TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

TestAmerica Job ID: 600-153669-2
Client Project/Site: United Creosoting Company

For:
CH2M Hill Constructors, Inc.
14701 St. Mary's Lane
Suite 300
Houston, Texas 77079-2923

Attn: Mr. John Ynfante

Authorized for release by:
9/15/2017 3:28:24 PM

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LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

7080198

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Method Summary 4
Sample Summary 5
Client Sample Results 6
Definitions/Glossary 8
Surrogate Summary 9
QC Sample Results 10
QC Association Summary 14
Lab Chronicle 15
Certification Summary 16
Chain of Custody 17
Receipt Checklists 19

Job ID: 600-153669-2

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-153669-2

Comments
No additional comments.

Receipt
The samples were received on 9/11/2017 6:48 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3º C.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: United Creosoting Company

TestAmerica Job ID: 600-153669-2

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU
2540B	Percent Moisture	SM20	TAL HOU

Protocol References:

SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Sample Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: United Creosoting Company

TestAmerica Job ID: 600-153669-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-153669-3	UCC-SO-001	Solid	09/11/17 12:50	09/11/17 18:48

Client Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: United Creosoting Company

TestAmerica Job ID: 600-153669-2

Client Sample ID: UCC-SO-001

Date Collected: 09/11/17 12:50
Date Received: 09/11/17 18:48

Lab Sample ID: 600-153669-3

Matrix: Solid
Percent Solids: 90.6

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	4.4	U	37	4.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
1,2,4,5-Tetrachlorobenzene	7.4	U	37	7.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2,3,4,6-Tetrachlorophenol	18	U	37	18	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2,4,5-Trichlorophenol	11	U	37	11	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2,4,6-Trichlorophenol	2.9	U	37	2.9	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2,4-Dichlorophenol	4.2	U	37	4.2	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2,4-Dimethylphenol	9.4	U	37	9.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2,4-Dinitrophenol	5.2	U	110	5.2	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2,4-Dinitrotoluene	4.0	U	37	4.0	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2,6-Dinitrotoluene	3.2	U	37	3.2	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2-Chloronaphthalene	1.3	U	37	1.3	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2-Chlorophenol	2.2	U	37	2.2	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2-Methylnaphthalene	3.0	U	37	3.0	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2-Methylphenol	3.5	U	37	3.5	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2-Nitroaniline	5.4	U	37	5.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
2-Nitrophenol	4.3	U	37	4.3	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
3 & 4 Methylphenol	3.1	U	37	3.1	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
3,3'-Dichlorobenzidine	11	U	37	11	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
3-Nitroaniline	7.8	U	37	7.8	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
4,6-Dinitro-2-methylphenol	5.5	U	190	5.5	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
4-Bromophenyl phenyl ether	3.1	U	37	3.1	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
4-Chloro-3-methylphenol	17	U	37	17	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
4-Chloroaniline	6.4	U	37	6.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
4-Chlorophenyl phenyl ether	2.0	U	37	2.0	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
4-Nitroaniline	12	U	37	12	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
4-Nitrophenol	5.6	U	220	5.6	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Acenaphthene	1.6	U	37	1.6	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Acenaphthylene	1.1	U	37	1.1	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Acetophenone	3.6	U	37	3.6	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Anthracene	1.4	U	37	1.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Atrazine	5.5	U	37	5.5	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Benzaldehyde	18	U	37	18	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Benzo[a]anthracene	1.5	U	37	1.5	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Benzo[a]pyrene	1.8	U	37	1.8	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Benzo[b]fluoranthene	**21**	**J**	37	1.9	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Benzo[g,h,i]perylene	5.6	U	37	5.6	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Benzo[k]fluoranthene	**3.6**	**J**	37	1.6	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
bis (2-Chloroisopropyl) ether	9.7	U	37	9.7	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Bis(2-chloroethoxy)methane	1.6	U	37	1.6	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Bis(2-chloroethyl)ether	1.8	U	37	1.8	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Bis(2-ethylhexyl) phthalate	5.9	U	37	5.9	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Butyl benzyl phthalate	6.8	U	73	6.8	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Caprolactam	18	U	37	18	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Carbazole	3.4	U	37	3.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Chrysene	**9.2**	**J**	37	1.1	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Dibenz(a,h)anthracene	4.0	U	37	4.0	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Dibenzofuran	2.0	U	37	2.0	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Diethyl phthalate	9.2	U	73	9.2	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Dimethyl phthalate	5.4	U	73	5.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1

Client Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: United Creosoting Company

TestAmerica Job ID: 600-153669-2

Client Sample ID: UCC-SO-001

Date Collected: 09/11/17 12:50
Date Received: 09/11/17 18:48

Lab Sample ID: 600-153669-3

Matrix: Solid
Percent Solids: 90.6

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-butyl phthalate	2.8	U	73	2.8	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Di-n-octyl phthalate	2.1	U	73	2.1	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Fluoranthene	**9.4**	**J**	37	3.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Fluorene	2.6	U	37	2.6	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Hexachlorobenzene	1.7	U	37	1.7	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Hexachlorobutadiene	2.1	U	37	2.1	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Hexachlorocyclopentadiene	5.1	U	37	5.1	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Hexachloroethane	2.5	U	37	2.5	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Indeno[1,2,3-cd]pyrene	3.8	U	37	3.8	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Isophorone	1.1	U	37	1.1	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Naphthalene	1.5	U	37	1.5	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Nitrobenzene	3.2	U	37	3.2	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
N-Nitrosodi-n-propylamine	2.4	U	37	2.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
N-Nitrosodiphenylamine	2.1	U	37	2.1	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Pentachlorophenol	4.4	U	180	4.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Phenanthrene	5.4	U	37	5.4	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Phenol	4.7	U	37	4.7	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1
Pyrene	**8.0**	**J**	37	2.0	ug/Kg	☼	09/12/17 14:54	09/13/17 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*74*		*10 - 148*	*09/12/17 14:54*	*09/13/17 18:51*	*1*
2-Fluorobiphenyl	*54*		*38 - 130*	*09/12/17 14:54*	*09/13/17 18:51*	*1*
2-Fluorophenol	*56*		*25 - 132*	*09/12/17 14:54*	*09/13/17 18:51*	*1*
Nitrobenzene-d5	*47*		*10 - 155*	*09/12/17 14:54*	*09/13/17 18:51*	*1*
Phenol-d5 (Surr)	*50*		*27 - 130*	*09/12/17 14:54*	*09/13/17 18:51*	*1*
Terphenyl-d14	*73*		*53 - 134*	*09/12/17 14:54*	*09/13/17 18:51*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**9.4**		1.0	1.0	%			09/13/17 16:19	1
Percent Solids	**90.6**		1.0	1.0	%			09/13/17 16:19	1

Definitions/Glossary

Client: CH2M Hill Constructors, Inc.
Project/Site: United Creosoting Company

TestAmerica Job ID: 600-153669-2

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: United Creosoting Company

TestAmerica Job ID: 600-153669-2

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	PHL	TPH
Lab Sample ID	**Client Sample ID**	(10-148)	(38-130)	(25-132)	(10-155)	(27-130)	(53-134)
600-153669-3	UCC-SO-001	74	54	56	47	50	73
LCS 600-221113/2-A	Lab Control Sample	86	78	78	71	75	85
MB 600-221113/1-A	Method Blank	77	66	74	69	67	84

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 600-221113/1-A
Matrix: Solid
Analysis Batch: 221104

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 221113

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	4.0	U	33	4.0	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
1,2,4,5-Tetrachlorobenzene	6.8	U	33	6.8	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2,3,4,6-Tetrachlorophenol	17	U	33	17	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2,4,5-Trichlorophenol	10	U	33	10	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2,4,6-Trichlorophenol	2.7	U	33	2.7	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2,4-Dichlorophenol	3.9	U	33	3.9	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2,4-Dimethylphenol	8.6	U	33	8.6	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2,4-Dinitrophenol	4.7	U	100	4.7	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2,4-Dinitrotoluene	3.6	U	33	3.6	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2,6-Dinitrotoluene	3.0	U	33	3.0	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2-Chloronaphthalene	1.2	U	33	1.2	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2-Chlorophenol	2.0	U	33	2.0	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2-Methylnaphthalene	2.7	U	33	2.7	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2-Methylphenol	3.2	U	33	3.2	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2-Nitroaniline	4.9	U	33	4.9	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
2-Nitrophenol	3.9	U	33	3.9	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
3 & 4 Methylphenol	2.8	U	33	2.8	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
3,3'-Dichlorobenzidine	10	U	33	10	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
3-Nitroaniline	7.2	U	33	7.2	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
4,6-Dinitro-2-methylphenol	5.0	U	170	5.0	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
4-Bromophenyl phenyl ether	2.8	U	33	2.8	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
4-Chloro-3-methylphenol	16	U	33	16	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
4-Chloroaniline	5.8	U	33	5.8	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
4-Chlorophenyl phenyl ether	1.8	U	33	1.8	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
4-Nitroaniline	11	U	33	11	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
4-Nitrophenol	5.1	U	200	5.1	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Acenaphthene	1.4	U	33	1.4	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Acenaphthylene	1.0	U	33	1.0	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Acetophenone	3.3	U	33	3.3	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Anthracene	1.3	U	33	1.3	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Atrazine	5.0	U	33	5.0	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Benzaldehyde	17	U	33	17	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Benzo[a]anthracene	1.4	U	33	1.4	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Benzo[a]pyrene	1.6	U	33	1.6	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Benzo[b]fluoranthene	1.7	U	33	1.7	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Benzo[g,h,i]perylene	5.1	U	33	5.1	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Benzo[k]fluoranthene	1.5	U	33	1.5	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
bis (2-Chloroisopropyl) ether	8.8	U	33	8.8	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Bis(2-chloroethoxy)methane	1.4	U	33	1.4	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Bis(2-chloroethyl)ether	1.7	U	33	1.7	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Bis(2-ethylhexyl) phthalate	5.4	U	33	5.4	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Butyl benzyl phthalate	6.2	U	67	6.2	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Caprolactam	17	U	33	17	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Carbazole	3.1	U	33	3.1	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Chrysene	1.0	U	33	1.0	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Dibenz(a,h)anthracene	3.6	U	33	3.6	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Dibenzofuran	1.8	U	33	1.8	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Diethyl phthalate	8.4	U	67	8.4	ug/Kg		09/12/17 09:54	09/12/17 11:51	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: MB 600-221113/1-A
Matrix: Solid
Analysis Batch: 221104

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 221113

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethyl phthalate	4.9	U	67	4.9	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Di-n-butyl phthalate	2.6	U	67	2.6	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Di-n-octyl phthalate	1.9	U	67	1.9	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Fluoranthene	3.1	U	33	3.1	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Fluorene	2.4	U	33	2.4	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Hexachlorobenzene	1.5	U	33	1.5	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Hexachlorobutadiene	1.9	U	33	1.9	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Hexachlorocyclopentadiene	4.6	U	33	4.6	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Hexachloroethane	2.3	U	33	2.3	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Indeno[1,2,3-cd]pyrene	3.5	U	33	3.5	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Isophorone	1.0	U	33	1.0	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Naphthalene	1.4	U	33	1.4	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Nitrobenzene	3.0	U	33	3.0	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
N-Nitrosodi-n-propylamine	2.2	U	33	2.2	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
N-Nitrosodiphenylamine	1.9	U	33	1.9	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Pentachlorophenol	4.0	U	170	4.0	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Phenanthrene	5.0	U	33	5.0	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Phenol	4.2	U	33	4.2	ug/Kg		09/12/17 09:54	09/12/17 11:51	1
Pyrene	1.8	U	33	1.8	ug/Kg		09/12/17 09:54	09/12/17 11:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*77*		*10 - 148*	*09/12/17 09:54*	*09/12/17 11:51*	*1*
2-Fluorobiphenyl	*66*		*38 - 130*	*09/12/17 09:54*	*09/12/17 11:51*	*1*
2-Fluorophenol	*74*		*25 - 132*	*09/12/17 09:54*	*09/12/17 11:51*	*1*
Nitrobenzene-d5	*69*		*10 - 155*	*09/12/17 09:54*	*09/12/17 11:51*	*1*
Phenol-d5 (Surr)	*67*		*27 - 130*	*09/12/17 09:54*	*09/12/17 11:51*	*1*
Terphenyl-d14	*84*		*53 - 134*	*09/12/17 09:54*	*09/12/17 11:51*	*1*

Lab Sample ID: LCS 600-221113/2-A
Matrix: Solid
Analysis Batch: 221104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 221113

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	667	498		ug/Kg		75	40 - 130
1,2,4,5-Tetrachlorobenzene	667	534		ug/Kg		80	37 - 130
2,3,4,6-Tetrachlorophenol	667	506		ug/Kg		76	44 - 130
2,4,5-Trichlorophenol	667	576		ug/Kg		86	41 - 130
2,4,6-Trichlorophenol	667	530		ug/Kg		80	39 - 130
2,4-Dichlorophenol	667	512		ug/Kg		77	38 - 130
2,4-Dimethylphenol	667	457		ug/Kg		69	32 - 139
2,4-Dinitrophenol	1330	928		ug/Kg		70	15 - 130
2,4-Dinitrotoluene	667	525		ug/Kg		79	45 - 130
2,6-Dinitrotoluene	667	520		ug/Kg		78	44 - 130
2-Chloronaphthalene	667	508		ug/Kg		76	41 - 130
2-Chlorophenol	667	498		ug/Kg		75	37 - 130
2-Methylnaphthalene	667	475		ug/Kg		71	43 - 130
2-Methylphenol	667	548		ug/Kg		82	30 - 130
2-Nitroaniline	667	404		ug/Kg		61	42 - 130

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCS 600-221113/2-A
Matrix: Solid
Analysis Batch: 221104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 221113

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Nitrophenol	667	535		ug/Kg		80	38 - 130
3 & 4 Methylphenol	667	470		ug/Kg		70	28 - 133
3,3'-Dichlorobenzidine	667	542		ug/Kg		81	13 - 146
3-Nitroaniline	667	585		ug/Kg		88	41 - 130
4,6-Dinitro-2-methylphenol	1330	985		ug/Kg		74	38 - 130
4-Bromophenyl phenyl ether	667	568		ug/Kg		85	46 - 130
4-Chloro-3-methylphenol	667	499		ug/Kg		75	43 - 130
4-Chloroaniline	667	550		ug/Kg		83	32 - 130
4-Chlorophenyl phenyl ether	667	554		ug/Kg		83	44 - 130
4-Nitroaniline	667	742		ug/Kg		111	46 - 130
4-Nitrophenol	1330	793		ug/Kg		60	42 - 130
Acenaphthene	667	508		ug/Kg		76	42 - 130
Acenaphthylene	667	496		ug/Kg		74	39 - 130
Acetophenone	667	372		ug/Kg		56	36 - 130
Anthracene	667	515		ug/Kg		77	51 - 130
Atrazine	667	199		ug/Kg		30	10 - 140
Benzaldehyde	667	139		ug/Kg		21	10 - 130
Benzo[a]anthracene	667	532		ug/Kg		80	54 - 130
Benzo[a]pyrene	667	568		ug/Kg		85	44 - 131
Benzo[b]fluoranthene	667	581		ug/Kg		87	41 - 139
Benzo[g,h,i]perylene	667	506		ug/Kg		76	38 - 142
Benzo[k]fluoranthene	667	528		ug/Kg		79	42 - 134
bis (2-Chloroisopropyl) ether	667	366		ug/Kg		55	38 - 130
Bis(2-chloroethoxy)methane	667	452		ug/Kg		68	39 - 130
Bis(2-chloroethyl)ether	667	442		ug/Kg		66	40 - 130
Bis(2-ethylhexyl) phthalate	667	462		ug/Kg		69	41 - 145
Butyl benzyl phthalate	667	453		ug/Kg		68	48 - 141
Caprolactam	667	283		ug/Kg		42	41 - 130
Carbazole	667	713		ug/Kg		107	49 - 131
Chrysene	667	507		ug/Kg		76	52 - 130
Dibenz(a,h)anthracene	667	510		ug/Kg		76	40 - 137
Dibenzofuran	667	529		ug/Kg		79	43 - 130
Diethyl phthalate	667	506		ug/Kg		76	50 - 130
Dimethyl phthalate	667	525		ug/Kg		79	40 - 130
Di-n-butyl phthalate	667	504		ug/Kg		76	51 - 135
Di-n-octyl phthalate	667	487		ug/Kg		73	38 - 153
Fluoranthene	667	567		ug/Kg		85	53 - 130
Fluorene	667	526		ug/Kg		79	46 - 130
Hexachlorobenzene	667	552		ug/Kg		83	44 - 130
Hexachlorobutadiene	667	560		ug/Kg		84	36 - 130
Hexachlorocyclopentadiene	667	167		ug/Kg		25	10 - 130
Hexachloroethane	667	465		ug/Kg		70	37 - 130
Indeno[1,2,3-cd]pyrene	667	502		ug/Kg		75	35 - 146
Isophorone	667	365		ug/Kg		55	39 - 130
Naphthalene	667	503		ug/Kg		75	40 - 130
Nitrobenzene	667	450		ug/Kg		68	42 - 130
N-Nitrosodi-n-propylamine	667	423		ug/Kg		64	36 - 130
N-Nitrosodiphenylamine	667	530		ug/Kg		79	48 - 130

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCS 600-221113/2-A
Matrix: Solid
Analysis Batch: 221104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 221113

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	1330	939		ug/Kg		70	40 - 130
Phenanthrene	667	528		ug/Kg		79	51 - 130
Phenol	667	475		ug/Kg		71	30 - 130
Pyrene	667	508		ug/Kg		76	53 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*86*		*10 - 148*
2-Fluorobiphenyl	*78*		*38 - 130*
2-Fluorophenol	*78*		*25 - 132*
Nitrobenzene-d5	*71*		*10 - 155*
Phenol-d5 (Surr)	*75*		*27 - 130*
Terphenyl-d14	*85*		*53 - 134*

QC Association Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: United Creosoting Company

TestAmerica Job ID: 600-153669-2

GC/MS Semi VOA

Analysis Batch: 221104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 600-221113/1-A	Method Blank	Total/NA	Solid	8270C LL	221113
LCS 600-221113/2-A	Lab Control Sample	Total/NA	Solid	8270C LL	221113

Prep Batch: 221113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153669-3	UCC-SO-001	Total/NA	Solid	3546	
MB 600-221113/1-A	Method Blank	Total/NA	Solid	3546	
LCS 600-221113/2-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 221228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153669-3	UCC-SO-001	Total/NA	Solid	8270C LL	221113

General Chemistry

Analysis Batch: 221266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153669-3	UCC-SO-001	Total/NA	Solid	2540B	

Lab Chronicle

Client: CH2M Hill Constructors, Inc.
Project/Site: United Creosoting Company

TestAmerica Job ID: 600-153669-2

Client Sample ID: UCC-SO-001 — Lab Sample ID: 600-153669-3

Date Collected: 09/11/17 12:50
Date Received: 09/11/17 18:48
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540B		1			221266	09/13/17 16:19	B1K	TAL HOU

Client Sample ID: UCC-SO-001 — Lab Sample ID: 600-153669-3

Date Collected: 09/11/17 12:50
Date Received: 09/11/17 18:48
Matrix: Solid
Percent Solids: 90.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			15.09 g	1.0 mL	221113	09/12/17 14:54	RLK	TAL HOU
Total/NA	Analysis	8270C LL		1	1 mL	1.0 mL	221228	09/13/17 18:51	TTD	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Accreditation/Certification Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: United Creosoting Company

TestAmerica Job ID: 600-153669-2

Laboratory: TestAmerica Houston

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Texas	NELAP	6	T104704223-17-21	10-31-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
2540B		Solid	Percent Moisture
2540B		Solid	Percent Solids
8270C LL	3546	Solid	Atrazine
8270C LL	3546	Solid	Benzaldehyde

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: A Forsberg	Lab PM: Upton, Cathy L	Carrier Tracking No(s):	COC No: 600-54931-16099.29
Client Contact: Mr. John Ynfante	Phone: 505 918 1800	E-Mail: cathy.upton@testamericainc.com		Page: Page 29 of 32
Company: CH2M Hill Constructors, Inc.				Job #:
Address: 14701 St. Mary's Lane Suite 300	Due Date Requested:			
City: Houston	TAT Requested (days):			
State, Zip: TX, 77079-2923				
Phone: 281-721-8546(Tel)	PO #: Purchase Order not required			
Email: john.ynfante@ch2m.com	WO #:			
Project Name: Hurricane Harvey Environmental Response	Project #: 60008995			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020, 7471A	8260B - TCL Volatiles TX - default	8270C_LL - TCL 4.2 Default List	8082 - PCBs	300_ORGFM_28D, 9045C	6020, 7470A	8260B_LL - TCL Volatiles TX - default	9040B - pH	300_ORGFM_28D, SM2310B					Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	N	N	D	A	N	N						
CCC-SO-001	9/11/17	1130	C	~~Water~~ Soil	N	Y			X												MS/MSD
CCC-SO-002		1205	C	~~Water~~ Soil	N	N			X												
UCC-SO-001		1250	C	~~Water~~ Soil	N	N			X												
				Water																	
				Water																	
				Water																	
				Water																	
				Water																	
				Water																	
				Water																	
				Water																	

600-153669 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ___

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date: 1848	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 9/11/17 1880	Company: CH2M	Received by:	Date/Time: 9/11/17 1848	Company: THH.
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

TestAmerica Houston

Loc: 600
153669

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Receipt Checklist

Date/Time Received: '17 SEP 11 18:48

JOB NUMBER: _____ CLIENT: CH2M H.

UNPACKED BY: CWL CARRIER/DRIVER: Client

Custody Seal Present: ☐ YES ☐ NO Number of Coolers Received: _____

Cooler ID	Temp Blank	Trip Blank	Observed Temp (℃)	Therm ID	Them CF	Corrected Temp (℃)
KW	Y / N	Y / N	2.6	549	-0.3	2.3
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				
	Y / N	Y / N				

CWL 9/11/17

CF = correction factor

Samples received on ice? ☑ YES ☐ NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED: ☑ NO ☐ YES

Base samples are>pH 12: ☐ YES ☐ NO Acid preserved are<pH 2: ☐ YES ☐ NO

pH paper Lot #_____

VOA headspace acceptable (5-6mm): ☐ YES ☐ NO ☑ NA

	YES	NO
Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓	

COMMENTS:

G 11/17

HS-SA-WI-013 Rev. 3; 07/01/2014

Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 600-153669-2

Login Number: 153669
List Number: 1
Creator: Kovitch, Christina M

List Source: TestAmerica Houston

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.6°C IR549
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	