Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

September 04, 2013

Ms. Tiffani Doerr
Aquaterra Technologies
122 South Church Street
West Chester, PA 19381

RE: Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Dear Ms. Doerr:
Enclosed are the analytical results for sample(s) received by the laboratory on August 17, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI 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,

Rachel Christner

rachel.christner@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project:	AOI #5 Marcus Hook Facility
Pace Project No.:	30101039

Pennsylvania Certification IDs
1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana/TNI Certification #: LA080002
Louisiana/TNI Certification #: 4086
Maine Certification #: PA0091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: ANTE
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia Certification #: 143
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

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SAMPLE SUMMARY

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30101039001	**ADI-5_MW-465_081513**	Water	08/15/13 11:00	08/17/13 10:45
30101039002	**ADI-5_MW-462_081513**	Water	08/15/13 08:30	08/17/13 10:45
30101039003	**ADI-5_MW-461_081513**	Water	08/15/13 10:15	08/17/13 10:45
30101039004	**ADI-5_MW-460_081513**	Water	08/15/13 09:30	08/17/13 10:45
30101039005	**ADI-5_MW-459_081513**	Water	08/15/13 12:00	08/17/13 10:45
30101039006	**ADI-5_MW-458_081513**	Water	08/15/13 13:50	08/17/13 10:45
30101039007	**ADI-5_MW-455_081513**	Water	08/15/13 14:30	08/17/13 10:45
30101039008	**TRIP BLANK_081513**	Water	08/15/13 00:01	08/17/13 10:45
30101039009	**ADI-5_MW-452_081613**	Water	08/16/13 11:30	08/17/13 10:45
30101039010	**ADI-5_MW-451_081613**	Water	08/16/13 10:30	08/17/13 10:45
30101039011	**ADI-5_MW-449_081613**	Water	08/16/13 12:30	08/17/13 10:45
30101039012	**ADI-5_MW-443_081613**	Water	08/16/13 09:00	08/17/13 10:45
30101039013	**ADI-5_MW-443DUP_081613**	Water	08/16/13 09:00	08/17/13 10:45
30101039014	**FIELD BLANK-081613**	Water	08/16/13 09:15	08/17/13 10:45
30101039015	**TRIP BLANK_081613**	Water	08/16/13 00:01	08/17/13 10:45

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SAMPLE ANALYTE COUNT

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30101039001	**ADI-5_MW-465_081513**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	RTW	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039002	**ADI-5_MW-462_081513**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	RTW	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039003	**ADI-5_MW-461_081513**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	RTW	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039004	**ADI-5_MW-460_081513**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	RTW	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039005	**ADI-5_MW-459_081513**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	RTW	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039006	**ADI-5_MW-458_081513**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	RTW	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039007	**ADI-5_MW-455_081513**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	RTW	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039008	**TRIP BLANK_081513**	EPA 8260	DJL	12	PASI-PA
30101039009	**ADI-5_MW-452_081613**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	CTS	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039010	**ADI-5_MW-451_081613**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	CTS	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA

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SAMPLE ANALYTE COUNT

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30101039011	**ADI-5_MW-449_081613**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	CTS	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039012	**ADI-5_MW-443_081613**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	CTS	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039013	**ADI-5_MW-443DUP_081613**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	CTS	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039014	**FIELD BLANK-081613**	EPA 8011	CWB	1	PASI-PA
		EPA 6010	CTS	1	PASI-PA
		EPA 8270 by SIM	HEK	12	PASI-PA
		EPA 8260	DJL	12	PASI-PA
30101039015	**TRIP BLANK_081613**	EPA 8260	DJL	12	PASI-PA

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PROJECT NARRATIVE

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Method: **EPA 8011**
Description: 8011 GCS EDB and DBCP
Client: Sunoco_Langan
Date: September 04, 2013

General Information:
13 samples were analyzed for EPA 8011. All samples were received in acceptable condition with any exceptions noted below.

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 8011 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.

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 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: GCSV/5882

C3: Relative percent difference between results from each column was greater than 40%. The higher of the two results was reported.

- ADI-5_MW-451_081613 (Lab ID: 30101039010)
  - 1,2-Dibromoethane (EDB)
- ADI-5_MW-461_081513 (Lab ID: 30101039003)
  - 1,2-Dibromoethane (EDB)

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PROJECT NARRATIVE

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Method: **EPA 6010**
Description: 6010 MET ICP, Lab Filtered
Client: Sunoco_Langan
Date: September 04, 2013

General Information:
13 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

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 3005 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.

Method Blank:
All analytes were below the report limit in the method blank 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.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: Sunoco_Langan
Date: September 04, 2013

General Information:
13 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

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 3510 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 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.

QC Batch: MSSV/5453

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Method: **EPA 8260**
Description: 8260 MSV PA UST
Client: Sunoco_Langan
Date: September 04, 2013

General Information:
15 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times 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: MSV/17107

S2: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

- ADI-5_MW-443DUP_081613 (Lab ID: 30101039013)
  - Toluene-d8 (S)
- ADI-5_MW-443_081613 (Lab ID: 30101039012)
  - Toluene-d8 (S)
- DUP (Lab ID: 622530)
  - Toluene-d8 (S)

Method Blank:
All analytes were below the report limit in the method blank 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.

Duplicate Sample:
All duplicate sample results were within method 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: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-465_081513 **Lab ID: 30101039001** Collected: 08/15/13 11:00 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.040 U**	ug/L	0.040	0.012	1	08/23/13 13:36	08/25/13 14:51	106-93-4	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:50	08/22/13 21:27	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 15:47	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.012	1	08/22/13 13:40	08/27/13 15:47	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.023	1	08/22/13 13:40	08/27/13 15:47	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 15:47	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 15:47	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 15:47	218-01-9	
Fluorene	**0.095J**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 15:47	86-73-7	
Naphthalene	**17.5**	ug/L	0.10	0.020	1	08/22/13 13:40	08/27/13 15:47	91-20-3	
Phenanthrene	**0.38**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 15:47	85-01-8	
Pyrene	**0.10 U**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 15:47	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	58	%	15-107		1	08/22/13 13:40	08/27/13 15:47	321-60-8	
Terphenyl-d14 (S)	95	%	40-133		1	08/22/13 13:40	08/27/13 15:47	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**87.0**	ug/L	1.0	0.065	1		08/23/13 04:32	71-43-2	
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.14	1		08/23/13 04:32	107-06-2	
Ethylbenzene	**119**	ug/L	1.0	0.12	1		08/23/13 04:32	100-41-4	
Isopropylbenzene (Cumene)	**22.5**	ug/L	1.0	0.12	1		08/23/13 04:32	98-82-8	
Methyl-tert-butyl ether	**0.88J**	ug/L	1.0	0.19	1		08/23/13 04:32	1634-04-4	
Toluene	**1.6**	ug/L	1.0	0.11	1		08/23/13 04:32	108-88-3	
1,2,4-Trimethylbenzene	**226**	ug/L	1.0	0.13	1		08/23/13 04:32	95-63-6	
1,3,5-Trimethylbenzene	**70.8**	ug/L	1.0	0.12	1		08/23/13 04:32	108-67-8	
Xylene (Total)	**195**	ug/L	3.0	0.31	1		08/23/13 04:32	1330-20-7	
Surrogates									
Toluene-d8 (S)	96	%	85-115		1		08/23/13 04:32	2037-26-5	
4-Bromofluorobenzene (S)	99	%	85-115		1		08/23/13 04:32	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	77-119		1		08/23/13 04:32	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-462_081513 **Lab ID: 30101039002** Collected: 08/15/13 08:30 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.040 U**	ug/L	0.040	0.012	1	08/23/13 13:36	08/25/13 16:15	106-93-4	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:50	08/22/13 21:31	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 16:03	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 16:03	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.023	1	08/22/13 13:40	08/27/13 16:03	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 16:03	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 16:03	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 16:03	218-01-9	
Fluorene	**0.10 U**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 16:03	86-73-7	
Naphthalene	**0.091J**	ug/L	0.10	0.020	1	08/22/13 13:40	08/27/13 16:03	91-20-3	
Phenanthrene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 16:03	85-01-8	
Pyrene	**0.10 U**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 16:03	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	34	%	15-107		1	08/22/13 13:40	08/27/13 16:03	321-60-8	
Terphenyl-d14 (S)	52	%	40-133		1	08/22/13 13:40	08/27/13 16:03	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**1.0 U**	ug/L	1.0	0.065	1		08/23/13 04:57	71-43-2	
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.14	1		08/23/13 04:57	107-06-2	
Ethylbenzene	**1.0 U**	ug/L	1.0	0.12	1		08/23/13 04:57	100-41-4	
Isopropylbenzene (Cumene)	**1.0 U**	ug/L	1.0	0.12	1		08/23/13 04:57	98-82-8	
Methyl-tert-butyl ether	**5.4**	ug/L	1.0	0.19	1		08/23/13 04:57	1634-04-4	
Toluene	**1.0 U**	ug/L	1.0	0.11	1		08/23/13 04:57	108-88-3	
1,2,4-Trimethylbenzene	**1.0 U**	ug/L	1.0	0.13	1		08/23/13 04:57	95-63-6	
1,3,5-Trimethylbenzene	**1.0 U**	ug/L	1.0	0.12	1		08/23/13 04:57	108-67-8	
Xylene (Total)	**3.0 U**	ug/L	3.0	0.31	1		08/23/13 04:57	1330-20-7	
Surrogates									
Toluene-d8 (S)	101	%	85-115		1		08/23/13 04:57	2037-26-5	
4-Bromofluorobenzene (S)	95	%	85-115		1		08/23/13 04:57	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	77-119		1		08/23/13 04:57	17060-07-0	

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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-461_081513 **Lab ID: 30101039003** Collected: 08/15/13 10:15 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.023J**	ug/L	0.040	0.012	1	08/23/13 13:36	08/25/13 16:35	106-93-4	C3
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:50	08/22/13 21:33	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 16:19	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.012	1	08/22/13 13:40	08/27/13 16:19	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.023	1	08/22/13 13:40	08/27/13 16:19	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 16:19	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 16:19	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 16:19	218-01-9	
Fluorene	**0.10 U**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 16:19	86-73-7	
Naphthalene	**0.10**	ug/L	0.10	0.020	1	08/22/13 13:40	08/27/13 16:19	91-20-3	
Phenanthrene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 16:19	85-01-8	
Pyrene	**0.10 U**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 16:19	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	92	%	15-107		1	08/22/13 13:40	08/27/13 16:19	321-60-8	
Terphenyl-d14 (S)	104	%	40-133		1	08/22/13 13:40	08/27/13 16:19	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**1.1**	ug/L	1.0	0.065	1		08/23/13 05:22	71-43-2	
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.14	1		08/23/13 05:22	107-06-2	
Ethylbenzene	**2.7**	ug/L	1.0	0.12	1		08/23/13 05:22	100-41-4	
Isopropylbenzene (Cumene)	**0.54J**	ug/L	1.0	0.12	1		08/23/13 05:22	98-82-8	
Methyl-tert-butyl ether	**0.53J**	ug/L	1.0	0.19	1		08/23/13 05:22	1634-04-4	
Toluene	**0.91J**	ug/L	1.0	0.11	1		08/23/13 05:22	108-88-3	
1,2,4-Trimethylbenzene	**4.9**	ug/L	1.0	0.13	1		08/23/13 05:22	95-63-6	
1,3,5-Trimethylbenzene	**1.7**	ug/L	1.0	0.12	1		08/23/13 05:22	108-67-8	
Xylene (Total)	**11.8**	ug/L	3.0	0.31	1		08/23/13 05:22	1330-20-7	
Surrogates									
Toluene-d8 (S)	98	%	85-115		1		08/23/13 05:22	2037-26-5	
4-Bromofluorobenzene (S)	97	%	85-115		1		08/23/13 05:22	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	77-119		1		08/23/13 05:22	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-460_081513 **Lab ID: 30101039004** Collected: 08/15/13 09:30 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.040 U**	ug/L	0.040	0.012	1	08/23/13 13:36	08/25/13 16:56	106-93-4	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:50	08/22/13 21:36	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.039J**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 16:36	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.012	1	08/22/13 13:40	08/27/13 16:36	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.023	1	08/22/13 13:40	08/27/13 16:36	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 16:36	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 16:36	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 16:36	218-01-9	
Fluorene	**0.84**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 16:36	86-73-7	
Naphthalene	**173**	ug/L	2.0	0.40	20	08/22/13 13:40	09/03/13 13:46	91-20-3	
Phenanthrene	**0.82**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 16:36	85-01-8	
Pyrene	**0.068J**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 16:36	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	77	%	15-107		1	08/22/13 13:40	08/27/13 16:36	321-60-8	
Terphenyl-d14 (S)	101	%	40-133		1	08/22/13 13:40	08/27/13 16:36	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**849**	ug/L	50.0	3.2	50		08/23/13 11:08	71-43-2	
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.14	1		08/23/13 09:29	107-06-2	
Ethylbenzene	**382**	ug/L	50.0	5.8	50		08/23/13 11:08	100-41-4	
Isopropylbenzene (Cumene)	**11.5**	ug/L	1.0	0.12	1		08/23/13 09:29	98-82-8	
Methyl-tert-butyl ether	**0.46J**	ug/L	1.0	0.19	1		08/23/13 09:29	1634-04-4	
Toluene	**298**	ug/L	1.0	0.11	1		08/23/13 09:29	108-88-3	
1,2,4-Trimethylbenzene	**337**	ug/L	50.0	6.6	50		08/23/13 11:08	95-63-6	
1,3,5-Trimethylbenzene	**182**	ug/L	1.0	0.12	1		08/23/13 09:29	108-67-8	
Xylene (Total)	**1380**	ug/L	150	15.6	50		08/23/13 11:08	1330-20-7	
Surrogates									
Toluene-d8 (S)	107	%	85-115		1		08/23/13 09:29	2037-26-5	
4-Bromofluorobenzene (S)	101	%	85-115		1		08/23/13 09:29	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	77-119		1		08/23/13 09:29	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-459_081513 **Lab ID: 30101039005** Collected: 08/15/13 12:00 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.040 U**	ug/L	0.040	0.012	1	08/23/13 13:37	08/25/13 17:17	106-93-4	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:50	08/22/13 21:38	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.051J**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 16:52	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.012	1	08/22/13 13:40	08/27/13 16:52	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.023	1	08/22/13 13:40	08/27/13 16:52	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 16:52	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 16:52	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 16:52	218-01-9	
Fluorene	**0.67**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 16:52	86-73-7	
Naphthalene	**2.2**	ug/L	0.10	0.020	1	08/22/13 13:40	08/27/13 16:52	91-20-3	
Phenanthrene	**0.52**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 16:52	85-01-8	
Pyrene	**0.052J**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 16:52	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	66	%	15-107		1	08/22/13 13:40	08/27/13 16:52	321-60-8	
Terphenyl-d14 (S)	96	%	40-133		1	08/22/13 13:40	08/27/13 16:52	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**1.0 U**	ug/L	1.0	0.065	1		08/23/13 09:05	71-43-2	
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.14	1		08/23/13 09:05	107-06-2	
Ethylbenzene	**2.0**	ug/L	1.0	0.12	1		08/23/13 09:05	100-41-4	
Isopropylbenzene (Cumene)	**0.35J**	ug/L	1.0	0.12	1		08/23/13 09:05	98-82-8	
Methyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.19	1		08/23/13 09:05	1634-04-4	
Toluene	**0.88J**	ug/L	1.0	0.11	1		08/23/13 09:05	108-88-3	
1,2,4-Trimethylbenzene	**4.4**	ug/L	1.0	0.13	1		08/23/13 09:05	95-63-6	
1,3,5-Trimethylbenzene	**1.5**	ug/L	1.0	0.12	1		08/23/13 09:05	108-67-8	
Xylene (Total)	**7.7**	ug/L	3.0	0.31	1		08/23/13 09:05	1330-20-7	
Surrogates									
Toluene-d8 (S)	101	%	85-115		1		08/23/13 09:05	2037-26-5	
4-Bromofluorobenzene (S)	101	%	85-115		1		08/23/13 09:05	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	77-119		1		08/23/13 09:05	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-458_081513 **Lab ID: 30101039006** Collected: 08/15/13 13:50 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.040 U**	ug/L	0.040	0.012	1	08/23/13 13:37	08/25/13 17:38	106-93-4	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:50	08/22/13 21:40	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 17:08	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 17:08	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.023	1	08/22/13 13:40	08/27/13 17:08	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 17:08	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 17:08	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 17:08	218-01-9	
Fluorene	**0.10 U**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 17:08	86-73-7	
Naphthalene	**0.68**	ug/L	0.10	0.020	1	08/22/13 13:40	08/27/13 17:08	91-20-3	
Phenanthrene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 17:08	85-01-8	
Pyrene	**0.10 U**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 17:08	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	94	%	15-107		1	08/22/13 13:40	08/27/13 17:08	321-60-8	
Terphenyl-d14 (S)	104	%	40-133		1	08/22/13 13:40	08/27/13 17:08	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**1.0 U**	ug/L	1.0	0.065	1		08/23/13 05:46	71-43-2	
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.14	1		08/23/13 05:46	107-06-2	
Ethylbenzene	**1.0**	ug/L	1.0	0.12	1		08/23/13 05:46	100-41-4	
Isopropylbenzene (Cumene)	**1.0 U**	ug/L	1.0	0.12	1		08/23/13 05:46	98-82-8	
Methyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.19	1		08/23/13 05:46	1634-04-4	
Toluene	**1.0 U**	ug/L	1.0	0.11	1		08/23/13 05:46	108-88-3	
1,2,4-Trimethylbenzene	**2.3**	ug/L	1.0	0.13	1		08/23/13 05:46	95-63-6	
1,3,5-Trimethylbenzene	**1.0 U**	ug/L	1.0	0.12	1		08/23/13 05:46	108-67-8	
Xylene (Total)	**3.1**	ug/L	3.0	0.31	1		08/23/13 05:46	1330-20-7	
Surrogates									
Toluene-d8 (S)	99	%	85-115		1		08/23/13 05:46	2037-26-5	
4-Bromofluorobenzene (S)	97	%	85-115		1		08/23/13 05:46	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	77-119		1		08/23/13 05:46	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-455_081513 **Lab ID: 30101039007** Collected: 08/15/13 14:30 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.25**	ug/L	0.040	0.012	1	08/23/13 13:37	08/25/13 17:58	106-93-4	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**8.8**	ug/L	5.0	3.2	1	08/22/13 09:50	08/22/13 21:42	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.030J**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 17:24	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 17:24	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.024	1	08/22/13 13:40	08/27/13 17:24	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 17:24	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.012	1	08/22/13 13:40	08/27/13 17:24	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 17:24	218-01-9	
Fluorene	**0.11**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 17:24	86-73-7	
Naphthalene	**232**	ug/L	2.1	0.41	20	08/22/13 13:40	09/03/13 14:02	91-20-3	
Phenanthrene	**0.62**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 17:24	85-01-8	
Pyrene	**0.054J**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 17:24	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	73	%	15-107		1	08/22/13 13:40	08/27/13 17:24	321-60-8	
Terphenyl-d14 (S)	110	%	40-133		1	08/22/13 13:40	08/27/13 17:24	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**838**	ug/L	20.0	1.3	20		08/23/13 09:54	71-43-2	
1,2-Dichloroethane	**0.61J**	ug/L	1.0	0.14	1		08/23/13 08:15	107-06-2	
Ethylbenzene	**447**	ug/L	20.0	2.3	20		08/23/13 09:54	100-41-4	
Isopropylbenzene (Cumene)	**70.5**	ug/L	1.0	0.12	1		08/23/13 08:15	98-82-8	
Methyl-tert-butyl ether	**1.4**	ug/L	1.0	0.19	1		08/23/13 08:15	1634-04-4	
Toluene	**673**	ug/L	20.0	2.2	20		08/23/13 09:54	108-88-3	
1,2,4-Trimethylbenzene	**527**	ug/L	20.0	2.7	20		08/23/13 09:54	95-63-6	
1,3,5-Trimethylbenzene	**237**	ug/L	1.0	0.12	1		08/23/13 08:15	108-67-8	
Xylene (Total)	**1740**	ug/L	60.0	6.2	20		08/23/13 09:54	1330-20-7	
Surrogates									
Toluene-d8 (S)	107	%	85-115		1		08/23/13 08:15	2037-26-5	
4-Bromofluorobenzene (S)	105	%	85-115		1		08/23/13 08:15	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	77-119		1		08/23/13 08:15	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: TRIP BLANK_081513 **Lab ID: 30101039008** Collected: 08/15/13 00:01 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**1.0 U**	ug/L	1.0	0.065	1		08/24/13 03:38	71-43-2	
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.14	1		08/24/13 03:38	107-06-2	
Ethylbenzene	**1.0 U**	ug/L	1.0	0.12	1		08/24/13 03:38	100-41-4	
Isopropylbenzene (Cumene)	**1.0 U**	ug/L	1.0	0.12	1		08/24/13 03:38	98-82-8	
Methyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.19	1		08/24/13 03:38	1634-04-4	
Toluene	**1.0 U**	ug/L	1.0	0.11	1		08/24/13 03:38	108-88-3	
1,2,4-Trimethylbenzene	**1.0 U**	ug/L	1.0	0.13	1		08/24/13 03:38	95-63-6	
1,3,5-Trimethylbenzene	**1.0 U**	ug/L	1.0	0.12	1		08/24/13 03:38	108-67-8	
Xylene (Total)	**3.0 U**	ug/L	3.0	0.31	1		08/24/13 03:38	1330-20-7	
Surrogates									
Toluene-d8 (S)	102	%	85-115		1		08/24/13 03:38	2037-26-5	
4-Bromofluorobenzene (S)	99	%	85-115		1		08/24/13 03:38	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	77-119		1		08/24/13 03:38	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-452_081613 **Lab ID: 30101039009** Collected: 08/16/13 11:30 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.040 U**	ug/L	0.040	0.012	1	08/23/13 13:37	08/25/13 18:19	106-93-4	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:54	08/23/13 07:11	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 17:41	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 17:41	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.023	1	08/22/13 13:40	08/27/13 17:41	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 17:41	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 17:41	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 17:41	218-01-9	
Fluorene	**0.10 U**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 17:41	86-73-7	
Naphthalene	**2.1**	ug/L	0.10	0.020	1	08/22/13 13:40	08/27/13 17:41	91-20-3	
Phenanthrene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 17:41	85-01-8	
Pyrene	**0.14**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 17:41	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	80	%	15-107		1	08/22/13 13:40	08/27/13 17:41	321-60-8	
Terphenyl-d14 (S)	104	%	40-133		1	08/22/13 13:40	08/27/13 17:41	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**26.3**	ug/L	1.0	0.065	1		08/23/13 07:50	71-43-2	
1,2-Dichloroethane	**0.20J**	ug/L	1.0	0.14	1		08/23/13 07:50	107-06-2	
Ethylbenzene	**19.7**	ug/L	1.0	0.12	1		08/23/13 07:50	100-41-4	
Isopropylbenzene (Cumene)	**6.0**	ug/L	1.0	0.12	1		08/23/13 07:50	98-82-8	
Methyl-tert-butyl ether	**9.0**	ug/L	1.0	0.19	1		08/23/13 07:50	1634-04-4	
Toluene	**14.8**	ug/L	1.0	0.11	1		08/23/13 07:50	108-88-3	
1,2,4-Trimethylbenzene	**7.9**	ug/L	1.0	0.13	1		08/23/13 07:50	95-63-6	
1,3,5-Trimethylbenzene	**2.6**	ug/L	1.0	0.12	1		08/23/13 07:50	108-67-8	
Xylene (Total)	**133**	ug/L	3.0	0.31	1		08/23/13 07:50	1330-20-7	
Surrogates									
Toluene-d8 (S)	100	%	85-115		1		08/23/13 07:50	2037-26-5	
4-Bromofluorobenzene (S)	101	%	85-115		1		08/23/13 07:50	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	77-119		1		08/23/13 07:50	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-451_081613 **Lab ID: 30101039010** Collected: 08/16/13 10:30 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.21**	ug/L	0.040	0.012	1	08/23/13 13:37	08/25/13 18:40	106-93-4	C3
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:54	08/23/13 07:21	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 17:57	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.012	1	08/22/13 13:40	08/27/13 17:57	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.023	1	08/22/13 13:40	08/27/13 17:57	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 17:57	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 17:57	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 17:57	218-01-9	
Fluorene	**0.26**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 17:57	86-73-7	
Naphthalene	**65.1**	ug/L	2.0	0.40	20	08/22/13 13:40	09/03/13 12:58	91-20-3	
Phenanthrene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 17:57	85-01-8	
Pyrene	**0.10 U**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 17:57	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	33	%	15-107		1	08/22/13 13:40	08/27/13 17:57	321-60-8	
Terphenyl-d14 (S)	72	%	40-133		1	08/22/13 13:40	08/27/13 17:57	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**443**	ug/L	20.0	1.3	20		08/23/13 08:40	71-43-2	
1,2-Dichloroethane	**0.56J**	ug/L	1.0	0.14	1		08/23/13 07:25	107-06-2	
Ethylbenzene	**497**	ug/L	20.0	2.3	20		08/23/13 08:40	100-41-4	
Isopropylbenzene (Cumene)	**66.3**	ug/L	1.0	0.12	1		08/23/13 07:25	98-82-8	
Methyl-tert-butyl ether	**1.9**	ug/L	1.0	0.19	1		08/23/13 07:25	1634-04-4	
Toluene	**249**	ug/L	1.0	0.11	1		08/23/13 07:25	108-88-3	
1,2,4-Trimethylbenzene	**91.9**	ug/L	1.0	0.13	1		08/23/13 07:25	95-63-6	
1,3,5-Trimethylbenzene	**61.7**	ug/L	1.0	0.12	1		08/23/13 07:25	108-67-8	
Xylene (Total)	**1150**	ug/L	60.0	6.2	20		08/23/13 08:40	1330-20-7	
Surrogates									
Toluene-d8 (S)	108	%	85-115		1		08/23/13 07:25	2037-26-5	
4-Bromofluorobenzene (S)	101	%	85-115		1		08/23/13 07:25	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	77-119		1		08/23/13 07:25	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-449_081613 **Lab ID: 30101039011** Collected: 08/16/13 12:30 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.040 U**	ug/L	0.040	0.012	1	08/23/13 13:37	08/25/13 19:01	106-93-4	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:54	08/23/13 07:24	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.11 U**	ug/L	0.11	0.012	1	08/22/13 13:40	08/27/13 18:13	120-12-7	
Benzo(a)anthracene	**0.11 U**	ug/L	0.11	0.013	1	08/22/13 13:40	08/27/13 18:13	56-55-3	
Benzo(a)pyrene	**0.11 U**	ug/L	0.11	0.024	1	08/22/13 13:40	08/27/13 18:13	50-32-8	
Benzo(b)fluoranthene	**0.11 U**	ug/L	0.11	0.015	1	08/22/13 13:40	08/27/13 18:13	205-99-2	
Benzo(g,h,i)perylene	**0.11 U**	ug/L	0.11	0.012	1	08/22/13 13:40	08/27/13 18:13	191-24-2	
Chrysene	**0.11 U**	ug/L	0.11	0.028	1	08/22/13 13:40	08/27/13 18:13	218-01-9	
Fluorene	**0.031J**	ug/L	0.11	0.014	1	08/22/13 13:40	08/27/13 18:13	86-73-7	
Naphthalene	**1.3**	ug/L	0.11	0.021	1	08/22/13 13:40	08/27/13 18:13	91-20-3	
Phenanthrene	**0.41**	ug/L	0.11	0.015	1	08/22/13 13:40	08/27/13 18:13	85-01-8	
Pyrene	**0.044J**	ug/L	0.11	0.015	1	08/22/13 13:40	08/27/13 18:13	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	78	%	15-107		1	08/22/13 13:40	08/27/13 18:13	321-60-8	
Terphenyl-d14 (S)	109	%	40-133		1	08/22/13 13:40	08/27/13 18:13	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**1.0**	ug/L	1.0	0.065	1		08/23/13 06:11	71-43-2	
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.14	1		08/23/13 06:11	107-06-2	
Ethylbenzene	**9.8**	ug/L	1.0	0.12	1		08/23/13 06:11	100-41-4	
Isopropylbenzene (Cumene)	**0.31J**	ug/L	1.0	0.12	1		08/23/13 06:11	98-82-8	
Methyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.19	1		08/23/13 06:11	1634-04-4	
Toluene	**6.9**	ug/L	1.0	0.11	1		08/23/13 06:11	108-88-3	
1,2,4-Trimethylbenzene	**3.7**	ug/L	1.0	0.13	1		08/23/13 06:11	95-63-6	
1,3,5-Trimethylbenzene	**1.3**	ug/L	1.0	0.12	1		08/23/13 06:11	108-67-8	
Xylene (Total)	**71.9**	ug/L	3.0	0.31	1		08/23/13 06:11	1330-20-7	
Surrogates									
Toluene-d8 (S)	99	%	85-115		1		08/23/13 06:11	2037-26-5	
4-Bromofluorobenzene (S)	99	%	85-115		1		08/23/13 06:11	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	77-119		1		08/23/13 06:11	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-443_081613 **Lab ID: 30101039012** Collected: 08/16/13 09:00 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.31**	ug/L	0.040	0.012	1	08/23/13 13:38	08/25/13 19:22	106-93-4	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:54	08/23/13 07:26	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.086J**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 18:30	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 18:30	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.023	1	08/22/13 13:40	08/27/13 18:30	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 18:30	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 18:30	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 18:30	218-01-9	
Fluorene	**1.2**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 18:30	86-73-7	
Naphthalene	**308**	ug/L	5.1	1.0	50	08/22/13 13:40	09/03/13 13:14	91-20-3	
Phenanthrene	**1.5**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 18:30	85-01-8	
Pyrene	**0.049J**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 18:30	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	76	%	15-107		1	08/22/13 13:40	08/27/13 18:30	321-60-8	
Terphenyl-d14 (S)	90	%	40-133		1	08/22/13 13:40	08/27/13 18:30	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**8450**	ug/L	200	12.9	200		08/23/13 10:19	71-43-2	
1,2-Dichloroethane	**1.9**	ug/L	1.0	0.14	1		08/23/13 07:01	107-06-2	
Ethylbenzene	**6670**	ug/L	200	23.2	200		08/23/13 10:19	100-41-4	
Isopropylbenzene (Cumene)	**84.5**	ug/L	1.0	0.12	1		08/23/13 07:01	98-82-8	
Methyl-tert-butyl ether	**0.48J**	ug/L	1.0	0.19	1		08/23/13 07:01	1634-04-4	
Toluene	**13800**	ug/L	200	21.6	200		08/23/13 10:19	108-88-3	
1,2,4-Trimethylbenzene	**941**	ug/L	200	26.6	200		08/23/13 10:19	95-63-6	
1,3,5-Trimethylbenzene	**303**	ug/L	1.0	0.12	1		08/23/13 07:01	108-67-8	
Xylene (Total)	**43700**	ug/L	600	62.2	200		08/23/13 10:19	1330-20-7	
Surrogates									
Toluene-d8 (S)	116	%	85-115		1		08/23/13 07:01	2037-26-5	S2
4-Bromofluorobenzene (S)	108	%	85-115		1		08/23/13 07:01	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	77-119		1		08/23/13 07:01	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: ADI-5_MW-443DUP_081613 **Lab ID: 30101039013** Collected: 08/16/13 09:00 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.30**	ug/L	0.040	0.012	1	08/23/13 13:38	08/25/13 19:42	106-93-4	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:54	08/23/13 07:32	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.13**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 18:46	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.012	1	08/22/13 13:40	08/27/13 18:46	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.023	1	08/22/13 13:40	08/27/13 18:46	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 18:46	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 18:46	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 18:46	218-01-9	
Fluorene	**1.1**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 18:46	86-73-7	
Naphthalene	**353**	ug/L	5.0	0.99	50	08/22/13 13:40	09/03/13 13:30	91-20-3	
Phenanthrene	**1.6**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 18:46	85-01-8	
Pyrene	**0.061J**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 18:46	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	73	%	15-107		1	08/22/13 13:40	08/27/13 18:46	321-60-8	
Terphenyl-d14 (S)	98	%	40-133		1	08/22/13 13:40	08/27/13 18:46	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**8320**	ug/L	200	12.9	200		08/23/13 10:44	71-43-2	
1,2-Dichloroethane	**2.0**	ug/L	1.0	0.14	1		08/23/13 06:36	107-06-2	
Ethylbenzene	**6260**	ug/L	200	23.2	200		08/23/13 10:44	100-41-4	
Isopropylbenzene (Cumene)	**82.5**	ug/L	1.0	0.12	1		08/23/13 06:36	98-82-8	
Methyl-tert-butyl ether	**0.51J**	ug/L	1.0	0.19	1		08/23/13 06:36	1634-04-4	
Toluene	**13300**	ug/L	200	21.6	200		08/23/13 10:44	108-88-3	
1,2,4-Trimethylbenzene	**857**	ug/L	200	26.6	200		08/23/13 10:44	95-63-6	
1,3,5-Trimethylbenzene	**286**	ug/L	1.0	0.12	1		08/23/13 06:36	108-67-8	
Xylene (Total)	**41700**	ug/L	600	62.2	200		08/23/13 10:44	1330-20-7	
Surrogates									
Toluene-d8 (S)	121	%	85-115		1		08/23/13 06:36	2037-26-5	S2
4-Bromofluorobenzene (S)	106	%	85-115		1		08/23/13 06:36	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	77-119		1		08/23/13 06:36	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: FIELD BLANK-081613 **Lab ID: 30101039014** Collected: 08/16/13 09:15 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.040 U**	ug/L	0.040	0.012	1	08/23/13 13:38	08/25/13 20:03	106-93-4	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010 Preparation Method: EPA 3005								
Lead, Dissolved	**5.0 U**	ug/L	5.0	3.2	1	08/22/13 09:54	08/23/13 07:35	7439-92-1	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510								
Anthracene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 19:02	120-12-7	
Benzo(a)anthracene	**0.10 U**	ug/L	0.10	0.013	1	08/22/13 13:40	08/27/13 19:02	56-55-3	
Benzo(a)pyrene	**0.10 U**	ug/L	0.10	0.023	1	08/22/13 13:40	08/27/13 19:02	50-32-8	
Benzo(b)fluoranthene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 19:02	205-99-2	
Benzo(g,h,i)perylene	**0.10 U**	ug/L	0.10	0.011	1	08/22/13 13:40	08/27/13 19:02	191-24-2	
Chrysene	**0.10 U**	ug/L	0.10	0.027	1	08/22/13 13:40	08/27/13 19:02	218-01-9	
Fluorene	**0.10 U**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 19:02	86-73-7	
Naphthalene	**0.80**	ug/L	0.10	0.020	1	08/22/13 13:40	08/27/13 19:02	91-20-3	
Phenanthrene	**0.10 U**	ug/L	0.10	0.015	1	08/22/13 13:40	08/27/13 19:02	85-01-8	
Pyrene	**0.10 U**	ug/L	0.10	0.014	1	08/22/13 13:40	08/27/13 19:02	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	87	%	15-107		1	08/22/13 13:40	08/27/13 19:02	321-60-8	
Terphenyl-d14 (S)	125	%	40-133		1	08/22/13 13:40	08/27/13 19:02	1718-51-0	
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**1.0 U**	ug/L	1.0	0.065	1		08/23/13 03:43	71-43-2	
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.14	1		08/23/13 03:43	107-06-2	
Ethylbenzene	**1.0 U**	ug/L	1.0	0.12	1		08/23/13 03:43	100-41-4	
Isopropylbenzene (Cumene)	**1.0 U**	ug/L	1.0	0.12	1		08/23/13 03:43	98-82-8	
Methyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.19	1		08/23/13 03:43	1634-04-4	
Toluene	**1.0 U**	ug/L	1.0	0.11	1		08/23/13 03:43	108-88-3	
1,2,4-Trimethylbenzene	**1.0 U**	ug/L	1.0	0.13	1		08/23/13 03:43	95-63-6	
1,3,5-Trimethylbenzene	**1.0 U**	ug/L	1.0	0.12	1		08/23/13 03:43	108-67-8	
Xylene (Total)	**3.0 U**	ug/L	3.0	0.31	1		08/23/13 03:43	1330-20-7	
Surrogates									
Toluene-d8 (S)	99	%	85-115		1		08/23/13 03:43	2037-26-5	
4-Bromofluorobenzene (S)	97	%	85-115		1		08/23/13 03:43	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	77-119		1		08/23/13 03:43	17060-07-0	

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ANALYTICAL RESULTS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Sample: TRIP BLANK_081613 **Lab ID: 30101039015** Collected: 08/16/13 00:01 Received: 08/17/13 10:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST	Analytical Method: EPA 8260								
Benzene	**1.0 U**	ug/L	1.0	0.065	1		08/24/13 03:14	71-43-2	
1,2-Dichloroethane	**1.0 U**	ug/L	1.0	0.14	1		08/24/13 03:14	107-06-2	
Ethylbenzene	**1.0 U**	ug/L	1.0	0.12	1		08/24/13 03:14	100-41-4	
Isopropylbenzene (Cumene)	**1.0 U**	ug/L	1.0	0.12	1		08/24/13 03:14	98-82-8	
Methyl-tert-butyl ether	**1.0 U**	ug/L	1.0	0.19	1		08/24/13 03:14	1634-04-4	
Toluene	**1.0 U**	ug/L	1.0	0.11	1		08/24/13 03:14	108-88-3	
1,2,4-Trimethylbenzene	**1.0 U**	ug/L	1.0	0.13	1		08/24/13 03:14	95-63-6	
1,3,5-Trimethylbenzene	**1.0 U**	ug/L	1.0	0.12	1		08/24/13 03:14	108-67-8	
Xylene (Total)	**3.0 U**	ug/L	3.0	0.31	1		08/24/13 03:14	1330-20-7	
Surrogates									
Toluene-d8 (S)	100	%	85-115		1		08/24/13 03:14	2037-26-5	
4-Bromofluorobenzene (S)	98	%	85-115		1		08/24/13 03:14	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	77-119		1		08/24/13 03:14	17060-07-0	

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QUALITY CONTROL DATA

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

QC Batch: GCSV/5882 — Analysis Method: EPA 8011
QC Batch Method: EPA 8011 — Analysis Description: GCS 8011 EDB DBCP
Associated Lab Samples: 30101039001, 30101039002, 30101039003, 30101039004, 30101039005, 30101039006, 30101039007, 30101039009, 30101039010, 30101039011, 30101039012, 30101039013, 30101039014

METHOD BLANK: 622725 — Matrix: Water
Associated Lab Samples: 30101039001, 30101039002, 30101039003, 30101039004, 30101039005, 30101039006, 30101039007, 30101039009, 30101039010, 30101039011, 30101039012, 30101039013, 30101039014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	0.040 U	0.040	08/25/13 14:10	

LABORATORY CONTROL SAMPLE: 622726

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	.25	0.27	109	60-140	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 622727 622728

Parameter	Units	30101039001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	0.040 U	.4	.4	0.52	0.53	130	131	60-140	1	25	

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QUALITY CONTROL DATA

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

QC Batch: MPRP/11341 — Analysis Method: EPA 6010
QC Batch Method: EPA 3005 — Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 30101039001, 30101039002, 30101039003, 30101039004, 30101039005, 30101039006, 30101039007

METHOD BLANK: 621975 — Matrix: Water
Associated Lab Samples: 30101039001, 30101039002, 30101039003, 30101039004, 30101039005, 30101039006, 30101039007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead, Dissolved	ug/L	5.0 U	5.0	08/23/13 14:09	

LABORATORY CONTROL SAMPLE: 621976

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead, Dissolved	ug/L	500	466	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 621978 621979

Parameter	Units	30100925001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead, Dissolved	ug/L	5.0 U	500	500	490	492	98	98	75-125	0	20	

MATRIX SPIKE SAMPLE: 621981

Parameter	Units	30100942007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead, Dissolved	ug/L	5.0 U	500	495	99	75-125	

SAMPLE DUPLICATE: 621977

Parameter	Units	30100925001 Result	Dup Result	RPD	Max RPD	Qualifiers
Lead, Dissolved	ug/L	5.0 U	5.0 U		20	

SAMPLE DUPLICATE: 621980

Parameter	Units	30100942007 Result	Dup Result	RPD	Max RPD	Qualifiers
Lead, Dissolved	ug/L	5.0 U	5.0 U		20	

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QUALITY CONTROL DATA

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

QC Batch: MPRP/11342 — Analysis Method: EPA 6010
QC Batch Method: EPA 3005 — Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 30101039009, 30101039010, 30101039011, 30101039012, 30101039013, 30101039014

METHOD BLANK: 621987 — Matrix: Water
Associated Lab Samples: 30101039009, 30101039010, 30101039011, 30101039012, 30101039013, 30101039014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead, Dissolved	ug/L	5.0 U	5.0	08/23/13 07:06	

LABORATORY CONTROL SAMPLE: 621988

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead, Dissolved	ug/L	500	473	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 621990 621991

Parameter	Units	30101039009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead, Dissolved	ug/L	5.0 U	500	500	494	482	99	96	75-125	3	20	

MATRIX SPIKE SAMPLE: 621993

Parameter	Units	30101156005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead, Dissolved	ug/L	5.0 U	500	478	96	75-125	

SAMPLE DUPLICATE: 621989

Parameter	Units	30101039009 Result	Dup Result	RPD	Max RPD	Qualifiers
Lead, Dissolved	ug/L	5.0 U	5.0 U		20	

SAMPLE DUPLICATE: 621992

Parameter	Units	30101156005 Result	Dup Result	RPD	Max RPD	Qualifiers
Lead, Dissolved	ug/L	5.0 U	5.0 U		20	

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QUALITY CONTROL DATA

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

QC Batch: MSV/17107 — Analysis Method: EPA 8260
QC Batch Method: EPA 8260 — Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 30101039001, 30101039002, 30101039003, 30101039004, 30101039005, 30101039006, 30101039007, 30101039009, 30101039010, 30101039011, 30101039012, 30101039013, 30101039014

METHOD BLANK: 622140 — Matrix: Water
Associated Lab Samples: 30101039001, 30101039002, 30101039003, 30101039004, 30101039005, 30101039006, 30101039007, 30101039009, 30101039010, 30101039011, 30101039012, 30101039013, 30101039014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	1.0 U	1.0	08/23/13 00:49	
1,2-Dichloroethane	ug/L	1.0 U	1.0	08/23/13 00:49	
1,3,5-Trimethylbenzene	ug/L	1.0 U	1.0	08/23/13 00:49	
Benzene	ug/L	1.0 U	1.0	08/23/13 00:49	
Ethylbenzene	ug/L	1.0 U	1.0	08/23/13 00:49	
Isopropylbenzene (Cumene)	ug/L	1.0 U	1.0	08/23/13 00:49	
Methyl-tert-butyl ether	ug/L	1.0 U	1.0	08/23/13 00:49	
Toluene	ug/L	1.0 U	1.0	08/23/13 00:49	
Xylene (Total)	ug/L	3.0 U	3.0	08/23/13 00:49	
1,2-Dichloroethane-d4 (S)	%	101	77-119	08/23/13 00:49	
4-Bromofluorobenzene (S)	%	98	85-115	08/23/13 00:49	
Toluene-d8 (S)	%	101	85-115	08/23/13 00:49	

LABORATORY CONTROL SAMPLE: 622141

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	17.5	88	64-116	
1,2-Dichloroethane	ug/L	20	17.1	85	62-125	
1,3,5-Trimethylbenzene	ug/L	20	17.8	89	61-114	
Benzene	ug/L	20	18.0	90	66-122	
Ethylbenzene	ug/L	20	17.1	85	69-119	
Isopropylbenzene (Cumene)	ug/L	20	19.4	97	68-126	
Methyl-tert-butyl ether	ug/L	20	16.8	84	58-131	
Toluene	ug/L	20	17.4	87	72-115	
Xylene (Total)	ug/L	60	52.6	88	70-123	
1,2-Dichloroethane-d4 (S)	%			100	77-119	
4-Bromofluorobenzene (S)	%			99	85-115	
Toluene-d8 (S)	%			100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 622142 622143

Parameter	Units	30100639001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	17.5	18.7	87	93	64-116	7	30	
1,2-Dichloroethane	ug/L	ND	20	20	16.1	16.3	81	81	62-125	1	30	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	18.1	18.2	91	91	61-114	1	30	
Benzene	ug/L	ND	20	20	17.9	19.2	90	96	66-122	7	30	
Ethylbenzene	ug/L	ND	20	20	17.9	18.4	89	92	69-119	3	30	

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QUALITY CONTROL DATA

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 622142 622143

Parameter	Units	30100639001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Isopropylbenzene (Cumene)	ug/L	ND	20	20	19.5	20.4	97	102	68-126	5	30	
Methyl-tert-butyl ether	ug/L	21.9	20	20	37.6	38.0	78	80	58-131	1	30	
Toluene	ug/L	ND	20	20	17.7	18.6	89	93	72-115	5	30	
Xylene (Total)	ug/L	ND	60	60	55.2	57.3	92	96	70-123	4	30	
1,2-Dichloroethane-d4 (S)	%						100	96	77-119			
4-Bromofluorobenzene (S)	%						99	101	85-115			
Toluene-d8 (S)	%						100	102	85-115			

SAMPLE DUPLICATE: 622530

Parameter	Units	30101039012 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	941	857	9	30	
1,2-Dichloroethane	ug/L	1.9	2.0	3	30	
1,3,5-Trimethylbenzene	ug/L	303	286	6	30	
Benzene	ug/L	8450	8320	1	30	
Ethylbenzene	ug/L	6670	6260	6	30	
Isopropylbenzene (Cumene)	ug/L	84.5	82.5	2	30	
Methyl-tert-butyl ether	ug/L	0.48J	0.51J		30	
Toluene	ug/L	13800	13300	4	30	
Xylene (Total)	ug/L	43700	41700	5	30	
1,2-Dichloroethane-d4 (S)	%	105	102	3		
4-Bromofluorobenzene (S)	%	108	106	2		
Toluene-d8 (S)	%	116	121	5		S2

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QUALITY CONTROL DATA

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

QC Batch: MSV/17117 | Analysis Method: EPA 8260
QC Batch Method: EPA 8260 | Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 30101039008, 30101039015

METHOD BLANK: 622550 | Matrix: Water
Associated Lab Samples: 30101039008, 30101039015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	1.0 U	1.0	08/24/13 02:49	
1,2-Dichloroethane	ug/L	1.0 U	1.0	08/24/13 02:49	
1,3,5-Trimethylbenzene	ug/L	1.0 U	1.0	08/24/13 02:49	
Benzene	ug/L	1.0 U	1.0	08/24/13 02:49	
Ethylbenzene	ug/L	1.0 U	1.0	08/24/13 02:49	
Isopropylbenzene (Cumene)	ug/L	1.0 U	1.0	08/24/13 02:49	
Methyl-tert-butyl ether	ug/L	1.0 U	1.0	08/24/13 02:49	
Toluene	ug/L	1.0 U	1.0	08/24/13 02:49	
Xylene (Total)	ug/L	3.0 U	3.0	08/24/13 02:49	
1,2-Dichloroethane-d4 (S)	%	95	77-119	08/24/13 02:49	
4-Bromofluorobenzene (S)	%	100	85-115	08/24/13 02:49	
Toluene-d8 (S)	%	100	85-115	08/24/13 02:49	

LABORATORY CONTROL SAMPLE: 622551

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	17.8	89	64-116	
1,2-Dichloroethane	ug/L	20	16.5	82	62-125	
1,3,5-Trimethylbenzene	ug/L	20	18.1	91	61-114	
Benzene	ug/L	20	18.1	90	66-122	
Ethylbenzene	ug/L	20	17.9	90	69-119	
Isopropylbenzene (Cumene)	ug/L	20	19.6	98	68-126	
Methyl-tert-butyl ether	ug/L	20	17.6	88	58-131	
Toluene	ug/L	20	18.0	90	72-115	
Xylene (Total)	ug/L	60	54.6	91	70-123	
1,2-Dichloroethane-d4 (S)	%			98	77-119	
4-Bromofluorobenzene (S)	%			100	85-115	
Toluene-d8 (S)	%			103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 622552 622553

Parameter	Units	30101237001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	17.7	16.9	88	84	64-116	5	30	
1,2-Dichloroethane	ug/L	ND	20	20	17.0	16.6	85	83	62-125	2	30	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	17.6	17.4	88	87	61-114	1	30	
Benzene	ug/L	ND	20	20	18.3	16.9	91	85	66-122	8	30	
Ethylbenzene	ug/L	ND	20	20	18.3	17.1	92	86	69-119	7	30	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	19.6	18.8	98	94	68-126	4	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	16.6	17.9	83	89	58-131	8	30	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 622552 622553

Parameter	Units	30101237001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Toluene	ug/L	ND	20	20	19.2	17.8	92	85	72-115	7	30	
Xylene (Total)	ug/L	ND	60	60	55.9	52.1	93	87	70-123	7	30	
1,2-Dichloroethane-d4 (S)	%						102	103	77-119			
4-Bromofluorobenzene (S)	%						98	99	85-115			
Toluene-d8 (S)	%						101	98	85-115			

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

QC Batch: OEXT/16322 — Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3510 — Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 30101039001, 30101039002, 30101039003, 30101039004, 30101039005, 30101039006, 30101039007, 30101039009, 30101039010, 30101039011, 30101039012, 30101039013, 30101039014

METHOD BLANK: 622010 — Matrix: Water
Associated Lab Samples: 30101039001, 30101039002, 30101039003, 30101039004, 30101039005, 30101039006, 30101039007, 30101039009, 30101039010, 30101039011, 30101039012, 30101039013, 30101039014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Anthracene	ug/L	0.10 U	0.10	08/27/13 15:14	
Benzo(a)anthracene	ug/L	0.10 U	0.10	08/27/13 15:14	
Benzo(a)pyrene	ug/L	0.10 U	0.10	08/27/13 15:14	
Benzo(b)fluoranthene	ug/L	0.10 U	0.10	08/27/13 15:14	
Benzo(g,h,i)perylene	ug/L	0.10 U	0.10	08/27/13 15:14	
Chrysene	ug/L	0.10 U	0.10	08/27/13 15:14	
Fluorene	ug/L	0.10 U	0.10	08/27/13 15:14	
Naphthalene	ug/L	0.10 U	0.10	08/27/13 15:14	
Phenanthrene	ug/L	0.10 U	0.10	08/27/13 15:14	
Pyrene	ug/L	0.10 U	0.10	08/27/13 15:14	
2-Fluorobiphenyl (S)	%	93	15-107	08/27/13 15:14	
Terphenyl-d14 (S)	%	123	40-133	08/27/13 15:14	

LABORATORY CONTROL SAMPLE: 622011

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Anthracene	ug/L	2	1.4	71	43-132	
Benzo(a)anthracene	ug/L	2	1.6	78	40-134	
Benzo(a)pyrene	ug/L	2	1.3	67	34-135	
Benzo(b)fluoranthene	ug/L	2	1.4	68	35-143	
Benzo(g,h,i)perylene	ug/L	2	1.6	81	23-149	
Chrysene	ug/L	2	1.4	71	40-141	
Fluorene	ug/L	2	1.5	74	46-121	
Naphthalene	ug/L	2	1.4	68	33-115	
Phenanthrene	ug/L	2	1.5	75	36-124	
Pyrene	ug/L	2	1.5	74	45-132	
2-Fluorobiphenyl (S)	%			76	15-107	
Terphenyl-d14 (S)	%			91	40-133	

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Greensburg, PA 15601
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QUALIFIERS

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

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-PA	Pace Analytical Services - Greensburg

BATCH QUALIFIERS

Batch: OEXT/16322

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

C3	Relative percent difference between results from each column was greater than 40%. The higher of the two results was reported.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30101039001	**ADI-5_MW-465_081513**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039002	**ADI-5_MW-462_081513**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039003	**ADI-5_MW-461_081513**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039004	**ADI-5_MW-460_081513**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039005	**ADI-5_MW-459_081513**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039006	**ADI-5_MW-458_081513**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039007	**ADI-5_MW-455_081513**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039009	**ADI-5_MW-452_081613**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039010	**ADI-5_MW-451_081613**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039011	**ADI-5_MW-449_081613**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039012	**ADI-5_MW-443_081613**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039013	**ADI-5_MW-443DUP_081613**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039014	**FIELD BLANK-081613**	EPA 8011	GCSV/5882	EPA 8011	GCSV/5883
30101039001	**ADI-5_MW-465_081513**	EPA 3005	MPRP/11341	EPA 6010	ICP/10689
30101039002	**ADI-5_MW-462_081513**	EPA 3005	MPRP/11341	EPA 6010	ICP/10689
30101039003	**ADI-5_MW-461_081513**	EPA 3005	MPRP/11341	EPA 6010	ICP/10689
30101039004	**ADI-5_MW-460_081513**	EPA 3005	MPRP/11341	EPA 6010	ICP/10689
30101039005	**ADI-5_MW-459_081513**	EPA 3005	MPRP/11341	EPA 6010	ICP/10689
30101039006	**ADI-5_MW-458_081513**	EPA 3005	MPRP/11341	EPA 6010	ICP/10689
30101039007	**ADI-5_MW-455_081513**	EPA 3005	MPRP/11341	EPA 6010	ICP/10689
30101039009	**ADI-5_MW-452_081613**	EPA 3005	MPRP/11342	EPA 6010	ICP/10690
30101039010	**ADI-5_MW-451_081613**	EPA 3005	MPRP/11342	EPA 6010	ICP/10690
30101039011	**ADI-5_MW-449_081613**	EPA 3005	MPRP/11342	EPA 6010	ICP/10690
30101039012	**ADI-5_MW-443_081613**	EPA 3005	MPRP/11342	EPA 6010	ICP/10690
30101039013	**ADI-5_MW-443DUP_081613**	EPA 3005	MPRP/11342	EPA 6010	ICP/10690
30101039014	**FIELD BLANK-081613**	EPA 3005	MPRP/11342	EPA 6010	ICP/10690
30101039001	**ADI-5_MW-465_081513**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039002	**ADI-5_MW-462_081513**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039003	**ADI-5_MW-461_081513**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039004	**ADI-5_MW-460_081513**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039005	**ADI-5_MW-459_081513**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039006	**ADI-5_MW-458_081513**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039007	**ADI-5_MW-455_081513**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039009	**ADI-5_MW-452_081613**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039010	**ADI-5_MW-451_081613**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039011	**ADI-5_MW-449_081613**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039012	**ADI-5_MW-443_081613**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039013	**ADI-5_MW-443DUP_081613**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039014	**FIELD BLANK-081613**	EPA 3510	OEXT/16322	EPA 8270 by SIM	MSSV/5453
30101039001	**ADI-5_MW-465_081513**	EPA 8260	MSV/17107		
30101039002	**ADI-5_MW-462_081513**	EPA 8260	MSV/17107		
30101039003	**ADI-5_MW-461_081513**	EPA 8260	MSV/17107		
30101039004	**ADI-5_MW-460_081513**	EPA 8260	MSV/17107		
30101039005	**ADI-5_MW-459_081513**	EPA 8260	MSV/17107		
30101039006	**ADI-5_MW-458_081513**	EPA 8260	MSV/17107		
30101039007	**ADI-5_MW-455_081513**	EPA 8260	MSV/17107		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: AOI #5 Marcus Hook Facility
Pace Project No.: 30101039

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30101039008	**TRIP BLANK_081513**	EPA 8260	MSV/17117		
30101039009	**ADI-5_MW-452_081613**	EPA 8260	MSV/17107		
30101039010	**ADI-5_MW-451_081613**	EPA 8260	MSV/17107		
30101039011	**ADI-5_MW-449_081613**	EPA 8260	MSV/17107		
30101039012	**ADI-5_MW-443_081613**	EPA 8260	MSV/17107		
30101039013	**ADI-5_MW-443DUP_081613**	EPA 8260	MSV/17107		
30101039014	**FIELD BLANK-081613**	EPA 8260	MSV/17107		
30101039015	**TRIP BLANK_081613**	EPA 8260	MSV/17117		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:

Company:	~~Langan Engineering~~ AQUATERRA
Address:	~~2700 Kelly Road, Suite 200, Warrington, PA 18976~~ 122 So. Church St West Chester, PA 19382
Email To:	~~kward@langan.com~~
Phone:	~~215-491-0500~~ Fax: ~~215-491-0501~~
Requested Due Date/TAT:	Normal

Section B Required Project Information:

Report To:	Kristen Ward
Copy To:	Emily Strake
Purchase Order No.:	
Project Name:	Marcus Hook Refinery
Project Number:	

Section C Invoice Information:

Attention:	Accounts Payable
Company Name:	Langan Engineering
Address:	Warrington, PA 18976
Pace Quote Reference:	
Pace Project Manager:	Rachel Christner
Pace Profile #:	

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHE

Site Location STATE: PA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	1,2-Dichloroethane - 8260	1,2,4-Trimethylbenzene - 8260	1,3,5-Trimethylbenzene - 8260	BTEX, MTBE, Cumene - 8260	1,2-Dibromoethane - 8011	Anthracene, Benzo(a)anthracene	Benzo(g,h,i)perylene, Benzo(a)pyre	Benzo(b)fluoranthene, Chrysene	Fluorene, Phenanthrene, Pyrene	Naphthalene	Lead (Dissolved)							3010/1059
1	AOI-5_MW-465_081513	WT	G	8/15	1100				8	3			5																						001
2	AOI-5_MW-462_081513	WT	G	8/15	0830				8	3			5																						002
3	AOI-5_MW-461_081513	WT	G	8/15	1015				8	3			5																						003
4	AOI-5_MW-460_081513	WT	G	8/15	0930				8	3			5																						004
5	AOI-5_MW-459_081513	WT	G	8/15	1200				8	3			5																						005
6	AOI-5_MW-458_081513	WT	G	8/15	1330				8	3			5																						006
7	AOI-5_MW-455_081513	WT	G	8/15	1430				8	3			5																						007
8																																			
9																																			
10																																			
11																																			
12	TRIP BLANK_081513	WT	G	8/15					2				2																						004

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* Lab filter dissolved Lead	[signature]	8/15/13	1630	AQUATERRA SAMPLE FRIDGE	8/15/13	1630	
	[signature]	8/16/13	1620	MAU / PACE	8/16/13	1620	
	MAU / PACE	8/16/13	1654	[signature]	8-17-13	1045	0.7/3 0.3 Y N N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: LUKE MOKRYCKI

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 08/15/13

Temp in °C | Received on Ice (Y/N) | Custody Seated Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 2-Feb-2007

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Page: 1 of 1

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Address: ~~2700 Kelly Road, Suite 200 Warrington, PA 18976~~ 122 SO. CHURCH ST. WEST CHESTER, PA 19382
Email To: ~~kward@langan.com~~
Phone: ~~215-491-6500~~ Fax: ~~215-491-6501~~
Requested Due Date/TAT: Normal

Section B Required Project Information:

Report To: Kristen Ward
Copy To: Emily Strake
Purchase Order No.:
Project Name: Marcus Hook Refinery
Project Number:

Section C Invoice Information:

Attention: Accounts Payable
Company Name: Langan Engineering
Address: Warrington, PA 18976
Pace Quote Reference:
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHE _____

Site Location STATE: PA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED DATE	COLLECTED TIME	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	1,2-Dichloroethane - 8260	1,2,4-Trimethylbenzene - 8260	1,3,5-Trimethylbenzene - 8260	BTEX, MTBE, Cumene - 8260	1,2-Dibromoethane - 8011	Anthracene, Benzo(a)anthracene	Benzo(g,h,i)perylene, Benzo(a)pyre	Benzo(b)fluoranthene, Chrysene	Fluorene, Phenanthrene, Pyrene	Naphthalene	Lead (Dissolved)	
1	ADI-5_MW-452_081613	WT	G	8/16	1130						8	3		0	5					X	X	X	X	X	X	X	X	X	X		30101039
2	ADI-5_MW-451_081613	WT	G	8/16	1030						8	3			5																004
3	ADI-5_MW-449_081613	WT	G	8/16	1230						8	3			5																01003
4	ADI-5_MW-443_081613	WT	G	8/16	0900						8	3			5																01004
5	ADI-5_MW-443DUP_081613	WT	G	8/16	0900						8	3			5					X	X	X	X	X	X	X	X	X	X		01005
6																															006
7																															007
8																															
9																															
10																															
11	FIELD BLANK-081613	WT	G	8/16	0915																										
12	TRIP BLANK_081613	WT	G	8/16							2				2																014
																															015 004

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*Lab filter diss. LEAD	[signature]	8/16/13	1430	AQUATERRA SAMPLE PRIDE	8/16	1430				
	[signature]	8/16/13	1620	[signature] PACE	8/16/13	1620				
	[signature] PACE	8/16/13	1654	[signature]	8/17/13	1045	0.3	Y	N	N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: LUKE MOKRY (K)
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 08/16/13

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.06, 2-Feb-2007

MAC

Sample Condition Upon Receipt

Pace Analytical

Client Name: Aquaterra Project # 30101039

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 8603 3856 5380

Optional
Proj. Due Date:
Proj. Name:

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 5 (6) 7 Type of Ice: (Wet) Blue None ☑ Samples on ice, cooling process has begun

Cooler Temperature 0.6/1.3/0.3 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: MAC 8-17-13

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☐Yes ☑No ☐N/A	10. See comments
Filtered volume received for Dissolved tests	☐Yes ☑No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: (VOA) coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	Initial when completed MAC Lot # of added preservative
Samples checked for dechlorination:	☑Yes ☐No ☐N/A	14.
Headspace in VOA Vials (>6mm):	☑Yes ☐No ☐N/A	15. See comments
Trip Blank Present:	☑Yes ☐No ☐N/A	16.
Trip Blank Custody Seals Present	☑Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: Sample 004 - 1 vial broken. Sample 007 - 1 vial broken. Sample 012 - 1 vial Broken
Headspace → Sample 001 - 1 vial, Sample 002 - 1 vial, Sample 006 - 1 vial, Sample 008 (Trip blank) - 2 vials
Sample 012 - 3 vials, Sample 013 - 5 vials, Sample 014 - 1 vial, Sample 015 (Trip blank) - 2 vials

Project Manager Review: [signature] **Date:** 8/19/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

F-ALL-C003-6 SCURF front 2April2012.xls

Pace Analytical

Project Number: 30101039

Client Name: Aquaterra

Item No.	Matrix Code	Glass Jar (120 / 250 / 500 / 1L)	Soil kit (2 SB, 1M, soil jar)	Chemistry (250 / 500 / 1L)	Organics (1L)	Nutrient (250 / 500)	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y (N)	O & G (1L)	TPH (1L)	VOA (40 ml) 30 ml	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filter	Radchem Nalgene (125 / 250 / 500 / 1L)	Radchem Nalgene (1/2 gal. / 1 gal.L)	Cubitainer (500 ml / 4L)	Ziploc	Other	Other
001	WT				2						1			5										
003					↓						↓			↓										
004					2						1			4										
005					2						1			5										
006					2						1			5										
007					2						1			4										
008														2										
009					2						1			5										
014					↓						↓			↓										
015														2										