TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
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Tel: (713)690-4444

TestAmerica Job ID: 600-153593-1
Client Project/Site: Jasper 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:
9/13/2017 6:42:48 PM

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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.

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Job ID: 600-153593-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative
600-153593-1

Comments
No additional comments.

Receipt
The samples were received on 9/8/2017 5:33 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 3.1º C and 4.5º C.

Receipt Exceptions

The Dioxin samples were received in clear glass jar instead of amber for the following samples: JCC-SS-001 (600-153593-1), JCC-SS-002 (600-153593-2) and JCC-SS-003 (600-153593-3)
The samples were put in a box to be kept dark.

GC/MS Semi VOA
Method(s) 8270C LL: The following sample required a dilution due to the nature of the sample matrix: JCC-GW-004 (600-153593-4). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method(s) 8270C LL: The following sample was diluted due to the nature of the sample matrix: JCC-GW-004 (600-153593-4). Elevated reporting limits (RLs) are provided.

Method(s) 8270C LL: The laboratory control sample and/or the laboratory control sample duplicate (LCS/LCSD) for preparation batch 600-220952 and analytical batch 600-220974 recovered outside control limits for the following analyte(s): Benzaldehyde. Benzaldehyde has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. Batch precision also exceeded control limits for this analyte. The results have been reported and qualified.

Method(s) 8270C SIM: The following sample required a dilution due to the nature of the sample matrix: JCC-GW-004 (600-153593-4). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method(s) 8270C SIM: The following sample was diluted due to the nature of the sample matrix: JCC-GW-004 (600-153593-4). Elevated reporting limits (RLs) are provided.

Method(s) 8270C SIM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch preparation batch 600-220953 and analytical batch 600-220976 recovered outside control limits for the following analytes: 1-Methylnaphthalene, 2-Methylnaphthalene, Fluoranthene and Phenanthrene.

Method(s) 8270C LL: The method blank for preparation batch 600-220951 and analytical batch 600-221013 contained Di-n-butyl phthalate above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 8270C LL: The laboratory control sample for preparation batch 600-220951 and analytical batch 600-221013 recovered outside control limits for the following analyte(s): Benzaldehyde. Benzaldehyde has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

Method(s) 8270C LL: The following samples was diluted due to the nature of the sample matrix: JCC-SS-002 (600-153593-2) and JCC-SS-003 (600-153593-3). Elevated reporting limits (RLs) are provided.

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

Dioxin
Method(s) 8290A: The bracketing continuing calibration verification (CCV091117A) associated with batch 320-183866 has analyte

Job ID: 600-153593-1 (Continued)

Laboratory: TestAmerica Houston (Continued)

13C-OCDD with percent difference value that is greater than the method criteria of 30% to 35% deviation from the initial calibration curve. All associates samples show normal recovery for this internal standard. There is no adverse impact on the quality of the data.

Method(s) 8290A: The beginning calibration verification (CCV091117B) and ending calibration verification (CCV091117C) associated with batch 320-183867 has analyte 13C-OCDD with percent difference values that are greater than the method criteria of 30% to 35% deviation from the initial calibration curve. The associated sample shows normal recovery of this internal standard. There is no adverse impact on the data.

Method(s) 8290A: The following samples exhibited elevated noise or matrix interferences for one or more analytes causing elevation of the detection limit (EDL): JCC-SS-001 (600-153593-1), JCC-SS-002 (600-153593-2) and JCC-SS-003 (600-153593-3) . The reporting limit (RL) for the affected analytes has been raised to be equal to the EDL, and a "G" qualifier applied.

Method(s) 8290A: The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: JCC-SS-001 (600-153593-1), JCC-SS-002 (600-153593-2) and JCC-SS-003 (600-153593-3). These analytes have been qualified; however, the peaks did not saturate the instrument detector. Historical data indicate that for the isotope dilution method, dilution and re-analysis will not produce significantly different results from those reported above the calibration range.

No additional analytical or quality issues were noted, other than those described above or 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
Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 600-220952.

Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 600-220953.

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

Dioxin 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: Jasper Creosoting Company

TestAmerica Job ID: 600-153593-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL HOU
8270C SIM	Semivolatile Org Compounds by GCMS (SIM)	SW846	TAL HOU
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC

Protocol References:

ASTM = ASTM International

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

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

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

TestAmerica Job ID: 600-153593-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-153593-1	JCC-SS-001	Solid	09/08/17 11:40	09/08/17 17:33
600-153593-2	JCC-SS-002	Solid	09/08/17 11:45	09/08/17 17:33
600-153593-3	JCC-SS-003	Solid	09/08/17 12:00	09/08/17 17:33
600-153593-4	JCC-GW-004	Water	09/08/17 12:20	09/08/17 17:33

Client Sample Results

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

TestAmerica Job ID: 600-153593-1

Client Sample ID: JCC-SS-001

Date Collected: 09/08/17 11:40
Date Received: 09/08/17 17:33

Lab Sample ID: 600-153593-1

Matrix: Solid
Percent Solids: 94.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	4.2	U	35	4.2	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
1,2,4,5-Tetrachlorobenzene	7.1	U F2	35	7.1	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2,3,4,6-Tetrachlorophenol	18	U	35	18	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2,4,5-Trichlorophenol	11	U	35	11	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2,4,6-Trichlorophenol	2.8	U	35	2.8	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2,4-Dichlorophenol	4.1	U F2	35	4.1	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2,4-Dimethylphenol	9.1	U F2	35	9.1	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2,4-Dinitrophenol	5.0	U F2 F1	110	5.0	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2,4-Dinitrotoluene	3.8	U	35	3.8	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2,6-Dinitrotoluene	3.1	U	35	3.1	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2-Chloronaphthalene	1.3	U F2	35	1.3	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2-Chlorophenol	2.1	U F2	35	2.1	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2-Methylnaphthalene	2.9	U	35	2.9	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2-Methylphenol	3.4	U F2	35	3.4	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2-Nitroaniline	5.2	U	35	5.2	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
2-Nitrophenol	4.1	U F2	35	4.1	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
3 & 4 Methylphenol	2.9	U F2	35	2.9	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
3,3'-Dichlorobenzidine	11	U F1	35	11	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
3-Nitroaniline	7.5	U F1	35	7.5	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
4,6-Dinitro-2-methylphenol	5.3	U F2 F1	180	5.3	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
4-Bromophenyl phenyl ether	3.0	U	35	3.0	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
4-Chloro-3-methylphenol	16	U	35	16	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
4-Chloroaniline	6.1	U F2 F1	35	6.1	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
4-Chlorophenyl phenyl ether	1.9	U	35	1.9	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
4-Nitroaniline	12	U F1	35	12	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
4-Nitrophenol	5.4	U	210	5.4	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Acenaphthene	**3.9**	**J**	35	1.5	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Acenaphthylene	**19**	**J**	35	1.1	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Acetophenone	3.5	U F2	35	3.5	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Anthracene	**19**	**J**	35	1.4	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Atrazine	5.3	U	35	5.3	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Benzaldehyde	18	U F2 *	35	18	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Benzo[a]anthracene	**52**	**F2**	35	1.5	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Benzo[a]pyrene	**62**	**F2 F1**	35	1.7	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Benzo[b]fluoranthene	**180**	**F2 F1**	35	1.8	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Benzo[g,h,i]perylene	**24**	**J F2 F1**	35	5.4	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Benzo[k]fluoranthene	**72**	**F2 F1**	35	1.6	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
bis (2-Chloroisopropyl) ether	9.3	U F2 F1	35	9.3	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Bis(2-chloroethoxy)methane	1.5	U F2 F1	35	1.5	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Bis(2-chloroethyl)ether	1.7	U F2 F1	35	1.7	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Bis(2-ethylhexyl) phthalate	5.7	U	35	5.7	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Butyl benzyl phthalate	**11**	**J**	70	6.5	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Caprolactam	18	U	35	18	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Carbazole	**16**	**J**	35	3.3	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Chrysene	**72**	**F2**	35	1.1	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Dibenz(a,h)anthracene	**9.5**	**J F1**	35	3.8	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Dibenzofuran	**11**	**J**	35	1.9	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Diethyl phthalate	8.9	U	70	8.9	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Dimethyl phthalate	5.2	U	70	5.2	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1

Client Sample ID: JCC-SS-001

Date Collected: 09/08/17 11:40
Date Received: 09/08/17 17:33

Lab Sample ID: 600-153593-1

Matrix: Solid
Percent Solids: 94.3

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	**7.2**	**J B**	70	2.7	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Di-n-octyl phthalate	2.0	U	70	2.0	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Fluoranthene	**81**		35	3.3	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Fluorene	**3.1**	**J**	35	2.5	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Hexachlorobenzene	1.6	U	35	1.6	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Hexachlorobutadiene	2.0	U F2	35	2.0	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Hexachlorocyclopentadiene	4.9	U F2 F1	35	4.9	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Hexachloroethane	2.4	U F2 F1	35	2.4	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Indeno[1,2,3-cd]pyrene	**29**	**J F2**	35	3.7	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Isophorone	1.1	U F2 F1	35	1.1	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Naphthalene	**19**	**J**	35	1.4	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Nitrobenzene	3.1	U F2 F1	35	3.1	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
N-Nitrosodi-n-propylamine	2.3	U F2 F1	35	2.3	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
N-Nitrosodiphenylamine	2.0	U	35	2.0	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Pentachlorophenol	**71**	**J**	180	4.2	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Phenanthrene	**25**	**J**	35	5.2	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Phenol	4.5	U F2	35	4.5	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1
Pyrene	**88**		35	1.9	ug/Kg	☼	09/10/17 09:36	09/11/17 19:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*85*		*10 - 148*	*09/10/17 09:36*	*09/11/17 19:29*	*1*
2-Fluorobiphenyl	*72*		*38 - 130*	*09/10/17 09:36*	*09/11/17 19:29*	*1*
2-Fluorophenol	*74*		*25 - 132*	*09/10/17 09:36*	*09/11/17 19:29*	*1*
Nitrobenzene-d5	*65*		*10 - 155*	*09/10/17 09:36*	*09/11/17 19:29*	*1*
Phenol-d5 (Surr)	*63*		*27 - 130*	*09/10/17 09:36*	*09/11/17 19:29*	*1*
Terphenyl-d14	*80*		*53 - 134*	*09/10/17 09:36*	*09/11/17 19:29*	*1*

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.069	U	1.1	0.069	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
2,3,7,8-TCDF	**0.17**	**J**	1.1	0.074	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
1,2,3,7,8-PeCDD	**0.88**	**J**	5.3	0.16	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
1,2,3,7,8-PeCDF	**0.21**	**J q**	5.3	0.16	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
2,3,4,7,8-PeCDF	**0.45**	**J**	5.3	0.16	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
1,2,3,4,7,8-HxCDD	**4.1**	**J**	5.3	0.26	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
1,2,3,6,7,8-HxCDD	**21**		5.3	0.23	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
1,2,3,7,8,9-HxCDD	**6.9**		5.3	0.22	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
1,2,3,4,7,8-HxCDF	**6.0**		5.3	0.34	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
1,2,3,6,7,8-HxCDF	**2.2**	**J q**	5.3	0.31	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
1,2,3,7,8,9-HxCDF	0.36	U	5.3	0.36	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
2,3,4,6,7,8-HxCDF	**1.6**	**J**	5.3	0.33	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
1,2,3,4,6,7,8-HpCDD	**910**	**G B**	6.4	6.4	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
1,2,3,4,6,7,8-HpCDF	**100**		5.3	1.1	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
1,2,3,4,7,8,9-HpCDF	**9.5**		5.3	1.4	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
OCDD	**12000**	**E B**	11	3.8	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
OCDF	**590**	**B**	11	0.21	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
Total TCDD	**0.74**	**J q**	1.1	0.069	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
Total TCDF	**0.17**	**J**	1.1	0.074	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
Total PeCDD	**5.2**	**J q**	5.3	0.16	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
Total PeCDF	**7.4**	**q**	5.3	0.16	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1

Client Sample ID: JCC-SS-001

Lab Sample ID: 600-153593-1
Date Collected: 09/08/17 11:40
Matrix: Solid
Date Received: 09/08/17 17:33
Percent Solids: 94.3

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HxCDD	130		5.3	0.24	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
Total HxCDF	85	q	5.3	0.33	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
Total HpCDD	2000	G B	6.4	6.4	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1
Total HpCDF	480	B	5.3	1.2	pg/g	☼	09/09/17 11:30	09/11/17 23:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*69*		*40 - 135*	*09/09/17 11:30*	*09/11/17 23:59*	*1*
13C-2,3,7,8-TCDF	*63*		*40 - 135*	*09/09/17 11:30*	*09/11/17 23:59*	*1*
13C-1,2,3,7,8-PeCDD	*74*		*40 - 135*	*09/09/17 11:30*	*09/11/17 23:59*	*1*
13C-1,2,3,7,8-PeCDF	*68*		*40 - 135*	*09/09/17 11:30*	*09/11/17 23:59*	*1*
13C-1,2,3,6,7,8-HxCDD	*63*		*40 - 135*	*09/09/17 11:30*	*09/11/17 23:59*	*1*
13C-1,2,3,4,7,8-HxCDF	*65*		*40 - 135*	*09/09/17 11:30*	*09/11/17 23:59*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*76*		*40 - 135*	*09/09/17 11:30*	*09/11/17 23:59*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*65*		*40 - 135*	*09/09/17 11:30*	*09/11/17 23:59*	*1*
13C-OCDD	*87*		*40 - 135*	*09/09/17 11:30*	*09/11/17 23:59*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.7		0.1	0.1	%			09/11/17 15:57	1
Percent Solids	94.3		0.1	0.1	%			09/11/17 15:57	1

Client Sample ID: JCC-SS-002

Lab Sample ID: 600-153593-2
Date Collected: 09/08/17 11:45
Matrix: Solid
Date Received: 09/08/17 17:33
Percent Solids: 93.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	21	U	180	21	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
1,2,4,5-Tetrachlorobenzene	36	U	180	36	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2,3,4,6-Tetrachlorophenol	89	U	180	89	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2,4,5-Trichlorophenol	54	U	180	54	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2,4,6-Trichlorophenol	14	U	180	14	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2,4-Dichlorophenol	21	U	180	21	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2,4-Dimethylphenol	46	U	180	46	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2,4-Dinitrophenol	25	U	540	25	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2,4-Dinitrotoluene	19	U	180	19	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2,6-Dinitrotoluene	16	U	180	16	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2-Chloronaphthalene	6.5	U	180	6.5	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2-Chlorophenol	11	U	180	11	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2-Methylnaphthalene	15	U	180	15	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2-Methylphenol	17	U	180	17	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2-Nitroaniline	26	U	180	26	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
2-Nitrophenol	21	U	180	21	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
3 & 4 Methylphenol	15	U	180	15	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
3,3'-Dichlorobenzidine	54	U	180	54	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
3-Nitroaniline	38	U	180	38	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
4,6-Dinitro-2-methylphenol	27	U	910	27	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
4-Bromophenyl phenyl ether	15	U	180	15	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
4-Chloro-3-methylphenol	84	U	180	84	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
4-Chloroaniline	31	U	180	31	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
4-Chlorophenyl phenyl ether	9.6	U	180	9.6	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5

Client Sample Results

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

TestAmerica Job ID: 600-153593-1

Client Sample ID: JCC-SS-002

Date Collected: 09/08/17 11:45
Date Received: 09/08/17 17:33

Lab Sample ID: 600-153593-2

Matrix: Solid
Percent Solids: 93.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	60	U	180	60	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
4-Nitrophenol	27	U	1100	27	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Acenaphthene	7.7	U	180	7.7	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Acenaphthylene	**81**	**J**	180	5.4	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Acetophenone	18	U	180	18	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Anthracene	**77**	**J**	180	6.9	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Atrazine	27	U	180	27	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Benzaldehyde	**95**	**J ***	180	89	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Benzo[a]anthracene	**270**		180	7.4	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Benzo[a]pyrene	**280**		180	8.6	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Benzo[b]fluoranthene	**720**		180	9.2	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Benzo[g,h,i]perylene	**200**		180	27	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Benzo[k]fluoranthene	**260**		180	8.0	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
bis (2-Chloroisopropyl) ether	47	U	180	47	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Bis(2-chloroethoxy)methane	7.6	U	180	7.6	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Bis(2-chloroethyl)ether	8.8	U	180	8.8	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Bis(2-ethylhexyl) phthalate	29	U	180	29	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Butyl benzyl phthalate	33	U	360	33	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Caprolactam	89	U	180	89	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Carbazole	**60**	**J**	180	17	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Chrysene	**360**		180	5.5	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Dibenz(a,h)anthracene	**61**	**J**	180	19	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Dibenzofuran	**35**	**J**	180	9.5	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Diethyl phthalate	45	U	360	45	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Dimethyl phthalate	26	U	360	26	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Di-n-butyl phthalate	14	U	360	14	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Di-n-octyl phthalate	10	U	360	10	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Fluoranthene	**450**		180	17	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Fluorene	13	U	180	13	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Hexachlorobenzene	8.1	U	180	8.1	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Hexachlorobutadiene	10	U	180	10	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Hexachlorocyclopentadiene	25	U	180	25	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Hexachloroethane	12	U	180	12	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Indeno[1,2,3-cd]pyrene	**200**		180	19	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Isophorone	5.4	U	180	5.4	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Naphthalene	**64**	**J**	180	7.2	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Nitrobenzene	16	U	180	16	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
N-Nitrosodi-n-propylamine	12	U	180	12	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
N-Nitrosodiphenylamine	10	U	180	10	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Pentachlorophenol	**340**	**J**	900	21	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Phenanthrene	**120**	**J**	180	27	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Phenol	23	U	180	23	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5
Pyrene	**440**		180	9.8	ug/Kg	☼	09/10/17 09:36	09/13/17 13:37	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*78*		*10 - 148*	*09/10/17 09:36*	*09/13/17 13:37*	*5*
2-Fluorobiphenyl	*66*		*38 - 130*	*09/10/17 09:36*	*09/13/17 13:37*	*5*
2-Fluorophenol	*70*		*25 - 132*	*09/10/17 09:36*	*09/13/17 13:37*	*5*
Nitrobenzene-d5	*64*		*10 - 155*	*09/10/17 09:36*	*09/13/17 13:37*	*5*
Phenol-d5 (Surr)	*64*		*27 - 130*	*09/10/17 09:36*	*09/13/17 13:37*	*5*

Client Sample Results

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

TestAmerica Job ID: 600-153593-1

Client Sample ID: JCC-SS-002

Date Collected: 09/08/17 11:45
Date Received: 09/08/17 17:33

Lab Sample ID: 600-153593-2

Matrix: Solid
Percent Solids: 93.2

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	80		53 - 134	09/10/17 09:36	09/13/17 13:37	5

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.093	U	1.1	0.093	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
2,3,7,8-TCDF	**0.31**	**J**	1.1	0.094	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
1,2,3,7,8-PeCDD	**2.3**	**J**	5.4	0.19	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
1,2,3,7,8-PeCDF	**0.36**	**J q**	5.4	0.19	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
2,3,4,7,8-PeCDF	**0.47**	**J q**	5.4	0.19	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
1,2,3,4,7,8-HxCDD	**12**		5.4	0.69	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
1,2,3,6,7,8-HxCDD	**68**		5.4	0.62	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
1,2,3,7,8,9-HxCDD	**22**		5.4	0.59	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
1,2,3,4,7,8-HxCDF	**9.4**		5.4	0.96	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
1,2,3,6,7,8-HxCDF	**3.7**	**J**	5.4	0.87	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
1,2,3,7,8,9-HxCDF	1.0	U	5.4	1.0	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
2,3,4,6,7,8-HxCDF	**2.5**	**J**	5.4	0.92	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
1,2,3,4,6,7,8-HpCDD	**3000**	**G E B**	17	17	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
1,2,3,4,6,7,8-HpCDF	**410**		5.4	3.9	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
1,2,3,4,7,8,9-HpCDF	**28**		5.4	4.6	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
OCDD	**37000**	**G E B**	13	13	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
OCDF	**2500**	**B**	11	0.56	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
Total TCDD	**2.4**	**q**	1.1	0.093	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
Total TCDF	**1.4**	**q**	1.1	0.094	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
Total PeCDD	**16**		5.4	0.19	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
Total PeCDF	**10**	**q**	5.4	0.19	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
Total HxCDD	**450**		5.4	0.63	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
Total HxCDF	**280**		5.4	0.94	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
Total HpCDD	**6900**	**G B**	17	17	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1
Total HpCDF	**1900**	**B**	5.4	4.3	pg/g	☼	09/09/17 11:30	09/12/17 00:45	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	71		40 - 135	09/09/17 11:30	09/12/17 00:45	1
13C-2,3,7,8-TCDF	67		40 - 135	09/09/17 11:30	09/12/17 00:45	1
13C-1,2,3,7,8-PeCDD	84		40 - 135	09/09/17 11:30	09/12/17 00:45	1
13C-1,2,3,7,8-PeCDF	74		40 - 135	09/09/17 11:30	09/12/17 00:45	1
13C-1,2,3,6,7,8-HxCDD	64		40 - 135	09/09/17 11:30	09/12/17 00:45	1
13C-1,2,3,4,7,8-HxCDF	67		40 - 135	09/09/17 11:30	09/12/17 00:45	1
13C-1,2,3,4,6,7,8-HpCDD	77		40 - 135	09/09/17 11:30	09/12/17 00:45	1
13C-1,2,3,4,6,7,8-HpCDF	66		40 - 135	09/09/17 11:30	09/12/17 00:45	1
13C-OCDD	82		40 - 135	09/09/17 11:30	09/12/17 00:45	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.8**		0.1	0.1	%			09/11/17 15:57	1
Percent Solids	**93.2**		0.1	0.1	%			09/11/17 15:57	1

Client Sample Results

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

TestAmerica Job ID: 600-153593-1

Client Sample ID: JCC-SS-003
Date Collected: 09/08/17 12:00
Date Received: 09/08/17 17:33

Lab Sample ID: 600-153593-3
Matrix: Solid
Percent Solids: 82.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	24	U	200	24	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
1,2,4,5-Tetrachlorobenzene	40	U	200	40	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2,3,4,6-Tetrachlorophenol	100	U	200	100	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2,4,5-Trichlorophenol	60	U	200	60	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2,4,6-Trichlorophenol	16	U	200	16	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2,4-Dichlorophenol	23	U	200	23	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2,4-Dimethylphenol	51	U	200	51	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2,4-Dinitrophenol	28	U	600	28	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2,4-Dinitrotoluene	22	U	200	22	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2,6-Dinitrotoluene	18	U	200	18	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2-Chloronaphthalene	7.3	U	200	7.3	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2-Chlorophenol	12	U	200	12	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2-Methylnaphthalene	16	U	200	16	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2-Methylphenol	19	U	200	19	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2-Nitroaniline	29	U	200	29	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
2-Nitrophenol	23	U	200	23	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
3 & 4 Methylphenol	17	U	200	17	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
3,3'-Dichlorobenzidine	61	U	200	61	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
3-Nitroaniline	43	U	200	43	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
4,6-Dinitro-2-methylphenol	30	U	1000	30	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
4-Bromophenyl phenyl ether	17	U	200	17	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
4-Chloro-3-methylphenol	93	U	200	93	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
4-Chloroaniline	35	U	200	35	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
4-Chlorophenyl phenyl ether	11	U	200	11	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
4-Nitroaniline	67	U	200	67	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
4-Nitrophenol	30	U	1200	30	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Acenaphthene	8.6	U	200	8.6	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Acenaphthylene	6.0	U	200	6.0	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Acetophenone	20	U	200	20	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Anthracene	7.7	U	200	7.7	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Atrazine	30	U	200	30	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Benzaldehyde	100	U *	200	100	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Benzo[a]anthracene	8.3	U	200	8.3	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Benzo[a]pyrene	**47**	**J**	200	9.6	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Benzo[b]fluoranthene	**99**	**J**	200	10	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Benzo[g,h,i]perylene	**44**	**J**	200	30	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Benzo[k]fluoranthene	**45**	**J**	200	8.9	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
bis (2-Chloroisopropyl) ether	53	U	200	53	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Bis(2-chloroethoxy)methane	8.5	U	200	8.5	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Bis(2-chloroethyl)ether	9.9	U	200	9.9	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Bis(2-ethylhexyl) phthalate	32	U	200	32	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Butyl benzyl phthalate	37	U	400	37	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Caprolactam	100	U	200	100	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Carbazole	19	U	200	19	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Chrysene	6.1	U	200	6.1	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Dibenz(a,h)anthracene	22	U	200	22	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Dibenzofuran	11	U	200	11	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Diethyl phthalate	51	U	400	51	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Dimethyl phthalate	29	U	400	29	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5

Client Sample ID: JCC-SS-003

Date Collected: 09/08/17 12:00
Date Received: 09/08/17 17:33

Lab Sample ID: 600-153593-3

Matrix: Solid
Percent Solids: 82.9

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	16	U	400	16	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Di-n-octyl phthalate	**130**	**J**	400	11	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Fluoranthene	**65**	**J**	200	19	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Fluorene	14	U	200	14	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Hexachlorobenzene	9.1	U	200	9.1	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Hexachlorobutadiene	12	U	200	12	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Hexachlorocyclopentadiene	28	U	200	28	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Hexachloroethane	14	U	200	14	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Indeno[1,2,3-cd]pyrene	**33**	**J**	200	21	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Isophorone	6.0	U	200	6.0	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Naphthalene	8.1	U	200	8.1	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Nitrobenzene	18	U	200	18	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
N-Nitrosodi-n-propylamine	13	U	200	13	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
N-Nitrosodiphenylamine	11	U	200	11	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Pentachlorophenol	24	U	1000	24	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Phenanthrene	30	U	200	30	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Phenol	**57**	**J**	200	25	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5
Pyrene	**71**	**J**	200	11	ug/Kg	☼	09/10/17 09:36	09/13/17 14:01	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*71*		*10 - 148*	*09/10/17 09:36*	*09/13/17 14:01*	*5*
2-Fluorobiphenyl	*53*		*38 - 130*	*09/10/17 09:36*	*09/13/17 14:01*	*5*
2-Fluorophenol	*55*		*25 - 132*	*09/10/17 09:36*	*09/13/17 14:01*	*5*
Nitrobenzene-d5	*47*		*10 - 155*	*09/10/17 09:36*	*09/13/17 14:01*	*5*
Phenol-d5 (Surr)	*55*		*27 - 130*	*09/10/17 09:36*	*09/13/17 14:01*	*5*
Terphenyl-d14	*79*		*53 - 134*	*09/10/17 09:36*	*09/13/17 14:01*	*5*

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	**0.17**	**J**	1.2	0.050	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
2,3,7,8-TCDF	**0.088**	**J**	1.2	0.037	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
1,2,3,7,8-PeCDD	**1.1**	**J**	6.0	0.13	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
1,2,3,7,8-PeCDF	**0.34**	**J q**	6.0	0.076	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
2,3,4,7,8-PeCDF	**0.27**	**J**	6.0	0.077	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
1,2,3,4,7,8-HxCDD	**4.0**	**J**	6.0	0.23	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
1,2,3,6,7,8-HxCDD	**23**		6.0	0.20	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
1,2,3,7,8,9-HxCDD	**6.9**		6.0	0.19	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
1,2,3,4,7,8-HxCDF	**3.0**	**J**	6.0	0.36	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
1,2,3,6,7,8-HxCDF	**1.2**	**J**	6.0	0.32	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
1,2,3,7,8,9-HxCDF	0.38	U	6.0	0.38	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
2,3,4,6,7,8-HxCDF	**1.4**	**J**	6.0	0.35	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
1,2,3,4,6,7,8-HpCDD	**950**	**G B**	12	12	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
1,2,3,4,6,7,8-HpCDF	**110**		6.0	2.1	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
1,2,3,4,7,8,9-HpCDF	**5.7**	**J**	6.0	2.4	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
OCDD	**13000**	**E B**	12	9.8	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
OCDF	**610**	**B**	12	0.39	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
Total TCDD	**0.33**	**J**	1.2	0.050	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
Total TCDF	**0.18**	**J**	1.2	0.037	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
Total PeCDD	**3.4**	**J q**	6.0	0.13	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
Total PeCDF	**3.5**	**J q**	6.0	0.077	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1

Client Sample ID: JCC-SS-003

Lab Sample ID: 600-153593-3
Date Collected: 09/08/17 12:00
Matrix: Solid
Date Received: 09/08/17 17:33
Percent Solids: 82.9

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HxCDD	130		6.0	0.21	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
Total HxCDF	77	q	6.0	0.35	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
Total HpCDD	2100	G B	12	12	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1
Total HpCDF	530	B	6.0	2.3	pg/g	☼	09/09/17 11:30	09/12/17 08:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*67*		*40 - 135*	*09/09/17 11:30*	*09/12/17 08:11*	*1*
13C-2,3,7,8-TCDF	*62*		*40 - 135*	*09/09/17 11:30*	*09/12/17 08:11*	*1*
13C-1,2,3,7,8-PeCDD	*67*		*40 - 135*	*09/09/17 11:30*	*09/12/17 08:11*	*1*
13C-1,2,3,7,8-PeCDF	*62*		*40 - 135*	*09/09/17 11:30*	*09/12/17 08:11*	*1*
13C-1,2,3,6,7,8-HxCDD	*59*		*40 - 135*	*09/09/17 11:30*	*09/12/17 08:11*	*1*
13C-1,2,3,4,7,8-HxCDF	*58*		*40 - 135*	*09/09/17 11:30*	*09/12/17 08:11*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*72*		*40 - 135*	*09/09/17 11:30*	*09/12/17 08:11*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*62*		*40 - 135*	*09/09/17 11:30*	*09/12/17 08:11*	*1*
13C-OCDD	*85*		*40 - 135*	*09/09/17 11:30*	*09/12/17 08:11*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	17.1		0.1	0.1	%			09/11/17 15:57	1
Percent Solids	82.9		0.1	0.1	%			09/11/17 15:57	1

Client Sample ID: JCC-GW-004

Lab Sample ID: 600-153593-4
Date Collected: 09/08/17 12:20
Matrix: Water
Date Received: 09/08/17 17:33

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	130		50	5.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
1,2,4,5-Tetrachlorobenzene	5.0	U	74	5.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
2,3,4,6-Tetrachlorophenol	96		50	25	ug/L		09/10/17 11:22	09/11/17 11:10	50
2,4,5-Trichlorophenol	12	U	99	12	ug/L		09/10/17 11:22	09/11/17 11:10	50
2,4,6-Trichlorophenol	8.9	U	99	8.9	ug/L		09/10/17 11:22	09/11/17 11:10	50
2,4-Dichlorophenol	7.4	U	120	7.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
2,4-Dimethylphenol	1100		120	15	ug/L		09/10/17 11:22	09/11/17 11:10	50
2,4-Dinitrophenol	19	U	250	19	ug/L		09/10/17 11:22	09/11/17 11:10	50
2,4-Dinitrotoluene	6.4	U	74	6.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
2,6-Dinitrotoluene	4.0	U	50	4.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
2-Chloronaphthalene	4.0	U	74	4.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
2-Chlorophenol	6.4	U	99	6.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
2-Methylnaphthalene	940		74	3.5	ug/L		09/10/17 11:22	09/11/17 11:10	50
2-Methylphenol	250		74	5.9	ug/L		09/10/17 11:22	09/11/17 11:10	50
2-Nitroaniline	9.4	U	120	9.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
2-Nitrophenol	11	U	50	11	ug/L		09/10/17 11:22	09/11/17 11:10	50
3 & 4 Methylphenol	390		50	9.9	ug/L		09/10/17 11:22	09/11/17 11:10	50
3,3'-Dichlorobenzidine	8.9	U	500	8.9	ug/L		09/10/17 11:22	09/11/17 11:10	50
3-Nitroaniline	7.9	U	120	7.9	ug/L		09/10/17 11:22	09/11/17 11:10	50
4,6-Dinitro-2-methylphenol	41	U	120	41	ug/L		09/10/17 11:22	09/11/17 11:10	50
4-Bromophenyl phenyl ether	5.0	U	74	5.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
4-Chloro-3-methylphenol	8.4	U	50	8.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
4-Chloroaniline	10	U	50	10	ug/L		09/10/17 11:22	09/11/17 11:10	50
4-Chlorophenyl phenyl ether	5.0	U	74	5.0	ug/L		09/10/17 11:22	09/11/17 11:10	50

Client Sample Results

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

TestAmerica Job ID: 600-153593-1

Client Sample ID: JCC-GW-004

Date Collected: 09/08/17 12:20
Date Received: 09/08/17 17:33

Lab Sample ID: 600-153593-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	12	U	120	12	ug/L		09/10/17 11:22	09/11/17 11:10	50
4-Nitrophenol	28	U	120	28	ug/L		09/10/17 11:22	09/11/17 11:10	50
Acenaphthene	**570**		50	4.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Acenaphthylene	**26**	**J**	50	3.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Acetophenone	**68**	**J**	74	7.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
Anthracene	**42**	**J**	50	2.5	ug/L		09/10/17 11:22	09/11/17 11:10	50
Atrazine	7.9	U	74	7.9	ug/L		09/10/17 11:22	09/11/17 11:10	50
Benzaldehyde	25	U *	50	25	ug/L		09/10/17 11:22	09/11/17 11:10	50
Benzo[a]anthracene	**8.4**	**J**	99	4.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Benzo[a]pyrene	4.0	U	74	4.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Benzo[b]fluoranthene	3.5	U	99	3.5	ug/L		09/10/17 11:22	09/11/17 11:10	50
Benzo[g,h,i]perylene	4.0	U	120	4.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Benzo[k]fluoranthene	4.5	U	99	4.5	ug/L		09/10/17 11:22	09/11/17 11:10	50
bis (2-Chloroisopropyl) ether	20	U	74	20	ug/L		09/10/17 11:22	09/11/17 11:10	50
Bis(2-chloroethoxy)methane	6.4	U	74	6.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
Bis(2-chloroethyl)ether	7.4	U	74	7.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
Bis(2-ethylhexyl) phthalate	18	U	120	18	ug/L		09/10/17 11:22	09/11/17 11:10	50
Butyl benzyl phthalate	5.9	U	120	5.9	ug/L		09/10/17 11:22	09/11/17 11:10	50
Caprolactam	50	U	50	50	ug/L		09/10/17 11:22	09/11/17 11:10	50
Carbazole	**620**		310	8.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
Chrysene	**7.7**	**J**	74	4.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Dibenz(a,h)anthracene	4.0	U	120	4.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Dibenzofuran	**350**		74	4.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Diethyl phthalate	74	U	120	74	ug/L		09/10/17 11:22	09/11/17 11:10	50
Dimethyl phthalate	3.5	U	120	3.5	ug/L		09/10/17 11:22	09/11/17 11:10	50
Di-n-butyl phthalate	5.4	U	120	5.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
Di-n-octyl phthalate	7.9	U	250	7.9	ug/L		09/10/17 11:22	09/11/17 11:10	50
Fluoranthene	**87**	**J**	120	3.5	ug/L		09/10/17 11:22	09/11/17 11:10	50
Fluorene	**310**		74	3.5	ug/L		09/10/17 11:22	09/11/17 11:10	50
Hexachlorobenzene	5.4	U	74	5.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
Hexachlorobutadiene	8.9	U	99	8.9	ug/L		09/10/17 11:22	09/11/17 11:10	50
Hexachlorocyclopentadiene	6.4	U	74	6.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
Hexachloroethane	5.0	U	99	5.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Indeno[1,2,3-cd]pyrene	3.5	U	99	3.5	ug/L		09/10/17 11:22	09/11/17 11:10	50
Isophorone	5.4	U	74	5.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
Nitrobenzene	5.4	U	74	5.4	ug/L		09/10/17 11:22	09/11/17 11:10	50
N-Nitrosodi-n-propylamine	5.0	U	120	5.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
N-Nitrosodiphenylamine	5.0	U	74	5.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Pentachlorophenol	**290**		120	30	ug/L		09/10/17 11:22	09/11/17 11:10	50
Phenanthrene	**350**		74	3.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Phenol	**51**	**J**	74	2.0	ug/L		09/10/17 11:22	09/11/17 11:10	50
Pyrene	**51**	**J**	99	5.4	ug/L		09/10/17 11:22	09/11/17 11:10	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*0*	*X*	*42 - 133*	*09/10/17 11:22*	*09/11/17 11:10*	*50*
Nitrobenzene-d5	*0*	*X*	*23 - 130*	*09/10/17 11:22*	*09/11/17 11:10*	*50*
2-Fluorophenol	*0*	*X*	*10 - 130*	*09/10/17 11:22*	*09/11/17 11:10*	*50*
2-Fluorobiphenyl	*0*	*X*	*10 - 150*	*09/10/17 11:22*	*09/11/17 11:10*	*50*
2,4,6-Tribromophenol	*0*	*X*	*10 - 147*	*09/10/17 11:22*	*09/11/17 11:10*	*50*
Phenol-d5 (Surr)	*0*	*X*	*10 - 130*	*09/10/17 11:22*	*09/11/17 11:10*	*50*

Client Sample Results

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

TestAmerica Job ID: 600-153593-1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**9700**		2500	40	ug/L		09/10/17 11:22	09/11/17 12:22	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*0*	*X*	*42 - 133*	*09/10/17 11:22*	*09/11/17 12:22*	*500*
Nitrobenzene-d5	*0*	*X*	*23 - 130*	*09/10/17 11:22*	*09/11/17 12:22*	*500*
2-Fluorophenol	*0*	*X*	*10 - 130*	*09/10/17 11:22*	*09/11/17 12:22*	*500*
2-Fluorobiphenyl	*0*	*X*	*10 - 150*	*09/10/17 11:22*	*09/11/17 12:22*	*500*
2,4,6-Tribromophenol	*0*	*X*	*10 - 147*	*09/10/17 11:22*	*09/11/17 12:22*	*500*
Phenol-d5 (Surr)	*0*	*X*	*10 - 130*	*09/10/17 11:22*	*09/11/17 12:22*	*500*

Method: 8270C SIM - Semivolatile Org Compounds by GCMS (SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	**410**	*	25	7.8	ug/L		09/10/17 11:34	09/11/17 13:04	500
2-Methylnaphthalene	**1200**	*	25	7.9	ug/L		09/10/17 11:34	09/11/17 13:04	500
Acenaphthene	**770**		25	9.6	ug/L		09/10/17 11:34	09/11/17 13:04	500
Acenaphthylene	**15**	**J**	25	7.5	ug/L		09/10/17 11:34	09/11/17 13:04	500
Anthracene	**51**		25	6.6	ug/L		09/10/17 11:34	09/11/17 13:04	500
Benzo[a]anthracene	**7.8**	**J**	25	5.5	ug/L		09/10/17 11:34	09/11/17 13:04	500
Benzo[a]pyrene	1.8	U	25	1.8	ug/L		09/10/17 11:34	09/11/17 13:04	500
Benzo[b]fluoranthene	1.8	U	25	1.8	ug/L		09/10/17 11:34	09/11/17 13:04	500
Benzo[g,h,i]perylene	3.7	U	25	3.7	ug/L		09/10/17 11:34	09/11/17 13:04	500
Benzo[k]fluoranthene	3.8	U	25	3.8	ug/L		09/10/17 11:34	09/11/17 13:04	500
Chrysene	4.7	U	25	4.7	ug/L		09/10/17 11:34	09/11/17 13:04	500
Dibenz(a,h)anthracene	2.1	U	25	2.1	ug/L		09/10/17 11:34	09/11/17 13:04	500
Fluoranthene	**87**	*	25	6.2	ug/L		09/10/17 11:34	09/11/17 13:04	500
Fluorene	**450**		25	6.4	ug/L		09/10/17 11:34	09/11/17 13:04	500
Indeno[1,2,3-cd]pyrene	6.7	U	25	6.7	ug/L		09/10/17 11:34	09/11/17 13:04	500
Pentachlorophenol	**500**		250	50	ug/L		09/10/17 11:34	09/11/17 13:04	500
Phenanthrene	**410**	*	25	5.9	ug/L		09/10/17 11:34	09/11/17 13:04	500
Pyrene	**45**		25	5.7	ug/L		09/10/17 11:34	09/11/17 13:04	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*0*	*X*	*26 - 130*	*09/10/17 11:34*	*09/11/17 13:04*	*500*
Nitrobenzene-d5	*0*	*X*	*18 - 130*	*09/10/17 11:34*	*09/11/17 13:04*	*500*
Terphenyl-d14	*0*	*X*	*14 - 150*	*09/10/17 11:34*	*09/11/17 13:04*	*500*

Method: 8270C SIM - Semivolatile Org Compounds by GCMS (SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**9100**		250	88	ug/L		09/10/17 11:34	09/11/17 13:57	5000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*0*	*X*	*26 - 130*	*09/10/17 11:34*	*09/11/17 13:57*	*5000*
Nitrobenzene-d5	*0*	*X*	*18 - 130*	*09/10/17 11:34*	*09/11/17 13:57*	*5000*
Terphenyl-d14	*0*	*X*	*14 - 150*	*09/10/17 11:34*	*09/11/17 13:57*	*5000*

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.90	U	10	0.90	pg/L		09/09/17 11:39	09/11/17 23:13	1
2,3,7,8-TCDF	0.73	U	10	0.73	pg/L		09/09/17 11:39	09/11/17 23:13	1
1,2,3,7,8-PeCDD	1.7	U	52	1.7	pg/L		09/09/17 11:39	09/11/17 23:13	1
1,2,3,7,8-PeCDF	0.69	U	52	0.69	pg/L		09/09/17 11:39	09/11/17 23:13	1
2,3,4,7,8-PeCDF	0.70	U	52	0.70	pg/L		09/09/17 11:39	09/11/17 23:13	1
1,2,3,4,7,8-HxCDD	1.3	U	52	1.3	pg/L		09/09/17 11:39	09/11/17 23:13	1
1,2,3,6,7,8-HxCDD	**35**	**J**	52	1.2	pg/L		09/09/17 11:39	09/11/17 23:13	1
1,2,3,7,8,9-HxCDD	**6.4**	**J q**	52	1.1	pg/L		09/09/17 11:39	09/11/17 23:13	1

Client Sample ID: JCC-GW-004

Lab Sample ID: 600-153593-4

Date Collected: 09/08/17 12:20

Matrix: Water

Date Received: 09/08/17 17:33

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,7,8-HxCDF	**4.4**	**J q**	52	1.8	pg/L		09/09/17 11:39	09/11/17 23:13	1
1,2,3,6,7,8-HxCDF	1.6	U	52	1.6	pg/L		09/09/17 11:39	09/11/17 23:13	1
1,2,3,7,8,9-HxCDF	1.9	U	52	1.9	pg/L		09/09/17 11:39	09/11/17 23:13	1
2,3,4,6,7,8-HxCDF	1.7	U	52	1.7	pg/L		09/09/17 11:39	09/11/17 23:13	1
1,2,3,4,6,7,8-HpCDD	**1400**		52	7.3	pg/L		09/09/17 11:39	09/11/17 23:13	1
1,2,3,4,6,7,8-HpCDF	**260**		52	3.3	pg/L		09/09/17 11:39	09/11/17 23:13	1
1,2,3,4,7,8,9-HpCDF	**16**	**J q**	52	3.8	pg/L		09/09/17 11:39	09/11/17 23:13	1
OCDD	**16000**	**B**	100	5.3	pg/L		09/09/17 11:39	09/11/17 23:13	1
OCDF	**2100**		100	1.2	pg/L		09/09/17 11:39	09/11/17 23:13	1
Total TCDD	0.90	U	10	0.90	pg/L		09/09/17 11:39	09/11/17 23:13	1
Total TCDF	0.73	U	10	0.73	pg/L		09/09/17 11:39	09/11/17 23:13	1
Total PeCDD	1.7	U	52	1.7	pg/L		09/09/17 11:39	09/11/17 23:13	1
Total PeCDF	0.70	U	52	0.70	pg/L		09/09/17 11:39	09/11/17 23:13	1
Total HxCDD	**190**	**q**	52	1.2	pg/L		09/09/17 11:39	09/11/17 23:13	1
Total HxCDF	**140**	**q**	52	1.7	pg/L		09/09/17 11:39	09/11/17 23:13	1
Total HpCDD	**3300**		52	7.3	pg/L		09/09/17 11:39	09/11/17 23:13	1
Total HpCDF	**1400**	**q**	52	3.5	pg/L		09/09/17 11:39	09/11/17 23:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*86*		*40 - 135*	*09/09/17 11:39*	*09/11/17 23:13*	*1*
13C-2,3,7,8-TCDF	*80*		*40 - 135*	*09/09/17 11:39*	*09/11/17 23:13*	*1*
13C-1,2,3,7,8-PeCDD	*94*		*40 - 135*	*09/09/17 11:39*	*09/11/17 23:13*	*1*
13C-1,2,3,7,8-PeCDF	*87*		*40 - 135*	*09/09/17 11:39*	*09/11/17 23:13*	*1*
13C-1,2,3,6,7,8-HxCDD	*81*		*40 - 135*	*09/09/17 11:39*	*09/11/17 23:13*	*1*
13C-1,2,3,4,7,8-HxCDF	*91*		*40 - 135*	*09/09/17 11:39*	*09/11/17 23:13*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*93*		*40 - 135*	*09/09/17 11:39*	*09/11/17 23:13*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*83*		*40 - 135*	*09/09/17 11:39*	*09/11/17 23:13*	*1*
13C-OCDD	*108*		*40 - 135*	*09/09/17 11:39*	*09/11/17 23:13*	*1*

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
F2	MS/MSD RPD exceeds control limits
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD is outside acceptance limits.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
X	Surrogate is outside control limits
*	RPD of the LCS and LCSD exceeds the control limits

Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.
U	Indicates the analyte was analyzed for but not detected.
E	Result exceeded calibration range.

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: Jasper Creosoting Company

TestAmerica Job ID: 600-153593-1

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)
600-153593-1	JCC-SS-001	85	72	74	65	63	80
600-153593-1 MS	JCC-SS-001	76	44	41	38	39	73
600-153593-1 MSD	JCC-SS-001	85	67	66	58	59	76
600-153593-2	JCC-SS-002	78	66	70	64	64	80
600-153593-3	JCC-SS-003	71	53	55	47	55	79
LCS 600-220951/2-A	Lab Control Sample	76	71	80	68	70	81
MB 600-220951/1-A	Method Blank	52	56	66	61	52	73

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

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

		Percent Surrogate Recovery (Acceptance Limits)					
		TPH	NBZ	2FP	FBP	TBP	PHL
Lab Sample ID	Client Sample ID	(42-133)	(23-130)	(10-130)	(10-150)	(10-147)	(10-130)
600-153593-4	JCC-GW-004	0 X	0 X	0 X	0 X	0 X	0 X
600-153593-4 - DL	JCC-GW-004	0 X	0 X	0 X	0 X	0 X	0 X
LCS 600-220952/2-A	Lab Control Sample	87	73	81	80	79	77
LCSD 600-220952/3-A	Lab Control Sample Dup	84	73	73	80	80	74
MB 600-220952/1-A	Method Blank	80	74	73	79	71	70

Surrogate Legend

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

Method: 8270C SIM - Semivolatile Org Compounds by GCMS (SIM)

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

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPH
Lab Sample ID	Client Sample ID	(26-130)	(18-130)	(14-150)
600-153593-4	JCC-GW-004	0 X	0 X	0 X
600-153593-4 - DL	JCC-GW-004	0 X	0 X	0 X
LCS 600-220953/2-A	Lab Control Sample	79	105	86
LCSD 600-220953/3-A	Lab Control Sample Dup	80	53	89
MB 600-220953/1-A	Method Blank	71	51	82

Surrogate Legend

FBP = 2-Fluorobiphenyl

Surrogate Summary

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

TestAmerica Job ID: 600-153593-1

NBZ = Nitrobenzene-d5
TPH = Terphenyl-d14

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

Lab Sample ID: MB 600-220951/1-A
Matrix: Solid
Analysis Batch: 221013

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 220951

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	4.0	U	33	4.0	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
1,2,4,5-Tetrachlorobenzene	6.7	U	33	6.7	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2,3,4,6-Tetrachlorophenol	17	U	33	17	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2,4,5-Trichlorophenol	10	U	33	10	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2,4,6-Trichlorophenol	2.7	U	33	2.7	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2,4-Dichlorophenol	3.9	U	33	3.9	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2,4-Dimethylphenol	8.6	U	33	8.6	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2,4-Dinitrophenol	4.7	U	100	4.7	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2,4-Dinitrotoluene	3.6	U	33	3.6	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2,6-Dinitrotoluene	2.9	U	33	2.9	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2-Chloronaphthalene	1.2	U	33	1.2	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2-Chlorophenol	2.0	U	33	2.0	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2-Methylnaphthalene	2.7	U	33	2.7	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2-Methylphenol	3.2	U	33	3.2	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2-Nitroaniline	4.9	U	33	4.9	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
2-Nitrophenol	3.9	U	33	3.9	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
3 & 4 Methylphenol	2.8	U	33	2.8	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
3,3'-Dichlorobenzidine	10	U	33	10	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
3-Nitroaniline	7.1	U	33	7.1	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
4,6-Dinitro-2-methylphenol	5.0	U	170	5.0	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
4-Bromophenyl phenyl ether	2.8	U	33	2.8	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
4-Chloro-3-methylphenol	16	U	33	16	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
4-Chloroaniline	5.8	U	33	5.8	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
4-Chlorophenyl phenyl ether	1.8	U	33	1.8	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
4-Nitroaniline	11	U	33	11	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
4-Nitrophenol	5.1	U	200	5.1	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Acenaphthene	1.4	U	33	1.4	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Acenaphthylene	1.0	U	33	1.0	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Acetophenone	3.3	U	33	3.3	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Anthracene	1.3	U	33	1.3	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Atrazine	5.0	U	33	5.0	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Benzaldehyde	17	U	33	17	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Benzo[a]anthracene	1.4	U	33	1.4	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Benzo[a]pyrene	1.6	U	33	1.6	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Benzo[b]fluoranthene	1.7	U	33	1.7	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Benzo[g,h,i]perylene	5.1	U	33	5.1	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Benzo[k]fluoranthene	1.5	U	33	1.5	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
bis (2-Chloroisopropyl) ether	8.8	U	33	8.8	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Bis(2-chloroethoxy)methane	1.4	U	33	1.4	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Bis(2-chloroethyl)ether	1.6	U	33	1.6	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Bis(2-ethylhexyl) phthalate	5.4	U	33	5.4	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Butyl benzyl phthalate	6.2	U	67	6.2	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Caprolactam	17	U	33	17	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Carbazole	3.1	U	33	3.1	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Chrysene	1.0	U	33	1.0	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Dibenz(a,h)anthracene	3.6	U	33	3.6	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Dibenzofuran	1.8	U	33	1.8	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Diethyl phthalate	8.4	U	67	8.4	ug/Kg		09/10/17 09:36	09/11/17 15:30	1

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

Lab Sample ID: MB 600-220951/1-A
Matrix: Solid
Analysis Batch: 221013

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 220951

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dimethyl phthalate	4.9	U	67	4.9	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Di-n-butyl phthalate	49.9	J	67	2.6	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Di-n-octyl phthalate	1.9	U	67	1.9	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Fluoranthene	3.1	U	33	3.1	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Fluorene	2.4	U	33	2.4	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Hexachlorobenzene	1.5	U	33	1.5	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Hexachlorobutadiene	1.9	U	33	1.9	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Hexachlorocyclopentadiene	4.6	U	33	4.6	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Hexachloroethane	2.3	U	33	2.3	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Indeno[1,2,3-cd]pyrene	3.5	U	33	3.5	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Isophorone	1.0	U	33	1.0	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Naphthalene	1.3	U	33	1.3	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Nitrobenzene	3.0	U	33	3.0	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
N-Nitrosodi-n-propylamine	2.2	U	33	2.2	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
N-Nitrosodiphenylamine	1.9	U	33	1.9	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Pentachlorophenol	4.0	U	170	4.0	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Phenanthrene	4.9	U	33	4.9	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Phenol	4.2	U	33	4.2	ug/Kg		09/10/17 09:36	09/11/17 15:30	1
Pyrene	1.8	U	33	1.8	ug/Kg		09/10/17 09:36	09/11/17 15:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*52*		*10 - 148*	*09/10/17 09:36*	*09/11/17 15:30*	*1*
2-Fluorobiphenyl	*56*		*38 - 130*	*09/10/17 09:36*	*09/11/17 15:30*	*1*
2-Fluorophenol	*66*		*25 - 132*	*09/10/17 09:36*	*09/11/17 15:30*	*1*
Nitrobenzene-d5	*61*		*10 - 155*	*09/10/17 09:36*	*09/11/17 15:30*	*1*
Phenol-d5 (Surr)	*52*		*27 - 130*	*09/10/17 09:36*	*09/11/17 15:30*	*1*
Terphenyl-d14	*73*		*53 - 134*	*09/10/17 09:36*	*09/11/17 15:30*	*1*

Lab Sample ID: LCS 600-220951/2-A
Matrix: Solid
Analysis Batch: 221013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 220951

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	666	432		ug/Kg		65	40 - 130
1,2,4,5-Tetrachlorobenzene	666	457		ug/Kg		69	37 - 130
2,3,4,6-Tetrachlorophenol	666	445		ug/Kg		67	44 - 130
2,4,5-Trichlorophenol	666	500		ug/Kg		75	41 - 130
2,4,6-Trichlorophenol	666	457		ug/Kg		69	39 - 130
2,4-Dichlorophenol	666	448		ug/Kg		67	38 - 130
2,4-Dimethylphenol	666	366		ug/Kg		55	32 - 139
2,4-Dinitrophenol	1330	659		ug/Kg		49	15 - 130
2,4-Dinitrotoluene	666	450		ug/Kg		68	45 - 130
2,6-Dinitrotoluene	666	459		ug/Kg		69	44 - 130
2-Chloronaphthalene	666	444		ug/Kg		67	41 - 130
2-Chlorophenol	666	467		ug/Kg		70	37 - 130
2-Methylnaphthalene	666	426		ug/Kg		64	43 - 130
2-Methylphenol	666	428		ug/Kg		64	30 - 130
2-Nitroaniline	666	389		ug/Kg		58	42 - 130

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

Lab Sample ID: LCS 600-220951/2-A
Matrix: Solid
Analysis Batch: 221013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 220951

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Nitrophenol	666	492		ug/Kg		74	38 - 130
3 & 4 Methylphenol	666	409		ug/Kg		61	28 - 133
3,3'-Dichlorobenzidine	666	314		ug/Kg		47	13 - 146
3-Nitroaniline	666	439		ug/Kg		66	41 - 130
4,6-Dinitro-2-methylphenol	1330	793		ug/Kg		60	38 - 130
4-Bromophenyl phenyl ether	666	497		ug/Kg		75	46 - 130
4-Chloro-3-methylphenol	666	491		ug/Kg		74	43 - 130
4-Chloroaniline	666	302		ug/Kg		45	32 - 130
4-Chlorophenyl phenyl ether	666	493		ug/Kg		74	44 - 130
4-Nitroaniline	666	599		ug/Kg		90	46 - 130
4-Nitrophenol	1330	619		ug/Kg		46	42 - 130
Acenaphthene	666	465		ug/Kg		70	42 - 130
Acenaphthylene	666	462		ug/Kg		69	39 - 130
Acetophenone	666	333		ug/Kg		50	36 - 130
Anthracene	666	482		ug/Kg		72	51 - 130
Atrazine	666	206		ug/Kg		31	10 - 140
Benzaldehyde	666	50.9	*	ug/Kg		8	10 - 130
Benzo[a]anthracene	666	502		ug/Kg		75	54 - 130
Benzo[a]pyrene	666	539		ug/Kg		81	44 - 131
Benzo[b]fluoranthene	666	513		ug/Kg		77	41 - 139
Benzo[g,h,i]perylene	666	540		ug/Kg		81	38 - 142
Benzo[k]fluoranthene	666	509		ug/Kg		76	42 - 134
bis (2-Chloroisopropyl) ether	666	371		ug/Kg		56	38 - 130
Bis(2-chloroethoxy)methane	666	417		ug/Kg		63	39 - 130
Bis(2-chloroethyl)ether	666	423		ug/Kg		64	40 - 130
Bis(2-ethylhexyl) phthalate	666	460		ug/Kg		69	41 - 145
Butyl benzyl phthalate	666	469		ug/Kg		70	48 - 141
Caprolactam	666	505		ug/Kg		76	41 - 130
Carbazole	666	603		ug/Kg		91	49 - 131
Chrysene	666	500		ug/Kg		75	52 - 130
Dibenz(a,h)anthracene	666	533		ug/Kg		80	40 - 137
Dibenzofuran	666	475		ug/Kg		71	43 - 130
Diethyl phthalate	666	455		ug/Kg		68	50 - 130
Dimethyl phthalate	666	469		ug/Kg		71	40 - 130
Di-n-butyl phthalate	666	516		ug/Kg		77	51 - 135
Di-n-octyl phthalate	666	471		ug/Kg		71	38 - 153
Fluoranthene	666	498		ug/Kg		75	53 - 130
Fluorene	666	475		ug/Kg		71	46 - 130
Hexachlorobenzene	666	495		ug/Kg		74	44 - 130
Hexachlorobutadiene	666	502		ug/Kg		75	36 - 130
Hexachlorocyclopentadiene	666	283		ug/Kg		42	10 - 130
Hexachloroethane	666	439		ug/Kg		66	37 - 130
Indeno[1,2,3-cd]pyrene	666	549		ug/Kg		82	35 - 146
Isophorone	666	343		ug/Kg		52	39 - 130
Naphthalene	666	460		ug/Kg		69	40 - 130
Nitrobenzene	666	410		ug/Kg		62	42 - 130
N-Nitrosodi-n-propylamine	666	428		ug/Kg		64	36 - 130
N-Nitrosodiphenylamine	666	488		ug/Kg		73	48 - 130

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

Lab Sample ID: LCS 600-220951/2-A
Matrix: Solid
Analysis Batch: 221013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 220951

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	1330	651		ug/Kg		49	40 - 130
Phenanthrene	666	479		ug/Kg		72	51 - 130
Phenol	666	437		ug/Kg		66	30 - 130
Pyrene	666	508		ug/Kg		76	53 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*76*		*10 - 148*
2-Fluorobiphenyl	*71*		*38 - 130*
2-Fluorophenol	*80*		*25 - 132*
Nitrobenzene-d5	*68*		*10 - 155*
Phenol-d5 (Surr)	*70*		*27 - 130*
Terphenyl-d14	*81*		*53 - 134*

Lab Sample ID: 600-153593-1 MS
Matrix: Solid
Analysis Batch: 221013

Client Sample ID: JCC-SS-001
Prep Type: Total/NA
Prep Batch: 220951

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	4.2	U	704	343		ug/Kg	☼	49	40 - 130
1,2,4,5-Tetrachlorobenzene	7.1	U F2	704	326		ug/Kg	☼	46	37 - 130
2,3,4,6-Tetrachlorophenol	18	U	704	520		ug/Kg	☼	74	44 - 130
2,4,5-Trichlorophenol	11	U	704	486		ug/Kg	☼	69	41 - 130
2,4,6-Trichlorophenol	2.8	U	704	399		ug/Kg	☼	57	39 - 130
2,4-Dichlorophenol	4.1	U F2	704	265		ug/Kg	☼	38	38 - 130
2,4-Dimethylphenol	9.1	U F2	704	246		ug/Kg	☼	35	32 - 139
2,4-Dinitrophenol	5.0	U F2 F1	1410	154	F1	ug/Kg	☼	11	15 - 130
2,4-Dinitrotoluene	3.8	U	704	449		ug/Kg	☼	64	45 - 130
2,6-Dinitrotoluene	3.1	U	704	394		ug/Kg	☼	56	44 - 130
2-Chloronaphthalene	1.3	U F2	704	312		ug/Kg	☼	44	41 - 130
2-Chlorophenol	2.1	U F2	704	276		ug/Kg	☼	39	37 - 130
2-Methylnaphthalene	2.9	U	704	314		ug/Kg	☼	45	43 - 130
2-Methylphenol	3.4	U F2	704	310		ug/Kg	☼	44	30 - 130
2-Nitroaniline	5.2	U	704	352		ug/Kg	☼	50	42 - 130
2-Nitrophenol	4.1	U F2	704	280		ug/Kg	☼	40	38 - 130
3 & 4 Methylphenol	2.9	U F2	704	249		ug/Kg	☼	35	28 - 133
3,3'-Dichlorobenzidine	11	U F1	704	16.8	J F1	ug/Kg	☼	2	13 - 146
3-Nitroaniline	7.5	U F1	704	128	F1	ug/Kg	☼	18	41 - 130
4,6-Dinitro-2-methylphenol	5.3	U F2 F1	1410	311	F1	ug/Kg	☼	22	38 - 130
4-Bromophenyl phenyl ether	3.0	U	704	467		ug/Kg	☼	66	46 - 130
4-Chloro-3-methylphenol	16	U	704	399		ug/Kg	☼	57	43 - 130
4-Chloroaniline	6.1	U F2 F1	704	38.8	F1	ug/Kg	☼	6	32 - 130
4-Chlorophenyl phenyl ether	1.9	U	704	424		ug/Kg	☼	60	44 - 130
4-Nitroaniline	12	U F1	704	184	F1	ug/Kg	☼	26	46 - 130
4-Nitrophenol	5.4	U	1410	890		ug/Kg	☼	63	42 - 130
Acenaphthene	3.9	J	704	376		ug/Kg	☼	53	42 - 130
Acenaphthylene	19	J	704	401		ug/Kg	☼	54	39 - 130
Acetophenone	3.5	U F2	704	264		ug/Kg	☼	38	36 - 130
Anthracene	19	J	704	530		ug/Kg	☼	73	51 - 130

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

Lab Sample ID: 600-153593-1 MS
Matrix: Solid
Analysis Batch: 221013

Client Sample ID: JCC-SS-001
Prep Type: Total/NA
Prep Batch: 220951

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Atrazine	5.3	U	704	217		ug/Kg	☼	31	10 - 140
Benzaldehyde	18	U F2 *	704	257		ug/Kg	☼	36	10 - 130
Benzo[a]anthracene	52	F2	704	786		ug/Kg	☼	104	54 - 130
Benzo[a]pyrene	62	F2 F1	704	1370	F1	ug/Kg	☼	186	44 - 131
Benzo[b]fluoranthene	180	F2 F1	704	2140	E F1	ug/Kg	☼	279	41 - 139
Benzo[g,h,i]perylene	24	J F2 F1	704	397		ug/Kg	☼	53	38 - 142
Benzo[k]fluoranthene	72	F2 F1	704	1200	F1	ug/Kg	☼	161	42 - 134
bis (2-Chloroisopropyl) ether	9.3	U F2 F1	704	215	F1	ug/Kg	☼	30	38 - 130
Bis(2-chloroethoxy)methane	1.5	U F2 F1	704	240	F1	ug/Kg	☼	34	39 - 130
Bis(2-chloroethyl)ether	1.7	U F2 F1	704	225	F1	ug/Kg	☼	32	40 - 130
Bis(2-ethylhexyl) phthalate	5.7	U	704	479		ug/Kg	☼	68	41 - 145
Butyl benzyl phthalate	11	J	704	458		ug/Kg	☼	63	48 - 141
Caprolactam	18	U	704	471		ug/Kg	☼	67	41 - 130
Carbazole	16	J	704	633		ug/Kg	☼	87	49 - 131
Chrysene	72	F2	704	813		ug/Kg	☼	105	52 - 130
Dibenz(a,h)anthracene	9.5	J F1	704	318		ug/Kg	☼	44	40 - 137
Dibenzofuran	11	J	704	435		ug/Kg	☼	60	43 - 130
Diethyl phthalate	8.9	U	704	440		ug/Kg	☼	62	50 - 130
Dimethyl phthalate	5.2	U	704	392		ug/Kg	☼	56	40 - 130
Di-n-butyl phthalate	7.2	J B	704	473		ug/Kg	☼	66	51 - 135
Di-n-octyl phthalate	2.0	U	704	477		ug/Kg	☼	68	38 - 153
Fluoranthene	81		704	795		ug/Kg	☼	101	53 - 130
Fluorene	3.1	J	704	417		ug/Kg	☼	59	46 - 130
Hexachlorobenzene	1.6	U	704	478		ug/Kg	☼	68	44 - 130
Hexachlorobutadiene	2.0	U F2	704	310		ug/Kg	☼	44	36 - 130
Hexachlorocyclopentadiene	4.9	U F2 F1	704	31.9	J F1	ug/Kg	☼	5	10 - 130
Hexachloroethane	2.4	U F2 F1	704	231	F1	ug/Kg	☼	33	37 - 130
Indeno[1,2,3-cd]pyrene	29	J F2	704	456		ug/Kg	☼	61	35 - 146
Isophorone	1.1	U F2 F1	704	222	F1	ug/Kg	☼	31	39 - 130
Naphthalene	19	J	704	375		ug/Kg	☼	50	40 - 130
Nitrobenzene	3.1	U F2 F1	704	246	F1	ug/Kg	☼	35	42 - 130
N-Nitrosodi-n-propylamine	2.3	U F2 F1	704	242	F1	ug/Kg	☼	34	36 - 130
N-Nitrosodiphenylamine	2.0	U	704	384		ug/Kg	☼	55	48 - 130
Pentachlorophenol	71	J	1410	1360		ug/Kg	☼	91	40 - 130
Phenanthrene	25	J	704	591		ug/Kg	☼	80	51 - 130
Phenol	4.5	U F2	704	252		ug/Kg	☼	36	30 - 130
Pyrene	88		704	768		ug/Kg	☼	96	53 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol	*76*		*10 - 148*
2-Fluorobiphenyl	*44*		*38 - 130*
2-Fluorophenol	*41*		*25 - 132*
Nitrobenzene-d5	*38*		*10 - 155*
Phenol-d5 (Surr)	*39*		*27 - 130*
Terphenyl-d14	*73*		*53 - 134*

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

Lab Sample ID: 600-153593-1 MSD
Matrix: Solid
Analysis Batch: 221013

Client Sample ID: JCC-SS-001
Prep Type: Total/NA
Prep Batch: 220951

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1'-Biphenyl	4.2	U	704	439		ug/Kg	☼	62	40 - 130	25	30
1,2,4,5-Tetrachlorobenzene	7.1	U F2	704	479	F2	ug/Kg	☼	68	37 - 130	38	30
2,3,4,6-Tetrachlorophenol	18	U	704	559		ug/Kg	☼	79	44 - 130	7	30
2,4,5-Trichlorophenol	11	U	704	585		ug/Kg	☼	83	41 - 130	18	30
2,4,6-Trichlorophenol	2.8	U	704	529		ug/Kg	☼	75	39 - 130	28	30
2,4-Dichlorophenol	4.1	U F2	704	396	F2	ug/Kg	☼	56	38 - 130	40	30
2,4-Dimethylphenol	9.1	U F2	704	381	F2	ug/Kg	☼	54	32 - 139	43	30
2,4-Dinitrophenol	5.0	U F2 F1	1410	470	F2	ug/Kg	☼	33	15 - 130	101	30
2,4-Dinitrotoluene	3.8	U	704	511		ug/Kg	☼	73	45 - 130	13	30
2,6-Dinitrotoluene	3.1	U	704	485		ug/Kg	☼	69	44 - 130	21	30
2-Chloronaphthalene	1.3	U F2	704	445	F2	ug/Kg	☼	63	41 - 130	35	30
2-Chlorophenol	2.1	U F2	704	423	F2	ug/Kg	☼	60	37 - 130	42	30
2-Methylnaphthalene	2.9	U	704	419		ug/Kg	☼	60	43 - 130	29	30
2-Methylphenol	3.4	U F2	704	424	F2	ug/Kg	☼	60	30 - 130	31	30
2-Nitroaniline	5.2	U	704	378		ug/Kg	☼	54	42 - 130	7	30
2-Nitrophenol	4.1	U F2	704	460	F2	ug/Kg	☼	65	38 - 130	49	30
3 & 4 Methylphenol	2.9	U F2	704	368	F2	ug/Kg	☼	52	28 - 133	39	30
3,3'-Dichlorobenzidine	11	U F1	704	21.1	J F1	ug/Kg	☼	3	13 - 146	22	30
3-Nitroaniline	7.5	U F1	704	101	F1	ug/Kg	☼	14	41 - 130	23	30
4,6-Dinitro-2-methylphenol	5.3	U F2 F1	1410	642	F2	ug/Kg	☼	46	38 - 130	70	30
4-Bromophenyl phenyl ether	3.0	U	704	545		ug/Kg	☼	77	46 - 130	15	30
4-Chloro-3-methylphenol	16	U	704	510		ug/Kg	☼	72	43 - 130	24	30
4-Chloroaniline	6.1	U F2 F1	704	72.4	F2 F1	ug/Kg	☼	10	32 - 130	60	30
4-Chlorophenyl phenyl ether	1.9	U	704	531		ug/Kg	☼	75	44 - 130	22	30
4-Nitroaniline	12	U F1	704	181	F1	ug/Kg	☼	26	46 - 130	2	30
4-Nitrophenol	5.4	U	1410	912		ug/Kg	☼	65	42 - 130	3	30
Acenaphthene	3.9	J	704	471		ug/Kg	☼	66	42 - 130	22	30
Acenaphthylene	19	J	704	474		ug/Kg	☼	65	39 - 130	17	30
Acetophenone	3.5	U F2	704	397	F2	ug/Kg	☼	56	36 - 130	40	30
Anthracene	19	J	704	518		ug/Kg	☼	71	51 - 130	2	30
Atrazine	5.3	U	704	238		ug/Kg	☼	34	10 - 140	9	30
Benzaldehyde	18	U F2 *	704	371	F2	ug/Kg	☼	53	10 - 130	36	30
Benzo[a]anthracene	52	F2	704	553	F2	ug/Kg	☼	71	54 - 130	35	30
Benzo[a]pyrene	62	F2 F1	704	630	F2	ug/Kg	☼	81	44 - 131	74	30
Benzo[b]fluoranthene	180	F2 F1	704	915	F2	ug/Kg	☼	104	41 - 139	80	30
Benzo[g,h,i]perylene	24	J F2 F1	704	262	F2 F1	ug/Kg	☼	34	38 - 142	41	30
Benzo[k]fluoranthene	72	F2 F1	704	760	F2	ug/Kg	☼	98	42 - 134	45	30
bis (2-Chloroisopropyl) ether	9.3	U F2 F1	704	325	F2	ug/Kg	☼	46	38 - 130	41	30
Bis(2-chloroethoxy)methane	1.5	U F2 F1	704	394	F2	ug/Kg	☼	56	39 - 130	49	30
Bis(2-chloroethyl)ether	1.7	U F2 F1	704	345	F2	ug/Kg	☼	49	40 - 130	42	30
Bis(2-ethylhexyl) phthalate	5.7	U	704	490		ug/Kg	☼	70	41 - 145	2	30
Butyl benzyl phthalate	11	J	704	455		ug/Kg	☼	63	48 - 141	1	30
Caprolactam	18	U	704	517		ug/Kg	☼	74	41 - 130	9	30
Carbazole	16	J	704	663		ug/Kg	☼	92	49 - 131	5	30
Chrysene	72	F2	704	554	F2	ug/Kg	☼	68	52 - 130	38	30
Dibenz(a,h)anthracene	9.5	J F1	704	285	F1	ug/Kg	☼	39	40 - 137	11	30
Dibenzofuran	11	J	704	490		ug/Kg	☼	68	43 - 130	12	30
Diethyl phthalate	8.9	U	704	492		ug/Kg	☼	70	50 - 130	11	30

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

Lab Sample ID: 600-153593-1 MSD
Matrix: Solid
Analysis Batch: 221013

Client Sample ID: JCC-SS-001
Prep Type: Total/NA
Prep Batch: 220951

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dimethyl phthalate	5.2	U	704	495		ug/Kg	☼	70	40 - 130	23	30
Di-n-butyl phthalate	7.2	J B	704	491		ug/Kg	☼	69	51 - 135	4	30
Di-n-octyl phthalate	2.0	U	704	490		ug/Kg	☼	70	38 - 153	3	30
Fluoranthene	81		704	626		ug/Kg	☼	77	53 - 130	24	30
Fluorene	3.1	J	704	497		ug/Kg	☼	70	46 - 130	18	30
Hexachlorobenzene	1.6	U	704	529		ug/Kg	☼	75	44 - 130	10	30
Hexachlorobutadiene	2.0	U F2	704	488	F2	ug/Kg	☼	69	36 - 130	45	30
Hexachlorocyclopentadiene	4.9	U F2 F1	704	79.9	F2	ug/Kg	☼	11	10 - 130	86	30
Hexachloroethane	2.4	U F2 F1	704	366	F2	ug/Kg	☼	52	37 - 130	45	30
Indeno[1,2,3-cd]pyrene	29	J F2	704	294	F2	ug/Kg	☼	38	35 - 146	43	30
Isophorone	1.1	U F2 F1	704	330	F2	ug/Kg	☼	47	39 - 130	39	30
Naphthalene	19	J	704	452		ug/Kg	☼	61	40 - 130	19	30
Nitrobenzene	3.1	U F2 F1	704	380	F2	ug/Kg	☼	54	42 - 130	43	30
N-Nitrosodi-n-propylamine	2.3	U F2 F1	704	351	F2	ug/Kg	☼	50	36 - 130	37	30
N-Nitrosodiphenylamine	2.0	U	704	444		ug/Kg	☼	63	48 - 130	14	30
Pentachlorophenol	71	J	1410	1090		ug/Kg	☼	72	40 - 130	22	30
Phenanthrene	25	J	704	529		ug/Kg	☼	72	51 - 130	11	30
Phenol	4.5	U F2	704	373	F2	ug/Kg	☼	53	30 - 130	39	30
Pyrene	88		704	570		ug/Kg	☼	68	53 - 130	30	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*85*		*10 - 148*
2-Fluorobiphenyl	*67*		*38 - 130*
2-Fluorophenol	*66*		*25 - 132*
Nitrobenzene-d5	*58*		*10 - 155*
Phenol-d5 (Surr)	*59*		*27 - 130*
Terphenyl-d14	*76*		*53 - 134*

Lab Sample ID: MB 600-220952/1-A
Matrix: Water
Analysis Batch: 220974

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 220952

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.10	U	1.0	0.10	ug/L		09/10/17 11:22	09/11/17 06:02	1
1,2,4,5-Tetrachlorobenzene	0.10	U	1.5	0.10	ug/L		09/10/17 11:22	09/11/17 06:02	1
2,3,4,6-Tetrachlorophenol	0.50	U	1.0	0.50	ug/L		09/10/17 11:22	09/11/17 06:02	1
2,4,5-Trichlorophenol	0.25	U	2.0	0.25	ug/L		09/10/17 11:22	09/11/17 06:02	1
2,4,6-Trichlorophenol	0.18	U	2.0	0.18	ug/L		09/10/17 11:22	09/11/17 06:02	1
2,4-Dichlorophenol	0.15	U	2.5	0.15	ug/L		09/10/17 11:22	09/11/17 06:02	1
2,4-Dimethylphenol	0.31	U	2.5	0.31	ug/L		09/10/17 11:22	09/11/17 06:02	1
2,4-Dinitrophenol	0.39	U	5.0	0.39	ug/L		09/10/17 11:22	09/11/17 06:02	1
2,4-Dinitrotoluene	0.13	U	1.5	0.13	ug/L		09/10/17 11:22	09/11/17 06:02	1
2,6-Dinitrotoluene	0.080	U	1.0	0.080	ug/L		09/10/17 11:22	09/11/17 06:02	1
2-Chloronaphthalene	0.080	U	1.5	0.080	ug/L		09/10/17 11:22	09/11/17 06:02	1
2-Chlorophenol	0.13	U	2.0	0.13	ug/L		09/10/17 11:22	09/11/17 06:02	1
2-Methylnaphthalene	0.070	U	1.5	0.070	ug/L		09/10/17 11:22	09/11/17 06:02	1
2-Methylphenol	0.12	U	1.5	0.12	ug/L		09/10/17 11:22	09/11/17 06:02	1
2-Nitroaniline	0.19	U	2.5	0.19	ug/L		09/10/17 11:22	09/11/17 06:02	1

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

Lab Sample ID: MB 600-220952/1-A
Matrix: Water
Analysis Batch: 220974

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 220952

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Nitrophenol	0.22	U	1.0	0.22	ug/L		09/10/17 11:22	09/11/17 06:02	1
3 & 4 Methylphenol	0.20	U	1.0	0.20	ug/L		09/10/17 11:22	09/11/17 06:02	1
3,3'-Dichlorobenzidine	0.18	U	10	0.18	ug/L		09/10/17 11:22	09/11/17 06:02	1
3-Nitroaniline	0.16	U	2.5	0.16	ug/L		09/10/17 11:22	09/11/17 06:02	1
4,6-Dinitro-2-methylphenol	0.83	U	2.5	0.83	ug/L		09/10/17 11:22	09/11/17 06:02	1
4-Bromophenyl phenyl ether	0.10	U	1.5	0.10	ug/L		09/10/17 11:22	09/11/17 06:02	1
4-Chloro-3-methylphenol	0.17	U	1.0	0.17	ug/L		09/10/17 11:22	09/11/17 06:02	1
4-Chloroaniline	0.21	U	1.0	0.21	ug/L		09/10/17 11:22	09/11/17 06:02	1
4-Chlorophenyl phenyl ether	0.10	U	1.5	0.10	ug/L		09/10/17 11:22	09/11/17 06:02	1
4-Nitroaniline	0.25	U	2.5	0.25	ug/L		09/10/17 11:22	09/11/17 06:02	1
4-Nitrophenol	0.56	U	2.5	0.56	ug/L		09/10/17 11:22	09/11/17 06:02	1
Acenaphthene	0.080	U	1.0	0.080	ug/L		09/10/17 11:22	09/11/17 06:02	1
Acenaphthylene	0.060	U	1.0	0.060	ug/L		09/10/17 11:22	09/11/17 06:02	1
Acetophenone	0.15	U	1.5	0.15	ug/L		09/10/17 11:22	09/11/17 06:02	1
Anthracene	0.050	U	1.0	0.050	ug/L		09/10/17 11:22	09/11/17 06:02	1
Atrazine	0.16	U	1.5	0.16	ug/L		09/10/17 11:22	09/11/17 06:02	1
Benzaldehyde	0.50	U	1.0	0.50	ug/L		09/10/17 11:22	09/11/17 06:02	1
Benzo[a]anthracene	0.080	U	2.0	0.080	ug/L		09/10/17 11:22	09/11/17 06:02	1
Benzo[a]pyrene	0.080	U	1.5	0.080	ug/L		09/10/17 11:22	09/11/17 06:02	1
Benzo[b]fluoranthene	0.070	U	2.0	0.070	ug/L		09/10/17 11:22	09/11/17 06:02	1
Benzo[g,h,i]perylene	0.080	U	2.5	0.080	ug/L		09/10/17 11:22	09/11/17 06:02	1
Benzo[k]fluoranthene	0.090	U	2.0	0.090	ug/L		09/10/17 11:22	09/11/17 06:02	1
bis (2-Chloroisopropyl) ether	0.40	U	1.5	0.40	ug/L		09/10/17 11:22	09/11/17 06:02	1
Bis(2-chloroethoxy)methane	0.13	U	1.5	0.13	ug/L		09/10/17 11:22	09/11/17 06:02	1
Bis(2-chloroethyl)ether	0.15	U	1.5	0.15	ug/L		09/10/17 11:22	09/11/17 06:02	1
Bis(2-ethylhexyl) phthalate	0.37	U	2.5	0.37	ug/L		09/10/17 11:22	09/11/17 06:02	1
Butyl benzyl phthalate	0.12	U	2.5	0.12	ug/L		09/10/17 11:22	09/11/17 06:02	1
Caprolactam	1.0	U	1.0	1.0	ug/L		09/10/17 11:22	09/11/17 06:02	1
Carbazole	0.17	U	6.3	0.17	ug/L		09/10/17 11:22	09/11/17 06:02	1
Chrysene	0.080	U	1.5	0.080	ug/L		09/10/17 11:22	09/11/17 06:02	1
Dibenz(a,h)anthracene	0.080	U	2.5	0.080	ug/L		09/10/17 11:22	09/11/17 06:02	1
Dibenzofuran	0.080	U	1.5	0.080	ug/L		09/10/17 11:22	09/11/17 06:02	1
Diethyl phthalate	1.5	U	2.5	1.5	ug/L		09/10/17 11:22	09/11/17 06:02	1
Dimethyl phthalate	0.070	U	2.5	0.070	ug/L		09/10/17 11:22	09/11/17 06:02	1
Di-n-butyl phthalate	0.11	U	2.5	0.11	ug/L		09/10/17 11:22	09/11/17 06:02	1
Di-n-octyl phthalate	0.16	U	5.0	0.16	ug/L		09/10/17 11:22	09/11/17 06:02	1
Fluoranthene	0.070	U	2.5	0.070	ug/L		09/10/17 11:22	09/11/17 06:02	1
Fluorene	0.070	U	1.5	0.070	ug/L		09/10/17 11:22	09/11/17 06:02	1
Hexachlorobenzene	0.11	U	1.5	0.11	ug/L		09/10/17 11:22	09/11/17 06:02	1
Hexachlorobutadiene	0.18	U	2.0	0.18	ug/L		09/10/17 11:22	09/11/17 06:02	1
Hexachlorocyclopentadiene	0.13	U	1.5	0.13	ug/L		09/10/17 11:22	09/11/17 06:02	1
Hexachloroethane	0.10	U	2.0	0.10	ug/L		09/10/17 11:22	09/11/17 06:02	1
Indeno[1,2,3-cd]pyrene	0.070	U	2.0	0.070	ug/L		09/10/17 11:22	09/11/17 06:02	1
Isophorone	0.11	U	1.5	0.11	ug/L		09/10/17 11:22	09/11/17 06:02	1
Naphthalene	0.080	U	5.0	0.080	ug/L		09/10/17 11:22	09/11/17 06:02	1
Nitrobenzene	0.11	U	1.5	0.11	ug/L		09/10/17 11:22	09/11/17 06:02	1
N-Nitrosodi-n-propylamine	0.10	U	2.5	0.10	ug/L		09/10/17 11:22	09/11/17 06:02	1
N-Nitrosodiphenylamine	0.10	U	1.5	0.10	ug/L		09/10/17 11:22	09/11/17 06:02	1

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

Lab Sample ID: MB 600-220952/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 220974 — **Prep Batch: 220952**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.61	U	2.5	0.61	ug/L		09/10/17 11:22	09/11/17 06:02	1
Phenanthrene	0.060	U	1.5	0.060	ug/L		09/10/17 11:22	09/11/17 06:02	1
Phenol	0.040	U	1.5	0.040	ug/L		09/10/17 11:22	09/11/17 06:02	1
Pyrene	0.11	U	2.0	0.11	ug/L		09/10/17 11:22	09/11/17 06:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*71*		*10 - 147*	*09/10/17 11:22*	*09/11/17 06:02*	*1*
2-Fluorobiphenyl	*79*		*10 - 150*	*09/10/17 11:22*	*09/11/17 06:02*	*1*
2-Fluorophenol	*73*		*10 - 130*	*09/10/17 11:22*	*09/11/17 06:02*	*1*
Nitrobenzene-d5	*74*		*23 - 130*	*09/10/17 11:22*	*09/11/17 06:02*	*1*
Phenol-d5 (Surr)	*70*		*10 - 130*	*09/10/17 11:22*	*09/11/17 06:02*	*1*
Terphenyl-d14	*80*		*42 - 133*	*09/10/17 11:22*	*09/11/17 06:02*	*1*

Lab Sample ID: LCS 600-220952/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 220974 — **Prep Batch: 220952**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1'-Biphenyl	10.0	7.60		ug/L		76	51 - 130
1,2,4,5-Tetrachlorobenzene	10.0	7.68		ug/L		77	56 - 130
2,3,4,6-Tetrachlorophenol	10.0	7.17		ug/L		72	28 - 136
2,4,5-Trichlorophenol	10.0	7.03		ug/L		70	58 - 130
2,4,6-Trichlorophenol	10.0	6.99		ug/L		70	55 - 130
2,4-Dichlorophenol	10.0	7.58		ug/L		76	47 - 130
2,4-Dimethylphenol	10.0	6.86		ug/L		69	45 - 130
2,4-Dinitrophenol	20.0	13.2		ug/L		66	10 - 150
2,4-Dinitrotoluene	10.0	8.06		ug/L		81	54 - 130
2,6-Dinitrotoluene	10.0	7.82		ug/L		78	56 - 130
2-Chloronaphthalene	10.0	7.66		ug/L		77	56 - 130
2-Chlorophenol	10.0	7.62		ug/L		76	53 - 130
2-Methylnaphthalene	10.0	7.37		ug/L		74	52 - 130
2-Methylphenol	10.0	7.43		ug/L		74	40 - 130
2-Nitroaniline	10.0	6.54		ug/L		65	53 - 150
2-Nitrophenol	10.0	7.81		ug/L		78	52 - 130
3 & 4 Methylphenol	10.0	7.26		ug/L		73	29 - 130
3,3'-Dichlorobenzidine	10.0	7.81	J	ug/L		78	10 - 150
3-Nitroaniline	10.0	9.62		ug/L		96	10 - 150
4,6-Dinitro-2-methylphenol	20.0	14.5		ug/L		72	10 - 145
4-Bromophenyl phenyl ether	10.0	8.05		ug/L		81	63 - 130
4-Chloro-3-methylphenol	10.0	7.58		ug/L		76	49 - 130
4-Chloroaniline	10.0	8.23		ug/L		82	10 - 130
4-Chlorophenyl phenyl ether	10.0	8.27		ug/L		83	52 - 130
4-Nitroaniline	10.0	12.5		ug/L		125	11 - 150
4-Nitrophenol	20.0	11.0		ug/L		55	10 - 150
Acenaphthene	10.0	7.68		ug/L		77	59 - 130
Acenaphthylene	10.0	7.57		ug/L		76	58 - 130
Acetophenone	10.0	5.61		ug/L		56	45 - 130
Anthracene	10.0	8.01		ug/L		80	46 - 132

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

Lab Sample ID: LCS 600-220952/2-A
Matrix: Water
Analysis Batch: 220974

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 220952

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Atrazine	10.0	2.90		ug/L		29	10 - 150
Benzaldehyde	10.0	0.926	J *	ug/L		9	10 - 150
Benzo[a]anthracene	10.0	7.95		ug/L		80	58 - 130
Benzo[a]pyrene	10.0	8.71		ug/L		87	56 - 130
Benzo[b]fluoranthene	10.0	8.51		ug/L		85	57 - 130
Benzo[g,h,i]perylene	10.0	9.14		ug/L		91	58 - 139
Benzo[k]fluoranthene	10.0	7.93		ug/L		79	60 - 130
bis (2-Chloroisopropyl) ether	10.0	6.23		ug/L		62	20 - 150
Bis(2-chloroethoxy)methane	10.0	7.18		ug/L		72	36 - 134
Bis(2-chloroethyl)ether	10.0	7.33		ug/L		73	43 - 130
Bis(2-ethylhexyl) phthalate	10.0	7.18		ug/L		72	59 - 130
Butyl benzyl phthalate	10.0	7.35		ug/L		73	53 - 130
Caprolactam	10.0	4.27		ug/L		43	10 - 150
Carbazole	10.0	10.9		ug/L		109	10 - 150
Chrysene	10.0	7.71		ug/L		77	60 - 130
Dibenz(a,h)anthracene	10.0	8.86		ug/L		89	61 - 130
Dibenzofuran	10.0	7.80		ug/L		78	56 - 130
Diethyl phthalate	10.0	7.82		ug/L		78	58 - 130
Dimethyl phthalate	10.0	7.93		ug/L		79	60 - 130
Di-n-butyl phthalate	10.0	7.78		ug/L		78	61 - 130
Di-n-octyl phthalate	10.0	7.22		ug/L		72	57 - 130
Fluoranthene	10.0	8.24		ug/L		82	63 - 130
Fluorene	10.0	7.94		ug/L		79	57 - 130
Hexachlorobenzene	10.0	8.04		ug/L		80	62 - 130
Hexachlorobutadiene	10.0	7.85		ug/L		79	54 - 130
Hexachlorocyclopentadiene	10.0	4.57		ug/L		46	10 - 137
Hexachloroethane	10.0	7.27		ug/L		73	54 - 130
Indeno[1,2,3-cd]pyrene	10.0	8.75		ug/L		88	62 - 132
Isophorone	10.0	5.59		ug/L		56	49 - 130
Naphthalene	10.0	7.63		ug/L		76	57 - 130
Nitrobenzene	10.0	6.84		ug/L		68	41 - 130
N-Nitrosodi-n-propylamine	10.0	6.93		ug/L		69	48 - 130
N-Nitrosodiphenylamine	10.0	8.01		ug/L		80	55 - 137
Pentachlorophenol	20.0	11.7		ug/L		58	27 - 130
Phenanthrene	10.0	7.89		ug/L		79	60 - 130
Phenol	10.0	7.42		ug/L		74	10 - 144
Pyrene	10.0	8.09		ug/L		81	62 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol	*79*		*10 - 147*
2-Fluorobiphenyl	*80*		*10 - 150*
2-Fluorophenol	*81*		*10 - 130*
Nitrobenzene-d5	*73*		*23 - 130*
Phenol-d5 (Surr)	*77*		*10 - 130*
Terphenyl-d14	*87*		*42 - 133*

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

Lab Sample ID: LCSD 600-220952/3-A
Matrix: Water
Analysis Batch: 220974

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 220952

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1'-Biphenyl	10.0	7.71		ug/L		77	51 - 130	1	20
1,2,4,5-Tetrachlorobenzene	10.0	7.95		ug/L		80	56 - 130	3	20
2,3,4,6-Tetrachlorophenol	10.0	7.66		ug/L		77	28 - 136	7	20
2,4,5-Trichlorophenol	10.0	7.34		ug/L		73	58 - 130	4	20
2,4,6-Trichlorophenol	10.0	7.25		ug/L		72	55 - 130	4	20
2,4-Dichlorophenol	10.0	7.22		ug/L		72	47 - 130	5	20
2,4-Dimethylphenol	10.0	6.84		ug/L		68	45 - 130	0	20
2,4-Dinitrophenol	20.0	14.0		ug/L		70	10 - 150	6	20
2,4-Dinitrotoluene	10.0	8.24		ug/L		82	54 - 130	2	20
2,6-Dinitrotoluene	10.0	8.16		ug/L		82	56 - 130	4	20
2-Chloronaphthalene	10.0	7.92		ug/L		79	56 - 130	3	20
2-Chlorophenol	10.0	7.94		ug/L		79	53 - 130	4	20
2-Methylnaphthalene	10.0	7.45		ug/L		74	52 - 130	1	20
2-Methylphenol	10.0	7.72		ug/L		77	40 - 130	4	20
2-Nitroaniline	10.0	6.79		ug/L		68	53 - 150	4	20
2-Nitrophenol	10.0	8.09		ug/L		81	52 - 130	3	20
3 & 4 Methylphenol	10.0	7.41		ug/L		74	29 - 130	2	20
3,3'-Dichlorobenzidine	10.0	8.25	J	ug/L		83	10 - 150	5	20
3-Nitroaniline	10.0	10.5		ug/L		105	10 - 150	9	20
4,6-Dinitro-2-methylphenol	20.0	14.6		ug/L		73	10 - 145	1	20
4-Bromophenyl phenyl ether	10.0	8.50		ug/L		85	63 - 130	5	20
4-Chloro-3-methylphenol	10.0	7.57		ug/L		76	49 - 130	0	20
4-Chloroaniline	10.0	8.74		ug/L		87	10 - 130	6	20
4-Chlorophenyl phenyl ether	10.0	8.41		ug/L		84	52 - 130	2	20
4-Nitroaniline	10.0	12.6		ug/L		126	11 - 150	1	20
4-Nitrophenol	20.0	11.9		ug/L		60	10 - 150	8	20
Acenaphthene	10.0	7.77		ug/L		78	59 - 130	1	20
Acenaphthylene	10.0	7.67		ug/L		77	58 - 130	1	20
Acetophenone	10.0	5.56		ug/L		56	45 - 130	1	20
Anthracene	10.0	8.32		ug/L		83	46 - 132	4	20
Atrazine	10.0	2.88		ug/L		29	10 - 150	0	20
Benzaldehyde	10.0	0.624	J *	ug/L		6	10 - 150	39	20
Benzo[a]anthracene	10.0	8.55		ug/L		86	58 - 130	7	20
Benzo[a]pyrene	10.0	9.12		ug/L		91	56 - 130	5	20
Benzo[b]fluoranthene	10.0	8.88		ug/L		89	57 - 130	4	20
Benzo[g,h,i]perylene	10.0	9.55		ug/L		96	58 - 139	4	20
Benzo[k]fluoranthene	10.0	8.48		ug/L		85	60 - 130	7	20
bis (2-Chloroisopropyl) ether	10.0	6.53		ug/L		65	20 - 150	5	20
Bis(2-chloroethoxy)methane	10.0	7.33		ug/L		73	36 - 134	2	20
Bis(2-chloroethyl)ether	10.0	7.34		ug/L		73	43 - 130	0	20
Bis(2-ethylhexyl) phthalate	10.0	7.51		ug/L		75	59 - 130	4	20
Butyl benzyl phthalate	10.0	7.74		ug/L		77	53 - 130	5	20
Caprolactam	10.0	4.72		ug/L		47	10 - 150	10	20
Carbazole	10.0	11.4		ug/L		114	10 - 150	5	20
Chrysene	10.0	7.96		ug/L		80	60 - 130	3	20
Dibenz(a,h)anthracene	10.0	9.19		ug/L		92	61 - 130	4	20
Dibenzofuran	10.0	7.97		ug/L		80	56 - 130	2	20
Diethyl phthalate	10.0	8.12		ug/L		81	58 - 130	4	20

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

Lab Sample ID: LCSD 600-220952/3-A
Matrix: Water
Analysis Batch: 220974

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 220952

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dimethyl phthalate	10.0	8.24		ug/L		82	60 - 130	4	20
Di-n-butyl phthalate	10.0	8.08		ug/L		81	61 - 130	4	20
Di-n-octyl phthalate	10.0	7.56		ug/L		76	57 - 130	5	20
Fluoranthene	10.0	8.67		ug/L		87	63 - 130	5	20
Fluorene	10.0	8.05		ug/L		80	57 - 130	1	20
Hexachlorobenzene	10.0	8.34		ug/L		83	62 - 130	4	20
Hexachlorobutadiene	10.0	8.08		ug/L		81	54 - 130	3	20
Hexachlorocyclopentadiene	10.0	4.79		ug/L		48	10 - 137	5	20
Hexachloroethane	10.0	7.76		ug/L		78	54 - 130	6	20
Indeno[1,2,3-cd]pyrene	10.0	8.95		ug/L		90	62 - 132	2	20
Isophorone	10.0	5.80		ug/L		58	49 - 130	4	20
Naphthalene	10.0	7.74		ug/L		77	57 - 130	1	20
Nitrobenzene	10.0	7.29		ug/L		73	41 - 130	6	20
N-Nitrosodi-n-propylamine	10.0	7.00		ug/L		70	48 - 130	1	20
N-Nitrosodiphenylamine	10.0	8.41		ug/L		84	55 - 137	5	20
Pentachlorophenol	20.0	12.4		ug/L		62	27 - 130	6	20
Phenanthrene	10.0	8.19		ug/L		82	60 - 130	4	20
Phenol	10.0	7.24		ug/L		72	10 - 144	2	20
Pyrene	10.0	8.39		ug/L		84	62 - 130	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*80*		*10 - 147*
2-Fluorobiphenyl	*80*		*10 - 150*
2-Fluorophenol	*73*		*10 - 130*
Nitrobenzene-d5	*73*		*23 - 130*
Phenol-d5 (Surr)	*74*		*10 - 130*
Terphenyl-d14	*84*		*42 - 133*

Method: 8270C SIM - Semivolatile Org Compounds by GCMS (SIM)

Lab Sample ID: MB 600-220953/1-A
Matrix: Water
Analysis Batch: 220976

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 220953

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.016	U	0.050	0.016	ug/L		09/10/17 11:32	09/11/17 09:36	1
2-Methylnaphthalene	0.016	U	0.050	0.016	ug/L		09/10/17 11:32	09/11/17 09:36	1
Acenaphthene	0.019	U	0.050	0.019	ug/L		09/10/17 11:32	09/11/17 09:36	1
Acenaphthylene	0.015	U	0.050	0.015	ug/L		09/10/17 11:32	09/11/17 09:36	1
Anthracene	0.013	U	0.050	0.013	ug/L		09/10/17 11:32	09/11/17 09:36	1
Benzo[a]anthracene	0.011	U	0.050	0.011	ug/L		09/10/17 11:32	09/11/17 09:36	1
Benzo[a]pyrene	0.0037	U	0.050	0.0037	ug/L		09/10/17 11:32	09/11/17 09:36	1
Benzo[b]fluoranthene	0.0036	U	0.050	0.0036	ug/L		09/10/17 11:32	09/11/17 09:36	1
Benzo[g,h,i]perylene	0.0074	U	0.050	0.0074	ug/L		09/10/17 11:32	09/11/17 09:36	1
Benzo[k]fluoranthene	0.0077	U	0.050	0.0077	ug/L		09/10/17 11:32	09/11/17 09:36	1
Chrysene	0.0095	U	0.050	0.0095	ug/L		09/10/17 11:32	09/11/17 09:36	1
Dibenz(a,h)anthracene	0.0042	U	0.050	0.0042	ug/L		09/10/17 11:32	09/11/17 09:36	1
Fluoranthene	0.013	U	0.050	0.013	ug/L		09/10/17 11:32	09/11/17 09:36	1

Method: 8270C SIM - Semivolatile Org Compounds by GCMS (SIM) (Continued)

Lab Sample ID: MB 600-220953/1-A
Matrix: Water
Analysis Batch: 220976

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 220953

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	0.013	U	0.050	0.013	ug/L		09/10/17 11:32	09/11/17 09:36	1
Indeno[1,2,3-cd]pyrene	0.014	U	0.050	0.014	ug/L		09/10/17 11:32	09/11/17 09:36	1
Naphthalene	0.018	U	0.050	0.018	ug/L		09/10/17 11:32	09/11/17 09:36	1
Pentachlorophenol	0.10	U	0.50	0.10	ug/L		09/10/17 11:32	09/11/17 09:36	1
Phenanthrene	0.012	U	0.050	0.012	ug/L		09/10/17 11:32	09/11/17 09:36	1
Pyrene	0.012	U	0.050	0.012	ug/L		09/10/17 11:32	09/11/17 09:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*26 - 130*	*09/10/17 11:32*	*09/11/17 09:36*	*1*
Nitrobenzene-d5	*51*		*18 - 130*	*09/10/17 11:32*	*09/11/17 09:36*	*1*
Terphenyl-d14	*82*		*14 - 150*	*09/10/17 11:32*	*09/11/17 09:36*	*1*

Lab Sample ID: LCS 600-220953/2-A
Matrix: Water
Analysis Batch: 220976

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 220953

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1-Methylnaphthalene	1.00	1.06		ug/L		106	53 - 131
2-Methylnaphthalene	1.00	1.02		ug/L		102	58 - 130
Acenaphthene	1.00	1.00		ug/L		100	58 - 130
Acenaphthylene	1.00	0.962		ug/L		96	50 - 130
Anthracene	1.00	0.972		ug/L		97	51 - 130
Benzo[a]anthracene	1.00	0.950		ug/L		95	53 - 130
Benzo[a]pyrene	1.00	0.906		ug/L		91	53 - 130
Benzo[b]fluoranthene	1.00	0.842		ug/L		84	48 - 130
Benzo[g,h,i]perylene	1.00	1.11		ug/L		111	60 - 130
Benzo[k]fluoranthene	1.00	1.22		ug/L		122	60 - 130
Chrysene	1.00	1.19		ug/L		119	54 - 130
Dibenz(a,h)anthracene	1.00	1.06		ug/L		106	58 - 130
Fluoranthene	1.00	1.03		ug/L		103	47 - 130
Fluorene	1.00	0.986		ug/L		99	52 - 130
Indeno[1,2,3-cd]pyrene	1.00	1.07		ug/L		107	57 - 130
Naphthalene	1.00	0.826		ug/L		83	57 - 130
Pentachlorophenol	2.00	1.72		ug/L		86	10 - 130
Phenanthrene	1.00	0.978		ug/L		98	41 - 130
Pyrene	1.00	1.09		ug/L		109	61 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*79*		*26 - 130*
Nitrobenzene-d5	*105*		*18 - 130*
Terphenyl-d14	*86*		*14 - 150*

Lab Sample ID: LCSD 600-220953/3-A
Matrix: Water
Analysis Batch: 220976

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 220953

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1-Methylnaphthalene	1.00	0.646	*	ug/L		65	53 - 131	49	20

Method: 8270C SIM - Semivolatile Org Compounds by GCMS (SIM) (Continued)

Lab Sample ID: LCSD 600-220953/3-A
Matrix: Water
Analysis Batch: 220976

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 220953

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylnaphthalene	1.00	0.661	*	ug/L		66	58 - 130	42	20
Acenaphthene	1.00	0.980		ug/L		98	58 - 130	2	20
Acenaphthylene	1.00	0.935		ug/L		93	50 - 130	3	20
Anthracene	1.00	0.837		ug/L		84	51 - 130	15	20
Benzo[a]anthracene	1.00	0.896		ug/L		90	53 - 130	6	20
Benzo[a]pyrene	1.00	0.847		ug/L		85	53 - 130	7	20
Benzo[b]fluoranthene	1.00	0.751		ug/L		75	48 - 130	11	20
Benzo[g,h,i]perylene	1.00	1.06		ug/L		106	60 - 130	5	20
Benzo[k]fluoranthene	1.00	1.18		ug/L		118	60 - 130	4	20
Chrysene	1.00	1.17		ug/L		117	54 - 130	1	20
Dibenz(a,h)anthracene	1.00	1.00		ug/L		100	58 - 130	6	20
Fluoranthene	1.00	0.810	*	ug/L		81	47 - 130	24	20
Fluorene	1.00	0.945		ug/L		95	52 - 130	4	20
Indeno[1,2,3-cd]pyrene	1.00	1.00		ug/L		100	57 - 130	6	20
Naphthalene	1.00	0.821		ug/L		82	57 - 130	1	20
Pentachlorophenol	2.00	1.46		ug/L		73	10 - 130	17	20
Phenanthrene	1.00	0.718	*	ug/L		72	41 - 130	31	20
Pyrene	1.00	1.10		ug/L		110	61 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*80*		*26 - 130*
Nitrobenzene-d5	*53*		*18 - 130*
Terphenyl-d14	*89*		*14 - 150*

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-183556/1-A
Matrix: Solid
Analysis Batch: 183866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 183556

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.12	U	1.0	0.12	pg/g		09/09/17 11:30	09/11/17 18:36	1
2,3,7,8-TCDF	0.094	U	1.0	0.094	pg/g		09/09/17 11:30	09/11/17 18:36	1
1,2,3,7,8-PeCDD	0.18	U	5.0	0.18	pg/g		09/09/17 11:30	09/11/17 18:36	1
1,2,3,7,8-PeCDF	0.11	U	5.0	0.11	pg/g		09/09/17 11:30	09/11/17 18:36	1
2,3,4,7,8-PeCDF	0.12	U	5.0	0.12	pg/g		09/09/17 11:30	09/11/17 18:36	1
1,2,3,4,7,8-HxCDD	0.088	U	5.0	0.088	pg/g		09/09/17 11:30	09/11/17 18:36	1
1,2,3,6,7,8-HxCDD	0.079	U	5.0	0.079	pg/g		09/09/17 11:30	09/11/17 18:36	1
1,2,3,7,8,9-HxCDD	0.075	U	5.0	0.075	pg/g		09/09/17 11:30	09/11/17 18:36	1
1,2,3,4,7,8-HxCDF	0.16	U	5.0	0.16	pg/g		09/09/17 11:30	09/11/17 18:36	1
1,2,3,6,7,8-HxCDF	0.15	U	5.0	0.15	pg/g		09/09/17 11:30	09/11/17 18:36	1
1,2,3,7,8,9-HxCDF	0.17	U	5.0	0.17	pg/g		09/09/17 11:30	09/11/17 18:36	1
2,3,4,6,7,8-HxCDF	0.16	U	5.0	0.16	pg/g		09/09/17 11:30	09/11/17 18:36	1
1,2,3,4,6,7,8-HpCDD	0.442	J	5.0	0.097	pg/g		09/09/17 11:30	09/11/17 18:36	1
1,2,3,4,6,7,8-HpCDF	0.053	U	5.0	0.053	pg/g		09/09/17 11:30	09/11/17 18:36	1
1,2,3,4,7,8,9-HpCDF	0.063	U	5.0	0.063	pg/g		09/09/17 11:30	09/11/17 18:36	1
OCDD	4.47	J	10	0.082	pg/g		09/09/17 11:30	09/11/17 18:36	1
OCDF	0.310	J q	10	0.16	pg/g		09/09/17 11:30	09/11/17 18:36	1

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-183556/1-A
Matrix: Solid
Analysis Batch: 183866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 183556

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TCDD	0.12	U	1.0	0.12	pg/g		09/09/17 11:30	09/11/17 18:36	1
Total TCDF	0.094	U	1.0	0.094	pg/g		09/09/17 11:30	09/11/17 18:36	1
Total PeCDD	0.18	U	5.0	0.18	pg/g		09/09/17 11:30	09/11/17 18:36	1
Total PeCDF	0.12	U	5.0	0.12	pg/g		09/09/17 11:30	09/11/17 18:36	1
Total HxCDD	0.088	U	5.0	0.088	pg/g		09/09/17 11:30	09/11/17 18:36	1
Total HxCDF	0.17	U	5.0	0.17	pg/g		09/09/17 11:30	09/11/17 18:36	1
Total HpCDD	0.442	J	5.0	0.097	pg/g		09/09/17 11:30	09/11/17 18:36	1
Total HpCDF	0.263	J	5.0	0.058	pg/g		09/09/17 11:30	09/11/17 18:36	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*71*		*40 - 135*	*09/09/17 11:30*	*09/11/17 18:36*	*1*
13C-2,3,7,8-TCDF	*65*		*40 - 135*	*09/09/17 11:30*	*09/11/17 18:36*	*1*
13C-1,2,3,7,8-PeCDD	*71*		*40 - 135*	*09/09/17 11:30*	*09/11/17 18:36*	*1*
13C-1,2,3,7,8-PeCDF	*63*		*40 - 135*	*09/09/17 11:30*	*09/11/17 18:36*	*1*
13C-1,2,3,6,7,8-HxCDD	*68*		*40 - 135*	*09/09/17 11:30*	*09/11/17 18:36*	*1*
13C-1,2,3,4,7,8-HxCDF	*64*		*40 - 135*	*09/09/17 11:30*	*09/11/17 18:36*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*73*		*40 - 135*	*09/09/17 11:30*	*09/11/17 18:36*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*64*		*40 - 135*	*09/09/17 11:30*	*09/11/17 18:36*	*1*
13C-OCDD	*85*		*40 - 135*	*09/09/17 11:30*	*09/11/17 18:36*	*1*

Lab Sample ID: LCS 320-183556/2-A
Matrix: Solid
Analysis Batch: 183866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 183556

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	20.0	20.5		pg/g		103	77 - 130
2,3,7,8-TCDF	20.0	19.7		pg/g		99	79 - 137
1,2,3,7,8-PeCDD	100	102		pg/g		102	79 - 134
1,2,3,7,8-PeCDF	100	109		pg/g		109	81 - 134
2,3,4,7,8-PeCDF	100	109		pg/g		109	76 - 132
1,2,3,4,7,8-HxCDD	100	110		pg/g		110	65 - 144
1,2,3,6,7,8-HxCDD	100	108		pg/g		108	73 - 147
1,2,3,7,8,9-HxCDD	100	113		pg/g		113	80 - 143
1,2,3,4,7,8-HxCDF	100	110		pg/g		110	72 - 140
1,2,3,6,7,8-HxCDF	100	109		pg/g		109	63 - 152
1,2,3,7,8,9-HxCDF	100	121		pg/g		121	72 - 152
2,3,4,6,7,8-HxCDF	100	118		pg/g		118	72 - 151
1,2,3,4,6,7,8-HpCDD	100	101		pg/g		101	86 - 134
1,2,3,4,6,7,8-HpCDF	100	111		pg/g		111	81 - 137
1,2,3,4,7,8,9-HpCDF	100	115		pg/g		115	79 - 139
OCDD	200	214		pg/g		107	80 - 137
OCDF	200	210		pg/g		105	75 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*67*		*40 - 135*
13C-2,3,7,8-TCDF	*63*		*40 - 135*
13C-1,2,3,7,8-PeCDD	*66*		*40 - 135*
13C-1,2,3,7,8-PeCDF	*60*		*40 - 135*

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-183556/2-A
Matrix: Solid
Analysis Batch: 183866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 183556

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,6,7,8-HxCDD	66		40 - 135
13C-1,2,3,4,7,8-HxCDF	60		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	81		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	69		40 - 135
13C-OCDD	88		40 - 135

Lab Sample ID: LCSD 320-183556/3-A
Matrix: Solid
Analysis Batch: 183866

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 183556

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,3,7,8-TCDD	20.0	18.4		pg/g		92	77 - 130	11	20
2,3,7,8-TCDF	20.0	20.0		pg/g		100	79 - 137	1	20
1,2,3,7,8-PeCDD	100	101		pg/g		101	79 - 134	2	20
1,2,3,7,8-PeCDF	100	109		pg/g		109	81 - 134	0	20
2,3,4,7,8-PeCDF	100	108		pg/g		108	76 - 132	1	20
1,2,3,4,7,8-HxCDD	100	123		pg/g		123	65 - 144	12	20
1,2,3,6,7,8-HxCDD	100	108		pg/g		108	73 - 147	0	20
1,2,3,7,8,9-HxCDD	100	118		pg/g		118	80 - 143	4	20
1,2,3,4,7,8-HxCDF	100	110		pg/g		110	72 - 140	0	20
1,2,3,6,7,8-HxCDF	100	102		pg/g		102	63 - 152	6	20
1,2,3,7,8,9-HxCDF	100	113		pg/g		113	72 - 152	7	20
2,3,4,6,7,8-HxCDF	100	110		pg/g		110	72 - 151	6	20
1,2,3,4,6,7,8-HpCDD	100	99.9		pg/g		100	86 - 134	1	20
1,2,3,4,6,7,8-HpCDF	100	110		pg/g		110	81 - 137	1	20
1,2,3,4,7,8,9-HpCDF	100	110		pg/g		110	79 - 139	4	20
OCDD	200	205		pg/g		103	80 - 137	4	20
OCDF	200	206		pg/g		103	75 - 141	2	20

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-2,3,7,8-TCDD	69		40 - 135
13C-2,3,7,8-TCDF	61		40 - 135
13C-1,2,3,7,8-PeCDD	68		40 - 135
13C-1,2,3,7,8-PeCDF	61		40 - 135
13C-1,2,3,6,7,8-HxCDD	63		40 - 135
13C-1,2,3,4,7,8-HxCDF	67		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	78		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	70		40 - 135
13C-OCDD	89		40 - 135

Lab Sample ID: MB 320-183557/1-A
Matrix: Water
Analysis Batch: 183866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 183557

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	0.91	U	10	0.91	pg/L		09/09/17 11:39	09/11/17 20:55	1
2,3,7,8-TCDF	0.84	U	10	0.84	pg/L		09/09/17 11:39	09/11/17 20:55	1
1,2,3,7,8-PeCDD	1.1	U	50	1.1	pg/L		09/09/17 11:39	09/11/17 20:55	1
1,2,3,7,8-PeCDF	0.67	U	50	0.67	pg/L		09/09/17 11:39	09/11/17 20:55	1

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-183557/1-A
Matrix: Water
Analysis Batch: 183866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 183557

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,4,7,8-PeCDF	0.67	U	50	0.67	pg/L		09/09/17 11:39	09/11/17 20:55	1
1,2,3,4,7,8-HxCDD	0.54	U	50	0.54	pg/L		09/09/17 11:39	09/11/17 20:55	1
1,2,3,6,7,8-HxCDD	0.48	U	50	0.48	pg/L		09/09/17 11:39	09/11/17 20:55	1
1,2,3,7,8,9-HxCDD	0.46	U	50	0.46	pg/L		09/09/17 11:39	09/11/17 20:55	1
1,2,3,4,7,8-HxCDF	0.85	U	50	0.85	pg/L		09/09/17 11:39	09/11/17 20:55	1
1,2,3,6,7,8-HxCDF	0.77	U	50	0.77	pg/L		09/09/17 11:39	09/11/17 20:55	1
1,2,3,7,8,9-HxCDF	0.90	U	50	0.90	pg/L		09/09/17 11:39	09/11/17 20:55	1
2,3,4,6,7,8-HxCDF	0.82	U	50	0.82	pg/L		09/09/17 11:39	09/11/17 20:55	1
1,2,3,4,6,7,8-HpCDD	0.48	U	50	0.48	pg/L		09/09/17 11:39	09/11/17 20:55	1
1,2,3,4,6,7,8-HpCDF	0.30	U	50	0.30	pg/L		09/09/17 11:39	09/11/17 20:55	1
1,2,3,4,7,8,9-HpCDF	0.35	U	50	0.35	pg/L		09/09/17 11:39	09/11/17 20:55	1
OCDD	1.17	J q	100	0.39	pg/L		09/09/17 11:39	09/11/17 20:55	1
OCDF	0.75	U	100	0.75	pg/L		09/09/17 11:39	09/11/17 20:55	1
Total TCDD	0.91	U	10	0.91	pg/L		09/09/17 11:39	09/11/17 20:55	1
Total TCDF	0.84	U	10	0.84	pg/L		09/09/17 11:39	09/11/17 20:55	1
Total PeCDD	1.1	U	50	1.1	pg/L		09/09/17 11:39	09/11/17 20:55	1
Total PeCDF	0.67	U	50	0.67	pg/L		09/09/17 11:39	09/11/17 20:55	1
Total HxCDD	0.54	U	50	0.54	pg/L		09/09/17 11:39	09/11/17 20:55	1
Total HxCDF	0.90	U	50	0.90	pg/L		09/09/17 11:39	09/11/17 20:55	1
Total HpCDD	0.48	U	50	0.48	pg/L		09/09/17 11:39	09/11/17 20:55	1
Total HpCDF	0.35	U	50	0.35	pg/L		09/09/17 11:39	09/11/17 20:55	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*91*		*40 - 135*	*09/09/17 11:39*	*09/11/17 20:55*	*1*
13C-2,3,7,8-TCDF	*84*		*40 - 135*	*09/09/17 11:39*	*09/11/17 20:55*	*1*
13C-1,2,3,7,8-PeCDD	*97*		*40 - 135*	*09/09/17 11:39*	*09/11/17 20:55*	*1*
13C-1,2,3,7,8-PeCDF	*83*		*40 - 135*	*09/09/17 11:39*	*09/11/17 20:55*	*1*
13C-1,2,3,6,7,8-HxCDD	*83*		*40 - 135*	*09/09/17 11:39*	*09/11/17 20:55*	*1*
13C-1,2,3,4,7,8-HxCDF	*82*		*40 - 135*	*09/09/17 11:39*	*09/11/17 20:55*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*90*		*40 - 135*	*09/09/17 11:39*	*09/11/17 20:55*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*81*		*40 - 135*	*09/09/17 11:39*	*09/11/17 20:55*	*1*
13C-OCDD	*103*		*40 - 135*	*09/09/17 11:39*	*09/11/17 20:55*	*1*

Lab Sample ID: LCS 320-183557/2-A
Matrix: Water
Analysis Batch: 183866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 183557

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	200	161		pg/L		80	64 - 142
2,3,7,8-TCDF	200	164		pg/L		82	71 - 142
1,2,3,7,8-PeCDD	1000	833		pg/L		83	71 - 140
1,2,3,7,8-PeCDF	1000	881		pg/L		88	76 - 135
2,3,4,7,8-PeCDF	1000	873		pg/L		87	74 - 137
1,2,3,4,7,8-HxCDD	1000	972		pg/L		97	56 - 146
1,2,3,6,7,8-HxCDD	1000	890		pg/L		89	73 - 144
1,2,3,7,8,9-HxCDD	1000	981		pg/L		98	71 - 151
1,2,3,4,7,8-HxCDF	1000	905		pg/L		91	75 - 131
1,2,3,6,7,8-HxCDF	1000	852		pg/L		85	76 - 133

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-183557/2-A
Matrix: Water
Analysis Batch: 183866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 183557

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,3,7,8,9-HxCDF	1000	966		pg/L		97	77 - 142
2,3,4,6,7,8-HxCDF	1000	943		pg/L		94	80 - 137
1,2,3,4,6,7,8-HpCDD	1000	838		pg/L		84	78 - 139
1,2,3,4,6,7,8-HpCDF	1000	924		pg/L		92	79 - 133
1,2,3,4,7,8,9-HpCDF	1000	992		pg/L		99	83 - 130
OCDD	2000	1720		pg/L		86	80 - 132
OCDF	2000	1710		pg/L		86	72 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*87*		*40 - 135*
13C-2,3,7,8-TCDF	*81*		*40 - 135*
13C-1,2,3,7,8-PeCDD	*93*		*40 - 135*
13C-1,2,3,7,8-PeCDF	*82*		*40 - 135*
13C-1,2,3,6,7,8-HxCDD	*75*		*40 - 135*
13C-1,2,3,4,7,8-HxCDF	*77*		*40 - 135*
13C-1,2,3,4,6,7,8-HpCDD	*87*		*40 - 135*
13C-1,2,3,4,6,7,8-HpCDF	*75*		*40 - 135*
13C-OCDD	*100*		*40 - 135*

Lab Sample ID: LCSD 320-183557/3-A
Matrix: Water
Analysis Batch: 183866

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 183557

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,3,7,8-TCDD	200	182		pg/L		91	64 - 142	13	20
2,3,7,8-TCDF	200	195		pg/L		97	71 - 142	17	20
1,2,3,7,8-PeCDD	1000	959		pg/L		96	71 - 140	14	20
1,2,3,7,8-PeCDF	1000	1020		pg/L		102	76 - 135	15	20
2,3,4,7,8-PeCDF	1000	1030		pg/L		103	74 - 137	17	20
1,2,3,4,7,8-HxCDD	1000	1120		pg/L		112	56 - 146	14	20
1,2,3,6,7,8-HxCDD	1000	1020		pg/L		102	73 - 144	14	20
1,2,3,7,8,9-HxCDD	1000	1100		pg/L		110	71 - 151	12	20
1,2,3,4,7,8-HxCDF	1000	1040		pg/L		104	75 - 131	14	20
1,2,3,6,7,8-HxCDF	1000	997		pg/L		100	76 - 133	16	20
1,2,3,7,8,9-HxCDF	1000	1090		pg/L		109	77 - 142	12	20
2,3,4,6,7,8-HxCDF	1000	1070		pg/L		107	80 - 137	12	20
1,2,3,4,6,7,8-HpCDD	1000	957		pg/L		96	78 - 139	13	20
1,2,3,4,6,7,8-HpCDF	1000	1060		pg/L		106	79 - 133	13	20
1,2,3,4,7,8,9-HpCDF	1000	1090		pg/L		109	83 - 130	9	20
OCDD	2000	1920		pg/L		96	80 - 132	11	20
OCDF	2000	1940		pg/L		97	72 - 140	12	20

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C-2,3,7,8-TCDD	*90*		*40 - 135*
13C-2,3,7,8-TCDF	*82*		*40 - 135*
13C-1,2,3,7,8-PeCDD	*97*		*40 - 135*
13C-1,2,3,7,8-PeCDF	*86*		*40 - 135*
13C-1,2,3,6,7,8-HxCDD	*81*		*40 - 135*

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-183557/3-A
Matrix: Water
Analysis Batch: 183866

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 183557

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-1,2,3,4,7,8-HxCDF	83		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	96		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	83		40 - 135
13C-OCDD	111		40 - 135

QC Association Summary

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

TestAmerica Job ID: 600-153593-1

GC/MS Semi VOA

Prep Batch: 220951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-1	JCC-SS-001	Total/NA	Solid	3546	
600-153593-2	JCC-SS-002	Total/NA	Solid	3546	
600-153593-3	JCC-SS-003	Total/NA	Solid	3546	
MB 600-220951/1-A	Method Blank	Total/NA	Solid	3546	
LCS 600-220951/2-A	Lab Control Sample	Total/NA	Solid	3546	
600-153593-1 MS	JCC-SS-001	Total/NA	Solid	3546	
600-153593-1 MSD	JCC-SS-001	Total/NA	Solid	3546	

Prep Batch: 220952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-4 - DL	JCC-GW-004	Total/NA	Water	3510C	
600-153593-4	JCC-GW-004	Total/NA	Water	3510C	
MB 600-220952/1-A	Method Blank	Total/NA	Water	3510C	
LCS 600-220952/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-220952/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 220953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-4 - DL	JCC-GW-004	Total/NA	Water	3510C	
600-153593-4	JCC-GW-004	Total/NA	Water	3510C	
MB 600-220953/1-A	Method Blank	Total/NA	Water	3510C	
LCS 600-220953/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 600-220953/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 220974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-4	JCC-GW-004	Total/NA	Water	8270C LL	220952
600-153593-4 - DL	JCC-GW-004	Total/NA	Water	8270C LL	220952
MB 600-220952/1-A	Method Blank	Total/NA	Water	8270C LL	220952
LCS 600-220952/2-A	Lab Control Sample	Total/NA	Water	8270C LL	220952
LCSD 600-220952/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	220952

Analysis Batch: 220976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-4	JCC-GW-004	Total/NA	Water	8270C SIM	220953
600-153593-4 - DL	JCC-GW-004	Total/NA	Water	8270C SIM	220953
MB 600-220953/1-A	Method Blank	Total/NA	Water	8270C SIM	220953
LCS 600-220953/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	220953
LCSD 600-220953/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	220953

Analysis Batch: 221013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-1	JCC-SS-001	Total/NA	Solid	8270C LL	220951
MB 600-220951/1-A	Method Blank	Total/NA	Solid	8270C LL	220951
LCS 600-220951/2-A	Lab Control Sample	Total/NA	Solid	8270C LL	220951
600-153593-1 MS	JCC-SS-001	Total/NA	Solid	8270C LL	220951
600-153593-1 MSD	JCC-SS-001	Total/NA	Solid	8270C LL	220951

Analysis Batch: 221228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-2	JCC-SS-002	Total/NA	Solid	8270C LL	220951

GC/MS Semi VOA (Continued)

Analysis Batch: 221228 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-3	JCC-SS-003	Total/NA	Solid	8270C LL	220951

Specialty Organics

Prep Batch: 183556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-1	JCC-SS-001	Total/NA	Solid	8290	
600-153593-2	JCC-SS-002	Total/NA	Solid	8290	
600-153593-3	JCC-SS-003	Total/NA	Solid	8290	
MB 320-183556/1-A	Method Blank	Total/NA	Solid	8290	
LCS 320-183556/2-A	Lab Control Sample	Total/NA	Solid	8290	
LCSD 320-183556/3-A	Lab Control Sample Dup	Total/NA	Solid	8290	

Prep Batch: 183557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-4	JCC-GW-004	Total/NA	Water	8290	
MB 320-183557/1-A	Method Blank	Total/NA	Water	8290	
LCS 320-183557/2-A	Lab Control Sample	Total/NA	Water	8290	
LCSD 320-183557/3-A	Lab Control Sample Dup	Total/NA	Water	8290	

Analysis Batch: 183866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-1	JCC-SS-001	Total/NA	Solid	8290A	183556
600-153593-2	JCC-SS-002	Total/NA	Solid	8290A	183556
600-153593-4	JCC-GW-004	Total/NA	Water	8290A	183557
MB 320-183556/1-A	Method Blank	Total/NA	Solid	8290A	183556
MB 320-183557/1-A	Method Blank	Total/NA	Water	8290A	183557
LCS 320-183556/2-A	Lab Control Sample	Total/NA	Solid	8290A	183556
LCS 320-183557/2-A	Lab Control Sample	Total/NA	Water	8290A	183557
LCSD 320-183556/3-A	Lab Control Sample Dup	Total/NA	Solid	8290A	183556
LCSD 320-183557/3-A	Lab Control Sample Dup	Total/NA	Water	8290A	183557

Analysis Batch: 183867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-3	JCC-SS-003	Total/NA	Solid	8290A	183556

General Chemistry

Analysis Batch: 183820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-153593-1	JCC-SS-001	Total/NA	Solid	D 2216	
600-153593-2	JCC-SS-002	Total/NA	Solid	D 2216	
600-153593-3	JCC-SS-003	Total/NA	Solid	D 2216	

Lab Chronicle

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

TestAmerica Job ID: 600-153593-1

Client Sample ID: JCC-SS-001 — Lab Sample ID: 600-153593-1

Date Collected: 09/08/17 11:40 — **Matrix: Solid**
Date Received: 09/08/17 17:33

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			183820	09/11/17 15:57	JCB	TAL SAC

Client Sample ID: JCC-SS-001 — Lab Sample ID: 600-153593-1

Date Collected: 09/08/17 11:40 — **Matrix: Solid**
Date Received: 09/08/17 17:33 — **Percent Solids: 94.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			15.07 g	1.0 mL	220951	09/10/17 09:36	SMB	TAL HOU
Total/NA	Analysis	8270C LL		1	1 mL	1.0 mL	221013	09/11/17 19:29	TTD	TAL HOU
Total/NA	Prep	8290			9.98 g	20.0 uL	183556	09/09/17 11:30	SXS	TAL SAC
Total/NA	Analysis	8290A		1			183866	09/11/17 23:59	SMA	TAL SAC

Client Sample ID: JCC-SS-002 — Lab Sample ID: 600-153593-2

Date Collected: 09/08/17 11:45 — **Matrix: Solid**
Date Received: 09/08/17 17:33

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			183820	09/11/17 15:57	JCB	TAL SAC

Client Sample ID: JCC-SS-002 — Lab Sample ID: 600-153593-2

Date Collected: 09/08/17 11:45 — **Matrix: Solid**
Date Received: 09/08/17 17:33 — **Percent Solids: 93.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			15.02 g	1.0 mL	220951	09/10/17 09:36	SMB	TAL HOU
Total/NA	Analysis	8270C LL		5			221228	09/13/17 13:37	TTD	TAL HOU
Total/NA	Prep	8290			9.98 g	20.0 uL	183556	09/09/17 11:30	SXS	TAL SAC
Total/NA	Analysis	8290A		1			183866	09/12/17 00:45	SMA	TAL SAC

Client Sample ID: JCC-SS-003 — Lab Sample ID: 600-153593-3

Date Collected: 09/08/17 12:00 — **Matrix: Solid**
Date Received: 09/08/17 17:33

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			183820	09/11/17 15:57	JCB	TAL SAC

Client Sample ID: JCC-SS-003 — Lab Sample ID: 600-153593-3

Date Collected: 09/08/17 12:00 — **Matrix: Solid**
Date Received: 09/08/17 17:33 — **Percent Solids: 82.9**

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	220951	09/10/17 09:36	SMB	TAL HOU

Lab Chronicle

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

TestAmerica Job ID: 600-153593-1

Client Sample ID: JCC-SS-003

Lab Sample ID: 600-153593-3
Date Collected: 09/08/17 12:00
Matrix: Solid
Date Received: 09/08/17 17:33
Percent Solids: 82.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270C LL		5			221228	09/13/17 14:01	TTD	TAL HOU
Total/NA	Prep	8290			9.99 g	20.0 uL	183556	09/09/17 11:30	SXS	TAL SAC
Total/NA	Analysis	8290A		1			183867	09/12/17 08:11	SMA	TAL SAC

Client Sample ID: JCC-GW-004

Lab Sample ID: 600-153593-4
Date Collected: 09/08/17 12:20
Matrix: Water
Date Received: 09/08/17 17:33

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1010 mL	1.0 mL	220952	09/10/17 11:22	LER	TAL HOU
Total/NA	Analysis	8270C LL		50	1 mL	1.0 mL	220974	09/11/17 11:10	TTD	TAL HOU
Total/NA	Prep	3510C	DL		1010 mL	1.0 mL	220952	09/10/17 11:22	LER	TAL HOU
Total/NA	Analysis	8270C LL	DL	500			220974	09/11/17 12:22	TTD	TAL HOU
Total/NA	Prep	3510C			1010 mL	1.0 mL	220953	09/10/17 11:34	LER	TAL HOU
Total/NA	Analysis	8270C SIM		500			220976	09/11/17 13:04	TTD	TAL HOU
Total/NA	Prep	3510C	DL		1010 mL	1.0 mL	220953	09/10/17 11:34	LER	TAL HOU
Total/NA	Analysis	8270C SIM	DL	5000			220976	09/11/17 13:57	TTD	TAL HOU
Total/NA	Prep	8290			966.3 mL	20 uL	183557	09/09/17 11:39	FHL	TAL SAC
Total/NA	Analysis	8290A		1			183866	09/11/17 23:13	SMA	TAL SAC

Laboratory References:

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

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

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

TestAmerica Job ID: 600-153593-1

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 are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
8270C LL	3510C	Water	Atrazine

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

Analysis Method	Prep Method	Matrix	Analyte
8270C LL	3510C	Water	3 & 4 Methylphenol
8270C LL	3510C	Water	Benzaldehyde
8270C LL	3546	Solid	Atrazine
8270C LL	3546	Solid	Benzaldehyde
8270C SIM	3510C	Water	1-Methylnaphthalene

Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17 *
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17 *
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-18
Georgia	State Program	4	N/A	01-29-18
Hawaii	State Program	9	N/A	01-29-18
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-18
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-18
New Hampshire	NELAP	1	2997	04-18-18
New Jersey	NELAP	2	CA005	06-30-18
New York	NELAP	2	11666	04-01-18
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	07-31-18
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-29-17 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

CH2MHILL Constructors, Inc.

115 Perimeter Center Place, Suite 700
Atlanta, GA 30346-1278
Tel No: (770) 604-9182
Fax No: (770) 604-9282

CHAIN-OF-CUSTODY RECORD

[1] COC NUMBER:

[4] PROJECT NAME:	[5] PROJECT NUMBER:	[8] LAB NAME AND CONTACT:	[11] FAX AND MAIL REPORTS/EDD TO:: RECIPIENT 1 (Name and Company)	[14] RECIPIENT 1 (Address, Tel No. , and Fax No.):
		TestAmerica-Houston /Joe Espinosa 6310 Rothway Street, Suite 130 Houston,TX 77040	Ynfante, John/HOU John.Ynfante@ch2m.com	14701 St. Mary's Lane, Suite 300, Houston, Texas 77079-2923 (281) 721-8546
[7] PROJECT PHASE/SITE/TASK:	[6] CTO OR DO NUMBER:	[9] LAB PO NUMBER:	[12] FAX AND MAIL REPORTS/EDD TO:: RECIPIENT 2 (Name and Company)	[15] RECIPIENT 2 (Address, Tel No. , and Fax No.):
	NA		Kendra Waltemire 618 514 2101	12750 Merit Dr. Suite 1100 Dallas, TX 75251 (972) 663-2207
[4] PROJECT CONTACT:	[7] PROJECT TEL NO AND FAX NO:	[10] LAB TEL NO AND FAX NO:	[13] FAX AND MAIL REPORTS/EDD TO:: RECIPIENT 3 (Name and Company)	[16] RECIPIENT 3 (Address, Tel No. , and Fax No.):
John Ynfante and Victor Martinez		(713) 690-4444		

[23] ANALYSES REQUIRED (Include Method Numbers)

[17] ITEM	[18] SAMPLE IDENTIFIER	[19] SAMPLE DESCRIPTION/LOCATION	[20] MATRIX (see codes on SOP)	[21] DATE COLLECTED	[22] TIME COLLECTED	DATA PKG LEVEL (see codes on SOP)	[24] TAT (calendar days)	SVOCs by 8270	PAHs by (8270-SIM)	VOC	betx	Dioxin/Furans						CONTAINERS	[26] SAMPLE TYPE (see codes on SOP)	[27] COMMENTS/ SCREENING READINGS	[28] LAB ID (for lab's use)
1	JCC-SS-001		S	9/8/17	1140							X						1			
2	JCC-SS-002		S	9/8/17	1145							X						1			
3	JCC-SS-003		S	9/8/17	1200							X						1			
4	~~JCC-SS-0~~	DD 9/8/17																			
5	JCC-GW-004		GW	9/8/17	1220							X						2			
6																					
7																					
8																					
9																					
10																					
11																					

600-153593 Chain of Custody

[29] SAMPLER(S) AND COMPANY (please print):

[30] COURIER AND SHIPPING NUMBER:

[31] SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use):

[32] RELINQUISHED BY	DATE	TIME	[33] RECEIVED BY	DATE	TIME
Printed Name and Signature:	9-8-17	1733	Printed Name and Signature:	9-8-17	1733
Printed Name and Signature:			Printed Name and Signature:		
Printed Name and Signature:			Printed Name and Signature:		

Distribution: [ ] Original - Laboratory (To be returned with Analytical Report); [ ] Copy 1 - Project File; [ ] Copy 2 - PMO

Form CC1001, Rev 06/00

CH2MHILL Constructors, Inc.

115 Perimeter Center Place, Suite 700
Atlanta, GA 30346-1278
Tel No: (770) 604-9182
Fax No: (770) 604-9282

CHAIN-OF-CUSTODY RECORD

[1] COC NUMBER:

[2] PROJECT NAME:	[5] PROJECT NUMBER:	[8] LAB NAME AND CONTACT:	[11] FAX AND MAIL REPORTS/EDD TO: RECIPIENT 1 (Name and Company)	[14] RECIPIENT 1 (Address, Tel No., and Fax No.):
		TestAmerica-Houston /Joe Espinosa 6310 Rothway Street, Suite 130 Houston TX 77040	Ynfante, John/HOU John.Ynfante@ch2m.com	14701 St. Mary's Lane, Suite 300, Houston, Texas 77079-2923 (281) 721-8546
[3] PROJECT PHASE/SITE/TASK:	[6] CTO OR DO NUMBER:	[9] LAB PO NUMBER:	[12] FAX AND MAIL REPORTS/EDD TO: RECIPIENT 2 (Name and Company)	[15] RECIPIENT 2 (Address, Tel No., and Fax No.):
	NA		Kendra Waltemire 618 514 2101	12750 Merit Dr. Suite 1100 Dallas, TX 75251 (972) 663-2207
[4] PROJECT CONTACT:	[7] PROJECT TEL NO AND FAX NO:	[10] LAB TEL NO AND FAX NO:	[13] FAX AND MAIL REPORTS/EDD TO: RECIPIENT 3 (Name and Company)	[16] RECIPIENT 3 (Address, Tel No., and Fax No.):
John Ynfante and Victor Martinez		(713) 690-4444		

[25] ANALYSES REQUIRED (Include Method Numbers)

[17] ITEM	[18] SAMPLE IDENTIFIER	[19] SAMPLE DESCRIPTION/LOCATION	[20] MATRIX (see codes on SOP)	[21] DATE COLLECTED	[22] TIME COLLECTED	DATA PKG LEVEL (see codes on SOP)	[23] TAT (calendar days)	SVOCs by 8270	PAHs by (8270-SIM)	VOC	betx								CONTAINERS	[26] SAMPLE TYPE (see codes on SOP)	[27] COMMENTS/ SCREENING READINGS	[28] LAB ID (for lab's use)
1	JCC-SS-001		S	1140	9/8/17			X											1			
2	JCC-SS-002		S	1145	9/8/17			X											1			
3	JCC-SS-003		S	1200	9/8/17			X											1			
4	JCC-GW-004		W	1220	9/8/17			X											2			
5	HCC-SS-001		S	1340	9/8/17			X											1			
6	HCC-SS-002		S	1350	9/8/17			X											1			
7	HCC-SS-003		S	1400	9/8/17			X											1			
8	HCC-GW-004		W	1410	9/8/17			X											2			
9																						
10																						
11																						

[29] SAMPLER(S) AND COMPANY: (please print)

[30] COURIER AND SHIPPING NUMBER:

[31] SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use):

[32] RELINQUISHED BY	DATE	TIME	[33] RECEIVED BY	DATE	TIME
Printed Name and Signature:			Printed Name and Signature:		
	9/8/17	1733		9-8-17	1733
Printed Name and Signature:			Printed Name and Signature:		
Printed Name and Signature:			Printed Name and Signature:		

Distribution: [ ] Original - Laboratory (To be returned with Analytical Report); [ ] Copy 1 - Project File; [ ] Copy 2 - PMO

Form CC1001, Rev 06-00

TestAmerica Houston

Loc: 600
153593

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Receipt Checklist

Date/Time Received: _____

JOB NUMBER: _____

CLIENT: CHEM '17SEP 8 17:33

UNPACKED BY: CMK.

CARRIER/DRIVER: client

Custody Seal Present: ☐ YES ☒ NO

Number of Coolers Received: 2

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Them CF	Corrected Temp (°C)
GB	Y / N	Y / N	3.4	5K9	-.3	~~3.4~~ 3.1
RW	Y / N	Y / N	4.8	1	1	~~4.8~~ 4.5
	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				

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:

CMC 9/9/17

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

CH2MHILL Constructors, Inc.

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Atlanta, GA 30346-1278
Tel No: (770) 604-9182
Fax No: (770) 604-9282

CHAIN-OF-CUSTODY RECORD

[1] COC NUMBER:

[2] PROJECT NAME:	[5] PROJECT NUMBER:	[8] LAB NAME AND CONTACT:	[11] FAX AND MAIL REPORTS/EDD TO:: RECIPIENT 1 (Name and Company)	[14] RECIPIENT 1 (Address, Tel No. , and Fax No.):
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	NA		Kendra Waltemire 618 514 2101	12750 Merit Dr. Suite 1100 Dallas, TX 75251 (972) 663-2207
[4] PROJECT CONTACT:	[7] PROJECT TEL NO AND FAX NO:	[10] LAB TEL NO AND FAX NO:	[13] FAX AND MAIL REPORTS/EDD TO:: RECIPIENT 3 (Name and Company)	[16] RECIPIENT 3 (Address, Tel No. , and Fax No.):
John Ynfante and Victor Martinez		(713) 690-4444		

[23] ANALYSES REQUIRED (Include Method Numbers)

[17] ITEM	[18] SAMPLE IDENTIFIER	[19] SAMPLE DESCRIPTION/LOCATION	[20] MATRIX (see codes on SOP)	[21] DATE COLLECTED	[22] TIME COLLECTED	DATA PKG LEVEL (see codes on SOP)	[24] TAT (calendar days)	SVOCs by 8270	PAHs by (8270-SIM)	VOC	bex	Dioxin/Furans							CONTAINERS	[26] SAMPLE TYPE (see codes on SOP)	[27] COMMENTS/ SCREENING READINGS	[28] LAB ID (for lab's use)
1	JCC-SS-001		S	9/8/17	1140							X							1			
2	JCC-SS-002		S	9/8/17	1145							X							1			
3	JCC-SS-003		S	9/8/17	1200							X							1			
4	~~JCC-SS-0~~	DD 9/8/17																				
5	JCC-GW-004		GW	9/8/17	1220							X							2			
6																						
7																						
8																						
9																						
10																						
11																						

600-153593 Chain of Custody

[29] SAMPLER(S) AND COMPANY: (please print)

[30] COURIER AND SHIPPING NUMBER:

[31] SAMPLES TEMPERATURE AND CONDITION UPON RECEIPT (for lab's use):

[32] RELINQUISHED BY	DATE	TIME	[33] RECEIVED BY	DATE	TIME
Printed Name and Signature:	9-8-17	1733	Printed Name and Signature:	9-8-17	1733
Printed Name and Signature:	9-8-17	1800	Printed Name and Signature:	9-9-17	900
Printed Name and Signature:			Printed Name and Signature:		

Distribution: [ ] Original - Laboratory (To be returned with Analytical Report); [ ] Copy 1 - Project File; [ ] Copy 2 - PMO

Form CC1001, Rev 06/00

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Samp

600-153593 Field Sheet

Job:

Tracking # 7455 1105 6850

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:

Always use Sorbitan

Therm. ID: AK-1 / AK-2 / HACCP /Other

Ice ✓ Wet ✓ Dry Other

Cooler Custody Seal: —

Sample Custody Seal: —

Cooler ID: /

Temp: Observed 1.9

Corrected: /

From: Temp Blank ☐ Sample ☑

NCM Filed: Yes ☑ No ☐

	Yes	No	NA
Perchlorate has headspace?	☐	☐	☑
CoC is complete w/o discrepancies?	☑	☐	☐
Samples received within holding time?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Cooler compromised/tampered with?	☐	☑	☐
Samples compromised/tampered with?	☐	☑	☐
COC and Samples w/o discrepancies?	☑	☐	☐
Sample containers have legible labels?	☑	☐	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided.	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☐	☐	☑
Zero headspace?*	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

Initials: AO Date: 9-9-17

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

26D

Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 600-153593-1

Login Number: 153593
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	3.1°,4.5° IR 549
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	Check done at department level as required.

Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 600-153593-1

Login Number: 153593
List Number: 2
Creator: Hytrek, Cheryl

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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	
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?	False	
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.	False	clear jars for dioxins
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
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	

Toxicity Summary

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

TestAmerica Job ID: 600-153593-1

Client Sample ID: JCC-SS-001 — Lab Sample ID: 600-153593-1

Analyte	Result	Qualifier	RL	EDL	Unit	EPA 1989 ND = 0 TEF	EPA 1989 ND = 0 TEQ	Method
2,3,7,8-TCDD	0.069	U	1.1	0.069	pg/g	1	0.00	8290A
2,3,7,8-TCDF	**0.17**	**J**	1.1	0.074	pg/g	0.1	**0.017**	8290A
1,2,3,7,8-PeCDD	**0.88**	**J**	5.3	0.16	pg/g	0.5	**0.44**	8290A
1,2,3,7,8-PeCDF	**0.21**	**J q**	5.3	0.16	pg/g	0.05	**0.011**	8290A
2,3,4,7,8-PeCDF	**0.45**	**J**	5.3	0.16	pg/g	0.5	**0.23**	8290A
1,2,3,4,7,8-HxCDD	**4.1**	**J**	5.3	0.26	pg/g	0.1	**0.41**	8290A
1,2,3,6,7,8-HxCDD	**21**		5.3	0.23	pg/g	0.1	**2.1**	8290A
1,2,3,7,8,9-HxCDD	**6.9**		5.3	0.22	pg/g	0.1	**0.69**	8290A
1,2,3,4,7,8-HxCDF	**6.0**		5.3	0.34	pg/g	0.1	**0.60**	8290A
1,2,3,6,7,8-HxCDF	**2.2**	**J q**	5.3	0.31	pg/g	0.1	**0.22**	8290A
1,2,3,7,8,9-HxCDF	0.36	U	5.3	0.36	pg/g	0.1	0.00	8290A
2,3,4,6,7,8-HxCDF	**1.6**	**J**	5.3	0.33	pg/g	0.1	**0.16**	8290A
1,2,3,4,6,7,8-HpCDD	**910**	**G B**	6.4	6.4	pg/g	0.01	**9.1**	8290A
1,2,3,4,6,7,8-HpCDF	**100**		5.3	1.1	pg/g	0.01	**1.0**	8290A
1,2,3,4,7,8,9-HpCDF	**9.5**		5.3	1.4	pg/g	0.01	**0.095**	8290A
OCDD	**12000**	**E B**	11	3.8	pg/g	0.001	**12**	8290A
OCDF	**590**	**B**	11	0.21	pg/g	0.001	**0.59**	8290A

Analyte	Result	Qualifier	NONE	NONE	Unit	EPA 1989 ND = 0 TEF	EPA 1989 ND = 0 TEQ	Method
Total Dioxin/Furan TEQ					pg/g		28	TEQ
Total TEQ					pg/g		28	TEQ

Client Sample ID: JCC-SS-002 — Lab Sample ID: 600-153593-2

Analyte	Result	Qualifier	RL	EDL	Unit	EPA 1989 ND = 0 TEF	EPA 1989 ND = 0 TEQ	Method
2,3,7,8-TCDD	0.093	U	1.1	0.093	pg/g	1	0.00	8290A
2,3,7,8-TCDF	**0.31**	**J**	1.1	0.094	pg/g	0.1	**0.031**	8290A
1,2,3,7,8-PeCDD	**2.3**	**J**	5.4	0.19	pg/g	0.5	**1.2**	8290A
1,2,3,7,8-PeCDF	**0.36**	**J q**	5.4	0.19	pg/g	0.05	**0.018**	8290A
2,3,4,7,8-PeCDF	**0.47**	**J q**	5.4	0.19	pg/g	0.5	**0.24**	8290A
1,2,3,4,7,8-HxCDD	**12**		5.4	0.69	pg/g	0.1	**1.2**	8290A
1,2,3,6,7,8-HxCDD	**68**		5.4	0.62	pg/g	0.1	**6.8**	8290A
1,2,3,7,8,9-HxCDD	**22**		5.4	0.59	pg/g	0.1	**2.2**	8290A
1,2,3,4,7,8-HxCDF	**9.4**		5.4	0.96	pg/g	0.1	**0.94**	8290A
1,2,3,6,7,8-HxCDF	**3.7**	**J**	5.4	0.87	pg/g	0.1	**0.37**	8290A
1,2,3,7,8,9-HxCDF	1.0	U	5.4	1.0	pg/g	0.1	0.00	8290A
2,3,4,6,7,8-HxCDF	**2.5**	**J**	5.4	0.92	pg/g	0.1	**0.25**	8290A
1,2,3,4,6,7,8-HpCDD	**3000**	**G E B**	17	17	pg/g	0.01	**30**	8290A
1,2,3,4,6,7,8-HpCDF	**410**		5.4	3.9	pg/g	0.01	**4.1**	8290A
1,2,3,4,7,8,9-HpCDF	**28**		5.4	4.6	pg/g	0.01	**0.28**	8290A

TEF Reference:

EPA 1989 = Environmental Protection Agency (EPA) 1989 TEF, Dioxins, Furans and PCB Congeners

Note: The analytes PCB-156 and PCB-157 coelute as a single peak.

Toxicity Summary

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

TestAmerica Job ID: 600-153593-1

Client Sample ID: JCC-SS-002 (Continued) — Lab Sample ID: 600-153593-2

Analyte	Result	Qualifier	RL	EDL	Unit	EPA 1989 ND = 0 TEF	TEQ	Method
OCDD	37000	G E B	13	13	pg/g	0.001	37	8290A
OCDF	2500	B	11	0.56	pg/g	0.001	2.5	8290A

Analyte	Result	Qualifier	NONE	NONE	Unit	EPA 1989 ND = 0 TEF	TEQ	Method
Total Dioxin/Furan TEQ					pg/g		87	TEQ
Total TEQ					pg/g		87	TEQ

Client Sample ID: JCC-SS-003 — Lab Sample ID: 600-153593-3

Analyte	Result	Qualifier	RL	EDL	Unit	EPA 1989 ND = 0 TEF	TEQ	Method
2,3,7,8-TCDD	0.17	J	1.2	0.050	pg/g	1	0.17	8290A
2,3,7,8-TCDF	0.088	J	1.2	0.037	pg/g	0.1	0.0088	8290A
1,2,3,7,8-PeCDD	1.1	J	6.0	0.13	pg/g	0.5	0.55	8290A
1,2,3,7,8-PeCDF	0.34	J q	6.0	0.076	pg/g	0.05	0.017	8290A
2,3,4,7,8-PeCDF	0.27	J	6.0	0.077	pg/g	0.5	0.14	8290A
1,2,3,4,7,8-HxCDD	4.0	J	6.0	0.23	pg/g	0.1	0.40	8290A
1,2,3,6,7,8-HxCDD	23		6.0	0.20	pg/g	0.1	2.3	8290A
1,2,3,7,8,9-HxCDD	6.9		6.0	0.19	pg/g	0.1	0.69	8290A
1,2,3,4,7,8-HxCDF	3.0	J	6.0	0.36	pg/g	0.1	0.30	8290A
1,2,3,6,7,8-HxCDF	1.2	J	6.0	0.32	pg/g	0.1	0.12	8290A
1,2,3,7,8,9-HxCDF	0.38	U	6.0	0.38	pg/g	0.1	0.00	8290A
2,3,4,6,7,8-HxCDF	1.4	J	6.0	0.35	pg/g	0.1	0.14	8290A
1,2,3,4,6,7,8-HpCDD	950	G B	12	12	pg/g	0.01	9.5	8290A
1,2,3,4,6,7,8-HpCDF	110		6.0	2.1	pg/g	0.01	1.1	8290A
1,2,3,4,7,8,9-HpCDF	5.7	J	6.0	2.4	pg/g	0.01	0.057	8290A
OCDD	13000	E B	12	9.8	pg/g	0.001	13	8290A
OCDF	610	B	12	0.39	pg/g	0.001	0.61	8290A

Analyte	Result	Qualifier	NONE	NONE	Unit	EPA 1989 ND = 0 TEF	TEQ	Method
Total Dioxin/Furan TEQ					pg/g		29	TEQ
Total TEQ					pg/g		29	TEQ

Client Sample ID: JCC-GW-004 — Lab Sample ID: 600-153593-4

Analyte	Result	Qualifier	RL	EDL	Unit	EPA 1989 ND = 0 TEF	TEQ	Method
2,3,7,8-TCDD	0.90	U	10	0.90	pg/L	1	0.00	8290A
2,3,7,8-TCDF	0.73	U	10	0.73	pg/L	0.1	0.00	8290A

TEF Reference:

EPA 1989 = Environmental Protection Agency (EPA) 1989 TEF, Dioxins, Furans and PCB Congeners

Note: The analytes PCB-156 and PCB-157 coelute as a single peak.

Toxicity Summary

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

TestAmerica Job ID: 600-153593-1

Client Sample ID: JCC-GW-004 (Continued) — Lab Sample ID: 600-153593-4

Analyte	Result	Qualifier	RL	EDL	Unit	EPA 1989 ND = 0 TEF	EPA 1989 ND = 0 TEQ	Method
1,2,3,7,8-PeCDD	1.7	U	52	1.7	pg/L	0.5	0.00	8290A
1,2,3,7,8-PeCDF	0.69	U	52	0.69	pg/L	0.05	0.00	8290A
2,3,4,7,8-PeCDF	0.70	U	52	0.70	pg/L	0.5	0.00	8290A
1,2,3,4,7,8-HxCDD	1.3	U	52	1.3	pg/L	0.1	0.00	8290A
1,2,3,6,7,8-HxCDD	**35**	**J**	52	1.2	pg/L	0.1	**3.5**	8290A
1,2,3,7,8,9-HxCDD	**6.4**	**J q**	52	1.1	pg/L	0.1	**0.64**	8290A
1,2,3,4,7,8-HxCDF	**4.4**	**J q**	52	1.8	pg/L	0.1	**0.44**	8290A
1,2,3,6,7,8-HxCDF	1.6	U	52	1.6	pg/L	0.1	0.00	8290A
1,2,3,7,8,9-HxCDF	1.9	U	52	1.9	pg/L	0.1	0.00	8290A
2,3,4,6,7,8-HxCDF	1.7	U	52	1.7	pg/L	0.1	0.00	8290A
1,2,3,4,6,7,8-HpCDD	**1400**		52	7.3	pg/L	0.01	**14**	8290A
1,2,3,4,6,7,8-HpCDF	**260**		52	3.3	pg/L	0.01	**2.6**	8290A
1,2,3,4,7,8,9-HpCDF	**16**	**J q**	52	3.8	pg/L	0.01	**0.16**	8290A
OCDD	**16000**	**B**	100	5.3	pg/L	0.001	**16**	8290A
OCDF	**2100**		100	1.2	pg/L	0.001	**2.1**	8290A

Analyte	Result	Qualifier	NONE	NONE	Unit	EPA 1989 ND = 0 TEF	EPA 1989 ND = 0 TEQ	Method
Total Dioxin/Furan TEQ					pg/L		39	TEQ
Total TEQ					pg/L		39	TEQ

TEF Reference:

EPA 1989 = Environmental Protection Agency (EPA) 1989 TEF, Dioxins, Furans and PCB Congeners

Note: The analytes PCB-156 and PCB-157 coelute as a single peak.

Isotope Dilution Summary

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

TestAmerica Job ID: 600-153593-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (40-135)	TCDF (40-135)	PeCDD (40-135)	PeCDF1 (40-135)	HxCDD2 (40-135)	HxCDF1 (40-135)	HpCDD (40-135)	HpCDF1 (40-135)
600-153593-1	JCC-SS-001	69	63	74	68	63	65	76	65
600-153593-2	JCC-SS-002	71	67	84	74	64	67	77	66
600-153593-3	JCC-SS-003	67	62	67	62	59	58	72	62
LCS 320-183556/2-A	Lab Control Sample	67	63	66	60	66	60	81	69
LCSD 320-183556/3-A	Lab Control Sample Dup	69	61	68	61	63	67	78	70
MB 320-183556/1-A	Method Blank	71	65	71	63	68	64	73	64

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	OCDD (40-135)
600-153593-1	JCC-SS-001	87
600-153593-2	JCC-SS-002	82
600-153593-3	JCC-SS-003	85
LCS 320-183556/2-A	Lab Control Sample	88
LCSD 320-183556/3-A	Lab Control Sample Dup	89
MB 320-183556/1-A	Method Blank	85

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF1 = 13C-1,2,3,7,8-PeCDF
HxCDD2 = 13C-1,2,3,6,7,8-HxCDD
HxCDF1 = 13C-1,2,3,4,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF
OCDD = 13C-OCDD

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TCDD (40-135)	TCDF (40-135)	PeCDD (40-135)	PeCDF1 (40-135)	HxCDD2 (40-135)	HxCDF1 (40-135)	HpCDD (40-135)	HpCDF1 (40-135)
600-153593-4	JCC-GW-004	86	80	94	87	81	91	93	83
LCS 320-183557/2-A	Lab Control Sample	87	81	93	82	75	77	87	75
LCSD 320-183557/3-A	Lab Control Sample Dup	90	82	97	86	81	83	96	83
MB 320-183557/1-A	Method Blank	91	84	97	83	83	82	90	81

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	OCDD (40-135)
600-153593-4	JCC-GW-004	108
LCS 320-183557/2-A	Lab Control Sample	100
LCSD 320-183557/3-A	Lab Control Sample Dup	111
MB 320-183557/1-A	Method Blank	103

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD

Isotope Dilution Summary

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

TestAmerica Job ID: 600-153593-1

PeCDF1 = 13C-1,2,3,7,8-PeCDF
HxCDD2 = 13C-1,2,3,6,7,8-HxCDD
HxCDF1 = 13C-1,2,3,4,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF
OCDD = 13C-OCDD