Appendix E
Laboratory Analytical Reports

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Analysis Report

REVISED

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

Report Date: June 21, 2016

Project: Marcus Hook Facility

Submittal Date: 04/22/2016
Group Number: 1653594
SDG: MHF30
PO Number: 34004491
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
MW568-0-2-Soil Grab Soil	8347255
MW568-7-8-Soil Grab Soil	8347256
MW569-0-2-Soil Grab Soil	8347257
MW569-6-7-Soil Grab Soil	8347258
MW570-0-2-Soil Grab Soil	8347259
MW570-3-4-Soil Grab Soil	8347260
MW571-0-2-Soil Grab Soil	8347261
MW571-6-7-Soil Grab Soil	8347262
BH-16-010-0-2-Soil Grab Soil	8347263
BH-16-010-6-7.5-Soil Grab Soil	8347264
MW572-0-2-Soil Grab Soil	8347265
MW572-6-7-Soil Grab Soil	8347266
MW566-0-2-Soil Grab Soil	8347267
MW566-7-8-Soil D Grab Soil	8347268
MW563-0-2-Soil Grab Soil	8347269
MW563-5-6-Soil Grab Soil	8347270
MW567-0-2-Soil Grab Soil	8347271
MW567-4.5-6-Soil Grab Soil	8347272
MW566-7-8-Soil Grab Soil	8347273
BH-16-008-6-6.5-Soil Grab Soil	8347274

AOI-8 Soil Samples

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To GHD, Inc. Attn: Arlie Weigley

REVISED

Electronic Copy To	GHD, Inc.	Attn: Dave Steele
Electronic Copy To	GHD	Attn: Paul McMahon

Respectfully Submitted,

Megan A. Moeller
Senior Specialist

(717) 556-7261

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Analysis Report

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Sample Description: MW568-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347255
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 13:30 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3001 SDG#: MHF30-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Benzene	71-43-2	1	J	5	0.5	0.83
10237	1,2-Dibromoethane	106-93-4	N.D.		5	0.9	0.83
10237	1,2-Dichloroethane	107-06-2	N.D.		5	0.9	0.83
10237	Ethylbenzene	100-41-4	N.D.		5	0.9	0.83
10237	Isopropylbenzene	98-82-8	N.D.		5	0.9	0.83
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		5	0.5	0.83
10237	Toluene	108-88-3	N.D.		5	0.9	0.83
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.		5	0.9	0.83
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		5	0.9	0.83
10237	Xylene (Total)	1330-20-7	N.D.		5	0.9	0.83
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Anthracene	120-12-7	4	J	19	4	1
10727	Benzo(a)anthracene	56-55-3	13	J	19	4	1
10727	Benzo(a)pyrene	50-32-8	20		19	4	1
10727	Benzo(b)fluoranthene	205-99-2	29		19	4	1
10727	Benzo(g,h,i)perylene	191-24-2	18	J	19	4	1
10727	Chrysene	218-01-9	23		19	4	1
10727	Fluorene	86-73-7	N.D.		19	4	1
10727	Naphthalene	91-20-3	8	J	19	4	1
10727	Phenanthrene	85-01-8	14	J	19	4	1
10727	Pyrene	129-00-0	26		19	4	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
06955	Lead	7439-92-1	53.2		1.31	0.446	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0363	J	0.103	0.0103	1
Wet Chemistry	**SW-846 9045D modified**		**Std. Units**		**Std. Units**	**Std. Units**	
00394	pH in soil	n.a.	8.93		0.0100	0.0100	1
	The pH was measured in water at 20.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	10.0		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: MW568-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347255
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 13:30 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3001 SDG#: MHF30-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161201AA	04/29/2016 11:41	Jennifer K Howe	0.83
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/20/2016 13:30	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/20/2016 13:30	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/20/2016 13:30	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 14:47	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 18:15	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 18:53	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16118039401A	04/27/2016 12:10	Nathan T Morgan	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: MW568-7-8-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347256
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 13:40 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3002 SDG#: MHF30-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	
10237	Benzene	71-43-2	N.D.	5	0.5	0.69
10237	1,2-Dibromoethane	106-93-4	N.D.	5	0.9	0.69
10237	1,2-Dichloroethane	107-06-2	N.D.	5	0.9	0.69
10237	Ethylbenzene	100-41-4	N.D.	5	0.9	0.69
10237	Isopropylbenzene	98-82-8	N.D.	5	0.9	0.69
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	5	0.5	0.69
10237	Toluene	108-88-3	N.D.	5	0.9	0.69
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	5	0.9	0.69
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	5	0.9	0.69
10237	Xylene (Total)	1330-20-7	N.D.	5	0.9	0.69
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	
10727	Anthracene	120-12-7	N.D.	23	4	1
10727	Benzo(a)anthracene	56-55-3	N.D.	23	4	1
10727	Benzo(a)pyrene	50-32-8	N.D.	23	4	1
10727	Benzo(b)fluoranthene	205-99-2	N.D.	23	4	1
10727	Benzo(g,h,i)perylene	191-24-2	N.D.	23	4	1
10727	Chrysene	218-01-9	N.D.	23	4	1
10727	Fluorene	86-73-7	N.D.	23	4	1
10727	Naphthalene	91-20-3	N.D.	23	4	1
10727	Phenanthrene	85-01-8	N.D.	23	4	1
10727	Pyrene	129-00-0	N.D.	23	4	1
Metals	**SW-846 6010B**		mg/kg	mg/kg	mg/kg	
06955	Lead	7439-92-1	12.9	1.58	0.538	1
	SW-846 7471A		mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.0138 J	0.130	0.0130	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	pH in soil	n.a.	7.29	0.0100	0.0100	1
	The pH was measured in water at 20.9 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	25.4	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: MW568-7-8-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347256
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 13:40 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3002 SDG#: MHF30-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161201AA	04/29/2016 12:04	Jennifer K Howe	0.69
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/20/2016 13:40	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/20/2016 13:40	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/20/2016 13:40	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 15:07	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 18:42	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 18:59	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16118039401A	04/27/2016 12:10	Nathan T Morgan	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

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Analysis Report

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Sample Description: MW569-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347257
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 12:05 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

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Suite #3
Niagara Falls NY 14304

M3003 SDG#: MHF30-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Benzene	71-43-2	N.D.		4	0.4	0.74
10237	1,2-Dibromoethane	106-93-4	N.D.		4	0.8	0.74
10237	1,2-Dichloroethane	107-06-2	N.D.		4	0.8	0.74
10237	Ethylbenzene	100-41-4	N.D.		4	0.8	0.74
10237	Isopropylbenzene	98-82-8	N.D.		4	0.8	0.74
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		4	0.4	0.74
10237	Toluene	108-88-3	N.D.		4	0.8	0.74
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.		4	0.8	0.74
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		4	0.8	0.74
10237	Xylene (Total)	1330-20-7	N.D.		4	0.8	0.74
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Anthracene	120-12-7	N.D.		19	4	1
10727	Benzo(a)anthracene	56-55-3	10	J	19	4	1
10727	Benzo(a)pyrene	50-32-8	14	J	19	4	1
10727	Benzo(b)fluoranthene	205-99-2	18	J	19	4	1
10727	Benzo(g,h,i)perylene	191-24-2	10	J	19	4	1
10727	Chrysene	218-01-9	12	J	19	4	1
10727	Fluorene	86-73-7	N.D.		19	4	1
10727	Naphthalene	91-20-3	N.D.		19	4	1
10727	Phenanthrene	85-01-8	7	J	19	4	1
10727	Pyrene	129-00-0	18	J	19	4	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
06955	Lead	7439-92-1	13.7		1.32	0.447	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0115	J	0.110	0.0110	1
Wet Chemistry	**SW-846 9045D modified**		**Std. Units**		**Std. Units**	**Std. Units**	
00394	pH in soil The pH was measured in water at 20.9 C.	n.a.	7.79		0.0100	0.0100	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.	n.a.	10.9		0.50	0.50	1

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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Sample Description: MW569-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347257
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 12:05 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3003 SDG#: MHF30-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161201AA	04/29/2016 12:28	Jennifer K Howe	0.74
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/20/2016 12:05	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/20/2016 12:05	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/20/2016 12:05	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 15:28	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 18:45	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:01	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16118039401B	04/27/2016 12:10	Nathan T Morgan	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: MW569-6-7-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347258
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 12:15 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3004 SDG#: MHF30-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles		**SW-846 8260B**	ug/kg		ug/kg	ug/kg	
10237	Benzene	71-43-2	0.9	J	7	0.7	0.88
10237	1,2-Dibromoethane	106-93-4	N.D.		7	1	0.88
10237	1,2-Dichloroethane	107-06-2	N.D.		7	1	0.88
10237	Ethylbenzene	100-41-4	N.D.		7	1	0.88
10237	Isopropylbenzene	98-82-8	N.D.		7	1	0.88
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		7	0.7	0.88
10237	Toluene	108-88-3	N.D.		7	1	0.88
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.		7	1	0.88
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		7	1	0.88
10237	Xylene (Total)	1330-20-7	2	J	7	1	0.88
GC/MS Semivolatiles		**SW-846 8270C**	ug/kg		ug/kg	ug/kg	
10727	Anthracene	120-12-7	140		25	5	1
10727	Benzo(a)anthracene	56-55-3	250		25	5	1
10727	Benzo(a)pyrene	50-32-8	170		25	5	1
10727	Benzo(b)fluoranthene	205-99-2	300		25	5	1
10727	Benzo(g,h,i)perylene	191-24-2	110		25	5	1
10727	Chrysene	218-01-9	330		25	5	1
10727	Fluorene	86-73-7	130		25	5	1
10727	Naphthalene	91-20-3	140		25	5	1
10727	Phenanthrene	85-01-8	280		25	5	1
10727	Pyrene	129-00-0	470		25	5	1
Metals		**SW-846 6010B**	mg/kg		mg/kg	mg/kg	
06955	Lead	7439-92-1	77.1		2.20	0.747	1
		SW-846 7471A	mg/kg		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.243		0.151	0.0151	1
Wet Chemistry		**SW-846 9045D modified**	Std. Units		Std. Units	Std. Units	
00394	pH in soil The pH was measured in water at 21 C.	n.a.	6.85		0.0100	0.0100	1
Wet Chemistry		**SM 2540 G-1997**	%		%	%	
00111	Moisture Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.	n.a.	33.7		0.50	0.50	1

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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Analysis Report

REVISED

Sample Description: MW569-6-7-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347258
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 12:15 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3004 SDG#: MHF30-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161202AA	04/30/2016 02:13	Sara E Johnson	0.88
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/20/2016 12:15	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/20/2016 12:15	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/20/2016 12:15	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 15:49	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 18:56	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:03	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16118039401A	04/27/2016 12:10	Nathan T Morgan	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

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Analysis Report

REVISED

Sample Description: MW570-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347259
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 11:10 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

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Suite #3
Niagara Falls NY 14304

M3005 SDG#: MHF30-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	ug/kg	
10237	Benzene	71-43-2	0.6	J	5	0.5	0.79
10237	1,2-Dibromoethane	106-93-4	N.D.		5	0.9	0.79
10237	1,2-Dichloroethane	107-06-2	N.D.		5	0.9	0.79
10237	Ethylbenzene	100-41-4	N.D.		5	0.9	0.79
10237	Isopropylbenzene	98-82-8	N.D.		5	0.9	0.79
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		5	0.5	0.79
10237	Toluene	108-88-3	N.D.		5	0.9	0.79
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.		5	0.9	0.79
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		5	0.9	0.79
10237	Xylene (Total)	1330-20-7	N.D.		5	0.9	0.79
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	ug/kg	
10727	Anthracene	120-12-7	N.D.		19	4	1
10727	Benzo(a)anthracene	56-55-3	15	J	19	4	1
10727	Benzo(a)pyrene	50-32-8	15	J	19	4	1
10727	Benzo(b)fluoranthene	205-99-2	22		19	4	1
10727	Benzo(g,h,i)perylene	191-24-2	14	J	19	4	1
10727	Chrysene	218-01-9	20		19	4	1
10727	Fluorene	86-73-7	N.D.		19	4	1
10727	Naphthalene	91-20-3	4	J	19	4	1
10727	Phenanthrene	85-01-8	12	J	19	4	1
10727	Pyrene	129-00-0	25		19	4	1
Metals	**SW-846 6010B**		mg/kg		mg/kg	mg/kg	
06955	Lead	7439-92-1	20.9		1.64	0.557	1
	SW-846 7471A		mg/kg		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.0482	J	0.115	0.0115	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units		Std. Units	Std. Units	
00394	pH in soil The pH was measured in water at 21 C.	n.a.	8.16		0.0100	0.0100	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.	n.a.	12.8		0.50	0.50	1

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

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Analysis Report

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REVISED

Sample Description: MW570-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347259
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 11:10 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3005 SDG#: MHF30-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161201AA	04/29/2016 12:51	Jennifer K Howe	0.79
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/20/2016 11:10	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/20/2016 11:10	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/20/2016 11:10	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 16:09	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 18:59	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:05	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16118039401A	04/27/2016 12:10	Nathan T Morgan	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

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Analysis Report

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Sample Description: MW570-3-4-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347260
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 11:20 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

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M3006 SDG#: MHF30-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	
10237	Benzene	71-43-2	0.8 J	5	0.5	0.86
10237	1,2-Dibromoethane	106-93-4	N.D.	5	1	0.86
10237	1,2-Dichloroethane	107-06-2	N.D.	5	1	0.86
10237	Ethylbenzene	100-41-4	N.D.	5	1	0.86
10237	Isopropylbenzene	98-82-8	N.D.	5	1	0.86
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	5	0.5	0.86
10237	Toluene	108-88-3	N.D.	5	1	0.86
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	5	1	0.86
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	5	1	0.86
10237	Xylene (Total)	1330-20-7	N.D.	5	1	0.86
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	
10727	Anthracene	120-12-7	36	20	4	1
10727	Benzo(a)anthracene	56-55-3	40	20	4	1
10727	Benzo(a)pyrene	50-32-8	28	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	38	20	4	1
10727	Benzo(g,h,i)perylene	191-24-2	20	20	4	1
10727	Chrysene	218-01-9	47	20	4	1
10727	Fluorene	86-73-7	36	20	4	1
10727	Naphthalene	91-20-3	9 J	20	4	1
10727	Phenanthrene	85-01-8	170	20	4	1
10727	Pyrene	129-00-0	140	20	4	1
Metals	**SW-846 6010B**		mg/kg	mg/kg	mg/kg	
06955	Lead	7439-92-1	38.4	1.30	0.443	1
	SW-846 7471A		mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.0319 J	0.115	0.0115	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	pH in soil The pH was measured in water at 21 C.	n.a.	9.16	0.0100	0.0100	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.	n.a.	13.4	0.50	0.50	1

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

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Analysis Report

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Sample Description: MW570-3-4-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347260
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 11:20 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

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Suite #3
Niagara Falls NY 14304

M3006 SDG#: MHF30-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161201AA	04/29/2016 13:14	Jennifer K Howe	0.86
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/20/2016 11:20	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/20/2016 11:20	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/20/2016 11:20	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 17:11	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:02	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:07	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16118039401A	04/27/2016 12:10	Nathan T Morgan	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

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Analysis Report

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Sample Description: MW571-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347261
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 09:45 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

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M3007 SDG#: MHF30-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Benzene	71-43-2	N.D.		5	0.5	0.79
10237	1,2-Dibromoethane	106-93-4	N.D.		5	0.9	0.79
10237	1,2-Dichloroethane	107-06-2	N.D.		5	0.9	0.79
10237	Ethylbenzene	100-41-4	N.D.		5	0.9	0.79
10237	Isopropylbenzene	98-82-8	N.D.		5	0.9	0.79
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		5	0.5	0.79
10237	Toluene	108-88-3	N.D.		5	0.9	0.79
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.		5	0.9	0.79
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		5	0.9	0.79
10237	Xylene (Total)	1330-20-7	N.D.		5	0.9	0.79
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Anthracene	120-12-7	7	J	19	4	1
10727	Benzo(a)anthracene	56-55-3	17	J	19	4	1
10727	Benzo(a)pyrene	50-32-8	25		19	4	1
10727	Benzo(b)fluoranthene	205-99-2	25		19	4	1
10727	Benzo(g,h,i)perylene	191-24-2	19	J	19	4	1
10727	Chrysene	218-01-9	24		19	4	1
10727	Fluorene	86-73-7	N.D.		19	4	1
10727	Naphthalene	91-20-3	5	J	19	4	1
10727	Phenanthrene	85-01-8	13	J	19	4	1
10727	Pyrene	129-00-0	34		19	4	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
06955	Lead	7439-92-1	18.4		1.71	0.582	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.136		0.106	0.0106	1
Wet Chemistry	**SW-846 9045D modified**		**Std. Units**		**Std. Units**	**Std. Units**	
00394	pH in soil	n.a.	8.09		0.0100	0.0100	1
	The pH was measured in water at 20.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	12.3		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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Analysis Report

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Sample Description: MW571-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347261
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 09:45 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3007 SDG#: MHF30-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161201AA	04/29/2016 13:37	Jennifer K Howe	0.79
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/20/2016 09:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/20/2016 09:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/20/2016 09:45	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 17:32	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:06	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 18:43	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16118039401A	04/27/2016 12:10	Nathan T Morgan	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

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Analysis Report

REVISED

Sample Description: MW571-6-7-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347262
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 10:15 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3008 SDG#: MHF30-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	
10237	Benzene	71-43-2	8	5	0.5	0.75
10237	1,2-Dibromoethane	106-93-4	N.D.	5	0.9	0.75
10237	1,2-Dichloroethane	107-06-2	11	5	0.9	0.75
10237	Ethylbenzene	100-41-4	N.D.	5	0.9	0.75
10237	Isopropylbenzene	98-82-8	N.D.	5	0.9	0.75
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	5	0.5	0.75
10237	Toluene	108-88-3	N.D.	5	0.9	0.75
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	5	0.9	0.75
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	5	0.9	0.75
10237	Xylene (Total)	1330-20-7	N.D.	5	0.9	0.75
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	
10727	Anthracene	120-12-7	N.D.	21	4	1
10727	Benzo(a)anthracene	56-55-3	N.D.	21	4	1
10727	Benzo(a)pyrene	50-32-8	4 J	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	N.D.	21	4	1
10727	Benzo(g,h,i)perylene	191-24-2	N.D.	21	4	1
10727	Chrysene	218-01-9	4 J	21	4	1
10727	Fluorene	86-73-7	N.D.	21	4	1
10727	Naphthalene	91-20-3	N.D.	21	4	1
10727	Phenanthrene	85-01-8	N.D.	21	4	1
10727	Pyrene	129-00-0	N.D.	21	4	1
Metals	**SW-846 6010B**		mg/kg	mg/kg	mg/kg	
06955	Lead	7439-92-1	18.7	1.26	0.428	1
	SW-846 7471A		mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.0643 J	0.123	0.0123	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	pH in soil	n.a.	5.53	0.0100	0.0100	1
	The pH was measured in water at 20.7 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	18.4	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

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Analysis Report

REVISED

Sample Description: MW571-6-7-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347262
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/20/2016 10:15 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3008 SDG#: MHF30-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161201AA	04/29/2016 14:00	Jennifer K Howe	0.75
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/20/2016 10:15	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/20/2016 10:15	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/20/2016 10:15	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 17:53	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:09	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:09	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16118039401A	04/27/2016 12:10	Nathan T Morgan	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: BH-16-010-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347263
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/22/2016 10:50 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3009 SDG#: MHF30-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Benzene	71-43-2	1,800		550	55	98.63
10237	1,2-Dibromoethane	106-93-4	N.D.		550	110	98.63
10237	1,2-Dichloroethane	107-06-2	N.D.		550	110	98.63
10237	Ethylbenzene	100-41-4	460	J	550	110	98.63
10237	Isopropylbenzene	98-82-8	720		550	110	98.63
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		550	55	98.63
10237	Toluene	108-88-3	2,200		550	110	98.63
10237	1,2,4-Trimethylbenzene	95-63-6	1,000		550	110	98.63
10237	1,3,5-Trimethylbenzene	108-67-8	470	J	550	110	98.63
10237	Xylene (Total)	1330-20-7	480	J	550	110	98.63
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Anthracene	120-12-7	1,300		190	36	2
10727	Benzo(a)anthracene	56-55-3	2,200		190	36	2
10727	Benzo(a)pyrene	50-32-8	1,700		190	36	2
10727	Benzo(b)fluoranthene	205-99-2	2,200		190	36	2
10727	Benzo(g,h,i)perylene	191-24-2	1,200		190	36	2
10727	Chrysene	218-01-9	2,300		190	36	2
10727	Fluorene	86-73-7	1,000		190	36	2
10727	Naphthalene	91-20-3	990		190	36	2
10727	Phenanthrene	85-01-8	3,600		190	36	2
10727	Pyrene	129-00-0	4,800		190	36	2
	Reporting limits were raised due to interference from the sample matrix.						
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
06955	Lead	7439-92-1	68.8		1.46	0.495	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	2.26		1.07	0.107	10
Wet Chemistry	**SW-846 9045D modified**		**Std. Units**		**Std. Units**	**Std. Units**	
00394	pH in soil	n.a.	11.0	J	0.0100	0.0100	1
	The pH was measured in water at 20.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	9.7		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: BH-16-010-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347263
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/22/2016 10:50 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3009 SDG#: MHF30-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q161201AA	04/29/2016	15:10	Anita M Dale	98.63
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/22/2016	10:50	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/22/2016	10:50	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/22/2016	10:50	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016	18:13	Linda M Hartenstine	2
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016	08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016	19:12	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016	19:40	Parker D Lindstrom	10
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016	22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016	09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16118039401A	04/27/2016	12:10	Nathan T Morgan	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016	14:03	Larry E Bevins	1

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Analysis Report

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Sample Description: BH-16-010-6-7.5-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347264
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/22/2016 11:00 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3010 SDG#: MHF30-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles		**SW-846 8260B**	**ug/kg**		**ug/kg**	**ug/kg**	
10237	Benzene	71-43-2	650	J	1,900	190	246.87
10237	1,2-Dibromoethane	106-93-4	N.D.		1,900	380	246.87
10237	1,2-Dichloroethane	107-06-2	N.D.		1,900	380	246.87
10237	Ethylbenzene	100-41-4	N.D.		1,900	380	246.87
10237	Isopropylbenzene	98-82-8	1,200	J	1,900	380	246.87
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		1,900	190	246.87
10237	Toluene	108-88-3	10,000		1,900	380	246.87
10237	1,2,4-Trimethylbenzene	95-63-6	500	J	1,900	380	246.87
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		1,900	380	246.87
10237	Xylene (Total)	1330-20-7	610	J	1,900	380	246.87
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Anthracene	120-12-7	2,900		260	51	2
10727	Benzo(a)anthracene	56-55-3	4,300		260	51	2
10727	Benzo(a)pyrene	50-32-8	6,600		260	51	2
10727	Benzo(b)fluoranthene	205-99-2	4,300		260	51	2
10727	Benzo(g,h,i)perylene	191-24-2	8,800		260	51	2
10727	Chrysene	218-01-9	7,400		260	51	2
10727	Fluorene	86-73-7	4,100		260	51	2
10727	Naphthalene	91-20-3	4,500		260	51	2
10727	Phenanthrene	85-01-8	9,000		260	51	2
10727	Pyrene	129-00-0	6,500		260	51	2
	Reporting limits were raised due to interference from the sample matrix.						
Metals		**SW-846 6010B**	**mg/kg**		**mg/kg**	**mg/kg**	
06955	Lead	7439-92-1	104		1.97	0.670	1
		SW-846 7471A	**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.347		0.142	0.0142	1
Wet Chemistry		**SW-846 9045D modified**	**Std. Units**		**Std. Units**	**Std. Units**	
00394	pH in soil	n.a.	11.1	J	0.0100	0.0100	1
	The pH was measured in water at 20.6 C.						
Wet Chemistry		**SM 2540 G-1997**	**%**		**%**	**%**	
00111	Moisture	n.a.	34.9		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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Analysis Report

REVISED

Sample Description: BH-16-010-6-7.5-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347264
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/22/2016 11:00 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3010 SDG#: MHF30-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q161201AA	04/29/2016 15:33	Anita M Dale	246.87
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/22/2016 11:00	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/22/2016 11:00	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/22/2016 11:00	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 18:34	Linda M Hartenstine	2
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:16	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:13	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16118039401A	04/27/2016 12:10	Nathan T Morgan	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

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Analysis Report

REVISED

Sample Description: MW572-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347265
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 10:49 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3011 SDG#: MHF30-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	ug/kg	
10237	Benzene	71-43-2	82	J	310	31	53.58
10237	1,2-Dibromoethane	106-93-4	N.D.		310	62	53.58
10237	1,2-Dichloroethane	107-06-2	N.D.		310	62	53.58
10237	Ethylbenzene	100-41-4	67	J	310	62	53.58
10237	Isopropylbenzene	98-82-8	N.D.		310	62	53.58
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		310	31	53.58
10237	Toluene	108-88-3	160	J	310	62	53.58
10237	1,2,4-Trimethylbenzene	95-63-6	120	J	310	62	53.58
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		310	62	53.58
10237	Xylene (Total)	1330-20-7	210	J	310	62	53.58
Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	ug/kg	
10727	Anthracene	120-12-7	460		20	4	1
10727	Benzo(a)anthracene	56-55-3	1,100		20	4	1
10727	Benzo(a)pyrene	50-32-8	940		20	4	1
10727	Benzo(b)fluoranthene	205-99-2	1,200		20	4	1
10727	Benzo(g,h,i)perylene	191-24-2	580		20	4	1
10727	Chrysene	218-01-9	1,100		20	4	1
10727	Fluorene	86-73-7	220		20	4	1
10727	Naphthalene	91-20-3	350		20	4	1
10727	Phenanthrene	85-01-8	1,600		20	4	1
10727	Pyrene	129-00-0	1,900		20	4	1
Metals	**SW-846 6010B**		mg/kg		mg/kg	mg/kg	
06955	Lead	7439-92-1	26.7		1.17	0.398	1
	SW-846 7471A		mg/kg		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.319		0.114	0.0114	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units		Std. Units	Std. Units	
00394	pH in soil	n.a.	12.7	J	0.0100	0.0100	1
The pH was measured in water at 21.2 C.							
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	13.5		0.50	0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW572-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347265
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 10:49 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3011 SDG#: MHF30-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q161201AA	04/29/2016 08:08	Anita M Dale	53.58
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/21/2016 10:49	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/21/2016 10:49	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/21/2016 10:49	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 18:55	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:19	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:15	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16118039401A	04/27/2016 12:10	Nathan T Morgan	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW572-6-7-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347266
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 11:45 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3012 SDG#: MHF30-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles		**SW-846 8260B**	**ug/kg**		**ug/kg**	**ug/kg**	
10237	Benzene	71-43-2	98	J	290	29	50.89
10237	1,2-Dibromoethane	106-93-4	N.D.		290	59	50.89
10237	1,2-Dichloroethane	107-06-2	N.D.		290	59	50.89
10237	Ethylbenzene	100-41-4	96	J	290	59	50.89
10237	Isopropylbenzene	98-82-8	94	J	290	59	50.89
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		290	29	50.89
10237	Toluene	108-88-3	180	J	290	59	50.89
10237	1,2,4-Trimethylbenzene	95-63-6	200	J	290	59	50.89
10237	1,3,5-Trimethylbenzene	108-67-8	110	J	290	59	50.89
10237	Xylene (Total)	1330-20-7	340		290	59	50.89
	Reporting limits were raised due to interference from the sample matrix.						
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Anthracene	120-12-7	480		19	4	1
10727	Benzo(a)anthracene	56-55-3	900		19	4	1
10727	Benzo(a)pyrene	50-32-8	740		19	4	1
10727	Benzo(b)fluoranthene	205-99-2	990		19	4	1
10727	Benzo(g,h,i)perylene	191-24-2	470		19	4	1
10727	Chrysene	218-01-9	910		19	4	1
10727	Fluorene	86-73-7	260		19	4	1
10727	Naphthalene	91-20-3	420		19	4	1
10727	Phenanthrene	85-01-8	1,900		19	4	1
10727	Pyrene	129-00-0	1,700		19	4	1
Metals		**SW-846 6010B**	**mg/kg**		**mg/kg**	**mg/kg**	
06955	Lead	7439-92-1	29.1		1.53	0.521	1
		SW-846 7471A	**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.343		0.114	0.0114	1
Wet Chemistry		**SW-846 9045D modified**	**Std. Units**		**Std. Units**	**Std. Units**	
00394	pH in soil	n.a.	12.5	J	0.0100	0.0100	1
	The pH was measured in water at 20.9 C.						
Wet Chemistry		**SM 2540 G-1997**	**%**		**%**	**%**	
00111	Moisture	n.a.	13.4		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW572-6-7-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347266
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 11:45 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3012 SDG#: MHF30-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q161201AA	04/29/2016 08:44	Anita M Dale	50.89
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/21/2016 11:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/21/2016 11:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/21/2016 11:45	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 19:15	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:23	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:17	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16119039401A	04/28/2016 20:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW566-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347267
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 12:25 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

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2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3013 SDG#: MHF30-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Benzene	71-43-2	3	J	5	0.5	0.97
10237	1,2-Dibromoethane	106-93-4	N.D.		5	1	0.97
10237	1,2-Dichloroethane	107-06-2	N.D.		5	1	0.97
10237	Ethylbenzene	100-41-4	N.D.		5	1	0.97
10237	Isopropylbenzene	98-82-8	N.D.		5	1	0.97
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		5	0.5	0.97
10237	Toluene	108-88-3	2	J	5	1	0.97
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.		5	1	0.97
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		5	1	0.97
10237	Xylene (Total)	1330-20-7	N.D.		5	1	0.97
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Anthracene	120-12-7	380		95	19	1
10727	Benzo(a)anthracene	56-55-3	1,400		95	19	1
10727	Benzo(a)pyrene	50-32-8	1,200		95	19	1
10727	Benzo(b)fluoranthene	205-99-2	1,600		95	19	1
10727	Benzo(g,h,i)perylene	191-24-2	760		95	19	1
10727	Chrysene	218-01-9	1,400		95	19	1
10727	Fluorene	86-73-7	150		95	19	1
10727	Naphthalene	91-20-3	120		95	19	1
10727	Phenanthrene	85-01-8	1,200		95	19	1
10727	Pyrene	129-00-0	2,500		95	19	1
	Reporting limits were raised due to interference from the sample matrix.						
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
06955	Lead	7439-92-1	44.7		1.40	0.474	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.505		0.106	0.0106	1
Wet Chemistry	**SW-846 9045D modified**		**Std. Units**		**Std. Units**	**Std. Units**	
00394	pH in soil	n.a.	11.1	J	0.0100	0.0100	1
	The pH was measured in water at 20.9 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	10.4		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW566-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347267
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 12:25 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3013 SDG#: MHF30-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161201AA	04/29/2016 17:05	Jennifer K Howe	0.97
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/21/2016 12:25	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/21/2016 12:25	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/21/2016 12:25	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 19:36	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:27	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:23	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16119039401A	04/28/2016 20:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

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Analysis Report

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Sample Description: MW566-7-8-Soil D Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347268
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 13:00 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3014 SDG#: MHF30-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles		**SW-846 8260B**	**ug/kg**		**ug/kg**	**ug/kg**	
10237	Benzene	71-43-2	0.8	J	4	0.4	0.74
10237	1,2-Dibromoethane	106-93-4	N.D.		4	0.9	0.74
10237	1,2-Dichloroethane	107-06-2	N.D.		4	0.9	0.74
10237	Ethylbenzene	100-41-4	N.D.		4	0.9	0.74
10237	Isopropylbenzene	98-82-8	N.D.		4	0.9	0.74
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		4	0.4	0.74
10237	Toluene	108-88-3	N.D.		4	0.9	0.74
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.		4	0.9	0.74
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		4	0.9	0.74
10237	Xylene (Total)	1330-20-7	N.D.		4	0.9	0.74
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Anthracene	120-12-7	14	J	21	4	1
10727	Benzo(a)anthracene	56-55-3	47		21	4	1
10727	Benzo(a)pyrene	50-32-8	46		21	4	1
10727	Benzo(b)fluoranthene	205-99-2	63		21	4	1
10727	Benzo(g,h,i)perylene	191-24-2	37		21	4	1
10727	Chrysene	218-01-9	53		21	4	1
10727	Fluorene	86-73-7	8	J	21	4	1
10727	Naphthalene	91-20-3	22		21	4	1
10727	Phenanthrene	85-01-8	45		21	4	1
10727	Pyrene	129-00-0	100		21	4	1
Metals		**SW-846 6010B**	**mg/kg**		**mg/kg**	**mg/kg**	
06955	Lead	7439-92-1	17.9		1.22	0.416	1
		SW-846 7471A	**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0659	J	0.122	0.0122	1
Wet Chemistry		**SW-846 9045D modified**	**Std. Units**		**Std. Units**	**Std. Units**	
00394	pH in soil The pH was measured in water at 21 C.	n.a.	8.33		0.0100	0.0100	1
Wet Chemistry		**SM 2540 G-1997**	**%**		**%**	**%**	
00111	Moisture Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.	n.a.	17.8		0.50	0.50	1

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW566-7-8-Soil D Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347268
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 13:00 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3014 SDG#: MHF30-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161202AA	04/30/2016 04:52	Sara E Johnson	0.74
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/21/2016 13:00	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/21/2016 13:00	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/21/2016 13:00	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/01/2016 19:57	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:37	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:25	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16119039401A	04/28/2016 20:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	16118820002A	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW563-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347269
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 13:25 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3015 SDG#: MHF30-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	
10237	Benzene	71-43-2	0.6 J	5	0.5	0.91
10237	1,2-Dibromoethane	106-93-4	N.D.	5	1	0.91
10237	1,2-Dichloroethane	107-06-2	N.D.	5	1	0.91
10237	Ethylbenzene	100-41-4	N.D.	5	1	0.91
10237	Isopropylbenzene	98-82-8	N.D.	5	1	0.91
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	5	0.5	0.91
10237	Toluene	108-88-3	N.D.	5	1	0.91
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	5	1	0.91
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	5	1	0.91
10237	Xylene (Total)	1330-20-7	N.D.	5	1	0.91
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	
10727	Anthracene	120-12-7	820	200	39	2
10727	Benzo(a)anthracene	56-55-3	1,700	200	39	2
10727	Benzo(a)pyrene	50-32-8	1,800	200	39	2
10727	Benzo(b)fluoranthene	205-99-2	2,500	200	39	2
10727	Benzo(g,h,i)perylene	191-24-2	1,200	200	39	2
10727	Chrysene	218-01-9	2,100	200	39	2
10727	Fluorene	86-73-7	210	200	39	2
10727	Naphthalene	91-20-3	300	200	39	2
10727	Phenanthrene	85-01-8	1,000	200	39	2
10727	Pyrene	129-00-0	5,200	200	39	2
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		mg/kg	mg/kg	mg/kg	
06955	Lead	7439-92-1	120	1.44	0.489	1
	SW-846 7471A		mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.447	0.120	0.0120	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units	Std. Units	Std. Units	
00394	pH in soil	n.a.	8.44	0.0100	0.0100	1
	The pH was measured in water at 20.9 C.					
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00111	Moisture	n.a.	16.5	0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.					

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW563-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347269
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 13:25 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3015 SDG#: MHF30-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161202AA	04/30/2016 02:36	Sara E Johnson	0.91
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/21/2016 13:25	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/21/2016 13:25	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/21/2016 13:25	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/02/2016 19:11	William H Saadeh	2
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:40	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:27	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16119039401A	04/28/2016 20:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	16118820002B	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW563-5-6-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347270
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 13:40 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3016 SDG#: MHF30-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	ug/kg	
10237	Benzene	71-43-2	1	J	5	0.5	0.84
10237	1,2-Dibromoethane	106-93-4	N.D.		5	1	0.84
10237	1,2-Dichloroethane	107-06-2	N.D.		5	1	0.84
10237	Ethylbenzene	100-41-4	2	J	5	1	0.84
10237	Isopropylbenzene	98-82-8	1	J	5	1	0.84
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		5	0.5	0.84
10237	Toluene	108-88-3	2	J	5	1	0.84
10237	1,2,4-Trimethylbenzene	95-63-6	2	J	5	1	0.84
10237	1,3,5-Trimethylbenzene	108-67-8	2	J	5	1	0.84
10237	Xylene (Total)	1330-20-7	5	J	5	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	ug/kg	
10727	Anthracene	120-12-7	180		20	4	1
10727	Benzo(a)anthracene	56-55-3	420		20	4	1
10727	Benzo(a)pyrene	50-32-8	370		20	4	1
10727	Benzo(b)fluoranthene	205-99-2	560		20	4	1
10727	Benzo(g,h,i)perylene	191-24-2	210		20	4	1
10727	Chrysene	218-01-9	380		20	4	1
10727	Fluorene	86-73-7	100		20	4	1
10727	Naphthalene	91-20-3	100		20	4	1
10727	Phenanthrene	85-01-8	370		20	4	1
10727	Pyrene	129-00-0	740		20	4	1
Metals	**SW-846 6010B**		mg/kg		mg/kg	mg/kg	
06955	Lead	7439-92-1	9.08		1.33	0.454	1
	SW-846 7471A		mg/kg		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.0327	J	0.112	0.0112	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units		Std. Units	Std. Units	
00394	pH in soil The pH was measured in water at 21 C.	n.a.	7.02		0.0100	0.0100	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.	n.a.	13.5		0.50	0.50	1

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW563-5-6-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347270
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 13:40 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3016 SDG#: MHF30-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161201AA	04/29/2016 15:56	Jennifer K Howe	0.84
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/21/2016 13:40	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/21/2016 13:40	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/21/2016 13:40	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/02/2016 19:32	William H Saadeh	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:44	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:30	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16119039401B	04/28/2016 20:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	16118820002B	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW567-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347271
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 08:05 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3017 SDG#: MHF30-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Benzene	71-43-2	2	J	5	0.5	0.85
10237	1,2-Dibromoethane	106-93-4	N.D.		5	1	0.85
10237	1,2-Dichloroethane	107-06-2	N.D.		5	1	0.85
10237	Ethylbenzene	100-41-4	N.D.		5	1	0.85
10237	Isopropylbenzene	98-82-8	N.D.		5	1	0.85
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		5	0.5	0.85
10237	Toluene	108-88-3	1	J	5	1	0.85
10237	1,2,4-Trimethylbenzene	95-63-6	2	J	5	1	0.85
10237	1,3,5-Trimethylbenzene	108-67-8	2	J	5	1	0.85
10237	Xylene (Total)	1330-20-7	1	J	5	1	0.85
	The recovery for the sample internal standard is outside the QC acceptance limits. The following corrective action was taken: The sample was re-analyzed and the QC is again outside of the acceptance limits, indicating a matrix effect. The data is reported from the initial trial.						
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Anthracene	120-12-7	N.D.		95	19	1
10727	Benzo(a)anthracene	56-55-3	84	J	95	19	1
10727	Benzo(a)pyrene	50-32-8	110		95	19	1
10727	Benzo(b)fluoranthene	205-99-2	140		95	19	1
10727	Benzo(g,h,i)perylene	191-24-2	180		95	19	1
10727	Chrysene	218-01-9	340		95	19	1
10727	Fluorene	86-73-7	44	J	95	19	1
10727	Naphthalene	91-20-3	25	J	95	19	1
10727	Phenanthrene	85-01-8	130		95	19	1
10727	Pyrene	129-00-0	210		95	19	1
	Reporting limits were raised due to interference from the sample matrix.						
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
06955	Lead	7439-92-1	49.5		1.43	0.485	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0808	J	0.110	0.0110	1
Wet Chemistry	**SW-846 9045D modified**		**Std. Units**		**Std. Units**	**Std. Units**	
00394	pH in soil	n.a.	9.67		0.0100	0.0100	1
	The pH was measured in water at 21.1 C.						
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	10.8		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW567-0-2-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347271
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 08:05 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3017 SDG#: MHF30-17

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161201AA	04/29/2016 17:28	Jennifer K Howe	0.85
06646	GC/MS HL Bulk Sample Prep	SW-846 5030A	1	201611640937	04/25/2016 21:54	Jesse L Mertz	n.a.
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/21/2016 08:05	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/21/2016 08:05	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/02/2016 19:53	William H Saadeh	1
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:47	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:32	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16119039401B	04/28/2016 20:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	16118820002B	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW567-4.5-6-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347272
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 08:20 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3018 SDG#: MHF30-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles		**SW-846 8260B**	ug/kg		ug/kg	ug/kg	
10237	Benzene	71-43-2	1,600	J	3,400	340	539.46
10237	1,2-Dibromoethane	106-93-4	N.D.		3,400	690	539.46
10237	1,2-Dichloroethane	107-06-2	N.D.		3,400	690	539.46
10237	Ethylbenzene	100-41-4	930	J	3,400	690	539.46
10237	Isopropylbenzene	98-82-8	15,000		3,400	690	539.46
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		3,400	340	539.46
10237	Toluene	108-88-3	N.D.		3,400	690	539.46
10237	1,2,4-Trimethylbenzene	95-63-6	1,400	J	3,400	690	539.46
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		3,400	690	539.46
10237	Xylene (Total)	1330-20-7	2,600	J	3,400	690	539.46
GC/MS Semivolatiles		**SW-846 8270C**	ug/kg		ug/kg	ug/kg	
10727	Anthracene	120-12-7	300		220	42	2
10727	Benzo(a)anthracene	56-55-3	220		220	42	2
10727	Benzo(a)pyrene	50-32-8	130	J	220	42	2
10727	Benzo(b)fluoranthene	205-99-2	330		220	42	2
10727	Benzo(g,h,i)perylene	191-24-2	130	J	220	42	2
10727	Chrysene	218-01-9	530		220	42	2
10727	Fluorene	86-73-7	1,400		220	42	2
10727	Naphthalene	91-20-3	4,800		220	42	2
10727	Phenanthrene	85-01-8	2,200		220	42	2
10727	Pyrene	129-00-0	510		220	42	2
	Reporting limits were raised due to interference from the sample matrix.						
Metals		**SW-846 6010B**	mg/kg		mg/kg	mg/kg	
06955	Lead	7439-92-1	236		1.53	0.520	1
		SW-846 7471A	mg/kg		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.195		0.127	0.0127	1
Wet Chemistry		**SW-846 9045D modified**	Std. Units		Std. Units	Std. Units	
00394	pH in soil	n.a.	6.50		0.0100	0.0100	1
	The pH was measured in water at 21.1 C.						
Wet Chemistry		**SM 2540 G-1997**	%		%	%	
00111	Moisture	n.a.	21.5		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW567-4.5-6-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347272
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 08:20 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3018 SDG#: MHF30-18

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q161211AA	04/30/2016 15:51	Anita M Dale	539.46
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/21/2016 08:20	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/21/2016 08:20	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/21/2016 08:20	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/02/2016 10:43	Linda M Hartenstine	2
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:51	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:34	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16119039401B	04/28/2016 20:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	16118820002B	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW566-7-8-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347273
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 12:55 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3019 SDG#: MHF30-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	ug/kg	
10237	Benzene	71-43-2	2	J	5	0.5	0.84
10237	1,2-Dibromoethane	106-93-4	N.D.		5	1	0.84
10237	1,2-Dichloroethane	107-06-2	N.D.		5	1	0.84
10237	Ethylbenzene	100-41-4	N.D.		5	1	0.84
10237	Isopropylbenzene	98-82-8	N.D.		5	1	0.84
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		5	0.5	0.84
10237	Toluene	108-88-3	1	J	5	1	0.84
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.		5	1	0.84
10237	1,3,5-Trimethylbenzene	108-67-8	1	J	5	1	0.84
10237	Xylene (Total)	1330-20-7	N.D.		5	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	ug/kg	
10727	Anthracene	120-12-7	41		20	4	1
10727	Benzo(a)anthracene	56-55-3	140		20	4	1
10727	Benzo(a)pyrene	50-32-8	130		20	4	1
10727	Benzo(b)fluoranthene	205-99-2	160		20	4	1
10727	Benzo(g,h,i)perylene	191-24-2	73		20	4	1
10727	Chrysene	218-01-9	140		20	4	1
10727	Fluorene	86-73-7	17	J	20	4	1
10727	Naphthalene	91-20-3	17	J	20	4	1
10727	Phenanthrene	85-01-8	130		20	4	1
10727	Pyrene	129-00-0	250		20	4	1
Metals	**SW-846 6010B**		mg/kg		mg/kg	mg/kg	
06955	Lead	7439-92-1	19.3		1.38	0.469	1
	SW-846 7471A		mg/kg		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.0715	J	0.113	0.0113	1
Wet Chemistry	**SW-846 9045D modified**		Std. Units		Std. Units	Std. Units	
00394	pH in soil	n.a.	7.88		0.0100	0.0100	1
	The pH was measured in water at 20.9 C.						
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	17.0		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: MW566-7-8-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347273
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/21/2016 12:55 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3019 SDG#: MHF30-19

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	X161201AA	04/29/2016 14:47	Jennifer K Howe	0.84
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/21/2016 12:55	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/21/2016 12:55	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/21/2016 12:55	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16124SLC026	05/10/2016 14:07	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	2	16124SLC026	05/03/2016 19:30	Sally L Appleyard	1
06955	Lead	SW-846 6010B	1	161185708003	04/29/2016 19:54	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:36	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16119039401B	04/28/2016 20:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	16118820002B	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: BH-16-008-6-6.5-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347274
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/22/2016 10:20 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3020 SDG#: MHF30-20

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles		**SW-846 8260B**	**ug/kg**		**ug/kg**	**ug/kg**	
10237	Benzene	71-43-2	500	J	2,100	210	256.42
10237	1,2-Dibromoethane	106-93-4	N.D.		2,100	420	256.42
10237	1,2-Dichloroethane	107-06-2	N.D.		2,100	420	256.42
10237	Ethylbenzene	100-41-4	N.D.		2,100	420	256.42
10237	Isopropylbenzene	98-82-8	3,600		2,100	420	256.42
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		2,100	210	256.42
10237	Toluene	108-88-3	N.D.		2,100	420	256.42
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.		2,100	420	256.42
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		2,100	420	256.42
10237	Xylene (Total)	1330-20-7	N.D.		2,100	420	256.42
GC/MS Semivolatiles		**SW-846 8270C**	**ug/kg**		**ug/kg**	**ug/kg**	
10727	Anthracene	120-12-7	1,400		690	140	5
10727	Benzo(a)anthracene	56-55-3	1,300		690	140	5
10727	Benzo(a)pyrene	50-32-8	880		690	140	5
10727	Benzo(b)fluoranthene	205-99-2	980		690	140	5
10727	Benzo(g,h,i)perylene	191-24-2	1,000		690	140	5
10727	Chrysene	218-01-9	2,400		690	140	5
10727	Fluorene	86-73-7	5,100		690	140	5
10727	Naphthalene	91-20-3	3,900		690	140	5
10727	Phenanthrene	85-01-8	9,900		690	140	5
10727	Pyrene	129-00-0	2,900		690	140	5
	Reporting limits were raised due to interference from the sample matrix.						
Metals		**SW-846 6010B**	**mg/kg**		**mg/kg**	**mg/kg**	
06955	Lead	7439-92-1	54.5		2.35	0.799	1
		SW-846 7471A	**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.132	J	0.158	0.0158	1
Wet Chemistry		**SW-846 9045D modified**	**Std. Units**		**Std. Units**	**Std. Units**	
00394	pH in soil The pH was measured in water at 21 C.	n.a.	7.66		0.0100	0.0100	1
Wet Chemistry		**SM 2540 G-1997**	**%**		**%**	**%**	
00111	Moisture Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.	n.a.	38.6		0.50	0.50	1

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: BH-16-008-6-6.5-Soil Grab Soil
Marcus Hook AOI8

LL Sample # SW 8347274
LL Group # 1653594
Account # 10177

Project Name: Marcus Hook Facility

Collected: 04/22/2016 10:20 by MM

Submitted: 04/22/2016 18:25
Reported: 06/21/2016 12:55

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

M3020 SDG#: MHF30-20

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q161201AA	04/29/2016 16:18	Anita M Dale	256.42
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201611440924	04/22/2016 10:20	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	1	201611440924	04/22/2016 10:20	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035A	2	201611440924	04/22/2016 10:20	Client Supplied	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	16119SLD026	05/02/2016 11:24	Linda M Hartenstine	5
10809	BNA Soil Microwave	SW-846 3546	1	16119SLD026	04/29/2016 08:00	Jessica M Cook	1
06955	Lead	SW-846 6010B	1	161185708003	05/04/2016 02:28	Matthew R Machtinger	1
00159	Mercury	SW-846 7471A	1	161165711003	04/26/2016 19:38	Parker D Lindstrom	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	161185708003	04/28/2016 22:46	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	161165711003	04/26/2016 09:25	Lisa J Cooke	1
00394	pH in soil	SW-846 9045D modified	1	16119039401B	04/28/2016 20:20	Luz M Groff	1
00111	Moisture	SM 2540 G-1997	1	16118820002B	04/27/2016 14:03	Larry E Bevins	1

*=This limit was used in the evaluation of the final result

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Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:55

Group Number: 1653594

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/kg	LOQ** ug/kg	MDL ug/kg
Batch number: Q161201AA	Sample number(s): 8347263-8347266,8347274		
Benzene	N.D.	250	25
1,2-Dibromoethane	N.D.	250	50
1,2-Dichloroethane	N.D.	250	50
Ethylbenzene	N.D.	250	50
Isopropylbenzene	N.D.	250	50
Methyl Tertiary Butyl Ether	N.D.	250	25
Toluene	N.D.	250	50
1,2,4-Trimethylbenzene	N.D.	250	50
1,3,5-Trimethylbenzene	N.D.	250	50
Xylene (Total)	N.D.	250	50
Batch number: Q161211AA	Sample number(s): 8347272		
Benzene	N.D.	250	25
1,2-Dibromoethane	N.D.	250	50
1,2-Dichloroethane	N.D.	250	50
Ethylbenzene	N.D.	250	50
Isopropylbenzene	N.D.	250	50
Methyl Tertiary Butyl Ether	N.D.	250	25
Toluene	N.D.	250	50
1,2,4-Trimethylbenzene	N.D.	250	50
1,3,5-Trimethylbenzene	N.D.	250	50
Xylene (Total)	N.D.	250	50
Batch number: X161201AA	Sample number(s): 8347255-8347257,8347259-8347262,8347267,8347270-8347271,8347273		
Benzene	N.D.	5	0.5
1,2-Dibromoethane	N.D.	5	1
1,2-Dichloroethane	N.D.	5	1
Ethylbenzene	N.D.	5	1
Isopropylbenzene	N.D.	5	1
Methyl Tertiary Butyl Ether	N.D.	5	0.5
Toluene	N.D.	5	1
1,2,4-Trimethylbenzene	N.D.	5	1
1,3,5-Trimethylbenzene	N.D.	5	1
Xylene (Total)	N.D.	5	1
Batch number: X161202AA	Sample number(s): 8347258,8347268-8347269		
Benzene	N.D.	5	0.5
1,2-Dibromoethane	N.D.	5	1
1,2-Dichloroethane	N.D.	5	1
Ethylbenzene	N.D.	5	1
Isopropylbenzene	N.D.	5	1
Methyl Tertiary Butyl Ether	N.D.	5	0.5
Toluene	N.D.	5	1
1,2,4-Trimethylbenzene	N.D.	5	1

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
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REVISED

Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:55

Group Number: 1653594

Method Blank (continued)

Analysis Name	Result	LOQ**	MDL
	ug/kg	ug/kg	ug/kg
1,3,5-Trimethylbenzene	N.D.	5	1
Xylene (Total)	N.D.	5	1
Batch number: 16119SLD026	Sample number(s): 8347255-8347272,8347274		
Anthracene	N.D.	17	3
Benzo(a)anthracene	N.D.	17	3
Benzo(a)pyrene	N.D.	17	3
Benzo(b)fluoranthene	N.D.	17	3
Benzo(g,h,i)perylene	N.D.	17	3
Chrysene	N.D.	17	3
Fluorene	N.D.	17	3
Naphthalene	N.D.	17	3
Phenanthrene	N.D.	17	3
Pyrene	N.D.	17	3
Batch number: 16124SLC026	Sample number(s): 8347273		
Anthracene	N.D.	17	3
Benzo(a)anthracene	N.D.	17	3
Benzo(a)pyrene	N.D.	17	3
Benzo(b)fluoranthene	N.D.	17	3
Benzo(g,h,i)perylene	N.D.	17	3
Chrysene	N.D.	17	3
Fluorene	N.D.	17	3
Naphthalene	N.D.	17	3
Phenanthrene	N.D.	17	3
Pyrene	N.D.	17	3
	mg/kg	mg/kg	mg/kg
Batch number: 161165711003	Sample number(s): 8347255-8347274		
Mercury	N.D.	0.100	0.0100
Batch number: 161185708003	Sample number(s): 8347255-8347274		
Lead	N.D.	1.50	0.510

LCS/LCSD

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: Q161201AA	Sample number(s): 8347263-8347266,8347274								
Benzene	1000	987.23	1000	958.42	99	96	80-120	3	30
1,2-Dibromoethane	1000	995.91	1000	963.44	100	96	80-120	3	30
1,2-Dichloroethane	1000	1004.11	1000	962.88	100	96	77-130	4	30
Ethylbenzene	1000	983.77	1000	947.07	98	95	80-120	4	30
Isopropylbenzene	1000	1005.28	1000	973.68	101	97	70-120	3	30
Methyl Tertiary Butyl Ether	1000	1000.9	1000	960.84	100	96	72-120	4	30
Toluene	1000	992.32	1000	961.3	99	96	80-120	3	30
1,2,4-Trimethylbenzene	1000	1003.1	1000	967.42	100	97	74-120	4	30
1,3,5-Trimethylbenzene	1000	1003.26	1000	975.14	100	98	73-120	3	30

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Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:55

Group Number: 1653594

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Xylene (Total)	3000	2971.07	3000	2829.99	99	94	80-120	5	30
Batch number: Q161211AA	Sample number(s): 8347272								
Benzene	1000	970.37	1000	975.51	97	98	80-120	1	30
1,2-Dibromoethane	1000	994.37	1000	960.74	99	96	80-120	3	30
1,2-Dichloroethane	1000	979.05	1000	973.1	98	97	77-130	1	30
Ethylbenzene	1000	953.94	1000	941.84	95	94	80-120	1	30
Isopropylbenzene	1000	993.71	1000	959.52	99	96	70-120	4	30
Methyl Tertiary Butyl Ether	1000	984.63	1000	974.29	98	97	72-120	1	30
Toluene	1000	995.97	1000	977.96	100	98	80-120	2	30
1,2,4-Trimethylbenzene	1000	991.95	1000	979.09	99	98	74-120	1	30
1,3,5-Trimethylbenzene	1000	992.04	1000	990.89	99	99	73-120	0	30
Xylene (Total)	3000	2890.55	3000	2859.01	96	95	80-120	1	30
Batch number: X161201AA	Sample number(s): 8347255-8347257,8347259-8347262,8347267,8347270-8347271,8347273								
Benzene	20	19.82	20	20.06	99	100	80-120	1	30
1,2-Dibromoethane	20	18.68	20	18.31	93	92	80-120	2	30
1,2-Dichloroethane	20	22.43	20	22.06	112	110	77-130	2	30
Ethylbenzene	20	19.19	20	19.57	96	98	80-120	2	30
Isopropylbenzene	20	18.59	20	18.83	93	94	70-120	1	30
Methyl Tertiary Butyl Ether	20	18.26	20	18.12	91	91	72-120	1	30
Toluene	20	18.9	20	19.34	94	97	80-120	2	30
1,2,4-Trimethylbenzene	20	17.78	20	18.21	89	91	74-120	2	30
1,3,5-Trimethylbenzene	20	17.41	20	18.01	87	90	73-120	3	30
Xylene (Total)	60	55.08	60	55.83	92	93	80-120	1	30
Batch number: X161202AA	Sample number(s): 8347258,8347268-8347269								
Benzene	20	20.51	20	20.58	103	103	80-120	0	30
1,2-Dibromoethane	20	18.38	20	18.36	92	92	80-120	0	30
1,2-Dichloroethane	20	21.04	20	21.17	105	106	77-130	1	30
Ethylbenzene	20	20.13	20	20.03	101	100	80-120	0	30
Isopropylbenzene	20	19.62	20	19.42	98	97	70-120	1	30
Methyl Tertiary Butyl Ether	20	17.65	20	18.1	88	91	72-120	3	30
Toluene	20	20.08	20	20	100	100	80-120	0	30
1,2,4-Trimethylbenzene	20	18.95	20	18.6	95	93	74-120	2	30
1,3,5-Trimethylbenzene	20	18.74	20	18.68	94	93	73-120	0	30
Xylene (Total)	60	58.22	60	57.49	97	96	80-120	1	30
	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 16119SLD026	Sample number(s): 8347255-8347272,8347274								
Anthracene	1666.67	1655.46			99		82-118		
Benzo(a)anthracene	1666.67	1570.51			94		76-119		
Benzo(a)pyrene	1666.67	1675.17			101		85-117		
Benzo(b)fluoranthene	1666.67	1585.48			95		78-129		
Benzo(g,h,i)perylene	1666.67	1424.63			85		77-118		
Chrysene	1666.67	1510.51			91		80-121		
Fluorene	1666.67	1580.36			95		86-118		
Naphthalene	1666.67	1566.48			94		82-112		
Phenanthrene	1666.67	1581.42			95		80-114		
Pyrene	1666.67	1555.55			93		81-114		

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REVISED

Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:55

Group Number: 1653594

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 16124SLC026	Sample number(s): 8347273								
Anthracene	1666.67	1712.9	1666.67	1716.85	103	103	82-118	0	30
Benzo(a)anthracene	1666.67	1685.57	1666.67	1681.63	101	101	76-119	0	30
Benzo(a)pyrene	1666.67	1710.82	1666.67	1732.55	103	104	85-117	1	30
Benzo(b)fluoranthene	1666.67	1772.12	1666.67	1782.29	106	107	78-129	1	30
Benzo(g,h,i)perylene	1666.67	1438.26	1666.67	1464.17	86	88	77-118	2	30
Chrysene	1666.67	1662.03	1666.67	1660.88	100	100	80-121	0	30
Fluorene	1666.67	1633.47	1666.67	1640.8	98	98	86-118	0	30
Naphthalene	1666.67	1609.19	1666.67	1608.95	97	97	82-112	0	30
Phenanthrene	1666.67	1655.99	1666.67	1654.23	99	99	80-114	0	30
Pyrene	1666.67	1647.69	1666.67	1660.27	99	100	81-114	1	30
	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 161165711003	Sample number(s): 8347255-8347274								
Mercury	0.100	0.102			102		80-120		
Batch number: 161185708003	Sample number(s): 8347255-8347274								
Lead	15	15.23			102		80-120		
	Std. Units	Std. Units	Std. Units	Std. Units					
Batch number: 16118039401A	Sample number(s): 8347255-8347256,8347258-8347265								
pH in soil	7.00	7.02			100		95-105		
Batch number: 16118039401B	Sample number(s): 8347257								
pH in soil	7.00	7.02			100		95-105		
Batch number: 16119039401A	Sample number(s): 8347266-8347269								
pH in soil	7.00	7.04			101		95-105		
Batch number: 16119039401B	Sample number(s): 8347270-8347274								
pH in soil	7.00	7.04			101		95-105		
	%	%	%	%					
Batch number: 16118820002A	Sample number(s): 8347255-8347268								
Moisture	89.5	89.46			100		99-101		
Batch number: 16118820002B	Sample number(s): 8347269-8347274								
Moisture	89.5	89.46			100		99-101		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16119SLD026	Sample number(s): 8347255-8347272,8347274 UNSPK: 8347259									

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REVISED

Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:55

Group Number: 1653594

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/kg	MS Spike Added ug/kg	MS Conc ug/kg	MSD Spike Added ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Anthracene	N.D.	1655.63	1474.57	1661.68	1571.76	89	95	82-118	6	30
Benzo(a)anthracene	13.18	1655.63	1408.64	1661.68	1424.73	84	85	76-119	1	30
Benzo(a)pyrene	12.71	1655.63	1529.74	1661.68	1574.85	92	94	85-117	3	30
Benzo(b)fluoranthene	19.47	1655.63	1376.05	1661.68	1437.18	82	85	78-129	4	30
Benzo(g,h,i)perylene	11.87	1655.63	1467.6	1661.68	1469.88	88	88	77-118	0	30
Chrysene	17.39	1655.63	1399.84	1661.68	1456.1	83	87	80-121	4	30
Fluorene	N.D.	1655.63	1443.45	1661.68	1430.67	87	86	86-118	1	30
Naphthalene	3.85	1655.63	1452.73	1661.68	1507.82	88	91	82-112	4	30
Phenanthrene	10.63	1655.63	1438.43	1661.68	1528.26	86	91	80-114	6	30
Pyrene	22.16	1655.63	1396.49	1661.68	1482.54	83	88	81-114	6	30
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
Batch number: 161165711003	Sample number(s): 8347255-8347274 UNSPK: 8347261									
Mercury	0.119	0.165	0.293	0.156	0.267	105	95	80-120	9	20
Batch number: 161185708003	Sample number(s): 8347255-8347274 UNSPK: 8347255									
Lead	47.9	15	68.7	15	63.82	139*	106	75-125	7	20

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/kg	DUP Conc mg/kg	DUP RPD	DUP RPD Max
Batch number: 161165711003	Sample number(s): 8347255-8347274 BKG: 8347261			
Mercury	0.119	0.104	13 (1)	20
Batch number: 161185708003	Sample number(s): 8347255-8347274 BKG: 8347255			
Lead	47.9	62.39	26*	20
	Std. Units	Std. Units		
Batch number: 16118039401A	Sample number(s): 8347255-8347256,8347258-8347265 BKG: 8347256			
pH in soil	7.29	7.30	0	3
Batch number: 16118039401B	Sample number(s): 8347257 BKG: 8347257			
pH in soil	7.79	7.80	0	3
Batch number: 16119039401A	Sample number(s): 8347266-8347269 BKG: P342368			
pH in soil	8.07	8.02	1	3
Batch number: 16119039401B	Sample number(s): 8347270-8347274 BKG: 8347270			
pH in soil	7.02	7.02	0	3
	%	%		
Batch number: 16118820002A	Sample number(s): 8347255-8347268 BKG: 8347268			
Moisture	17.76	17.2	3	5

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Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:55

Group Number: 1653594

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc %	DUP Conc %	DUP RPD	DUP RPD Max
Batch number: 16118820002B	Sample number(s): 8347269-8347274 BKG: 8347273			
Moisture	17.04	16.86	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: VOCs- Solid by 8260B
Batch number: Q161201AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8347263	91	99	96	95
8347264	77	78	73	66
8347265	2*	95	95	96
8347266	1*	87	88	89
8347274	64	63	64	57
Blank	93	96	94	91
LCS	95	95	95	94
LCSD	91	91	90	90
Limits:	50-141	54-135	52-141	50-131

Analysis Name: VOCs- Solid by 8260B
Batch number: Q161211AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8347272	71	70	143*	134*
Blank	93	96	92	90
LCS	91	92	92	90
LCSD	91	91	90	89
Limits:	50-141	54-135	52-141	50-131

Analysis Name: VOCs- Solid by 8260B
Batch number: X161201AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8347255	102	101	99	93
8347256	107	103	100	95
8347257	107	107	98	99
8347259	107	105	102	94
8347260	103	103	104	96
8347261	108	108	99	94
8347262	110	109	97	95
8347267	103	102	104	91
8347270	101	101	107	98
8347271	101	102	110	83

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Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:55

Group Number: 1653594

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8347273	102	101	105	96
Blank	105	98	100	95
LCS	104	100	102	101
LCSD	102	98	102	101
Limits:	50-141	54-135	52-141	50-131

Analysis Name: VOCs- Solid by 8260B
Batch number: X161202AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8347258	102	100	107	88
8347268	104	103	98	100
8347269	103	105	99	94
Blank	102	101	100	96
LCS	101	96	103	100
LCSD	101	98	101	99
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL 8270 (microwave)
Batch number: 16119SLD026

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
8347255	85	84	85
8347256	86	84	88
8347257	86	84	87
8347258	81	82	86
8347259	84	84	80
8347260	87	87	65
8347261	88	88	69
8347262	83	84	59
8347263	137*	95	69
8347264	128*	81	73
8347265	81	88	61
8347266	76	89	61
8347267	98	97	101
8347268	80	85	100
8347269	89	86	72
8347270	88	84	60
8347271	97	100	62
8347272	180*	82	83
8347274	103	89	61
Blank	89	87	91
LCS	92	93	94
MS	87	85	86
MSD	91	94	90
Limits:	54-123	63-117	59-129

Analysis Name: TCL 8270 (microwave)
Batch number: 16124SLC026

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:55

Group Number: 1653594

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
8347273	86	81	87
Blank	89	81	89
LCS	97	88	99
LCSD	98	90	102
Limits:	54-123	63-117	59-129

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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SSOW 11110315 1110967

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 10177 Group # 1653594 Sample # 8347255-74

COC # 499342

Client Information

Client: Evergreen

Acct. #:

Project Name/#: AOI8 AOI6

PWSID #:

Project Manager: David Steele

P.O. #: [redacted]

Sampler: Matthew Marcus

Quote #:

State where samples were collected: [redacted] PA

For Compliance: Yes ☐ No ☐

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Sediment	Water: Ground	Potable	NPDES	Surface	Other:	Total # of Containers	Hg, Pb, Lead, SVOC	VOCs / Moisture	Remarks
MW 568-0-2-Soil	4/20/16	1330	/									5	X	X	
MW 568-7-8 Soil	4/20/16	1340	/									5	X	X	
MW 569-0-2-Soil	4/20/16	1205	/									5	X	X	
MW 569-6-7-Soil	4/20/16	1215	/									5	X	X	
MW 570-0-2-Soil	4/20/16	1140	/									5	X	X	
MW 570-3-4-Soil	4/20/16	1120	/									5	X	X	
MW 571-0-2-Soil	4/20/16	0945	/									5	X	X	
MW 571-6-7-Soil	4/20/16	1015	/									5	X	X	
BH-16-010-0-2-Soil	4/22/16	1050	/									5	X	X	
BH-16-010-6-7.5-Soil	4/22/16	1100	/									5	X	X	

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: David.Steele@GHD.com

Relinquished by	Date	Time	Received by	Date	Time
Matthew Marcus	4/22/16	1449	[illegible]	4-22-16	1449
[illegible]	4/22/16	1825			
			[illegible]	4/22/16	1825

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt 0.5-0.5 °C 0.8

Environmental Analysis Request/Chain of Custody

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SSOW 1111 0715 1110967

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 10177 Group # 1653594 Sample # 8347255-74

COC # 499224

Client Information

Client: Evergreen

Acct. #:

Project Name/#: AOI8 AO78

PWSID #:

Project Manager: David Steele

P.O. #:

Sampler: Matthew Marcus

Quote #:

State where samples were collected: PA

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Sediment	Ground	Surface	Potable	NPDES	Soil	Water	Other:	Total # of Containers	Hg, 3H, Pb, SVOC	VOCs, Moisture	Remarks
MW572-0-2-Soil	4/21/16	1049	✓							☑			5	X	X	
MW572-6-7-Soil	4/21/16	1145	✓										5	X	X	
MW566-0-2-Soil	4/21/16	1225	✓										5	X	X	
MW566-7-8 Soil D	4/21/16	1300	✓										5	X	X	
MW563-0-2 Soil	4/21/16	1325	✓										5	X	X	
MW563-5-6 Soil	4/21/16	1346	✓										5	X	X	
MW567-0-2-Soil	4/21/16	0805	✓										5	X	X	
MW567-4.5-6 Soil	4/21/16	0820	✓										5	X	X	
MW566-7-8-Soil	4/21/16	1255	✓										5	X	X	
BH-16-008-60-6.5-Soil	4/22/16	1020	✓										5	X	X	KO

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: David.Steele@GHD.com

Relinquished by	Date	Time	Received by	Date	Time
Matthew Marcus	4/22/16	1449	[illegible]	4/22/16	1449
[illegible]	4/22/16	1825			
			Hosiya Juvandey	4/22/16	1825

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS FedEx Other

Temperature upon receipt 0.5-0.5 °C 0.8

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Sample Administration Receipt Documentation Log

Doc Log ID: 144034

Group Number(s): 1653594

Client: Evergreen

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	04/22/2016 18:25
Number of Packages:	3	Number of Projects:	1
State/Province of Origin:	PA		

Arrival Condition Summary

Shipping Container Sealed:	No	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Maritza Fernandez (9906) at 22:41 on 04/22/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.5	DT	Wet	Y	Bagged	N
2	DT146	0.5	DT	Wet	Y	Bagged	N
3	DT146	0.8	DT	Wet	Y	Bagged	N

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Lancaster, PA 17605-2425

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Analysis Report

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

Report Date: June 21, 2016

Project: Marcus Hook Facility

Submittal Date: 05/25/2016
Group Number: 1665528
SDG: MHF37
PO Number: 11110315
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
GW-11110315-MW571-052416-MM-001 Grab Groundwater	8398219
GW-11110315-MW570-052416-MM-002 Grab Groundwater	8398220
GW-11110315-DUP-052416-MM-003 Grab Groundwater	8398221
GW-11110315-MW569-052416-MM-004 Grab Groundwater	8398222
GW-11110315-MW568-052416-MM-005 Grab Groundwater	8398223
GW-11110315-MW567-052416-MM-006 Grab Groundwater	8398224
TB-11110315-052416-MM-007 Water	8398225

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	GHD, Inc.	Attn: Arlie Weigley
Electronic Copy To	GHD, Inc.	Attn: Dave Steele
Electronic Copy To	GHD	Attn: Paul McMahon

REVISED

Respectfully Submitted,

Megan A. Moeller
Senior Specialist

(717) 556-7261

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Analysis Report

REVISED

Sample Description: GW-11110315-MW571-052416-MM-001 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398219
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 09:50 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

MW571 SDG#: MHF37-01

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	ug/l	
10945	Benzene	71-43-2	93	1	0.5	1
10945	1,2-Dichloroethane	107-06-2	10	1	0.5	1
10945	Ethylbenzene	100-41-4	98	1	0.5	1
10945	Isopropylbenzene	98-82-8	N.D.	2	0.5	1
10945	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	1	0.5	1
10945	Toluene	108-88-3	96	1	0.5	1
10945	1,2,4-Trimethylbenzene	95-63-6	N.D.	2	0.5	1
10945	1,3,5-Trimethylbenzene	108-67-8	N.D.	2	0.5	1
10945	Xylene (Total)	1330-20-7	93	1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Anthracene	120-12-7	N.D.	0.051	0.010	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.051	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.051	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.051	0.010	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.051	0.010	1
08357	Chrysene	218-01-9	N.D.	0.051	0.010	1
08357	Fluorene	86-73-7	0.015 J	0.051	0.010	1
08357	Naphthalene	91-20-3	72	1.2	0.61	20
08357	Phenanthrene	85-01-8	N.D.	0.061	0.030	1
08357	Pyrene	129-00-0	N.D.	0.051	0.010	1
Volatiles by Extraction	**SW-846 8011**		ug/l	ug/l	ug/l	
10398	Ethylene dibromide	106-93-4	N.D.	0.029	0.0098	1
Metals	**SW-846 6020**		mg/l	mg/l	mg/l	
06035	Lead	7439-92-1	0.0025	0.0010	0.00013	1

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE/Cumene/EDC/TMBs	SW-846 8260B	1	Z161521AA	06/01/2016 06:16	Hu Yang	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z161521AA	06/01/2016 06:16	Hu Yang	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16147WAJ026	06/01/2016 05:32	Catherine E Bachman	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16147WAJ026	06/01/2016 13:52	Catherine E Bachman	20

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: GW-11110315-MW571-052416-MM-001 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398219
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 09:50 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

MW571 SDG#: MHF37-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16147WAJ026	05/27/2016 08:45	Kayla Yuditsky	1
10398	EDB in Wastewater	SW-846 8011	1	161490052A	06/02/2016 03:29	Heather M Miller	1
07786	EDB Extraction (8011)	SW-846 8011	1	161490052A	06/01/2016 09:00	Scott J Carini	1
06035	Lead	SW-846 6020	1	161556050003A	06/06/2016 16:22	Patrick J Engle	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	161556050003	06/06/2016 05:46	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: GW-11110315-MW570-052416-MM-002 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398220
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 12:15 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

MW570 SDG#: MHF37-02

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	ug/l	
10945	Benzene	71-43-2	N.D.	1	0.5	1
10945	1,2-Dichloroethane	107-06-2	4	1	0.5	1
10945	Ethylbenzene	100-41-4	N.D.	1	0.5	1
10945	Isopropylbenzene	98-82-8	N.D.	2	0.5	1
10945	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	1	0.5	1
10945	Toluene	108-88-3	N.D.	1	0.5	1
10945	1,2,4-Trimethylbenzene	95-63-6	N.D.	2	0.5	1
10945	1,3,5-Trimethylbenzene	108-67-8	N.D.	2	0.5	1
10945	Xylene (Total)	1330-20-7	N.D.	1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Anthracene	120-12-7	N.D.	0.051	0.010	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.051	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.051	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.051	0.010	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.051	0.010	1
08357	Chrysene	218-01-9	N.D.	0.051	0.010	1
08357	Fluorene	86-73-7	N.D.	0.051	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.061	0.031	1
08357	Phenanthrene	85-01-8	N.D.	0.061	0.031	1
08357	Pyrene	129-00-0	N.D.	0.051	0.010	1
Volatiles by Extraction	**SW-846 8011**		ug/l	ug/l	ug/l	
10398	Ethylene dibromide	106-93-4	N.D.	0.029	0.0097	1
Metals Dissolved	**SW-846 6020**		mg/l	mg/l	mg/l	
06035	Lead	7439-92-1	N.D.	0.0010	0.00013	1

Sample Comments

This sample was filtered in the lab for dissolved metals.
PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE/Cumene/EDC/TMBs	SW-846 8260B	1	Z161522AA	06/01/2016 04:28	Hu Yang	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z161522AA	06/01/2016 04:28	Hu Yang	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16147WAJ026	06/01/2016 06:02	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16147WAJ026	05/27/2016 08:45	Kayla Yuditsky	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: GW-11110315-MW570-052416-MM-002 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398220
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 12:15 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

MW570 SDG#: MHF37-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10398	EDB in Wastewater	SW-846 8011	1	161490052A	06/02/2016 03:44	Heather M Miller	1
07786	EDB Extraction (8011)	SW-846 8011	1	161490052A	06/01/2016 09:00	Scott J Carini	1
06035	Lead	SW-846 6020	1	161556050003A	06/06/2016 16:24	Patrick J Engle	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	161556050003	06/06/2016 05:46	James L Mertz	1

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Analysis Report

REVISED

Sample Description: GW-11110315-DUP-052416-MM-003 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398221
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 12:40 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

AOI8D SDG#: MHF37-03FD

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	ug/l	
10945	Benzene	71-43-2	N.D.	1	0.5	1
10945	1,2-Dichloroethane	107-06-2	4	1	0.5	1
10945	Ethylbenzene	100-41-4	N.D.	1	0.5	1
10945	Isopropylbenzene	98-82-8	N.D.	2	0.5	1
10945	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	1	0.5	1
10945	Toluene	108-88-3	N.D.	1	0.5	1
10945	1,2,4-Trimethylbenzene	95-63-6	N.D.	2	0.5	1
10945	1,3,5-Trimethylbenzene	108-67-8	N.D.	2	0.5	1
10945	Xylene (Total)	1330-20-7	N.D.	1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Anthracene	120-12-7	N.D.	0.051	0.010	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.051	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.051	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.051	0.010	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.051	0.010	1
08357	Chrysene	218-01-9	N.D.	0.051	0.010	1
08357	Fluorene	86-73-7	N.D.	0.051	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.061	0.031	1
08357	Phenanthrene	85-01-8	N.D.	0.061	0.031	1
08357	Pyrene	129-00-0	N.D.	0.051	0.010	1
Volatiles by Extraction	**SW-846 8011**		ug/l	ug/l	ug/l	
10398	Ethylene dibromide	106-93-4	N.D.	0.029	0.0098	1
Metals Dissolved	**SW-846 6020**		mg/l	mg/l	mg/l	
06035	Lead	7439-92-1	N.D.	0.0010	0.00013	1

Sample Comments

This sample was filtered in the lab for dissolved metals.
PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE/Cumene/EDC/TMBs	SW-846 8260B	1	Z161522AA	06/01/2016 04:52	Hu Yang	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z161522AA	06/01/2016 04:52	Hu Yang	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16147WAJ026	06/01/2016 06:32	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16147WAJ026	05/27/2016 08:45	Kayla Yuditsky	1

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Analysis Report

REVISED

Sample Description: GW-11110315-DUP-052416-MM-003 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398221
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 12:40 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

AOI8D SDG#: MHF37-03FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10398	EDB in Wastewater	SW-846 8011	1	161490052A	06/02/2016 04:00	Heather M Miller	1
07786	EDB Extraction (8011)	SW-846 8011	1	161490052A	06/01/2016 09:00	Scott J Carini	1
06035	Lead	SW-846 6020	1	161556050003A	06/06/2016 16:25	Patrick J Engle	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	161556050003	06/06/2016 05:46	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: GW-11110315-MW569-052416-MM-004 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398222
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 14:25 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

MW569 SDG#: MHF37-04

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l		ug/l	ug/l	
10945	Benzene	71-43-2	0.7	J	1	0.5	1
10945	1,2-Dichloroethane	107-06-2	5		1	0.5	1
10945	Ethylbenzene	100-41-4	N.D.		1	0.5	1
10945	Isopropylbenzene	98-82-8	N.D.		2	0.5	1
10945	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		1	0.5	1
10945	Toluene	108-88-3	N.D.		1	0.5	1
10945	1,2,4-Trimethylbenzene	95-63-6	N.D.		2	0.5	1
10945	1,3,5-Trimethylbenzene	108-67-8	N.D.		2	0.5	1
10945	Xylene (Total)	1330-20-7	N.D.		1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l		ug/l	ug/l	
08357	Anthracene	120-12-7	N.D.		0.050	0.010	1
08357	Benzo(a)anthracene	56-55-3	N.D.		0.050	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.		0.050	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.		0.050	0.010	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.		0.050	0.010	1
08357	Chrysene	218-01-9	N.D.		0.050	0.010	1
08357	Fluorene	86-73-7	N.D.		0.050	0.010	1
08357	Naphthalene	91-20-3	N.D.		0.060	0.030	1
08357	Phenanthrene	85-01-8	N.D.		0.060	0.030	1
08357	Pyrene	129-00-0	N.D.		0.050	0.010	1
Volatiles by Extraction	**SW-846 8011**		ug/l		ug/l	ug/l	
10398	Ethylene dibromide	106-93-4	N.D.		0.029	0.0098	1
Metals Dissolved	**SW-846 6020**		mg/l		mg/l	mg/l	
06035	Lead	7439-92-1	N.D.		0.0010	0.00013	1

Sample Comments

This sample was filtered in the lab for dissolved metals.
PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE/Cumene/EDC/TMBs	SW-846 8260B	1	Z161522AA	06/01/2016 05:16	Hu Yang	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z161522AA	06/01/2016 05:16	Hu Yang	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16147WAJ026	06/01/2016 07:01	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16147WAJ026	05/27/2016 08:45	Kayla Yuditsky	1

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Analysis Report

REVISED

Sample Description: GW-11110315-MW569-052416-MM-004 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398222
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 14:25 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

MW569 SDG#: MHF37-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10398	EDB in Wastewater	SW-846 8011	1	161490052A	06/02/2016 04:15	Heather M Miller	1
07786	EDB Extraction (8011)	SW-846 8011	1	161490052A	06/01/2016 09:00	Scott J Carini	1
06035	Lead	SW-846 6020	1	161556050003A	06/06/2016 16:27	Patrick J Engle	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	161556050003	06/06/2016 05:46	James L Mertz	1

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Analysis Report

REVISED

Sample Description: GW-11110315-MW568-052416-MM-005 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398223
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 16:10 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

MW568 SDG#: MHF37-05

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	**ug/l**	
10945	Benzene	71-43-2	4		1	0.5	1
10945	1,2-Dichloroethane	107-06-2	N.D.		1	0.5	1
10945	Ethylbenzene	100-41-4	2		1	0.5	1
10945	Isopropylbenzene	98-82-8	0.6	J	2	0.5	1
10945	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		1	0.5	1
10945	Toluene	108-88-3	0.8	J	1	0.5	1
10945	1,2,4-Trimethylbenzene	95-63-6	N.D.		2	0.5	1
10945	1,3,5-Trimethylbenzene	108-67-8	N.D.		2	0.5	1
10945	Xylene (Total)	1330-20-7	6		1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
08357	Anthracene	120-12-7	N.D.		0.051	0.010	1
08357	Benzo(a)anthracene	56-55-3	N.D.		0.051	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.		0.051	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.		0.051	0.010	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.		0.051	0.010	1
08357	Chrysene	218-01-9	N.D.		0.051	0.010	1
08357	Fluorene	86-73-7	N.D.		0.051	0.010	1
08357	Naphthalene	91-20-3	0.055	J	0.061	0.030	1
08357	Phenanthrene	85-01-8	N.D.		0.061	0.030	1
08357	Pyrene	129-00-0	N.D.		0.051	0.010	1
Volatiles by Extraction	**SW-846 8011**		**ug/l**		**ug/l**	**ug/l**	
10398	Ethylene dibromide	106-93-4	N.D.		0.029	0.0097	1
Metals Dissolved	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06035	Lead	7439-92-1	N.D.		0.0010	0.00013	1

Sample Comments

This sample was filtered in the lab for dissolved metals.
PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE/Cumene/EDC/TMBs	SW-846 8260B	1	Z161522AA	06/01/2016 05:40	Hu Yang	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z161522AA	06/01/2016 05:40	Hu Yang	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16147WAJ026	06/01/2016 07:33	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16147WAJ026	05/27/2016 08:45	Kayla Yuditsky	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: GW-11110315-MW568-052416-MM-005 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398223
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 16:10 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

MW568 SDG#: MHF37-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10398	EDB in Wastewater	SW-846 8011	1	161490052A	06/02/2016 04:31	Heather M Miller	1
07786	EDB Extraction (8011)	SW-846 8011	1	161490052A	06/01/2016 09:00	Scott J Carini	1
06035	Lead	SW-846 6020	1	161556050003A	06/06/2016 16:29	Patrick J Engle	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	161556050003	06/06/2016 05:46	James L Mertz	1

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Analysis Report

REVISED

Sample Description: GW-11110315-MW567-052416-MM-006 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398224
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 17:45 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

MW567 SDG#: MHF37-06

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	**ug/l**	
10945	Benzene	71-43-2	3	1	0.5	1
10945	1,2-Dichloroethane	107-06-2	N.D.	1	0.5	1
10945	Ethylbenzene	100-41-4	2	1	0.5	1
10945	Isopropylbenzene	98-82-8	17	2	0.5	1
10945	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	1	0.5	1
10945	Toluene	108-88-3	N.D.	1	0.5	1
10945	1,2,4-Trimethylbenzene	95-63-6	3	2	0.5	1
10945	1,3,5-Trimethylbenzene	108-67-8	2	2	0.5	1
10945	Xylene (Total)	1330-20-7	1	1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Anthracene	120-12-7	0.044 J	0.050	0.010	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.050	0.010	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.050	0.010	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.050	0.010	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.050	0.010	1
08357	Chrysene	218-01-9	N.D.	0.050	0.010	1
08357	Fluorene	86-73-7	N.D.	0.050	0.010	1
08357	Naphthalene	91-20-3	N.D.	0.060	0.030	1
08357	Phenanthrene	85-01-8	N.D.	0.060	0.030	1
08357	Pyrene	129-00-0	0.015 J	0.050	0.010	1
Volatiles by Extraction	**SW-846 8011**		**ug/l**	**ug/l**	**ug/l**	
10398	Ethylene dibromide	106-93-4	N.D.	0.029	0.0097	1
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06035	Lead	7439-92-1	N.D.	0.0010	0.00013	1

Sample Comments

This sample was filtered in the lab for dissolved metals.
PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE/Cumene/EDC/TMBs	SW-846 8260B	1	Z161522AA	06/01/2016 06:04	Hu Yang	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z161522AA	06/01/2016 06:04	Hu Yang	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16147WAJ026	06/01/2016 14:22	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16147WAJ026	05/27/2016 08:45	Kayla Yuditsky	1

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Analysis Report

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Sample Description: GW-11110315-MW567-052416-MM-006 Grab Groundwater
Marcus Hook AOI8

LL Sample # WW 8398224
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 17:45 by MM

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

MW567 SDG#: MHF37-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10398	EDB in Wastewater	SW-846 8011	1	161490052A	06/02/2016 05:18	Heather M Miller	1
07786	EDB Extraction (8011)	SW-846 8011	1	161490052A	06/01/2016 09:00	Scott J Carini	1
06035	Lead	SW-846 6020	1	161556050003A	06/06/2016 16:31	Patrick J Engle	1
06050	ICPMS-Water, 3020A - U3	SW-846 3010A modified	1	161556050003	06/06/2016 05:46	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

REVISED

Sample Description: TB-11110315-052416-MM-007 Water
Marcus Hook AOI8

LL Sample # WW 8398225
LL Group # 1665528
Account # 10177

Project Name: Marcus Hook Facility

Collected: 05/24/2016 18:00

Submitted: 05/25/2016 17:10
Reported: 06/21/2016 12:57

Evergreen c/o GHD
2055 Niagara Falls Blvd.
Suite #3
Niagara Falls NY 14304

AOI8T SDG#: MHF37-07TB

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	ug/l	
10945	Benzene	71-43-2	N.D.	1	0.5	1
10945	1,2-Dichloroethane	107-06-2	N.D.	1	0.5	1
10945	Ethylbenzene	100-41-4	N.D.	1	0.5	1
10945	Isopropylbenzene	98-82-8	N.D.	2	0.5	1
10945	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	1	0.5	1
10945	Toluene	108-88-3	N.D.	1	0.5	1
10945	1,2,4-Trimethylbenzene	95-63-6	N.D.	2	0.5	1
10945	1,3,5-Trimethylbenzene	108-67-8	N.D.	2	0.5	1
10945	Xylene (Total)	1330-20-7	N.D.	1	0.5	1
Volatiles by Extraction	**SW-846 8011**		ug/l	ug/l	ug/l	
10398	Ethylene dibromide	106-93-4	N.D.	0.029	0.0097	1

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10945	BTEX/MTBE/Cumene/EDC/TMBs	SW-846 8260B	1	Z161522AA	05/31/2016 22:27	Hu Yang	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z161522AA	05/31/2016 22:27	Hu Yang	1
10398	EDB in Wastewater	SW-846 8011	1	161490052A	06/02/2016 05:33	Heather M Miller	1
07786	EDB Extraction (8011)	SW-846 8011	1	161490052A	06/01/2016 09:00	Scott J Carini	1

*=This limit was used in the evaluation of the final result

REVISED

Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:57

Group Number: 1665528

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ**	MDL
	ug/l	ug/l	ug/l
Batch number: Z161521AA	Sample number(s): 8398219		
Benzene	N.D.	1	0.5
1,2-Dichloroethane	N.D.	1	0.5
Ethylbenzene	N.D.	1	0.5
Isopropylbenzene	N.D.	2	0.5
Methyl Tertiary Butyl Ether	N.D.	1	0.5
Toluene	N.D.	1	0.5
1,2,4-Trimethylbenzene	N.D.	2	0.5
1,3,5-Trimethylbenzene	N.D.	2	0.5
Xylene (Total)	N.D.	1	0.5
Batch number: Z161522AA	Sample number(s): 8398220-8398225		
Benzene	N.D.	1	0.5
1,2-Dichloroethane	N.D.	1	0.5
Ethylbenzene	N.D.	1	0.5
Isopropylbenzene	N.D.	2	0.5
Methyl Tertiary Butyl Ether	N.D.	1	0.5
Toluene	N.D.	1	0.5
1,2,4-Trimethylbenzene	N.D.	2	0.5
1,3,5-Trimethylbenzene	N.D.	2	0.5
Xylene (Total)	N.D.	1	0.5
Batch number: 16147WAJ026	Sample number(s): 8398219-8398224		
Anthracene	N.D.	0.050	0.010
Benzo(a)anthracene	N.D.	0.050	0.010
Benzo(a)pyrene	N.D.	0.050	0.010
Benzo(b)fluoranthene	N.D.	0.050	0.010
Benzo(g,h,i)perylene	N.D.	0.050	0.010
Chrysene	N.D.	0.050	0.010
Fluorene	N.D.	0.050	0.010
Naphthalene	N.D.	0.060	0.030
Phenanthrene	N.D.	0.060	0.030
Pyrene	N.D.	0.050	0.010
Batch number: 161490052A	Sample number(s): 8398219-8398225		
Ethylene dibromide	N.D.	0.030	0.010
	mg/l	mg/l	mg/l
Batch number: 161556050003A	Sample number(s): 8398219-8398224		
Lead	N.D.	0.0010	0.00013

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:57

Group Number: 1665528

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: Z161521AA	Sample number(s): 8398219								
Benzene	20	18.46			92		78-120		
1,2-Dichloroethane	20	18.22			91		72-127		
Ethylbenzene	20	18.14			91		78-120		
Isopropylbenzene	20	18.6			93		80-120		
Methyl Tertiary Butyl Ether	20	17.16			86		75-120		
Toluene	20	18.97			95		80-120		
1,2,4-Trimethylbenzene	20	17.25			86		75-120		
1,3,5-Trimethylbenzene	20	17.21			86		75-120		
Xylene (Total)	60	56.45			94		80-120		
Batch number: Z161522AA	Sample number(s): 8398220-8398225								
Benzene	20	18.08			90		78-120		
1,2-Dichloroethane	20	17.91			90		72-127		
Ethylbenzene	20	17.77			89		78-120		
Isopropylbenzene	20	18.51			93		80-120		
Methyl Tertiary Butyl Ether	20	16.32			82		75-120		
Toluene	20	18.82			94		80-120		
1,2,4-Trimethylbenzene	20	17.12			86		75-120		
1,3,5-Trimethylbenzene	20	17			85		75-120		
Xylene (Total)	60	55.92			93		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16147WAJ026	Sample number(s): 8398219-8398224								
Anthracene	1.00	0.882	1.00	0.877	88	88	69-120	1	30
Benzo(a)anthracene	1.00	0.854	1.00	0.843	85	84	71-118	1	30
Benzo(a)pyrene	1.00	0.889	1.00	0.881	89	88	70-120	1	30
Benzo(b)fluoranthene	1.00	0.938	1.00	0.934	94	93	76-132	0	30
Benzo(g,h,i)perylene	1.00	0.821	1.00	0.820	82	82	58-129	0	30
Chrysene	1.00	0.855	1.00	0.850	85	85	66-119	1	30
Fluorene	1.00	0.853	1.00	0.855	85	86	69-116	0	30
Naphthalene	1.00	0.831	1.00	0.850	83	85	61-112	2	30
Phenanthrene	1.00	0.919	1.00	0.921	92	92	69-113	0	30
Pyrene	1.00	0.876	1.00	0.865	88	86	64-115	1	30
	ug/l	ug/l	ug/l	ug/l					
Batch number: 161490052A	Sample number(s): 8398219-8398225								
Ethylene dibromide	0.128	0.119	0.128	0.126	93	98	60-140	5	20
	mg/l	mg/l	mg/l	mg/l					
Batch number: 161556050003A	Sample number(s): 8398219-8398224								
Lead	0.0150	0.0153			102		80-120		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Analysis Report

REVISED

Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:57

Group Number: 1665528

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: Z161521AA	Sample number(s): 8398219 UNSPK: P397860									
Benzene	N.D.	20	19.96	20	20.25	100	101	78-120	1	30
1,2-Dichloroethane	N.D.	20	18.14	20	18.4	91	92	72-127	1	30
Ethylbenzene	N.D.	20	19.59	20	19.72	98	99	78-120	1	30
Isopropylbenzene	N.D.	20	20.33	20	20.52	102	103	80-120	1	30
Methyl Tertiary Butyl Ether	0.698	20	18.18	20	18.43	87	89	75-120	1	30
Toluene	N.D.	20	19.13	20	19.4	96	97	80-120	1	30
1,2,4-Trimethylbenzene	N.D.	20	18.07	20	18.59	90	93	75-120	3	30
1,3,5-Trimethylbenzene	N.D.	20	18.72	20	19.02	94	95	75-120	2	30
Xylene (Total)	N.D.	60	58.46	60	59.33	97	99	80-120	1	30
Batch number: Z161522AA	Sample number(s): 8398220-8398225 UNSPK: P400504									
Benzene	N.D.	20	19.61	20	20.01	98	100	78-120	2	30
1,2-Dichloroethane	N.D.	20	18.24	20	18.76	91	94	72-127	3	30
Ethylbenzene	N.D.	20	19.49	20	19.93	97	100	78-120	2	30
Isopropylbenzene	N.D.	20	19.97	20	20.54	100	103	80-120	3	30
Methyl Tertiary Butyl Ether	1.60	20	18.75	20	19.22	86	88	75-120	2	30
Toluene	N.D.	20	19.84	20	20.63	99	103	80-120	4	30
1,2,4-Trimethylbenzene	N.D.	20	18.94	20	19.33	95	97	75-120	2	30
1,3,5-Trimethylbenzene	N.D.	20	19.07	20	19.25	95	96	75-120	1	30
Xylene (Total)	N.D.	60	59.52	60	61.19	99	102	80-120	3	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 161490052A	Sample number(s): 8398219-8398225 UNSPK: P399642									
Ethylene dibromide	N.D.	0.124	0.112	0.124	0.121	90	98	60-140	8	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 161556050003A	Sample number(s): 8398219-8398224 UNSPK: P397554									
Lead	0.00149	0.0150	0.0170	0.0150	0.0172	104	105	75-125	1	20

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 161556050003A	Sample number(s): 8398219-8398224 BKG: P397554			
Lead	0.00149	0.00175	16 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:57

Group Number: 1665528

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX/MTBE/Cumene/EDC/TMBs
Batch number: Z161521AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8398219	101	98	95	94
Blank	99	98	94	89
LCS	96	99	95	96
MS	98	98	95	96
MSD	96	98	94	94
Limits:	80-116	77-113	80-113	78-113

Analysis Name: BTEX/MTBE/Cumene/EDC/TMBs
Batch number: Z161522AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8398220	100	98	95	87
8398221	101	99	96	88
8398222	101	98	95	87
8398223	98	97	97	92
8398224	94	94	95	92
8398225	101	100	93	88
Blank	100	97	94	86
LCS	97	97	96	95
MS	97	98	96	94
MSD	97	97	95	95
Limits:	80-116	77-113	80-113	78-113

Analysis Name: PAHs in waters by SIM
Batch number: 16147WAJ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
8398219	89	87	79
8398220	86	59	76
8398221	70	88	80
8398222	86	89	74
8398223	65	77	72
8398224	68	84	106
Blank	87	80	73
LCS	89	88	77
LCSD	88	88	78
Limits:	50-133	41-137	43-126

Analysis Name: EDB in Wastewater
Batch number: 161490052A

	1,1,2,2-Tetrachloroethane
8398219	6570*
8398220	69
8398221	65
8398222	70
8398223	72

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: Evergreen c/o GHD
Reported: 06/21/2016 12:57

Group Number: 1665528

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

	1,1,2,2-Tetrachloroethane
8398224	68
8398225	74
Blank	74
LCS	68
LCSD	69
MS	69
MSD	70
Limits:	46-136

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 10177 Group # 1665528 Sample # 8398219-25

COC # 502581

Client Information

Client: Guggieri

Acct. #:

Project Name/#: AOFX

PWSID #:

Project Manager: Dave Steele

P.O. #: 1111 0315

Sampler: Matthew Marcus

Quote #:

State where samples were collected: PA

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#: 189035

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Potable ☐ Ground ☒ Water ☐ NPDES ☐ Surface ☐ Other: ____

Analysis Requested / Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	Lead	BTEX/MTBE/Lime	EDC/TMBs	EDB	PAHs	Metal QC	Remarks
GW-1111 0315-MW 571-052416-MM-001	5/24/16	09:50	/		8	X	X	X	X	X		
GW-1111 0315-MW570-052416-MM-002	↓	12:15	/		9	X	X	X	X	X	X	
GW-1111 0315-MW Dup-052416-MM-003	↓	12:40	/		8	X	X	X	X	X		
GW-1111 0315-MW569-052416-MM-004	↓	14:25	/		8	X	X	X	X	X		
GW-1111 0315-MW568-052416-MM-005	↓	16:10	/		8	X	X	X	X	X		
GW-1111 0315-MW567-052416-MM-006	↓	17:45	/		8	X	X	X	X	X		
TB-1111 0315-052416-MM-007		18:00	/		4		X	X	X			

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Lab needs to filter Lead samples

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: ____

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage	5-20-16	0910			
Matthew Marcus	5/25/16	0915	[illegible]	5/25/16	0912
[illegible]	5/25/16	1710			
			[illegible]	5-25-16	17:10

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx ____ Other ____

Temperature upon receipt 0.6 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 147986

Group Number(s): 1665528

Client: Euergreen

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	05/25/2016 17:10
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	PA		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	No
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	4
Samples Intact:	No	Trip Blank Type:	HCl
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Brooke Frye (10101) at 21:29 on 05/25/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	0.6	DT	Wet	Y	Bagged	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
GW-11110315-MW567-052 416-MM-006	153	1	Y	
-005	153	1	Rec'd Empty ③Dr 5/25/16	

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Lancaster, PA 17605-2425
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Appendix F
Data Validation Reports

Memorandum

To:	David Steele	Ref. No.:	11110315
From:	Paul McMahon/adh/1	Date:	June 30, 2016

Re: **Data Usability Assessment**
SWMU Investigation AOI-8 Groundwater
Evergreen Resources Group, LLC
Marcus Hook, Pennsylvania
May 2016

1. Introduction

This document details a data usability assessment of analytical results for groundwater samples collected on May 24, 2016 in support of the Solid Waste Management Unit (SWMU) Investigation AOI-8 at the Marcus Hook Site in May 2016. Samples were submitted to Eurofins Lancaster Laboratories Environmental, located in Lancaster, Pennsylvania. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. A copy of the executed chain of custody form can be found in Attachment A.

Full Contract Laboratory Program (CLP) equivalent raw data deliverables were provided by the laboratory. Evaluation of the data was based on information obtained from the finished data sheets, the chain of custody form, blank data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spike (MS) samples, and field quality assurance/quality control (QA/QC) samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540-R-10-011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008

Items i) and ii) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in Table 2. The sample chain of custody document and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

3.1 Organic Analyses

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

3.2 Inorganic Analyses

The method blank result was non-detect, indicating that laboratory contamination was not a factor for this investigation

4. Surrogate Spike Recoveries

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for organic determinations were spiked with the appropriate number of surrogate compounds prior to sample extraction and/or analysis.

Each individual surrogate compound is expected to meet the laboratory control limits with the exception of semi-volatile organic compound (SVOC) analyses. According to the "Guidelines" for SVOC analyses, up to one outlying surrogate in the base/neutral fraction is acceptable as long as the recovery is at least 10 percent.

Surrogate recoveries were assessed against laboratory control limits. All recoveries were acceptable except for one high ethylene dibromide (EDB) recovery. The associated sample result was non-detect and was not impacted by the indicated high bias.

5. Laboratory Control Sample Analyses

LCS and/or laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

5.1 Organic Analyses

The LCS or LCS/LCSD contained all compounds of interest. All LCS recoveries and RPDs were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

5.2 Inorganic Analyses

The LCS contained the analyte of interest. The LCS recovery was assessed per the "Guidelines". The LCS recovery was within the control limits, demonstrating acceptable analytical accuracy.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with known concentrations of the analytes of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

The laboratory did not perform site-specific MS/MSD analyses.

7. Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, no site-specific duplicate samples were prepared and analyzed by the laboratory.

8. ICP Serial Dilution

The serial dilution determines whether significant physical or chemical interferences exist due to sample matrix. A minimum of 1 per 20 investigative samples or at least 1 per analytical batch must be analyzed at a five-fold dilution. For samples with sufficient analyte concentrations (>50 times the method detection limit [MDL]), the serial dilution results must agree within 10 percent of the original results.

For this study, no site-specific serial dilution samples were prepared and analyzed by the laboratory.

9. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample and one field duplicate sample set.

9.1 Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for volatile organic compound (VOC) analysis. All results were non-detect for the compounds of interest.

9.2 Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory. The RPDs associated with this duplicate sample must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

10. Analyte Reporting

The laboratory reported detected results down to the laboratory's MDL for each analyte. Positive analyte detections less than the RL but greater than the MDL were qualified as estimated (J).

11. Conclusion

Based on the assessment detailed in the foregoing, the data associated with this investigation are acceptable without qualification.

Table 1

Sample Collection and Analysis Summary
Analytical Methods and Preservation Requirements
SWMU Investigation AOI-8 Groundwater
Evergreen Resources Group, LLC
Marcus Hook, Pennsylvania
May 2016

Sample Identification	Location	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters				Comments
				VOCs	SVOCs	EDB	Lead	
GW-11110315-MW571-052416-MM-001	MW571	05/24/2016	9:50	x	x	x	x	
GW-11110315-MW570-052416-MM-002	MW570	05/24/2016	12:15	x	x	x	x	
GW-11110315-DUP-052416-MM-003	MW570	05/24/2016	12:40	x	x	x	x	Duplicate of GW-11110315-MW570-052416-MM-002
GW-11110315-MW569-052416-MM-004	MW569	05/24/2016	14:25	x	x	x	x	
GW-11110315-MW568-052416-MM-005	MW568	05/24/2016	16:10	x	x	x	x	
GW-11110315-MW567-052416-MM-006	MW567	05/24/2016	17:45	x	x	x	x	
TB-11110315-052416-MM-007	-	05/24/2016	-	x				Trip Blank

Notes:

- - Not applicable
VOCs - Volatile Organic Compounds
SVOCs - Semi-volatile Organic Compounds
EDB - Ethylene Dibromide

Table 2

Analytical Methods and Preservation Requirements
SWMU Investigation AOI-8 Groundwater
Evergreen Resources Group, LLC
Marcus Hook, Pennsylvania
May 2016

Parameter	Method	Matrix	Preservation	Holding Time	
				Collection to Extraction (Days)	Collection or Extraction to Analysis (Days)
Volatile Organic Compounds (VOCs)	SW-846 8260B	Groundwater	pH < 2 and Iced, 0-6° C	-	14
Semi-volatile Organic Compounds (SVOCs)	SW-846 8270C	Groundwater	Iced, 0-6° C	7	40
Ethylene Dibromide (EDB)	SW-846 8011	Groundwater	Iced, 0-6° C	-	14
Lead	SW-846 6020	Groundwater	pH < 2 and Iced, 0-6° C	-	180

Notes:

Method References:
SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
\- - Not applicable

Attachment A
Chain of Custody Form

Environmental Analysis Request/Chain of Custody

eurofins

Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 10177 Group # 1665528 Sample # 8398219-25

COC # 502581

Client Information

Client: Evergreen

Acct. #:

Project Name/#: AOFX

PWSID #:

Project Manager: Dave Steele

P.O. #: 11110315

Sampler: Matthew Marcus

Quote #:

State where samples were collected: PA

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#: 189035

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Potable ☐ Ground ☒ Water NPDES ☐ Surface ☐ Other: ____

Analysis Requested / Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	Lead	BTEX/MTBE/Lime	EDC/TMB	EPB	PAHs	Metal QC
GW-11110315-MW571-052416-MM-001	5/24/16	09:50	/		8	X	X	X	X	X	
GW-11110315-MW570-052416-MM-002		12:15	/		9	X	X	X	X	X	X
GW-11110315-MW Dup-052416-MM-003		12:40	/		8	X	X	X	X	X	
GW-11110315-MW569-052416-MM-004		14:25	/		8	X	X	X	X	X	
GW-11110315-MW568-052416-MM-005		16:10	/		8	X	X	X	X	X	
GW-11110315-MW567-052416-MM-006		17:45	/		8	X	X	X	X	X	
TB-11110315-052416-MM-007		18:00	/		4		X	X	X		

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Lab needs to filter lead samples

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: ____

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage	5-20-16	0910			
Matthew Marcus	5/25/16	0910	[illegible]	5/25/16	0912
[illegible]	5/25/16	1210			
			[illegible]	5-25-16	17:10

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx ____ Other ____

Temperature upon receipt 0.6 °C

Memorandum

September 15, 2016

To:	David Steele	Ref. No.:	11110315
From:	PM Paul McMahon/adh/2	Tel:	716-205-1970

Subject: **Data Usability Assessment**
SWMU Investigation AOI-8 Air Sampling
Evergreen Resources Group, LLC
Marcus Hook, Pennsylvania
August 2016

1. Introduction

This document details a data usability assessment of analytical results for air samples collected on August 4, 2016 in support of the Solid Waste Management Unit (SWMU) Investigation AOI-8 at the Marcus Hook, Pennsylvania Site. Samples were submitted to Eurofins Lancaster Laboratories Environmental, located in Lancaster, Pennsylvania. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. A copy of the executed chain of custody forms can be found in Attachment A.

Full Contract Laboratory Program (CLP) equivalent raw data deliverables were provided by the laboratory. Evaluation of the data was based on information obtained from the finished data sheets, the chain of custody forms, blank data, recovery data from laboratory control samples (LCS), and one field Quality Assurance/Quality Control (QA/QC) sample.

The QA/QC criteria by which these data have been assessed are outlined in the analytical method referenced in Table 2 and applicable guidance from the "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", United States Environmental Protection Agency (USEPA) 540 R 08 01, June 2008.

2. Sample Holding Time and Preservation

The sample holding time criterion for the analyses is summarized in Table 2. The sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding time.

3. Laboratory Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of one per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Laboratory Control Sample Analyses

LCS and laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the method employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of one per analytical batch.

The LCS/LCSD contained all compounds of interest. All LCS recoveries and RPDs were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

5. Field QA/QC Samples

The field QA/QC consisted of one field duplicate sample set.

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory. The RPDs associated with these duplicate samples must be less than 25 percent for air samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

6. Analyte Reporting

The laboratory reported detected results down to the laboratory's Method Detection Limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were qualified as estimated (J).

7. Conclusion

Based on the assessment detailed in the foregoing, the data associated with this investigation are acceptable without qualification.

Table 1

Sample Collection and Analysis Summary
SWMU Investigation AOI-8 Air Sampling
Evergreen Resources Group, LLC
Marcus Hook, Pennsylvania
August 2016

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (Start) (hr:min)	Collection Time (Stop) (hr:min)	Analysis/Parameters: VOCs	Comments
AOI8-AI-16-001	AI-16-001	Air	08/04/2016	09:25	16:53	X	
AOI8-AI-16-002	AI-16-002	Air	08/04/2016	09:48	17:15	X	
AOI8-AI-16-003	AI-16-003	Air	08/04/2016	09:51	17:13	X	
AOI8-AI-16-006	AI-16-003	Air	08/04/2016	09:51	17:13	X	Duplicate of AOI8-AI-16-003
AOI8-AI-16-004	AI-16-004	Air	08/04/2016	09:56	14:54	X	
AOI8-AI-16-005	AI-16-005	Air	08/04/2016	08:48	16:34	X	
AOI8-AA-16-001	AA-16-001	Air	08/04/2016	08:15	15:05	X	
AOI8-AA-16-002	AA-16-002	Air	08/04/2016	08:58	16:36	X	

Notes:

VOCs - Volatile Organic Compounds

Table 2

Analytical Method and Holding Time Criterion
SWMU Investigation AOI-8 Air Sampling
Evergreen Resources Group, LLC
Marcus Hook, Pennsylvania
August 2016

Parameter	Method	Matrix	Holding Time Collection to Analysis (Days)
Volatile Organic Compounds (VOCs)	TO-15	Air	30

Notes:

EPA Method TO-15 - "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, EPA-625/R-96/010b, January 1999

Attachment A
Chain of Custody Form

Summa Canister Field Test Data/Chain of Custody

eurofins

Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 10177 Group # 1692217 Sample # 8513978-82 Bottle Order (SCR) # _____

Client Information

Client: Evergreen

Account #:

Project Name/#: Marcus Hook AOI8

Project Manager: DAVE STEELE

P.O. #:

Sampler: RICH BURNS

Quote #:

Name of state where samples were collected: PA

Turnaround Time Requested (TAT) (circle one)

(Standard) Rush (specify) _____

Data Package Required? Yes No

EDD Required? Yes No

	Temperature (F) Start	Temperature (F) Stop	Pressure ("Hg) Start	Pressure ("Hg) Stop
Ambient	78		30.31	
Maximum				
Minimum				

Analyses Requested

Sample Identification	Start Date/Time (24-hour clock)	Stop Date/Time (24-hour clock)	Canister Pressure in Field ("Hg) (Start)	Canister Pressure in Field ("Hg) (Stop)	Interior Temp. (F) (Start)	Interior Temp. (F) (Stop)	Flow Reg. ID	Can ID	Can Size (L)	Controller Flowrate (mL/min)	EPA TO-15	EPA 18 / MTBE / BTEX	EPA 25 (select range below)	Helium as tracer	O2/CO2	Library Search
AOI8-AI-16-001	8.4.16 0925	8.4.16 1658	-30	-9	79	79	675015	1432	6	10.4	X					
AOI8-AI-16-002	8.4.16 0948	8.4.16 1715	-30	-9	75	78	204853	1427	6	10.6	X					
AOI8-AI-16-003	8.4.16 0951	8.4.16 1713	-30	-7	75	78	336796	1433	6	10.6	X					
AOI8-AI-16-004	8.4.16 0958	8.4.16 1454	-30	~0	73	77	844481	A3435	6	10.1	X					
AOI8-AI-16-006	8.4.16 0951	8.4.16 1713	-30	-10	75	78	236751	514	6	10.5	X					

Instructions/QC Requirements & Comments

EPA 25 (check one)

- ☐ C1 - C4
- ☐ C2 - C10
- ☐ C1 - C10
- ☐ C4 - C10 (GRO)
- ☐ C2 - C4

Canisters Shipped by:	Date/Time:	Canisters Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:
[signature] 14:08	8/2/16	[signature]	8.3.16				
Relinquished by: [signature]	Date/Time: 8.13.16	Received by: [signature]	Date/Time: 8.8.16 1130	Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by: [signature]	Date/Time: 8-8-16 1413	Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by: [signature]	Date/Time: 8-8-16 1413

Summa Canister Field Test Data/Chain of Custody

eurofins

Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 10177 Group # 1692216 Sample # 8513975-77 Bottle Order (SCR) # _____

Client Information

Client: Evergreen

Account #:

Project Name/#: Marcus Hook AOI8

Project Manager: DAVE STEELE

P.O. #:

Sampler: Rich Burns

Quote #:

Name of state where samples were collected: PA

Turnaround Time Requested (TAT) (circle one)

Standard

Rush (specify) _____

Data Package Required? Yes No

EDD Required? Yes No

	Temperature (F)		Pressure ("Hg)	
	Start	Stop	Start	Stop
Ambient	81.3	80	30.30	30.24
Maximum				
Minimum				

Analyses Requested

☐ MTBE ☐ BTEX

Sample Identification	Start Date/Time (24-hour clock)	Stop Date/Time (24-hour clock)	Canister Pressure in Field ("Hg) (Start)	Canister Pressure in Field ("Hg) (Stop)	Interior Temp. (F) (Start)	Interior Temp. (F) (Stop)	Flow Reg. ID	Can ID	Can Size (L)	Controller Flowrate (mL/min)	EPA TO-15	EPA 18	EPA 25 (select range below)	Helium as tracer	O2/CO2	Library Search
AOI8-AA-16-001	8.4.16 0815	8.4.16 1605	-25	-4	—	—	336710	1383	6	10.5	X					
AOI8-AA-16-002	8.4.16 0858	8.4.16 1636	-26 -30	-8	—	—	236835	1354	6	10.4	X					
AOI8-IA-16-005	8.4.16 0848	8.4.16 1634	-30 -26	-4	78	78	316955	1181	6	10.5	X					

Instructions/QC Requirements & Comments

EPA 25 (check one)

☐ C1 - C4 ☐ C2 - C10

☐ C1 - C10 ☐ C4 - C10 (GRO)

☐ C2 - C4

Canisters Shipped by:	Date/Time:	Canisters Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:
13:25	7/28/16		8.3.16				
Relinquished by:	Date/Time:	Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:
	8.5.16		8.8.16 1630				
Relinquished by:	Date/Time:	Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:
	8.8.16 1413						8.8.16 1413

Memorandum

September 15, 2016

To:	David Steele	Ref. No.:	11110315
From:	Paul McMahon/adh/3	Tel:	716-205-1970

Subject: **Data Usability Assessment**
SWMU Investigation AOI-8 Groundwater
Evergreen Resources Group, LLC
Marcus Hook, Pennsylvania
August 2016

1. Introduction

This document details a data usability assessment of analytical results for groundwater samples collected on August 4-5, 2016 in support of the Solid Waste Management Unit (SWMU) Investigation AOI-8 at the Marcus Hook, Pennsylvania Site. Samples were submitted to Eurofins Lancaster Laboratories Environmental, located in Lancaster, Pennsylvania. A sample collection and analysis summary is presented in Table 1. A summary of the analytical methodology is presented in Table 2. A copy of the executed chain of custody form can be found in Attachment A.

Full Contract Laboratory Program (CLP) equivalent raw data deliverables were provided by the laboratory. Evaluation of the data was based on information obtained from the finished data sheets, the chain of custody form, blank data, duplicate data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS), and field quality assurance/quality control (QA/QC) samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 2 and applicable guidance from the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", United States Environmental Protection Agency (USEPA) 540-R-10-011, January 2010

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008

Items i) and ii) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in Table 2. The sample chain of custody document and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times except pH. pH is a

field parameter, but was analyzed by the laboratory. The associated sample results were qualified as estimated (see Table 3).

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

Inorganic Analyses

The method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for organic determinations were spiked with the appropriate number of surrogate compounds prior to sample extraction and/or analysis.

Each individual surrogate compound is expected to meet the laboratory control limits with the exception of semi-volatile organic compound (SVOC) analyses. According to the "Guidelines" for SVOC analyses, up to one outlying surrogate in the base/neutral fraction is acceptable as long as the recovery is at least 10 percent.

Surrogate recoveries were assessed against laboratory control limits. Most recoveries met the above criteria, demonstrating good analytical efficiency. One high ethylene dibromide recovery was reported; the associated sample result was non-detect and was not impacted by the indicated high bias.

5. Laboratory Control Sample Analyses

LCS and/or laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

Organic Analyses

The LCS/LCSD contained all compounds of interest. All LCS recoveries and RPDs were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

Inorganic Analyses

The LCS contained the analytes of interest. The LCS recovery was assessed per the "Guidelines". The LCS recoveries were within the control limits, demonstrating acceptable analytical accuracy.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with known concentrations of the analytes of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

Organic Analyses

No site-specific analyses were performed.

Inorganic Analyses

The MS/MSD sample was spiked with the analytes of interest, and the results were evaluated using the "Guidelines". The percent recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision.

7. Duplicate Sample Analyses – Inorganic Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory internally. The duplicate results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

8. Inductively Coupled Plasma (ICP) Serial Dilution

The serial dilution determines whether significant physical or chemical interferences exist due to sample matrix. A minimum of 1 per 20 investigative samples or at least 1 per analytical batch must be analyzed at a five-fold dilution. For samples with sufficient analyte concentrations (>50 times the Method Detection Limit [MDL]), the serial dilution results must agree within 10 percent of the original results.

A serial dilution was performed on the MS sample. All results met the criteria above.

9. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample and one field duplicate sample set.

9.1 Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for VOC analysis. All results were non-detect for the compounds of interest.

9.2 Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory. The RPDs associated with this duplicate sample must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

10. Analyte Reporting

The laboratory reported detected results down to the laboratory's MDL for each analyte. Positive analyte detections less than the RL but greater than the MDL were qualified as estimated (J).

11. Conclusion

Based on the assessment detailed in the foregoing, the data associated with this investigation are acceptable with the noted qualifications.

Table 1

Sample Collection and Analysis Summary
SWMU Investigation AOI-8 Groundwater
Evergreen Resources Group, LLC
Marcus Hook, Pennsylvania
August 2016

Sample Identification	Location	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters				Comments
				VOCs	SVOCs	pH	Metals	
GW-11110315-MW-571-080416-AC-001	MW-571	08/04/2016	10:20	x	x	x	x	
GW-11110315-MW-569-080416-AC-002	MW-569	08/04/2016	12:45	x	x	x	x	
GW-11110315-MW-570-080416-AC-003	MW-570	08/04/2016	14:50	x	x	x	x	
GW-11110315-MW-570D-080416-AC-004	MW-570	08/04/2016	15:00	x	x	x	x	Duplicate of GW-11110315-MW-570-080416-AC-003
GW-11110315-MW-567-080516-AC-005	MW-567	08/05/2016	8:00	x	x	x	x	
GW-11110315-MW-568-080516-AC-006	MW-568	08/05/2016	10:10	x	x	x	x	
TB-1110315-080516-AC-01	-	08/05/2016	-	x				Trip Blank

Notes:

VOCs - Volatile Organic Compounds
SVOCs - Semi-volatile Organic Compounds
\- - Not applicable

Table 2

Analytical Methods and Preservation Requirements
SWMU Investigation AOI-8 Groundwater
Evergreen Resources Group, LLC
Marcus Hook, Pennsylvania
August 2016

Parameter	Method	Matrix	Preservation	Holding Time	
				Collection to Extraction (Days)	Collection or Extraction to Analysis (Days)
Volatile Organic Compounds (VOCs)	SW-846 8260B	Groundwater	pH < 2 and Iced, 0-6° C	-	14
Semi-volatile Organic Compounds (SVOCs)	SW-846 8270C	Groundwater	Iced, 0-6° C	7	40
Ethylene Dibromide (EDB)	SW-846 8011	Groundwater	Iced, 0-6° C	-	14
Dissolved Lead	SW-846 6020	Groundwater	pH < 2 and Iced, 0-6° C	-	180
Dissolved Mercury	SW-846 7470A	Groundwater	pH < 2 and Iced, 0-6° C	-	28
pH	SM 4500 H+ B	Groundwater	None	-	Immediate

Notes:

Method References:
SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
\- - Not applicable

Table 3

Qualified Sample Results Due to Holding Time Exceedance
SWMU Investigation AOI-8 Groundwater
Evergreen Resources Group, LLC
Marcus Hook, Pennsylvania
August 2016

Sample ID	Holding Time (days)	Holding Time Criteria (days)	Analyte	Qualified Sample Results	Units
GW-11110315-MW-571-080416-AC-001	12	Immediate	pH	6.5 J	S.U.
GW-11110315-MW-569-080416-AC-002				6.4 J	S.U.
GW-11110315-MW-570-080416-AC-003				6.5 J	S.U.
GW-11110315-MW-570D-080416-AC-004				6.5 J	S.U.
GW-11110315-MW-567-080516-AC-005				7.5 J	S.U.
GW-11110315-MW-568-080516-AC-006				7.1 J	S.U.

Notes:

J - Estimated concentration
S.U. - Standard Units

Attachment A
Chain of Custody Form

Environmental Analysis Request/Chain of Custody

eurofins

Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 10177 Group # 1691709 Sample # 85116665-71

1 of 1

COC # 506588

Client Information

Client: Evergreen

Acct. #:

Project Name/#: Evergreen Marcus Hook / 1111 0315

PWSID #:

Project Manager: David Steele

P.O. #:

Sampler: A. Cannon

Quote #:

State where samples were collected: Pennsylvania

For Compliance: Yes ☐ No ☐

Matrix: Soil ☐ Tissue ☐ Sediment ☐ Potable ☐ Ground ☒ Surface ☐ Water NPDES ☐ Other: ____

Analysis Requested / **Preservation Codes**

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	Select VOCs	EDB 8011	Select SVOCs SIM	Pb and Hg (Acid Filtered)	Temperature of pH, pH	Metals QC (Acid Filtered)
GW-1111 0315-MW-571-080116-AC-001	08/04/16	1020	9		9	3	2	2	1	1	
GW-1111 0315-MW-569-080416-AC-002	↓	1245	9		9	3	2	2	1	1	1
GW-1111 0315-MW-570-080416-AC-003	↓	1450	9		9	3	2	2	1	1	
GW-1111 0315-MW-570D-080416-AC-004	↓	1500	9		9	3	2	2	1	1	
GW-1111 0315-MW-567-080516-AC-005	08/05/16	0800	9		9	3	2	2	1	1	
GW-1111 0315-MW-568-080516-AC-006	↓	1010	9		9	3	2	2	1	1	
TB-1111 0315-080516-AC-01	↓	1300	4		4	2	2				

For Lab Use Only

FSC:

SCR#: 192381

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Marcus Hook Database

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: ____

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	8.3.16	930	[signature]	8.3.16	830
[signature]	8.3.16		[signature]		
[signature]	8/5/16	13:15	[signature]	8.5.16	1310
[signature]	8.5.16	1706			
			[signature]	8-5-16	1706

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ____ Other ____

Temperature upon receipt 5.6 °C

Appendix G
Indoor Air Sampling Field Sheets

~~Indoor~~ AV Air Sampling Field Data Sheet
outdoor
(Form SP-28)

A) General Information

Sample Identification Number: A018-16-AA -003

Site Address: 750 W. 10th Street, Marcus Hook, PA 19061

Sample Canister Location: near overflow pond

Sample Date: 8/30/2016 Sampler: Alissa Cannon

Sample Time: Start: 0757 Stop: 1608

Shipping Date:

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Canister Serial No.: 1374

Flow Controller Serial No.: 824857

Were "Instructions to Occupants Building" followed? Outdoor

☐ Yes ☐ No

B) Sampling Information

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	74.4		89°	~~74.0~~ AC
Barometric Pressure	30.15		30.05	

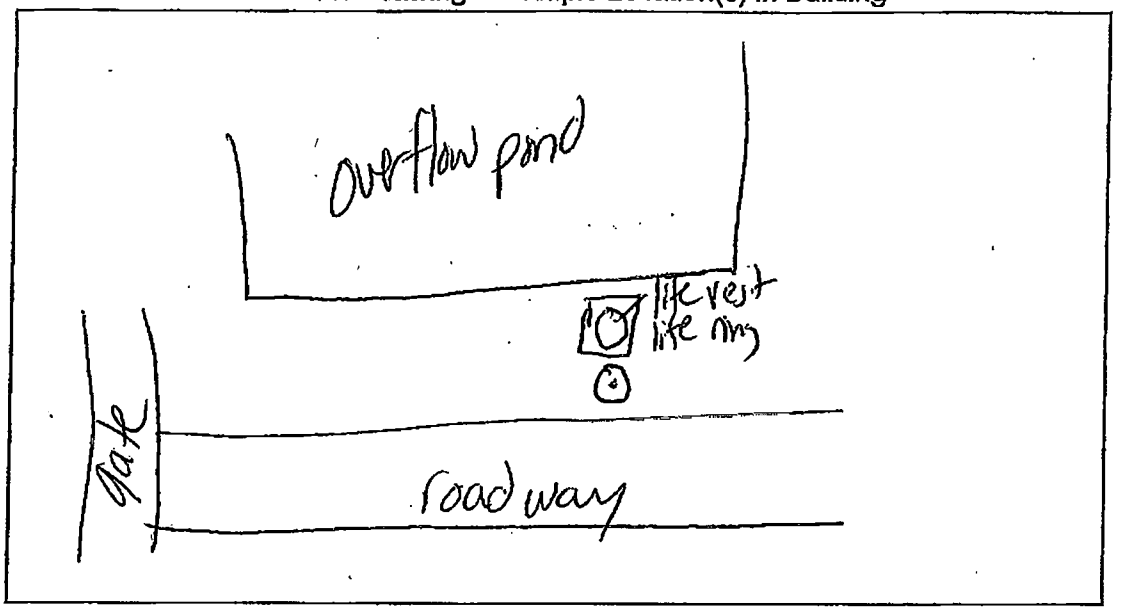
	Start	Stop
Canister Pressure Gauge Reading:	-30	-8+
Time:	0757	1608
PID Reading:	0.0	0.0
Basement Depth (ft below grade):		
Window Marked:	Yes/No	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

☐ Yes ☐ No

Describe the general weather conditions: Sunny, 70's Slight breeze

Provide Drawing of Sample Location(s) in Building



C) Comments

Sample location near overflow pond set on tripod in gravel area. no open canisters or vehicles near by. Possible to see vehicles parked while waiting to exp facility.

A) General Information

Sample Identification Number: A018-16-AI-007
Site Address: 750 W 10th St, Marcus Hook, PA 19061
Sample Canister Location: inside Control Room

Sample Date: 8/30/2016 Sampler: Alisa Cannon
Sample Time: Start: 0817 Stop: 1615
Shipping Date:

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Canister Serial No.: 1236
Flow Controller Serial No.: 809820

Were "Instructions to Occupants Building" followed?
☒ Yes ☐ No

B) Sampling Information

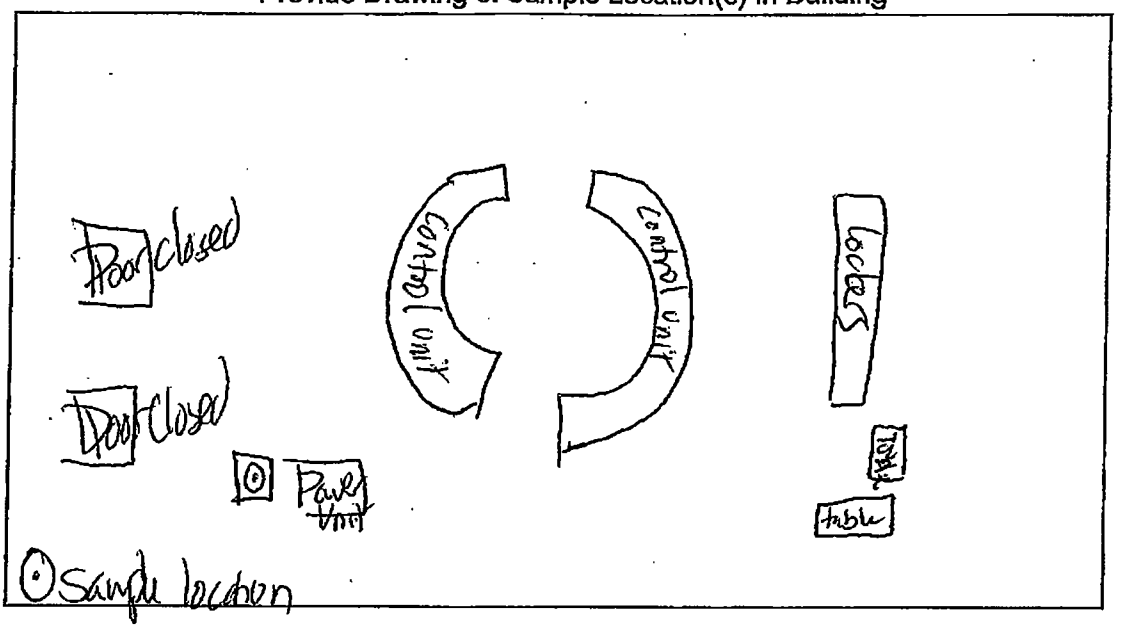
	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	73.97	75.4		71.1
Barometric Pressure	30.30		30.20	

	Start	Stop
Canister Pressure Gauge Reading:	-30	-7
Time:	0817	1615
PID Reading:	0.0	
Basement Depth (ft below grade):		
Window Marked:	Yes/No	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☒ No

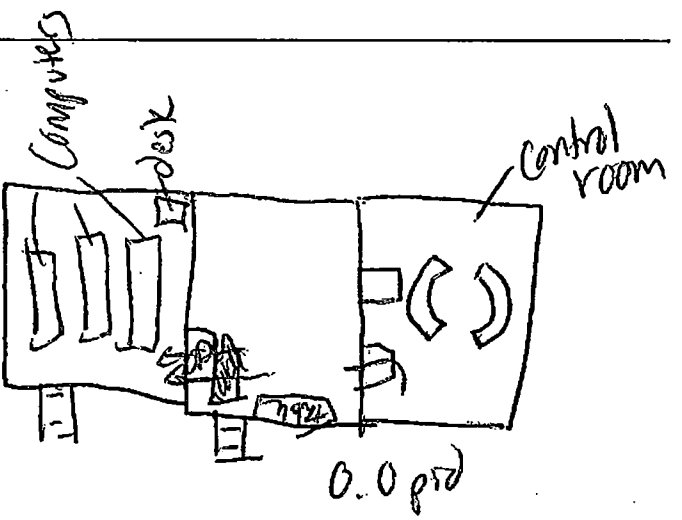
Describe the general weather conditions: Indoor Air, Outdoor Sunny 70's slight breeze

Provide Drawing of Sample Location(s) in Building



C) Comments

Sample set on top of file cabinet. No open canisters



Indoor Air Sampling Field Data Sheet
(Form SP-28)

A) General Information

Duplicate

Sample Identification Number: ~~AOT8-16-AA-003~~ AOT8-16-AE-003

Site Address: 750 W. 10th Street Marcus Hook, PA 19061

Sample Canister Location: Inside Control Room

Sample Date: 8/30/2016 Sampler: Alissa Cannon

Sample Time: Start: 0813 Stop: 1200

Shipping Date:

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Canister Serial No.: 1233

Flow Controller Serial No.: 958164

Were "Instructions to Occupants Building" followed?
☒ Yes ☐ No

B) Sampling Information

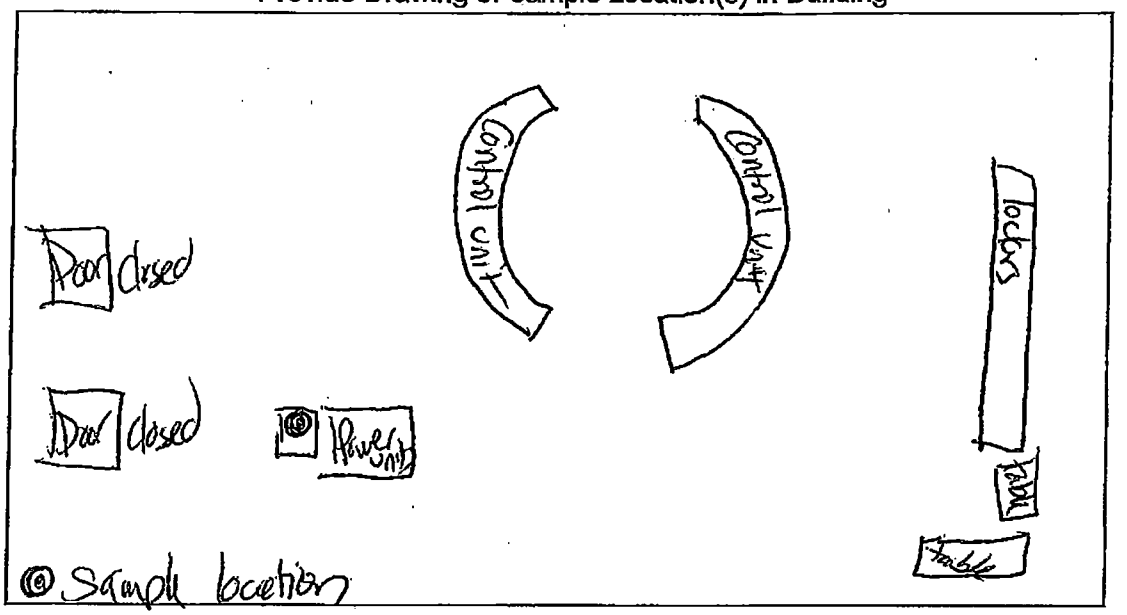
	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	73.9	76.7	84.9	71.1
Barometric Pressure	~~29.1~~ 30.30		30.13	

	Start	Stop
Canister Pressure Gauge Reading:	-29	0.0
Time:	0813	1200
PID Reading:	0.0	0.00
Basement Depth (ft below grade):		
Window Marked:	Yes/No	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☒ No

Describe the general weather conditions: Outdoor Sunny 70's, slight breeze

Provide Drawing of Sample Location(s) in Building



C) Comments

0813 open valve at -29+. Two minutes pass, pressure at -28. Shut valve. Readjust fitting. Open valve. 0816 0822 shut valve canister at -26.5. Readjust connection. 0826 re open valve Canister at -25

0835 canister at -20

Indoor Air Sampling Field Data Sheet
(Form SP-28)

A) General Information

Sample Identification Number: AOI8-AI-16-001

Site Address: 750 W. 10TH ST, Marcus Hook

Sample Canister Location: Guard office

Sample Date: 8.4.16 Sampler: Rich Burns

Sample Time: Start: 0925 Stop: 1653

Shipping Date: 8.5.16

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):
6 L Summa Canister

Canister Serial No.: 1432

Flow Controller Serial No.: 675015

Were "Instructions to Occupants Building" followed?
☐ Yes ☐ No N/A

B) Sampling Information

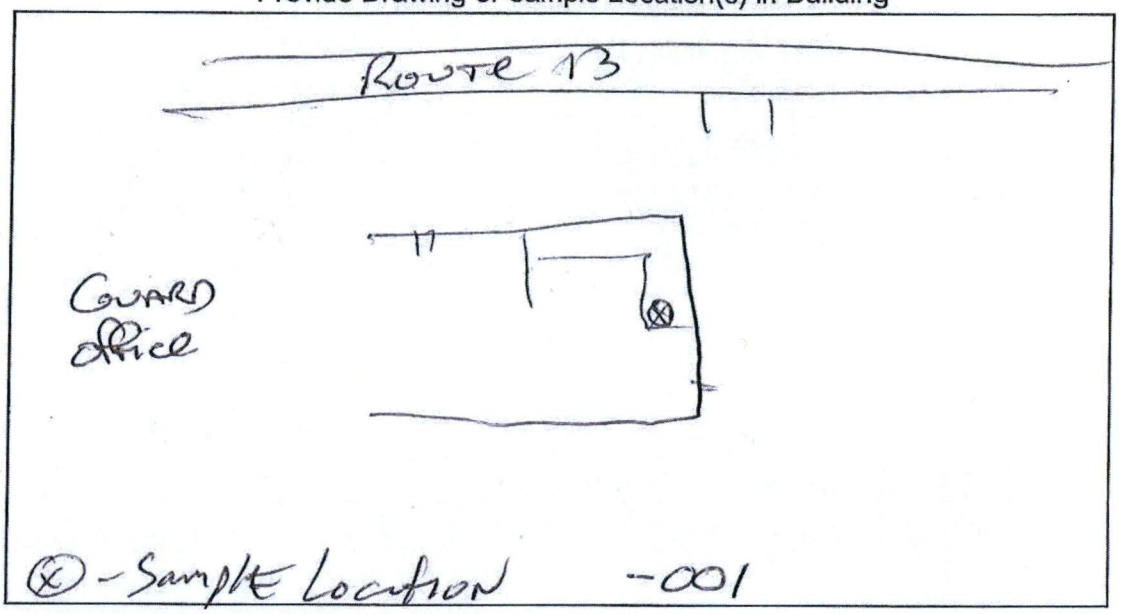
	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	~~78.9~~	78.9		79
Barometric Pressure	30.31"		30.25	

	Start	Stop
Canister Pressure Gauge Reading:	-30 "Hg	-9
Time:	0925	1653
PID Reading:	0.00 PPM	0.00
Basement Depth (ft below grade):		
Window Marked:	Yes/No	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☑ No

Describe the general weather conditions:
Sunny, warm, breezy, dry

Provide Drawing of Sample Location(s) in Building



C) Comments A/C ON

Indoor Air Sampling Field Data Sheet
(Form SP-28)

A) General Information

Sample Identification Number: AOI8-AI-16-002

Site Address: 750 W. 10th St, Marcus Hook, PA

Sample Canister Location: Library

Sample Date: 8.4.16 Sampler: Rich Burns

Sample Time: Start: 0948 Stop: 1715

Shipping Date: 8.5.16

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):
6-L Summa Canister

Canister Serial No.: 1427

Flow Controller Serial No.: 204853

Were "Instructions to Occupants Building" followed?
☐ Yes ☐ No N/A

B) Sampling Information

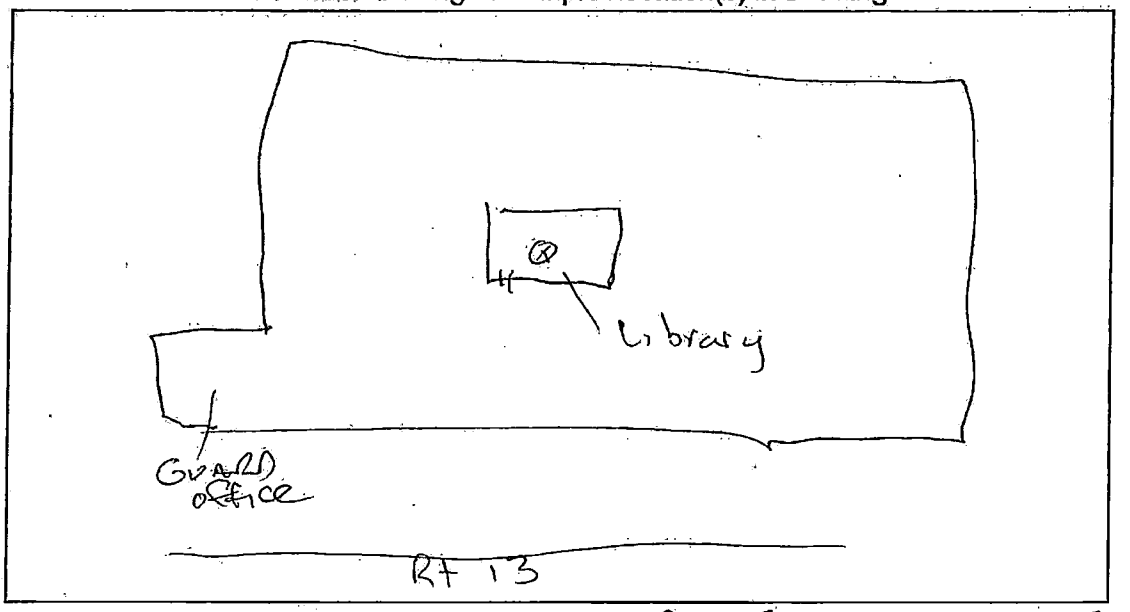
	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	~~75°F~~	75°F		78
Barometric Pressure	30.31"			

	Start	Stop
Canister Pressure Gauge Reading:	-30 "Hg	-4
Time:	0948	1713
PID Reading:	0.00 ppm	0.00
Basement Depth (ft below grade):	—	
Window Marked:	Yes/No	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☐ No

Describe the general weather conditions:
Sunny, warm, breezy, dry

Provide Drawing of Sample Location(s) in Building



⊗ - Sample - 002

C) Comments

Library
Vacant
Canister on Desk

Indoor Air Sampling Field Data Sheet
(Form SP-28)

A) General Information

Sample Identification Number: AOI 8-AI-16-003
Site Address: 750 W. 10th St., Marcus Hook, PA
Sample Canister Location: Laboratory

Sample Date: 8.4.16 Sampler: Rick Burns
Sample Time: Start: 0951 Stop: 1713
Shipping Date: 8.5.16

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):
6 L Summa Canister

Canister Serial No.: 1433
Flow Controller Serial No.: 336796

Were "Instructions to Occupants Building" followed?
☐ Yes ☐ No N/A

B) Sampling Information

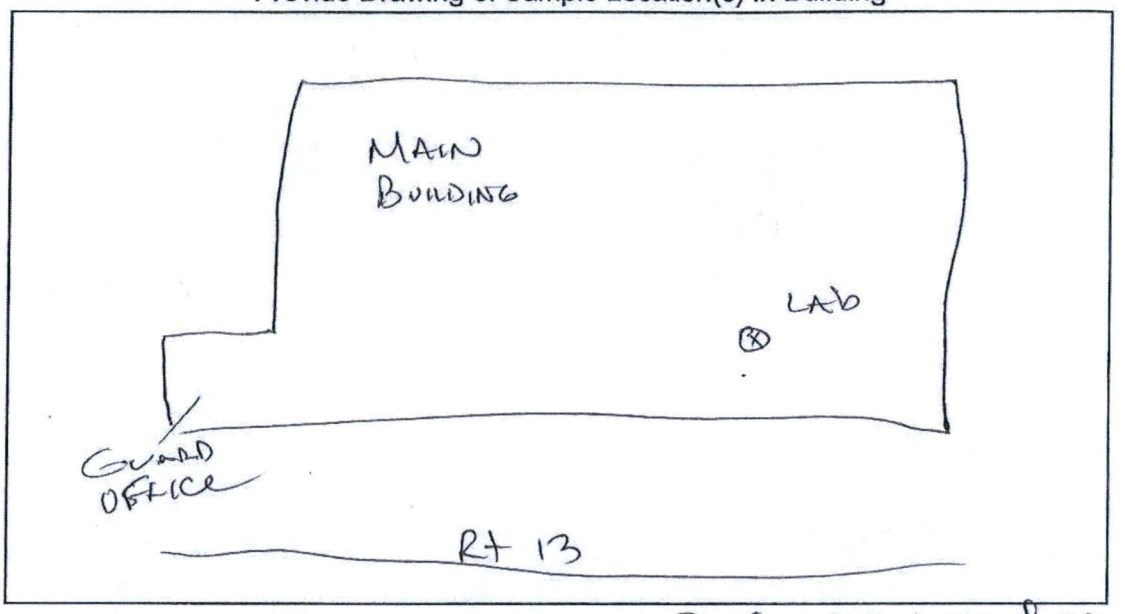
	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	75°F			78
Barometric Pressure	30.31"		30.24	

	Start	Stop
Canister Pressure Gauge Reading:	-30" Hg	-7
Time:	0951	1713
PID Reading:	0.00 ppm	0.00
Basement Depth (ft below grade):	—	
Window Marked:	Yes/No	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☑ No

Describe the general weather conditions:
Sunny, warm, breezy, dry

Provide Drawing of Sample Location(s) in Building



⊗ - SAMPLE LOCATION -003

C) Comments

Laboratory
Sample Canister on desk counter

-003 SAMPLE

-006 DUPLICATE

Indoor Air Sampling Field Data Sheet
(Form SP-28)

A) General Information

Sample Identification Number: AOI8-AI-16-001

Site Address: 750 W. 10th St, Marcus Hook, PA

Sample Canister Location: Control Room

Sample Date: ~~8.14.16~~ 8.4.16 rb Sampler: Rich Burns

Sample Time: Start: 0956 Stop: 1454

Shipping Date: 8.5.16

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):
6-L Summa Canister

Canister Serial No.: A34352

Flow Controller Serial No.: 848481

Were "Instructions to Occupants Building" followed?
☐ Yes ☐ No N/A

B) Sampling Information

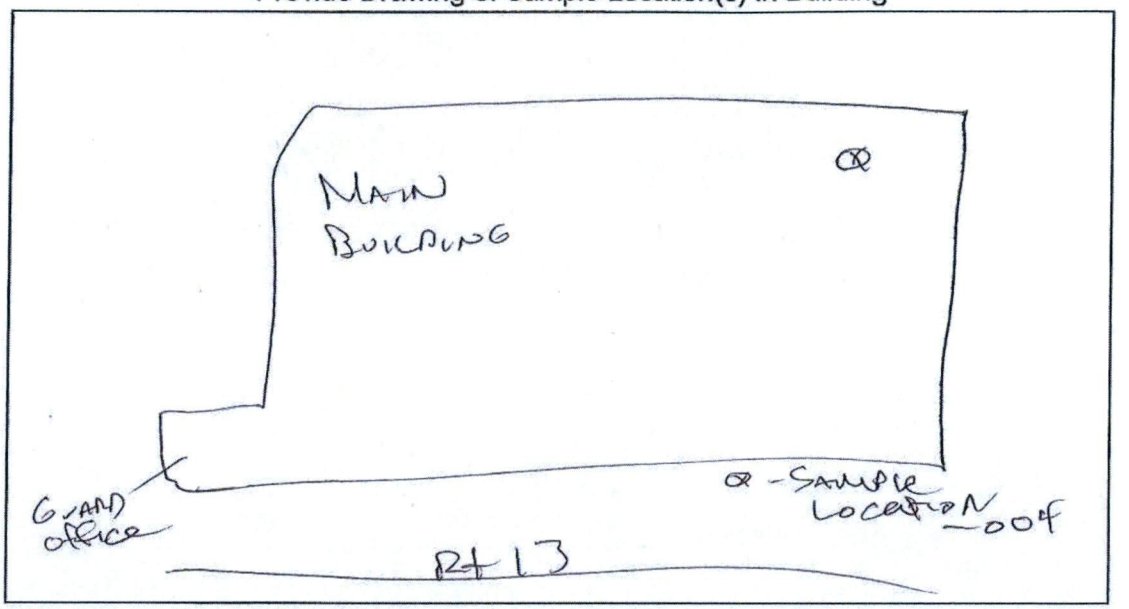
	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	83°F	73 °F	84	77. °F
Barometric Pressure	30.31 "		30.27 "	

	Start	Stop
Canister Pressure Gauge Reading:	-30 "Hg	20 "Hg
Time:	0956	1454
PID Reading:	0.00 ppm	
Basement Depth (ft below grade):	—	
Window Marked:	Yes/No	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☑ No

Describe the general weather conditions:
Sunny, warm, breezy, dry

Provide Drawing of Sample Location(s) in Building



C) Comments

Main Building
Control Room
elevated floor
A/C Active

-004 sample

Sampled on File Cabinet

Indoor Air Sampling Field Data Sheet
(Form SP-28)

A) General Information

Sample Identification Number: AOI8-AI~~4~~16-16-005

Site Address: 750 W. 10th St, Marcus Hook, PA

Sample Canister Location: TRAIN LOADING

Sample Date: 8.4.16 Sampler: Rich Burn

Sample Time: Start: 0848 Stop: 1634

Shipping Date: 8.5.16

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify): 6-L Summa Canister

Canister Serial No.: 1181

Flow Controller Serial No.: 316955

Were "Instructions to Occupants Building" followed?
☐ Yes ☐ No N/A

B) Sampling Information

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	83	78	83	78
Barometric Pressure	30.30"		30.25	

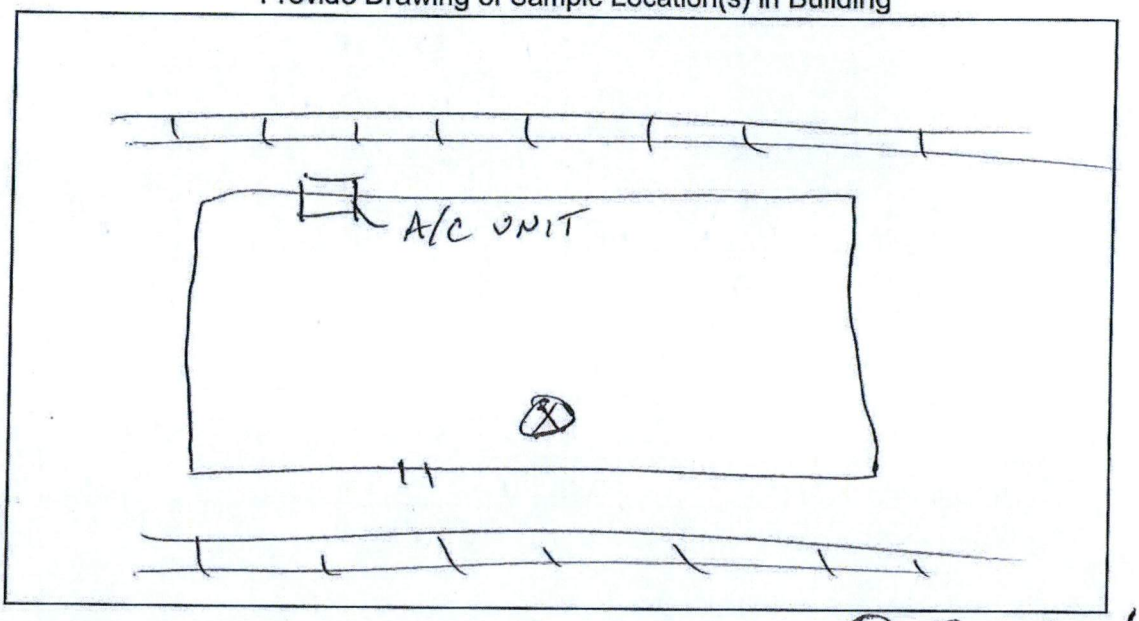
	Start	Stop
Canister Pressure Gauge Reading:	-26" Hg	-4
Time:	0848	1634
PID Reading:	0.09 ppm	0.08
Basement Depth (ft below grade):		
Window Marked:	Yes/No	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☒ No

Describe the general weather conditions: Sunny, warm, breezy, dry

Indoor Air Sampling Field Data Sheet
(Form SP-28)

Provide Drawing of Sample Location(s) in Building



⊗ - SAMPLE LOCATION
-005

C) Comments

TRAIN LOADING BUILDING

SAMPLE ON TOP OF WATER COOLER

Indoor Air Sampling Field Data Sheet
(Form SP-28)

A) General Information

Sample Identification Number: AOI8-AI-16-006

Site Address: 750 W. 10th St Marcus Hook, PA

Sample Canister Location: Laboratory

Sample Date: 8.4.16 Sampler: Rich Burns

Sample Time: Start: 0951 Stop: 1713

Shipping Date: 8.5.16

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):
6-L Summa Canister

Canister Serial No.: 514

Flow Controller Serial No.: 236751

Were "Instructions to Occupants Building" followed?
☐ Yes ☐ No N/A

B) Sampling Information

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	75			78
Barometric Pressure	30.31		30.24	

	Start	Stop
Canister Pressure Gauge Reading:	-30"	-10
Time:	0951	1713
PID Reading:	0.00 ppM	0.00
Basement Depth (ft below grade):	—	
Window Marked:	Yes/No	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☑ No

Describe the general weather conditions:
Sunny, warm, breezy, dry

Provide Drawing of Sample Location(s) in Building

C) Comments

Laboratory Main Bldg
see map for AOI 8-AI-16-003,
PARENT SAMPLE of DUPLICATE AOI 8-AI-16-006

Indoor Air Sampling Field Data Sheet
(Form SP-28)

A) General Information

Sample Identification Number: AOI8-AA-16-001

Site Address: Marcus Hook, PA

Sample Canister Location: AMBIENT AIR SOUTH

Sample Date: 8.4.16 Sampler: Rich Burns

Sample Time: Start: 0815 Stop: 1505

Shipping Date: 8.5.16

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):
6-L Summa CANISTER

Canister Serial No.: 1383

Flow Controller Serial No.: 336710

Were "Instructions to Occupants Building" followed?
☐ Yes ☐ No N/A

B) Sampling Information

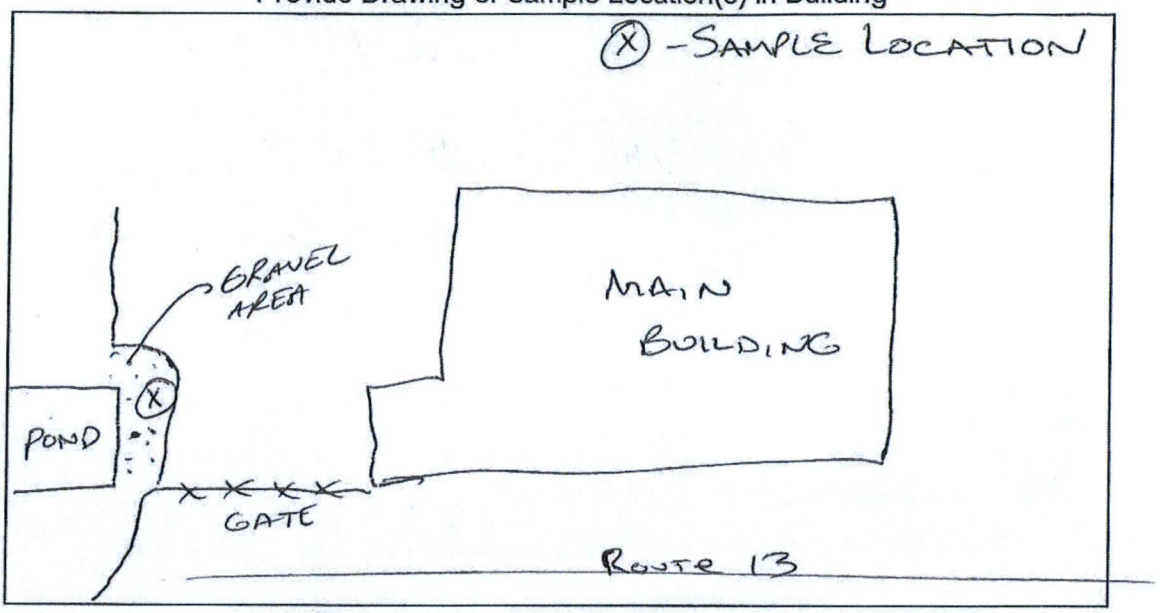
	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	81.3	—	83	—
Barometric Pressure	30.30"		30.27	

	Start	Stop
Canister Pressure Gauge Reading:	-25 "Hg	-4
Time:	0815	1505
PID Reading:	0.00 ppm	0.00
Basement Depth (ft below grade):	—	
Window Marked:	Yes/No	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☒ No

Describe the general weather conditions:
Sunny, breezy, dry, warm

Provide Drawing of Sample Location(s) in Building



C) Comments

AMBIENT AIR SOUTH -001

SAMPLE NEXT TO LIFE BUOY IN GRAVEL

Indoor Air Sampling Field Data Sheet
(Form SP-28)

A) General Information

Sample Identification Number: ADIB-AA-16-002

Site Address: Marcus Hook, PA

Sample Canister Location: AMBIENT AIR NORTH

Sample Date: 8.4.16 Sampler: Rick Burns

Sample Time: Start: 0858 Stop: 1636

Shipping Date: 8.5.16

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):
6-L Summa Canister

Canister Serial No.: 1389

Flow Controller Serial No.: 236835

Were "Instructions to Occupants Building" followed?
☐ Yes ☐ No N/A

B) Sampling Information

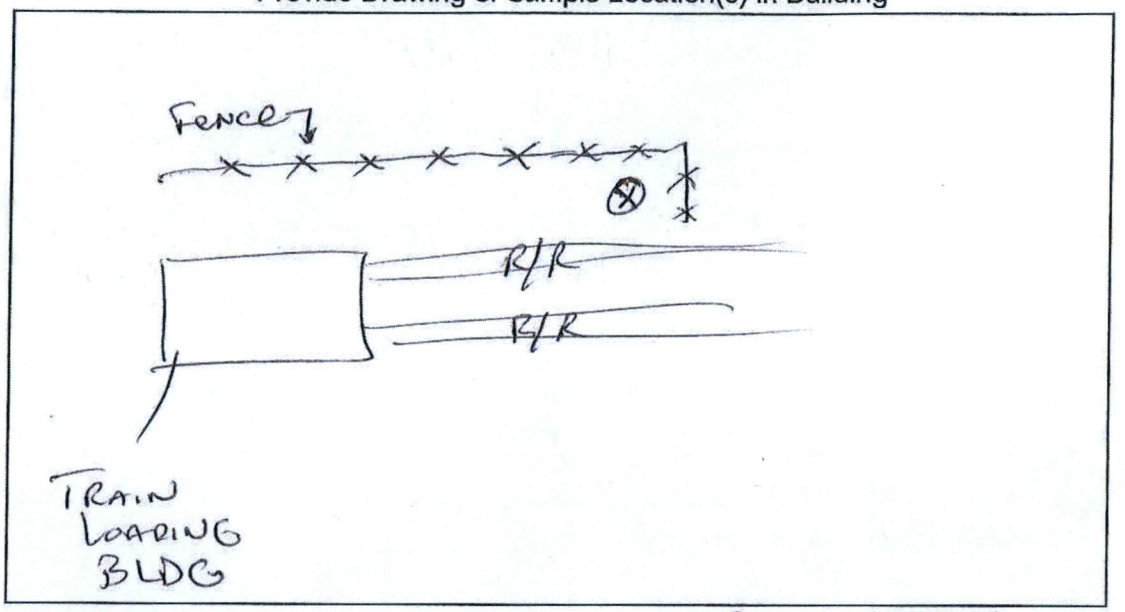
	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	81	—	80	—
Barometric Pressure	30.31"		30.27	

	Start	Stop
Canister Pressure Gauge Reading:	-30 "Hg	~~-4~~ -8
Time:	0858	1636
PID Reading:	0.00 PPM	0.00
Basement Depth (ft below grade):	—	
Window Marked:	Yes/No	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☒ No

Describe the general weather conditions:
Sunny, warm, dry, breezy

Provide Drawing of Sample Location(s) in Building



C) Comments

⊗ - SAMPLE LOCATION

AMBIENT
OUTSIDE TRAIN LOADING
ACTIVE TRAIN LOADING

www.ghd.com