

January 27, 2016

Mr. Bernard Quinn, P.E
Town Engineer of Mt. Airy
110 S. Main St.
Mt. Airy, MD 21771
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4959 New Design Road
Suite 107
Frederick, MD 21703
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RE: Mt Airy Rails to Trails
Partial ESA II Analysis Report
HCEA Project No.: 00316A

Mr. Quinn,

Pursuant to your request, Hillis-Carnes Engineering Associates, Inc. collected two composite soil samples from locations coordinated by yourself for a partial Phase II ESA analysis. These composite samples were analyzed for levels of Arsenic, Lead, TPH-DRO, PAH, and PCB by Phase Separation Science in accordance with EPA methods and standards and the results are enclosed within. Should you have any questions or should we be of any further assistance, please don't hesitate to contact us.

Sincerely,

HILLIS-CARNES ENGINEERING ASSOCIATES, INC.



Taylor Fink
Project Manager
tfink@hcea.com

Enclosure: Copy of Chemical Test Results (PSS, Inc. report dated January 25, 2016)

Analytical Report for

Hillis Carnes - Frederick

Certificate of Analysis No.: 16011807

Project Manager: Taylor Fink

Project Name : Mt. Airy Rails to Trails

Project Location: Mt. Airy, MD

Project ID : 00316A



January 25, 2016

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



January 25, 2016

Taylor Fink
Hillis Carnes - Frederick
4959 New Design Rd, Ste 107
Frederick, MD 21703

Reference: PSS Work Order(s) No: **16011807**
Project Name: Mt. Airy Rails to Trails
Project Location: Mt. Airy, MD
Project ID.: 00316A

Dear Taylor Fink :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **16011807**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on February 22, 2016, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

A handwritten signature in black ink that reads 'Dan Prucnal'.

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: Hillis Carnes - Frederick
Project Name: Mt. Airy Rails to Trails

Work Order Number(s): 16011807

Project ID: 00316A

The following samples were received under chain of custody by Phase Separation Science (PSS) on 01/18/2016 at 12:19 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
16011807-001	1A-1D	SOIL	01/13/16 11:36
16011807-002	2A-2D	SOIL	01/13/16 11:51

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 16011807

Hillis Carnes - Frederick, Frederick, MD

January 25, 2016

Project Name: Mt. Airy Rails to Trails

Project Location: Mt. Airy, MD

Project ID: 00316A

Sample ID: 1A-1D	Date/Time Sampled: 01/13/2016 11:36	PSS Sample ID: 16011807-001
Matrix: SOIL	Date/Time Received: 01/18/2016 12:19	% Solids: 77

Total Metals	Analytical Method: SW-846 6020 A	Preparation Method: 3050B						
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	260	mg/kg	0.58		1	01/20/16	01/22/16 14:41	1053
Lead	97	mg/kg	2.9		1	01/20/16	01/22/16 14:41	1053

Total Petroleum Hydrocarbons - DRO	Analytical Method: SW-846 8015 C	Preparation Method: SW3550C						
<i>DF/HF - No. 2/diesel fuel and heavier fuel/oil patterns observed in sample.</i>								
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	45	mg/kg	13	DF	1	01/21/16	01/22/16 07:48	1055

Polychlorinated Biphenyls	Analytical Method: SW-846 8082 A	Preparation Method: SW3550C						
		Clean up Method: SW846 3665A						
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
PCB-1016	ND	mg/kg	0.064		1	01/21/16	01/21/16 18:08	1029
PCB-1221	ND	mg/kg	0.064		1	01/21/16	01/21/16 18:08	1029
PCB-1232	ND	mg/kg	0.064		1	01/21/16	01/21/16 18:08	1029
PCB-1242	ND	mg/kg	0.064		1	01/21/16	01/21/16 18:08	1029
PCB-1248	ND	mg/kg	0.064		1	01/21/16	01/21/16 18:08	1029
PCB-1254	ND	mg/kg	0.064		1	01/21/16	01/21/16 18:08	1029
PCB-1260	ND	mg/kg	0.064		1	01/21/16	01/21/16 18:08	1029

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No: 16011807

Hillis Carnes - Frederick, Frederick, MD

January 25, 2016

Project Name: Mt. Airy Rails to Trails

Project Location: Mt. Airy, MD

Project ID: 00316A

Sample ID: 1A-1D	Date/Time Sampled: 01/13/2016 11:36	PSS Sample ID: 16011807-001
Matrix: SOIL	Date/Time Received: 01/18/2016 12:19	% Solids: 77

Polyaromatic Hydrocarbons (PAHs)

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Acenaphthylene	ND	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Anthracene	ND	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Benzo(a)anthracene	400	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Benzo(a)pyrene	610	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Benzo(b)fluoranthene	1,300	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Benzo(g,h,i)perylene	490	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Benzo(k)fluoranthene	420	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Chrysene	700	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Dibenz(a,h)Anthracene	ND	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Fluoranthene	710	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Fluorene	ND	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Indeno(1,2,3-c,d)Pyrene	550	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
2-Methylnaphthalene	ND	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Naphthalene	ND	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Phenanthrene	ND	ug/kg	220		1	01/19/16	01/20/16 19:17	1055
Pyrene	650	ug/kg	220		1	01/19/16	01/20/16 19:17	1055

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CERTIFICATE OF ANALYSIS

No: 16011807

Hillis Carnes - Frederick, Frederick, MD

January 25, 2016

Project Name: Mt. Airy Rails to Trails

Project Location: Mt. Airy, MD

Project ID: 00316A

Sample ID: 2A-2D	Date/Time Sampled: 01/13/2016 11:51	PSS Sample ID: 16011807-002
Matrix: SOIL	Date/Time Received: 01/18/2016 12:19	% Solids: 75

Total Metals Analytical Method: SW-846 6020 A Preparation Method: 3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	220	mg/kg	0.49		1	01/20/16	01/22/16 15:10	1053
Lead	84	mg/kg	2.4		1	01/20/16	01/22/16 15:10	1053

Total Petroleum Hydrocarbons - DRO Analytical Method: SW-846 8015 C Preparation Method: SW3550C

DF/HF - No. 2/diesel fuel and heavier fuel/oil patterns observed in sample.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	54	mg/kg	13	DF	1	01/21/16	01/22/16 06:57	1055

Polychlorinated Biphenyls Analytical Method: SW-846 8082 A Preparation Method: SW3550C

Clean up Method: SW846 3665A

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
PCB-1016	ND	mg/kg	0.064		1	01/21/16	01/21/16 19:06	1029
PCB-1221	ND	mg/kg	0.064		1	01/21/16	01/21/16 19:06	1029
PCB-1232	ND	mg/kg	0.064		1	01/21/16	01/21/16 19:06	1029
PCB-1242	ND	mg/kg	0.064		1	01/21/16	01/21/16 19:06	1029
PCB-1248	ND	mg/kg	0.064		1	01/21/16	01/21/16 19:06	1029
PCB-1254	ND	mg/kg	0.064		1	01/21/16	01/21/16 19:06	1029
PCB-1260	ND	mg/kg	0.064		1	01/21/16	01/21/16 19:06	1029

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No: 16011807

Hillis Carnes - Frederick, Frederick, MD

January 25, 2016

Project Name: Mt. Airy Rails to Trails

Project Location: Mt. Airy, MD

Project ID: 00316A

Sample ID: 2A-2D	Date/Time Sampled: 01/13/2016 11:51	PSS Sample ID: 16011807-002
Matrix: SOIL	Date/Time Received: 01/18/2016 12:19	% Solids: 75

Polyaromatic Hydrocarbons (PAHs)

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Acenaphthylene	ND	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Anthracene	ND	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Benzo(a)anthracene	260	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Benzo(a)pyrene	390	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Benzo(b)fluoranthene	850	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Benzo(g,h,i)perylene	350	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Benzo(k)fluoranthene	300	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Chrysene	450	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Dibenz(a,h)Anthracene	ND	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Fluoranthene	410	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Fluorene	ND	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Indeno(1,2,3-c,d)Pyrene	330	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
2-Methylnaphthalene	ND	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Naphthalene	ND	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Phenanthrene	ND	ug/kg	220		1	01/19/16	01/20/16 18:35	1055
Pyrene	400	ug/kg	220		1	01/19/16	01/20/16 18:35	1055



Case Narrative Summary

Client Name: Hillis Carnes - Frederick

Project Name: Mt. Airy Rails to Trails

Work Order Number(s): 16011807

Project ID: 00316A

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

Sample(s) received at a temperature greater than 6 degrees C and ice was not present.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 16011807

Report Prepared For: Hillis Carnes - Frederick, Frederick, MD

Project Name: Mt. Airy Rails to Trails

Project Manager: Taylor Fink

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
ASTM D2216 05	1A-1D	Initial	16011807-001	1051	S	129597	129597	01/13/2016	01/18/2016 15:14	01/18/2016 15:14
	2A-2D	Initial	16011807-002	1051	S	129597	129597	01/13/2016	01/18/2016 15:14	01/18/2016 15:14
SW-846 6020 A	1A-1D	Initial	16011807-001	1053	S	59167	129751	01/13/2016	01/20/2016 14:26	01/22/2016 14:41
	2A-2D	Initial	16011807-002	1053	S	59167	129751	01/13/2016	01/20/2016 14:26	01/22/2016 15:10
	59167-1-BKS	BKS	59167-1-BKS	1053	S	59167	129751	-----	01/20/2016 14:26	01/22/2016 14:35
	59167-1-BLK	BLK	59167-1-BLK	1053	S	59167	129751	-----	01/20/2016 14:26	01/22/2016 14:29
	1A-1D S	MS	16011807-001 S	1053	S	59167	129751	01/13/2016	01/20/2016 14:26	01/22/2016 14:47
	1A-1 SD	MSD	16011807-001 SD	1053	S	59167	129751	01/13/2016	01/20/2016 14:26	01/22/2016 14:53
SW-846 8015 C	1A-1D	Initial	16011807-001	1055	S	59176	129730	01/13/2016	01/21/2016 09:49	01/22/2016 07:48
	2A-2D	Initial	16011807-002	1055	S	59176	129730	01/13/2016	01/21/2016 09:49	01/22/2016 06:57
	59176-1-BKS	BKS	59176-1-BKS	1055	S	59176	129730	-----	01/21/2016 09:49	01/22/2016 03:11
	59176-1-BLK	BLK	59176-1-BLK	1055	S	59176	129730	-----	01/21/2016 09:49	01/22/2016 02:45
	59176-1-BSD	BSD	59176-1-BSD	1055	S	59176	129730	-----	01/21/2016 09:49	01/22/2016 03:36
	Soil Sample S	MS	16012001-001 S	1055	S	59176	129730	01/20/2016	01/21/2016 09:49	01/22/2016 03:11
	Soil Sample SD	MSD	16012001-001 SD	1055	S	59176	129730	01/20/2016	01/21/2016 09:49	01/22/2016 03:36
SW-846 8082 A	1A-1D	Initial	16011807-001	1029	S	59181	129721	01/13/2016	01/21/2016 13:37	01/21/2016 18:08
	2A-2D	Initial	16011807-002	1029	S	59181	129721	01/13/2016	01/21/2016 13:37	01/21/2016 19:06
	59181-1-BKS	BKS	59181-1-BKS	1029	S	59181	129721	-----	01/21/2016 13:37	01/21/2016 15:42
	59181-1-BLK	BLK	59181-1-BLK	1029	S	59181	129721	-----	01/21/2016 13:37	01/21/2016 15:13
	59181-1-BSD	BSD	59181-1-BSD	1029	S	59181	129721	-----	01/21/2016 13:37	01/21/2016 16:12
	Composite S	MS	16012015-008 S	1029	S	59181	129721	01/20/2016	01/21/2016 13:37	01/21/2016 16:41
	Composite SD	MSD	16012015-008 SD	1029	S	59181	129721	01/20/2016	01/21/2016 13:37	01/21/2016 17:10
SW-846 8270 C	59133-1-BKS	BKS	59133-1-BKS	1055	S	59133	129700	-----	01/19/2016 10:24	01/20/2016 13:30
	59133-1-BLK	BLK	59133-1-BLK	1055	S	59133	129700	-----	01/19/2016 10:24	01/20/2016 13:01
	59133-1-BSD	BSD	59133-1-BSD	1055	S	59133	129700	-----	01/19/2016 10:24	01/20/2016 13:59
	SW- S	MS	16011501-001 S	1055	S	59133	129700	01/12/2016	01/19/2016 10:24	01/20/2016 14:28
	SW- SD	MSD	16011501-001 SD	1055	S	59133	129700	01/12/2016	01/19/2016 10:24	01/20/2016 14:57



Analytical Data Package Information Summary

Work Order(s): 16011807

Report Prepared For: Hillis Carnes - Frederick, Frederick, MD

Project Name: Mt. Airy Rails to Trails

Project Manager: Taylor Fink

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8270 C	1A-1D	Initial	16011807-001	1055	S	59133	129746	01/13/2016	01/19/2016 10:24	01/20/2016 19:17
	2A-2D	Initial	16011807-002	1055	S	59133	129746	01/13/2016	01/19/2016 10:24	01/20/2016 18:35

PHASE SEPARATION SCIENCE, INC.

QC Summary 16011807

Hillis Carnes - Frederick Mt. Airy Rails to Trails

Analytical Method: SW-846 8082 A

Seq Number: 129721
PSS Sample ID: 16011807-001

Matrix: Soil

Prep Method: SW3550C
Date Prep: 01/21/2016

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Decachlorobiphenyl	117		11-150	%	01/21/16 18:08
Tetrachloro-m-xylene	102		12-158	%	01/21/16 18:08

Analytical Method: SW-846 8015 C

Seq Number: 129730
PSS Sample ID: 16011807-001

Matrix: Soil

Prep Method: SW3550C
Date Prep: 01/21/2016

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
o-Terphenyl	86		42-129	%	01/22/16 07:48

Analytical Method: SW-846 8270 C

Seq Number: 129746
PSS Sample ID: 16011807-001

Matrix: Soil

Prep Method: SW3550C
Date Prep: 01/19/2016

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
2-Fluorobiphenyl	68		60-131	%	01/20/16 19:17
2-Fluorophenol	65		45-108	%	01/20/16 19:17
Nitrobenzene-d5	63		42-131	%	01/20/16 19:17
Phenol-d6	64		48-124	%	01/20/16 19:17
Terphenyl-D14	78		59-137	%	01/20/16 19:17
2,4,6-Tribromophenol	60		46-129	%	01/20/16 19:17

Analytical Method: SW-846 8082 A

Seq Number: 129721
PSS Sample ID: 16011807-002

Matrix: Soil

Prep Method: SW3550C
Date Prep: 01/21/2016

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
Decachlorobiphenyl	117		11-150	%	01/21/16 19:06
Tetrachloro-m-xylene	102		12-158	%	01/21/16 19:06

Analytical Method: SW-846 8015 C

Seq Number: 129730
PSS Sample ID: 16011807-002

Matrix: Soil

Prep Method: SW3550C
Date Prep: 01/21/2016

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
o-Terphenyl	64		42-129	%	01/22/16 06:57

PHASE SEPARATION SCIENCE, INC.

QC Summary 16011807

Hillis Carnes - Frederick
Mt. Airy Rails to Trails

Analytical Method: SW-846 8270 C

Seq Number: 129746

PSS Sample ID: 16011807-002

Matrix: Soil

Prep Method: SW3550C

Date Prep: 01/19/2016

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
2-Fluorobiphenyl	67		60-131	%	01/20/16 18:35
2-Fluorophenol	73		45-108	%	01/20/16 18:35
Nitrobenzene-d5	63		42-131	%	01/20/16 18:35
Phenol-d6	72		48-124	%	01/20/16 18:35
Terphenyl-D14	78		59-137	%	01/20/16 18:35
2,4,6-Tribromophenol	59		46-129	%	01/20/16 18:35

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 16011807

Hillis Carnes - Frederick
Mt. Airy Rails to Trails

Analytical Method: SW-846 6020 A

Seq Number: 129751

MB Sample Id: 59167-1-BLK

Matrix: Solid

LCS Sample Id: 59167-1-BKS

Prep Method: SW3050B

Date Prep: 01/20/16

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Arsenic	<0.3583	14.33	13.40	94	80-120	mg/kg	01/22/16 14:35	
Lead	<1.791	14.33	13.30	93	80-120	mg/kg	01/22/16 14:35	

Analytical Method: SW-846 6020 A

Seq Number: 129751

Parent Sample Id: 16011807-001

Matrix: Soil

MS Sample Id: 16011807-001 S

Prep Method: SW3050B

Date Prep: 01/20/16

MSD Sample Id: 16011807-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Arsenic	257.5	19.64	230.8	0	206.4	0	75-125	11	30	mg/kg	01/22/16 14:47	X
Lead	96.96	19.64	113.3	83	92.52	0	75-125	20	30	mg/kg	01/22/16 14:47	X

Analytical Method: SW-846 8082 A

Seq Number: 129721

MB Sample Id: 59181-1-BLK

Matrix: Solid

LCS Sample Id: 59181-1-BKS

Prep Method: SW3550C

Date Prep: 01/21/16

LCSD Sample Id: 59181-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
PCB-1016	<0.04864	0.4864	0.4399	90	0.4225	87	62-136	4	25	mg/kg	01/21/16 15:42	
PCB-1260	<0.04864	0.4864	0.3865	79	0.3721	77	56-113	4	25	mg/kg	01/21/16 15:42	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
Decachlorobiphenyl	111		114		111		11-150	%	01/21/16 15:42
Tetrachloro-m-xylene	96		96		92		12-158	%	01/21/16 15:42

Analytical Method: SW-846 8015 C

Seq Number: 129730

MB Sample Id: 59176-1-BLK

Matrix: Solid

LCS Sample Id: 59176-1-BKS

Prep Method: SW3550C

Date Prep: 01/21/16

LCSD Sample Id: 59176-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
TPH-DRO (Diesel Range Organics)	<9.904	33.01	27.16	82	18.33	55	56-117	39	25	mg/kg	01/22/16 03:11	LF

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
o-Terphenyl	76		80		79		42-129	%	01/22/16 03:11

PHASE SEPARATION SCIENCE, INC.

QC Summary 16011807

Hillis Carnes - Frederick
Mt. Airy Rails to Trails

Analytical Method: SW-846 8270 C

Seq Number: 129700

MB Sample Id: 59133-1-BLK

Matrix: Solid

LCS Sample Id: 59133-1-BKS

Prep Method: SW3550C

Date Prep: 01/19/16

LCSD Sample Id: 59133-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Acenaphthene	<166.4	1332	1156	87	1196	90	73-103	3	25	ug/kg	01/20/16 13:30	
Acenaphthylene	<166.4	1332	1225	92	1277	96	73-104	4	25	ug/kg	01/20/16 13:30	
Anthracene	<166.4	1332	1214	91	1197	90	74-104	1	25	ug/kg	01/20/16 13:30	
Benzo(a)anthracene	<166.4	1332	1306	98	1321	99	78-109	1	25	ug/kg	01/20/16 13:30	
Benzo(a)pyrene	<166.4	1332	1353	102	1360	102	78-117	1	25	ug/kg	01/20/16 13:30	
Benzo(b)fluoranthene	<166.4	1332	1165	87	1180	89	73-119	1	25	ug/kg	01/20/16 13:30	
Benzo(g,h,i)perylene	<166.4	1332	1312	98	1359	102	59-136	4	25	ug/kg	01/20/16 13:30	
Benzo(k)fluoranthene	<166.4	1332	1649	124	1565	118	72-117	5	25	ug/kg	01/20/16 13:30	H
Chrysene	<166.4	1332	1351	101	1346	101	78-107	0	25	ug/kg	01/20/16 13:30	
Dibenz(a,h)Anthracene	<166.4	1332	1254	94	1303	98	62-131	4	25	ug/kg	01/20/16 13:30	
Fluoranthene	<166.4	1332	1265	95	1277	96	71-111	1	25	ug/kg	01/20/16 13:30	
Fluorene	<166.4	1332	1266	95	1285	97	75-105	1	25	ug/kg	01/20/16 13:30	
Indeno(1,2,3-c,d)Pyrene	<166.4	1332	1329	100	1425	107	60-130	7	25	ug/kg	01/20/16 13:30	
2-Methylnaphthalene	<166.4	1332	1586	119	1672	126	70-101	5	25	ug/kg	01/20/16 13:30	H
Naphthalene	<166.4	1332	1092	82	1132	85	71-99	4	25	ug/kg	01/20/16 13:30	
Phenanthrene	<166.4	1332	1165	87	1193	90	71-103	2	25	ug/kg	01/20/16 13:30	
Pyrene	<166.4	1332	1378	103	1390	105	67-110	1	25	ug/kg	01/20/16 13:30	

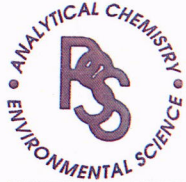
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units	Analysis Date
2-Fluorobiphenyl	84		69		73		60-131	%	01/20/16 13:30
2-Fluorophenol	84		79		80		45-108	%	01/20/16 13:30
Nitrobenzene-d5	83		68		76		42-131	%	01/20/16 13:30
Phenol-d6	86		83		88		48-124	%	01/20/16 13:30
Terphenyl-D14	87		89		93		59-137	%	01/20/16 13:30
2,4,6-Tribromophenol	84		84		94		46-129	%	01/20/16 13:30

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

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SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

www.phaseonline.com
email: info@phaseonline.com

1 CLIENT: Hillis-Carnes Engineering OFFICE LOC. Frederick MD					PSS Work Order #: <u>16011807</u>			PAGE <u>1</u> OF <u>1</u>									
PROJECT MGR: Taylor Fink PHONE NO.: 301.662.2522					Matrix Codes: SW =Surface Wtr DW =Drinking Wtr GW =Ground Wtr WW =Waste Wtr O =Oil S =Soil WL =Waste Liquid WS =Waste Solid W = Wipe												
EMAIL: tfink@hcea.com FAX NO.:					No. C O N T A I N E R S	SAMPLE TYPE C = COMP G = GRAB	Click to enter Analysis	Arsenic/Lead	PAH	TPH-DRO	PCB	Preservative Used ←	Analysis/ Method Required ←	REMARKS ↓			
PROJECT NAME: Mt Airy Rails to Trails PROJECT NO.: 00316A																	
SITE LOCATION: Mt. Airy MD P.O. NO.:																	
SAMPLERS: Gerald Smith DW CERT NO. :																	
LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX (See Codes)	1	C	2	3	4	5	6	7	8	9	10	11	12
1	1A	1.13.16	11:30	S	1	C											
1	1B	1.13.16	11:32	S	1	C											
1	1C	1.13.16	11:34	S	1	C											
1	1D	1.13.16	11:36	S	1	C											
2	2A	1.13.16	11:45	S	1	C											
2	2B	1.13.16	11:47	S	1	C											
2	2C	1.13.16	11:49	S	1	C											
2	2D	1.13.16	11:51	S	1	C											
5 Relinquished By: (1) <u>Taylor Fink</u> Date <u>1/18/16</u> Time <u>11:21</u> Received By: <u>TTE 123</u>					4 Requested Turnaround Time <input checked="" type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input type="checkbox"/> Other					# of Coolers: <u>0</u> Custody Seal: <u>ABS</u>							
Relinquished By: (2) <u>TTE 123</u> Date <u>1/18/16</u> Time <u>12:19</u> Received By: <u>[Signature]</u>					Data Deliverables Required:					Ice Present: <u>ABS</u> Temp: <u>12°C</u> Shipping Carrier: <u>TTE</u>							
Relinquished By: (3)					Special Instructions:												
Relinquished By: (4)																	

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723

The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order #	16011807	Received By	Rachel Davis
Client Name	Hillis Carnes - Frederick	Date Received	01/18/2016 12:19:00 PM
Project Name	Mt. Airy Rails to Trails	Delivered By	Trans Time Express
Project Number	00316A	Tracking No	Not Applicable
Disposal Date	02/22/2016	Logged In By	Rachel Davis

Shipping Container(s)

No. of Coolers 1

		Ice	Absent
Custody Seal(s) Intact?	N/A	Temp (deg C)	12
Seal(s) Signed / Dated?	N/A	Temp Blank Present	No

Documentation

COC agrees with sample labels?	Yes	Sampler Name	<u>Gerald Smith</u>
Chain of Custody	Yes	MD DW Cert. No.	<u>N/A</u>

Sample Container

Appropriate for Specified Analysis?	Yes	Custody Seal(s) Intact?	Not Applicable
Intact?	Yes	Seal(s) Signed / Dated	Not Applicable
Labeled and Labels Legible?	Yes		

Total No. of Samples Received 2

Total No. of Containers Received 8

Preservation

Metals	(pH<2)	N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	N/A
Do VOA vials have zero headspace?		N/A
624 VOC (Rcvd at least one unpreserved VOA vial)		N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Sample(s) received at a temperature greater than 6 degrees C and ice was not present.

Samples Inspected/Checklist Completed By: Rachel Davis Date: 01/18/2016
 Rachel Davis

PM Review and Approval: Amber Confer Date: 01/18/2016
 Amber Confer