	"	"	"	"	"	
75-01-4	Vinyl chloride	< 5.51		µg/kg dry	5.51	1.86	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 11.0		µg/kg dry	11.0	0.99	1	"	"	"	"	"	
95-47-6	o-Xylene	< 5.51		µg/kg dry	5.51	1.54	1	"	"	"	"	"	
109-99-9	Tetrahydrofuran	< 11.0		µg/kg dry	11.0	8.68	1	"	"	"	"	"	
60-29-7	Ethyl ether	< 5.51		µg/kg dry	5.51	4.99	1	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	< 5.51		µg/kg dry	5.51	1.84	1	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	< 5.51		µg/kg dry	5.51	2.97	1	"	"	"	"	"	
108-20-3	Di-isopropyl ether	< 5.51		µg/kg dry	5.51	1.02	1	"	"	"	"	"	
123-91-1	1,4-Dioxane	< 110		µg/kg dry	110	95.7	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	4-Bromofluorobenzene	84			70-130 %			"	"	"	"	"	
2037-26-5	Toluene-d8	88			70-130 %			"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	107			70-130 %			"	"	"	"	"	
1868-53-7	Dibromofluoromethane	92			70-130 %			"	"	"	"	"	
MADEP VPH Carbon Ranges													
Prepared by method VPH - EPA 5035A Soil							Initial weight: 16.37 g						
	C5-C8 Aliphatic Hydrocarbons	< 0.863	D	mg/kg dry	0.863	0.167	50	MADEP VPH 5/2004 Rev. 1.1	21-Jul-17	21-Jul-17	SD	1712563	
	C9-C12 Aliphatic Hydrocarbons	< 0.288	D	mg/kg dry	0.288	0.120	50	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP7_072017-1 SC37220-02	60478638.5.01	Soil	20-Jul-17 12:40	20-Jul-17

Result	D3tyuion	Method Ref.	Prepared	Analyzed	Batch	Cert.

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADEP VPH 5/2004 Rev. 1.1										
Batch 1712563 - VPH - EPA 5035A Soil										
Blank (1712563-BLK1)						Prepared & Analyzed: 21-Jul-17				
C5-C8 Aliphatic Hydrocarbons	< 0.750	D	mg/kg wet	0.750						
C9-C12 Aliphatic Hydrocarbons	< 0.250	D	mg/kg wet	0.250						
C9-C10 Aromatic Hydrocarbons	< 0.250	D	mg/kg wet	0.250						
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.750	D	mg/kg wet	0.750						
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.250	D	mg/kg wet	0.250						
Surrogate: 2,5-Dibromotoluene (FID)	41.1		µg/kg		50.0		82	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	46.4		µg/kg		50.0		93	70-130		
LCS (1712563-BS1)						Prepared & Analyzed: 21-Jul-17				
C5-C8 Aliphatic Hydrocarbons	49.1	D	µg/kg		60.0		82	70-130		
C9-C12 Aliphatic Hydrocarbons	57.5	D	µg/kg		60.0		96	70-130		
C9-C10 Aromatic Hydrocarbons	23.1	D	µg/kg		20.0		116	70-130		
Unadjusted C5-C8 Aliphatic Hydrocarbons	208	D	µg/kg		200		104	70-130		
Unadjusted C9-C12 Aliphatic Hydrocarbons	80.7	D	µg/kg		80.0		101	70-130		
Surrogate: 2,5-Dibromotoluene (FID)	40.7		µg/kg		50.0		81	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	46.1		µg/kg		50.0		92	70-130		
LCS Dup (1712563-BSD1)						Prepared & Analyzed: 21-Jul-17				
C5-C8 Aliphatic Hydrocarbons	45.6	D	µg/kg		60.0		76	70-130	7	25
C9-C12 Aliphatic Hydrocarbons	61.6	D	µg/kg		60.0		103	70-130	7	25
C9-C10 Aromatic Hydrocarbons	22.7	D	µg/kg		20.0		113	70-130	2	25
Unadjusted C5-C8 Aliphatic Hydrocarbons	202	D	µg/kg		200		101	70-130	3	25
Unadjusted C9-C12 Aliphatic Hydrocarbons	84.2	D	µg/kg		80.0		105	70-130	4	25
Surrogate: 2,5-Dibromotoluene (FID)	41.8		µg/kg		50.0		84	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	46.8		µg/kg		50.0		94	70-130		
SW846 8260C										
Batch 1712571 - SW846 5035 Soil (low level)										
Blank (1712571-BLK1)						Prepared & Analyzed: 24-Jul-17				
1,1,2-Trichlorotrifluoroethane (Freon 113)	< 5.00		µg/kg wet	5.00						
Acetone	< 50.0		µg/kg wet	50.0						
Benzene	< 5.00		µg/kg wet	5.00						
Bromobenzene	< 5.00		µg/kg wet	5.00						
Bromochloromethane	< 5.00		µg/kg wet	5.00						
Bromodichloromethane	< 5.00		µg/kg wet	5.00						
Bromoform	< 5.00		µg/kg wet	5.00						
Bromomethane	< 10.0		µg/kg wet	10.0						
2-Butanone (MEK)	< 10.0		µg/kg wet	10.0						
n-Butylbenzene	< 5.00		µg/kg wet	5.00						
sec-Butylbenzene	< 5.00		µg/kg wet	5.00						
tert-Butylbenzene	< 5.00		µg/kg wet	5.00						
Carbon disulfide	< 10.0		µg/kg wet	10.0						
Carbon tetrachloride	< 5.00		µg/kg wet	5.00						
Chlorobenzene	< 5.00		µg/kg wet	5.00						
Chloroethane	< 10.0		µg/kg wet	10.0						
Chloroform	< 5.00		µg/kg wet	5.00						
Chloromethane	< 10.0		µg/kg wet	10.0						
2-Chlorotoluene	< 5.00		µg/kg wet	5.00						
4-Chlorotoluene	< 5.00		µg/kg wet	5.00						
1,2-Dibromo-3-chloropropane	< 10.0		µg/kg wet	10.0						

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712571 - SW846 5035 Soil (low level)										
Blank (1712571-BLK1)							Prepared & Analyzed: 24-Jul-17			
1,4-Dioxane	< 100		µg/kg wet	100						
Surrogate: 4-Bromofluorobenzene	45.5		µg/kg		50.0		91	70-130		
Surrogate: Toluene-d8	44.8		µg/kg		50.0		90	70-130		
Surrogate: 1,2-Dichloroethane-d4	54.0		µg/kg		50.0		108	70-130		
Surrogate: Dibromofluoromethane	47.5		µg/kg		50.0		95	70-130		
LCS (1712571-BS1)							Prepared & Analyzed: 24-Jul-17			
1,1,2-Trichlorotrifluoroethane (Freon 113)	17.3		µg/kg		20.0		86	70-130		
Acetone	29.1		µg/kg		20.0		146	70-130		
Benzene	18.6		µg/kg		20.0		93	70-130		
Bromobenzene	22.7		µg/kg		20.0		113	70-130		
Bromochloromethane	17.6		µg/kg		20.0		88	70-130		
Bromodichloromethane	16.1		µg/kg		20.0		80	70-130		
Bromoform	18.2		µg/kg		20.0		91	70-130		
Bromomethane	19.2		µg/kg		20.0		96	70-130		
2-Butanone (MEK)	16.1		µg/kg		20.0		81	70-130		
n-Butylbenzene	25.1		µg/kg		20.0		126	70-130		
sec-Butylbenzene	23.6		µg/kg		20.0		118	70-130		
tert-Butylbenzene	23.8		µg/kg		20.0		119	70-130		
Carbon disulfide	16.2		µg/kg		20.0		81	70-130		
Carbon tetrachloride	16.2		µg/kg		20.0		81	70-130		
Chlorobenzene	22.8		µg/kg		20.0		114	70-130		
Chloroethane	19.1		µg/kg		20.0		96	70-130		
Chloroform	17.1		µg/kg		20.0		85	70-130		
Chloromethane	16.6		µg/kg		20.0		83	70-130		
2-Chlorotoluene	20.3		µg/kg		20.0		102	70-130		
4-Chlorotoluene	23.6		µg/kg		20.0		118	70-130		
1,2-Dibromo-3-chloropropane	20.0		µg/kg		20.0		100	70-130		
Dibromochloromethane	15.4		µg/kg		20.0		77	70-130		
1,2-Dibromoethane (EDB)	17.0		µg/kg		20.0		85	70-130		
Dibromomethane	16.8		µg/kg		20.0		84	70-130		
1,2-Dichlorobenzene	23.8		µg/kg		20.0		119	70-130		
1,3-Dichlorobenzene	23.7		µg/kg		20.0		119	70-130		
1,4-Dichlorobenzene	23.4		µg/kg		20.0		117	70-130		
Dichlorodifluoromethane (Freon12)	16.1		µg/kg		20.0		81	70-130		
1,1-Dichloroethane	17.7		µg/kg		20.0		89	70-130		
1,2-Dichloroethane	16.2		µg/kg		20.0		81	70-130		
1,1-Dichloroethene	18.5		µg/kg		20.0		93	70-130		
cis-1,2-Dichloroethene	18.4		µg/kg		20.0		92	70-130		
trans-1,2-Dichloroethene	18.0		µg/kg		20.0		90	70-130		
1,2-Dichloropropane										
1,3-Dichloropropane	17.0		µg/kg		20.0		85	70-130		
2,2-Dichloropropane	17.9		µg/kg		20.0		90	70-130		
1,1-Dichloropropene	17.8		µg/kg		20.0		89	70-130		
	16.7		µg/kg		20.0		865 0.2 Tm 16.139 4848 Tc -395.5 0 Td (cis3			

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712571 - SW846 5035 Soil (low level)										
LCS (1712571-BS1)						Prepared & Analyzed: 24-Jul-17				
Methyl tert-butyl ether	16.8		µg/kg		20.0		84	70-130		
4-Methyl-2-pentanone (MIBK)	16.1		µg/kg		20.0		80	70-130		
Methylene chloride	17.0		µg/kg		20.0		85	70-130		
Naphthalene	21.4		µg/kg		20.0		107	70-130		
n-Propylbenzene	24.0		µg/kg		20.0		120	70-130		
Styrene	22.5		µg/kg		20.0		112	70-130		
1,1,1,2-Tetrachloroethane	21.5		µg/kg		20.0		107	70-130		
1,1,2,2-Tetrachloroethane	21.2		µg/kg		20.0		106	70-130		
Tetrachloroethene	18.9		µg/kg		20.0		94	70-130		
Toluene	18.4		µg/kg		20.0		92	70-130		
1,2,3-Trichlorobenzene	24.0		µg/kg		20.0		120	70-130		
1,2,4-Trichlorobenzene	23.5		µg/kg		20.0		118	70-130		
1,1,1-Trichloroethane	17.4		µg/kg		20.0		87	70-130		
1,1,2-Trichloroethane	17.6		µg/kg		20.0		88	70-130		
Trichloroethene	18.1		µg/kg		20.0		91	70-130		
Trichlorofluoromethane (Freon 11)	17.0		µg/kg		20.0		85	70-130		
1,2,3-Trichloropropane	21.3		µg/kg		20.0		106	70-130		
1,2,4-Trimethylbenzene	23.6		µg/kg		20.0		118	70-130		
1,3,5-Trimethylbenzene	22.9		µg/kg		20.0		114	70-130		
Vinyl chloride	17.7		µg/kg		20.0		88	70-130		
m,p-Xylene	23.5		µg/kg		20.0		117	70-130		
o-Xylene	23.8		µg/kg		20.0		119	70-130		
Tetrahydrofuran	15.5		µg/kg		20.0		78	70-130		
Ethyl ether	19.4		µg/kg		20.0		97	70-130		
Tert-amyl methyl ether	16.0		µg/kg		20.0		80	70-130		
Ethyl tert-butyl ether	17.4		µg/kg		20.0		87	70-130		
Di-isopropyl ether	17.2		µg/kg		20.0		86	70-130		
1,4-Dioxane	160		µg/kg		200		80	70-130		
Surrogate: 4-Bromofluorobenzene	48.4		µg/kg		50.0		97	70-130		
Surrogate: Toluene-d8	44.9		µg/kg		50.0		90	70-130		
Surrogate: 1,2-Dichloroethane-d4	45.1		µg/kg		50.0		90	70-130		
Surrogate: Dibromofluoromethane	45.6		µg/kg		50.0		91	70-130		
LCS Dup (1712571-BSD1)						Prepared & Analyzed: 24-Jul-17				
1,1,2-Trichlorotrifluoroethane (Freon 113)	17.8		µg/kg		20.0		89	70-130	3	30
Acetone	25.0		µg/kg		20.0		125	70-130	15	30
Benzene	19.4		µg/kg		20.0		97	70-130	4	30
Bromobenzene	23.8		µg/kg		20.0		119	70-130	5	30
Bromochloromethane	18.4		µg/kg		20.0		92	70-130	5	30
Analyzed: 24-Jul-17					20.0	4				

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712571 - SW846 5035 Soil (low level)										
LCS Dup (1712571-BSD1)					Prepared & Analyzed: 24-Jul-17					
Chloromethane	16.7		µg/kg		20.0		84	70-130	0.7	30
2-Chlorotoluene	20.9		µg/kg		20.0		105	70-130	3	30
4-Chlorotoluene	23.7		µg/kg		20.0		118	70-130	0.4	30
1,2-Dibromo-3-chloropropane	21.6		µg/kg		20.0		108	70-130	8	30
Dibromochloromethane	16.0		µg/kg		20.0		80	70-130	3	30
1,2-Dibromoethane (EDB)	18.0		µg/kg		20.0		90	70-130	6	30
Dibromomethane	17.4		µg/kg		20.0		87	70-130	4	30
1,2-Dichlorobenzene	25.1		µg/kg		20.0		125	70-130	5	30
1,3-Dichlorobenzene	23.4		µg/kg		20.0		117	70-130	1	30
1,4-Dichlorobenzene	23.8		µg/kg		20.0		119	70-130	2	30
Dichlorodifluoromethane (Freon12)	16.5		µg/kg		20.0		82	70-130	2	30
1,1-Dichloroethane	18.3		µg/kg		20.0		92	70-130	3	30
1,2-Dichloroethane	16.7		µg/kg		20.0		84	70-130	3	30
1,1-Dichloroethene	19.0		µg/kg		20.0		95	70-130	3	30
cis-1,2-Dichloroethene	19.0		µg/kg		20.0		95	70-130	3	30
trans-1,2-Dichloroethene	18.4		µg/kg		20.0		92	70-130	2	30
1,2-Dichloropropane	18.6		µg/kg		20.0		93	70-130	3	30
1,3-Dichloropropane	17.9		µg/kg		20.0		89	70-130	5	30
2,2-Dichloropropane	19.0		µg/kg		20.0		95	70-130	6	30
1,1-Dichloropropene	18.3		µg/kg		20.0		92	70-130	3	30
cis-1,3-Dichloropropene	17.4		µg/kg		20.0		87	70-130	4	30
trans-1,3-Dichloropropene	17.0		µg/kg		20.0		85	70-130	5	30
Ethylbenzene	23.8		µg/kg		20.0		119	70-130	0.2	30
Hexachlorobutadiene	26.5	QM9	µg/kg		20.0		132	70-130	2	30
2-Hexanone (MBK)	17.1		µg/kg		20.0		86	70-130	0.8	30
Isopropylbenzene	25.2		µg/kg		20.0		126	70-130	6	30
4-Isopropyltoluene	25.9		µg/kg		20.0		130	70-130	2	30
Methyl tert-butyl ether	17.6		µg/kg		20.0		88	70-130	5	30
4-Methyl-2-pentanone (MIBK)	15.4		µg/kg		20.0		77	70-130	4	30
Methylene chloride	17.7		µg/kg		20.0		88	70-130	4	30
Naphthalene	19.3		µg/kg		20.0		96	70-130	11	30
n-Propylbenzene	25.1		µg/kg		20.0		126	70-130	4	30
Styrene	23.4		µg/kg		20.0		117	70-130	4	30
1,1,1,2-Tetrachloroethane	22.8		µg/kg		20.0		114	70-130	6	30
1,1,2,2-Tetrachloroethane	23.0		µg/kg		20.0		115	70-130	8	30
Tetrachloroethene	19.7		µg/kg		20.0		99	70-130	4	30
Toluene	19.1		µg/kg		20.0		95	70-130	3	30
1,2,3-Trichlorobenzene	23.7		µg/kg		20.0		118	70-130	1	30
1,2,4-Trichlorobenzene	23.1		µg/kg		20.0		116	70-130	2	30
1,1,1-Trichloroethane	17.8		µg/kg		20.0		89	70-130	2	30
1,1,2-Trichloroethane	18.2		µg/kg		20.0		91	70-130	3	30
Trichloroethene	18.8		µg/kg		20.0		94	70-130	4	30
Trichlorofluoromethane (Freon 11)	15.9		µg/kg		20.0		80	70-130	7	30
1,2,3-Trichloropropane	22.6		µg/kg		20.0		113	70-130	6	30
1,2,4-Trimethylbenzene	24.0		µg/kg		20.0		120	70-130	2	30
1,3,5-Trimethylbenzene	23.3		µg/kg		20.0		117	70-130	2	30
Vinyl chloride	18.0		µg/kg		20.0		90	70-130	2	30
m,p-Xylene	23.2		µg/kg		20.0		116	70-130	1	30
o-Xylene	23.8		µg/kg		20.0		119	70-130	0.2	30
Tetrahydrofuran	16.8		µg/kg		20.0		84	70-130	8	30

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1712571 - SW846 5035 Soil (low level)										
LCS Dup (1712571-BSD1)					Prepared & Analyzed: 24-Jul-17					
			µg/kg		20.0			70-130	2	30

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADE P										

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 6010C										
Batch 1712546 - SW846 3050B										
Blank (1712546-BLK1)					Prepared: 21-Jul-17 Analyzed: 25-Jul-17					
Arsenic	< 1.40		mg/kg wet	1.40						
Chromium	< 0.931		mg/kg wet	0.931						
Copper	< 0.931		mg/kg wet	0.931						
Lead	< 1.40		mg/kg wet	1.40						
	< 0.931		mg/kg wet							

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW9012B										
Batch 394935A - 394935-										
BLK (BY50161-BLK)						Prepared: 23-Jul-17 Analyzed: 24-Jul-17				
Total Cyanide (SW9010C Distill.)	< 0.50		mg/Kg	0.50				-		
DUP (BY50161-DUP)			Source: BY50161			Prepared: 23-Jul-17 Analyzed: 24-Jul-17				
Total Cyanide (SW9010C Distill.)	16.5		mg/Kg	0.55				-	9.8	20
LCS (BY50161-LCS)						Prepared: 23-Jul-17 Analyzed: 24-Jul-17				
Total Cyanide (SW9010C Distill.)	0.2870		mg/Kg	0.50	999984741		96.2	80-120		20
MS (BY50161-MS)			Source: BY50161			Prepared: 23-Jul-17 Analyzed: 24-Jul-17				
Total Cyanide (SW9010C Distill.)	29.45	m	mg/Kg	0.50	00000149(		128	75-125		20

Analyte(s)	Average RF	CCRF	% D	Limit
Batch S7066611				
Calibration Check (S7066_11-CCV1)				
C9-C18 Aliphatic Hydrocarbons	705447.3	626815	-11.1	25
C19-C36 Aliphatic Hydrocarbons	652122.9	492533.3	-7.8	25
Unadjusted C11-C22 Aromatic Hydrocarbons	21.98022	16.16389	-12.8	25
Calibration Check (S7066_11-CCV2)				
C9-C18 Aliphatic Hydrocarbons	705447.3	663500.7	-5.9	25
C19-C36 Aliphatic Hydrocarbons	652122.9	511761.3	-3.9	25
Unadjusted C11-C22 Aromatic Hydrocarbons	21.98022	18.50243	1.7	25

The following list indicates the date and time low-level VOC soil/sediment samples were placed in the freezer at the lab:

SC37220-02	SP7_072017-1	7/20/2017 3:00 PM

Notes and Definitions

D	Data reported from a dilution
m	This parameter is outside laboratory ms/msd specified recovery limits.
QM9	The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

Laboratory Control Sample (LCS) A known matrix spiked with compound(s)

S706496

Volatile Organic Compounds

S706496-CCV1
S706496-CCV2

S706545

Volatile Organic Compounds

S706545-CCV1
S706545-TUN1

S706611

Extractable Petroleum Hydrocarbons

S706611-CCV1
S706611-CCV2
S706611-TUN1

☒ Final Report
☐ Revised Report

Report Date:
07-Aug-17 14:52

Laboratory Report
SC37605

AECOM Environment
250 Apollo Drive
Chelmsford, MA 01824
Attn: Art Taddeo

Project: LMC-Wilmington- 40 Fordham Rd. - MA
Project #: 60478638.5.01

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1410
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2972/2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00348
USDA # P330-15-00375
Vermont # VT-11393

Eurofins Spectrum Analytical holds primary certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 35 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Eurofins Spectrum Analytical, Inc.

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Sample Summary

Work Order : SC37605

Project: LMC-Wilmington- 40 Fordham Rd. - MA

Project Number: 60478638.5.01

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SC37605-01	TB-073117	Methanol/DI	31-Jul-17 11:00	31-Jul-17 16:35
SC37605-02	SB8_073117-1	Soil	31-Jul-17 11:20	31-Jul-17 16:35
SC37605-03	SB8_073117-2	Soil	31-Jul-17 11:25	31-Jul-17 16:35

The following outlines the condition of aVPH samples contained within this report upon laboratory receipt

Matrices	Soil		
Containers	ü Satisfactory		
Sample Preservative	Aqueous (acid preserved)	ü N/A pH≤2 pH>2	
	Soil or Sediment	N/A Samples not received in Methanol	ml Methanol/g soil ü 1:1 +/-25% Other
		ü Samples received in Methanol: ü covering soil/sediment not covering soil/sediment	
		Samples received in air-tight container	
Temperatu			

SampleAcceptance Check Form

Client:	AECOM Environment - Chelmsford, MA
Project:	LMC-Wilmington- 40 Fordham Rd. - M / 60478638.5.01
Work Order	SC37605
Sample(s) received on:	7/31/2017

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
Were custody seals present?	☐	☑	☐
Were custody seals intact?	☐	☐	☑
Were samples received at a temperature of 6°C?	☑	☐	☐
Were samples cooled on ice upon transfer to laboratory representative?	☑	☐	☐
Were sample containers received intact?	☑	☐	☐
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
Were samples accompanied by a Chain of Custody document?	☑	☐	☐
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
Did sample container labels agree with Chain of Custody document?	☑	☐	☐
Were samples received within method-specific holding times?	☑	☐	☐

Summary of Hits

Lab ID: SC37605-02 Client ID: SB8_073117-1

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
C9-C10 Aromatic Hydrocarbons	0.275	D	0.241	mg/kg	MADEP VPH 5/2004 Rev. 1.1
Unadjusted C5-C8 Aliphatic Hydrocarbons	0.779	D	0.722	mg/kg	MADEP VPH 5/2004 Rev. 1.1
Unadjusted C9-C12 Aliphatic Hydrocarbons	0.293	D	0.241	mg/kg	MADEP VPH 5/2004 Rev. 1.1
Arsenic	11.1		1.52	mg/kg	SW846 6010C
Chromium	16.3		1.01	mg/kg	SW846 6010C
Copper	7.60		1.01	mg/kg	SW846 6010C
Lead	8.85		1.52	mg/kg	SW846 6010C
Zinc	17.7		1.01	mg/kg	SW846 6010C

Lab ID: SC37605-03 Client ID: SB8_073117-2

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Arsenic	12.8		1.59	mg/kg	SW846 6010C
Chromium	11.7		1.06	mg/kg	SW846 6010C
Copper	8.21		1.06	mg/kg	SW846 6010C
Lead	7.93		1.49	mg/kg	SW846 6010C
Zinc	15.0		0.992	mg/kg	SW846 6010C

Please note that because there are no reporting limits associated with hazardous waste characterizations or microanalyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification	Matrix
TB-073117	31-Jul-171

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SB8_0731717-1 SC37605-02	60478638.5.01	Soil	31-Jul-17 11:20	31-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
V													

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SB8_0731-17-1 SC37605-02	60478638.5.01	Soil	31-Jul-17 11:20	31-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
MADEP VPH Carbon Ranges													
	Initial weight: 18.06 g												

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SB8_073117-2 SC37605-03	60478638.5.01	Soil	31-Jul-17 11:25	31-Jul-17

Analyte(s)	Result	Dilution	Method Ref.	Prepared	Analyzed	Batch	Cert.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SB8_07317-2 SC37605-03	60478638.5.01	Soil	31-Jul-17 11:25	31-Jul-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
MADEP VPH Carbon Ranges													
						Initial weight: 17.47 g							
	C9-C10 Aromatic Hydrocarbons	< 0.251	D	mg/kg dry	0.251	0.0304	50	MADEP VPH 5/2004 Rev. 1.1	03-Aug-17	03-Aug-17	SD	1713349	
	Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.752	D	mg/kg dry	0.752	0.117	50	"	"	"	"	"	
	Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.251	D	mg/kg dry	0.251	0.133	50	"	"	"	"	"	
Surrogate recoveries:													
615-59-8	2,5-Dibromotoluene (FID)	82			70-130 %			"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	95			70-130 %			"	"	"	"	"	
Extractable Petroleum Hydrocarbons													
MADEP EPH Carbon Ranges													
Prepared by method SW846 3546													
	C9-C18 Aliphatic Hydrocarbons	< 10.7		mg/kg dry	10.7	1.49	1	MADEP EPH 5/2004 R	01-Aug-17	03-Aug-17	EDT	1713206	
	C19-C36 Aliphatic Hydrocarbons	< 10.7		mg/kg dry	10.7	1.51	1	"	"	"	"	"	
	C11-C22 Aromatic Hydrocarbons	< 10.7		mg/kg dry	10.7	5.10	1	"	"	"	"	"	
	Unadjusted C11-C22 Aromatic Hydrocarbons	< 10.7		mg/kg dry	10.7	5.10	1	"	"	"	"	"	
Surrogate recoveries:													
3386-33-2	1-Chlorooctadecane	91			40-140 %			"	"	"	"	"	
84-15-1	Ortho-Terphenyl	108			40-140 %			"	"	"	"	"	
321-60-8	2-Fluorobiphenyl	110			40-140 %			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
Prepared by method SW846 3050B													
7440-38-2	Arsenic	12.8		mg/kg dry	1.59	0.202	1	SW846 6010C	01-Aug-17	02-Aug-17	JLC	1713234	
7440-47-3	Chromium	11.7		mg/kg dry	1.06	0.141	1	"	"	"	"	"	
7440-50-8	Copper	8.21		mg/kg dry	1.06	0.255	1	"	"	"	"	"	
Prepared by method SW846 3051A													
7439-92-1	Lead	7.93		mg/kg dry	1.49	0.210	1	"	04-Aug-17	07-Aug-17	"	1713421	
7440-66-6	Zinc	15.0		mg/kg dry	0.992	0.768	1	"	"	"	"	"	
General Chemistry Parameters													
	% Solids	92.8		%			1	SM2540 G (11) Mod.	01-Aug-17	01-Aug-17	BD	1713233	
Prepared by method SW846 9010B													
57-12-5	Cyanide (total)	< 0.412		mg/kg dry	0.412	0.300	1	SW846 9012B	03-Aug-17	03-Aug-17	RLT	1713388	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADEP VPH 5/2004 Rev. 1.1										
Batch 1713349 - VPH - EPA 5035A Soil										
Blank (1713349-BLK1)						Prepared & Analyzed: 03-Aug-17				
C5-C8 Aliphatic Hydrocarbons	< 0.750	D	mg/kg wet	0.750						
C9-C12 Aliphatic Hydrocarbons	< 0.250	D	mg/kg wet	0.250						
C9-C10 Aromatic Hydrocarbons	< 0.250	D	mg/kg wet	0.250						
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.750	D	mg/kg wet	0.750						
Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.250	D	mg/kg wet	0.250						
Surrogate: 2,5-Dibromotoluene (FID)	38.9		µg/kg		50.0		78	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	45.8		µg/kg		50.0		92	70-130		
LCS (1713349-BS1)						Prepared & Analyzed: 03-Aug-17				
C5-C8 Aliphatic Hydrocarbons	43.5	D	µg/kg		60.0		73	70-130		
C9-C12 Aliphatic Hydrocarbons	59.8	D	µg/kg		60.0		100	70-130		
C9-C10 Aromatic Hydrocarbons	22.8	D	µg/kg		20.0		114	70-130		
Unadjusted C5-C8 Aliphatic Hydrocarbons	199	D	µg/kg		200		99	70-130		
Unadjusted C9-C12 Aliphatic Hydrocarbons	82.6	D	µg/kg		80.0		103	70-130		
Surrogate: 2,5-Dibromotoluene (FID)	40.5		µg/kg		50.0		81	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	47.0		µg/kg		50.0		94	70-130		
LCS Dup (1713349-BSD1)						Prepared & Analyzed: 03-Aug-17				
C5-C8 Aliphatic Hydrocarbons	42.2	D	µg/kg		60.0		70	70-130	3	25
C9-C12 Aliphatic Hydrocarbons	57.9	D	µg/kg		60.0		97	70-130	3	25
C9-C10 Aromatic Hydrocarbons	23.2	D	µg/kg		20.0		116	70-130	2	25
Unadjusted C5-C8 Aliphatic Hydrocarbons	200	D	µg/kg		200		100	70-130	0.3	25
Unadjusted C9-C12 Aliphatic Hydrocarbons	81.1	D	µg/kg		80.0		101	70-130	2	25
Surrogate: 2,5-Dibromotoluene (FID)	40.2		µg/kg		50.0		80	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	46.9		µg/kg		50.0		94	70-130		
Duplicate (1713349-DUP1)			Source: SC37605-02			Prepared & Analyzed: 03-Aug-17				
C5-C8 Aliphatic Hydrocarbons	0.748	D	mg/kg dry	0.722		0.712			5	50
C9-C12 Aliphatic Hydrocarbons	< 0.241	D	mg/kg dry	0.241		BRL				50
C9-C10 Aromatic Hydrocarbons	0.271	D	mg/kg dry	0.241		0.275			2	50
Unadjusted C5-C8 Aliphatic Hydrocarbons	0.785	D	mg/kg dry	0.722		0.779			0.7	50
Unadjusted C9-C12 Aliphatic Hydrocarbons	0.293	D	mg/kg dry	0.241		0.293			0.03	50
Surrogate: 2,5-Dibromotoluene (FID)	41.2		µg/kg		50.0		82	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	47.7		µg/kg		50.0		95	70-130		
Matrix Spike (1713349-MS1)			Source: SC37605-02			Prepared & Analyzed: 03-Aug-17				
C5-C8 Aliphatic Hydrocarbons	75.1	D	µg/kg		60.0	16.0	98	70-130		
C9-C12 Aliphatic Hydrocarbons	70.2	D	µg/kg		60.0	0.399	116	70-130		
C9-C10 Aromatic Hydrocarbons	23.3	D	µg/kg		20.0	6.18	86	70-130		
Unadjusted C5-C8 Aliphatic Hydrocarbons	245	D	µg/kg		200	17.5	114	70-130		
Unadjusted C9-C12 Aliphatic Hydrocarbons	93.6	D	µg/kg		80.0	6.58	109	70-130		
Surrogate: 2,5-Dibromotoluene (FID)	42.4		µg/kg		50.0		85	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	48.6		µg/kg		50.0		97	70-130		
Matrix Spike Dup (1713349-MSD1)			Source: SC37605-02			Prepared & Analyzed: 03-Aug-17				
C5-C8 Aliphatic Hydrocarbons	68.1	D	µg/kg		60.0	16.0	87	70-130	10	50
C9-C12 Aliphatic Hydrocarbons	67.0	D	µg/kg		60.0	0.399	111	70-130	5	50
C9-C10 Aromatic Hydrocarbons	21.9	D	µg/kg		20.0	6.18	79	70-130	6	50
Unadjusted C5-C8 Aliphatic Hydrocarbons	237	D	µg/kg		200	17.5	110	70-130	3	50

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADEP VPH 5/2004 Rev. 1.1										
Batch 1713349 - VPH - EPA 5035A Soil										
Matrix Spike Dup (1713349-MSD1)			Source: SC37605-02			Prepared & Analyzed: 03-Aug-17				
Unadjusted C9-C12 Aliphatic Hydrocarbons	88.9	D	µg/kg		80.0	6.58	103	70-130	5	50
Surrogate: 2,5-Dibromotoluene (FID)	41.1		µg/kg		50.0		82	70-130		
Surrogate: 2,5-Dibromotoluene (PID)	47.9		µg/kg		50.0		96	70-130		
SW846 8260C										
Batch 1713227 - SW846 5035 Soil (low level)										
Blank (1713227-BLK1)						Prepared & Analyzed: 01-Aug-17				
1,1,2-Trichlorotrifluoroethane (Freon 113)	< 5.00		µg/kg wet	5.00						
Acetone	< 50.0		µg/kg wet	50.0						
Benzene	< 5.00		µg/kg wet	5.00						
Bromobenzene	< 5.00		µg/kg wet	5.00						
Bromochloromethane	< 5.00		µg/kg wet	5.00						
Bromodichloromethane	< 5.00		µg/kg wet	5.00						
Bromoform	< 5.00		µg/kg wet	5.00						
Bromomethane	< 10.0		µg/kg wet	10.0						
2-Butanone (MEK)	< 10.0		µg/kg wet	10.0						
n-Butylbenzene	< 5.00		µg/kg wet	5.00						
sec-Butylbenzene	< 5.00		µg/kg wet	5.00						
tert-Butylbenzene	< 5.00		µg/kg wet	5.00						
Carbon disulfide	< 10.0		µg/kg wet	10.0						
Carbon tetrachloride	< 5.00		µg/kg wet	5.00						
Chlorobenzene	< 5.00		µg/kg wet	5.00						
Chloroethane	< 10.0		µg/kg wet	10.0						
Chloroform	< 5.00		µg/kg wet	5.00						
Chloromethane	< 10.0		µg/kg wet	10.0						
2-Chlorotoluene	< 5.00		µg/kg wet	5.00						
4-Chlorotoluene	< 5.00		µg/kg wet	5.00						
1,2-Dibromo-3-chloropropane	< 10.0		µg/kg wet	10.0						
Dibromochloromethane	< 5.00		µg/kg wet	5.00						
1,2-Dibromoethane (EDB)	< 5.00		µg/kg wet	5.00						
Dibromomethane	< 5.00		µg/kg wet	5.00						
1,2-Dichlorobenzene	< 5.00		µg/kg wet	5.00						
1,3-Dichlorobenzene	< 5.00		µg/kg wet	5.00						
1,4-Dichlorobenzene	< 5.00		µg/kg wet	5.00						
Dichlorodifluoromethane (Freon12)	< 10.0		µg/kg wet	10.0						
1,1-Dichloroethane	< 5.00		µg/kg wet	5.00						
1,2-Dichloroethane	< 5.00		µg/kg wet	5.00						
1,1-Dichloroethene	< 5.00		µg/kg wet	5.00						
cis-1,2-Dichloroethene	< 5.00		µg/kg wet	5.00						
trans-1,2-Dichloroethene	< 5.00		µg/kg wet	5.00						
1,2-Dichloropropane	< 5.00		µg/kg wet	5.00						
1,3-Dichloropropane	< 5.00		µg/kg wet	5.00						
2,2-Dichloropropane	< 5.00		µg/kg wet	5.00						
1,1-Dichloropropene	< 5.00		µg/kg wet	5.00						
cis-1,3-Dichloropropene	< 5.00		µg/kg wet	5.00						
trans-1,3-Dichloropropene	< 5.00		µg/kg wet	5.00						
Ethylbenzene	< 5.00		µg/kg wet	5.00						
Hexachlorobutadiene	< 5.00		µg/kg wet	5.00						
2-Hexanone (MBK)	< 10.0		µg/kg wet	10.0						
Isopropylbenzene	< 5.00		µg/kg wet	5.00						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1713227 - SW846 5035 Soil (low level)										
Blank (1713227-BLK1)					Prepared & Analyzed: 01-Aug-17					
4-Isopropyltoluene	< 5.00		µg/kg wet	5.00						
Methyl tert-butyl ether	< 5.00		µg/kg wet	5.00						
4-Methyl-2-pentanone (MIBK)	< 10.0		µg/kg wet	10.0						
Methylene chloride	< 10.0		µg/kg wet	10.0						
Naphthalene	< 5.00		µg/kg wet	5.00						
n-Propylbenzene	< 5.00		µg/kg wet	5.00						
Styrene	< 5.00		µg/kg wet	5.00						
1,1,1,2-Tetrachloroethane	< 5.00		µg/kg wet	5.00						
1,1,2,2-Tetrachloroethane	< 5.00		µg/kg wet	5.00						
Tetrachloroethene	< 5.00		µg/kg wet	5.00						
Toluene	< 5.00		µg/kg wet	5.00						
1,2,3-Trichlorobenzene	< 5.00		µg/kg wet	5.00						
1,2,4-Trichlorobenzene	< 5.00		µg/kg wet	5.00						
1,1,1-Trichloroethane	< 5.00		µg/kg wet	5.00						
1,1,2-Trichloroethane	< 5.00		µg/kg wet	5.00						
Trichloroethene	< 5.00		µg/kg wet	5.00						
Trichlorofluoromethane (Freon 11)	< 5.00		µg/kg wet	5.00						
1,2,3-Trichloropropane	< 5.00		µg/kg wet	5.00						
1,2,4-Trimethylbenzene	< 5.00		µg/kg wet	5.00						
1,3,5-Trimethylbenzene	< 5.00		µg/kg wet	5.00						
Vinyl chloride	< 5.00		µg/kg wet	5.00						
m,p-Xylene	< 10.0		µg/kg wet	10.0						
o-Xylene	< 5.00		µg/kg wet	5.00						
Tetrahydrofuran	< 10.0		µg/kg wet	10.0						
Ethyl ether	< 5.00		µg/kg wet	5.00						
Tert-amyl methyl ether	< 5.00		µg/kg wet	5.00						
Ethyl tert-butyl ether	< 5.00		µg/kg wet	5.00						
Di-isopropyl ether	< 5.00		µg/kg wet	5.00						
1,4-Dioxane	< 100		µg/kg wet	100						
Surrogate: 4-Bromofluorobenzene	46.4		µg/kg		50.0		93	70-130		
Surrogate: Toluene-d8	45.8		µg/kg		50.0		92	70-130		
Surrogate: 1,2-Dichloroethane-d4	51.6		µg/kg		50.0		103	70-130		
Surrogate: Dibromofluoromethane	46.1		µg/kg		50.0		92	70-130		
LCS (1713227-BS1)					Prepared & Analyzed: 01-Aug-17					
1,1,2-Trichlorotrifluoroethane (Freon 113)	16.1		µg/kg		20.0		81	70-130		
Acetone	18.2		µg/kg		20.0		91	70-130		
Benzene	18.2		µg/kg		20.0		91	70-130		
Bromobenzene	21.6		µg/kg		20.0		108	70-130		
Bromochloromethane	17.6		µg/kg		20.0		88	70-130		
Bromodichloromethane	15.2		µg/kg		20.0		76	70-130		
Bromoform	17.4		µg/kg		20.0		87	70-130		
Bromomethane	18.8		µg/kg		20.0		94	70-130		
2-Butanone (MEK)	19.7		µg/kg		20.0		98	70-130		
n-Butylbenzene	22.6		µg/kg		20.0		113	70-130		
sec-Butylbenzene	22.2		µg/kg		20.0		111	70-130		
tert-Butylbenzene	21.9		µg/kg		20.0		109	70-130		
Carbon disulfide	15.1		µg/kg		20.0		76	70-130		
Carbon tetrachloride	14.4		µg/kg		20.0		72	70-130		
Chlorobenzene	21.2		µg/kg		20.0		106	70-130		
Chloroethane	23.4		µg/kg		20.0		117	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1713227 - SW846 5035 Soil (low level)										
LCS (1713227-BS1)						Prepared & Analyzed: 01-Aug-17				
Chloroform	16.3		µg/kg		20.0		82	70-130		
Chloromethane	17.7		µg/kg		20.0		89	70-130		
2-Chlorotoluene	19.7		µg/kg		20.0		98	70-130		
4-Chlorotoluene	22.0		µg/kg		20.0		110	70-130		
1,2-Dibromo-3-chloropropane	19.6		µg/kg		20.0		98	70-130		
Dibromochloromethane	14.6		µg/kg		20.0		73	70-130		
1,2-Dibromoethane (EDB)	17.5		µg/kg		20.0		87	70-130		
Dibromomethane	16.6		µg/kg		20.0		83	70-130		
1,2-Dichlorobenzene	22.9		µg/kg		20.0		115	70-130		
1,3-Dichlorobenzene	21.9		µg/kg		20.0		109	70-130		
1,4-Dichlorobenzene	21.9		µg/kg		20.0		109	70-130		
Dichlorodifluoromethane (Freon12)	16.0		µg/kg		20.0		80	70-130		
1,1-Dichloroethane	17.0		µg/kg		20.0		85	70-130		
1,2-Dichloroethane	15.4		µg/kg		20.0		77	70-130		
1,1-Dichloroethene	17.6		µg/kg		20.0		88	70-130		
cis-1,2-Dichloroethene	18.0		µg/kg		20.0		90	70-130		
trans-1,2-Dichloroethene	17.5		µg/kg		20.0		87	70-130		
1,2-Dichloropropane	17.6		µg/kg		20.0		88	70-130		
1,3-Dichloropropane	17.4		µg/kg		20.0		87	70-130		
2,2-Dichloropropane	15.9		µg/kg		20.0		79	70-130		
1,1-Dichloropropene	16.8		µg/kg		20.0		84	70-130		
cis-1,3-Dichloropropene	16.2		µg/kg		20.0		81	70-130		
trans-1,3-Dichloropropene	15.6		µg/kg		20.0		78	70-130		
Ethylbenzene	22.0		µg/kg		20.0		110	70-130		
Hexachlorobutadiene	21.6		µg/kg		20.0		108	70-130		
2-Hexanone (MBK)	17.1		µg/kg		20.0		86	70-130		
Isopropylbenzene	22.3		µg/kg		20.0		111	70-130		
4-Isopropyltoluene	23.4		µg/kg		20.0		117	70-130		
Methyl tert-butyl ether	17.8		µg/kg		20.0		89	70-130		
4-Methyl-2-pentanone (MIBK)	17.4		µg/kg		20.0		87	70-130		
Methylene chloride	16.8		µg/kg		20.0		84	70-130		
Naphthalene	22.8		µg/kg		20.0		114	70-130		
n-Propylbenzene	22.3		µg/kg		20.0		112	70-130		
Styrene	21.1		µg/kg		20.0		106	70-130		
1,1,1,2-Tetrachloroethane	20.5		µg/kg		20.0		103	70-130		
1,1,2,2-Tetrachloroethane	22.2		µg/kg		20.0		111	70-130		
Tetrachloroethene	17.8		µg/kg		20.0		89	70-130		
Toluene	17.6		µg/kg		20.0		88	70-130		
1,2,3-Trichlorobenzene	23.4		µg/kg		20.0		117	70-130		
1,2,4-Trichlorobenzene	22.0		µg/kg		20.0		110	70-130		
1,1,1-Trichloroethane	15.8		µg/kg		20.0		79	70-130		
1,1,2-Trichloroethane	17.8		µg/kg		20.0		89	70-130		
Trichloroethene	17.5		µg/kg		20.0		88	70-130		
Trichlorofluoromethane (Freon 11)	17.0		µg/kg		20.0		85	70-130		
1,2,3-Trichloropropane	21.5		µg/kg		20.0		108	70-130		
1,2,4-Trimethylbenzene	22.8		µg/kg		20.0		114	70-130		
1,3,5-Trimethylbenzene	22.0		µg/kg		20.0		110	70-130		
Vinyl chloride	17.0		µg/kg		20.0		85	70-130		
m,p-Xylene	22.3		µg/kg		20.0		112	70-130		
o-Xylene	22.4		µg/kg		20.0		112	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1713227 - SW846 5035 Soil (low level)										
LCS (1713227-BS1)					Prepared & Analyzed: 01-Aug-17					
Tetrahydrofuran	17.1		µg/kg		20.0		85	70-130		
Ethyl ether	19.7		µg/kg		20.0		99	70-130		
Tert-amyl methyl ether	15.9		µg/kg		20.0		80	70-130		
Ethyl tert-butyl ether	18.0		µg/kg		20.0		90	70-130		
Di-isopropyl ether	17.2		µg/kg		20.0		86	70-130		
1,4-Dioxane	182		µg/kg		200		91	70-130		
Surrogate: 4-Bromofluorobenzene	48.8		µg/kg		50.0		98	70-130		
Surrogate: Toluene-d8	45.4		µg/kg		50.0		91	70-130		
Surrogate: 1,2-Dichloroethane-d4	43.5		µg/kg		50.0		87	70-130		
Surrogate: Dibromofluoromethane	45.0		µg/kg		50.0		90	70-130		
LCS Dup (1713227-BSD1)					Prepared & Analyzed: 01-Aug-17					
1,1,2-Trichlorotrifluoroethane (Freon 113)	15.8		µg/kg		20.0		79	70-130	2	30
Acetone	25.6	QR2	µg/kg		20.0		128	70-130	34	30
Benzene	17.9		µg/kg		20.0		89	70-130	2	30
Bromobenzene	21.2		µg/kg		20.0		106	70-130	2	30
Bromochloromethane	17.5		µg/kg		20.0		88	70-130	0.7	30
Bromodichloromethane	14.9		µg/kg		20.0		75	70-130	2	30
Bromoform	17.1		µg/kg		20.0		85	70-130	2	30
Bromomethane	18.5		µg/kg		20.0		93	70-130	2	30
2-Butanone (MEK)	20.8		µg/kg		20.0		104	70-130	5	30
n-Butylbenzene	22.4		µg/kg		20.0		112	70-130	0.8	30
sec-Butylbenzene	21.7		µg/kg		20.0		109	70-130	2	30
tert-Butylbenzene	21.4		µg/kg		20.0		107	70-130	2	30
Carbon disulfide	14.9		µg/kg		20.0		74	70-130	2	30
Carbon tetrachloride	14.0		µg/kg		20.0		70	70-130	2	30
Chlorobenzene	21.0		µg/kg		20.0		105	70-130	1	30
Chloroethane	23.3		µg/kg		20.0		116	70-130	0.6	30
Chloroform	16.0		µg/kg		20.0		80	70-130	2	30
Chloromethane	16.6		µg/kg		20.0		83	70-130	7	30
2-Chlorotoluene	19.6		µg/kg		20.0		98	70-130	0.7	30
4-Chlorotoluene	21.7		µg/kg		20.0		109	70-130	1	30
1,2-Dibromo-3-chloropropane	20.2		µg/kg		20.0		101	70-130	3	30
Dibromochloromethane	14.5		µg/kg		20.0		73	70-130	0.3	30
1,2-Dibromoethane (EDB)	17.4		µg/kg		20.0		87	70-130	0.4	30
Dibromomethane	17.2		µg/kg		20.0		86	70-130	3	30
1,2-Dichlorobenzene	22.9		µg/kg		20.0		115	70-130	0.04	30
1,3-Dichlorobenzene	21.6		µg/kg		20.0		108	70-130	1	30
1,4-Dichlorobenzene	21.5		µg/kg		20.0		107	70-130	2	30
Dichlorodifluoromethane (Freon12)	15.6		µg/kg		20.0		78	70-130	2	30
1,1-Dichloroethane	16.6		µg/kg		20.0		83	70-130	2	30
1,2-Dichloroethane	15.3		µg/kg		20.0		76	70-130	0.9	30
1,1-Dichloroethene	17.3		µg/kg		20.0		86	70-130	1	30
cis-1,2-Dichloroethene	17.8		µg/kg		20.0		89	70-130	1	30
trans-1,2-Dichloroethene	17.5		µg/kg		20.0		88	70-130	0.06	30
1,2-Dichloropropane	17.6		µg/kg		20.0		88	70-130	0.2	30
1,3-Dichloropropane	17.2		µg/kg		20.0		86	70-130	0.6	30
2,2-Dichloropropane	15.6		µg/kg		20.0		78	70-130	2	30
1,1-Dichloropropene	16.7		µg/kg		20.0		83	70-130	0.6	30
cis-1,3-Dichloropropene	16.2		µg/kg		20.0		81	70-130	0.06	30
trans-1,3-Dichloropropene	15.6		µg/kg		20.0		78	70-130	0.1	30

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1713227 - SW846 5035 Soil (low level)										
Matrix Spike (1713227-MS1)					Prepared &					

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1713227 - SW846 5035 Soil (low level)										
Matrix Spike (1713227-MS1)			Source: SC37605-02		Prepared & Analyzed: 01-Aug-17					
1,3,5-Trimethylbenzene	12.2	QM7	µg/kg		20.0	0.00	61	70-130		
Vinyl chloride	16.3		µg/kg		20.0	0.00	81	70-130		
m,p-Xylene	16.0		µg/kg		20.0	0.00	80	70-130		
o-Xylene	16.8		µg/kg		20.0	0.00	84	70-130		
Tetrahydrofuran	20.6		µg/kg		20.0	0.00	103	70-130		
Ethyl ether	27.9	QM7	µg/kg		20.0	0.00	139	70-130		
Tert-amyl methyl ether	17.8		µg/kg		20.0	0.00	89	70-130		
Ethyl tert-butyl ether	17.7		µg/kg		20.0	0.00	89	70-130		
Di-isopropyl ether	16.5		µg/kg		20.0	0.00	83	70-130		
1,4-Dioxane	220		µg/kg		200	0.00	110	70-130		
Surrogate: 4-Bromofluorobenzene	48.8		µg/kg		50.0		98	70-130		
Surrogate: Toluene-d8	45.4		µg/kg		50.0		91	70-130		
Surrogate: 1,2-Dichloroethane-d4	51.2		µg/kg		50.0		102	70-130		
Surrogate: Dibromofluoromethane	47.4		µg/kg		50.0		95	70-130		
Matrix Spike Dup (1713227-MSD1)			Source: SC37605-02		Prepared & Analyzed: 01-Aug-17					
1,1,2-Trichlorotrifluoroethane (Freon 113)	15.1		µg/kg		20.0	0.00	75	70-130	5	30
Acetone	27.5	QM7, QR5	µg/kg		20.0	0.00	138	70-130	37	30
Benzene	17.0		µg/kg		20.0	0.00	85	70-130	0.2	30
Bromobenzene	17.0		µg/kg		20.0	0.00	85	70-130	10	30
Bromochloromethane	18.0		µg/kg		20.0	0.00	90	70-130	0.2	30
Bromodichloromethane	14.7		µg/kg		20.0	0.00	74	70-130	0.2	30
Bromoform	17.2		µg/kg		20.0	0.00	86	70-130	4	30
Bromomethane	16.6		µg/kg		20.0	0.00	83	70-130	10	30
2-Butanone (MEK)	18.0		µg/kg		20.0	0.00	90	70-130	4	30
n-Butylbenzene	13.4	QM7, QR5	µg/kg		20.0	0.00	67	70-130	38	30
sec-Butylbenzene	14.6		µg/kg		20.0	0.00	73	70-130	30	30
tert-Butylbenzene	15.7		µg/kg		20.0	0.00	78	70-130	29	30
Carbon disulfide	13.0	QM7	µg/kg		20.0	0.00	65	70-130	2	30
Carbon tetrachloride	14.0		µg/kg		20.0	0.00	70	70-130	8	30
Chlorobenzene	18.3		µg/kg		20.0	0.00	92	70-130	8	30
Chloroethane	22.8		µg/kg		20.0	0.00	114	70-130	2	30
Chloroform	16.2		µg/kg		20.0	0.00	81	70-130	0.7	30
Chloromethane	16.9		µg/kg		20.0	0.00	85	70-130	2	30
2-Chlorotoluene	15.0		µg/kg		20.0	0.00	75	70-130	12	30
4-Chlorotoluene	15.8		µg/kg		20.0	0.00	79	70-130	9	30
1,2-Dibromo-3-chloropropane	19.9		µg/kg		20.0	0.00	99	70-130	0.7	30
Dibromochloromethane	14.2		µg/kg		20.0	0.00	71	70-130	1	30
1,2-Dibromoethane (EDB)	18.2		µg/kg		20.0	0.00	91	70-130	0.8	30
Dibromomethane	18.0		µg/kg		20.0	0.00	90	70-130	2	30
1,2-Dichlorobenzene	16.2		µg/kg		20.0	0.00	81	70-130	17	30
1,3-Dichlorobenzene	14.8		µg/kg		20.0	0.00	74	70-130	17	30
1,4-Dichlorobenzene	15.7		µg/kg		20.0	0.00	79	70-130	16	30
Dichlorodifluoromethane (Freon12)	15.1		µg/kg		20.0	0.00	76	70-130	4	30
1,1-Dichloroethane	16.6		µg/kg		20.0	0.00	83	70-130	1	30
1,2-Dichloroethane	16.6		µg/kg		20.0	0.00	83	70-130	1	30
1,1-Dichloroethene	16.8		µg/kg		20.0	0.00	84	70-130	1	30
cis-1,2-Dichloroethene	17.2		µg/kg		20.0	0.00	86	70-130	0.6	30
trans-1,2-Dichloroethene	16.3		µg/kg		20.0	0.00	81	70-130	1	30
1,2-Dichloropropane	17.1		µg/kg		20.0	0.00	86	70-130	0.2	30

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADE P EPH 5/2004 R										
Batch 1713206 - SW846 3546										
Blank (1713206-BLK1)					Prepared: 01-Aug-17 Analyzed: 02-Aug-17					

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADE P EPH 5/2004 R										
Batch 1713206 - SW846 3546										
Matrix Spike Dup (1713206-MSD1)			Source: SC37605-02			Prepared: 01-Aug-17 Analyzed: 03-Aug-17				
C9-C18 Aliphatic Hydrocarbons	14.7	QM7	mg/kg dry	10.6	42.5	4.19	25	40-140	26	50
C19-C36 Aliphatic Hydrocarbons	31.5		mg/kg dry	10.6	56.7	2.61	51	40-140	0.2	50
Unadjusted C11-C22 Aromatic Hydrocarbons	31.0		mg/kg dry	10.6	48.2	BRL	64	40-140	5	50
Surrogate: 1-Chlorooctadecane	4.01		mg/kg dry		3.54		113	40-140		
Surrogate: Ortho-Terphenyl	4.88		mg/kg dry		3.54		138	40-140		
Surrogate: 2-Fluorobiphenyl	3.92		mg/kg dry		2.83		138	40-140		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 6010C										
Batch 1713234 - SW846 3050B										
Blank (1713234-BLK1)					Prepared: 01-Aug-17 Analyzed: 02-Aug-17					
Arsenic	< 1.48		mg/kg wet	1.48						
Chromium	< 0.985		mg/kg wet	0.985						
Copper	< 0.985		mg/kg wet	0.985						
Duplicate (1713234-DUP1)			Source: SC37605-02		Prepared: 01-Aug-17 Analyzed: 02-Aug-17					
Copper	8.15		mg/kg dry	0.997		7.60			7	20
Chromium	15.9		mg/kg dry	0.997		16.3			2	20
Arsenic	12.6		mg/kg dry	1.50		11.1			12	20
Matrix Spike (1713234-MS1)			Source: SC37605-02		Prepared: 01-Aug-17 Analyzed: 02-Aug-17					
Copper	118		mg/kg dry	1.02	127	7.60	87	75-125		
Chromium	124		mg/kg dry	1.02	127	16.3	84	75-125		
Arsenic	115		mg/kg dry	1.53	127	11.1	81	75-125		
Matrix Spike Dup (1713234-MSD1)			Source: SC37605-02		Prepared: 01-Aug-17 Analyzed: 02-Aug-17					
Arsenic	117		mg/kg dry	1.54	128	11.1	83	75-125	2	20
Chromium	125		mg/kg dry	1.03	128	16.3	84	75-125	0.9	20
Copper	120		mg/kg dry	1.03	128	7.60	87	75-125	2	20
Post Spike (1713234-PS1)					Prepared: 01-Aug-17 Analyzed: 02-Aug-17					

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 6010C										
Batch 1713421 - SW846 3051A										
Reference (1713421-SRM1)					Prepared: 04-Aug-17 Analyzed: 07-Aug-17					
Lead	63.7		mg/kg wet	1.50	71.1		90	82-117.3		
Reference (1713421-SRM2)					Prepared: 04-Aug-17 Analyzed: 07-Aug-17					
Zinc	104		mg/kg wet	1.00	113		91	83-117		
Lead	65.8		mg/kg wet	1.50	70.7		93	82-117.3		
Batch S707030 - 1713421										
Serial Dilution (S707030-SRD1)			Source: SC37605-02			Prepared: 04-Aug-17 Analyzed: 07-Aug-17				
Zinc	20.3		mg/kg dry	5.06		17.7			14	10
Lead	10.1		mg/kg dry	7.59		8.85			14	10

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SM2540 G (11) Mod.										
Batch 1713233 - General Preparation										
Duplicate (1713233-DUP2)			Source: SC37605-02			Prepared & Analyzed: 01-Aug-17				
% Solids	93.0		%			93.3			0.3	5
SW846 9012B										
Batch 1713388 - General Preparation										
Blank (1713388-BLK1)						Prepared & Analyzed: 03-Aug-17				
Cyanide (total)	< 0.500		mg/kg wet	0.500						
Blank (1713388-BLK2)						Prepared & Analyzed: 03-Aug-17				
Cyanide (total)	< 0.500		mg/kg wet	0.500						
LCS (1713388-BS1)						Prepared & Analyzed: 03-Aug-17				
					40.0			90-110		

Extractable Petroleum Hydrocarbons - CCV Evaluation Report

Analyte(s)	Average RF	CCRF	% D	Limit
Batch S706924				

[redacted]

Batch Summary

1713206

S706452

Volatile Organic Compounds

S706452-CAL1
S706452-CAL2
S706452-CAL3
S706452-CAL4
S706452-CAL5
S706452-CAL6
S706452-CAL7
S706452-CAL8
S706452-CAL9
S706452-ICV1
S706452-LCV1
S706452-TUN1

S706487

Extractable Petroleum Hydrocarbons

☑ Final Report
☐ Revised Report

Report Date:
10-Aug-17 14:04

Laboratory Report
SC37797

AECOM Environment
250 Apollo Drive
Chelmsford, MA 01824
Attn: Art Taddeo

Project: LMC-Wilmington- 40 Fordham Rd. - MA
Project #: 60478638.5.01

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2972/2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00348
USDA # P330-15-00375
Vermont # VT-11393

Eurofins Spectrum Analytical holds primary certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 25 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Eurofins Spectrum Analytical, Inc.

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Sample Summary

Work Order : SC37797

Project: LMC-Wilmington- 40 Fordham Rd. - MA

Project Number: 60478638.5.01

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SC37797-01	TB-080317	Methanol/Deionized Water	03-Aug-17 10:20	04-Aug-17 16:02
SC37797-02	SP9_080317-1	Soil	03-Aug-17 10:30	04-Aug-17 16:02

The following outlines the condition of all VPH samples contained within this report upon laboratory receipt.

Matrices	Soil			
Containers	ü Satisfactory			
Sample Preservative	Aqueous (acid preserved)	ü N/A	pH≤2	pH>2
	Soil or Sediment	N/A	Samples not received in Methanol	ml Methanol/g soil
		ü Samples received in Methanol:	ü covering soil/sediment not covering soil/sediment	ü 1:1 +/-25% Other
		Samples received in air-tight container		
Temperature	Received on ice	ü Received at 4 ± 2 ºC		

Were all QA/QC procedures followed as required by the VPH method? Yes
Were any significant modifications made to the VPH method as specified in section 11.3? No
Were all performance/acceptance standards for required QA/QC procedures achieved? Yes

The following outlines the condition of all EPH samples contained within this report upon laboratory receipt.

Matrices	Soil				
Containers	ü Satisfactory				
Aqueous Preservative	ü N/A	pH≤2	pH>2	pH adjusted to <2 in lab	
Temperature	Received on ice	ü Received at 4 ± 2 ºC			

Were all QA/QC procedures followed as required by the EPH method? Yes
Were any significant modifications made to the EPH method as specified in Section 11.3? No
Were all performance/acceptance standards for required QA/QC procedures achieved? Yes

I attest that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Authorized by:

Christina A. White
Laboratory Director

MassDEP Analytical Protocol Certification Form

Laboratory Name: Eurofins Spectrum Analytical, Inc.	**Project #:** 60478638.5.01
Project Location: LMC-Wilmington- 40 Fordham Rd. - MA	**RTN:**
This form provides certifications for the following data set:	SC37797-01 through SC37797-02
Matrices:	Methanol/Deionized Water Soil

CAM Protocol

ü 8260 VOC CAM II A	7470/7471 Hg CAM III B	ü MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	ü MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
ü 6010 Metals CAM III A	6020 Metals CAM III D	8082 PCB CAM V A	ü 9012 Total Cyanide/PAC CAM VI A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	**Were all samples received in a condition consistent with those described on the Chain of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?**	ü **Yes**	**No**
B	**Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?**	ü **Yes**	**No**
C	**Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?**	ü **Yes**	**No**
D	**Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?**	ü **Yes**	**No**
E	**a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)?** **b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?**	ü **Yes** **Yes**	**No** **No**
F	**Were all applicable CAM protocol QC and performance standard non-conformances identified and reported?** (Complete responses to questions A through E)?	ü **Yes**	**No**

below are required for "Presumptive Certainty" status

G	**Were all QC performance standards specified in the selected CAM protocol(s)?**	**Yes** ü	**No**

t necessarily meet the data usability and representativeness

H	**Were all QC performance standards specified in the CAM protocol(s) achieved?**	**Yes** ü	**No**
I	**Were results reported for the complete analyte list specified in the selected CAM protocol(s)?**	**Yes** ü	**No**

All negative responses are addressed in a case narrative on the cover page of this report.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Christina A. White
Laboratory Director
Date: 8/10/2017

CASE NARRATIVE :

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

MADEP EPH 5/2004 R

Laboratory Control Samples:

1713590-BS1

The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

C19-C36 Aliphatic Hydrocarbons
C9-C18 Aliphatic Hydrocarbons

SW846 6010C

Laboratory Control Samples:

1713567 SRM/SRMD

Lead percent recoveries (85/77) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

SP9_080317-1

SW846 8260C

Calibration:

1707042

Analyte quantified by quadratic equation type calibration.

1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,2-Dibromo-3-chloropropane
1,4-Dioxane
2-Hexanone (MBK)
4-Methyl-2-pentanone (MIBK)
Bromoform
Dibromochloromethane
Naphthalene
trans-1,3-Dichloropropene

This affected the following samples:

1713564-BLK1
1713564-BS1
1713564-BSD1
S706452-ICV1
S707021-CCV1
SP9_080317-1
TB-080317

SampleAcceptance Check Form

Client:	AECOM Environment - Chelmsford, MA
Project:	LMC-Wilmington- 40 Fordham Rd. - M / 60478638.5.01
Work Order	SC37797
Sample(s) received on:	8/4/2017

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
Were custody seals present?	☐	☑	☐
Were custody seals intact?	☐	☐	☑
Were samples received at a temperature of 6°C?	☑	☐	☐
Were samples refrigerated upon transfer to laboratory representative?	☑	☐	☐
Were sample containers received intact?	☑	☐	☐
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
Were samples accompanied by a Chain of Custody document?	☑	☐	☐
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name,	☐	☐	☐
Did sample container labels agree with Chain of Custody document?	☑	☐	☐
Were samples received within method-specific holding times?	☑	☐	☐

Summary of Hits

Lab ID: SC37797-02 Client ID: SP9_080317-1

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Arsenic	11.8		1.64	mg/kg	SW846 6010C
Chromium	14.2		1.09	mg/kg	SW846 6010C
Copper	7.30		1.09	mg/kg	SW846 6010C
Lead	7.46		1.64	mg/kg	SW846 6010C
Zinc	19.2		1.06	mg/kg	SW846 6010C

Please note that because there are no reporting limits associated with hazardous waste characterizations or microanalyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
TB-080317 SC37797-01	60478638.5.01	Methanol/Deionized Water	03-Aug-17 10:20	04-Aug-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.

Volatile Organic Compound

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP9_080317-1 SC37797-02	60478638.5.01	Soil	03-Aug-17 10:30	04-Aug-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds Prepared by method Volatiles													
	VOC Extraction	Field extracted		N/A			1	VOC Soil Extraction			BD	1713514	
Volatile Organic Compounds by SW846 8260 Prepared by method SW846 5035A Soil (low level)							Initial weight: 6.27 g						
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	< 4.85		µg/kg dry	4.85	2.46	1	SW846 8260C	07-Aug-17	07-Aug-17	MP	1713564	
67-64-1	Acetone	< 48.5		µg/kg dry	48.5	19.4	1	"	"	"	"	"	
71-43-2	Benzene	< 4.85		µg/kg dry	4.85	1.29	1	"	"	"	"	"	
108-86-1	Bromobenzene	< 4.85		µg/kg dry	4.85	1.30	1	"	"	"	"	"	
74-97-5	Bromochloromethane	< 4.85		µg/kg dry	4.85	2.45	1	"	"	"	"	"	
75-27-4	Bromodichloromethane	< 4.85		µg/kg dry	4.85	3.24	1	"	"	"	"	"	
75-25-2	Bromoform	< 4.85		µg/kg dry	4.85	4.63	1	"	"	"	"	"	
74-83-9	Bromomethane	< 9.71		µg/kg dry	9.71	4.38	1	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	< 9.71		µg/kg dry	9.71	8.68	1	"	"	"	"	"	
104-51-8	n-Butylbenzene	< 4.85		µg/kg dry	4.85	1.39	1	"	"	"	"	"	
135-98-8	sec-Butylbenzene	< 4.85		µg/kg dry	4.85	0.88	1	"	"	"	"	"	
98-06-6	tert-Butylbenzene	< 4.85		µg/kg dry	4.85	1.09	1	"	"	"	"	"	
75-15-0	Carbon disulfide	< 9.71		µg/kg dry	9.71	3.11	1	"	"	"	"	"	
56-23-5	Carbon tetrachloride	< 4.85		µg/kg dry	4.85	3.97	1	"	"	"	"	"	
108-90-7	Chlorobenzene	< 4.85		µg/kg dry	4.85	1.52	1	"	"	"	"	"	
75-00-3	Chloroethane	< 9.71		µg/kg dry	9.71	2.69	1	"	"	"	"	"	
67-66-3	Chloroform	< 4.85		µg/kg dry	4.85	2.61	1	"	"	"	"	"	
74-87-3	Chloromethane	< 9.71		µg/kg dry	9.71	2.01	1	"	"	"	"	"	
95-49-8	2-Chlorotoluene	< 4.85		µg/kg dry	4.85	1.21	1	"	"	"	"	"	
106-43-4	4-Chlorotoluene	< 4.85		µg/kg dry	4.85	1.14	1	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	< 9.71		µg/kg dry	9.71	7.02	1	"	"	"	"	"	
124-48-1	Dibromochloromethane	< 4.85		µg/kg dry	4.85	3.29	1	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	< 4.85		µg/kg dry	4.85	3.26	1	"	"	"	"	"	
74-95-3	Dibromomethane	< 4.85		µg/kg dry	4.85	2.52	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	< 4.85		µg/kg dry	4.85	1.26	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	< 4.85		µg/kg dry	4.85	1.05	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	< 4.85		µg/kg dry	4.85	1.44	1	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	< 9.71		µg/kg dry	9.71	1.84	1	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	< 4.85		µg/kg dry	4.85	1.27	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 4.85		µg/kg dry	4.85	1.74	1	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	< 4.85		µg/kg dry	4.85	2.54	1	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	< 4.85		µg/kg dry	4.85	1.80	1	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	< 4.85		µg/kg dry	4.85	2.57	1	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	< 4.85		µg/kg dry	4.85	2.54	1	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	< 4.85		µg/kg dry	4.85	2.51	1	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	< 4.85		µg/kg dry	4.85	2.29	1	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	< 4.85		µg/kg dry	4.85	1.56	1	"	"	"	"	"	

10061-01J 49.3 0 464394848 Tc /R22 7.15 Tf 40.8 4.85 Td (cis31,1-Dichloropropene) Tj 0.000724899 Tc 297.2 0 Td (1)Tj 0.000309229 Tc"199.6 0 Td (")Tj -30.6 0 Td (")Tj -0.000235796 Tc -208 0 T2.94.63

1	"	"	"	"	"								
	< 4.85		µg/kg dry	4.85	1			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP9_080317-1 SC37797-02	60478638.5.01	Soil	03-Aug-17 10:30	04-Aug-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260													
						Initial weight: 6.27 g							
87-68-3	Hexachlorobutadiene	< 4.85		µg/kg dry	4.85	2.44	1	SW846 8260C	07-Aug-17	07-Aug-17	MP	1713564	
591-78-6	2-Hexanone (MBK)	< 9.71		µg/kg dry	9.71	5.96	1	"	"	"	"	"	
98-82-8	Isopropylbenzene	< 4.85		µg/kg dry	4.85	0.96	1	"	"	"	"	"	
99-87-6	4-Isopropyltoluene	< 4.85		µg/kg dry	4.85	1.04	1	"	"	"	"	"	
		< 4.85		µg/kg dry	4.85			"	"	"			

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP9_080317-1 SC37797-02	60478638.5.01	Soil	03-Aug-17 10:30	04-Aug-17

Result	Method Ref.	Analyzed	Batch	Cert.

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADEP VPH 5/2004 Rev. 1.1										
Batch 1713631 - VPH - EPA 5035A Soil										
Blank (1713631-BLK1)						Prepared & Analyzed: 08-Aug-17				
C5-C8 Aliphatic Hydrocarbons	< 0.750	D	mg/kg wet	0.750						
C9-C12 Aliphatic Hydrocarbons	< 0.400	D	mg/kg wet	0.400						
C9-C10 Aromatic Hydrocarbons	< 0.400	D	mg/kg wet	0.400						
Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.750	D	mg/kg wet	0.750						
Unadjusted C9-C12 Aliphatic	< 0.400	D	mg/kg wet							

	Result	Flag	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1713564 - SW846 5035 Soil (low level)										
Blank (1713564-BLK1)							Prepared & Analyzed: 07-Aug-17			
1,4-Dioxane	< 100		µg/kg wet	100						
Surrogate: 4-Bromofluorobenzene	47.6		µg/kg		50.0		95	70-130		
Surrogate: Toluene-d8	47.7		µg/kg		50.0		95	70-130		
Surrogate: 1,2-Dichloroethane-d4	53.1		µg/kg		50.0		106	70-130		
Surrogate: Dibromofluoromethane	47.8		µg/kg		50.0		96	70-130		
LCS (1713564-BS1)							Prepared & Analyzed: 07-Aug-17			
1,1,2-Trichlorotrifluoroethane (Freon 113)	17.4		µg/kg		20.0		87	70-130		
Acetone	20.7		µg/kg		20.0		103	70-130		
Benzene	19.5		µg/kg		20.0		98	70-130		
Bromobenzene	21.3		µg/kg		20.0		107	70-130		
Bromochloromethane	18.9		µg/kg		20.0		94	70-130		
Bromodichloromethane	16.6		µg/kg		20.0		83	70-130		
Bromoform	17.4		µg/kg		20.0		87	70-130		
Bromomethane	20.6		µg/kg		20.0		103	70-130		
2-Butanone (MEK)	20.9		µg/kg		20.0		105	70-130		
n-Butylbenzene	20.0		µg/kg		20.0		100	70-130		
sec-Butylbenzene	21.7		µg/kg		20.0		108	70-130		
tert-Butylbenzene	21.6		µg/kg		20.0		108	70-130		
Carbon disulfide	17.0		µg/kg		20.0		85	70-130		
Carbon tetrachloride	16.4		µg/kg		20.0		82	70-130		
Chlorobenzene	21.0		µg/kg		20.0		105	70-130		
Chloroethane	22.4		µg/kg		20.0		112	70-130		
Chloroform	17.7		µg/kg		20.0		89	70-130		
Chloromethane	18.2		µg/kg		20.0		91	70-130		
2-Chlorotoluene	19.2		µg/kg		20.0		96	70-130		
4-Chlorotoluene	21.3		µg/kg		20.0		106	70-130		
1,2-Dibromo-3-chloropropane	19.2		µg/kg		20.0		96	70-130		
Dibromochloromethane	16.0		µg/kg		20.0		80	70-130		
1,2-Dibromoethane (EDB)	18.6		µg/kg		20.0		93	70-130		
Dibromomethane	18.2		µg/kg		20.0		91	70-130		
1,2-Dichlorobenzene	21.7		µg/kg		20.0		108	70-130		
1,3-Dichlorobenzene	21.6		µg/kg		20.0		108	70-130		
1,4-Dichlorobenzene	20.5		µg/kg		20.0		103	70-130		
Dichlorodifluoromethane (Freon12)	18.6		µg/kg		20.0		93	70-130		
1,1-Dichloroethane	18.4		µg/kg		20.0		92	70-130		
1,2-Dichloroethane	16.9		µg/kg		20.0		85	70-130		
1,1-Dichloroethene	19.4		µg/kg		20.0		97	70-130		
cis-1,2-Dichloroethene	19.2		µg/kg		20.0		96	70-130		
trans-1,2-Dichloroethene	18.5		µg/kg		20.0		93	70-130		
1,2-Dichloropropane	18.8		µg/kg		20.0		94	70-130		
1,3-Dichloropropane	18.5		µg/kg		20.0		92	70-130		
2,2-Dichloropropane	16.1		µg/kg		20.0		80	70-130		
1,1-Dichloropropene	17.9		µg/kg		20.0		90	70-130		
cis-1,3-Dichloropropene	16.6		µg/kg		20.0		83	70-130		
trans-1,3-Dichloropropene	16.2		µg/kg		20.0		81	70-130		
Ethylbenzene	21.5		µg/kg		20.0		108	70-130		
Hexachlorobutadiene	20.2		µg/kg		20.0		101	70-130		
2-Hexanone (MBK)	16.7		µg/kg		20.0		83	70-130		
Isopropylbenzene	22.0		µg/kg		20.0		110	70-130		
4-Isopropyltoluene	21.6		µg/kg		20.0		108	70-130		

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1713564 - SW846 5035 Soil (low level)										
LCS Dup (1713564-BSD1)					Prepared & Analyzed: 07-Aug-17					
	19.3		µg/kg		20.0			70-130	6	30

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADE P EPH 5/2004 R										
Batch 1713590 - SW846 3546										
Blank (1713590-BLK1)					Prepared: 08-Aug-17 Analyzed: 09-Aug-17					
C9-C18 Aliphatic Hydrocarbons	< 9.88		mg/kg wet	9.88						
C19-C36 Aliphatic Hydrocarbons	< 9.88		mg/kg wet	9.88						
C11-C22 Aromatic Hydrocarbons	< 9.88		mg/kg wet	9.88						
Unadjusted C11-C22 Aromatic Hydrocarbons	< 9.88		mg/kg wet	9.88						
Total Petroleum Hydrocarbons	< 29.6		mg/kg wet	29.6						
Unadjusted Total Petroleum Hydrocarbons	< 29.6		mg/kg wet	29.6						
Naphthalene (aliphatic fraction)	0.00		mg/kg wet							
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet							
Surrogate: 1-Chlorooctadecane	2.34		mg/kg wet		3.29		71	40-140		
Surrogate: Ortho-Terphenyl	3.57		mg/kg wet		3.29		108	40-140		
Surrogate: 2-Fluorobiphenyl	3.21		mg/kg wet		2.63		122	40-140		
LCS (1713590-BS1)					Prepared: 08-Aug-17 Analyzed: 09-Aug-17					
C9-C18 Aliphatic Hydrocarbons	39.5	QR2	mg/kg wet	9.93	39.7		100	40-140		
C19-C36 Aliphatic Hydrocarbons	56.7	QR2	mg/kg wet	9.93	52.9		107	40-140		
Unadjusted C11-C22 Aromatic Hydrocarbons	39.9		mg/kg wet	9.93	45.0		89	40-140		
Naphthalene (aliphatic fraction)	0.00		mg/kg wet		2.65			0-200		
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet		2.65			0-200		
Surrogate: 1-Chlorooctadecane	6.13		mg/kg wet		6.62		93	40-140		
Surrogate: Ortho-Terphenyl	3.11		mg/kg wet		6.62		47	40-140		
Surrogate: 2-Fluorobiphenyl	2.65		mg/kg wet		2.65		100	40-140		
LCS (1713590-BS2)					Prepared: 08-Aug-17 Analyzed: 09-Aug-17					
C9-C18 Aliphatic Hydrocarbons	31.6		mg/kg wet	10.0	40.0		79	40-140		
C19-C36 Aliphatic Hydrocarbons	43.6		mg/kg wet	10.0	53.3		82	40-140		
Unadjusted C11-C22 Aromatic Hydrocarbons	41.0		mg/kg wet	10.0	45.3		91	40-140		
Naphthalene (aliphatic fraction)	0.00		mg/kg wet		2.67			0-200		
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet		2.67			0-200		
Surrogate: 1-Chlorooctadecane	7.96		mg/kg wet		6.67		119	40-140		
Surrogate: Ortho-Terphenyl	3.11		mg/kg wet		6.67		47	40-140		
Surrogate: 2-Fluorobiphenyl	2.63		mg/kg wet		2.67		99	40-140		
LCS Dup (1713590-BSD1)					Prepared: 08-Aug-17 Analyzed: 09-Aug-17					
C9-C18 Aliphatic Hydrocarbons	21.9	QR2	mg/kg wet	9.92	39.7		55	40-140	57	25
C19-C36 Aliphatic Hydrocarbons	28.1	QR2	mg/kg wet	9.92	52.9		53	40-140	67	25
Unadjusted C11-C22 Aromatic Hydrocarbons	42.7		mg/kg wet	9.92	45.0		95	40-140	7	25
Naphthalene (aliphatic fraction)	0.00		mg/kg wet		2.65			0-200		200
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet		2.65			0-200		200
Surrogate: 1-Chlorooctadecane	4.92		mg/kg wet		6.61		74	40-140		
Surrogate: Ortho-Terphenyl	3.20		mg/kg wet		6.61		48	40-140		
Surrogate: 2-Fluorobiphenyl	2.71		mg/kg wet		2.65		102	40-140		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 6010C										
Batch 1713567 - SW846 3050B										
Blank (1713567-BLK1)					Prepared: 07-Aug-17 Analyzed: 09-Aug-17					
Copper	< 0.958		mg/kg wet	0.958						
Lead	< 1.44		mg/kg wet	1.44						
Chromium	< 0.958		mg/kg wet	0.958						
Arsenic	< 1.44		mg/kg wet	1.44						
Reference (1713567-SRM1)					Prepared: 07-Aug-17 Analyzed: 09-Aug-17					
Copper	74.0		mg/kg wet	1.00	78.8		94	81.7-117.6		
Lead	60.5		mg/kg wet	1.50	71.6		85	82-117.3		
Chromium	49.9		mg/kg wet	1.00	52.5		95	80.1-119.6		
Arsenic	14.7		mg/kg wet	1.50	15.2		96	70.3-130.1		
Reference (1713567-SRM2)					Prepared: 07-Aug-17 Analyzed: 09-Aug-17					
Chromium	47.3		mg/kg wet	1.00	52.5		90	80.1-119.6		
Copper	70.1		mg/kg wet	1.00	78.7		89	81.7-117.6		
Lead	54.7	QM9	mg/kg wet	1.50	71.5		77	82-117.3		
Arsenic	13.2		mg/kg wet	1.50	15.2		87	70.3-130.1		
Batch 1713781 - SW846 3051A /R22 7.15 Tf 222.05 0.2 Td (89)Tj -0.000654538 Tc -395.5 0 Td 118 5 1										

Extractable Petroleum Hydrocarbons - CCV Evaluation Report

Analyte(s)	Average RF	CCRF	% D	Limit
Batch S707115				
Calibration Check (S707 1				

[redacted]

# of VOA Vials

# of Amber Glass

[redacted]

Batch Summary

1713560

General Chemistry Parameters

SC37797-02 (SP9_080317-1)

1713564

Volatile Organic Compounds

1713564-BLK1
1713564-BS1
1713564-BSD1
SC37797-01 (TB-080317)
SC37797-02 (SP9_080317-1)

1713567

Total Metals by EPA 6000/7000 Series Methods

1713567-BLK1
1713567-SRM1
1713567-SRM2
SC37797-02 (SP9_080317-1)

1713590

Extractable Petroleum Hydrocarbons

1713590-BLK1
1713590-BS1
1713590-BS2
1713590-BSD1
SC37797-02 (SP9_080317-1)

1713631

Volatile Organic Compounds

1713631-BLK1
1713631-BS1
1713631-BSD1
SC37797-02 (SP9_080317-1)

1713698

General Chemistry Parameters

1713698-BLK1
1713698-BS1
1713698-BS2
1713698-SRM1
SC37797-02 (SP9_080317-1)

1713781

Total Metals by EPA 6000/7000 Series Methods

S707021

Volatile Organic Compounds

S707021-CCV1
S707021-TUN1

S707045

Volatile Organic Compounds

S707045-CCV1
S707045-CCV2

S707095

General Chemistry Parameters

S707095-CCB1
S707095-CCB2
S707095-CCV1
S707095-CCV2
S707095-CRL1
S707095-CRL2
S707095-HCV1
S707095-LCV1

S707108

General Chemistry Parameters

S707108-CAL1
S707108-CAL2
S707108-CAL3
S707108-CAL4
S707108-CAL5
S707108-CAL6
S707108-CAL7
S707108-ICV1

S707115

Extractable Petroleum Hydrocarbons

S707115-CCV1
S707115-CCV2
S707115-TUN1

☑ Final Report
☐ Revised Report

Report Date:
15-Aug-17 16:45

Laboratory Report
SC38055

AECOM Environment
250 Apollo Drive
Chelmsford, MA 01824
Attn: Art Taddeo

Project: LMC-Wilmington- 40 Fordham Rd. - MA
Project #: 60478638.5.01

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1410
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2972/2538
New Jersey # MA011
New York

Sample Summary

Work Order : SC38055

Project: LMC-Wilmington- 40 Fordham Rd. - MA

Project Number: 60478638.5.01

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SC38055-01	TB_081117	Methanol/Deionized Water	11-Aug-17 10:15	11-Aug-17 17:17
SC38055-02	SP10_081117-1	Soil	11-Aug-17 10:20	11-Aug-17 17:17

CASE NARRATIVE :

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the reporting limit are reported as “<” (less than) the reporting limit in this report.

The samples were received 2.6 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

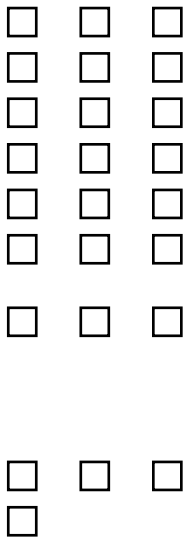
MADEP has published a list of analytical methods

SW846 8260C

Laboratory Control Samples:

1713937 BS/BSD

Carbon disulfide percent recoveries (74/66) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:



Summary of Hits

Lab ID: SC38055-02 Client ID: SP10_0811-1

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
C19-C36 Aliphatic Hydrocarbons	5460	D, CCE	104	mg/kg	MADEP EPH 5/2004 R
Arsenic	7.41		1.55	mg/kg	SW846 6010C
Chromium	12.6		1.04	mg/kg	SW846 6010C
Copper	7.47		1.04	mg/kg	SW846 6010C
Lead	8.73		1.55	mg/kg	SW846 6010C
Zinc	26.1		1.04	mg/kg	SW846 6010C

Please note that because there are no reporting limits associated with hazardous waste characterizations or microbiological analyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
TB_081117 SC38055-01	60478638.5.01	Methanol/Deionized Water	11-Aug-17 10:15	11-Aug-17

Result	M9uElyzd

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
TB_081117 SC38055-01	60478638.5.01	Methanol/Deionized Water	11-Aug-17 10:15	11-Aug-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260													
99-87-6	4-Isopropyltoluene	< 5.00		µg/kg wet	5.00	1.08	1	SW846 8260C	14-Aug-17	14-Aug-17	MP	1713937	
1634-04-4	Methyl tert-butyl ether	< 5.00		µg/kg wet	5.00	1.84	1	"	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	< 10.0		µg/kg wet	10.0	2.57	1	"	"	"	"	"	
75-09-2	Methylene chloride	< 10.0		µg/kg wet	10.0	1.98	1	"	"	"	"	"	
91-20-3	Naphthalene	< 5.00		µg/kg wet	5.00	2.98	1	"	"	"	"	"	
103-65-1	n-Propylbenzene	< 5.00		µg/kg wet	5.00	0.81	1	"	"	"	"	"	
100-42-5	Styrene	< 5.00		µg/kg wet	5.00	1.00	1	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	< 5.00		µg/kg wet	5.00	4.25	1	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	< 5.00		µg/kg wet	5.00	4.23	1	"	"	"	"	"	
127-18-4	Tetrachloroethene	< 5.00		µg/kg wet	5.00	1.71	1	"	"	"	"	"	
108-88-3	Toluene	< 5.00		µg/kg wet	5.00	1.62	1	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	< 5.00		µg/kg wet	5.00	1.76	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	< 5.00		µg/kg wet	5.00	3.68	1	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	< 5.00		µg/kg wet	5.00	1.66	1	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	< 5.00		µg/kg wet	5.00	3.62	1	"	"	"	"	"	
79-01-6	Trichloroethene	< 5.00		µg/kg wet	5.00	1.36	1	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	< 5.00		µg/kg wet	5.00	2.70	1	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	< 5.00		µg/kg wet	5.00	3.75	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	< 5.00		µg/kg wet	5.00	1.22	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	< 5.00		µg/kg wet	5.00	0.86	1	"	"	"	"	"	
75-01-4	Vinyl chloride	< 5.00		µg/kg wet	5.00	1.69	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 10.0		µg/kg wet	10.0	0.90	1	"	"	"	"	"	
95-47-6	o-Xylene	< 5.00		µg/kg wet	5.00	1.40	1	"	"	"	"	"	
109-99-9	Tetrahydrofuran	< 10.0		µg/kg wet	10.0	7.88	1	"	"	"	"	"	
60-29-7	Ethyl ether	< 5.00		µg/kg wet	5.00	4.53	1	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	< 5.00		µg/kg wet	5.00	1.67	1	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	< 5.00		µg/kg wet	5.00	2.70	1	"	"	"	"	"	
108-20-3	Di-isopropyl ether	< 5.00		µg/kg wet	5.00	0.93	1	"	"	"	"	"	
123-91-1	1,4-Dioxane	< 100		µg/kg wet	100	86.8	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	4-Bromofluorobenzene	88			70-130 %			"	"	"	"	"	
2037-26-5	Toluene-d8	89			70-130 %			"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	111			70-130 %			"	"	"	"	"	
1868-53-7	Dibromofluoromethane	96			70-130 %			"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP10_0811717-1 SC38055-02	60478638.5.01	Soil	11-Aug-17 10:20	11-Aug-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.

Volatile Organic Compounds

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
SP10_0811 7-1 SC38055-02	60478638.5.01	Soil	11-Aug-17 10:20	11-Aug-17

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
MADEP VPH Carbon Ranges													
						Initial weight: 17.57 g							
	C9-C10 Aromatic Hydrocarbons	< 0.234	D	mg/kg dry	0.234	0.0284	50	MADEP VPH 5/2004 Rev. 1.1	14-Aug-17	14-Aug-17	SD	1713935	
	Unadjusted C5-C8 Aliphatic Hydrocarbons	< 0.703	D	mg/kg dry	0.703	0.109	50	"	"	"	"	"	
	Unadjusted C9-C12 Aliphatic Hydrocarbons	< 0.234	D	mg/kg dry	0.234	0.124	50	"	"	"	"	"	
Surrogate recoveries:													
615-59-8	2,5-Dibromotoluene (FID)	81			70-130 %			"	"	"	"	"	
615-59-8	2,5-Dibromotoluene (PID)	95			70-130 %			"	"	"	"	"	
Extractable Petroleum Hydrocarbons													
MADEP EPH Carbon Ranges													
Prepared by method SW846 3546													
	C9-C18 Aliphatic Hydrocarbons	< 104	D, R01	mg/kg dry	104	14.5	10	MADEP EPH 5/2004 R	14-Aug-17	15-Aug-17	EDT	1713892	
	C19-C36 Aliphatic Hydrocarbons	5,460	D, CCE, R01	mg/kg dry	104	14.6	10	"	"	"	"	"	
	C11-C22 Aromatic Hydrocarbons	< 104	D, R01	mg/kg dry	104	49.4	10	"	"	"	"	"	
	Unadjusted C11-C22 Aromatic Hydrocarbons	< 104	D, R01	mg/kg dry	104	49.4	10	"	"	"	"	"	
Surrogate recoveries:													
3386-33-2	1-Chlorooctadecane	0	R01, S01		40-140 %			"	"	"	"	"	
84-15-1	Ortho-Terphenyl	0	R01, S01		40-140 %			"	"	"	"	"	
321-60-8	2-Fluorobiphenyl	0	R01, S01		40-140 %			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
Prepared by method SW846 3051A													
7440-38-2	Arsenic	7.41		mg/kg dry	1.55	0.197	1	SW846 6010C	14-Aug-17	15-Aug-17	TBC	1713897	
7440-47-3	Chromium	12.6		mg/kg dry	1.04	0.138	1	"	"	"	"	"	
7440-50-8	Copper	7.47		mg/kg dry	1.04	0.249	1	"	"	"	"	"	
7439-92-1		8.73		mg/kg dry	1.55			"	"	"			

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADEP VPH 5/2004 Rev. 1.1										
Batch 1713935 - VPH - EPA 5035A Soil										
Blank (1713935-BLK1)								Prepared & Analyzed: 14-Aug-17		
		D	mg/kg wet							

	Result	Flag	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1713937 - SW846 5035 Soil (low level)										
Blank (1713937-BLK1)							Prepared & Analyzed: 14-Aug-17			
1,4-Dioxane	< 100		µg/kg wet	100						
Surrogate: 4-Bromofluorobenzene	44.6		µg/kg		50.0		89	70-130		
Surrogate: Toluene-d8	49.3		µg/kg		50.0		99	70-130		
Surrogate: 1,2-Dichloroethane-d4	56.2		µg/kg		50.0		112	70-130		
Surrogate: Dibromofluoromethane	48.4		µg/kg		50.0		97	70-130		
LCS (1713937-BS1)							Prepared & Analyzed: 14-Aug-17			
1,1,2-Trichlorotrifluoroethane (Freon 113)	15.3		µg/kg		20.0		77	70-130		
Acetone	31.0		µg/kg		20.0		155	70-130		
Benzene	19.2		µg/kg		20.0		96	70-130		
Bromobenzene	23.4		µg/kg		20.0		117	70-130		
Bromochloromethane	18.1		µg/kg		20.0		91	70-130		
Bromodichloromethane	16.4		µg/kg		20.0		82	70-130		
Bromoform	18.8		µg/kg		20.0		94	70-130		
Bromomethane	21.7		µg/kg		20.0		108	70-130		
2-Butanone (MEK)	19.0		µg/kg		20.0		95	70-130		
n-Butylbenzene	22.8		µg/kg		20.0		114	70-130		
sec-Butylbenzene	23.6		µg/kg		20.0		118	70-130		
tert-Butylbenzene	23.9		µg/kg		20.0		120	70-130		
Carbon disulfide	14.9		µg/kg		20.0		74	70-130		
Carbon tetrachloride	16.4		µg/kg		20.0		82	70-130		
Chlorobenzene	23.4		µg/kg		20.0		117	70-130		
Chloroethane	22.5		µg/kg		20.0		112	70-130		
Chloroform	17.5		µg/kg		20.0		87	70-130		
Chloromethane	18.6		µg/kg		20.0		93	70-130		
2-Chlorotoluene	20.0		µg/kg		20.0		100	70-130		
4-Chlorotoluene	23.4		µg/kg		20.0		117	70-130		
1,2-Dibromo-3-chloropropane	21.3		µg/kg		20.0		106	70-130		
Dibromochloromethane	15.5		µg/kg		20.0		77	70-130		
1,2-Dibromoethane (EDB)	17.6		µg/kg		20.0		88	70-130		
Dibromomethane	17.7		µg/kg		20.0		88	70-130		
1,2-Dichlorobenzene	24.9		µg/kg		20.0		125	70-130		
1,3-Dichlorobenzene	23.7		µg/kg		20.0		119	70-130		
1,4-Dichlorobenzene	23.7		µg/kg		20.0		118	70-130		
Dichlorodifluoromethane (Freon12)	18.0		µg/kg		20.0		90	70-130		
1,1-Dichloroethane	18.3		µg/kg		20.0		91	70-130		
1,2-Dichloroethane	16.4		µg/kg		20.0		82	70-130		
1,1-Dichloroethene	17.0		µg/kg		20.0		85	70-130		
cis-1,2-Dichloroethene	18.6		µg/kg		20.0		93	70-130		
trans-1,2-Dichloroethene	18.1		µg/kg		20.0		91	70-130		
1,2-Dichloropropane	18.6		µg/kg		20.0		93	70-130		
1,3-Dichloropropane	17.6		µg/kg		20.0		88	70-130		
2,2-Dichloropropane	17.5		µg/kg		20.0		87	70-130		
1,1-Dichloropropene	17.5		µg/kg		20.0		87	70-130		
cis-1,3-Dichloropropene	16.6		µg/kg		20.0		83	70-130		
trans-1,3-Dichloropropene	16.3		µg/kg		20.0		82	70-130		
Ethylbenzene	23.9		µg/kg		20.0		120	70-130		
Hexachlorobutadiene	23.2		µg/kg		20.0		116	70-130		
2-Hexanone (MBK)	16.4		µg/kg		20.0		82	70-130		
Isopropylbenzene	24.0		µg/kg		20.0		120	70-130		
4-Isopropyltoluene	24.6		µg/kg		20.0		123	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1713937 - SW846 5035 Soil (low level)										
LCS (1713937-BS1)					Prepared & Analyzed: 14-Aug-17					
Methyl tert-butyl ether	17.5		µg/kg		20.0		88	70-130		
	16.5		µg/kg		20.0			70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1713937 - SW846 5035 Soil (low level)										
LCS Dup (1713937-BSD1)					Prepared & Analyzed: 14-Aug-17					
Chloromethane	18.1		µg/kg		20.0		90	70-130	3	30
2-Chlorotoluene	19.7		µg/kg		20.0		99	70-130	2	30
4-Chlorotoluene	22.8		µg/kg		20.0		114	70-130	2	30
1,2-Dibromo-3-chloropropane	22.3		µg/kg		20.0		112	70-130	5	30
Dibromochloromethane	15.2		µg/kg		20.0		76	70-130	1	30
1,2-Dibromoethane (EDB)	17.7		µg/kg		20.0		88	70-130	0.6	30
Dibromomethane	17.3		µg/kg		20.0		86	70-130	2	30
1,2-Dichlorobenzene	24.5		µg/kg		20.0		123	70-130	2	30
1,3-Dichlorobenzene	23.2		µg/kg		20.0		116	70-130	2	30
1,4-Dichlorobenzene	23.3		µg/kg		20.0		117	70-130	2	30
Dichlorodifluoromethane (Freon12)	17.6		µg/kg		20.0		88	70-130	2	30
1,1-Dichloroethane	15.0		µg/kg		20.0		75	70-130	20	30
1,2-Dichloroethane	16.4		µg/kg		20.0		82	70-130	0.1	30
1,1-Dichloroethene	16.2		µg/kg		20.0		81	70-130	4	30
cis-1,2-Dichloroethene	15.9		µg/kg		20.0		79	70-130	16	30
trans-1,2-Dichloroethene	15.3		µg/kg		20.0		76	70-130	17	30
1,2-Dichloropropane	18.2		µg/kg		20.0		91	70-130	2	30
1,3-Dichloropropane	17.7		µg/kg		20.0		88	70-130	0.1	30
2,2-Dichloropropane	15.2		µg/kg		20.0		76	70-130	14	30
1,1-Dichloropropene	17.3		µg/kg		20.0		87	70-130	0.9	30
cis-1,3-Dichloropropene	16.4		µg/kg		20.0		82	70-130	1	30
trans-1,3-Dichloropropene	16.1		µg/kg		20.0		80	70-130	1	30
Ethylbenzene	23.8		µg/kg		20.0		119	70-130	0.4	30
Hexachlorobutadiene	23.0		µg/kg		20.0		115	70-130	1	30
2-Hexanone (MBK)	16.0		µg/kg		20.0		80	70-130	3	30
Isopropylbenzene	24.0		µg/kg		20.0		120	70-130	0.08	30
4-Isopropyltoluene	24.3		µg/kg		20.0		122	70-130	1	30
Methyl tert-butyl ether	15.0		µg/kg		20.0		75	70-130	16	30
4-Methyl-2-pentanone (MIBK)	15.2		µg/kg		20.0		76	70-130	8	30
Methylene chloride	15.0		µg/kg		20.0		75	70-130	0.1	30
Naphthalene	22.6		µg/kg		20.0		113	70-130	1	30
n-Propylbenzene	23.2		µg/kg		20.0		116	70-130	2	30
Styrene	22.2		µg/kg		20.0		111	70-130	2	30
1,1,1,2-Tetrachloroethane	22.6		µg/kg		20.0		113	70-130	3	30
1,1,2,2-Tetrachloroethane	23.8		µg/kg		20.0		119	70-130	0.1	30
Tetrachloroethene	17.8		µg/kg		20.0		89	70-130	2	30
Toluene	18.1		µg/kg		20.0		90	70-130	3	30
1,2,3-Trichlorobenzene	24.2		µg/kg		20.0		121	70-130	2	30
1,2,4-Trichlorobenzene	22.0		µg/kg		20.0		110	70-130	0	30
1,1,1-Trichloroethane	17.5		µg/kg		20.0		87	70-130	1	30
1,1,2-Trichloroethane	17.8		µg/kg		20.0		89	70-130	2	30
Trichloroethene	17.8		µg/kg		20.0		89	70-130	4	30
Trichlorofluoromethane (Freon 11)	23.4		µg/kg		20.0		117	70-130	2	30
1,2,3-Trichloropropane	23.2		µg/kg		20.0		116	70-130	0.04	30
1,2,4-Trimethylbenzene	23.2		µg/kg		20.0		116	70-130	2	30
1,3,5-Trimethylbenzene	22.2		µg/kg		20.0		111	70-130	2	30
Vinyl chloride	18.5		µg/kg		20.0		92	70-130	3	30
m,p-Xylene	23.8		µg/kg		20.0		119	70-130	4	30
o-Xylene	24.2		µg/kg		20.0		121	70-130	1	30
T	14.0		µg/kg		20.0		70	70-130	18	30

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1713937 - SW846 5035 Soil (low level)										
LCS Dup (1713937-BSD1)						Prepared & Analyzed: 14-Aug-17				
Ethyl ether	25.7		µg/kg		20.0		129	70-130	12	30
Tert-amyl methyl ether	16.4		µg/kg		20.0		82	70-130	2	30
Ethyl tert-butyl ether	15.6		µg/kg		20.0		78	70-130	14	30
Di-isopropyl ether	14.0		µg/kg		20.0		70	70-130	21	30
1,4-Dioxane	165		µg/kg		200		82	70-130	2	30
Surrogate: 4-Bromofluorobenzene	49.0		µg/kg		50.0		98	70-130		
Surrogate: Toluene-d8	44.0		µg/kg		50.0		88	70-130		
Surrogate: 1,2-Dichloroethane-d4	41.8		µg/kg		50.0		84	70-130		
Surrogate: Dibromofluoromethane	41.0		µg/kg		50.0		82	70-130		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MADEP EPH 5/2004 R										
Batch 1713892 - SW846 3546										
Blank (1713892-BLK1)					Prepared: 14-Aug-17 Analyzed: 15-Aug-17					
C9-C18 Aliphatic Hydrocarbons	< 9.97		mg/kg wet	9.97						
C19-C36 Aliphatic Hydrocarbons	< 9.97		mg/kg wet	9.97						
C11-C22 Aromatic Hydrocarbons	< 9.97		mg/kg wet	9.97						
Unadjusted C11-C22 Aromatic Hydrocarbons	< 9.97		mg/kg wet	9.97						
Total Petroleum Hydrocarbons	< 29.9		mg/kg wet	29.9						
Unadjusted Total Petroleum Hydrocarbons	< 29.9		mg/kg wet	29.9						
Naphthalene (aliphatic fraction)	0.00		mg/kg wet							
2-Methylnaphthalene (aliphatic fraction)	0.00		mg/kg wet							
Surrogate: 1-Chlorooctadecane	1.62		mg/kg wet		3.32		49	40-140		
Surrogate: Ortho-Terphenyl	2.85		mg/kg wet		3.32		86	40-140		
Surrogate: 2-Fluorobiphenyl	2.67		mg/kg wet		2.66		100	40-140		
LCS (1713892-BS1)					Prepared: 14-Aug-17 Analyzed: 15-Aug-17					
C9-C18 Aliphatic Hydrocarbons	19.6		mg/kg wet	9.97	19.9		98	40-140		
C19-C36 Aliphatic Hydrocarbons	24.7		mg/kg wet	9.97	26.6		93	40-140		
Unadjusted C11-C22 Aromatic Hydrocarbons	19.6		mg/kg wet	9.97						

T

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 9012B										
Batch 1713985 - General Preparation										
Blank (1713985-BLK1)						Prepared &				

Analyte(s)	Average RF	CCRF	% D	Limit

The following list indicates the date and time low-level VOC soil/sediment samples were placed in the freezer at the lab:

SC38055-02	SP10_081117-1	8/11/2017 5:17 PM

Notes and Definitions

CCE	The upper linear range for carbon chains is defined by peak height not concentration. Based on the maximum peak height for this fraction it is shown to be within the linear range of the detector and therefore not diluted further.
D	Data reported from a dilution

[redacted]

Batch Summary

1713892

Extractable Petroleum Hydrocarbons

1713892-BLK1
1713892-BS1
1713892-BS2
1713892-BSD1
SC38055-02 (SP10_0818-1)

1713897

T