

## CERTIFICATIONS

Project: 09217186.02/Ludlam

Pace Project No.: 35411163

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### Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174  
Alabama Certification #: 41320  
Connecticut Certification #: PH-0216  
Florida Certification #: E83079  
Georgia Certification #: 955  
Guam Certification: FL NELAC Reciprocity  
Hawaii Certification: FL NELAC Reciprocity  
Illinois Certification #: 200068  
Indiana Certification: FL NELAC Reciprocity  
Kansas Certification #: E-10383  
Kentucky Certification #: 90050  
Louisiana Certification #: FL NELAC Reciprocity  
Louisiana Environmental Certificate #: 05007  
Maryland Certification: #346  
Michigan Certification #: 9911  
Mississippi Certification: FL NELAC Reciprocity  
Missouri Certification #: 236  
Montana Certification #: Cert 0074  
Nebraska Certification: NE-OS-28-14

Nevada Certification: FL NELAC Reciprocity  
New Hampshire Certification #: 2958  
New Jersey Certification #: FL022  
New York Certification #: 11608  
North Carolina Environmental Certificate #: 667  
North Carolina Certification #: 12710  
North Dakota Certification #: R-216  
Oklahoma Certification #: D9947  
Pennsylvania Certification #: 68-00547  
Puerto Rico Certification #: FL01264  
South Carolina Certification: #96042001  
Tennessee Certification #: TN02974  
Texas Certification: FL NELAC Reciprocity  
US Virgin Islands Certification: FL NELAC Reciprocity  
Virginia Environmental Certification #: 460165  
Wyoming Certification: FL NELAC Reciprocity  
West Virginia Certification #: 9962C  
Wisconsin Certification #: 399079670  
Wyoming (EPA Region 8): FL NELAC Reciprocity

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 09217186.02/Ludlam

Pace Project No.: 35411163

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35411163001	SBA-149A(0-0.5)	Solid	08/15/18 13:41	08/15/18 17:45
35411163002	SBA-149B(0-0.5)	Solid	08/15/18 13:48	08/15/18 17:45

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### SAMPLE ANALYTE COUNT

Project: 09217186.02/Ludlam

Pace Project No.: 35411163

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35411163001	SBA-149A(0-0.5)	EPA 8270	TWB	21	PASI-O
		ASTM D2974-87	MLO	1	PASI-O
35411163002	SBA-149B(0-0.5)	EPA 8270	TWB	21	PASI-O
		ASTM D2974-87	MLO	1	PASI-O

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## PROJECT NARRATIVE

Project: 09217186.02/Ludlam  
Pace Project No.: 35411163

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**Method:** EPA 8270  
**Description:** 8270 MSSV Short List Microwave  
**Client:** SCS Engineers  
**Date:** August 16, 2018

**General Information:**

2 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

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## ANALYTICAL RESULTS

Project: 09217186.02/Ludlam

Pace Project No.: 35411163

**Sample: SBA-149A(0-0.5)**      **Lab ID: 35411163001**      Collected: 08/15/18 13:41      Received: 08/15/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.041	0.013	1	08/16/18 06:49	08/16/18 14:55	83-32-9	
Acenaphthylene	<b>0.048</b>	mg/kg	0.038	0.012	1	08/16/18 06:49	08/16/18 14:55	208-96-8	
Anthracene	<b>0.051</b>	mg/kg	0.041	0.013	1	08/16/18 06:49	08/16/18 14:55	120-12-7	
Benzo(a)anthracene	<b>0.11</b>	mg/kg	0.038	0.011	1	08/16/18 06:49	08/16/18 14:55	56-55-3	
Benzo(a)pyrene	<b>0.12</b>	mg/kg	0.038	0.0095	1	08/16/18 06:49	08/16/18 14:55	50-32-8	
Benzo(b)fluoranthene	<b>0.24</b>	mg/kg	0.038	0.010	1	08/16/18 06:49	08/16/18 14:55	205-99-2	
Benzo(g,h,i)perylene	<b>0.065</b>	mg/kg	0.038	0.0096	1	08/16/18 06:49	08/16/18 14:55	191-24-2	
Benzo(k)fluoranthene	<b>0.098</b>	mg/kg	0.038	0.010	1	08/16/18 06:49	08/16/18 14:55	207-08-9	
Chrysene	<b>0.15</b>	mg/kg	0.038	0.012	1	08/16/18 06:49	08/16/18 14:55	218-01-9	
Dibenz(a,h)anthracene	<b>0.019 I</b>	mg/kg	0.038	0.0088	1	08/16/18 06:49	08/16/18 14:55	53-70-3	
Fluoranthene	<b>0.14</b>	mg/kg	0.038	0.013	1	08/16/18 06:49	08/16/18 14:55	206-44-0	
Fluorene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	08/16/18 06:49	08/16/18 14:55	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.057</b>	mg/kg	0.038	0.0087	1	08/16/18 06:49	08/16/18 14:55	193-39-5	
1-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.045	0.015	1	08/16/18 06:49	08/16/18 14:55	90-12-0	
2-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.044	0.015	1	08/16/18 06:49	08/16/18 14:55	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	08/16/18 06:49	08/16/18 14:55	91-20-3	
Phenanthrene	<b>0.030 I</b>	mg/kg	0.038	0.013	1	08/16/18 06:49	08/16/18 14:55	85-01-8	
Pyrene	<b>0.16</b>	mg/kg	0.038	0.012	1	08/16/18 06:49	08/16/18 14:55	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	36	%	16-123		1	08/16/18 06:49	08/16/18 14:55	4165-60-0	
2-Fluorobiphenyl (S)	42	%	32-129		1	08/16/18 06:49	08/16/18 14:55	321-60-8	
p-Terphenyl-d14 (S)	49	%	38-138		1	08/16/18 06:49	08/16/18 14:55	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>11.1</b>	%	0.10	0.10	1		08/16/18 09:24		

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 09217186.02/Ludlam

Pace Project No.: 35411163

**Sample: SBA-149B(0-0.5)**      **Lab ID: 35411163002**      Collected: 08/15/18 13:48      Received: 08/15/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	08/16/18 06:49	08/16/18 15:20	83-32-9	
Acenaphthylene	<b>0.043</b>	mg/kg	0.038	0.012	1	08/16/18 06:49	08/16/18 15:20	208-96-8	
Anthracene	<b>0.042</b>	mg/kg	0.040	0.013	1	08/16/18 06:49	08/16/18 15:20	120-12-7	
Benzo(a)anthracene	<b>0.097</b>	mg/kg	0.038	0.011	1	08/16/18 06:49	08/16/18 15:20	56-55-3	
Benzo(a)pyrene	<b>0.11</b>	mg/kg	0.038	0.0093	1	08/16/18 06:49	08/16/18 15:20	50-32-8	
Benzo(b)fluoranthene	<b>0.21</b>	mg/kg	0.038	0.010	1	08/16/18 06:49	08/16/18 15:20	205-99-2	
Benzo(g,h,i)perylene	<b>0.053</b>	mg/kg	0.038	0.0094	1	08/16/18 06:49	08/16/18 15:20	191-24-2	
Benzo(k)fluoranthene	<b>0.077</b>	mg/kg	0.038	0.010	1	08/16/18 06:49	08/16/18 15:20	207-08-9	
Chrysene	<b>0.11</b>	mg/kg	0.038	0.012	1	08/16/18 06:49	08/16/18 15:20	218-01-9	
Dibenz(a,h)anthracene	<b>0.018 I</b>	mg/kg	0.038	0.0086	1	08/16/18 06:49	08/16/18 15:20	53-70-3	
Fluoranthene	<b>0.10</b>	mg/kg	0.038	0.012	1	08/16/18 06:49	08/16/18 15:20	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.041	0.013	1	08/16/18 06:49	08/16/18 15:20	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.050</b>	mg/kg	0.038	0.0086	1	08/16/18 06:49	08/16/18 15:20	193-39-5	
1-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.044	0.015	1	08/16/18 06:49	08/16/18 15:20	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.043	0.014	1	08/16/18 06:49	08/16/18 15:20	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	08/16/18 06:49	08/16/18 15:20	91-20-3	
Phenanthrene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	08/16/18 06:49	08/16/18 15:20	85-01-8	
Pyrene	<b>0.13</b>	mg/kg	0.038	0.012	1	08/16/18 06:49	08/16/18 15:20	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	43	%	16-123		1	08/16/18 06:49	08/16/18 15:20	4165-60-0	
2-Fluorobiphenyl (S)	44	%	32-129		1	08/16/18 06:49	08/16/18 15:20	321-60-8	
p-Terphenyl-d14 (S)	60	%	38-138		1	08/16/18 06:49	08/16/18 15:20	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>8.7</b>	%	0.10	0.10	1		08/16/18 09:24		

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 09217186.02/Ludlam

Pace Project No.: 35411163

QC Batch: 469685

Analysis Method: EPA 8270

QC Batch Method: EPA 3546

Analysis Description: 8270 Solid MSSV Microwave Short Spike

Associated Lab Samples: 35411163001, 35411163002

METHOD BLANK: 2538830

Matrix: Solid

Associated Lab Samples: 35411163001, 35411163002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1-Methylnaphthalene	mg/kg	0.013 U	0.040	0.013	08/16/18 14:30	
2-Methylnaphthalene	mg/kg	0.013 U	0.039	0.013	08/16/18 14:30	
Acenaphthene	mg/kg	0.012 U	0.036	0.012	08/16/18 14:30	
Acenaphthylene	mg/kg	0.011 U	0.034	0.011	08/16/18 14:30	
Anthracene	mg/kg	0.012 U	0.036	0.012	08/16/18 14:30	
Benzo(a)anthracene	mg/kg	0.0097 U	0.034	0.0097	08/16/18 14:30	
Benzo(a)pyrene	mg/kg	0.0084 U	0.034	0.0084	08/16/18 14:30	
Benzo(b)fluoranthene	mg/kg	0.0090 U	0.034	0.0090	08/16/18 14:30	
Benzo(g,h,i)perylene	mg/kg	0.0085 U	0.034	0.0085	08/16/18 14:30	
Benzo(k)fluoranthene	mg/kg	0.0091 U	0.034	0.0091	08/16/18 14:30	
Chrysene	mg/kg	0.011 U	0.034	0.011	08/16/18 14:30	
Dibenz(a,h)anthracene	mg/kg	0.0078 U	0.034	0.0078	08/16/18 14:30	
Fluoranthene	mg/kg	0.011 U	0.034	0.011	08/16/18 14:30	
Fluorene	mg/kg	0.012 U	0.037	0.012	08/16/18 14:30	
Indeno(1,2,3-cd)pyrene	mg/kg	0.0078 U	0.034	0.0078	08/16/18 14:30	
Naphthalene	mg/kg	0.012 U	0.035	0.012	08/16/18 14:30	
Phenanthrene	mg/kg	0.011 U	0.034	0.011	08/16/18 14:30	
Pyrene	mg/kg	0.011 U	0.034	0.011	08/16/18 14:30	
2-Fluorobiphenyl (S)	%	69	32-129		08/16/18 14:30	
Nitrobenzene-d5 (S)	%	66	16-123		08/16/18 14:30	
p-Terphenyl-d14 (S)	%	78	38-138		08/16/18 14:30	

LABORATORY CONTROL SAMPLE: 2538831

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	mg/kg	1.7	1.4	86	27-123	
2-Methylnaphthalene	mg/kg	1.7	1.5	89	16-137	
Acenaphthene	mg/kg	1.7	1.5	91	37-120	
Acenaphthylene	mg/kg	1.7	1.7	101	41-120	
Anthracene	mg/kg	1.7	1.6	95	45-120	
Benzo(a)anthracene	mg/kg	1.7	1.7	101	44-120	
Benzo(a)pyrene	mg/kg	1.7	1.7	101	44-123	
Benzo(b)fluoranthene	mg/kg	1.7	1.6	97	37-124	
Benzo(g,h,i)perylene	mg/kg	1.7	1.6	93	42-125	
Benzo(k)fluoranthene	mg/kg	1.7	1.8	106	44-126	
Chrysene	mg/kg	1.7	1.7	102	45-120	
Dibenz(a,h)anthracene	mg/kg	1.7	1.6	96	43-124	
Fluoranthene	mg/kg	1.7	1.7	102	45-120	
Fluorene	mg/kg	1.7	1.6	95	42-120	
Indeno(1,2,3-cd)pyrene	mg/kg	1.7	1.6	96	43-123	

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### QUALITY CONTROL DATA

Project: 09217186.02/Ludlam  
Pace Project No.: 35411163

LABORATORY CONTROL SAMPLE: 2538831

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	mg/kg	1.7	1.4	86	40-120	
Phenanthrene	mg/kg	1.7	1.6	97	36-125	
Pyrene	mg/kg	1.7	1.7	105	41-123	
2-Fluorobiphenyl (S)	%			71	32-129	
Nitrobenzene-d5 (S)	%			68	16-123	
p-Terphenyl-d14 (S)	%			81	38-138	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2539730 2539731

Parameter	Units	35409214002		MS		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
		Result	U	Spike Conc.	Conc.	Result	Result	% Rec	% Rec					
1-Methylnaphthalene	mg/kg	0.014	U	1.8	1.8	1.2	1.3	70	75	27-123	7	40		
2-Methylnaphthalene	mg/kg	0.013	U	1.8	1.8	1.2	1.3	72	77	16-137	7	40		
Acenaphthene	mg/kg	0.012	U	1.8	1.8	1.3	1.4	74	79	37-120	7	40		
Acenaphthylene	mg/kg	0.011	U	1.8	1.8	1.4	1.5	83	87	41-120	6	40		
Anthracene	mg/kg	0.012	U	1.8	1.8	1.3	1.4	76	83	45-120	10	40		
Benzo(a)anthracene	mg/kg	0.065		1.8	1.8	1.4	1.6	79	88	44-120	11	40		
Benzo(a)pyrene	mg/kg	0.13		1.8	1.8	1.5	1.8	79	98	44-123	20	40		
Benzo(b)fluoranthene	mg/kg	0.22		1.8	1.8	1.5	2.2	75	114	37-124	37	40		
Benzo(g,h,i)perylene	mg/kg	0.098		1.8	1.8	1.2	1.2	62	62	42-125	0	40		
Benzo(k)fluoranthene	mg/kg	0.069		1.8	1.8	1.6	1.8	86	102	44-126	16	40		
Chrysene	mg/kg	0.11		1.8	1.8	1.5	1.7	79	90	45-120	13	40		
Dibenz(a,h)anthracene	mg/kg	0.023	I	1.8	1.8	1.2	1.1	66	61	43-124	7	40		
Fluoranthene	mg/kg	0.096		1.8	1.8	1.5	1.6	81	86	45-120	7	40		
Fluorene	mg/kg	0.013	U	1.8	1.8	1.3	1.4	78	79	42-120	2	40		
Indeno(1,2,3-cd)pyrene	mg/kg	0.098		1.8	1.8	1.2	1.3	66	70	43-123	5	40		
Naphthalene	mg/kg	0.012	U	1.8	1.8	1.2	1.3	71	76	40-120	8	40		
Phenanthrene	mg/kg	0.017	I	1.8	1.8	1.4	1.4	78	82	36-125	6	40		
Pyrene	mg/kg	0.10		1.8	1.8	1.6	1.7	84	92	41-123	9	40		
2-Fluorobiphenyl (S)	%							60	64	32-129				
Nitrobenzene-d5 (S)	%							55	60	16-123				
p-Terphenyl-d14 (S)	%							63	66	38-138				

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### QUALITY CONTROL DATA

Project: 09217186.02/Ludlam

Pace Project No.: 35411163

QC Batch: 469813

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 35411163001, 35411163002

SAMPLE DUPLICATE: 2539945

Parameter	Units	35409234002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	5.8	7.0	19	5	J(D6)

SAMPLE DUPLICATE: 2539946

Parameter	Units	35409628010 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	10.6	11.6	9	5	J(D6)

SAMPLE DUPLICATE: 2539947

Parameter	Units	35409895004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	14.0	14.1	1	5	

SAMPLE DUPLICATE: 2539948

Parameter	Units	35409994001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	21.4	21.6	1	5	

SAMPLE DUPLICATE: 2539949

Parameter	Units	35410108004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	0.89	0.94	5	5	

SAMPLE DUPLICATE: 2539950

Parameter	Units	35410139002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	22.3	22.4	1	5	

SAMPLE DUPLICATE: 2539951

Parameter	Units	35410199001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	4.4	3.5	21	5	J(D6)

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### QUALITY CONTROL DATA

Project: 09217186.02/Ludlam  
Pace Project No.: 35411163

SAMPLE DUPLICATE: 2539952

Parameter	Units	35410322002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	17.6	18.4	4	5	

SAMPLE DUPLICATE: 2539953

Parameter	Units	35410734004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	17.6	17.7	1	5	

SAMPLE DUPLICATE: 2539954

Parameter	Units	35410808009 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	11.4	11.9	4	5	

SAMPLE DUPLICATE: 2539955

Parameter	Units	35411156003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	12.7	14.6	13	5	J(D6)

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## QUALIFIERS

Project: 09217186.02/Ludlam  
Pace Project No.: 35411163

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
TNTC - Too Numerous To Count  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The NELAC Institute.

### LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

### ANALYTE QUALIFIERS

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.  
U Compound was analyzed for but not detected.  
J(D6) Estimated Value. The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: 09217186.02/Ludlam  
Pace Project No.: 35411163

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35411163001	SBA-149A(0-0.5)	EPA 3546	469685	EPA 8270	469901
35411163002	SBA-149B(0-0.5)	EPA 3546	469685	EPA 8270	469901
35411163001	SBA-149A(0-0.5)	ASTM D2974-87	469813		
35411163002	SBA-149B(0-0.5)	ASTM D2974-87	469813		

**REPORT OF LABORATORY ANALYSIS**

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MO#: 35411163

ORD

Page \_\_\_ of \_\_\_

Company Name: SCS Engineers PO#

Address: 7700 N Kendall Drive

City: Miami State: FL Zip: 33156

Alt#: Fax#

email: Ezhang@scsengineers.com (786) 999-5522

Project Name: Ludlum Proj # 0921718602712

Sampler Signature: *Eric Cap...* Circle One Event: Daily Weekly Monthly Quarterly Semi-Annual Annual N/A

Sample #	Sample ID	Collect Date	Collect Time	Matrix Code*	Field Filtered	Integrity OK(Y/N)	Total # of containers
1	SBA-149A(O-0.5)	8/15/18	1341	GL			1
2	SBA-149B(O-0.5)	8/15/18	1348	GL			1
3							
4							
5							
6							
7							
8							
9							
10							

Sample	TRC	pH	Pres Codes	Parameters
			A	PAHs

Container Type Codes	Matrix Codes	Preservative Type Codes
AV: Amber Vial CV: Clear Vial P: Plastic AL: Amber Lier CL: Clear Lier AP: Amber Plastic AG: Amber Glass SJ: Soil Jar PPV: Preprogrammed vial Sizel(s): 20ml, 50ml, 250ml, 125ml Example: 4ozP = 4oz Plastic, 8ozSJ = 8oz Soil Jar	ES: Ensure Sampler PPV: Preprogrammed vial PLC: Plastic container PLJ: Plastic Jar Z: Ziploc bag TB: Tether bag WP: Whirl pak G: Gallon Jug TC: Terra-core Other: _____ (When specify)	A: None B: HNO3 C: H2SO4 D: NaOH E: HCL F: MeOH G: Na2S2O3 H: NaHSO4 I: Ice J: MCAA K: Zn Acetate L: Other O: Other SD: Solid Waste GW: Ground Water EFF: Effluent AFW: Analyte Free H2O WW: Waste Water DW: Drinking Water SW: Surface Water ML: Misc. Liquid OL: Oil SL: Sludge SO: Soil Sediment AQ: Aqueous NA: Nonaqueous PE: Petroleum O: Other (When specify)

Item	Reinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time	Lab Use Only
1	<i>MSG</i>	PCS	8/15/18	2:45	<i>[Signature]</i>	PCS	8/15/18	17:05	Non-Compliance Found? Samples INTACT upon arrival? Received on Wet Ice? Proper Preservatives Indicated? Received within holding time? Custody seals intact? Vials/ies rec'd without headspace? Proper Containers Used?
2									YES NO N/A
3									YES NO N/A
4									YES NO N/A

Short Hold	Circle QA/QC Report Level	EDD (Fees May Apply)	COC Condition	Required State Certification
Y ___ N ___	1 2 3 4 CLP AFCEE QAPP Other	ADAPT SEDD ERPIWS TSV CSV Other	OK Incomplete	FL GA SC NC NJ PA LA TX IL

Circle 1, 2, 3, 4, 5, 6, 7, 8, 9, 10  
Standard RUSH  
Today 1D 2D 3D 4D  
Y \_\_\_ N \_\_\_

Project Name: Ludlum  
Sampler Signature: *Eric Cap...*  
Circle One Event: Daily Weekly Monthly  
Quarterly Semi-Annual Annual N/A

Sample #

Sample ID

Collect Date

Collect Time

Matrix Code\*

Field Filtered

Integrity OK(Y/N)

Total # of containers

Parameters

Sample

TRC

pH

Pres Codes

LAB ANALYSIS

# of Containers

Size/Type

EXAMPLE

Diss. Lead 6010

REMARKS

Matrix Codes

Preservative Type Codes

Container Type Codes

Lab Use Only

Non-Compliance Found?

Samples INTACT upon arrival?

Received on Wet Ice?

Proper Preservatives Indicated?

Received within holding time?

Custody seals intact?

Vials/ies rec'd without headspace?

Proper Containers Used?

Coolers #s - Temp °C

1 \_\_\_ 2 \_\_\_ 3 \_\_\_ 4 \_\_\_ 5 \_\_\_

YES NO N/A

REVISION: F-ALL-C-007 - Rev.00

Pompano Lab 954-582-4300

C.O.C. Serial # 145018



Document Name:  
Sample Condition Upon Receipt Form  
Document No.:  
F-FL-C-007 rev. 13

Document Revised:  
May 30, 2018  
Issuing Authority:  
Pace Florida Quality Office

**NO# : 35411163** (SCUR)

Project # PH: CTR Due Date: 08/17/18  
 Project Manager CLIENT: 36--ESCON  
 Client:

Date and Initials of person:  
 Examining contents: \_\_\_\_\_  
 Label: \_\_\_\_\_  
 Deliver: \_\_\_\_\_  
 pH: \_\_\_\_\_

Thermometer Used: T-330 Date: 8/15/13 Time: 1745 Initials: [Signature]

State of Origin: \_\_\_\_\_  For WV projects, all containers verified to ≤6 °C

Cooler #1 Temp. °C 7.8 (Visual) 0.0 (Correction Factor) 2.8 (Actual)  Samples on ice, cooling process has begun

Cooler #2 Temp. °C \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)  Samples on ice, cooling process has begun

Cooler #3 Temp. °C \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)  Samples on ice, cooling process has begun

Cooler #4 Temp. °C \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)  Samples on ice, cooling process has begun

Cooler #5 Temp. °C \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)  Samples on ice, cooling process has begun

Cooler #6 Temp. °C \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)  Samples on ice, cooling process has begun

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other \_\_\_\_\_

Shipping Method:  First Overnight  Priority Overnight  Standard Overnight  Ground  International Priority

Other \_\_\_\_\_

Billing:  Recipient  Sender  Third Party  Credit Card  Unknown

Tracking # \_\_\_\_\_

Custody Seal on Cooler/Box Present:  Yes  No Seals intact:  Yes  No Ice: Wet Blue Dry None

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Samples shorted to lab (If Yes, complete) Shorted Date: \_\_\_\_\_ Shorted Time: \_\_\_\_\_ Qty: \_\_\_\_\_

		Comments:
Chain of Custody Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody Filled Out	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Relinquished Signature & Sampler Name COC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples Arrived within Hold Time	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush TAT requested on COC	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient Volume	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct Containers Used	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Sample Labels match COC (sample IDs & date/time of collection)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
All containers needing acid/base preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Preservation Information: Preservative: _____ Lot #/Trace #: _____ Date: _____ Time: _____ Initials: _____
All Containers needing preservation are found to be in compliance with EPA recommendation: Exceptions: VOA, Coliform, TOC, O&G, Carbamates	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA Vials? (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution: Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution (use back for additional comments): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

September 24, 2018

Fangmei Zhang  
SCS ES Consultants, Inc.  
7700 N. Kendall Dr.  
Suite #607  
Miami, FL 33156

RE: Project: 09217186.02 Task 2/Ludlam  
Pace Project No.: 35418418

Dear Fangmei Zhang:

Enclosed are the analytical results for sample(s) received by the laboratory on September 18, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This report was revised September 24, 2018. PAH has been added to samples on hold.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Christina Raschke  
christina.raschke@pacelabs.com  
(954)582-4300  
Project Manager

Enclosures

cc: Karinne Bedosky, SCS Engineers  
Alexis Nielsen, SCS Engineers  
Anthony Pezzotti, SCS ES Consultants



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 09217186.02 Task 2/Ludlam  
Pace Project No.: 35418418

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### Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174  
Alabama Certification #: 41320  
Connecticut Certification #: PH-0216  
Florida Certification #: E83079  
Georgia Certification #: 955  
Guam Certification: FL NELAC Reciprocity  
Hawaii Certification: FL NELAC Reciprocity  
Illinois Certification #: 200068  
Indiana Certification: FL NELAC Reciprocity  
Kansas Certification #: E-10383  
Kentucky Certification #: 90050  
Louisiana Certification #: FL NELAC Reciprocity  
Louisiana Environmental Certificate #: 05007  
Maryland Certification: #346  
Michigan Certification #: 9911  
Mississippi Certification: FL NELAC Reciprocity  
Missouri Certification #: 236  
Montana Certification #: Cert 0074  
Nebraska Certification: NE-OS-28-14

Nevada Certification: FL NELAC Reciprocity  
New Hampshire Certification #: 2958  
New Jersey Certification #: FL022  
New York Certification #: 11608  
North Carolina Environmental Certificate #: 667  
North Carolina Certification #: 12710  
North Dakota Certification #: R-216  
Oklahoma Certification #: D9947  
Pennsylvania Certification #: 68-00547  
Puerto Rico Certification #: FL01264  
South Carolina Certification: #96042001  
Tennessee Certification #: TN02974  
Texas Certification: FL NELAC Reciprocity  
US Virgin Islands Certification: FL NELAC Reciprocity  
Virginia Environmental Certification #: 460165  
Wyoming Certification: FL NELAC Reciprocity  
West Virginia Certification #: 9962C  
Wisconsin Certification #: 399079670  
Wyoming (EPA Region 8): FL NELAC Reciprocity

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35418418001	SBA-150 (0.5-2)	Solid	09/18/18 08:50	09/18/18 17:45
35418418002	SBA-151 (0-0.5)	Solid	09/18/18 09:00	09/18/18 17:45
35418418003	SBA-152 (0.5-2)	Solid	09/18/18 09:15	09/18/18 17:45
35418418004	SBA-153 (0-0.5)	Solid	09/18/18 09:30	09/18/18 17:45
35418418005	SBA-153 (0.5-2)	Solid	09/18/18 09:35	09/18/18 17:45
35418418006	SBA-154 (0-0.5)	Solid	09/18/18 09:40	09/18/18 17:45
35418418007	SBA-154 (0.5-2)	Solid	09/18/18 09:45	09/18/18 17:45
35418418008	SBA-155 (0-0.5)	Solid	09/18/18 09:50	09/18/18 17:45
35418418009	SBA-155 (0.5-2)	Solid	09/18/18 09:52	09/18/18 17:45
35418418010	SBA-156 (0-0.5)	Solid	09/18/18 09:55	09/18/18 17:45
35418418011	SBA-156 (0.5-2)	Solid	09/18/18 09:58	09/18/18 17:45
35418418012	SBA-157 (0-0.5)	Solid	09/18/18 10:03	09/18/18 17:45
35418418013	SBA-157 (0.5-2)	Solid	09/18/18 10:06	09/18/18 17:45
35418418014	SBA-158 (0-0.5)	Solid	09/18/18 10:30	09/18/18 17:45
35418418015	SBA-159 (0-0.5)	Solid	09/18/18 10:35	09/18/18 17:45
35418418016	SBA-160 (0-0.5)	Solid	09/18/18 10:45	09/18/18 17:45
35418418017	SBA-161 (0-0.5)	Solid	09/18/18 10:50	09/18/18 17:45
35418418018	SBA-162 (0-0.5)	Solid	09/18/18 10:55	09/18/18 17:45
35418418019	SBA-163 (0-0.5)	Solid	09/18/18 11:15	09/18/18 17:45
35418418020	SBA-163 (0.5-1)	Solid	09/18/18 11:20	09/18/18 17:45
35418418021	SBA-164 (0-0.5)	Solid	09/18/18 12:00	09/18/18 17:45
35418418022	SBA-164 (0.5-1)	Solid	09/18/18 12:05	09/18/18 17:45
35418418023	SBA-165 (0-0.5)	Solid	09/18/18 12:40	09/18/18 17:45
35418418024	SBA-165 (0.5-1)	Solid	09/18/18 12:45	09/18/18 17:45
35418418025	SBA-166 (0-0.5)	Solid	09/18/18 12:52	09/18/18 17:45
35418418026	SBA-167 (0-0.5)	Solid	09/18/18 13:20	09/18/18 17:45
35418418027	CS-7 (0-0.5)	Solid	09/18/18 17:00	09/18/18 17:45
35418418028	CS-7 (0.5-2)	Solid	09/18/18 17:00	09/18/18 17:45
35418418029	CS-6 (0-0.5)	Solid	09/18/18 17:00	09/18/18 17:45

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 09217186.02 Task 2/Ludlam  
Pace Project No.: 35418418

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35418418001	SBA-150 (0.5-2)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418002	SBA-151 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418003	SBA-152 (0.5-2)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418004	SBA-153 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418006	SBA-154 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418008	SBA-155 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418010	SBA-156 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418012	SBA-157 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418019	SBA-163 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418020	SBA-163 (0.5-1)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418021	SBA-164 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418022	SBA-164 (0.5-1)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418023	SBA-165 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418024	SBA-165 (0.5-1)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418025	SBA-166 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418026	SBA-167 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418027	CS-7 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418028	CS-7 (0.5-2)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418418029	CS-6 (0-0.5)	EPA 8270	CB1	21	PASI-O

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

---

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		ASTM D2974-87	RAK	1	PASI-O

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

---

**Method:** EPA 8270

**Description:** 8270 MSSV Short List Microwave

**Client:** SCS Engineers

**Date:** September 24, 2018

**General Information:**

19 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

**Initial Calibrations (including MS Tune as applicable):**

All criteria were within method requirements with any exceptions noted below.

**Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

**Internal Standards:**

All internal standards were within QC limits with any exceptions noted below.

**Surrogates:**

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 479264

J(S5): Estimated Value. Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

- SBA-157 (0-0.5) (Lab ID: 35418418012)
- p-Terphenyl-d14 (S)

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

Analyte Comments:

QC Batch: 478533

1p: Due to the extract's physical characteristics, the analysis was performed at dilution.

- SBA-163 (0-0.5) (Lab ID: 35418418019)
- 1-Methylnaphthalene

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 09217186.02 Task 2/Ludlam  
Pace Project No.: 35418418

---

**Method:** EPA 8270  
**Description:** 8270 MSSV Short List Microwave  
**Client:** SCS Engineers  
**Date:** September 24, 2018

Analyte Comments:

QC Batch: 478533

1p: Due to the extract's physical characteristics, the analysis was performed at dilution.

- SBA-163 (0-0.5) (Lab ID: 35418418019)
  - 2-Methylnaphthalene
  - Acenaphthene
  - Acenaphthylene
  - Anthracene
  - Benzo(k)fluoranthene
  - Benzo(g,h,i)perylene
  - Benzo(a)anthracene
  - Benzo(b)fluoranthene
  - Benzo(a)pyrene
  - Chrysene
  - Dibenz(a,h)anthracene
  - Fluorene
  - Fluoranthene
  - Indeno(1,2,3-cd)pyrene
  - Naphthalene
  - Phenanthrene
  - Pyrene
- SBA-163 (0.5-1) (Lab ID: 35418418020)
  - 1-Methylnaphthalene
  - 2-Methylnaphthalene
  - Acenaphthene
  - Acenaphthylene
  - Anthracene
  - Benzo(k)fluoranthene
  - Benzo(g,h,i)perylene
  - Benzo(a)anthracene
  - Benzo(b)fluoranthene
  - Benzo(a)pyrene
  - Chrysene
  - Dibenz(a,h)anthracene
  - Fluorene
  - Fluoranthene
  - Indeno(1,2,3-cd)pyrene
  - Naphthalene
  - Phenanthrene
  - Pyrene
- SBA-164 (0.5-1) (Lab ID: 35418418022)
  - 1-Methylnaphthalene
  - 2-Methylnaphthalene
  - Acenaphthene
  - Acenaphthylene
  - Anthracene

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

---

**Method:** EPA 8270

**Description:** 8270 MSSV Short List Microwave

**Client:** SCS Engineers

**Date:** September 24, 2018

Analyte Comments:

QC Batch: 478533

1p: Due to the extract's physical characteristics, the analysis was performed at dilution.

- SBA-164 (0.5-1) (Lab ID: 35418418022)
  - Benzo(k)fluoranthene
  - Benzo(g,h,i)perylene
  - Benzo(a)anthracene
  - Benzo(b)fluoranthene
  - Benzo(a)pyrene
  - Chrysene
  - Dibenz(a,h)anthracene
  - Fluorene
  - Fluoranthene
  - Indeno(1,2,3-cd)pyrene
  - Naphthalene
  - Phenanthrene
  - Pyrene

QC Batch: 479264

1p: Due to the extract's physical characteristics, the analysis was performed at dilution.

- SBA-156 (0-0.5) (Lab ID: 35418418010)
  - 1-Methylnaphthalene
  - 2-Methylnaphthalene
  - Acenaphthene
  - Acenaphthylene
  - Anthracene
  - Benzo(k)fluoranthene
  - Benzo(g,h,i)perylene
  - Benzo(a)anthracene
  - Benzo(b)fluoranthene
  - Benzo(a)pyrene
  - Chrysene
  - Dibenz(a,h)anthracene
  - Fluorene
  - Fluoranthene
  - Indeno(1,2,3-cd)pyrene
  - Naphthalene
  - Phenanthrene
  - Pyrene
- SBA-157 (0-0.5) (Lab ID: 35418418012)
  - 1-Methylnaphthalene
  - 2-Methylnaphthalene
  - Acenaphthene
  - Acenaphthylene
  - Anthracene
  - Benzo(k)fluoranthene

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## PROJECT NARRATIVE

Project: 09217186.02 Task 2/Ludlam  
Pace Project No.: 35418418

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**Method:** EPA 8270  
**Description:** 8270 MSSV Short List Microwave  
**Client:** SCS Engineers  
**Date:** September 24, 2018

Analyte Comments:

QC Batch: 479264

1p: Due to the extract's physical characteristics, the analysis was performed at dilution.

- SBA-157 (0-0.5) (Lab ID: 35418418012)
  - Benzo(g,h,i)perylene
  - Benzo(a)anthracene
  - Benzo(b)fluoranthene
  - Benzo(a)pyrene
  - Chrysene
  - Dibenz(a,h)anthracene
  - Fluorene
  - Fluoranthene
  - Indeno(1,2,3-cd)pyrene
  - Naphthalene
  - Phenanthrene
  - Pyrene

This data package has been reviewed for quality and completeness and is approved for release.

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### ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-150 (0.5-2)**      **Lab ID: 35418418001**      Collected: 09/18/18 08:50      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/19/18 06:51	09/19/18 12:55	83-32-9	
Acenaphthylene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 12:55	208-96-8	
Anthracene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/19/18 06:51	09/19/18 12:55	120-12-7	
Benzo(a)anthracene	<b>0.011 U</b>	mg/kg	0.037	0.011	1	09/19/18 06:51	09/19/18 12:55	56-55-3	
Benzo(a)pyrene	<b>0.0092 U</b>	mg/kg	0.037	0.0092	1	09/19/18 06:51	09/19/18 12:55	50-32-8	
Benzo(b)fluoranthene	<b>0.0099 U</b>	mg/kg	0.037	0.0099	1	09/19/18 06:51	09/19/18 12:55	205-99-2	
Benzo(g,h,i)perylene	<b>0.0093 U</b>	mg/kg	0.037	0.0093	1	09/19/18 06:51	09/19/18 12:55	191-24-2	
Benzo(k)fluoranthene	<b>0.0099 U</b>	mg/kg	0.037	0.0099	1	09/19/18 06:51	09/19/18 12:55	207-08-9	
Chrysene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 12:55	218-01-9	
Dibenz(a,h)anthracene	<b>0.0086 U</b>	mg/kg	0.037	0.0086	1	09/19/18 06:51	09/19/18 12:55	53-70-3	
Fluoranthene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 12:55	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.041	0.013	1	09/19/18 06:51	09/19/18 12:55	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.0085 U</b>	mg/kg	0.037	0.0085	1	09/19/18 06:51	09/19/18 12:55	193-39-5	
1-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.044	0.015	1	09/19/18 06:51	09/19/18 12:55	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.043	0.014	1	09/19/18 06:51	09/19/18 12:55	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.038	0.013	1	09/19/18 06:51	09/19/18 12:55	91-20-3	
Phenanthrene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 12:55	85-01-8	
Pyrene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 12:55	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	72	%	16-123		1	09/19/18 06:51	09/19/18 12:55	4165-60-0	
2-Fluorobiphenyl (S)	74	%	32-129		1	09/19/18 06:51	09/19/18 12:55	321-60-8	
p-Terphenyl-d14 (S)	92	%	38-138		1	09/19/18 06:51	09/19/18 12:55	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>8.4</b>	%	0.10	0.10	1		09/20/18 11:15		

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### ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-151 (0-0.5)**      **Lab ID: 35418418002**      Collected: 09/18/18 09:00      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.041	0.013	1	09/19/18 06:51	09/19/18 13:20	83-32-9	
Acenaphthylene	<b>0.012 U</b>	mg/kg	0.039	0.012	1	09/19/18 06:51	09/19/18 13:20	208-96-8	
Anthracene	<b>0.014 U</b>	mg/kg	0.041	0.014	1	09/19/18 06:51	09/19/18 13:20	120-12-7	
Benzo(a)anthracene	<b>0.011 I</b>	mg/kg	0.039	0.011	1	09/19/18 06:51	09/19/18 13:20	56-55-3	
Benzo(a)pyrene	<b>0.010 I</b>	mg/kg	0.039	0.0095	1	09/19/18 06:51	09/19/18 13:20	50-32-8	
Benzo(b)fluoranthene	<b>0.016 I</b>	mg/kg	0.039	0.010	1	09/19/18 06:51	09/19/18 13:20	205-99-2	
Benzo(g,h,i)perylene	<b>0.010 I</b>	mg/kg	0.039	0.0097	1	09/19/18 06:51	09/19/18 13:20	191-24-2	
Benzo(k)fluoranthene	<b>0.010 U</b>	mg/kg	0.039	0.010	1	09/19/18 06:51	09/19/18 13:20	207-08-9	
Chrysene	<b>0.012 U</b>	mg/kg	0.039	0.012	1	09/19/18 06:51	09/19/18 13:20	218-01-9	
Dibenz(a,h)anthracene	<b>0.0089 U</b>	mg/kg	0.039	0.0089	1	09/19/18 06:51	09/19/18 13:20	53-70-3	
Fluoranthene	<b>0.013 I</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 13:20	206-44-0	
Fluorene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/19/18 06:51	09/19/18 13:20	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.0089 I</b>	mg/kg	0.039	0.0088	1	09/19/18 06:51	09/19/18 13:20	193-39-5	
1-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.045	0.015	1	09/19/18 06:51	09/19/18 13:20	90-12-0	
2-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.044	0.015	1	09/19/18 06:51	09/19/18 13:20	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/19/18 06:51	09/19/18 13:20	91-20-3	
Phenanthrene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 13:20	85-01-8	
Pyrene	<b>0.012 U</b>	mg/kg	0.039	0.012	1	09/19/18 06:51	09/19/18 13:20	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	65	%	16-123		1	09/19/18 06:51	09/19/18 13:20	4165-60-0	
2-Fluorobiphenyl (S)	70	%	32-129		1	09/19/18 06:51	09/19/18 13:20	321-60-8	
p-Terphenyl-d14 (S)	74	%	38-138		1	09/19/18 06:51	09/19/18 13:20	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>11.5</b>	%	0.10	0.10	1		09/20/18 11:15		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-152 (0.5-2)**      **Lab ID: 35418418003**      Collected: 09/18/18 09:15      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/19/18 06:51	09/19/18 13:45	83-32-9	
Acenaphthylene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/19/18 06:51	09/19/18 13:45	208-96-8	
Anthracene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/19/18 06:51	09/19/18 13:45	120-12-7	
Benzo(a)anthracene	<b>0.011 U</b>	mg/kg	0.038	0.011	1	09/19/18 06:51	09/19/18 13:45	56-55-3	
Benzo(a)pyrene	<b>0.0093 U</b>	mg/kg	0.038	0.0093	1	09/19/18 06:51	09/19/18 13:45	50-32-8	
Benzo(b)fluoranthene	<b>0.010 U</b>	mg/kg	0.038	0.010	1	09/19/18 06:51	09/19/18 13:45	205-99-2	
Benzo(g,h,i)perylene	<b>0.0094 U</b>	mg/kg	0.038	0.0094	1	09/19/18 06:51	09/19/18 13:45	191-24-2	
Benzo(k)fluoranthene	<b>0.010 U</b>	mg/kg	0.038	0.010	1	09/19/18 06:51	09/19/18 13:45	207-08-9	
Chrysene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/19/18 06:51	09/19/18 13:45	218-01-9	
Dibenz(a,h)anthracene	<b>0.0086 U</b>	mg/kg	0.038	0.0086	1	09/19/18 06:51	09/19/18 13:45	53-70-3	
Fluoranthene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/19/18 06:51	09/19/18 13:45	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.041	0.013	1	09/19/18 06:51	09/19/18 13:45	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.0086 U</b>	mg/kg	0.038	0.0086	1	09/19/18 06:51	09/19/18 13:45	193-39-5	
1-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.044	0.015	1	09/19/18 06:51	09/19/18 13:45	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.043	0.014	1	09/19/18 06:51	09/19/18 13:45	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 13:45	91-20-3	
Phenanthrene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/19/18 06:51	09/19/18 13:45	85-01-8	
Pyrene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/19/18 06:51	09/19/18 13:45	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	68	%	16-123		1	09/19/18 06:51	09/19/18 13:45	4165-60-0	
2-Fluorobiphenyl (S)	71	%	32-129		1	09/19/18 06:51	09/19/18 13:45	321-60-8	
p-Terphenyl-d14 (S)	91	%	38-138		1	09/19/18 06:51	09/19/18 13:45	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>9.1</b>	%	0.10	0.10	1		09/20/18 11:15		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-153 (0-0.5)**      **Lab ID: 35418418004**      Collected: 09/18/18 09:30      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/21/18 03:05	09/21/18 14:16	83-32-9	
Acenaphthylene	<b>0.011 U</b>	mg/kg	0.036	0.011	1	09/21/18 03:05	09/21/18 14:16	208-96-8	
Anthracene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/21/18 03:05	09/21/18 14:16	120-12-7	
Benzo(a)anthracene	<b>0.020 I</b>	mg/kg	0.036	0.010	1	09/21/18 03:05	09/21/18 14:16	56-55-3	
Benzo(a)pyrene	<b>0.024 I</b>	mg/kg	0.036	0.0090	1	09/21/18 03:05	09/21/18 14:16	50-32-8	
Benzo(b)fluoranthene	<b>0.047</b>	mg/kg	0.036	0.0097	1	09/21/18 03:05	09/21/18 14:16	205-99-2	
Benzo(g,h,i)perylene	<b>0.013 I</b>	mg/kg	0.036	0.0091	1	09/21/18 03:05	09/21/18 14:16	191-24-2	
Benzo(k)fluoranthene	<b>0.015 I</b>	mg/kg	0.036	0.0097	1	09/21/18 03:05	09/21/18 14:16	207-08-9	
Chrysene	<b>0.026 I</b>	mg/kg	0.036	0.011	1	09/21/18 03:05	09/21/18 14:16	218-01-9	
Dibenz(a,h)anthracene	<b>0.0084 U</b>	mg/kg	0.036	0.0084	1	09/21/18 03:05	09/21/18 14:16	53-70-3	
Fluoranthene	<b>0.031 I</b>	mg/kg	0.036	0.012	1	09/21/18 03:05	09/21/18 14:16	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/21/18 03:05	09/21/18 14:16	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.012 I</b>	mg/kg	0.036	0.0083	1	09/21/18 03:05	09/21/18 14:16	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.043	0.014	1	09/21/18 03:05	09/21/18 14:16	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/21/18 03:05	09/21/18 14:16	91-57-6	
Naphthalene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/21/18 03:05	09/21/18 14:16	91-20-3	
Phenanthrene	<b>0.012 U</b>	mg/kg	0.036	0.012	1	09/21/18 03:05	09/21/18 14:16	85-01-8	
Pyrene	<b>0.035 I</b>	mg/kg	0.036	0.011	1	09/21/18 03:05	09/21/18 14:16	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	56	%	16-123		1	09/21/18 03:05	09/21/18 14:16	4165-60-0	
2-Fluorobiphenyl (S)	59	%	32-129		1	09/21/18 03:05	09/21/18 14:16	321-60-8	
p-Terphenyl-d14 (S)	44	%	38-138		1	09/21/18 03:05	09/21/18 14:16	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>6.2</b>	%	0.10	0.10	1		09/21/18 08:52		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-154 (0-0.5)**      **Lab ID: 35418418006**      Collected: 09/18/18 09:40      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/21/18 03:05	09/21/18 14:39	83-32-9	
Acenaphthylene	<b>0.066</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 14:39	208-96-8	
Anthracene	<b>0.063</b>	mg/kg	0.039	0.013	1	09/21/18 03:05	09/21/18 14:39	120-12-7	
Benzo(a)anthracene	<b>0.27</b>	mg/kg	0.037	0.011	1	09/21/18 03:05	09/21/18 14:39	56-55-3	
Benzo(a)pyrene	<b>0.35</b>	mg/kg	0.037	0.0091	1	09/21/18 03:05	09/21/18 14:39	50-32-8	
Benzo(b)fluoranthene	<b>0.62</b>	mg/kg	0.037	0.0098	1	09/21/18 03:05	09/21/18 14:39	205-99-2	
Benzo(g,h,i)perylene	<b>0.17</b>	mg/kg	0.037	0.0092	1	09/21/18 03:05	09/21/18 14:39	191-24-2	
Benzo(k)fluoranthene	<b>0.21</b>	mg/kg	0.037	0.0098	1	09/21/18 03:05	09/21/18 14:39	207-08-9	
Chrysene	<b>0.29</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 14:39	218-01-9	
Dibenz(a,h)anthracene	<b>0.050</b>	mg/kg	0.037	0.0085	1	09/21/18 03:05	09/21/18 14:39	53-70-3	
Fluoranthene	<b>0.42</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 14:39	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/21/18 03:05	09/21/18 14:39	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.18</b>	mg/kg	0.037	0.0084	1	09/21/18 03:05	09/21/18 14:39	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.043	0.014	1	09/21/18 03:05	09/21/18 14:39	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/21/18 03:05	09/21/18 14:39	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.038	0.013	1	09/21/18 03:05	09/21/18 14:39	91-20-3	
Phenanthrene	<b>0.069</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 14:39	85-01-8	
Pyrene	<b>0.47</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 14:39	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	44	%	16-123		1	09/21/18 03:05	09/21/18 14:39	4165-60-0	
2-Fluorobiphenyl (S)	46	%	32-129		1	09/21/18 03:05	09/21/18 14:39	321-60-8	
p-Terphenyl-d14 (S)	39	%	38-138		1	09/21/18 03:05	09/21/18 14:39	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>7.2</b>	%	0.10	0.10	1		09/21/18 08:52		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-155 (0-0.5)**      **Lab ID: 35418418008**      Collected: 09/18/18 09:50      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/21/18 03:05	09/21/18 15:02	83-32-9	
Acenaphthylene	<b>0.050</b>	mg/kg	0.036	0.011	1	09/21/18 03:05	09/21/18 15:02	208-96-8	
Anthracene	<b>0.050</b>	mg/kg	0.038	0.013	1	09/21/18 03:05	09/21/18 15:02	120-12-7	
Benzo(a)anthracene	<b>0.18</b>	mg/kg	0.036	0.010	1	09/21/18 03:05	09/21/18 15:02	56-55-3	
Benzo(a)pyrene	<b>0.26</b>	mg/kg	0.036	0.0090	1	09/21/18 03:05	09/21/18 15:02	50-32-8	
Benzo(b)fluoranthene	<b>0.46</b>	mg/kg	0.036	0.0096	1	09/21/18 03:05	09/21/18 15:02	205-99-2	
Benzo(g,h,i)perylene	<b>0.11</b>	mg/kg	0.036	0.0091	1	09/21/18 03:05	09/21/18 15:02	191-24-2	
Benzo(k)fluoranthene	<b>0.16</b>	mg/kg	0.036	0.0097	1	09/21/18 03:05	09/21/18 15:02	207-08-9	
Chrysene	<b>0.19</b>	mg/kg	0.036	0.011	1	09/21/18 03:05	09/21/18 15:02	218-01-9	
Dibenz(a,h)anthracene	<b>0.032 I</b>	mg/kg	0.036	0.0083	1	09/21/18 03:05	09/21/18 15:02	53-70-3	
Fluoranthene	<b>0.29</b>	mg/kg	0.036	0.012	1	09/21/18 03:05	09/21/18 15:02	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/21/18 03:05	09/21/18 15:02	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.12</b>	mg/kg	0.036	0.0083	1	09/21/18 03:05	09/21/18 15:02	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.043	0.014	1	09/21/18 03:05	09/21/18 15:02	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/21/18 03:05	09/21/18 15:02	91-57-6	
Naphthalene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 15:02	91-20-3	
Phenanthrene	<b>0.056</b>	mg/kg	0.036	0.012	1	09/21/18 03:05	09/21/18 15:02	85-01-8	
Pyrene	<b>0.32</b>	mg/kg	0.036	0.011	1	09/21/18 03:05	09/21/18 15:02	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	48	%	16-123		1	09/21/18 03:05	09/21/18 15:02	4165-60-0	
2-Fluorobiphenyl (S)	52	%	32-129		1	09/21/18 03:05	09/21/18 15:02	321-60-8	
p-Terphenyl-d14 (S)	39	%	38-138		1	09/21/18 03:05	09/21/18 15:02	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>5.7</b>	%	0.10	0.10	1		09/21/18 08:52		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-156 (0-0.5)**      **Lab ID: 35418418010**      Collected: 09/18/18 09:55      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.025 U</b>	mg/kg	0.077	0.025	2	09/21/18 03:05	09/21/18 15:25	83-32-9	1p
Acenaphthylene	<b>0.023 U</b>	mg/kg	0.072	0.023	2	09/21/18 03:05	09/21/18 15:25	208-96-8	1p
Anthracene	<b>0.025 U</b>	mg/kg	0.077	0.025	2	09/21/18 03:05	09/21/18 15:25	120-12-7	1p
Benzo(a)anthracene	<b>0.022 I</b>	mg/kg	0.072	0.021	2	09/21/18 03:05	09/21/18 15:25	56-55-3	1p
Benzo(a)pyrene	<b>0.029 I</b>	mg/kg	0.072	0.018	2	09/21/18 03:05	09/21/18 15:25	50-32-8	1p
Benzo(b)fluoranthene	<b>0.057 I</b>	mg/kg	0.072	0.019	2	09/21/18 03:05	09/21/18 15:25	205-99-2	1p
Benzo(g,h,i)perylene	<b>0.018 U</b>	mg/kg	0.072	0.018	2	09/21/18 03:05	09/21/18 15:25	191-24-2	1p
Benzo(k)fluoranthene	<b>0.019 U</b>	mg/kg	0.072	0.019	2	09/21/18 03:05	09/21/18 15:25	207-08-9	1p
Chrysene	<b>0.040 I</b>	mg/kg	0.072	0.023	2	09/21/18 03:05	09/21/18 15:25	218-01-9	1p
Dibenz(a,h)anthracene	<b>0.017 U</b>	mg/kg	0.072	0.017	2	09/21/18 03:05	09/21/18 15:25	53-70-3	1p
Fluoranthene	<b>0.047 I</b>	mg/kg	0.072	0.024	2	09/21/18 03:05	09/21/18 15:25	206-44-0	1p
Fluorene	<b>0.026 U</b>	mg/kg	0.079	0.026	2	09/21/18 03:05	09/21/18 15:25	86-73-7	1p
Indeno(1,2,3-cd)pyrene	<b>0.016 U</b>	mg/kg	0.072	0.016	2	09/21/18 03:05	09/21/18 15:25	193-39-5	1p
1-Methylnaphthalene	<b>0.028 U</b>	mg/kg	0.085	0.028	2	09/21/18 03:05	09/21/18 15:25	90-12-0	1p
2-Methylnaphthalene	<b>0.027 U</b>	mg/kg	0.083	0.027	2	09/21/18 03:05	09/21/18 15:25	91-57-6	1p
Naphthalene	<b>0.025 U</b>	mg/kg	0.075	0.025	2	09/21/18 03:05	09/21/18 15:25	91-20-3	1p
Phenanthrene	<b>0.024 U</b>	mg/kg	0.072	0.024	2	09/21/18 03:05	09/21/18 15:25	85-01-8	1p
Pyrene	<b>0.051 I</b>	mg/kg	0.072	0.023	2	09/21/18 03:05	09/21/18 15:25	129-00-0	1p
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	47	%	16-123		2	09/21/18 03:05	09/21/18 15:25	4165-60-0	
2-Fluorobiphenyl (S)	52	%	32-129		2	09/21/18 03:05	09/21/18 15:25	321-60-8	
p-Terphenyl-d14 (S)	40	%	38-138		2	09/21/18 03:05	09/21/18 15:25	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>5.1</b>	%	0.10	0.10	1		09/21/18 08:52		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-157 (0-0.5)**      **Lab ID: 35418418012**      Collected: 09/18/18 10:03      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.025 U</b>	mg/kg	0.077	0.025	2	09/21/18 03:05	09/21/18 15:49	83-32-9	1p
Acenaphthylene	<b>0.023 U</b>	mg/kg	0.073	0.023	2	09/21/18 03:05	09/21/18 15:49	208-96-8	1p
Anthracene	<b>0.026 U</b>	mg/kg	0.077	0.026	2	09/21/18 03:05	09/21/18 15:49	120-12-7	1p
Benzo(a)anthracene	<b>0.048 I</b>	mg/kg	0.073	0.021	2	09/21/18 03:05	09/21/18 15:49	56-55-3	1p
Benzo(a)pyrene	<b>0.063 I</b>	mg/kg	0.073	0.018	2	09/21/18 03:05	09/21/18 15:49	50-32-8	1p
Benzo(b)fluoranthene	<b>0.13</b>	mg/kg	0.073	0.019	2	09/21/18 03:05	09/21/18 15:49	205-99-2	1p
Benzo(g,h,i)perylene	<b>0.034 I</b>	mg/kg	0.073	0.018	2	09/21/18 03:05	09/21/18 15:49	191-24-2	1p
Benzo(k)fluoranthene	<b>0.041 I</b>	mg/kg	0.073	0.019	2	09/21/18 03:05	09/21/18 15:49	207-08-9	1p
Chrysene	<b>0.060 I</b>	mg/kg	0.073	0.023	2	09/21/18 03:05	09/21/18 15:49	218-01-9	1p
Dibenz(a,h)anthracene	<b>0.017 U</b>	mg/kg	0.073	0.017	2	09/21/18 03:05	09/21/18 15:49	53-70-3	1p
Fluoranthene	<b>0.097</b>	mg/kg	0.073	0.024	2	09/21/18 03:05	09/21/18 15:49	206-44-0	1p
Fluorene	<b>0.026 U</b>	mg/kg	0.080	0.026	2	09/21/18 03:05	09/21/18 15:49	86-73-7	1p
Indeno(1,2,3-cd)pyrene	<b>0.027 I</b>	mg/kg	0.073	0.017	2	09/21/18 03:05	09/21/18 15:49	193-39-5	1p
1-Methylnaphthalene	<b>0.029 U</b>	mg/kg	0.086	0.029	2	09/21/18 03:05	09/21/18 15:49	90-12-0	1p
2-Methylnaphthalene	<b>0.028 U</b>	mg/kg	0.084	0.028	2	09/21/18 03:05	09/21/18 15:49	91-57-6	1p
Naphthalene	<b>0.025 U</b>	mg/kg	0.075	0.025	2	09/21/18 03:05	09/21/18 15:49	91-20-3	1p
Phenanthrene	<b>0.043 I</b>	mg/kg	0.073	0.024	2	09/21/18 03:05	09/21/18 15:49	85-01-8	1p
Pyrene	<b>0.082</b>	mg/kg	0.073	0.023	2	09/21/18 03:05	09/21/18 15:49	129-00-0	1p
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	35	%	16-123		2	09/21/18 03:05	09/21/18 15:49	4165-60-0	
2-Fluorobiphenyl (S)	44	%	32-129		2	09/21/18 03:05	09/21/18 15:49	321-60-8	
p-Terphenyl-d14 (S)	37	%	38-138		2	09/21/18 03:05	09/21/18 15:49	1718-51-0	J(S5)
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>6.6</b>	%	0.10	0.10	1		09/21/18 08:52		

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### ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-163 (0-0.5)**      **Lab ID: 35418418019**      Collected: 09/18/18 11:15      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>									
Analytical Method: EPA 8270 Preparation Method: EPA 3546									
Acenaphthene	<b>0.058 I</b>	mg/kg	0.081	0.026	2	09/19/18 06:51	09/19/18 14:10	83-32-9	1p
Acenaphthylene	<b>0.061 I</b>	mg/kg	0.077	0.024	2	09/19/18 06:51	09/19/18 14:10	208-96-8	1p
Anthracene	<b>0.23</b>	mg/kg	0.081	0.027	2	09/19/18 06:51	09/19/18 14:10	120-12-7	1p
Benzo(a)anthracene	<b>1.9</b>	mg/kg	0.077	0.022	2	09/19/18 06:51	09/19/18 14:10	56-55-3	1p
Benzo(a)pyrene	<b>2.4</b>	mg/kg	0.077	0.019	2	09/19/18 06:51	09/19/18 14:10	50-32-8	1p
Benzo(b)fluoranthene	<b>3.7</b>	mg/kg	0.077	0.020	2	09/19/18 06:51	09/19/18 14:10	205-99-2	1p
Benzo(g,h,i)perylene	<b>2.1</b>	mg/kg	0.077	0.019	2	09/19/18 06:51	09/19/18 14:10	191-24-2	1p
Benzo(k)fluoranthene	<b>1.4</b>	mg/kg	0.077	0.020	2	09/19/18 06:51	09/19/18 14:10	207-08-9	1p
Chrysene	<b>2.5</b>	mg/kg	0.077	0.024	2	09/19/18 06:51	09/19/18 14:10	218-01-9	1p
Dibenz(a,h)anthracene	<b>0.44</b>	mg/kg	0.077	0.018	2	09/19/18 06:51	09/19/18 14:10	53-70-3	1p
Fluoranthene	<b>4.9</b>	mg/kg	0.077	0.025	2	09/19/18 06:51	09/19/18 14:10	206-44-0	1p
Fluorene	<b>0.039 I</b>	mg/kg	0.084	0.027	2	09/19/18 06:51	09/19/18 14:10	86-73-7	1p
Indeno(1,2,3-cd)pyrene	<b>1.6</b>	mg/kg	0.077	0.017	2	09/19/18 06:51	09/19/18 14:10	193-39-5	1p
1-Methylnaphthalene	<b>0.068 I</b>	mg/kg	0.090	0.030	2	09/19/18 06:51	09/19/18 14:10	90-12-0	1p
2-Methylnaphthalene	<b>0.076 I</b>	mg/kg	0.088	0.029	2	09/19/18 06:51	09/19/18 14:10	91-57-6	1p
Naphthalene	<b>0.032 I</b>	mg/kg	0.079	0.026	2	09/19/18 06:51	09/19/18 14:10	91-20-3	1p
Phenanthrene	<b>2.2</b>	mg/kg	0.077	0.025	2	09/19/18 06:51	09/19/18 14:10	85-01-8	1p
Pyrene	<b>4.1</b>	mg/kg	0.077	0.024	2	09/19/18 06:51	09/19/18 14:10	129-00-0	1p
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	33	%	16-123		2	09/19/18 06:51	09/19/18 14:10	4165-60-0	
2-Fluorobiphenyl (S)	38	%	32-129		2	09/19/18 06:51	09/19/18 14:10	321-60-8	
p-Terphenyl-d14 (S)	41	%	38-138		2	09/19/18 06:51	09/19/18 14:10	1718-51-0	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Percent Moisture	<b>11.1</b>	%	0.10	0.10	1		09/20/18 11:15		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-163 (0.5-1)**      **Lab ID: 35418418020**      Collected: 09/18/18 11:20      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.11</b>	mg/kg	0.081	0.026	2	09/19/18 06:51	09/19/18 14:35	83-32-9	1p
Acenaphthylene	<b>0.10</b>	mg/kg	0.077	0.024	2	09/19/18 06:51	09/19/18 14:35	208-96-8	1p
Anthracene	<b>0.44</b>	mg/kg	0.081	0.027	2	09/19/18 06:51	09/19/18 14:35	120-12-7	1p
Benzo(a)anthracene	<b>3.4</b>	mg/kg	0.077	0.022	2	09/19/18 06:51	09/19/18 14:35	56-55-3	1p
Benzo(a)pyrene	<b>4.2</b>	mg/kg	0.077	0.019	2	09/19/18 06:51	09/19/18 14:35	50-32-8	1p
Benzo(b)fluoranthene	<b>6.6</b>	mg/kg	0.077	0.020	2	09/19/18 06:51	09/19/18 14:35	205-99-2	1p
Benzo(g,h,i)perylene	<b>2.9</b>	mg/kg	0.077	0.019	2	09/19/18 06:51	09/19/18 14:35	191-24-2	1p
Benzo(k)fluoranthene	<b>2.4</b>	mg/kg	0.077	0.020	2	09/19/18 06:51	09/19/18 14:35	207-08-9	1p
Chrysene	<b>4.4</b>	mg/kg	0.077	0.024	2	09/19/18 06:51	09/19/18 14:35	218-01-9	1p
Dibenz(a,h)anthracene	<b>0.68</b>	mg/kg	0.077	0.018	2	09/19/18 06:51	09/19/18 14:35	53-70-3	1p
Fluoranthene	<b>9.3</b>	mg/kg	0.19	0.062	5	09/19/18 06:51	09/20/18 08:09	206-44-0	1p
Fluorene	<b>0.074 I</b>	mg/kg	0.083	0.027	2	09/19/18 06:51	09/19/18 14:35	86-73-7	1p
Indeno(1,2,3-cd)pyrene	<b>2.6</b>	mg/kg	0.077	0.017	2	09/19/18 06:51	09/19/18 14:35	193-39-5	1p
1-Methylnaphthalene	<b>0.070 I</b>	mg/kg	0.090	0.030	2	09/19/18 06:51	09/19/18 14:35	90-12-0	1p
2-Methylnaphthalene	<b>0.071 I</b>	mg/kg	0.088	0.029	2	09/19/18 06:51	09/19/18 14:35	91-57-6	1p
Naphthalene	<b>0.035 I</b>	mg/kg	0.079	0.026	2	09/19/18 06:51	09/19/18 14:35	91-20-3	1p
Phenanthrene	<b>3.7</b>	mg/kg	0.077	0.025	2	09/19/18 06:51	09/19/18 14:35	85-01-8	1p
Pyrene	<b>7.8</b>	mg/kg	0.19	0.060	5	09/19/18 06:51	09/20/18 08:09	129-00-0	1p
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	51	%	16-123		2	09/19/18 06:51	09/19/18 14:35	4165-60-0	
2-Fluorobiphenyl (S)	58	%	32-129		2	09/19/18 06:51	09/19/18 14:35	321-60-8	
p-Terphenyl-d14 (S)	73	%	38-138		2	09/19/18 06:51	09/19/18 14:35	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>11.1</b>	%	0.10	0.10	1		09/20/18 11:15		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-164 (0-0.5)**      **Lab ID: 35418418021**      Collected: 09/18/18 12:00      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 15:00	83-32-9	
Acenaphthylene	<b>0.011 U</b>	mg/kg	0.035	0.011	1	09/19/18 06:51	09/19/18 15:00	208-96-8	
Anthracene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 15:00	120-12-7	
Benzo(a)anthracene	<b>0.010 U</b>	mg/kg	0.035	0.010	1	09/19/18 06:51	09/19/18 15:00	56-55-3	
Benzo(a)pyrene	<b>0.0087 U</b>	mg/kg	0.035	0.0087	1	09/19/18 06:51	09/19/18 15:00	50-32-8	
Benzo(b)fluoranthene	<b>0.0094 U</b>	mg/kg	0.035	0.0094	1	09/19/18 06:51	09/19/18 15:00	205-99-2	
Benzo(g,h,i)perylene	<b>0.0088 U</b>	mg/kg	0.035	0.0088	1	09/19/18 06:51	09/19/18 15:00	191-24-2	
Benzo(k)fluoranthene	<b>0.0094 U</b>	mg/kg	0.035	0.0094	1	09/19/18 06:51	09/19/18 15:00	207-08-9	
Chrysene	<b>0.011 U</b>	mg/kg	0.035	0.011	1	09/19/18 06:51	09/19/18 15:00	218-01-9	
Dibenz(a,h)anthracene	<b>0.0081 U</b>	mg/kg	0.035	0.0081	1	09/19/18 06:51	09/19/18 15:00	53-70-3	
Fluoranthene	<b>0.012 U</b>	mg/kg	0.035	0.012	1	09/19/18 06:51	09/19/18 15:00	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.038	0.013	1	09/19/18 06:51	09/19/18 15:00	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.0080 U</b>	mg/kg	0.035	0.0080	1	09/19/18 06:51	09/19/18 15:00	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.041	0.014	1	09/19/18 06:51	09/19/18 15:00	90-12-0	
2-Methylnaphthalene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/19/18 06:51	09/19/18 15:00	91-57-6	
Naphthalene	<b>0.012 U</b>	mg/kg	0.036	0.012	1	09/19/18 06:51	09/19/18 15:00	91-20-3	
Phenanthrene	<b>0.012 U</b>	mg/kg	0.035	0.012	1	09/19/18 06:51	09/19/18 15:00	85-01-8	
Pyrene	<b>0.011 U</b>	mg/kg	0.035	0.011	1	09/19/18 06:51	09/19/18 15:00	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	50	%	16-123		1	09/19/18 06:51	09/19/18 15:00	4165-60-0	
2-Fluorobiphenyl (S)	56	%	32-129		1	09/19/18 06:51	09/19/18 15:00	321-60-8	
p-Terphenyl-d14 (S)	72	%	38-138		1	09/19/18 06:51	09/19/18 15:00	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>2.6</b>	%	0.10	0.10	1		09/20/18 11:15		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-164 (0.5-1)**      **Lab ID: 35418418022**      Collected: 09/18/18 12:05      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.024 U</b>	mg/kg	0.074	0.024	2	09/19/18 06:51	09/19/18 15:25	83-32-9	1p
Acenaphthylene	<b>0.022 U</b>	mg/kg	0.070	0.022	2	09/19/18 06:51	09/19/18 15:25	208-96-8	1p
Anthracene	<b>0.025 U</b>	mg/kg	0.074	0.025	2	09/19/18 06:51	09/19/18 15:25	120-12-7	1p
Benzo(a)anthracene	<b>0.020 U</b>	mg/kg	0.070	0.020	2	09/19/18 06:51	09/19/18 15:25	56-55-3	1p
Benzo(a)pyrene	<b>0.017 U</b>	mg/kg	0.070	0.017	2	09/19/18 06:51	09/19/18 15:25	50-32-8	1p
Benzo(b)fluoranthene	<b>0.019 U</b>	mg/kg	0.070	0.019	2	09/19/18 06:51	09/19/18 15:25	205-99-2	1p
Benzo(g,h,i)perylene	<b>0.018 U</b>	mg/kg	0.070	0.018	2	09/19/18 06:51	09/19/18 15:25	191-24-2	1p
Benzo(k)fluoranthene	<b>0.019 U</b>	mg/kg	0.070	0.019	2	09/19/18 06:51	09/19/18 15:25	207-08-9	1p
Chrysene	<b>0.022 U</b>	mg/kg	0.070	0.022	2	09/19/18 06:51	09/19/18 15:25	218-01-9	1p
Dibenz(a,h)anthracene	<b>0.016 U</b>	mg/kg	0.070	0.016	2	09/19/18 06:51	09/19/18 15:25	53-70-3	1p
Fluoranthene	<b>0.023 U</b>	mg/kg	0.070	0.023	2	09/19/18 06:51	09/19/18 15:25	206-44-0	1p
Fluorene	<b>0.025 U</b>	mg/kg	0.076	0.025	2	09/19/18 06:51	09/19/18 15:25	86-73-7	1p
Indeno(1,2,3-cd)pyrene	<b>0.016 U</b>	mg/kg	0.070	0.016	2	09/19/18 06:51	09/19/18 15:25	193-39-5	1p
1-Methylnaphthalene	<b>0.027 U</b>	mg/kg	0.083	0.027	2	09/19/18 06:51	09/19/18 15:25	90-12-0	1p
2-Methylnaphthalene	<b>0.027 U</b>	mg/kg	0.081	0.027	2	09/19/18 06:51	09/19/18 15:25	91-57-6	1p
Naphthalene	<b>0.024 U</b>	mg/kg	0.072	0.024	2	09/19/18 06:51	09/19/18 15:25	91-20-3	1p
Phenanthrene	<b>0.023 U</b>	mg/kg	0.070	0.023	2	09/19/18 06:51	09/19/18 15:25	85-01-8	1p
Pyrene	<b>0.022 U</b>	mg/kg	0.070	0.022	2	09/19/18 06:51	09/19/18 15:25	129-00-0	1p
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	55	%	16-123		2	09/19/18 06:51	09/19/18 15:25	4165-60-0	
2-Fluorobiphenyl (S)	67	%	32-129		2	09/19/18 06:51	09/19/18 15:25	321-60-8	
p-Terphenyl-d14 (S)	79	%	38-138		2	09/19/18 06:51	09/19/18 15:25	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>2.3</b>	%	0.10	0.10	1		09/20/18 11:15		

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### ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-165 (0-0.5)**      **Lab ID: 35418418023**      Collected: 09/18/18 12:40      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/19/18 06:51	09/19/18 15:50	83-32-9	
Acenaphthylene	<b>0.011 U</b>	mg/kg	0.036	0.011	1	09/19/18 06:51	09/19/18 15:50	208-96-8	
Anthracene	<b>0.044</b>	mg/kg	0.038	0.013	1	09/19/18 06:51	09/19/18 15:50	120-12-7	
Benzo(a)anthracene	<b>0.23</b>	mg/kg	0.036	0.010	1	09/19/18 06:51	09/19/18 15:50	56-55-3	
Benzo(a)pyrene	<b>0.21</b>	mg/kg	0.036	0.0089	1	09/19/18 06:51	09/19/18 15:50	50-32-8	
Benzo(b)fluoranthene	<b>0.33</b>	mg/kg	0.036	0.0095	1	09/19/18 06:51	09/19/18 15:50	205-99-2	
Benzo(g,h,i)perylene	<b>0.12</b>	mg/kg	0.036	0.0090	1	09/19/18 06:51	09/19/18 15:50	191-24-2	
Benzo(k)fluoranthene	<b>0.13</b>	mg/kg	0.036	0.0096	1	09/19/18 06:51	09/19/18 15:50	207-08-9	
Chrysene	<b>0.26</b>	mg/kg	0.036	0.011	1	09/19/18 06:51	09/19/18 15:50	218-01-9	
Dibenz(a,h)anthracene	<b>0.033 I</b>	mg/kg	0.036	0.0082	1	09/19/18 06:51	09/19/18 15:50	53-70-3	
Fluoranthene	<b>0.54</b>	mg/kg	0.036	0.012	1	09/19/18 06:51	09/19/18 15:50	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 15:50	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.11</b>	mg/kg	0.036	0.0082	1	09/19/18 06:51	09/19/18 15:50	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/19/18 06:51	09/19/18 15:50	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.041	0.014	1	09/19/18 06:51	09/19/18 15:50	91-57-6	
Naphthalene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 15:50	91-20-3	
Phenanthrene	<b>0.28</b>	mg/kg	0.036	0.012	1	09/19/18 06:51	09/19/18 15:50	85-01-8	
Pyrene	<b>0.47</b>	mg/kg	0.036	0.011	1	09/19/18 06:51	09/19/18 15:50	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	58	%	16-123		1	09/19/18 06:51	09/19/18 15:50	4165-60-0	
2-Fluorobiphenyl (S)	66	%	32-129		1	09/19/18 06:51	09/19/18 15:50	321-60-8	
p-Terphenyl-d14 (S)	82	%	38-138		1	09/19/18 06:51	09/19/18 15:50	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>5.1</b>	%	0.10	0.10	1		09/20/18 11:15		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-165 (0.5-1)**      **Lab ID: 35418418024**      Collected: 09/18/18 12:45      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/19/18 06:51	09/19/18 16:15	83-32-9	
Acenaphthylene	<b>0.011 U</b>	mg/kg	0.036	0.011	1	09/19/18 06:51	09/19/18 16:15	208-96-8	
Anthracene	<b>0.014 I</b>	mg/kg	0.038	0.013	1	09/19/18 06:51	09/19/18 16:15	120-12-7	
Benzo(a)anthracene	<b>0.047</b>	mg/kg	0.036	0.010	1	09/19/18 06:51	09/19/18 16:15	56-55-3	
Benzo(a)pyrene	<b>0.040</b>	mg/kg	0.036	0.0089	1	09/19/18 06:51	09/19/18 16:15	50-32-8	
Benzo(b)fluoranthene	<b>0.057</b>	mg/kg	0.036	0.0096	1	09/19/18 06:51	09/19/18 16:15	205-99-2	
Benzo(g,h,i)perylene	<b>0.023 I</b>	mg/kg	0.036	0.0090	1	09/19/18 06:51	09/19/18 16:15	191-24-2	
Benzo(k)fluoranthene	<b>0.025 I</b>	mg/kg	0.036	0.0096	1	09/19/18 06:51	09/19/18 16:15	207-08-9	
Chrysene	<b>0.049</b>	mg/kg	0.036	0.011	1	09/19/18 06:51	09/19/18 16:15	218-01-9	
Dibenz(a,h)anthracene	<b>0.082 U</b>	mg/kg	0.036	0.0082	1	09/19/18 06:51	09/19/18 16:15	53-70-3	
Fluoranthene	<b>0.091</b>	mg/kg	0.036	0.012	1	09/19/18 06:51	09/19/18 16:15	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 16:15	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.021 I</b>	mg/kg	0.036	0.0082	1	09/19/18 06:51	09/19/18 16:15	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/19/18 06:51	09/19/18 16:15	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.041	0.014	1	09/19/18 06:51	09/19/18 16:15	91-57-6	
Naphthalene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 16:15	91-20-3	
Phenanthrene	<b>0.058</b>	mg/kg	0.036	0.012	1	09/19/18 06:51	09/19/18 16:15	85-01-8	
Pyrene	<b>0.082</b>	mg/kg	0.036	0.011	1	09/19/18 06:51	09/19/18 16:15	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	69	%	16-123		1	09/19/18 06:51	09/19/18 16:15	4165-60-0	
2-Fluorobiphenyl (S)	78	%	32-129		1	09/19/18 06:51	09/19/18 16:15	321-60-8	
p-Terphenyl-d14 (S)	99	%	38-138		1	09/19/18 06:51	09/19/18 16:15	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>4.8</b>	%	0.10	0.10	1		09/20/18 11:15		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-166 (0-0.5)**      **Lab ID: 35418418025**      Collected: 09/18/18 12:52      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.041	0.013	1	09/19/18 06:51	09/19/18 16:40	83-32-9	
Acenaphthylene	<b>0.042</b>	mg/kg	0.038	0.012	1	09/19/18 06:51	09/19/18 16:40	208-96-8	
Anthracene	<b>0.084</b>	mg/kg	0.041	0.013	1	09/19/18 06:51	09/19/18 16:40	120-12-7	
Benzo(a)anthracene	<b>0.58</b>	mg/kg	0.038	0.011	1	09/19/18 06:51	09/19/18 16:40	56-55-3	
Benzo(a)pyrene	<b>0.61</b>	mg/kg	0.038	0.0095	1	09/19/18 06:51	09/19/18 16:40	50-32-8	
Benzo(b)fluoranthene	<b>1.0</b>	mg/kg	0.038	0.010	1	09/19/18 06:51	09/19/18 16:40	205-99-2	
Benzo(g,h,i)perylene	<b>0.34</b>	mg/kg	0.038	0.0096	1	09/19/18 06:51	09/19/18 16:40	191-24-2	
Benzo(k)fluoranthene	<b>0.37</b>	mg/kg	0.038	0.010	1	09/19/18 06:51	09/19/18 16:40	207-08-9	
Chrysene	<b>0.71</b>	mg/kg	0.038	0.012	1	09/19/18 06:51	09/19/18 16:40	218-01-9	
Dibenz(a,h)anthracene	<b>0.10</b>	mg/kg	0.038	0.0088	1	09/19/18 06:51	09/19/18 16:40	53-70-3	
Fluoranthene	<b>1.2</b>	mg/kg	0.038	0.013	1	09/19/18 06:51	09/19/18 16:40	206-44-0	
Fluorene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/19/18 06:51	09/19/18 16:40	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.34</b>	mg/kg	0.038	0.0087	1	09/19/18 06:51	09/19/18 16:40	193-39-5	
1-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.045	0.015	1	09/19/18 06:51	09/19/18 16:40	90-12-0	
2-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.044	0.015	1	09/19/18 06:51	09/19/18 16:40	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 16:40	91-20-3	
Phenanthrene	<b>0.32</b>	mg/kg	0.038	0.013	1	09/19/18 06:51	09/19/18 16:40	85-01-8	
Pyrene	<b>1.0</b>	mg/kg	0.038	0.012	1	09/19/18 06:51	09/19/18 16:40	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	48	%	16-123		1	09/19/18 06:51	09/19/18 16:40	4165-60-0	
2-Fluorobiphenyl (S)	54	%	32-129		1	09/19/18 06:51	09/19/18 16:40	321-60-8	
p-Terphenyl-d14 (S)	64	%	38-138		1	09/19/18 06:51	09/19/18 16:40	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>11.0</b>	%	0.10	0.10	1		09/20/18 11:15		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: SBA-167 (0-0.5)**      **Lab ID: 35418418026**      Collected: 09/18/18 13:20      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.041	0.013	1	09/19/18 06:51	09/19/18 17:05	83-32-9	
Acenaphthylene	<b>0.012 U</b>	mg/kg	0.039	0.012	1	09/19/18 06:51	09/19/18 17:05	208-96-8	
Anthracene	<b>0.014 U</b>	mg/kg	0.041	0.014	1	09/19/18 06:51	09/19/18 17:05	120-12-7	
Benzo(a)anthracene	<b>0.011 U</b>	mg/kg	0.039	0.011	1	09/19/18 06:51	09/19/18 17:05	56-55-3	
Benzo(a)pyrene	<b>0.011 I</b>	mg/kg	0.039	0.0095	1	09/19/18 06:51	09/19/18 17:05	50-32-8	
Benzo(b)fluoranthene	<b>0.020 I</b>	mg/kg	0.039	0.010	1	09/19/18 06:51	09/19/18 17:05	205-99-2	
Benzo(g,h,i)perylene	<b>0.012 I</b>	mg/kg	0.039	0.0096	1	09/19/18 06:51	09/19/18 17:05	191-24-2	
Benzo(k)fluoranthene	<b>0.010 U</b>	mg/kg	0.039	0.010	1	09/19/18 06:51	09/19/18 17:05	207-08-9	
Chrysene	<b>0.012 I</b>	mg/kg	0.039	0.012	1	09/19/18 06:51	09/19/18 17:05	218-01-9	
Dibenz(a,h)anthracene	<b>0.0088 U</b>	mg/kg	0.039	0.0088	1	09/19/18 06:51	09/19/18 17:05	53-70-3	
Fluoranthene	<b>0.017 I</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 17:05	206-44-0	
Fluorene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/19/18 06:51	09/19/18 17:05	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.010 I</b>	mg/kg	0.039	0.0088	1	09/19/18 06:51	09/19/18 17:05	193-39-5	
1-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.045	0.015	1	09/19/18 06:51	09/19/18 17:05	90-12-0	
2-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.044	0.015	1	09/19/18 06:51	09/19/18 17:05	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/19/18 06:51	09/19/18 17:05	91-20-3	
Phenanthrene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 17:05	85-01-8	
Pyrene	<b>0.015 I</b>	mg/kg	0.039	0.012	1	09/19/18 06:51	09/19/18 17:05	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	37	%	16-123		1	09/19/18 06:51	09/19/18 17:05	4165-60-0	
2-Fluorobiphenyl (S)	43	%	32-129		1	09/19/18 06:51	09/19/18 17:05	321-60-8	
p-Terphenyl-d14 (S)	54	%	38-138		1	09/19/18 06:51	09/19/18 17:05	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>11.2</b>	%	0.10	0.10	1		09/20/18 11:15		

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: CS-7 (0-0.5)**      **Lab ID: 35418418027**      Collected: 09/18/18 17:00      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 17:30	83-32-9	
Acenaphthylene	<b>0.057</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 17:30	208-96-8	
Anthracene	<b>0.052</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 17:30	120-12-7	
Benzo(a)anthracene	<b>0.22</b>	mg/kg	0.037	0.011	1	09/19/18 06:51	09/19/18 17:30	56-55-3	
Benzo(a)pyrene	<b>0.25</b>	mg/kg	0.037	0.0092	1	09/19/18 06:51	09/19/18 17:30	50-32-8	
Benzo(b)fluoranthene	<b>0.43</b>	mg/kg	0.037	0.0098	1	09/19/18 06:51	09/19/18 17:30	205-99-2	
Benzo(g,h,i)perylene	<b>0.14</b>	mg/kg	0.037	0.0093	1	09/19/18 06:51	09/19/18 17:30	191-24-2	
Benzo(k)fluoranthene	<b>0.15</b>	mg/kg	0.037	0.0099	1	09/19/18 06:51	09/19/18 17:30	207-08-9	
Chrysene	<b>0.24</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 17:30	218-01-9	
Dibenz(a,h)anthracene	<b>0.032 I</b>	mg/kg	0.037	0.0085	1	09/19/18 06:51	09/19/18 17:30	53-70-3	
Fluoranthene	<b>0.34</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 17:30	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/19/18 06:51	09/19/18 17:30	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.13</b>	mg/kg	0.037	0.0084	1	09/19/18 06:51	09/19/18 17:30	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.044	0.014	1	09/19/18 06:51	09/19/18 17:30	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.043	0.014	1	09/19/18 06:51	09/19/18 17:30	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.038	0.013	1	09/19/18 06:51	09/19/18 17:30	91-20-3	
Phenanthrene	<b>0.092</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 17:30	85-01-8	
Pyrene	<b>0.36</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 17:30	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	59	%	16-123		1	09/19/18 06:51	09/19/18 17:30	4165-60-0	
2-Fluorobiphenyl (S)	66	%	32-129		1	09/19/18 06:51	09/19/18 17:30	321-60-8	
p-Terphenyl-d14 (S)	76	%	38-138		1	09/19/18 06:51	09/19/18 17:30	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>7.2</b>	%	0.10	0.10	1		09/20/18 11:15		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: CS-7 (0.5-2)**      **Lab ID: 35418418028**      Collected: 09/18/18 17:00      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 17:55	83-32-9	
Acenaphthylene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 17:55	208-96-8	
Anthracene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/19/18 06:51	09/19/18 17:55	120-12-7	
Benzo(a)anthracene	<b>0.030 I</b>	mg/kg	0.037	0.011	1	09/19/18 06:51	09/19/18 17:55	56-55-3	
Benzo(a)pyrene	<b>0.031 I</b>	mg/kg	0.037	0.0091	1	09/19/18 06:51	09/19/18 17:55	50-32-8	
Benzo(b)fluoranthene	<b>0.050</b>	mg/kg	0.037	0.0098	1	09/19/18 06:51	09/19/18 17:55	205-99-2	
Benzo(g,h,i)perylene	<b>0.019 I</b>	mg/kg	0.037	0.0093	1	09/19/18 06:51	09/19/18 17:55	191-24-2	
Benzo(k)fluoranthene	<b>0.021 I</b>	mg/kg	0.037	0.0099	1	09/19/18 06:51	09/19/18 17:55	207-08-9	
Chrysene	<b>0.041</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 17:55	218-01-9	
Dibenz(a,h)anthracene	<b>0.0085 U</b>	mg/kg	0.037	0.0085	1	09/19/18 06:51	09/19/18 17:55	53-70-3	
Fluoranthene	<b>0.066</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 17:55	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/19/18 06:51	09/19/18 17:55	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.018 I</b>	mg/kg	0.037	0.0084	1	09/19/18 06:51	09/19/18 17:55	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.044	0.014	1	09/19/18 06:51	09/19/18 17:55	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/19/18 06:51	09/19/18 17:55	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.038	0.013	1	09/19/18 06:51	09/19/18 17:55	91-20-3	
Phenanthrene	<b>0.025 I</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 17:55	85-01-8	
Pyrene	<b>0.062</b>	mg/kg	0.037	0.012	1	09/19/18 06:51	09/19/18 17:55	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	51	%	16-123		1	09/19/18 06:51	09/19/18 17:55	4165-60-0	
2-Fluorobiphenyl (S)	56	%	32-129		1	09/19/18 06:51	09/19/18 17:55	321-60-8	
p-Terphenyl-d14 (S)	78	%	38-138		1	09/19/18 06:51	09/19/18 17:55	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>8.0</b>	%	0.10	0.10	1		09/20/18 11:15		

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## ANALYTICAL RESULTS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

**Sample: CS-6 (0-0.5)**      **Lab ID: 35418418029**      Collected: 09/18/18 17:00      Received: 09/18/18 17:45      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.026 U</b>	mg/kg	0.080	0.026	2	09/19/18 06:51	09/19/18 18:20	83-32-9	
Acenaphthylene	<b>0.023 U</b>	mg/kg	0.075	0.023	2	09/19/18 06:51	09/19/18 18:20	208-96-8	
Anthracene	<b>0.027 U</b>	mg/kg	0.080	0.027	2	09/19/18 06:51	09/19/18 18:20	120-12-7	
Benzo(a)anthracene	<b>0.046 I</b>	mg/kg	0.075	0.021	2	09/19/18 06:51	09/19/18 18:20	56-55-3	
Benzo(a)pyrene	<b>0.055 I</b>	mg/kg	0.075	0.019	2	09/19/18 06:51	09/19/18 18:20	50-32-8	
Benzo(b)fluoranthene	<b>0.10</b>	mg/kg	0.075	0.020	2	09/19/18 06:51	09/19/18 18:20	205-99-2	
Benzo(g,h,i)perylene	<b>0.044 I</b>	mg/kg	0.075	0.019	2	09/19/18 06:51	09/19/18 18:20	191-24-2	
Benzo(k)fluoranthene	<b>0.039 I</b>	mg/kg	0.075	0.020	2	09/19/18 06:51	09/19/18 18:20	207-08-9	
Chrysene	<b>0.059 I</b>	mg/kg	0.075	0.024	2	09/19/18 06:51	09/19/18 18:20	218-01-9	
Dibenz(a,h)anthracene	<b>0.017 U</b>	mg/kg	0.075	0.017	2	09/19/18 06:51	09/19/18 18:20	53-70-3	
Fluoranthene	<b>0.064 I</b>	mg/kg	0.075	0.025	2	09/19/18 06:51	09/19/18 18:20	206-44-0	
Fluorene	<b>0.027 U</b>	mg/kg	0.082	0.027	2	09/19/18 06:51	09/19/18 18:20	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.036 I</b>	mg/kg	0.075	0.017	2	09/19/18 06:51	09/19/18 18:20	193-39-5	
1-Methylnaphthalene	<b>0.029 U</b>	mg/kg	0.089	0.029	2	09/19/18 06:51	09/19/18 18:20	90-12-0	
2-Methylnaphthalene	<b>0.029 U</b>	mg/kg	0.086	0.029	2	09/19/18 06:51	09/19/18 18:20	91-57-6	
Naphthalene	<b>0.026 U</b>	mg/kg	0.078	0.026	2	09/19/18 06:51	09/19/18 18:20	91-20-3	
Phenanthrene	<b>0.025 U</b>	mg/kg	0.075	0.025	2	09/19/18 06:51	09/19/18 18:20	85-01-8	
Pyrene	<b>0.078</b>	mg/kg	0.075	0.024	2	09/19/18 06:51	09/19/18 18:20	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	48	%	16-123		2	09/19/18 06:51	09/19/18 18:20	4165-60-0	
2-Fluorobiphenyl (S)	57	%	32-129		2	09/19/18 06:51	09/19/18 18:20	321-60-8	
p-Terphenyl-d14 (S)	71	%	38-138		2	09/19/18 06:51	09/19/18 18:20	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>9.7</b>	%	0.10	0.10	1		09/20/18 11:16		

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 09217186.02 Task 2/Ludlam  
Pace Project No.: 35418418

QC Batch: 478533 Analysis Method: EPA 8270  
QC Batch Method: EPA 3546 Analysis Description: 8270 Solid MSSV Microwave Short Spike  
Associated Lab Samples: 35418418001, 35418418002, 35418418003, 35418418019, 35418418020, 35418418021, 35418418022, 35418418023, 35418418024, 35418418025, 35418418026, 35418418027, 35418418028, 35418418029

METHOD BLANK: 2591952 Matrix: Solid  
Associated Lab Samples: 35418418001, 35418418002, 35418418003, 35418418019, 35418418020, 35418418021, 35418418022, 35418418023, 35418418024, 35418418025, 35418418026, 35418418027, 35418418028, 35418418029

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1-Methylnaphthalene	mg/kg	0.013 U	0.040	0.013	09/19/18 11:15	
2-Methylnaphthalene	mg/kg	0.013 U	0.039	0.013	09/19/18 11:15	
Acenaphthene	mg/kg	0.012 U	0.036	0.012	09/19/18 11:15	
Acenaphthylene	mg/kg	0.011 U	0.034	0.011	09/19/18 11:15	
Anthracene	mg/kg	0.012 U	0.036	0.012	09/19/18 11:15	
Benzo(a)anthracene	mg/kg	0.0097 U	0.034	0.0097	09/19/18 11:15	
Benzo(a)pyrene	mg/kg	0.0084 U	0.034	0.0084	09/19/18 11:15	
Benzo(b)fluoranthene	mg/kg	0.0091 U	0.034	0.0091	09/19/18 11:15	
Benzo(g,h,i)perylene	mg/kg	0.0085 U	0.034	0.0085	09/19/18 11:15	
Benzo(k)fluoranthene	mg/kg	0.0091 U	0.034	0.0091	09/19/18 11:15	
Chrysene	mg/kg	0.011 U	0.034	0.011	09/19/18 11:15	
Dibenz(a,h)anthracene	mg/kg	0.0078 U	0.034	0.0078	09/19/18 11:15	
Fluoranthene	mg/kg	0.011 U	0.034	0.011	09/19/18 11:15	
Fluorene	mg/kg	0.012 U	0.037	0.012	09/19/18 11:15	
Indeno(1,2,3-cd)pyrene	mg/kg	0.0078 U	0.034	0.0078	09/19/18 11:15	
Naphthalene	mg/kg	0.012 U	0.035	0.012	09/19/18 11:15	
Phenanthrene	mg/kg	0.011 U	0.034	0.011	09/19/18 11:15	
Pyrene	mg/kg	0.011 U	0.034	0.011	09/19/18 11:15	
2-Fluorobiphenyl (S)	%	85	32-129		09/19/18 11:15	
Nitrobenzene-d5 (S)	%	84	16-123		09/19/18 11:15	
p-Terphenyl-d14 (S)	%	89	38-138		09/19/18 11:15	

LABORATORY CONTROL SAMPLE: 2591953

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	mg/kg	1.7	1.6	96	27-123	
2-Methylnaphthalene	mg/kg	1.7	1.6	96	16-137	
Acenaphthene	mg/kg	1.7	1.7	105	37-120	
Acenaphthylene	mg/kg	1.7	1.8	108	41-120	
Anthracene	mg/kg	1.7	1.8	108	45-120	
Benzo(a)anthracene	mg/kg	1.7	1.9	112	44-120	
Benzo(a)pyrene	mg/kg	1.7	1.8	109	44-123	
Benzo(b)fluoranthene	mg/kg	1.7	1.9	112	37-124	
Benzo(g,h,i)perylene	mg/kg	1.7	1.7	105	42-125	
Benzo(k)fluoranthene	mg/kg	1.7	1.9	117	44-126	
Chrysene	mg/kg	1.7	1.9	112	45-120	
Dibenz(a,h)anthracene	mg/kg	1.7	1.8	106	43-124	
Fluoranthene	mg/kg	1.7	1.8	111	45-120	

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### QUALITY CONTROL DATA

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

LABORATORY CONTROL SAMPLE: 2591953

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluorene	mg/kg	1.7	1.8	107	42-120	
Indeno(1,2,3-cd)pyrene	mg/kg	1.7	1.8	107	43-123	
Naphthalene	mg/kg	1.7	1.6	98	40-120	
Phenanthrene	mg/kg	1.7	1.9	112	36-125	
Pyrene	mg/kg	1.7	1.9	113	41-123	
2-Fluorobiphenyl (S)	%			85	32-129	
Nitrobenzene-d5 (S)	%			81	16-123	
p-Terphenyl-d14 (S)	%			94	38-138	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2591956 2591957

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		35417638001 Result	Spike Conc.	Spike Conc.	MS Result							
1-Methylnaphthalene	mg/kg	0.38	1.9	1.9	1.9	1.9	1.7	80	72	27-123	9	40
2-Methylnaphthalene	mg/kg	0.69	1.9	1.9	2.2	2.2	2.2	84	80	16-137	3	40
Acenaphthene	mg/kg	0.013 U	1.9	1.9	1.5	1.2	1.2	81	65	37-120	22	40
Acenaphthylene	mg/kg	0.012 U	1.9	1.9	1.5	1.3	1.3	83	69	41-120	19	40
Anthracene	mg/kg	0.013 U	1.9	1.9	1.5	1.3	1.3	80	71	45-120	13	40
Benzo(a)anthracene	mg/kg	0.011 U	1.9	1.9	1.5	1.3	1.3	81	71	44-120	13	40
Benzo(a)pyrene	mg/kg	0.0093 U	1.9	1.9	1.4	1.3	1.3	77	69	44-123	12	40
Benzo(b)fluoranthene	mg/kg	0.010 U	1.9	1.9	1.5	1.3	1.3	79	68	37-124	15	40
Benzo(g,h,i)perylene	mg/kg	0.0094 U	1.9	1.9	1.5	1.3	1.3	82	68	42-125	19	40
Benzo(k)fluoranthene	mg/kg	0.010 U	1.9	1.9	1.6	1.3	1.3	84	70	44-126	17	40
Chrysene	mg/kg	0.012 U	1.9	1.9	1.5	1.3	1.3	83	72	45-120	14	40
Dibenz(a,h)anthracene	mg/kg	0.0086 U	1.9	1.9	1.5	1.3	1.3	82	69	43-124	18	40
Fluoranthene	mg/kg	0.012 U	1.9	1.9	1.5	1.4	1.4	83	73	45-120	13	40
Fluorene	mg/kg	0.013 U	1.9	1.9	1.5	1.2	1.2	82	67	42-120	21	40
Indeno(1,2,3-cd)pyrene	mg/kg	0.0086 U	1.9	1.9	1.5	1.3	1.3	83	70	43-123	16	40
Naphthalene	mg/kg	0.59	1.9	1.9	2.1	2.1	2.1	82	79	40-120	3	40
Phenanthrene	mg/kg	0.012 U	1.9	1.9	1.5	1.3	1.3	83	70	36-125	16	40
Pyrene	mg/kg	0.012 U	1.9	1.9	1.5	1.3	1.3	82	69	41-123	17	40
2-Fluorobiphenyl (S)	%							66	60	32-129		
Nitrobenzene-d5 (S)	%							66	60	16-123		
p-Terphenyl-d14 (S)	%							68	63	38-138		

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### QUALITY CONTROL DATA

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

QC Batch: 479264 Analysis Method: EPA 8270  
QC Batch Method: EPA 3546 Analysis Description: 8270 Solid MSSV Microwave Short Spike  
Associated Lab Samples: 35418418004, 35418418006, 35418418008, 35418418010, 35418418012

METHOD BLANK: 2595781 Matrix: Solid  
Associated Lab Samples: 35418418004, 35418418006, 35418418008, 35418418010, 35418418012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1-Methylnaphthalene	mg/kg	0.013 U	0.040	0.013	09/21/18 09:37	
2-Methylnaphthalene	mg/kg	0.013 U	0.039	0.013	09/21/18 09:37	
Acenaphthene	mg/kg	0.012 U	0.036	0.012	09/21/18 09:37	
Acenaphthylene	mg/kg	0.011 U	0.034	0.011	09/21/18 09:37	
Anthracene	mg/kg	0.012 U	0.036	0.012	09/21/18 09:37	
Benzo(a)anthracene	mg/kg	0.0098 U	0.034	0.0098	09/21/18 09:37	
Benzo(a)pyrene	mg/kg	0.0085 U	0.034	0.0085	09/21/18 09:37	
Benzo(b)fluoranthene	mg/kg	0.0091 U	0.034	0.0091	09/21/18 09:37	
Benzo(g,h,i)perylene	mg/kg	0.0086 U	0.034	0.0086	09/21/18 09:37	
Benzo(k)fluoranthene	mg/kg	0.0091 U	0.034	0.0091	09/21/18 09:37	
Chrysene	mg/kg	0.011 U	0.034	0.011	09/21/18 09:37	
Dibenz(a,h)anthracene	mg/kg	0.0079 U	0.034	0.0079	09/21/18 09:37	
Fluoranthene	mg/kg	0.011 U	0.034	0.011	09/21/18 09:37	
Fluorene	mg/kg	0.012 U	0.037	0.012	09/21/18 09:37	
Indeno(1,2,3-cd)pyrene	mg/kg	0.0078 U	0.034	0.0078	09/21/18 09:37	
Naphthalene	mg/kg	0.012 U	0.035	0.012	09/21/18 09:37	
Phenanthrene	mg/kg	0.011 U	0.034	0.011	09/21/18 09:37	
Pyrene	mg/kg	0.011 U	0.034	0.011	09/21/18 09:37	
2-Fluorobiphenyl (S)	%	68	32-129		09/21/18 09:37	
Nitrobenzene-d5 (S)	%	67	16-123		09/21/18 09:37	
p-Terphenyl-d14 (S)	%	52	38-138		09/21/18 09:37	

LABORATORY CONTROL SAMPLE: 2595782

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	mg/kg	1.7	1.2	71	27-123	
2-Methylnaphthalene	mg/kg	1.7	1.2	71	16-137	
Acenaphthene	mg/kg	1.7	1.2	69	37-120	
Acenaphthylene	mg/kg	1.7	1.2	69	41-120	
Anthracene	mg/kg	1.7	1.2	72	45-120	
Benzo(a)anthracene	mg/kg	1.7	1.3	75	44-120	
Benzo(a)pyrene	mg/kg	1.7	1.3	75	44-123	
Benzo(b)fluoranthene	mg/kg	1.7	1.4	81	37-124	
Benzo(g,h,i)perylene	mg/kg	1.7	1.3	78	42-125	
Benzo(k)fluoranthene	mg/kg	1.7	1.3	75	44-126	
Chrysene	mg/kg	1.7	1.2	72	45-120	
Dibenz(a,h)anthracene	mg/kg	1.7	1.3	76	43-124	
Fluoranthene	mg/kg	1.7	1.3	80	45-120	
Fluorene	mg/kg	1.7	1.2	72	42-120	
Indeno(1,2,3-cd)pyrene	mg/kg	1.7	1.3	78	43-123	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

LABORATORY CONTROL SAMPLE: 2595782

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	mg/kg	1.7	1.1	68	40-120	
Phenanthrene	mg/kg	1.7	1.2	73	36-125	
Pyrene	mg/kg	1.7	1.3	80	41-123	
2-Fluorobiphenyl (S)	%			73	32-129	
Nitrobenzene-d5 (S)	%			70	16-123	
p-Terphenyl-d14 (S)	%			56	38-138	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2595785 2595786

Parameter	Units	35417371002		2595785		2595786		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
1-Methylnaphthalene	mg/kg	0.015 U	1.9	1.9	0.98	1.1	53	58	27-123	7	40			
2-Methylnaphthalene	mg/kg	0.014 U	1.9	1.9	0.98	1.0	53	57	16-137	6	40			
Acenaphthene	mg/kg	0.013 U	1.9	1.9	0.95	1.0	52	55	37-120	6	40			
Acenaphthylene	mg/kg	0.012 U	1.9	1.9	0.94	1.0	51	55	41-120	7	40			
Anthracene	mg/kg	0.013 U	1.9	1.9	0.99	1.0	54	57	45-120	5	40			
Benzo(a)anthracene	mg/kg	0.011 U	1.9	1.9	1.0	1.0	55	57	44-120	2	40			
Benzo(a)pyrene	mg/kg	0.0092 U	1.9	1.9	1.0	1.0	56	56	44-123	0	40			
Benzo(b)fluoranthene	mg/kg	0.0099 U	1.9	1.9	1.1	1.1	58	58	37-124	1	40			
Benzo(g,h,i)perylene	mg/kg	0.0093 U	1.9	1.9	1.1	1.1	59	60	42-125	0	40			
Benzo(k)fluoranthene	mg/kg	0.0099 U	1.9	1.9	1.1	1.1	59	60	44-126	1	40			
Chrysene	mg/kg	0.012 U	1.9	1.9	0.96	0.99	52	54	45-120	3	40			
Dibenz(a,h)anthracene	mg/kg	0.0085 U	1.9	1.9	1.1	1.1	59	59	43-124	0	40			
Fluoranthene	mg/kg	0.012 U	1.9	1.9	1.1	1.1	59	60	45-120	2	40			
Fluorene	mg/kg	0.013 U	1.9	1.9	0.99	1.0	54	57	42-120	5	40			
Indeno(1,2,3-cd)pyrene	mg/kg	0.0085 U	1.9	1.9	1.1	1.1	59	60	43-123	0	40			
Naphthalene	mg/kg	0.013 U	1.9	1.9	0.94	1.0	51	55	40-120	6	40			
Phenanthrene	mg/kg	0.012 U	1.9	1.9	1.0	1.0	54	57	36-125	3	40			
Pyrene	mg/kg	0.012 U	1.9	1.9	1.1	1.1	59	62	41-123	3	40			
2-Fluorobiphenyl (S)	%						55	59	32-129					
Nitrobenzene-d5 (S)	%						51	55	16-123					
p-Terphenyl-d14 (S)	%						41	42	38-138					

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

QC Batch: 479014

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 35418418001, 35418418002, 35418418003, 35418418019, 35418418020, 35418418021, 35418418022, 35418418023, 35418418024, 35418418025, 35418418026, 35418418027, 35418418028, 35418418029

SAMPLE DUPLICATE: 2594478

Parameter	Units	35416941001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	10.8	10.5	3	5	

SAMPLE DUPLICATE: 2594479

Parameter	Units	35417203001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	84.6	83.0	2	5	

SAMPLE DUPLICATE: 2594480

Parameter	Units	35417209008 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	12.7	13.6	7	5	J(D6)

SAMPLE DUPLICATE: 2594481

Parameter	Units	35417798006 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	4.7	7.7	48	5	J(D6)

SAMPLE DUPLICATE: 2594482

Parameter	Units	35418418021 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	2.6	2.5	3	5	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

QC Batch: 479340

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 35418418004, 35418418006, 35418418008, 35418418010, 35418418012

SAMPLE DUPLICATE: 2596223

Parameter	Units	35397083005 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	23.0	21.5	7	5	J(D6), Q

SAMPLE DUPLICATE: 2596224

Parameter	Units	35418925005 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	5.7	5.6	1	5	

SAMPLE DUPLICATE: 2596225

Parameter	Units	35418925014 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	9.1	9.1	0	5	

SAMPLE DUPLICATE: 2596226

Parameter	Units	35418925023 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.4	8.0	4	5	

SAMPLE DUPLICATE: 2596227

Parameter	Units	35418925032 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	12.5	10.9	14	5	J(D6)

SAMPLE DUPLICATE: 2596228

Parameter	Units	35419017002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	24.2	25.2	4	5	

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

### ANALYTE QUALIFIERS

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

U Compound was analyzed for but not detected.

1p Due to the extract's physical characteristics, the analysis was performed at dilution.

J(D6) Estimated Value. The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

J(S5) Estimated Value. Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

Q Sample held beyond the accepted holding time.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 09217186.02 Task 2/Ludlam

Pace Project No.: 35418418

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35418418001	SBA-150 (0.5-2)	EPA 3546	478533	EPA 8270	478620
35418418002	SBA-151 (0-0.5)	EPA 3546	478533	EPA 8270	478620
35418418003	SBA-152 (0.5-2)	EPA 3546	478533	EPA 8270	478620
35418418004	SBA-153 (0-0.5)	EPA 3546	479264	EPA 8270	479318
35418418006	SBA-154 (0-0.5)	EPA 3546	479264	EPA 8270	479318
35418418008	SBA-155 (0-0.5)	EPA 3546	479264	EPA 8270	479318
35418418010	SBA-156 (0-0.5)	EPA 3546	479264	EPA 8270	479318
35418418012	SBA-157 (0-0.5)	EPA 3546	479264	EPA 8270	479318
35418418019	SBA-163 (0-0.5)	EPA 3546	478533	EPA 8270	478620
35418418020	SBA-163 (0.5-1)	EPA 3546	478533	EPA 8270	478620
35418418021	SBA-164 (0-0.5)	EPA 3546	478533	EPA 8270	478620
35418418022	SBA-164 (0.5-1)	EPA 3546	478533	EPA 8270	478620
35418418023	SBA-165 (0-0.5)	EPA 3546	478533	EPA 8270	478620
35418418024	SBA-165 (0.5-1)	EPA 3546	478533	EPA 8270	478620
35418418025	SBA-166 (0-0.5)	EPA 3546	478533	EPA 8270	478620
35418418026	SBA-167 (0-0.5)	EPA 3546	478533	EPA 8270	478620
35418418027	CS-7 (0-0.5)	EPA 3546	478533	EPA 8270	478620
35418418028	CS-7 (0.5-2)	EPA 3546	478533	EPA 8270	478620
35418418029	CS-6 (0-0.5)	EPA 3546	478533	EPA 8270	478620
35418418001	SBA-150 (0.5-2)	ASTM D2974-87	479014		
35418418002	SBA-151 (0-0.5)	ASTM D2974-87	479014		
35418418003	SBA-152 (0.5-2)	ASTM D2974-87	479014		
35418418004	SBA-153 (0-0.5)	ASTM D2974-87	479340		
35418418006	SBA-154 (0-0.5)	ASTM D2974-87	479340		
35418418008	SBA-155 (0-0.5)	ASTM D2974-87	479340		
35418418010	SBA-156 (0-0.5)	ASTM D2974-87	479340		
35418418012	SBA-157 (0-0.5)	ASTM D2974-87	479340		
35418418019	SBA-163 (0-0.5)	ASTM D2974-87	479014		
35418418020	SBA-163 (0.5-1)	ASTM D2974-87	479014		
35418418021	SBA-164 (0-0.5)	ASTM D2974-87	479014		
35418418022	SBA-164 (0.5-1)	ASTM D2974-87	479014		
35418418023	SBA-165 (0-0.5)	ASTM D2974-87	479014		
35418418024	SBA-165 (0.5-1)	ASTM D2974-87	479014		
35418418025	SBA-166 (0-0.5)	ASTM D2974-87	479014		
35418418026	SBA-167 (0-0.5)	ASTM D2974-87	479014		
35418418027	CS-7 (0-0.5)	ASTM D2974-87	479014		
35418418028	CS-7 (0.5-2)	ASTM D2974-87	479014		
35418418029	CS-6 (0-0.5)	ASTM D2974-87	479014		

### REPORT OF LABORATORY ANALYSIS

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**W0# : 35418418**

**Analytical Request Document**

NT. All relevant fields must be completed accurately.

**Section A**  
Required Client Information:  
Company: SCS Engineers  
Address: 7700 N Kendall Drive Suite 300  
Miami, FL, 33156  
Email To: fzhang@scsengineers.com  
Phone: 786-792-5364  
Fax:

**Section B**  
Required Project Information:  
Report To: Fangmei Zhang  
Copy To:  
Purchase Order No.:  
Project Name: Ludlum  
Project Number: 09217186.02 Task 12

Attention:  
Company Name:  
Address:  
Page Quote Reference:  
Pace Project Manager:  
Page Profile #:

ITEM #	Required Client Information	Valid Matrix Codes	CODE	MATRIX CODE	SAMPLE TYPE	COMPOSITE START DATE	COMPOSITE END DATE	COLLECTED DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	UNPRESERVED	PRESERVATIVES	OTHER	REGULATORY AGENCY	PAHS	Residual Chlorine (Y/N)	Pace Project Number Lab ID.
1	SBA-150(0.5-2)		SL G		G+GRAB	9/18/2018	0850	9/18/2018	0850		1	X						
2	SBA-151(0-0.5)		SL G		G	9/18/2018	0900	9/18/2018	0900		1	X						
3	SBA-152(0.5-2)		SL G		G	9/18/2018	0915	9/18/2018	0915		1	X						
4	SBA-153(0-0.5)		SL G		G	9/18/2018	0930	9/18/2018	0930		1	X						
5	SBA-153(0.5-2)		SL G		G	9/18/2018	0935	9/18/2018	0935		1	X						
6	SBA-154(0-0.5)		SL G		G	9/18/2018	0940	9/18/2018	0940		1	X						
7	SBA-154(0.5-2)		SL G		G	9/18/2018	0945	9/18/2018	0945		1	X						
8	SBA-155(0-0.5)		SL G		G	9/18/2018	0950	9/18/2018	0950		1	X						
9	SBA-155(0.5-2)		SL G		G	9/18/2018	0952	9/18/2018	0952		1	X						
10	SBA-156(0-0.5)		SL G		G	9/18/2018	0955	9/18/2018	0955		1	X						
11	SBA-156(0.5-2)		SL G		G	9/18/2018	0958	9/18/2018	0958		1	X						
12	SBA-157(0-0.5)		SL G		G	9/18/2018	1003	9/18/2018	1003		1	X						

Additional Comments:

\* Lab reported as CS-7(0-0.5) and (0.5-2), HOLD discrete SBA 153-157

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
<i>[Signature]</i>	9/18/18	1330	<i>[Signature]</i>	9/18/18	1345	Temp in °C Received on Ice Custody Sealed Cooler Samples Intact

**SAMPLER NAME AND SIGNATURE**  
PRINT Name of SAMPLER: *[Signature]*  
SIGNATURE of SAMPLER: *[Signature]*  
DATE Signed (MM/DD/YY): 9/18/18







Document Name:  
Sample Condition Upon Receipt Form  
Document No.:  
F-FL-C-007 rev. 13

Document Revised:  
May 30, 2018  
Issuing Authority:  
Pace Florida Quality Office

**WO# : 35418418**

**(SCUR)**

**Project #** PM: CTR **Due Date:** 09/20/18  
**Project Manager:** CLIENT: 36-ESCON  
**Client:**

**Date and Initials of person:**  
**Examining contents:**  
**Label:** \_\_\_\_\_  
**Deliver:** DMF  
**pH:** \_\_\_\_\_

**Thermometer Used:** T-330 **Date:** 9/18/18 **Time:** 1745 **Initials:** DMF

**State of Origin:** FL  For WV projects, all containers verified to ≤6 °C

<b>Cooler #1 Temp. °C</b> <u>11.3</u> (Visual) <u>0.0</u> (Correction Factor) <u>11.3</u> (Actual) <input checked="" type="checkbox"/> Samples on ice, cooling process has begun
<b>Cooler #2 Temp. °C</b> _____ (Visual) _____ (Correction Factor) _____ (Actual) <input type="checkbox"/> Samples on ice, cooling process has begun
<b>Cooler #3 Temp. °C</b> _____ (Visual) _____ (Correction Factor) _____ (Actual) <input type="checkbox"/> Samples on ice, cooling process has begun
<b>Cooler #4 Temp. °C</b> _____ (Visual) _____ (Correction Factor) _____ (Actual) <input type="checkbox"/> Samples on ice, cooling process has begun
<b>Cooler #5 Temp. °C</b> _____ (Visual) _____ (Correction Factor) _____ (Actual) <input type="checkbox"/> Samples on ice, cooling process has begun
<b>Cooler #6 Temp. °C</b> _____ (Visual) _____ (Correction Factor) _____ (Actual) <input type="checkbox"/> Samples on ice, cooling process has begun

**Courier:**  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other \_\_\_\_\_  
**Shipping Method:**  First Overnight  Priority Overnight  Standard Overnight  Ground  International Priority  
 Other \_\_\_\_\_  
**Billing:**  Recipient  Sender  Third Party  Credit Card  Unknown

**Tracking #** \_\_\_\_\_

**Custody Seal on Cooler/Box Present:**  Yes  No **Seals intact:**  Yes  No **Ice:** Wet Blue Dry None

**Packing Material:**  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

**Samples shorted to lab (If Yes, complete)** Shorted Date: NA Shorted Time: NA Qty: NA

**Comments:**

Chain of Custody Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody Filled Out	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Relinquished Signature & Sampler Name COC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples Arrived within Hold Time	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush TAT requested on COC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>24 TAT</u>
Sufficient Volume	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct Containers Used	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Sample Labels match COC (sample IDs & date/time of collection)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
All containers needing acid/base preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Preservation Information:</b> Preservative: _____ Lot #/Trace #: _____ Date: _____ Time: _____ Initials: _____
All Containers needing preservation are found to be in compliance with EPA recommendation: Exceptions: VOA, Coliform, TOC, O&G, Carbamates	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA Vials? (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

**Client Notification/ Resolution:**  
**Person Contacted:** \_\_\_\_\_ **Date/Time:** \_\_\_\_\_

**Comments/ Resolution (use back for additional comments):**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Project Manager Review:** \_\_\_\_\_ **Date:** \_\_\_\_\_

September 21, 2018

Fangmei Zhang  
SCS ES Consultants, Inc.  
7700 N. Kendall Dr.  
Suite #607  
Miami, FL 33156

RE: Project: 09217185.02 Task 3/Ludlam  
Pace Project No.: 35418596

Dear Fangmei Zhang:

Enclosed are the analytical results for sample(s) received by the laboratory on September 19, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Christina Raschke  
christina.raschke@pacelabs.com  
(954)582-4300  
Project Manager

Enclosures

cc: Karinne Bedosky, SCS Engineers  
Alexis Nielsen, SCS Engineers  
Anthony Pezzotti, SCS ES Consultants



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

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### Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174

Alabama Certification #: 41320

Connecticut Certification #: PH-0216

Florida Certification #: E83079

Georgia Certification #: 955

Guam Certification: FL NELAC Reciprocity

Hawaii Certification: FL NELAC Reciprocity

Illinois Certification #: 200068

Indiana Certification: FL NELAC Reciprocity

Kansas Certification #: E-10383

Kentucky Certification #: 90050

Louisiana Certification #: FL NELAC Reciprocity

Louisiana Environmental Certificate #: 05007

Maryland Certification: #346

Michigan Certification #: 9911

Mississippi Certification: FL NELAC Reciprocity

Missouri Certification #: 236

Montana Certification #: Cert 0074

Nebraska Certification: NE-OS-28-14

Nevada Certification: FL NELAC Reciprocity

New Hampshire Certification #: 2958

New Jersey Certification #: FL022

New York Certification #: 11608

North Carolina Environmental Certificate #: 667

North Carolina Certification #: 12710

North Dakota Certification #: R-216

Oklahoma Certification #: D9947

Pennsylvania Certification #: 68-00547

Puerto Rico Certification #: FL01264

South Carolina Certification: #96042001

Tennessee Certification #: TN02974

Texas Certification: FL NELAC Reciprocity

US Virgin Islands Certification: FL NELAC Reciprocity

Virginia Environmental Certification #: 460165

Wyoming Certification: FL NELAC Reciprocity

West Virginia Certification #: 9962C

Wisconsin Certification #: 399079670

Wyoming (EPA Region 8): FL NELAC Reciprocity

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## SAMPLE SUMMARY

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35418596001	SBA 168 (0-0.5)	Solid	09/18/18 15:25	09/19/18 17:35
35418596002	SBA 169 (0-0.5)	Solid	09/18/18 15:35	09/19/18 17:35
35418596003	SBA 20B (0-0.5)	Solid	09/18/18 14:50	09/19/18 17:35
35418596004	SBA 20B (0.5-1)	Solid	09/18/18 14:52	09/19/18 17:35
35418596005	SBA 20A (0-0.5)	Solid	09/18/18 14:55	09/19/18 17:35
35418596006	SBA 20A (0.5-1)	Solid	09/18/18 15:00	09/19/18 17:35
35418596007	SBA 139B (0-0.5)	Solid	09/18/18 14:05	09/19/18 17:35
35418596008	SBA 139A (0-0.5)	Solid	09/18/18 14:10	09/19/18 17:35
35418596009	SBA-170 (0-0.5)	Solid	09/18/18 15:45	09/19/18 17:30

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### SAMPLE ANALYTE COUNT

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35418596001	SBA 168 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418596002	SBA 169 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418596003	SBA 20B (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418596004	SBA 20B (0.5-1)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418596005	SBA 20A (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418596006	SBA 20A (0.5-1)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418596007	SBA 139B (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418596008	SBA 139A (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O
35418596009	SBA-170 (0-0.5)	EPA 8270	CB1	21	PASI-O
		ASTM D2974-87	RAK	1	PASI-O

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

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**Method:** EPA 8270

**Description:** 8270 MSSV Short List Microwave

**Client:** SCS Engineers

**Date:** September 21, 2018

### General Information:

9 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

QC Batch: 478992

P1: Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

- SBA 139B (0-0.5) (Lab ID: 35418596007)

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 478992

J(S0): Estimated Value. Surrogate recovery outside laboratory control limits.

- MSD (Lab ID: 2594474)
  - 2-Fluorobiphenyl (S)
  - Nitrobenzene-d5 (S)
  - p-Terphenyl-d14 (S)

QC Batch: 479264

J(S0): Estimated Value. Surrogate recovery outside laboratory control limits.

- SBA 20A (0.5-1) (Lab ID: 35418596006)
  - p-Terphenyl-d14 (S)
- SBA 20B (0-0.5) (Lab ID: 35418596003)
  - p-Terphenyl-d14 (S)

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 09217185.02 Task 3/Ludlam  
Pace Project No.: 35418596

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**Method:** EPA 8270  
**Description:** 8270 MSSV Short List Microwave  
**Client:** SCS Engineers  
**Date:** September 21, 2018

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 478992

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 35417575022

J(M1): Estimated Value. Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 2594474)
  - 1-Methylnaphthalene
  - 2-Methylnaphthalene
  - Acenaphthene
  - Acenaphthylene
  - Fluorene
  - Naphthalene

J(R1): Estimated Value. RPD value was outside control limits.

- MSD (Lab ID: 2594474)
  - 1-Methylnaphthalene
  - 2-Methylnaphthalene
  - Acenaphthene
  - Acenaphthylene
  - Anthracene
  - Benzo(a)anthracene
  - Benzo(a)pyrene
  - Benzo(b)fluoranthene
  - Benzo(g,h,i)perylene
  - Benzo(k)fluoranthene
  - Dibenz(a,h)anthracene
  - Fluoranthene
  - Fluorene
  - Indeno(1,2,3-cd)pyrene
  - Naphthalene
  - Phenanthrene
  - Pyrene

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

**Sample: SBA 168 (0-0.5)**      **Lab ID: 35418596001**      Collected: 09/18/18 15:25      Received: 09/19/18 17:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/21/18 03:05	09/21/18 11:56	83-32-9	
Acenaphthylene	<b>0.012 U</b>	mg/kg	0.040	0.012	1	09/21/18 03:05	09/21/18 11:56	208-96-8	
Anthracene	<b>0.020 I</b>	mg/kg	0.042	0.014	1	09/21/18 03:05	09/21/18 11:56	120-12-7	
Benzo(a)anthracene	<b>0.070</b>	mg/kg	0.040	0.011	1	09/21/18 03:05	09/21/18 11:56	56-55-3	
Benzo(a)pyrene	<b>0.081</b>	mg/kg	0.040	0.0098	1	09/21/18 03:05	09/21/18 11:56	50-32-8	
Benzo(b)fluoranthene	<b>0.12</b>	mg/kg	0.040	0.011	1	09/21/18 03:05	09/21/18 11:56	205-99-2	
Benzo(g,h,i)perylene	<b>0.063</b>	mg/kg	0.040	0.0099	1	09/21/18 03:05	09/21/18 11:56	191-24-2	
Benzo(k)fluoranthene	<b>0.046</b>	mg/kg	0.040	0.011	1	09/21/18 03:05	09/21/18 11:56	207-08-9	
Chrysene	<b>0.086</b>	mg/kg	0.040	0.013	1	09/21/18 03:05	09/21/18 11:56	218-01-9	
Dibenz(a,h)anthracene	<b>0.018 I</b>	mg/kg	0.040	0.0091	1	09/21/18 03:05	09/21/18 11:56	53-70-3	
Fluoranthene	<b>0.17</b>	mg/kg	0.040	0.013	1	09/21/18 03:05	09/21/18 11:56	206-44-0	
Fluorene	<b>0.014 U</b>	mg/kg	0.043	0.014	1	09/21/18 03:05	09/21/18 11:56	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.056</b>	mg/kg	0.040	0.0090	1	09/21/18 03:05	09/21/18 11:56	193-39-5	
1-Methylnaphthalene	<b>0.016 U</b>	mg/kg	0.047	0.016	1	09/21/18 03:05	09/21/18 11:56	90-12-0	
2-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.046	0.015	1	09/21/18 03:05	09/21/18 11:56	91-57-6	
Naphthalene	<b>0.014 U</b>	mg/kg	0.041	0.014	1	09/21/18 03:05	09/21/18 11:56	91-20-3	
Phenanthrene	<b>0.11</b>	mg/kg	0.040	0.013	1	09/21/18 03:05	09/21/18 11:56	85-01-8	
Pyrene	<b>0.14</b>	mg/kg	0.040	0.012	1	09/21/18 03:05	09/21/18 11:56	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	58	%	16-123		1	09/21/18 03:05	09/21/18 11:56	4165-60-0	
2-Fluorobiphenyl (S)	61	%	32-129		1	09/21/18 03:05	09/21/18 11:56	321-60-8	
p-Terphenyl-d14 (S)	46	%	38-138		1	09/21/18 03:05	09/21/18 11:56	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>13.6</b>	%	0.10	0.10	1		09/20/18 10:11		

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

**Sample: SBA 169 (0-0.5)**      **Lab ID: 35418596002**      Collected: 09/18/18 15:35      Received: 09/19/18 17:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/20/18 11:04	09/20/18 15:28	83-32-9	
Acenaphthylene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/20/18 11:04	09/20/18 15:28	208-96-8	
Anthracene	<b>0.016 I</b>	mg/kg	0.040	0.013	1	09/20/18 11:04	09/20/18 15:28	120-12-7	
Benzo(a)anthracene	<b>0.26</b>	mg/kg	0.038	0.011	1	09/20/18 11:04	09/20/18 15:28	56-55-3	
Benzo(a)pyrene	<b>0.37</b>	mg/kg	0.038	0.0094	1	09/20/18 11:04	09/20/18 15:28	50-32-8	
Benzo(b)fluoranthene	<b>0.55</b>	mg/kg	0.038	0.010	1	09/20/18 11:04	09/20/18 15:28	205-99-2	
Benzo(g,h,i)perylene	<b>0.39</b>	mg/kg	0.038	0.0095	1	09/20/18 11:04	09/20/18 15:28	191-24-2	
Benzo(k)fluoranthene	<b>0.22</b>	mg/kg	0.038	0.010	1	09/20/18 11:04	09/20/18 15:28	207-08-9	
Chrysene	<b>0.38</b>	mg/kg	0.038	0.012	1	09/20/18 11:04	09/20/18 15:28	218-01-9	
Dibenz(a,h)anthracene	<b>0.080</b>	mg/kg	0.038	0.0087	1	09/20/18 11:04	09/20/18 15:28	53-70-3	
Fluoranthene	<b>0.46</b>	mg/kg	0.038	0.012	1	09/20/18 11:04	09/20/18 15:28	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.041	0.013	1	09/20/18 11:04	09/20/18 15:28	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.31</b>	mg/kg	0.038	0.0086	1	09/20/18 11:04	09/20/18 15:28	193-39-5	
1-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.045	0.015	1	09/20/18 11:04	09/20/18 15:28	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.044	0.014	1	09/20/18 11:04	09/20/18 15:28	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/20/18 11:04	09/20/18 15:28	91-20-3	
Phenanthrene	<b>0.087</b>	mg/kg	0.038	0.012	1	09/20/18 11:04	09/20/18 15:28	85-01-8	
Pyrene	<b>0.39</b>	mg/kg	0.038	0.012	1	09/20/18 11:04	09/20/18 15:28	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	36	%	16-123		1	09/20/18 11:04	09/20/18 15:28	4165-60-0	
2-Fluorobiphenyl (S)	46	%	32-129		1	09/20/18 11:04	09/20/18 15:28	321-60-8	
p-Terphenyl-d14 (S)	51	%	38-138		1	09/20/18 11:04	09/20/18 15:28	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>9.2</b>	%	0.10	0.10	1		09/20/18 10:11		

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### ANALYTICAL RESULTS

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

Sample: **SBA 20B (0-0.5)** Lab ID: **35418596003** Collected: 09/18/18 14:50 Received: 09/19/18 17:35 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>									
Analytical Method: EPA 8270 Preparation Method: EPA 3546									
Acenaphthene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/21/18 03:05	09/21/18 12:19	83-32-9	
Acenaphthylene	<b>0.033 I</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 12:19	208-96-8	
Anthracene	<b>0.026 I</b>	mg/kg	0.039	0.013	1	09/21/18 03:05	09/21/18 12:19	120-12-7	
Benzo(a)anthracene	<b>0.098</b>	mg/kg	0.037	0.011	1	09/21/18 03:05	09/21/18 12:19	56-55-3	
Benzo(a)pyrene	<b>0.13</b>	mg/kg	0.037	0.0091	1	09/21/18 03:05	09/21/18 12:19	50-32-8	
Benzo(b)fluoranthene	<b>0.24</b>	mg/kg	0.037	0.0098	1	09/21/18 03:05	09/21/18 12:19	205-99-2	
Benzo(g,h,i)perylene	<b>0.10</b>	mg/kg	0.037	0.0092	1	09/21/18 03:05	09/21/18 12:19	191-24-2	
Benzo(k)fluoranthene	<b>0.084</b>	mg/kg	0.037	0.0098	1	09/21/18 03:05	09/21/18 12:19	207-08-9	
Chrysene	<b>0.15</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 12:19	218-01-9	
Dibenz(a,h)anthracene	<b>0.027 I</b>	mg/kg	0.037	0.0085	1	09/21/18 03:05	09/21/18 12:19	53-70-3	
Fluoranthene	<b>0.22</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 12:19	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/21/18 03:05	09/21/18 12:19	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.090</b>	mg/kg	0.037	0.0084	1	09/21/18 03:05	09/21/18 12:19	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.044	0.014	1	09/21/18 03:05	09/21/18 12:19	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/21/18 03:05	09/21/18 12:19	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.038	0.013	1	09/21/18 03:05	09/21/18 12:19	91-20-3	
Phenanthrene	<b>0.052</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 12:19	85-01-8	
Pyrene	<b>0.21</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 12:19	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	42	%	16-123		1	09/21/18 03:05	09/21/18 12:19	4165-60-0	
2-Fluorobiphenyl (S)	45	%	32-129		1	09/21/18 03:05	09/21/18 12:19	321-60-8	
p-Terphenyl-d14 (S)	33	%	38-138		1	09/21/18 03:05	09/21/18 12:19	1718-51-0	J(S0), S8

**Percent Moisture**

Analytical Method: ASTM D2974-87

Percent Moisture	<b>6.8</b>	%	0.10	0.10	1		09/20/18 10:11		
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## ANALYTICAL RESULTS

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

**Sample: SBA 20B (0.5-1)**      **Lab ID: 35418596004**      Collected: 09/18/18 14:52      Received: 09/19/18 17:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/20/18 11:04	09/20/18 16:17	83-32-9	
Acenaphthylene	<b>0.062</b>	mg/kg	0.037	0.011	1	09/20/18 11:04	09/20/18 16:17	208-96-8	
Anthracene	<b>0.045</b>	mg/kg	0.039	0.013	1	09/20/18 11:04	09/20/18 16:17	120-12-7	
Benzo(a)anthracene	<b>0.15</b>	mg/kg	0.037	0.010	1	09/20/18 11:04	09/20/18 16:17	56-55-3	
Benzo(a)pyrene	<b>0.16</b>	mg/kg	0.037	0.0091	1	09/20/18 11:04	09/20/18 16:17	50-32-8	
Benzo(b)fluoranthene	<b>0.28</b>	mg/kg	0.037	0.0098	1	09/20/18 11:04	09/20/18 16:17	205-99-2	
Benzo(g,h,i)perylene	<b>0.15</b>	mg/kg	0.037	0.0092	1	09/20/18 11:04	09/20/18 16:17	191-24-2	
Benzo(k)fluoranthene	<b>0.10</b>	mg/kg	0.037	0.0098	1	09/20/18 11:04	09/20/18 16:17	207-08-9	
Chrysene	<b>0.18</b>	mg/kg	0.037	0.012	1	09/20/18 11:04	09/20/18 16:17	218-01-9	
Dibenz(a,h)anthracene	<b>0.037 I</b>	mg/kg	0.037	0.0084	1	09/20/18 11:04	09/20/18 16:17	53-70-3	
Fluoranthene	<b>0.25</b>	mg/kg	0.037	0.012	1	09/20/18 11:04	09/20/18 16:17	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/20/18 11:04	09/20/18 16:17	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.12</b>	mg/kg	0.037	0.0084	1	09/20/18 11:04	09/20/18 16:17	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.043	0.014	1	09/20/18 11:04	09/20/18 16:17	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/20/18 11:04	09/20/18 16:17	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.038	0.013	1	09/20/18 11:04	09/20/18 16:17	91-20-3	
Phenanthrene	<b>0.072</b>	mg/kg	0.037	0.012	1	09/20/18 11:04	09/20/18 16:17	85-01-8	
Pyrene	<b>0.25</b>	mg/kg	0.037	0.012	1	09/20/18 11:04	09/20/18 16:17	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	39	%	16-123		1	09/20/18 11:04	09/20/18 16:17	4165-60-0	
2-Fluorobiphenyl (S)	42	%	32-129		1	09/20/18 11:04	09/20/18 16:17	321-60-8	
p-Terphenyl-d14 (S)	39	%	38-138		1	09/20/18 11:04	09/20/18 16:17	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>8.2</b>	%	0.10	0.10	1		09/20/18 10:11		

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### ANALYTICAL RESULTS

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

**Sample: SBA 20A (0-0.5)**      **Lab ID: 35418596005**      Collected: 09/18/18 14:55      Received: 09/19/18 17:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/21/18 03:05	09/21/18 12:43	83-32-9	
Acenaphthylene	<b>0.066</b>	mg/kg	0.037	0.011	1	09/21/18 03:05	09/21/18 12:43	208-96-8	
Anthracene	<b>0.043</b>	mg/kg	0.039	0.013	1	09/21/18 03:05	09/21/18 12:43	120-12-7	
Benzo(a)anthracene	<b>0.14</b>	mg/kg	0.037	0.010	1	09/21/18 03:05	09/21/18 12:43	56-55-3	
Benzo(a)pyrene	<b>0.19</b>	mg/kg	0.037	0.0091	1	09/21/18 03:05	09/21/18 12:43	50-32-8	
Benzo(b)fluoranthene	<b>0.35</b>	mg/kg	0.037	0.0098	1	09/21/18 03:05	09/21/18 12:43	205-99-2	
Benzo(g,h,i)perylene	<b>0.11</b>	mg/kg	0.037	0.0092	1	09/21/18 03:05	09/21/18 12:43	191-24-2	
Benzo(k)fluoranthene	<b>0.12</b>	mg/kg	0.037	0.0098	1	09/21/18 03:05	09/21/18 12:43	207-08-9	
Chrysene	<b>0.19</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 12:43	218-01-9	
Dibenz(a,h)anthracene	<b>0.032 I</b>	mg/kg	0.037	0.0084	1	09/21/18 03:05	09/21/18 12:43	53-70-3	
Fluoranthene	<b>0.27</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 12:43	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/21/18 03:05	09/21/18 12:43	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.11</b>	mg/kg	0.037	0.0084	1	09/21/18 03:05	09/21/18 12:43	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.043	0.014	1	09/21/18 03:05	09/21/18 12:43	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/21/18 03:05	09/21/18 12:43	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.038	0.013	1	09/21/18 03:05	09/21/18 12:43	91-20-3	
Phenanthrene	<b>0.036 I</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 12:43	85-01-8	
Pyrene	<b>0.29</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 12:43	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	47	%	16-123		1	09/21/18 03:05	09/21/18 12:43	4165-60-0	
2-Fluorobiphenyl (S)	51	%	32-129		1	09/21/18 03:05	09/21/18 12:43	321-60-8	
p-Terphenyl-d14 (S)	39	%	38-138		1	09/21/18 03:05	09/21/18 12:43	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>7.1</b>	%	0.10	0.10	1		09/20/18 10:11		

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### ANALYTICAL RESULTS

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

Sample: **SBA 20A (0.5-1)** Lab ID: **35418596006** Collected: 09/18/18 15:00 Received: 09/19/18 17:35 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/21/18 03:05	09/21/18 13:06	83-32-9	
Acenaphthylene	<b>0.052</b>	mg/kg	0.036	0.011	1	09/21/18 03:05	09/21/18 13:06	208-96-8	
Anthracene	<b>0.033 I</b>	mg/kg	0.038	0.013	1	09/21/18 03:05	09/21/18 13:06	120-12-7	
Benzo(a)anthracene	<b>0.11</b>	mg/kg	0.036	0.010	1	09/21/18 03:05	09/21/18 13:06	56-55-3	
Benzo(a)pyrene	<b>0.14</b>	mg/kg	0.036	0.0089	1	09/21/18 03:05	09/21/18 13:06	50-32-8	
Benzo(b)fluoranthene	<b>0.26</b>	mg/kg	0.036	0.0096	1	09/21/18 03:05	09/21/18 13:06	205-99-2	
Benzo(g,h,i)perylene	<b>0.078</b>	mg/kg	0.036	0.0091	1	09/21/18 03:05	09/21/18 13:06	191-24-2	
Benzo(k)fluoranthene	<b>0.10</b>	mg/kg	0.036	0.0096	1	09/21/18 03:05	09/21/18 13:06	207-08-9	
Chrysene	<b>0.15</b>	mg/kg	0.036	0.011	1	09/21/18 03:05	09/21/18 13:06	218-01-9	
Dibenz(a,h)anthracene	<b>0.023 I</b>	mg/kg	0.036	0.0083	1	09/21/18 03:05	09/21/18 13:06	53-70-3	
Fluoranthene	<b>0.21</b>	mg/kg	0.036	0.012	1	09/21/18 03:05	09/21/18 13:06	206-44-0	
Fluorene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/21/18 03:05	09/21/18 13:06	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.075</b>	mg/kg	0.036	0.0082	1	09/21/18 03:05	09/21/18 13:06	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.043	0.014	1	09/21/18 03:05	09/21/18 13:06	90-12-0	
2-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/21/18 03:05	09/21/18 13:06	91-57-6	
Naphthalene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/21/18 03:05	09/21/18 13:06	91-20-3	
Phenanthrene	<b>0.026 I</b>	mg/kg	0.036	0.012	1	09/21/18 03:05	09/21/18 13:06	85-01-8	
Pyrene	<b>0.23</b>	mg/kg	0.036	0.011	1	09/21/18 03:05	09/21/18 13:06	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	44	%	16-123		1	09/21/18 03:05	09/21/18 13:06	4165-60-0	
2-Fluorobiphenyl (S)	48	%	32-129		1	09/21/18 03:05	09/21/18 13:06	321-60-8	
p-Terphenyl-d14 (S)	36	%	38-138		1	09/21/18 03:05	09/21/18 13:06	1718-51-0	J(S0), S8
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>5.8</b>	%	0.10	0.10	1		09/20/18 10:11		

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## ANALYTICAL RESULTS

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

**Sample: SBA 139B (0-0.5)**      **Lab ID: 35418596007**      Collected: 09/18/18 14:05      Received: 09/19/18 17:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>									
Analytical Method: EPA 8270 Preparation Method: EPA 3546									
Acenaphthene	<b>0.028 U</b>	mg/kg	0.085	0.028	1	09/20/18 11:04	09/20/18 15:23	83-32-9	P1
Acenaphthylene	<b>0.025 U</b>	mg/kg	0.080	0.025	1	09/20/18 11:04	09/20/18 15:23	208-96-8	P1
Anthracene	<b>0.028 U</b>	mg/kg	0.085	0.028	1	09/20/18 11:04	09/20/18 15:23	120-12-7	P1
Benzo(a)anthracene	<b>0.057 I</b>	mg/kg	0.080	0.023	1	09/20/18 11:04	09/20/18 15:23	56-55-3	P1
Benzo(a)pyrene	<b>0.070 I</b>	mg/kg	0.080	0.020	1	09/20/18 11:04	09/20/18 15:23	50-32-8	P1
Benzo(b)fluoranthene	<b>0.12</b>	mg/kg	0.080	0.021	1	09/20/18 11:04	09/20/18 15:23	205-99-2	P1
Benzo(g,h,i)perylene	<b>0.053 I</b>	mg/kg	0.080	0.020	1	09/20/18 11:04	09/20/18 15:23	191-24-2	P1
Benzo(k)fluoranthene	<b>0.044 I</b>	mg/kg	0.080	0.021	1	09/20/18 11:04	09/20/18 15:23	207-08-9	P1
Chrysene	<b>0.081</b>	mg/kg	0.080	0.025	1	09/20/18 11:04	09/20/18 15:23	218-01-9	P1
Dibenz(a,h)anthracene	<b>0.018 U</b>	mg/kg	0.080	0.018	1	09/20/18 11:04	09/20/18 15:23	53-70-3	P1
Fluoranthene	<b>0.089</b>	mg/kg	0.080	0.026	1	09/20/18 11:04	09/20/18 15:23	206-44-0	P1
Fluorene	<b>0.029 U</b>	mg/kg	0.087	0.029	1	09/20/18 11:04	09/20/18 15:23	86-73-7	P1
Indeno(1,2,3-cd)pyrene	<b>0.046 I</b>	mg/kg	0.080	0.018	1	09/20/18 11:04	09/20/18 15:23	193-39-5	P1
1-Methylnaphthalene	<b>0.031 U</b>	mg/kg	0.094	0.031	1	09/20/18 11:04	09/20/18 15:23	90-12-0	P1
2-Methylnaphthalene	<b>0.030 U</b>	mg/kg	0.092	0.030	1	09/20/18 11:04	09/20/18 15:23	91-57-6	P1
Naphthalene	<b>0.027 U</b>	mg/kg	0.083	0.027	1	09/20/18 11:04	09/20/18 15:23	91-20-3	P1
Phenanthrene	<b>0.026 U</b>	mg/kg	0.080	0.026	1	09/20/18 11:04	09/20/18 15:23	85-01-8	P1
Pyrene	<b>0.084</b>	mg/kg	0.080	0.025	1	09/20/18 11:04	09/20/18 15:23	129-00-0	P1
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	50	%	16-123		1	09/20/18 11:04	09/20/18 15:23	4165-60-0	
2-Fluorobiphenyl (S)	61	%	32-129		1	09/20/18 11:04	09/20/18 15:23	321-60-8	
p-Terphenyl-d14 (S)	61	%	38-138		1	09/20/18 11:04	09/20/18 15:23	1718-51-0	
<b>Percent Moisture</b>									
Analytical Method: ASTM D2974-87									
Percent Moisture	<b>15.6</b>	%	0.10	0.10	1		09/20/18 10:11		

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## ANALYTICAL RESULTS

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

**Sample: SBA 139A (0-0.5)**      **Lab ID: 35418596008**      Collected: 09/18/18 14:10      Received: 09/19/18 17:35      Matrix: Solid

*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	<b>0.013 U</b>	mg/kg	0.041	0.013	1	09/20/18 11:04	09/20/18 15:48	83-32-9	
Acenaphthylene	<b>0.012 U</b>	mg/kg	0.039	0.012	1	09/20/18 11:04	09/20/18 15:48	208-96-8	
Anthracene	<b>0.014 U</b>	mg/kg	0.041	0.014	1	09/20/18 11:04	09/20/18 15:48	120-12-7	
Benzo(a)anthracene	<b>0.037 I</b>	mg/kg	0.039	0.011	1	09/20/18 11:04	09/20/18 15:48	56-55-3	
Benzo(a)pyrene	<b>0.049</b>	mg/kg	0.039	0.0096	1	09/20/18 11:04	09/20/18 15:48	50-32-8	
Benzo(b)fluoranthene	<b>0.095</b>	mg/kg	0.039	0.010	1	09/20/18 11:04	09/20/18 15:48	205-99-2	
Benzo(g,h,i)perylene	<b>0.024 I</b>	mg/kg	0.039	0.0097	1	09/20/18 11:04	09/20/18 15:48	191-24-2	
Benzo(k)fluoranthene	<b>0.033 I</b>	mg/kg	0.039	0.010	1	09/20/18 11:04	09/20/18 15:48	207-08-9	
Chrysene	<b>0.050</b>	mg/kg	0.039	0.012	1	09/20/18 11:04	09/20/18 15:48	218-01-9	
Dibenz(a,h)anthracene	<b>0.0089 U</b>	mg/kg	0.039	0.0089	1	09/20/18 11:04	09/20/18 15:48	53-70-3	
Fluoranthene	<b>0.054</b>	mg/kg	0.039	0.013	1	09/20/18 11:04	09/20/18 15:48	206-44-0	
Fluorene	<b>0.014 U</b>	mg/kg	0.042	0.014	1	09/20/18 11:04	09/20/18 15:48	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.022 I</b>	mg/kg	0.039	0.0089	1	09/20/18 11:04	09/20/18 15:48	193-39-5	
1-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.046	0.015	1	09/20/18 11:04	09/20/18 15:48	90-12-0	
2-Methylnaphthalene	<b>0.015 U</b>	mg/kg	0.045	0.015	1	09/20/18 11:04	09/20/18 15:48	91-57-6	
Naphthalene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/20/18 11:04	09/20/18 15:48	91-20-3	
Phenanthrene	<b>0.013 U</b>	mg/kg	0.039	0.013	1	09/20/18 11:04	09/20/18 15:48	85-01-8	
Pyrene	<b>0.054</b>	mg/kg	0.039	0.012	1	09/20/18 11:04	09/20/18 15:48	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	48	%	16-123		1	09/20/18 11:04	09/20/18 15:48	4165-60-0	
2-Fluorobiphenyl (S)	51	%	32-129		1	09/20/18 11:04	09/20/18 15:48	321-60-8	
p-Terphenyl-d14 (S)	54	%	38-138		1	09/20/18 11:04	09/20/18 15:48	1718-51-0	
<b>Percent Moisture</b>		Analytical Method: ASTM D2974-87							
Percent Moisture	<b>11.9</b>	%	0.10	0.10	1		09/20/18 10:11		

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### ANALYTICAL RESULTS

Project: 09217185.02 Task 3/Ludlam  
Pace Project No.: 35418596

**Sample: SBA-170 (0-0.5)**      **Lab ID: 35418596009**      Collected: 09/18/18 15:45      Received: 09/19/18 17:30      Matrix: Solid  
*Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.*

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV Short List Microwave</b> Analytical Method: EPA 8270      Preparation Method: EPA 3546									
Acenaphthene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/20/18 11:04	09/20/18 16:14	83-32-9	
Acenaphthylene	<b>0.011 U</b>	mg/kg	0.035	0.011	1	09/20/18 11:04	09/20/18 16:14	208-96-8	
Anthracene	<b>0.012 U</b>	mg/kg	0.037	0.012	1	09/20/18 11:04	09/20/18 16:14	120-12-7	
Benzo(a)anthracene	<b>0.010 I</b>	mg/kg	0.035	0.010	1	09/20/18 11:04	09/20/18 16:14	56-55-3	
Benzo(a)pyrene	<b>0.012 I</b>	mg/kg	0.035	0.0087	1	09/20/18 11:04	09/20/18 16:14	50-32-8	
Benzo(b)fluoranthene	<b>0.021 I</b>	mg/kg	0.035	0.0093	1	09/20/18 11:04	09/20/18 16:14	205-99-2	
Benzo(g,h,i)perylene	<b>0.017 I</b>	mg/kg	0.035	0.0088	1	09/20/18 11:04	09/20/18 16:14	191-24-2	
Benzo(k)fluoranthene	<b>0.0093 U</b>	mg/kg	0.035	0.0093	1	09/20/18 11:04	09/20/18 16:14	207-08-9	
Chrysene	<b>0.018 I</b>	mg/kg	0.035	0.011	1	09/20/18 11:04	09/20/18 16:14	218-01-9	
Dibenz(a,h)anthracene	<b>0.0080 U</b>	mg/kg	0.035	0.0080	1	09/20/18 11:04	09/20/18 16:14	53-70-3	
Fluoranthene	<b>0.015 I</b>	mg/kg	0.035	0.011	1	09/20/18 11:04	09/20/18 16:14	206-44-0	
Fluorene	<b>0.012 U</b>	mg/kg	0.038	0.012	1	09/20/18 11:04	09/20/18 16:14	86-73-7	
Indeno(1,2,3-cd)pyrene	<b>0.010 I</b>	mg/kg	0.035	0.0080	1	09/20/18 11:04	09/20/18 16:14	193-39-5	
1-Methylnaphthalene	<b>0.014 U</b>	mg/kg	0.041	0.014	1	09/20/18 11:04	09/20/18 16:14	90-12-0	
2-Methylnaphthalene	<b>0.013 U</b>	mg/kg	0.040	0.013	1	09/20/18 11:04	09/20/18 16:14	91-57-6	
Naphthalene	<b>0.012 U</b>	mg/kg	0.036	0.012	1	09/20/18 11:04	09/20/18 16:14	91-20-3	
Phenanthrene	<b>0.011 U</b>	mg/kg	0.035	0.011	1	09/20/18 11:04	09/20/18 16:14	85-01-8	
Pyrene	<b>0.013 I</b>	mg/kg	0.035	0.011	1	09/20/18 11:04	09/20/18 16:14	129-00-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	47	%	16-123		1	09/20/18 11:04	09/20/18 16:14	4165-60-0	
2-Fluorobiphenyl (S)	51	%	32-129		1	09/20/18 11:04	09/20/18 16:14	321-60-8	
p-Terphenyl-d14 (S)	51	%	38-138		1	09/20/18 11:04	09/20/18 16:14	1718-51-0	
<b>Percent Moisture</b> Analytical Method: ASTM D2974-87									
Percent Moisture	<b>2.5</b>	%	0.10	0.10	1		09/20/18 10:12		

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### QUALITY CONTROL DATA

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

QC Batch: 478992 Analysis Method: EPA 8270  
 QC Batch Method: EPA 3546 Analysis Description: 8270 Solid MSSV Microwave Short Spike  
 Associated Lab Samples: 35418596002, 35418596004, 35418596007, 35418596008, 35418596009

METHOD BLANK: 2594406 Matrix: Solid  
 Associated Lab Samples: 35418596002, 35418596004, 35418596007, 35418596008, 35418596009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1-Methylnaphthalene	mg/kg	0.013 U	0.040	0.013	09/20/18 14:38	
2-Methylnaphthalene	mg/kg	0.013 U	0.039	0.013	09/20/18 14:38	
Acenaphthene	mg/kg	0.012 U	0.036	0.012	09/20/18 14:38	
Acenaphthylene	mg/kg	0.011 U	0.034	0.011	09/20/18 14:38	
Anthracene	mg/kg	0.012 U	0.036	0.012	09/20/18 14:38	
Benzo(a)anthracene	mg/kg	0.0097 U	0.034	0.0097	09/20/18 14:38	
Benzo(a)pyrene	mg/kg	0.0084 U	0.034	0.0084	09/20/18 14:38	
Benzo(b)fluoranthene	mg/kg	0.0090 U	0.034	0.0090	09/20/18 14:38	
Benzo(g,h,i)perylene	mg/kg	0.0085 U	0.034	0.0085	09/20/18 14:38	
Benzo(k)fluoranthene	mg/kg	0.0090 U	0.034	0.0090	09/20/18 14:38	
Chrysene	mg/kg	0.011 U	0.034	0.011	09/20/18 14:38	
Dibenz(a,h)anthracene	mg/kg	0.0078 U	0.034	0.0078	09/20/18 14:38	
Fluoranthene	mg/kg	0.011 U	0.034	0.011	09/20/18 14:38	
Fluorene	mg/kg	0.012 U	0.037	0.012	09/20/18 14:38	
Indeno(1,2,3-cd)pyrene	mg/kg	0.0077 U	0.034	0.0077	09/20/18 14:38	
Naphthalene	mg/kg	0.012 U	0.035	0.012	09/20/18 14:38	
Phenanthrene	mg/kg	0.011 U	0.034	0.011	09/20/18 14:38	
Pyrene	mg/kg	0.011 U	0.034	0.011	09/20/18 14:38	
2-Fluorobiphenyl (S)	%	79	32-129		09/20/18 14:38	
Nitrobenzene-d5 (S)	%	78	16-123		09/20/18 14:38	
p-Terphenyl-d14 (S)	%	55	38-138		09/20/18 14:38	

LABORATORY CONTROL SAMPLE: 2594407

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	mg/kg	1.7	1.6	94	27-123	
2-Methylnaphthalene	mg/kg	1.7	1.6	95	16-137	
Acenaphthene	mg/kg	1.7	1.7	103	37-120	
Acenaphthylene	mg/kg	1.7	1.8	105	41-120	
Anthracene	mg/kg	1.7	1.8	105	45-120	
Benzo(a)anthracene	mg/kg	1.7	1.8	107	44-120	
Benzo(a)pyrene	mg/kg	1.7	1.7	101	44-123	
Benzo(b)fluoranthene	mg/kg	1.7	1.7	103	37-124	
Benzo(g,h,i)perylene	mg/kg	1.7	1.8	109	42-125	
Benzo(k)fluoranthene	mg/kg	1.7	1.9	111	44-126	
Chrysene	mg/kg	1.7	1.8	107	45-120	
Dibenz(a,h)anthracene	mg/kg	1.7	1.8	108	43-124	
Fluoranthene	mg/kg	1.7	1.8	109	45-120	
Fluorene	mg/kg	1.7	1.8	106	42-120	
Indeno(1,2,3-cd)pyrene	mg/kg	1.7	1.8	109	43-123	

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### QUALITY CONTROL DATA

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

LABORATORY CONTROL SAMPLE: 2594407

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	mg/kg	1.7	1.6	96	40-120	
Phenanthrene	mg/kg	1.7	1.8	108	36-125	
Pyrene	mg/kg	1.7	1.7	101	41-123	
2-Fluorobiphenyl (S)	%			81	32-129	
Nitrobenzene-d5 (S)	%			76	16-123	
p-Terphenyl-d14 (S)	%			53	38-138	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2594473 2594474

Parameter	Units	35417575022		MS		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
		Result	U	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
1-Methylnaphthalene	mg/kg	0.039	U	3.4	3.3	2.8	0.22	83	7	27-123	171	40	J(M1), J(R1)	
2-Methylnaphthalene	mg/kg	0.038	U	3.4	3.3	2.8	0.18	82	5	16-137	176	40	J(M1), J(R1)	
Acenaphthene	mg/kg	0.035	U	3.4	3.3	2.9	0.63	86	19	37-120	129	40	J(M1), J(R1)	
Acenaphthylene	mg/kg	0.031	U	3.4	3.3	3.0	0.64	89	19	41-120	130	40	J(M1), J(R1)	
Anthracene	mg/kg	0.035	U	3.4	3.3	2.8	1.8	82	53	45-120	44	40	J(R1)	
Benzo(a)anthracene	mg/kg	0.029	U	3.4	3.3	2.7	1.7	80	52	44-120	43	40	J(R1)	
Benzo(a)pyrene	mg/kg	0.025	U	3.4	3.3	2.6	1.6	76	48	44-123	46	40	J(R1)	
Benzo(b)fluoranthene	mg/kg	0.027	U	3.4	3.3	2.6	1.6	78	49	37-124	48	40	J(R1)	
Benzo(g,h,i)perylene	mg/kg	0.025	U	3.4	3.3	2.8	1.7	82	51	42-125	48	40	J(R1)	
Benzo(k)fluoranthene	mg/kg	0.027	U	3.4	3.3	2.7	1.7	79	53	44-126	41	40	J(R1)	
Chrysene	mg/kg	0.032	U	3.4	3.3	2.7	1.8	81	55	45-120	39	40		
Dibenz(a,h)anthracene	mg/kg	0.023	U	3.4	3.3	2.8	1.7	83	52	43-124	47	40	J(R1)	
Fluoranthene	mg/kg	0.033	U	3.4	3.3	2.8	1.7	82	51	45-120	48	40	J(R1)	
Fluorene	mg/kg	0.036	U	3.4	3.3	2.9	1.0	84	30	42-120	96	40	J(M1), J(R1)	
Indeno(1,2,3-cd)pyrene	mg/kg	0.023	U	3.4	3.3	2.8	1.7	83	52	43-123	48	40	J(R1)	
Naphthalene	mg/kg	0.034	U	3.4	3.3	2.9	0.13	86	4	40-120	183	40	J(M1), J(R1)	
Phenanthrene	mg/kg	0.033	U	3.4	3.3	2.8	1.4	84	42	36-125	67	40	J(R1)	
Pyrene	mg/kg	0.032	U	3.4	3.3	2.6	1.6	76	48	41-123	46	40	J(R1)	
2-Fluorobiphenyl (S)	%							65	5	32-129			J(S0)	
Nitrobenzene-d5 (S)	%							64	10	16-123			J(S0)	
p-Terphenyl-d14 (S)	%							53	27	38-138			J(S0)	

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### QUALITY CONTROL DATA

Project: 09217185.02 Task 3/Ludlam  
Pace Project No.: 35418596

QC Batch: 479264 Analysis Method: EPA 8270  
QC Batch Method: EPA 3546 Analysis Description: 8270 Solid MSSV Microwave Short Spike  
Associated Lab Samples: 35418596001, 35418596003, 35418596005, 35418596006

METHOD BLANK: 2595781 Matrix: Solid  
Associated Lab Samples: 35418596001, 35418596003, 35418596005, 35418596006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1-Methylnaphthalene	mg/kg	0.013 U	0.040	0.013	09/21/18 09:37	
2-Methylnaphthalene	mg/kg	0.013 U	0.039	0.013	09/21/18 09:37	
Acenaphthene	mg/kg	0.012 U	0.036	0.012	09/21/18 09:37	
Acenaphthylene	mg/kg	0.011 U	0.034	0.011	09/21/18 09:37	
Anthracene	mg/kg	0.012 U	0.036	0.012	09/21/18 09:37	
Benzo(a)anthracene	mg/kg	0.0098 U	0.034	0.0098	09/21/18 09:37	
Benzo(a)pyrene	mg/kg	0.0085 U	0.034	0.0085	09/21/18 09:37	
Benzo(b)fluoranthene	mg/kg	0.0091 U	0.034	0.0091	09/21/18 09:37	
Benzo(g,h,i)perylene	mg/kg	0.0086 U	0.034	0.0086	09/21/18 09:37	
Benzo(k)fluoranthene	mg/kg	0.0091 U	0.034	0.0091	09/21/18 09:37	
Chrysene	mg/kg	0.011 U	0.034	0.011	09/21/18 09:37	
Dibenz(a,h)anthracene	mg/kg	0.0079 U	0.034	0.0079	09/21/18 09:37	
Fluoranthene	mg/kg	0.011 U	0.034	0.011	09/21/18 09:37	
Fluorene	mg/kg	0.012 U	0.037	0.012	09/21/18 09:37	
Indeno(1,2,3-cd)pyrene	mg/kg	0.0078 U	0.034	0.0078	09/21/18 09:37	
Naphthalene	mg/kg	0.012 U	0.035	0.012	09/21/18 09:37	
Phenanthrene	mg/kg	0.011 U	0.034	0.011	09/21/18 09:37	
Pyrene	mg/kg	0.011 U	0.034	0.011	09/21/18 09:37	
2-Fluorobiphenyl (S)	%	68	32-129		09/21/18 09:37	
Nitrobenzene-d5 (S)	%	67	16-123		09/21/18 09:37	
p-Terphenyl-d14 (S)	%	52	38-138		09/21/18 09:37	

LABORATORY CONTROL SAMPLE: 2595782

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	mg/kg	1.7	1.2	71	27-123	
2-Methylnaphthalene	mg/kg	1.7	1.2	71	16-137	
Acenaphthene	mg/kg	1.7	1.2	69	37-120	
Acenaphthylene	mg/kg	1.7	1.2	69	41-120	
Anthracene	mg/kg	1.7	1.2	72	45-120	
Benzo(a)anthracene	mg/kg	1.7	1.3	75	44-120	
Benzo(a)pyrene	mg/kg	1.7	1.3	75	44-123	
Benzo(b)fluoranthene	mg/kg	1.7	1.4	81	37-124	
Benzo(g,h,i)perylene	mg/kg	1.7	1.3	78	42-125	
Benzo(k)fluoranthene	mg/kg	1.7	1.3	75	44-126	
Chrysene	mg/kg	1.7	1.2	72	45-120	
Dibenz(a,h)anthracene	mg/kg	1.7	1.3	76	43-124	
Fluoranthene	mg/kg	1.7	1.3	80	45-120	
Fluorene	mg/kg	1.7	1.2	72	42-120	
Indeno(1,2,3-cd)pyrene	mg/kg	1.7	1.3	78	43-123	

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### QUALITY CONTROL DATA

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

LABORATORY CONTROL SAMPLE: 2595782

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	mg/kg	1.7	1.1	68	40-120	
Phenanthrene	mg/kg	1.7	1.2	73	36-125	
Pyrene	mg/kg	1.7	1.3	80	41-123	
2-Fluorobiphenyl (S)	%			73	32-129	
Nitrobenzene-d5 (S)	%			70	16-123	
p-Terphenyl-d14 (S)	%			56	38-138	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2595785 2595786

Parameter	Units	35417371002		2595785		2595786		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
1-Methylnaphthalene	mg/kg	0.015 U	1.9	1.9	0.98	1.1	53	58	27-123	7	40			
2-Methylnaphthalene	mg/kg	0.014 U	1.9	1.9	0.98	1.0	53	57	16-137	6	40			
Acenaphthene	mg/kg	0.013 U	1.9	1.9	0.95	1.0	52	55	37-120	6	40			
Acenaphthylene	mg/kg	0.012 U	1.9	1.9	0.94	1.0	51	55	41-120	7	40			
Anthracene	mg/kg	0.013 U	1.9	1.9	0.99	1.0	54	57	45-120	5	40			
Benzo(a)anthracene	mg/kg	0.011 U	1.9	1.9	1.0	1.0	55	57	44-120	2	40			
Benzo(a)pyrene	mg/kg	0.0092 U	1.9	1.9	1.0	1.0	56	56	44-123	0	40			
Benzo(b)fluoranthene	mg/kg	0.0099 U	1.9	1.9	1.1	1.1	58	58	37-124	1	40			
Benzo(g,h,i)perylene	mg/kg	0.0093 U	1.9	1.9	1.1	1.1	59	60	42-125	0	40			
Benzo(k)fluoranthene	mg/kg	0.0099 U	1.9	1.9	1.1	1.1	59	60	44-126	1	40			
Chrysene	mg/kg	0.012 U	1.9	1.9	0.96	0.99	52	54	45-120	3	40			
Dibenz(a,h)anthracene	mg/kg	0.0085 U	1.9	1.9	1.1	1.1	59	59	43-124	0	40			
Fluoranthene	mg/kg	0.012 U	1.9	1.9	1.1	1.1	59	60	45-120	2	40			
Fluorene	mg/kg	0.013 U	1.9	1.9	0.99	1.0	54	57	42-120	5	40			
Indeno(1,2,3-cd)pyrene	mg/kg	0.0085 U	1.9	1.9	1.1	1.1	59	60	43-123	0	40			
Naphthalene	mg/kg	0.013 U	1.9	1.9	0.94	1.0	51	55	40-120	6	40			
Phenanthrene	mg/kg	0.012 U	1.9	1.9	1.0	1.0	54	57	36-125	3	40			
Pyrene	mg/kg	0.012 U	1.9	1.9	1.1	1.1	59	62	41-123	3	40			
2-Fluorobiphenyl (S)	%						55	59	32-129					
Nitrobenzene-d5 (S)	%						51	55	16-123					
p-Terphenyl-d14 (S)	%						41	42	38-138					

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## QUALIFIERS

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

### ANALYTE QUALIFIERS

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

U Compound was analyzed for but not detected.

J(M1) Estimated Value. Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

J(R1) Estimated Value. RPD value was outside control limits.

J(S0) Estimated Value. Surrogate recovery outside laboratory control limits.

P1 Routine initial sample volume or weight was not used for extraction, resulting in elevated reporting limits.

S8 Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-extraction and/or re-analysis)

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 09217185.02 Task 3/Ludlam

Pace Project No.: 35418596

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35418596001	SBA 168 (0-0.5)	EPA 3546	479264	EPA 8270	479318
35418596002	SBA 169 (0-0.5)	EPA 3546	478992	EPA 8270	479105
35418596003	SBA 20B (0-0.5)	EPA 3546	479264	EPA 8270	479318
35418596004	SBA 20B (0.5-1)	EPA 3546	478992	EPA 8270	479105
35418596005	SBA 20A (0-0.5)	EPA 3546	479264	EPA 8270	479318
35418596006	SBA 20A (0.5-1)	EPA 3546	479264	EPA 8270	479318
35418596007	SBA 139B (0-0.5)	EPA 3546	478992	EPA 8270	479105
35418596008	SBA 139A (0-0.5)	EPA 3546	478992	EPA 8270	479105
35418596009	SBA-170 (0-0.5)	EPA 3546	478992	EPA 8270	479105
35418596001	SBA 168 (0-0.5)	ASTM D2974-87	479009		
35418596002	SBA 169 (0-0.5)	ASTM D2974-87	479009		
35418596003	SBA 20B (0-0.5)	ASTM D2974-87	479009		
35418596004	SBA 20B (0.5-1)	ASTM D2974-87	479009		
35418596005	SBA 20A (0-0.5)	ASTM D2974-87	479009		
35418596006	SBA 20A (0.5-1)	ASTM D2974-87	479009		
35418596007	SBA 139B (0-0.5)	ASTM D2974-87	479009		
35418596008	SBA 139A (0-0.5)	ASTM D2974-87	479009		
35418596009	SBA-170 (0-0.5)	ASTM D2974-87	479009		

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Document Name:  
Sample Condition Upon Receipt Form  
Document No.:  
F-FL-C-007 rev. 13

Document Revised:  
May 30, 2018  
Issuing Authority:  
Pace Florida Quality Office

**WO# : 35418596**

**Project #**  
**Project Manager:**  
**Client:**

PM: CTR  
Due Date: 09/20/18  
CLIENT: 36-ESCON

**Date and Initials of person:**  
Examining contents:  
Label: \_\_\_\_\_  
Deliver: \_\_\_\_\_  
pH: \_\_\_\_\_

Thermometer Used: 9.330 Date: 9/19/10 Time: 14/8 Initials: [Signature]

State of Origin: \_\_\_\_\_  For WV projects, all containers verified to ≤6 °C

- Cooler #1 Temp. °C 6.1 (Visual) 0.0 (Correction Factor) 6.1 (Actual)  Samples on ice, cooling process has begun
- Cooler #2 Temp. °C \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)  Samples on ice, cooling process has begun
- Cooler #3 Temp. °C \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)  Samples on ice, cooling process has begun
- Cooler #4 Temp. °C \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)  Samples on ice, cooling process has begun
- Cooler #5 Temp. °C \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)  Samples on ice, cooling process has begun
- Cooler #6 Temp. °C \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)  Samples on ice, cooling process has begun

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other \_\_\_\_\_  
Shipping Method:  First Overnight  Priority Overnight  Standard Overnight  Ground  International Priority  
 Other \_\_\_\_\_

Billing:  Recipient  Sender  Third Party  Credit Card  Unknown

Tracking # \_\_\_\_\_

Custody Seal on Cooler/Box Present:  Yes  No Seals intact:  Yes  No Ice: Wet Blue Dry None

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Samples shorted to lab (If Yes, complete) Shorted Date: \_\_\_\_\_ Shorted Time: \_\_\_\_\_ Qty: \_\_\_\_\_

**Comments:**

Chain of Custody Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody Filled Out	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Relinquished Signature & Sampler Name COC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples Arrived within Hold Time	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush TAT requested on COC	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<u>10/29/10</u>
Sufficient Volume	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct Containers Used	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Sample Labels match COC (sample IDs & date/time of collection)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
All containers needing acid/base preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Preservation Information: Preservative: _____ Lot #/Trace #: _____ Date: _____ Time: _____ Initials: _____
All Containers needing preservation are found to be in compliance with EPA recommendation: Exceptions: VOA, Coliform, TOC, O&G, Carbamates	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA Vials? (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

**Client Notification/ Resolution:**  
Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Comments/ Resolution (use back for additional comments):**  
\_\_\_\_\_  
\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

August 16, 2018

Fangmei Zhang  
SCS ES Consultants, Inc.  
7700 N. Kendall Dr.  
Suite #607  
Miami, FL 33156

RE: Project: 09217186.02/Ludlam-Revised Report  
Pace Project No.: 35411158

Dear Fangmei Zhang:

Enclosed are the analytical results for sample(s) received by the laboratory on August 15, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This report was revised August 16, 2018. Sample ID MW-9W-2I has been changed to MW-9W-2S.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Christina Raschke  
christina.raschke@pacelabs.com  
(954)582-4300  
Project Manager

Enclosures

cc: Karinne Bedosky, SCS Engineers  
Anthony Pezzotti, SCS ES Consultants



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 09217186.02/Ludlam-Revised Report

Pace Project No.: 35411158

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### Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174

Alabama Certification #: 41320

Connecticut Certification #: PH-0216

Florida Certification #: E83079

Georgia Certification #: 955

Guam Certification: FL NELAC Reciprocity

Hawaii Certification: FL NELAC Reciprocity

Illinois Certification #: 200068

Indiana Certification: FL NELAC Reciprocity

Kansas Certification #: E-10383

Kentucky Certification #: 90050

Louisiana Certification #: FL NELAC Reciprocity

Louisiana Environmental Certificate #: 05007

Maryland Certification: #346

Michigan Certification #: 9911

Mississippi Certification: FL NELAC Reciprocity

Missouri Certification #: 236

Montana Certification #: Cert 0074

Nebraska Certification: NE-OS-28-14

Nevada Certification: FL NELAC Reciprocity

New Hampshire Certification #: 2958

New Jersey Certification #: FL022

New York Certification #: 11608

North Carolina Environmental Certificate #: 667

North Carolina Certification #: 12710

North Dakota Certification #: R-216

Oklahoma Certification #: D9947

Pennsylvania Certification #: 68-00547

Puerto Rico Certification #: FL01264

South Carolina Certification: #96042001

Tennessee Certification #: TN02974

Texas Certification: FL NELAC Reciprocity

US Virgin Islands Certification: FL NELAC Reciprocity

Virginia Environmental Certification #: 460165

Wyoming Certification: FL NELAC Reciprocity

West Virginia Certification #: 9962C

Wisconsin Certification #: 399079670

Wyoming (EPA Region 8): FL NELAC Reciprocity

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 09217186.02/Ludlam-Revised Report

Pace Project No.: 35411158

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35411158001	MW-9W-2S	Water	08/15/18 11:42	08/15/18 17:45
35411158002	MW-9W-I	Water	08/15/18 10:48	08/15/18 17:45
35411158003	MW-9D	Water	08/15/18 13:42	08/15/18 17:45
35411158004	MW-9I	Water	08/15/18 14:26	08/15/18 17:45

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 09217186.02/Ludlam-Revised Report

Pace Project No.: 35411158

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35411158001	MW-9W-2S	EPA 6020	KPP	1	PASI-O
35411158002	MW-9W-I	EPA 6020	KPP	1	PASI-O
35411158003	MW-9D	EPA 6020	KPP	1	PASI-O
35411158004	MW-9I	EPA 6020	KPP	1	PASI-O

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 09217186.02/Ludlam-Revised Report  
Pace Project No.: 35411158

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**Method:** EPA 6020  
**Description:** 6020 MET ICPMS  
**Client:** SCS Engineers  
**Date:** August 16, 2018

### General Information:

4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Sample Preparation:

The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

### Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 09217186.02/Ludlam-Revised Report

Pace Project No.: 35411158

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**Sample: MW-9W-2S**      **Lab ID: 35411158001**      Collected: 08/15/18 11:42      Received: 08/15/18 17:45      Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
------------	---------	-------	-----	-----	----	----------	----------	---------	------

**6020 MET ICPMS**

Analytical Method: EPA 6020      Preparation Method: EPA 3010

Arsenic	<b>2.4</b>	ug/L	1.0	0.50	1	08/16/18 05:25	08/16/18 10:48	7440-38-2	
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## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 09217186.02/Ludlam-Revised Report

Pace Project No.: 35411158

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**Sample: MW-9W-I**      **Lab ID: 35411158002**      Collected: 08/15/18 10:48      Received: 08/15/18 17:45      Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020 MET ICPMS</b>									
Analytical Method: EPA 6020    Preparation Method: EPA 3010									
Arsenic	<b>0.50 U</b>	ug/L	1.0	0.50	1	08/16/18 05:25	08/16/18 10:55	7440-38-2	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 09217186.02/Ludlam-Revised Report

Pace Project No.: 35411158

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**Sample: MW-9D**      **Lab ID: 35411158003**      Collected: 08/15/18 13:42      Received: 08/15/18 17:45      Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
------------	---------	-------	-----	-----	----	----------	----------	---------	------

**6020 MET ICPMS**

Analytical Method: EPA 6020      Preparation Method: EPA 3010

Arsenic	<b>2.2</b>	ug/L	1.0	0.50	1	08/16/18 05:25	08/16/18 10:56	7440-38-2	
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## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 09217186.02/Ludlam-Revised Report

Pace Project No.: 35411158

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**Sample: MW-9I**      **Lab ID: 35411158004**    Collected: 08/15/18 14:26    Received: 08/15/18 17:45    Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
------------	---------	-------	-----	-----	----	----------	----------	---------	------

**6020 MET ICPMS**

Analytical Method: EPA 6020    Preparation Method: EPA 3010

Arsenic	<b>145</b>	ug/L	1.0	0.50	1	08/16/18 05:25	08/16/18 10:58	7440-38-2	
---------	------------	------	-----	------	---	----------------	----------------	-----------	--

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 09217186.02/Ludlam-Revised Report

Pace Project No.: 35411158

QC Batch: 469755 Analysis Method: EPA 6020

QC Batch Method: EPA 3010 Analysis Description: 6020 MET

Associated Lab Samples: 35411158001, 35411158002, 35411158003, 35411158004

METHOD BLANK: 2539738 Matrix: Water

Associated Lab Samples: 35411158001, 35411158002, 35411158003, 35411158004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	ug/L	0.50 U	1.0	0.50	08/16/18 10:45	

LABORATORY CONTROL SAMPLE: 2539739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	50	51.5	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2539740 2539741

Parameter	Units	2539740		2539741		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		35411158001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Arsenic	ug/L	2.4	50	50	52.5	52.5	100	100	75-125	0	20

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 09217186.02/Ludlam-Revised Report  
Pace Project No.: 35411158

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

### ANALYTE QUALIFIERS

U Compound was analyzed for but not detected.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 09217186.02/Ludlam-Revised Report

Pace Project No.: 35411158

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35411158001	MW-9W-2S	EPA 3010	469755	EPA 6020	469824
35411158002	MW-9W-I	EPA 3010	469755	EPA 6020	469824
35411158003	MW-9D	EPA 3010	469755	EPA 6020	469824
35411158004	MW-9I	EPA 3010	469755	EPA 6020	469824

### REPORT OF LABORATORY ANALYSIS

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Document Name: Sample Condition Upon Receipt Form

Document Revised: May 30, 2018  
Issuing Authority: Pace Florida Quality Office

NO#: 35411158

PM: CTR

Due Date: 08/16/18

(UR)

Project #

CLIENT: 36--ESCON

Project Manager:

Client:

Date and Initials of person:

Examining contents: \_\_\_\_\_

Label: \_\_\_\_\_

Deliver: \_\_\_\_\_

pH: \_\_\_\_\_

Thermometer Used: T-330

Date: 8/15/18

Time: 1745

Initials: \_\_\_\_\_

State of Origin: \_\_\_\_\_

For WV projects, all containers verified to  $\leq 6^\circ\text{C}$

Cooler #1 Temp.  $^\circ\text{C}$  7.8 (Visual) 0.0 (Correction Factor) 7.8 (Actual)

Samples on ice, cooling process has begun

Cooler #2 Temp.  $^\circ\text{C}$  \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)

Samples on ice, cooling process has begun

Cooler #3 Temp.  $^\circ\text{C}$  \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)

Samples on ice, cooling process has begun

Cooler #4 Temp.  $^\circ\text{C}$  \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)

Samples on ice, cooling process has begun

Cooler #5 Temp.  $^\circ\text{C}$  \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)

Samples on ice, cooling process has begun

Cooler #6 Temp.  $^\circ\text{C}$  \_\_\_\_\_ (Visual) \_\_\_\_\_ (Correction Factor) \_\_\_\_\_ (Actual)

Samples on ice, cooling process has begun

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other \_\_\_\_\_

Shipping Method:  First Overnight  Priority Overnight  Standard Overnight  Ground  International Priority

Other \_\_\_\_\_

Billing:  Recipient  Sender  Third Party  Credit Card  Unknown

Tracking # \_\_\_\_\_

Custody Seal on Cooler/Box Present:  Yes  No Seals intact:  Yes  No Ice: Wet Blue Dry None

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Samples shorted to lab (If Yes, complete) Shorted Date: \_\_\_\_\_ Shorted Time: \_\_\_\_\_ Qty: \_\_\_\_\_

Comments:

Chain of Custody Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody Filled Out	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Relinquished Signature & Sampler Name COC	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples Arrived within Hold Time	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush TAT requested on COC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient Volume	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct Containers Used	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Sample Labels match COC (sample IDs & date/time of collection)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
All containers needing acid/base preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Preservation Information: Preservative: _____ Lot #/Trace #: _____ Date: _____ Time: _____ Initials: _____
All Containers needing preservation are found to be in compliance with EPA recommendation: Exceptions: VOA, Coliform, TOC, O&G, Carbamates	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Headspace in VOA Vials? (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Comments/ Resolution (use back for additional comments): \_\_\_\_\_

Project Manager Review: \_\_\_\_\_

Date: \_\_\_\_\_