

Analytical Report for
Hillis Carnes Engineering Associates
Certificate of Analysis No.: 19052018

Project Manager: Keith Progin
Project Name : Slag Processing Area
Project Location: TPA
Project ID : 18019A



May 23, 2019
Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
Phone: (410) 747-8770
Fax: (410) 788-8723

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MD 21228
410-747-8770
800-932-9047
FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



May 23, 2019

Keith Progin
Hillis Carnes Engineering Associates
10975 Guilford Road, Ste. A
Annapolis Junction, MD 20701

Reference: PSS Work Order(s) No: **19052018**
Project Name: Slag Processing Area
Project Location: TPA
Project ID.: 18019A

Dear Keith Progin :

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 **19052018**.

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 June 24, 2019, 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 Engineering Associates
Project Name: Slag Processing Area

Work Order Number(s): 19052018

Project ID: 18019A

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/20/2019 at 05:15 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19052018-001	SP-1-N	SOIL	05/20/19 14:15
19052018-002	SP-1-N-A	SOIL	05/20/19 14:15
19052018-003	SP-1-S	SOIL	05/20/19 14:25
19052018-004	SP-1-S-A	SOIL	05/20/19 14:25
19052018-005	SP-2	SOIL	05/20/19 14:45
19052018-006	SP-2-A	SOIL	05/20/19 14:45
19052018-007	SP-3	SOIL	05/20/19 15:00
19052018-008	SP-3-A	SOIL	05/20/19 15:00
19052018-009	SP-4	SOIL	05/20/19 15:15
19052018-010	SP-4-A	SOIL	05/20/19 15:15
19052018-011	C-1	SOIL	05/20/19 15:30
19052018-012	C-2	SOIL	05/20/19 15:40

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.



Sample Summary

Client Name: Hillis Carnes Engineering Associates

Project Name: Slag Processing Area

Work Order Number(s): 19052018

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 MWA LD1997-0041-2015

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-N **Date/Time Sampled: 05/20/2019 14:15** **PSS Sample ID: 19052018-001**

Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 82**

PP Metals (plus Mn)

Analytical Method: SW-846 6020 A

Preparation Method: 3050B

Qualifier(s): See Batch 164540 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Antimony	4.6	mg/kg	2.2		1	05/21/19	05/21/19 22:04	1064
Arsenic	12	mg/kg	0.44		1	05/21/19	05/21/19 22:04	1064
Beryllium	3.9	mg/kg	2.2		1	05/21/19	05/22/19 19:11	1064
Cadmium	ND	mg/kg	2.2		1	05/21/19	05/21/19 22:04	1064
Chromium	200	mg/kg	2.2		1	05/21/19	05/21/19 22:04	1064
Copper	86	mg/kg	2.2		1	05/21/19	05/21/19 22:04	1064
Lead	140	mg/kg	2.2		1	05/21/19	05/22/19 19:11	1064
Manganese	5,500	mg/kg	220		100	05/21/19	05/23/19 13:44	1064
Mercury	ND	mg/kg	0.087		1	05/21/19	05/21/19 22:04	1064
Nickel	24	mg/kg	2.2		1	05/21/19	05/21/19 22:04	1064
Selenium	3.9	mg/kg	2.2		1	05/21/19	05/21/19 22:04	1064
Silver	ND	mg/kg	2.2		1	05/21/19	05/21/19 22:04	1064
Thallium	ND	mg/kg	1.7		1	05/21/19	05/21/19 22:04	1064
Zinc	92	mg/kg	8.7		1	05/21/19	05/21/19 22:04	1064

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	0.062		1	05/21/19	05/21/19 17:25	1029
PCB-1221	ND	mg/kg	0.062		1	05/21/19	05/21/19 17:25	1029
PCB-1232	ND	mg/kg	0.062		1	05/21/19	05/21/19 17:25	1029
PCB-1242	ND	mg/kg	0.062		1	05/21/19	05/21/19 17:25	1029
PCB-1248	ND	mg/kg	0.062		1	05/21/19	05/21/19 17:25	1029
PCB-1254	ND	mg/kg	0.062		1	05/21/19	05/21/19 17:25	1029
PCB-1260	ND	mg/kg	0.062		1	05/21/19	05/21/19 17:25	1029

Surrogate(s)	Recovery	Limits						
Tetrachloro-m-xylene	64 %	42-142		1	05/21/19	05/21/19 17:25	1029	
Decachlorobiphenyl	101 %	61-150		1	05/21/19	05/21/19 17:25	1029	

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-N-A	Date/Time Sampled: 05/20/2019 14:15	PSS Sample ID: 19052018-002
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 80
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)	3,400	mg/kg	42	DF	10	05/21/19	05/22/19 02:22	1059
Surrogate(s)	Recovery		Limits					
o-Terphenyl	88	%	37-120		10	05/21/19	05/22/19 02:22	1059

Total Petroleum Hydrocarbons-GRO Analytical Method: SW-846 8015C Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	550	ug/kg	120		1	05/21/19	05/21/19 23:51	1045
Surrogate(s)	Recovery		Limits					
a,a,a-Trifluorotoluene	98	%	56-114		1	05/21/19	05/21/19 23:51	1045

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 B Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/kg	13,000		1000	05/21/19	05/21/19 15:19	1011
Benzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Bromochloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Bromodichloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Bromoform	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Bromomethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
2-Butanone (MEK)	ND	ug/kg	6,300		1000	05/21/19	05/21/19 15:19	1011
Carbon Disulfide	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Carbon tetrachloride	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Chlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Chloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Chloroform	ND	ug/kg	6,300		1000	05/21/19	05/21/19 15:19	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-N-A	Date/Time Sampled: 05/20/2019 14:15	PSS Sample ID: 19052018-002
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 80
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Cyclohexane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,2-Dibromo-3-chloropropane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Dibromochloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,2-Dibromoethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,2-Dichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,3-Dichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,4-Dichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Dichlorodifluoromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,1-Dichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,2-Dichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,1-Dichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,2-Dichloropropane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
cis-1,2-Dichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
cis-1,3-Dichloropropene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
trans-1,2-Dichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
trans-1,3-Dichloropropene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Ethylbenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
2-Hexanone (MBK)	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Isopropylbenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Methyl Acetate	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Methylcyclohexane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Methylene chloride	ND	ug/kg	6,300		1000	05/21/19	05/21/19 15:19	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Methyl-t-Butyl Ether	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Naphthalene	280,000	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Styrene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,1,2,2-Tetrachloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Tetrachloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-N-A	Date/Time Sampled: 05/20/2019 14:15	PSS Sample ID: 19052018-002
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 80
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,2,3-Trichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,2,4-Trichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,1,1-Trichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,1,2-Trichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Trichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Trichlorofluoromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Vinyl chloride	ND	ug/kg	6,300		1000	05/21/19	05/21/19 15:19	1011
m&p-Xylene	ND	ug/kg	2,500		1000	05/21/19	05/21/19 15:19	1011
o-Xylene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 15:19	1011
Surrogate(s)	Recovery		Limits					
4-Bromofluorobenzene	100	%	81-146		1000	05/21/19	05/21/19 15:19	1011
Dibromofluoromethane	102	%	89-120		1000	05/21/19	05/21/19 15:19	1011
Toluene-D8	106	%	86-116		1000	05/21/19	05/21/19 15:19	1011

TCL Semivolatile Organic Compounds Analytical Method: SW-846 8270 C Preparation Method: SW3550C
 Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Acenaphthylene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Acetophenone	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Anthracene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Atrazine	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Benzo(a)anthracene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Benzo(a)pyrene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Benzo(b)fluoranthene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Benzo(g,h,i)perylene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-N-A **Date/Time Sampled: 05/20/2019 14:15** **PSS Sample ID: 19052018-002**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 80**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Benzo(k)fluoranthene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Biphenyl (Diphenyl)	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Butyl benzyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
bis(2-chloroethoxy) methane	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
bis(2-chloroethyl) ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
bis(2-chloroisopropyl) ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
bis(2-ethylhexyl) phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
4-Bromophenylphenyl ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Di-n-butyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Carbazole	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Caprolactam	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
4-Chloro-3-methyl phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
4-Chloroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
2-Chloronaphthalene	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
2-Chlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
4-Chlorophenyl Phenyl ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Chrysene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Dibenz(a,h)Anthracene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Dibenzofuran	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
3,3-Dichlorobenzidine	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
2,4-Dichlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Diethyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Dimethyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
2,4-Dimethylphenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
4,6-Dinitro-2-methyl phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
2,4-Dinitrophenol	ND	ug/kg	42,000		100	05/21/19	05/21/19 18:25	1014
2,4-Dinitrotoluene	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
2,6-Dinitrotoluene	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Fluoranthene	3,900	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-N-A **Date/Time Sampled: 05/20/2019 14:15** **PSS Sample ID: 19052018-002**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 80**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Fluorene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Hexachlorobenzene	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Hexachlorobutadiene	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Hexachlorocyclopentadiene	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Hexachloroethane	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Indeno(1,2,3-c,d)Pyrene	ND	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Isophorone	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
2-Methylnaphthalene	29,000	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
2-Methyl phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
3&4-Methylphenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Naphthalene	310,000	ug/kg	21,000		1000	05/21/19	05/21/19 17:01	1014
2-Nitroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
3-Nitroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
4-Nitroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Nitrobenzene	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
2-Nitrophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
4-Nitrophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
N-Nitrosodi-n-propyl amine	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
N-Nitrosodiphenylamine	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Di-n-octyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Pentachlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Phenanthrene	3,600	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
Pyrene	3,100	ug/kg	2,100		100	05/21/19	05/21/19 18:25	1014
Pyridine	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
2,4,5-Trichlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014
2,4,6-Trichlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 18:25	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-N-A **Date/Time Sampled: 05/20/2019 14:15** **PSS Sample ID: 19052018-002**

Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 80**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

Surrogate(s)	Recovery	Limits						
2-Fluorobiphenyl	0 %	32-107	*	1000	05/21/19	05/21/19 17:01	1014	
2-Fluorophenol	0 %	34-113	*	1000	05/21/19	05/21/19 17:01	1014	
Nitrobenzene-d5	0 %	35-123	*	1000	05/21/19	05/21/19 17:01	1014	
Phenol-d6	0 %	34-120	*	1000	05/21/19	05/21/19 17:01	1014	
Terphenyl-D14	50 %	46-154		1000	05/21/19	05/21/19 17:01	1014	
2,4,6-Tribromophenol	0 %	31-113	*	1000	05/21/19	05/21/19 17:01	1014	
2-Fluorobiphenyl	65 %	32-107		100	05/21/19	05/21/19 18:25	1014	
2-Fluorophenol	8 %	34-113	*	100	05/21/19	05/21/19 18:25	1014	
Nitrobenzene-d5	50 %	35-123		100	05/21/19	05/21/19 18:25	1014	
Phenol-d6	20 %	34-120	*	100	05/21/19	05/21/19 18:25	1014	
Terphenyl-D14	90 %	46-154		100	05/21/19	05/21/19 18:25	1014	
2,4,6-Tribromophenol	0 %	31-113	*	100	05/21/19	05/21/19 18:25	1014	

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-S **Date/Time Sampled: 05/20/2019 14:25** **PSS Sample ID: 19052018-003**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 80**

PP Metals (plus Mn)

Analytical Method: SW-846 6020 A

Preparation Method: 3050B

Qualifier(s): See Batch 164540 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Antimony	ND	mg/kg	2.7		1	05/21/19	05/21/19 22:10	1064
Arsenic	3.2	mg/kg	0.54		1	05/21/19	05/21/19 22:10	1064
Beryllium	4.0	mg/kg	2.7		1	05/21/19	05/22/19 19:17	1064
Cadmium	ND	mg/kg	2.7		1	05/21/19	05/21/19 22:10	1064
Chromium	100	mg/kg	2.7		1	05/21/19	05/21/19 22:10	1064
Copper	25	mg/kg	2.7		1	05/21/19	05/21/19 22:10	1064
Lead	260	mg/kg	2.7		1	05/21/19	05/22/19 19:17	1064
Manganese	3,500	mg/kg	27		10	05/21/19	05/22/19 17:53	1064
Mercury	ND	mg/kg	0.11		1	05/21/19	05/21/19 22:10	1064
Nickel	8.8	mg/kg	2.7		1	05/21/19	05/21/19 22:10	1064
Selenium	4.1	mg/kg	2.7		1	05/21/19	05/21/19 22:10	1064
Silver	ND	mg/kg	2.7		1	05/21/19	05/21/19 22:10	1064
Thallium	ND	mg/kg	2.1		1	05/21/19	05/21/19 22:10	1064
Zinc	140	mg/kg	11		1	05/21/19	05/21/19 22:10	1064

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	0.063		1	05/21/19	05/21/19 17:53	1029
PCB-1221	ND	mg/kg	0.063		1	05/21/19	05/21/19 17:53	1029
PCB-1232	ND	mg/kg	0.063		1	05/21/19	05/21/19 17:53	1029
PCB-1242	ND	mg/kg	0.063		1	05/21/19	05/21/19 17:53	1029
PCB-1248	ND	mg/kg	0.063		1	05/21/19	05/21/19 17:53	1029
PCB-1254	ND	mg/kg	0.063		1	05/21/19	05/21/19 17:53	1029
PCB-1260	ND	mg/kg	0.063		1	05/21/19	05/21/19 17:53	1029

Surrogate(s)	Recovery	Limits						
Tetrachloro-m-xylene	66 %	42-142		1	05/21/19	05/21/19 17:53	1029	
Decachlorobiphenyl	100 %	61-150		1	05/21/19	05/21/19 17:53	1029	

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-S-A **Date/Time Sampled: 05/20/2019 14:25** **PSS Sample ID: 19052018-004**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 78**

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

Qualifier(s): See Batch 164528 on Case Narrative.

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)	3,800	mg/kg	43	DF	10	05/21/19	05/22/19 01:31	1059
Surrogate(s)	Recovery		Limits					
o-Terphenyl	88	%	37-120		10	05/21/19	05/22/19 01:31	1059

Total Petroleum Hydrocarbons-GRO Analytical Method: SW-846 8015C Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	240	ug/kg	130		1	05/21/19	05/22/19 00:22	1045
Surrogate(s)	Recovery		Limits					
a,a,a-Trifluorotoluene	99	%	56-114		1	05/21/19	05/22/19 00:22	1045

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 B Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/kg	13,000		1000	05/21/19	05/21/19 18:24	1011
Benzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Bromochloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Bromodichloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Bromoform	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Bromomethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
2-Butanone (MEK)	ND	ug/kg	6,400		1000	05/21/19	05/21/19 18:24	1011
Carbon Disulfide	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Carbon tetrachloride	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Chlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Chloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Chloroform	ND	ug/kg	6,400		1000	05/21/19	05/21/19 18:24	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-S-A	Date/Time Sampled: 05/20/2019 14:25	PSS Sample ID: 19052018-004
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 78
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Cyclohexane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,2-Dibromo-3-chloropropane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Dibromochloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,2-Dibromoethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,2-Dichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,3-Dichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,4-Dichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Dichlorodifluoromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,1-Dichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,2-Dichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,1-Dichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,2-Dichloropropane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
cis-1,2-Dichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
cis-1,3-Dichloropropene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
trans-1,2-Dichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
trans-1,3-Dichloropropene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Ethylbenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
2-Hexanone (MBK)	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Isopropylbenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Methyl Acetate	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Methylcyclohexane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Methylene chloride	ND	ug/kg	6,400		1000	05/21/19	05/21/19 18:24	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Methyl-t-Butyl Ether	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Naphthalene	54,000	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Styrene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,1,2,2-Tetrachloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Tetrachloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-S-A	Date/Time Sampled: 05/20/2019 14:25	PSS Sample ID: 19052018-004
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 78
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,2,3-Trichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,2,4-Trichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,1,1-Trichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,1,2-Trichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Trichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Trichlorofluoromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Vinyl chloride	ND	ug/kg	6,400		1000	05/21/19	05/21/19 18:24	1011
m&p-Xylene	ND	ug/kg	2,600		1000	05/21/19	05/21/19 18:24	1011
o-Xylene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 18:24	1011
Surrogate(s) Recovery Limits								
4-Bromofluorobenzene	98	%	81-146		1000	05/21/19	05/21/19 18:24	1011
Dibromofluoromethane	98	%	89-120		1000	05/21/19	05/21/19 18:24	1011
Toluene-D8	106	%	86-116		1000	05/21/19	05/21/19 18:24	1011

TCL Semivolatile Organic Compounds Analytical Method: SW-846 8270 C Preparation Method: SW3550C
 Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Acenaphthylene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Acetophenone	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Anthracene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Atrazine	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Benzo(a)anthracene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Benzo(a)pyrene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Benzo(b)fluoranthene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Benzo(g,h,i)perylene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-S-A **Date/Time Sampled: 05/20/2019 14:25** **PSS Sample ID: 19052018-004**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 78**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Benzo(k)fluoranthene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Biphenyl (Diphenyl)	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Butyl benzyl phthalate	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
bis(2-chloroethoxy) methane	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
bis(2-chloroethyl) ether	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
bis(2-chloroisopropyl) ether	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
bis(2-ethylhexyl) phthalate	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
4-Bromophenylphenyl ether	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Di-n-butyl phthalate	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Carbazole	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Caprolactam	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
4-Chloro-3-methyl phenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
4-Chloroaniline	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
2-Chloronaphthalene	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
2-Chlorophenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
4-Chlorophenyl Phenyl ether	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Chrysene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Dibenz(a,h)Anthracene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Dibenzofuran	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
3,3-Dichlorobenzidine	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
2,4-Dichlorophenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Diethyl phthalate	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Dimethyl phthalate	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
2,4-Dimethylphenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
4,6-Dinitro-2-methyl phenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
2,4-Dinitrophenol	ND	ug/kg	85,000		200	05/21/19	05/21/19 18:53	1014
2,4-Dinitrotoluene	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
2,6-Dinitrotoluene	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Fluoranthene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-1-S-A **Date/Time Sampled: 05/20/2019 14:25** **PSS Sample ID: 19052018-004**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 78**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Fluorene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Hexachlorobenzene	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Hexachlorobutadiene	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Hexachlorocyclopentadiene	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Hexachloroethane	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Indeno(1,2,3-c,d)Pyrene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Isophorone	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
2-Methylnaphthalene	38,000	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
2-Methyl phenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
3&4-Methylphenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Naphthalene	600,000	ug/kg	21,000		1000	05/21/19	05/21/19 17:29	1014
2-Nitroaniline	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
3-Nitroaniline	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
4-Nitroaniline	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Nitrobenzene	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
2-Nitrophenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
4-Nitrophenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
N-Nitrosodi-n-propyl amine	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
N-Nitrosodiphenylamine	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Di-n-octyl phthalate	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Pentachlorophenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Phenanthrene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Phenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
Pyrene	ND	ug/kg	4,300		200	05/21/19	05/21/19 18:53	1014
Pyridine	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
2,4,5-Trichlorophenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014
2,4,6-Trichlorophenol	ND	ug/kg	43,000		200	05/21/19	05/21/19 18:53	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD
 May 23, 2019

Project Name: Slag Processing Area
 Project Location: TPA
 Project ID: 18019A

Sample ID: SP-1-S-A **Date/Time Sampled: 05/20/2019 14:25** **PSS Sample ID: 19052018-004**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 78**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

Surrogate(s)	Recovery	Limits						
2-Fluorobiphenyl	0 %	32-107	*	1000	05/21/19	05/21/19 17:29	1014	
2-Fluorophenol	0 %	34-113	*	1000	05/21/19	05/21/19 17:29	1014	
Nitrobenzene-d5	0 %	35-123	*	1000	05/21/19	05/21/19 17:29	1014	
Phenol-d6	0 %	34-120	*	1000	05/21/19	05/21/19 17:29	1014	
Terphenyl-D14	50 %	46-154		1000	05/21/19	05/21/19 17:29	1014	
2,4,6-Tribromophenol	0 %	31-113	*	1000	05/21/19	05/21/19 17:29	1014	
2-Fluorobiphenyl	60 %	32-107		200	05/21/19	05/21/19 18:53	1014	
2-Fluorophenol	0 %	34-113	*	200	05/21/19	05/21/19 18:53	1014	
Nitrobenzene-d5	10 %	35-123	*	200	05/21/19	05/21/19 18:53	1014	
Phenol-d6	5 %	34-120	*	200	05/21/19	05/21/19 18:53	1014	
Terphenyl-D14	80 %	46-154		200	05/21/19	05/21/19 18:53	1014	
2,4,6-Tribromophenol	0 %	31-113	*	200	05/21/19	05/21/19 18:53	1014	

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-2 **Date/Time Sampled: 05/20/2019 14:45** **PSS Sample ID: 19052018-005**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 82**

PP Metals (plus Mn)

Analytical Method: SW-846 6020 A

Preparation Method: 3050B

Qualifier(s): See Batch 164540 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Antimony	ND	mg/kg	2.7		1	05/21/19	05/21/19 22:15	1064
Arsenic	1.6	mg/kg	0.54		1	05/21/19	05/21/19 22:15	1064
Beryllium	3.2	mg/kg	2.7		1	05/21/19	05/22/19 19:22	1064
Cadmium	ND	mg/kg	2.7		1	05/21/19	05/21/19 22:15	1064
Chromium	140	mg/kg	2.7		1	05/21/19	05/21/19 22:15	1064
Copper	23	mg/kg	2.7		1	05/21/19	05/21/19 22:15	1064
Lead	160	mg/kg	2.7		1	05/21/19	05/22/19 19:22	1064
Manganese	5,000	mg/kg	27		10	05/21/19	05/22/19 17:58	1064
Mercury	ND	mg/kg	0.11		1	05/21/19	05/21/19 22:15	1064
Nickel	6.4	mg/kg	2.7		1	05/21/19	05/21/19 22:15	1064
Selenium	4.1	mg/kg	2.7		1	05/21/19	05/21/19 22:15	1064
Silver	ND	mg/kg	2.7		1	05/21/19	05/21/19 22:15	1064
Thallium	ND	mg/kg	2.2		1	05/21/19	05/21/19 22:15	1064
Zinc	82	mg/kg	11		1	05/21/19	05/21/19 22:15	1064

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	0.062		1	05/21/19	05/21/19 18:21	1029
PCB-1221	ND	mg/kg	0.062		1	05/21/19	05/21/19 18:21	1029
PCB-1232	ND	mg/kg	0.062		1	05/21/19	05/21/19 18:21	1029
PCB-1242	ND	mg/kg	0.062		1	05/21/19	05/21/19 18:21	1029
PCB-1248	ND	mg/kg	0.062		1	05/21/19	05/21/19 18:21	1029
PCB-1254	ND	mg/kg	0.062		1	05/21/19	05/21/19 18:21	1029
PCB-1260	ND	mg/kg	0.062		1	05/21/19	05/21/19 18:21	1029

Surrogate(s)	Recovery	Units	Limits		Prepared	Analyzed	Analyst
Tetrachloro-m-xylene	76	%	42-142	1	05/21/19	05/21/19 18:21	1029
Decachlorobiphenyl	109	%	61-150	1	05/21/19	05/21/19 18:21	1029

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-2-A **Date/Time Sampled: 05/20/2019 14:45** **PSS Sample ID: 19052018-006**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

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

Qualifier(s): See Batch 164544 on Case Narrative.

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)	4,500	mg/kg	210	DF	50	05/21/19	05/22/19 09:38	1059
Surrogate(s)	Recovery		Limits					
o-Terphenyl	106	%	37-120		50	05/21/19	05/22/19 09:38	1059

Total Petroleum Hydrocarbons-GRO Analytical Method: SW-846 8015C Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	ug/kg	120		1	05/21/19	05/22/19 00:53	1045
Surrogate(s)	Recovery		Limits					
a,a,a-Trifluorotoluene	95	%	56-114		1	05/21/19	05/22/19 00:53	1045

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 B Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/kg	12,000		1000	05/21/19	05/21/19 18:46	1011
Benzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Bromochloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Bromodichloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Bromoform	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Bromomethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
2-Butanone (MEK)	ND	ug/kg	6,200		1000	05/21/19	05/21/19 18:46	1011
Carbon Disulfide	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Carbon tetrachloride	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Chlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Chloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Chloroform	ND	ug/kg	6,200		1000	05/21/19	05/21/19 18:46	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-2-A	Date/Time Sampled: 05/20/2019 14:45	PSS Sample ID: 19052018-006
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 81
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Cyclohexane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,2-Dibromo-3-chloropropane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Dibromochloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,2-Dibromoethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,2-Dichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,3-Dichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,4-Dichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Dichlorodifluoromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,1-Dichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,2-Dichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,1-Dichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,2-Dichloropropane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
cis-1,2-Dichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
cis-1,3-Dichloropropene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
trans-1,2-Dichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
trans-1,3-Dichloropropene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Ethylbenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
2-Hexanone (MBK)	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Isopropylbenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Methyl Acetate	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Methylcyclohexane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Methylene chloride	ND	ug/kg	6,200		1000	05/21/19	05/21/19 18:46	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Methyl-t-Butyl Ether	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Naphthalene	1,100,000	ug/kg	6,200		5000	05/21/19	05/22/19 10:46	1011
Styrene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,1,2,2-Tetrachloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Tetrachloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-2-A	Date/Time Sampled: 05/20/2019 14:45	PSS Sample ID: 19052018-006
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 81
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,2,3-Trichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,2,4-Trichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,1,1-Trichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,1,2-Trichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Trichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Trichlorofluoromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011
Vinyl chloride	ND	ug/kg	6,200		1000	05/21/19	05/21/19 18:46	1011
m&p-Xylene	ND	ug/kg	2,500		1000	05/21/19	05/21/19 18:46	1011
o-Xylene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 18:46	1011

Surrogate(s)	Recovery	Units	Limits	Dil	Prepared	Analyzed	Analyst
4-Bromofluorobenzene	98	%	81-146	1000	05/21/19	05/21/19 18:46	1011
Dibromofluoromethane	98	%	89-120	1000	05/21/19	05/21/19 18:46	1011
Toluene-D8	102	%	86-116	1000	05/21/19	05/21/19 18:46	1011
4-Bromofluorobenzene	102	%	81-146	5000	05/22/19	05/22/19 10:46	1011
Dibromofluoromethane	100	%	89-120	5000	05/22/19	05/22/19 10:46	1011
Toluene-D8	104	%	86-116	5000	05/22/19	05/22/19 10:46	1011

TCL Semivolatile Organic Compounds Analytical Method: SW-846 8270 C Preparation Method: SW3550C
 Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Acenaphthylene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Acetophenone	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Anthracene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Atrazine	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Benzo(a)anthracene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-2-A **Date/Time Sampled: 05/20/2019 14:45** **PSS Sample ID: 19052018-006**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Benzo(a)pyrene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Benzo(b)fluoranthene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Benzo(g,h,i)perylene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Benzo(k)fluoranthene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Biphenyl (Diphenyl)	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Butyl benzyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
bis(2-chloroethoxy) methane	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
bis(2-chloroethyl) ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
bis(2-chloroisopropyl) ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
bis(2-ethylhexyl) phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
4-Bromophenylphenyl ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Di-n-butyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Carbazole	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Caprolactam	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
4-Chloro-3-methyl phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
4-Chloroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
2-Chloronaphthalene	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
2-Chlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
4-Chlorophenyl Phenyl ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Chrysene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Dibenz(a,h)Anthracene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Dibenzofuran	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
3,3-Dichlorobenzidine	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
2,4-Dichlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Diethyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Dimethyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
2,4-Dimethylphenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
4,6-Dinitro-2-methyl phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
2,4-Dinitrophenol	ND	ug/kg	41,000		100	05/21/19	05/21/19 14:42	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-2-A **Date/Time Sampled: 05/20/2019 14:45** **PSS Sample ID: 19052018-006**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2,4-Dinitrotoluene	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
2,6-Dinitrotoluene	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Fluoranthene	2,100	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Fluorene	2,300	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Hexachlorobenzene	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Hexachlorobutadiene	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Hexachlorocyclopentadiene	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Hexachloroethane	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Indeno(1,2,3-c,d)Pyrene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Isophorone	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
2-Methylnaphthalene	36,000	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
2-Methyl phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
3&4-Methylphenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Naphthalene	1,100,000	ug/kg	21,000		1000	05/21/19	05/21/19 15:10	1014
2-Nitroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
3-Nitroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
4-Nitroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Nitrobenzene	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
2-Nitrophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
4-Nitrophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
N-Nitrosodi-n-propyl amine	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
N-Nitrosodiphenylamine	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Di-n-octyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Pentachlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Phenanthrene	3,000	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Pyrene	ND	ug/kg	2,100		100	05/21/19	05/21/19 14:42	1014
Pyridine	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
2,4,5-Trichlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-2-A **Date/Time Sampled: 05/20/2019 14:45** **PSS Sample ID: 19052018-006**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2,4,6-Trichlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 14:42	1014
Surrogate(s)	Recovery		Limits					
2-Fluorobiphenyl	80	%	32-107		100	05/21/19	05/21/19 14:42	1014
2-Fluorophenol	62	%	34-113		100	05/21/19	05/21/19 14:42	1014
Nitrobenzene-d5	80	%	35-123		100	05/21/19	05/21/19 14:42	1014
Phenol-d6	52	%	34-120		100	05/21/19	05/21/19 14:42	1014
Terphenyl-D14	105	%	46-154		100	05/21/19	05/21/19 14:42	1014
2,4,6-Tribromophenol	65	%	31-113		100	05/21/19	05/21/19 14:42	1014
2-Fluorobiphenyl	0	%	32-107	*	1000	05/21/19	05/21/19 15:10	1014
2-Fluorophenol	0	%	34-113	*	1000	05/21/19	05/21/19 15:10	1014
Nitrobenzene-d5	0	%	35-123	*	1000	05/21/19	05/21/19 15:10	1014
Phenol-d6	0	%	34-120	*	1000	05/21/19	05/21/19 15:10	1014
Terphenyl-D14	150	%	46-154		1000	05/21/19	05/21/19 15:10	1014
2,4,6-Tribromophenol	0	%	31-113	*	1000	05/21/19	05/21/19 15:10	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-3 **Date/Time Sampled: 05/20/2019 15:00** **PSS Sample ID: 19052018-007**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 82**

PP Metals (plus Mn)

Analytical Method: SW-846 6020 A

Preparation Method: 3050B

Qualifier(s): See Batch 164540 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Antimony	ND	mg/kg	2.5		1	05/21/19	05/21/19 22:21	1064
Arsenic	1.7	mg/kg	0.49		1	05/21/19	05/21/19 22:21	1064
Beryllium	5.1	mg/kg	2.5		1	05/21/19	05/22/19 19:28	1064
Cadmium	ND	mg/kg	2.5		1	05/21/19	05/21/19 22:21	1064
Chromium	89	mg/kg	2.5		1	05/21/19	05/21/19 22:21	1064
Copper	26	mg/kg	2.5		1	05/21/19	05/21/19 22:21	1064
Lead	130	mg/kg	2.5		1	05/21/19	05/22/19 19:28	1064
Manganese	4,800	mg/kg	25		10	05/21/19	05/22/19 18:04	1064
Mercury	ND	mg/kg	0.099		1	05/21/19	05/21/19 22:21	1064
Nickel	12	mg/kg	2.5		1	05/21/19	05/21/19 22:21	1064
Selenium	3.9	mg/kg	2.5		1	05/21/19	05/21/19 22:21	1064
Silver	ND	mg/kg	2.5		1	05/21/19	05/21/19 22:21	1064
Thallium	ND	mg/kg	2.0		1	05/21/19	05/21/19 22:21	1064
Zinc	75	mg/kg	9.9		1	05/21/19	05/21/19 22:21	1064

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	0.061		1	05/21/19	05/21/19 18:49	1029
PCB-1221	ND	mg/kg	0.061		1	05/21/19	05/21/19 18:49	1029
PCB-1232	ND	mg/kg	0.061		1	05/21/19	05/21/19 18:49	1029
PCB-1242	ND	mg/kg	0.061		1	05/21/19	05/21/19 18:49	1029
PCB-1248	ND	mg/kg	0.061		1	05/21/19	05/21/19 18:49	1029
PCB-1254	ND	mg/kg	0.061		1	05/21/19	05/21/19 18:49	1029
PCB-1260	ND	mg/kg	0.061		1	05/21/19	05/21/19 18:49	1029

Surrogate(s)	Recovery	Units	Limits		Prepared	Analyzed	Analyst
Tetrachloro-m-xylene	69	%	42-142	1	05/21/19	05/21/19 18:49	1029
Decachlorobiphenyl	94	%	61-150	1	05/21/19	05/21/19 18:49	1029

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-3-A	Date/Time Sampled: 05/20/2019 15:00	PSS Sample ID: 19052018-008
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 83
Total Petroleum Hydrocarbons - DRO	Analytical Method: SW-846 8015 C	Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	100	mg/kg	40		10	05/21/19	05/22/19 00:40	1059
Surrogate(s)	Recovery		Limits					
<i>o</i> -Terphenyl	102	%	37-120		10	05/21/19	05/22/19 00:40	1059

Total Petroleum Hydrocarbons-GRO Analytical Method: SW-846 8015C Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	ug/kg	120		1	05/21/19	05/22/19 09:38	1045
Surrogate(s)	Recovery		Limits					
<i>a,a,a</i> -Trifluorotoluene	100	%	56-114		1	05/21/19	05/22/19 09:38	1045

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 B Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/kg	12,000		1000	05/21/19	05/21/19 15:53	1011
Benzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Bromochloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Bromodichloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Bromoform	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Bromomethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
2-Butanone (MEK)	ND	ug/kg	6,000		1000	05/21/19	05/21/19 15:53	1011
Carbon Disulfide	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Carbon tetrachloride	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Chlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Chloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Chloroform	ND	ug/kg	6,000		1000	05/21/19	05/21/19 15:53	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-3-A	Date/Time Sampled: 05/20/2019 15:00	PSS Sample ID: 19052018-008
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 83
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Cyclohexane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,2-Dibromo-3-chloropropane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Dibromochloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,2-Dibromoethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,2-Dichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,3-Dichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,4-Dichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Dichlorodifluoromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,1-Dichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,2-Dichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,1-Dichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,2-Dichloropropane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
cis-1,2-Dichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
cis-1,3-Dichloropropene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
trans-1,2-Dichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
trans-1,3-Dichloropropene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Ethylbenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
2-Hexanone (MBK)	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Isopropylbenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Methyl Acetate	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Methylcyclohexane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Methylene chloride	ND	ug/kg	6,000		1000	05/21/19	05/21/19 15:53	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Methyl-t-Butyl Ether	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Naphthalene	50,000	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Styrene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,1,2,2-Tetrachloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Tetrachloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-3-A	Date/Time Sampled: 05/20/2019 15:00	PSS Sample ID: 19052018-008
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 83
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,2,3-Trichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,2,4-Trichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,1,1-Trichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,1,2-Trichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Trichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Trichlorofluoromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Vinyl chloride	ND	ug/kg	6,000		1000	05/21/19	05/21/19 15:53	1011
m&p-Xylene	ND	ug/kg	2,400		1000	05/21/19	05/21/19 15:53	1011
o-Xylene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 15:53	1011
Surrogate(s)	Recovery		Limits					
4-Bromofluorobenzene	96 %		81-146		1000	05/21/19	05/21/19 15:53	1011
Dibromofluoromethane	96 %		89-120		1000	05/21/19	05/21/19 15:53	1011
Toluene-D8	100 %		86-116		1000	05/21/19	05/21/19 15:53	1011

TCL Semivolatile Organic Compounds Analytical Method: SW-846 8270 C Preparation Method: SW3550C
 Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Acenaphthylene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Acetophenone	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Anthracene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Atrazine	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Benzo(a)anthracene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Benzo(a)pyrene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Benzo(b)fluoranthene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Benzo(g,h,i)perylene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-3-A **Date/Time Sampled: 05/20/2019 15:00** **PSS Sample ID: 19052018-008**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 83**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Benzo(k)fluoranthene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Biphenyl (Diphenyl)	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Butyl benzyl phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
bis(2-chloroethoxy) methane	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
bis(2-chloroethyl) ether	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
bis(2-chloroisopropyl) ether	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
bis(2-ethylhexyl) phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
4-Bromophenylphenyl ether	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Di-n-butyl phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Carbazole	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Caprolactam	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
4-Chloro-3-methyl phenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
4-Chloroaniline	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
2-Chloronaphthalene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
2-Chlorophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
4-Chlorophenyl Phenyl ether	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Chrysene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Dibenz(a,h)Anthracene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Dibenzofuran	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
3,3-Dichlorobenzidine	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
2,4-Dichlorophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Diethyl phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Dimethyl phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
2,4-Dimethylphenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
4,6-Dinitro-2-methyl phenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
2,4-Dinitrophenol	ND	ug/kg	40,000		100	05/21/19	05/21/19 19:21	1014
2,4-Dinitrotoluene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
2,6-Dinitrotoluene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Fluoranthene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-3-A **Date/Time Sampled: 05/20/2019 15:00** **PSS Sample ID: 19052018-008**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 83**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Fluorene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Hexachlorobenzene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Hexachlorobutadiene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Hexachlorocyclopentadiene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Hexachloroethane	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Indeno(1,2,3-c,d)Pyrene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Isophorone	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
2-Methylnaphthalene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
2-Methyl phenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
3&4-Methylphenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Naphthalene	5,800	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
2-Nitroaniline	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
3-Nitroaniline	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
4-Nitroaniline	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Nitrobenzene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
2-Nitrophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
4-Nitrophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
N-Nitrosodi-n-propyl amine	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
N-Nitrosodiphenylamine	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Di-n-octyl phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Pentachlorophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Phenanthrene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Phenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
Pyrene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:21	1014
Pyridine	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
2,4,5-Trichlorophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014
2,4,6-Trichlorophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:21	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD
 May 23, 2019

Project Name: Slag Processing Area
 Project Location: TPA
 Project ID: 18019A

Sample ID: SP-3-A **Date/Time Sampled: 05/20/2019 15:00** **PSS Sample ID: 19052018-008**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 83**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

Surrogate(s)	Recovery	Limits						
2-Fluorobiphenyl	55 %	32-107		100	05/21/19	05/21/19 19:21	1014	
2-Fluorophenol	10 %	34-113	*	100	05/21/19	05/21/19 19:21	1014	
Nitrobenzene-d5	25 %	35-123	*	100	05/21/19	05/21/19 19:21	1014	
Phenol-d6	20 %	34-120	*	100	05/21/19	05/21/19 19:21	1014	
Terphenyl-D14	95 %	46-154		100	05/21/19	05/21/19 19:21	1014	
2,4,6-Tribromophenol	0 %	31-113	*	100	05/21/19	05/21/19 19:21	1014	

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-4 **Date/Time Sampled: 05/20/2019 15:15** **PSS Sample ID: 19052018-009**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 82**

PP Metals (plus Mn)

Analytical Method: SW-846 6020 A

Preparation Method: 3050B

Qualifier(s): See Batch 164540 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Antimony	ND	mg/kg	2.8		1	05/21/19	05/21/19 22:26	1064
Arsenic	1.6	mg/kg	0.57		1	05/21/19	05/21/19 22:26	1064
Beryllium	3.8	mg/kg	2.8		1	05/21/19	05/22/19 19:34	1064
Cadmium	ND	mg/kg	2.8		1	05/21/19	05/21/19 22:26	1064
Chromium	130	mg/kg	2.8		1	05/21/19	05/21/19 22:26	1064
Copper	20	mg/kg	2.8		1	05/21/19	05/21/19 22:26	1064
Lead	380	mg/kg	2.8		1	05/21/19	05/22/19 19:34	1064
Manganese	5,500	mg/kg	28		10	05/21/19	05/22/19 18:09	1064
Mercury	ND	mg/kg	0.11		1	05/21/19	05/21/19 22:26	1064
Nickel	8.1	mg/kg	2.8		1	05/21/19	05/21/19 22:26	1064
Selenium	3.8	mg/kg	2.8		1	05/21/19	05/21/19 22:26	1064
Silver	ND	mg/kg	2.8		1	05/21/19	05/21/19 22:26	1064
Thallium	ND	mg/kg	2.3		1	05/21/19	05/21/19 22:26	1064
Zinc	91	mg/kg	11		1	05/21/19	05/21/19 22:26	1064

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	0.060		1	05/21/19	05/21/19 19:17	1029
PCB-1221	ND	mg/kg	0.060		1	05/21/19	05/21/19 19:17	1029
PCB-1232	ND	mg/kg	0.060		1	05/21/19	05/21/19 19:17	1029
PCB-1242	ND	mg/kg	0.060		1	05/21/19	05/21/19 19:17	1029
PCB-1248	ND	mg/kg	0.060		1	05/21/19	05/21/19 19:17	1029
PCB-1254	ND	mg/kg	0.060		1	05/21/19	05/21/19 19:17	1029
PCB-1260	ND	mg/kg	0.060		1	05/21/19	05/21/19 19:17	1029

Surrogate(s)	Recovery	Limits			
Decachlorobiphenyl	88 %	61-150	1	05/21/19	05/21/19 19:17 1029
Tetrachloro-m-xylene	70 %	42-142	1	05/21/19	05/21/19 19:17 1029

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-4-A **Date/Time Sampled: 05/20/2019 15:15** **PSS Sample ID: 19052018-010**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 80**

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

Qualifier(s): See Batch 164544 on Case Narrative.

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)	3,300	mg/kg	210	DF	50	05/21/19	05/22/19 10:04	1059
Surrogate(s)	Recovery		Limits					
o-Terphenyl	99	%	37-120		50	05/21/19	05/22/19 10:04	1059

Total Petroleum Hydrocarbons-GRO Analytical Method: SW-846 8015C Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	250	ug/kg	120		1	05/21/19	05/22/19 10:09	1045
Surrogate(s)	Recovery		Limits					
a,a,a-Trifluorotoluene	94	%	56-114		1	05/21/19	05/22/19 10:09	1045

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 B Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/kg	13,000		1000	05/21/19	05/21/19 19:07	1011
Benzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Bromochloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Bromodichloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Bromoform	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Bromomethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
2-Butanone (MEK)	ND	ug/kg	6,300		1000	05/21/19	05/21/19 19:07	1011
Carbon Disulfide	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Carbon tetrachloride	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Chlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Chloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Chloroform	ND	ug/kg	6,300		1000	05/21/19	05/21/19 19:07	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-4-A	Date/Time Sampled: 05/20/2019 15:15	PSS Sample ID: 19052018-010
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 80
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Cyclohexane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,2-Dibromo-3-chloropropane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Dibromochloromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,2-Dibromoethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,2-Dichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,3-Dichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,4-Dichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Dichlorodifluoromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,1-Dichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,2-Dichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,1-Dichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,2-Dichloropropane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
cis-1,2-Dichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
cis-1,3-Dichloropropene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
trans-1,2-Dichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
trans-1,3-Dichloropropene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Ethylbenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
2-Hexanone (MBK)	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Isopropylbenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Methyl Acetate	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Methylcyclohexane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Methylene chloride	ND	ug/kg	6,300		1000	05/21/19	05/21/19 19:07	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Methyl-t-Butyl Ether	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Naphthalene	1,200,000	ug/kg	6,300		5000	05/21/19	05/22/19 11:09	1011
Styrene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,1,2,2-Tetrachloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Tetrachloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-4-A	Date/Time Sampled: 05/20/2019 15:15	PSS Sample ID: 19052018-010
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 80
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,2,3-Trichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,2,4-Trichlorobenzene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,1,1-Trichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,1,2-Trichloroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Trichloroethene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Trichlorofluoromethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Vinyl chloride	ND	ug/kg	6,300		1000	05/21/19	05/21/19 19:07	1011
m&p-Xylene	ND	ug/kg	2,500		1000	05/21/19	05/21/19 19:07	1011
o-Xylene	ND	ug/kg	1,300		1000	05/21/19	05/21/19 19:07	1011
Surrogate(s) Recovery Limits								
4-Bromofluorobenzene	104	%	81-146		1000	05/21/19	05/21/19 19:07	1011
Dibromofluoromethane	96	%	89-120		1000	05/21/19	05/21/19 19:07	1011
Toluene-D8	106	%	86-116		1000	05/21/19	05/21/19 19:07	1011
4-Bromofluorobenzene	98	%	81-146		5000	05/22/19	05/22/19 11:09	1011
Dibromofluoromethane	100	%	89-120		5000	05/22/19	05/22/19 11:09	1011
Toluene-D8	84	%	86-116	*	5000	05/22/19	05/22/19 11:09	1011

TCL Semivolatile Organic Compounds Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Acenaphthylene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Acetophenone	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Anthracene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Atrazine	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Benzo(a)anthracene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-4-A **Date/Time Sampled: 05/20/2019 15:15** **PSS Sample ID: 19052018-010**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 80**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Benzo(a)pyrene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Benzo(b)fluoranthene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Benzo(g,h,i)perylene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Benzo(k)fluoranthene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Biphenyl (Diphenyl)	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Butyl benzyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
bis(2-chloroethoxy) methane	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
bis(2-chloroethyl) ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
bis(2-chloroisopropyl) ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
bis(2-ethylhexyl) phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
4-Bromophenylphenyl ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Di-n-butyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Carbazole	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Caprolactam	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
4-Chloro-3-methyl phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
4-Chloroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
2-Chloronaphthalene	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
2-Chlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
4-Chlorophenyl Phenyl ether	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Chrysene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Dibenz(a,h)Anthracene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Dibenzofuran	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
3,3-Dichlorobenzidine	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
2,4-Dichlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Diethyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Dimethyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
2,4-Dimethylphenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
4,6-Dinitro-2-methyl phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
2,4-Dinitrophenol	ND	ug/kg	42,000		100	05/21/19	05/21/19 20:17	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-4-A **Date/Time Sampled: 05/20/2019 15:15** **PSS Sample ID: 19052018-010**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 80**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2,4-Dinitrotoluene	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
2,6-Dinitrotoluene	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Fluoranthene	3,500	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Fluorene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Hexachlorobenzene	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Hexachlorobutadiene	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Hexachlorocyclopentadiene	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Hexachloroethane	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Indeno(1,2,3-c,d)Pyrene	ND	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Isophorone	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
2-Methylnaphthalene	23,000	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
2-Methyl phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
3&4-Methylphenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Naphthalene	1,100,000	ug/kg	21,000		1000	05/21/19	05/21/19 16:06	1014
2-Nitroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
3-Nitroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
4-Nitroaniline	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Nitrobenzene	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
2-Nitrophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
4-Nitrophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
N-Nitrosodi-n-propyl amine	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
N-Nitrosodiphenylamine	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Di-n-octyl phthalate	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Pentachlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Phenanthrene	3,700	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Phenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Pyrene	2,600	ug/kg	2,100		100	05/21/19	05/21/19 20:17	1014
Pyridine	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
2,4,5-Trichlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: SP-4-A **Date/Time Sampled: 05/20/2019 15:15** **PSS Sample ID: 19052018-010**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 80**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2,4,6-Trichlorophenol	ND	ug/kg	21,000		100	05/21/19	05/21/19 20:17	1014
Surrogate(s)	Recovery		Limits					
2-Fluorobiphenyl	0	%	32-107	*	1000	05/21/19	05/21/19 16:06	1014
2-Fluorophenol	0	%	34-113	*	1000	05/21/19	05/21/19 16:06	1014
Nitrobenzene-d5	0	%	35-123	*	1000	05/21/19	05/21/19 16:06	1014
Phenol-d6	0	%	34-120	*	1000	05/21/19	05/21/19 16:06	1014
Terphenyl-D14	50	%	46-154		1000	05/21/19	05/21/19 16:06	1014
2,4,6-Tribromophenol	0	%	31-113	*	1000	05/21/19	05/21/19 16:06	1014
2-Fluorobiphenyl	75	%	32-107		100	05/21/19	05/21/19 20:17	1014
2-Fluorophenol	8	%	34-113	*	100	05/21/19	05/21/19 20:17	1014
Nitrobenzene-d5	55	%	35-123		100	05/21/19	05/21/19 20:17	1014
Phenol-d6	20	%	34-120	*	100	05/21/19	05/21/19 20:17	1014
Terphenyl-D14	85	%	46-154		100	05/21/19	05/21/19 20:17	1014
2,4,6-Tribromophenol	0	%	31-113	*	100	05/21/19	05/21/19 20:17	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD
 May 23, 2019

Project Name: Slag Processing Area
 Project Location: TPA
 Project ID: 18019A

Sample ID: C-1	Date/Time Sampled: 05/20/2019 15:30	PSS Sample ID: 19052018-011
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 81
PP Metals (plus Mn)	Analytical Method: SW-846 6020 A	Preparation Method: 3050B

Qualifier(s): See Batch 164540 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Antimony	ND	mg/kg	2.4		1	05/21/19	05/21/19 22:32	1064
Arsenic	1.8	mg/kg	0.48		1	05/21/19	05/21/19 22:32	1064
Beryllium	3.3	mg/kg	2.4		1	05/21/19	05/22/19 19:39	1064
Cadmium	ND	mg/kg	2.4		1	05/21/19	05/21/19 22:32	1064
Chromium	80	mg/kg	2.4		1	05/21/19	05/21/19 22:32	1064
Copper	34	mg/kg	2.4		1	05/21/19	05/21/19 22:32	1064
Lead	110	mg/kg	2.4		1	05/21/19	05/22/19 19:39	1064
Manganese	2,700	mg/kg	24		10	05/21/19	05/22/19 18:15	1064
Mercury	ND	mg/kg	0.095		1	05/21/19	05/21/19 22:32	1064
Nickel	15	mg/kg	2.4		1	05/21/19	05/21/19 22:32	1064
Selenium	3.7	mg/kg	2.4		1	05/21/19	05/21/19 22:32	1064
Silver	ND	mg/kg	2.4		1	05/21/19	05/21/19 22:32	1064
Thallium	ND	mg/kg	1.9		1	05/21/19	05/21/19 22:32	1064
Zinc	28	mg/kg	9.5		1	05/21/19	05/21/19 22:32	1064

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

Qualifier(s): See Batch 164528 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	100	mg/kg	41		10	05/21/19	05/22/19 00:40	1059
Surrogate(s)	Recovery		Limits					
o-Terphenyl	82 %		37-120		10	05/21/19	05/22/19 00:40	1059

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: C-1	Date/Time Sampled: 05/20/2019 15:30	PSS Sample ID: 19052018-011
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 81
Total Petroleum Hydrocarbons-GRO	Analytical Method: SW-846 8015C	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	ug/kg	120		1	05/21/19	05/21/19 22:50	1045
Surrogate(s)	Recovery		Limits					
<i>a,a,a-Trifluorotoluene</i>	88	%	56-114		1	05/21/19	05/21/19 22:50	1045

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Polychlorinated Biphenyls								
PCB-1016	ND	mg/kg	0.063		1	05/21/19	05/21/19 19:46	1029
PCB-1221	ND	mg/kg	0.063		1	05/21/19	05/21/19 19:46	1029
PCB-1232	ND	mg/kg	0.063		1	05/21/19	05/21/19 19:46	1029
PCB-1242	ND	mg/kg	0.063		1	05/21/19	05/21/19 19:46	1029
PCB-1248	ND	mg/kg	0.063		1	05/21/19	05/21/19 19:46	1029
PCB-1254	ND	mg/kg	0.063		1	05/21/19	05/21/19 19:46	1029
PCB-1260	ND	mg/kg	0.063		1	05/21/19	05/21/19 19:46	1029
Surrogate(s)	Recovery		Limits					
<i>Decachlorobiphenyl</i>	88	%	61-150		1	05/21/19	05/21/19 19:46	1029
<i>Tetrachloro-m-xylene</i>	68	%	42-142		1	05/21/19	05/21/19 19:46	1029

TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030
Qualifier(s): See Batch 164549 on Case Narrative.		

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/kg	140		1	05/22/19	05/22/19 12:08	1011
Benzene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Bromochloromethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Bromodichloromethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Bromoform	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Bromomethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: C-1 **Date/Time Sampled: 05/20/2019 15:30** **PSS Sample ID: 19052018-011**

Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030

Qualifier(s): See Batch 164549 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	ug/kg	69		1	05/22/19	05/22/19 12:08	1011
Carbon Disulfide	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Carbon tetrachloride	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Chlorobenzene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Chloroethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Chloroform	ND	ug/kg	69		1	05/22/19	05/22/19 12:08	1011
Chloromethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Cyclohexane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,2-Dibromo-3-chloropropane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Dibromochloromethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,2-Dibromoethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,2-Dichlorobenzene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,3-Dichlorobenzene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,4-Dichlorobenzene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Dichlorodifluoromethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,1-Dichloroethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,2-Dichloroethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,1-Dichloroethene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
cis-1,2-Dichloroethene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,2-Dichloropropane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
cis-1,3-Dichloropropene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
trans-1,2-Dichloroethene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
trans-1,3-Dichloropropene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Ethylbenzene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
2-Hexanone (MBK)	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Isopropylbenzene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Methyl Acetate	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Methylcyclohexane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Methylene chloride	ND	ug/kg	69		1	05/22/19	05/22/19 12:08	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: C-1 **Date/Time Sampled: 05/20/2019 15:30** **PSS Sample ID: 19052018-011**

Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030

Qualifier(s): See Batch 164549 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Methyl-t-Butyl Ether	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Naphthalene	6,600	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Styrene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,1,2,2-Tetrachloroethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Tetrachloroethene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Toluene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,2,3-Trichlorobenzene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,2,4-Trichlorobenzene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,1,1-Trichloroethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,1,2-Trichloroethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Trichloroethene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Trichlorofluoromethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Vinyl chloride	ND	ug/kg	69		1	05/22/19	05/22/19 12:08	1011
m&p-Xylene	ND	ug/kg	27		1	05/22/19	05/22/19 12:08	1011
o-Xylene	ND	ug/kg	14		1	05/22/19	05/22/19 12:08	1011
Surrogate(s)	Recovery		Limits					
4-Bromofluorobenzene	102 %		81-146		1	05/22/19	05/22/19 12:08	1011
Dibromofluoromethane	98 %		89-120		1	05/22/19	05/22/19 12:08	1011
Toluene-D8	88 %		86-116		1	05/22/19	05/22/19 12:08	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: C-1 **Date/Time Sampled: 05/20/2019 15:30** **PSS Sample ID: 19052018-011**

Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Acenaphthylene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Acetophenone	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Anthracene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Atrazine	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Benzo(a)anthracene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Benzo(a)pyrene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Benzo(b)fluoranthene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Benzo(g,h,i)perylene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Benzo(k)fluoranthene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Biphenyl (Diphenyl)	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Butyl benzyl phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
bis(2-chloroethoxy) methane	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
bis(2-chloroethyl) ether	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
bis(2-chloroisopropyl) ether	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
bis(2-ethylhexyl) phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
4-Bromophenylphenyl ether	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Di-n-butyl phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Carbazole	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Caprolactam	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
4-Chloro-3-methyl phenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
4-Chloroaniline	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
2-Chloronaphthalene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
2-Chlorophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
4-Chlorophenyl Phenyl ether	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Chrysene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Dibenz(a,h)Anthracene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Dibenzofuran	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
3,3-Dichlorobenzidine	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: C-1 **Date/Time Sampled: 05/20/2019 15:30** **PSS Sample ID: 19052018-011**

Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2,4-Dichlorophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Diethyl phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Dimethyl phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
2,4-Dimethylphenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
4,6-Dinitro-2-methyl phenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
2,4-Dinitrophenol	ND	ug/kg	41,000		100	05/21/19	05/21/19 19:49	1014
2,4-Dinitrotoluene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
2,6-Dinitrotoluene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Fluoranthene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Fluorene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Hexachlorobenzene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Hexachlorobutadiene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Hexachlorocyclopentadiene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Hexachloroethane	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Indeno(1,2,3-c,d)Pyrene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Isophorone	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
2-Methylnaphthalene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
2-Methyl phenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
3&4-Methylphenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Naphthalene	4,900	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
2-Nitroaniline	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
3-Nitroaniline	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
4-Nitroaniline	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Nitrobenzene	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
2-Nitrophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
4-Nitrophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
N-Nitrosodi-n-propyl amine	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
N-Nitrosodiphenylamine	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Di-n-octyl phthalate	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD
 May 23, 2019

Project Name: Slag Processing Area
 Project Location: TPA
 Project ID: 18019A

Sample ID: C-1 **Date/Time Sampled: 05/20/2019 15:30** **PSS Sample ID: 19052018-011**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

TCL Semivolatile Organic Compounds Analytical Method: SW-846 8270 C Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Pentachlorophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Phenanthrene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Phenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Pyrene	ND	ug/kg	2,000		100	05/21/19	05/21/19 19:49	1014
Pyridine	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
2,4,5-Trichlorophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
2,4,6-Trichlorophenol	ND	ug/kg	20,000		100	05/21/19	05/21/19 19:49	1014
Surrogate(s)	Recovery		Limits					
2-Fluorobiphenyl	10 %		32-107	*	100	05/21/19	05/21/19 19:49	1014
2-Fluorophenol	0 %		34-113	*	100	05/21/19	05/21/19 19:49	1014
Nitrobenzene-d5	10 %		35-123	*	100	05/21/19	05/21/19 19:49	1014
Phenol-d6	3 %		34-120	*	100	05/21/19	05/21/19 19:49	1014
Terphenyl-D14	45 %		46-154	*	100	05/21/19	05/21/19 19:49	1014
2,4,6-Tribromophenol	0 %		31-113	*	100	05/21/19	05/21/19 19:49	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD
 May 23, 2019

Project Name: Slag Processing Area
 Project Location: TPA
 Project ID: 18019A

Sample ID: C-2 **Date/Time Sampled: 05/20/2019 15:40** **PSS Sample ID: 19052018-012**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

PP Metals (plus Mn)

Analytical Method: SW-846 6020 A

Preparation Method: 3050B

Qualifier(s): See Batch 164540 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Antimony	ND	mg/kg	2.4		1	05/21/19	05/21/19 22:37	1064
Arsenic	0.97	mg/kg	0.48		1	05/21/19	05/21/19 22:37	1064
Beryllium	ND	mg/kg	2.4		1	05/21/19	05/22/19 19:45	1064
Cadmium	ND	mg/kg	2.4		1	05/21/19	05/21/19 22:37	1064
Chromium	420	mg/kg	2.4		1	05/21/19	05/21/19 22:37	1064
Copper	17	mg/kg	2.4		1	05/21/19	05/21/19 22:37	1064
Lead	94	mg/kg	2.4		1	05/21/19	05/22/19 19:45	1064
Manganese	13,000	mg/kg	240		100	05/21/19	05/23/19 13:49	1064
Mercury	ND	mg/kg	0.097		1	05/21/19	05/21/19 22:37	1064
Nickel	3.8	mg/kg	2.4		1	05/21/19	05/21/19 22:37	1064
Selenium	3.1	mg/kg	2.4		1	05/21/19	05/21/19 22:37	1064
Silver	ND	mg/kg	2.4		1	05/21/19	05/21/19 22:37	1064
Thallium	ND	mg/kg	1.9		1	05/21/19	05/21/19 22:37	1064
Zinc	ND	mg/kg	9.7		1	05/21/19	05/21/19 22:37	1064

Total Petroleum Hydrocarbons - DRO

Analytical Method: SW-846 8015 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164544 on Case Narrative.

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)	30,000	mg/kg	830	DF	100	05/21/19	05/22/19 10:29	1059

Surrogate(s)

Recovery

Limits

o-Terphenyl

0

%

37-120

*

100

05/21/19

05/22/19 10:29

1059

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: C-2 **Date/Time Sampled: 05/20/2019 15:40** **PSS Sample ID: 19052018-012**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

Total Petroleum Hydrocarbons-GRO Analytical Method: SW-846 8015C Preparation Method: 5030

Qualifier(s): See Batch 164555 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	1,800	ug/kg	120		1	05/22/19	05/22/19 14:56	1045
Surrogate(s)	Recovery		Limits					
a,a,a-Trifluorotoluene	35	%	56-114	*	1	05/22/19	05/22/19 14:56	1045

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	0.061		1	05/21/19	05/21/19 20:14	1029
PCB-1221	ND	mg/kg	0.061		1	05/21/19	05/21/19 20:14	1029
PCB-1232	ND	mg/kg	0.061		1	05/21/19	05/21/19 20:14	1029
PCB-1242	ND	mg/kg	0.061		1	05/21/19	05/21/19 20:14	1029
PCB-1248	ND	mg/kg	0.061		1	05/21/19	05/21/19 20:14	1029
PCB-1254	ND	mg/kg	0.061		1	05/21/19	05/21/19 20:14	1029
PCB-1260	ND	mg/kg	0.061		1	05/21/19	05/21/19 20:14	1029
Surrogate(s)	Recovery		Limits					
Tetrachloro-m-xylene	53	%	42-142		1	05/21/19	05/21/19 20:14	1029
Decachlorobiphenyl	48	%	61-150	*	1	05/21/19	05/21/19 20:14	1029

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 B Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/kg	12,000		1000	05/21/19	05/21/19 19:29	1011
Benzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Bromochloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Bromodichloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Bromoform	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Bromomethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD
 May 23, 2019

Project Name: Slag Processing Area
 Project Location: TPA
 Project ID: 18019A

Sample ID: C-2	Date/Time Sampled: 05/20/2019 15:40	PSS Sample ID: 19052018-012
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 81
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	ug/kg	6,200		1000	05/21/19	05/21/19 19:29	1011
Carbon Disulfide	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Carbon tetrachloride	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Chlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Chloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Chloroform	ND	ug/kg	6,200		1000	05/21/19	05/21/19 19:29	1011
Chloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Cyclohexane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,2-Dibromo-3-chloropropane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Dibromochloromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,2-Dibromoethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,2-Dichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,3-Dichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,4-Dichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Dichlorodifluoromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,1-Dichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,2-Dichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,1-Dichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,2-Dichloropropane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
cis-1,2-Dichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
cis-1,3-Dichloropropene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
trans-1,2-Dichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
trans-1,3-Dichloropropene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Ethylbenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
2-Hexanone (MBK)	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Isopropylbenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Methyl Acetate	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Methylcyclohexane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Methylene chloride	ND	ug/kg	6,200		1000	05/21/19	05/21/19 19:29	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: C-2	Date/Time Sampled: 05/20/2019 15:40	PSS Sample ID: 19052018-012
Matrix: SOIL	Date/Time Received: 05/20/2019 17:15	% Solids SM2540G-11: 81
TCL Volatile Organic Compounds	Analytical Method: SW-846 8260 B	Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Methyl-t-Butyl Ether	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Naphthalene	2,300,000	ug/kg	120,000		100000	05/21/19	05/22/19 13:45	1011
Styrene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,1,2,2-Tetrachloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Tetrachloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Toluene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,2,3-Trichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,2,4-Trichlorobenzene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,1,1-Trichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,1,2-Trichloroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Trichloroethene	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Trichlorofluoromethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Vinyl chloride	ND	ug/kg	6,200		1000	05/21/19	05/21/19 19:29	1011
m&p-Xylene	3,100	ug/kg	2,500		1000	05/21/19	05/21/19 19:29	1011
o-Xylene	1,700	ug/kg	1,200		1000	05/21/19	05/21/19 19:29	1011
Surrogate(s)	Recovery		Limits					
4-Bromofluorobenzene	98 %		81-146		1000	05/21/19	05/21/19 19:29	1011
Dibromofluoromethane	98 %		89-120		1000	05/21/19	05/21/19 19:29	1011
Toluene-D8	102 %		86-116		1000	05/21/19	05/21/19 19:29	1011
4-Bromofluorobenzene	96 %		81-146		100000	05/22/19	05/22/19 13:45	1011
Dibromofluoromethane	96 %		89-120		100000	05/22/19	05/22/19 13:45	1011
Toluene-D8	98 %		86-116		100000	05/22/19	05/22/19 13:45	1011

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD
 May 23, 2019

Project Name: Slag Processing Area
 Project Location: TPA
 Project ID: 18019A

Sample ID: C-2 **Date/Time Sampled: 05/20/2019 15:40** **PSS Sample ID: 19052018-012**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acenaphthene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Acenaphthylene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Acetophenone	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Anthracene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Atrazine	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Benzo(a)anthracene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Benzo(a)pyrene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Benzo(b)fluoranthene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Benzo(g,h,i)perylene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Benzo(k)fluoranthene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Biphenyl (Diphenyl)	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Butyl benzyl phthalate	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
bis(2-chloroethoxy) methane	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
bis(2-chloroethyl) ether	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
bis(2-chloroisopropyl) ether	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
bis(2-ethylhexyl) phthalate	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
4-Bromophenylphenyl ether	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Di-n-butyl phthalate	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Carbazole	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Caprolactam	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
4-Chloro-3-methyl phenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
4-Chloroaniline	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
2-Chloronaphthalene	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
2-Chlorophenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
4-Chlorophenyl Phenyl ether	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Chrysene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Dibenz(a,h)Anthracene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Dibenzofuran	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
3,3-Dichlorobenzidine	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD

May 23, 2019

Project Name: Slag Processing Area

Project Location: TPA

Project ID: 18019A

Sample ID: C-2 **Date/Time Sampled: 05/20/2019 15:40** **PSS Sample ID: 19052018-012**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

TCL Semivolatile Organic Compounds

Analytical Method: SW-846 8270 C

Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2,4-Dichlorophenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Diethyl phthalate	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Dimethyl phthalate	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
2,4-Dimethylphenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
4,6-Dinitro-2-methyl phenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
2,4-Dinitrophenol	ND	ug/kg	1,700,000		2000	05/21/19	05/21/19 17:57	1014
2,4-Dinitrotoluene	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
2,6-Dinitrotoluene	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Fluoranthene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Fluorene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Hexachlorobenzene	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Hexachlorobutadiene	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Hexachlorocyclopentadiene	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Hexachloroethane	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Indeno(1,2,3-c,d)Pyrene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Isophorone	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
2-Methylnaphthalene	390,000	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
2-Methyl phenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
3&4-Methylphenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Naphthalene	7,400,000	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
2-Nitroaniline	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
3-Nitroaniline	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
4-Nitroaniline	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Nitrobenzene	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
2-Nitrophenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
4-Nitrophenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
N-Nitrosodi-n-propyl amine	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
N-Nitrosodiphenylamine	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Di-n-octyl phthalate	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014

OFFICES:
 6630 BALTIMORE NATIONAL PIKE
 ROUTE 40 WEST
 BALTIMORE, MD 21228
 410-747-8770
 800-932-9047
 FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 19052018

Hillis Carnes Engineering Associates, Annapolis Junction, MD
 May 23, 2019

Project Name: Slag Processing Area
 Project Location: TPA
 Project ID: 18019A

Sample ID: C-2 **Date/Time Sampled: 05/20/2019 15:40** **PSS Sample ID: 19052018-012**
Matrix: SOIL **Date/Time Received: 05/20/2019 17:15** **% Solids SM2540G-11: 81**

TCL Semivolatile Organic Compounds Analytical Method: SW-846 8270 C Preparation Method: SW3550C

Qualifier(s): See Batch 164534 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Pentachlorophenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Phenanthrene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Phenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Pyrene	ND	ug/kg	83,000		2000	05/21/19	05/21/19 17:57	1014
Pyridine	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
2,4,5-Trichlorophenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
2,4,6-Trichlorophenol	ND	ug/kg	830,000		2000	05/21/19	05/21/19 17:57	1014
Surrogate(s)	Recovery		Limits					
2-Fluorobiphenyl	0 %		32-107	*	2000	05/21/19	05/21/19 17:57	1014
2-Fluorophenol	0 %		34-113	*	2000	05/21/19	05/21/19 17:57	1014
Nitrobenzene-d5	0 %		35-123	*	2000	05/21/19	05/21/19 17:57	1014
Phenol-d6	0 %		34-120	*	2000	05/21/19	05/21/19 17:57	1014
Terphenyl-D14	0 %		46-154	*	2000	05/21/19	05/21/19 17:57	1014
2,4,6-Tribromophenol	0 %		31-113	*	2000	05/21/19	05/21/19 17:57	1014



Case Narrative Summary

Client Name: Hillis Carnes Engineering Associates

Project Name: Slag Processing Area

Work Order Number(s): 19052018

Project ID: 18019A

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:

All sample receipt conditions were acceptable.

Analytical:

RCRA Metals

Batch: 164540

Continuing Calibration Verification (CCV) #5 exceeded acceptance limits (90% - 110%) for thallium at 111% recovery. Samples are non-detect for this analyte and all low level calibration verifications (LLCCV) pass.

Analytical:

Total Petroleum Hydrocarbons - DRO

Batch: 164528

The opening calibration verification (CCV-R1) had a surrogate recovery above the control limit of 120% at 123%.

Batch: 164544

Sample 19052018-012 showed a 0% surrogate recovery due to dilutions.

Analytical:

Total Petroleum Hydrocarbons-GRO

Batch: 164555

Surrogate exceedance identified, see QC summary. 19052018-012 was analyzed twice with low surrogate recovery both times.

Analytical:

TCL Volatile Organic Compounds

Batch: 164549

Laboratory control sample exceedances identified, matrix spike/ matrix spike duplicate samples meet LCS criteria; see LCS summary form.

Analytical:



Case Narrative Summary

Client Name: Hillis Carnes Engineering Associates

Project Name: Slag Processing Area

Work Order Number(s): 19052018

Project ID: 18019A

TCL Semivolatile Organic Compounds

Batch: 164534

Surrogates recoveries are outside the QC limits because the samples are diluted by 100X to 1000X.

Laboratory control sample/laboratory control sample duplicate (LCS/LCSD); see LCS summary form.

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

SW-846 5030



Analytical Data Package Information Summary

Work Order(s): 19052018

Report Prepared For: Hillis Carnes Engineering Associates, Annapo

Project Name: Slag Processing Area

Project Manager: Keith Progin

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SM2540G	SP-1-N	Initial	19052018-001	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	SP-1-N-A	Initial	19052018-002	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	SP-1-S	Initial	19052018-003	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	SP-1-S-A	Initial	19052018-004	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	SP-2	Initial	19052018-005	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	SP-2-A	Initial	19052018-006	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	SP-3	Initial	19052018-007	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	SP-3-A	Initial	19052018-008	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	SP-4	Initial	19052018-009	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	SP-4-A	Initial	19052018-010	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	C-1	Initial	19052018-011	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	C-2	Initial	19052018-012	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
	164489-1-BLK	BLK	164489-1-BLK	1061	S	164489	164489	-----	05/21/2019 11:59	05/21/2019 11:59
	B7S4 D	MD	19051716-009 D	1061	S	164489	164489	05/16/2019	05/21/2019 11:59	05/21/2019 11:59
	SP-2 D	MD	19052018-005 D	1061	S	164489	164489	05/20/2019	05/21/2019 11:59	05/21/2019 11:59
SW-846 6020 A	SP-1-N	Initial	19052018-001	1064	S	76902	164540	05/20/2019	05/21/2019 11:18	05/21/2019 22:04
	SP-1-S	Initial	19052018-003	1064	S	76902	164540	05/20/2019	05/21/2019 11:18	05/21/2019 22:10
	SP-2	Initial	19052018-005	1064	S	76902	164540	05/20/2019	05/21/2019 11:18	05/21/2019 22:15
	SP-3	Initial	19052018-007	1064	S	76902	164540	05/20/2019	05/21/2019 11:18	05/21/2019 22:21
	SP-4	Initial	19052018-009	1064	S	76902	164540	05/20/2019	05/21/2019 11:18	05/21/2019 22:26
	C-1	Initial	19052018-011	1064	S	76902	164540	05/20/2019	05/21/2019 11:18	05/21/2019 22:32
	C-2	Initial	19052018-012	1064	S	76902	164540	05/20/2019	05/21/2019 11:18	05/21/2019 22:37
	76902-1-BKS	BKS	76902-1-BKS	1064	S	76902	164540	-----	05/21/2019 11:18	05/21/2019 21:08
	76902-1-BLK	BLK	76902-1-BLK	1064	S	76902	164540	-----	05/21/2019 11:18	05/21/2019 21:02
	D001 S	MS	19052011-001 S	1064	S	76902	164540	05/17/2019	05/21/2019 11:18	05/21/2019 21:19
	D001 SD	MSD	19052011-001 SD	1064	S	76902	164540	05/17/2019	05/21/2019 11:18	05/21/2019 21:47
	SP-1-N	Reanalysis	19052018-001	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 19:11
	SP-1-S	Reanalysis	19052018-003	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 19:17
	SP-2	Reanalysis	19052018-005	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 19:22



Analytical Data Package Information Summary

Work Order(s): 19052018

Report Prepared For: Hillis Carnes Engineering Associates, Annapo

Project Name: Slag Processing Area

Project Manager: Keith Progin

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 6020 A	SP-3	Reanalysis	19052018-007	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 19:28
	SP-4	Reanalysis	19052018-009	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 19:34
	C-1	Reanalysis	19052018-011	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 19:39
	C-2	Reanalysis	19052018-012	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 19:45
	SP-1-S	Reanalysis	19052018-003	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 17:53
	SP-2	Reanalysis	19052018-005	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 17:58
	SP-3	Reanalysis	19052018-007	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 18:04
	SP-4	Reanalysis	19052018-009	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 18:09
	C-1	Reanalysis	19052018-011	1064	S	76902	164578	05/20/2019	05/21/2019 11:18	05/22/2019 18:15
	SP-1-N	Reanalysis	19052018-001	1064	S	76902	164592	05/20/2019	05/21/2019 11:18	05/23/2019 13:44
	C-2	Reanalysis	19052018-012	1064	S	76902	164592	05/20/2019	05/21/2019 11:18	05/23/2019 13:49
SW-846 8015 C	SP-1-N-A	Initial	19052018-002	1059	S	76910	164526	05/20/2019	05/21/2019 13:30	05/22/2019 02:22
	SP-3-A	Initial	19052018-008	1059	S	76910	164526	05/20/2019	05/21/2019 13:30	05/22/2019 00:40
	T-1G S	MS	19051714-001 S	1059	S	76910	164526	05/13/2019	05/21/2019 13:30	05/21/2019 22:34
	T-1G SD	MSD	19051714-001 SD	1059	S	76910	164526	05/13/2019	05/21/2019 13:30	05/21/2019 22:59
	SP-1-S-A	Initial	19052018-004	1059	S	76910	164528	05/20/2019	05/21/2019 13:30	05/22/2019 01:31
	C-1	Initial	19052018-011	1059	S	76910	164528	05/20/2019	05/21/2019 13:30	05/22/2019 00:40
	76910-1-BKS	BKS	76910-1-BKS	1059	S	76910	164528	-----	05/21/2019 13:30	05/21/2019 22:34
	76910-1-BLK	BLK	76910-1-BLK	1059	S	76910	164528	-----	05/21/2019 13:30	05/21/2019 22:08
	76910-1-BSD	BSD	76910-1-BSD	1059	S	76910	164528	-----	05/21/2019 13:30	05/21/2019 22:59
	SP-2-A	Initial	19052018-006	1059	S	76910	164544	05/20/2019	05/21/2019 13:30	05/22/2019 09:38
	SP-4-A	Initial	19052018-010	1059	S	76910	164544	05/20/2019	05/21/2019 13:30	05/22/2019 10:04
C-2	Initial	19052018-012	1059	S	76910	164544	05/20/2019	05/21/2019 13:30	05/22/2019 10:29	
SW-846 8015C	SP-1-N-A	Initial	19052018-002	1045	S	76930	164550	05/20/2019	05/21/2019 16:15	05/21/2019 23:51
	SP-1-S-A	Initial	19052018-004	1045	S	76930	164550	05/20/2019	05/21/2019 16:15	05/22/2019 00:22
	SP-2-A	Initial	19052018-006	1045	S	76930	164550	05/20/2019	05/21/2019 16:15	05/22/2019 00:53
	SP-3-A	Initial	19052018-008	1045	S	76930	164550	05/20/2019	05/21/2019 16:15	05/22/2019 09:38
	SP-4-A	Initial	19052018-010	1045	S	76930	164550	05/20/2019	05/21/2019 16:15	05/22/2019 10:09



Analytical Data Package Information Summary

Work Order(s): 19052018

Report Prepared For: Hillis Carnes Engineering Associates, Annapo

Project Name: Slag Processing Area

Project Manager: Keith Progin

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed	
SW-846 8015C	C-1	Initial	19052018-011	1045	S	76930	164550	05/20/2019	05/21/2019 16:15	05/21/2019 22:50	
	76930-2-BKS	BKS	76930-2-BKS	1045	S	76930	164550	-----	05/21/2019 16:15	05/21/2019 16:46	
	76930-2-BLK	BLK	76930-2-BLK	1045	S	76930	164550	-----	05/21/2019 16:15	05/21/2019 19:17	
	76930-2-BSD	BSD	76930-2-BSD	1045	S	76930	164550	-----	05/21/2019 16:15	05/21/2019 17:16	
	C-2	Initial	19052018-012	1045	S	76935	164555	05/20/2019	05/22/2019 11:09	05/22/2019 14:56	
	76935-2-BKS	BKS	76935-2-BKS	1045	S	76935	164555	-----	05/22/2019 11:09	05/22/2019 13:55	
	76935-2-BLK	BLK	76935-2-BLK	1045	S	76935	164555	-----	05/22/2019 11:09	05/22/2019 14:25	
	76935-2-BSD	BSD	76935-2-BSD	1045	S	76935	164555	-----	05/22/2019 11:09	05/22/2019 15:57	
	1A, 1B, 1C S	MS	19051701-001 S	1045	S	76935	164555	05/17/2019	05/22/2019 11:09	05/22/2019 16:28	
	1A, 1B, 1C SD	MSD	19051701-001 SD	1045	S	76935	164555	05/17/2019	05/22/2019 11:09	05/22/2019 16:57	
SW-846 8082 A	SP-1-N	Initial	19052018-001	1029	S	76893	164523	05/20/2019	05/21/2019 08:21	05/21/2019 17:25	
	SP-1-S	Initial	19052018-003	1029	S	76893	164523	05/20/2019	05/21/2019 08:21	05/21/2019 17:53	
	SP-2	Initial	19052018-005	1029	S	76893	164523	05/20/2019	05/21/2019 08:21	05/21/2019 18:21	
	SP-3	Initial	19052018-007	1029	S	76893	164523	05/20/2019	05/21/2019 08:21	05/21/2019 18:49	
	SP-4	Initial	19052018-009	1029	S	76893	164523	05/20/2019	05/21/2019 08:21	05/21/2019 19:17	
	C-1	Initial	19052018-011	1029	S	76893	164523	05/20/2019	05/21/2019 08:21	05/21/2019 19:46	
	C-2	Initial	19052018-012	1029	S	76893	164523	05/20/2019	05/21/2019 08:21	05/21/2019 20:14	
	76893-1-BKS	BKS	76893-1-BKS	1029	S	76893	164523	-----	05/21/2019 08:21	05/21/2019 14:07	
	76893-1-BLK	BLK	76893-1-BLK	1029	S	76893	164523	-----	05/21/2019 08:21	05/21/2019 13:39	
	76893-1-BSD	BSD	76893-1-BSD	1029	S	76893	164523	-----	05/21/2019 08:21	05/21/2019 14:35	
	SP-1-N S	MS	19052018-001 S	1029	S	76893	164523	05/20/2019	05/21/2019 08:21	05/21/2019 15:04	
	SP-1-N SD	MSD	19052018-001 SD	1029	S	76893	164523	05/20/2019	05/21/2019 08:21	05/21/2019 15:32	
	SW-846 8260 B	SP-1-N-A	Initial	19052018-002	1011	S	76923	164538	05/20/2019	05/21/2019 08:02	05/21/2019 15:19
		SP-1-S-A	Initial	19052018-004	1011	S	76923	164538	05/20/2019	05/21/2019 08:02	05/21/2019 18:24
SP-2-A		Initial	19052018-006	1011	S	76923	164538	05/20/2019	05/21/2019 08:02	05/21/2019 18:46	
SP-3-A		Initial	19052018-008	1011	S	76923	164538	05/20/2019	05/21/2019 08:02	05/21/2019 15:53	
SP-4-A		Initial	19052018-010	1011	S	76923	164538	05/20/2019	05/21/2019 08:02	05/21/2019 19:07	
C-2		Initial	19052018-012	1011	S	76923	164538	05/20/2019	05/21/2019 08:02	05/21/2019 19:29	



Analytical Data Package Information Summary

Work Order(s): 19052018

Report Prepared For: Hillis Carnes Engineering Associates, Annapo

Project Name: Slag Processing Area

Project Manager: Keith Progin

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	76923-1-BKS	BKS	76923-1-BKS	1011	S	76923	164538	-----	05/21/2019 08:02	05/21/2019 09:49
	76923-1-BLK	BLK	76923-1-BLK	1011	S	76923	164538	-----	05/21/2019 08:02	05/21/2019 11:25
	B5S3 S	MS	19051716-006 S	1011	S	76923	164538	05/16/2019	05/21/2019 08:02	05/21/2019 16:14
	B5S3 SD	MSD	19051716-006 SD	1011	S	76923	164538	05/16/2019	05/21/2019 08:02	05/21/2019 16:37
	C-1	Initial	19052018-011	1011	S	76931	164549	05/20/2019	05/22/2019 07:54	05/22/2019 12:08
	76931-1-BKS	BKS	76931-1-BKS	1011	S	76931	164549	-----	05/22/2019 07:54	05/22/2019 08:59
	76931-1-BLK	BLK	76931-1-BLK	1011	S	76931	164549	-----	05/22/2019 07:54	05/22/2019 10:14
	SP-2-A	Reanalysis	19052018-006	1011	S	76923	164549	05/20/2019	05/21/2019 08:02	05/22/2019 10:46
	SP-4-A	Reanalysis	19052018-010	1011	S	76923	164549	05/20/2019	05/21/2019 08:02	05/22/2019 11:09
	C-2	Reanalysis	19052018-012	1011	S	76923	164549	05/20/2019	05/21/2019 08:02	05/22/2019 13:45
SW-846 8270 C	SP-1-N-A	Initial	19052018-002	1014	S	76895	164534	05/20/2019	05/21/2019 09:05	05/21/2019 18:25
	SP-1-S-A	Initial	19052018-004	1014	S	76895	164534	05/20/2019	05/21/2019 09:05	05/21/2019 18:53
	SP-2-A	Initial	19052018-006	1014	S	76895	164534	05/20/2019	05/21/2019 09:05	05/21/2019 14:42
	SP-3-A	Initial	19052018-008	1014	S	76895	164534	05/20/2019	05/21/2019 09:05	05/21/2019 19:21
	SP-4-A	Initial	19052018-010	1014	S	76895	164534	05/20/2019	05/21/2019 09:05	05/21/2019 20:17
	C-1	Initial	19052018-011	1014	S	76895	164534	05/20/2019	05/21/2019 09:05	05/21/2019 19:49
	C-2	Initial	19052018-012	1014	S	76895	164534	05/20/2019	05/21/2019 09:05	05/21/2019 17:57
	76895-1-BKS	BKS	76895-1-BKS	1014	S	76895	164534	-----	05/21/2019 09:05	05/21/2019 10:59
	76895-1-BLK	BLK	76895-1-BLK	1014	S	76895	164534	-----	05/21/2019 09:05	05/21/2019 10:31
	76895-1-BSD	BSD	76895-1-BSD	1014	S	76895	164534	-----	05/21/2019 09:05	05/21/2019 11:27
	13163-Directive 4-20ft S	MS	19051715-004 S	1014	S	76895	164534	05/16/2019	05/21/2019 09:05	05/21/2019 12:23
	13163-Directive 4-20ft SD	MSD	19051715-004 SD	1014	S	76895	164534	05/16/2019	05/21/2019 09:05	05/21/2019 12:50
	SP-1-N-A	Reanalysis	19052018-002	1014	S	76895	164534	05/20/2019	05/21/2019 09:05	05/21/2019 17:01
	SP-1-S-A	Reanalysis	19052018-004	1014	S	76895	164534	05/20/2019	05/21/2019 09:05	05/21/2019 17:29
	SP-2-A	Reanalysis	19052018-006	1014	S	76895	164534	05/20/2019	05/21/2019 09:05	05/21/2019 15:10
SP-4-A	Reanalysis	19052018-010	1014	S	76895	164534	05/20/2019	05/21/2019 09:05	05/21/2019 16:06	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19052018

Hillis Carnes Engineering Associates Slag Processing Area

Analytical Method: SW-846 6020 A

Seq Number: 164540

MB Sample Id: 76902-1-BLK

Matrix: Solid

LCS Sample Id: 76902-1-BKS

Prep Method: SW3050B

Date Prep: 05/21/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Antimony	<2.000	16.00	16.80	105	80-120	mg/kg	
Arsenic	<0.4000	16.00	16.54	103	80-120	mg/kg	
Beryllium	<2.000	16.00	17.17	107	80-120	mg/kg	
Cadmium	<2.000	16.00	16.41	103	80-120	mg/kg	
Chromium	<2.000	16.00	17.58	110	80-120	mg/kg	
Copper	<2.000	16.00	16.98	106	80-120	mg/kg	
Lead	<2.000	16.00	16.60	104	80-120	mg/kg	
Manganese	<2.000	16.00	17.08	107	80-120	mg/kg	
Mercury	<0.08001	0.4000	0.3940	99	80-120	mg/kg	
Nickel	<2.000	16.00	16.75	105	80-120	mg/kg	
Selenium	<2.000	16.00	14.84	93	80-120	mg/kg	
Silver	<2.000	16.00	16.26	102	80-120	mg/kg	
Thallium	<1.600	16.00	15.64	98	80-120	mg/kg	
Zinc	<8.001	80.01	83.71	105	80-120	mg/kg	

Analytical Method: SM2540G

Seq Number: 164489

Parent Sample Id: 19052018-005

Matrix: Soil

MD Sample Id: 19052018-005 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Flag
Percent Moisture	18.00	18.00	0	20	%	

Analytical Method: SW-846 8082 A

Seq Number: 164523

MB Sample Id: 76893-1-BLK

Matrix: Solid

LCS Sample Id: 76893-1-BKS

Prep Method: SW3550C

Date Prep: 05/21/19

LCSD Sample Id: 76893-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
PCB-1016	<0.04995	0.4995	0.4310	86	0.4200	85	60-110	3	25	mg/kg	
PCB-1260	<0.04995	0.4995	0.4370	87	0.4307	87	60-98	1	25	mg/kg	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Decachlorobiphenyl	89		89		87		61-150	%
Tetrachloro-m-xylene	86		91		88		42-142	%

PHASE SEPARATION SCIENCE, INC.

QC Summary 19052018

Hillis Carnes Engineering Associates Slag Processing Area

Analytical Method: SW-846 8082 A

Seq Number: 164523

Parent Sample Id: 19052018-001

Matrix: Soil

MS Sample Id: 19052018-001 S

Prep Method: SW3550C

Date Prep: 05/21/19

MSD Sample Id: 19052018-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
PCB-1016	<0.06002	0.6002	0.4334	72	0.4121	68	45-130	5	30	mg/kg	
PCB-1260	<0.06002	0.6002	0.4840	81	0.4780	79	30-125	1	30	mg/kg	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units
Decachlorobiphenyl	97		123		61-150	%
Tetrachloro-m-xylene	66		64		42-142	%

Analytical Method: SW-846 8015 C

Seq Number: 164528

MB Sample Id: 76910-1-BLK

Matrix: Solid

LCS Sample Id: 76910-1-BKS

Prep Method: SW3550C

Date Prep: 05/21/19

LCSD Sample Id: 76910-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
TPH-DRO (Diesel Range Organics)	<3.337	33.37	35.08	105	34.30	103	60-108	2	22	mg/kg	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
o-Terphenyl	86		112		108		37-120	%

PHASE SEPARATION SCIENCE, INC.

QC Summary 19052018

Hillis Carnes Engineering Associates
Slag Processing Area

Analytical Method: SW-846 8270 C

Seq Number: 164534

MB Sample Id: 76895-1-BLK

Matrix: Solid

LCS Sample Id: 76895-1-BKS

Prep Method: SW3550C

Date Prep: 05/21/19

LCSD Sample Id: 76895-1-BSO

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Acenaphthene	<16.58	1326	1173	88	1148	87	60-116	2	25	ug/kg	
Acenaphthylene	<16.58	1326	1166	88	1141	86	61-112	2	25	ug/kg	
Acetophenone	<165.8	1326	1111	84	1088	82	57-114	2	25	ug/kg	
Anthracene	<16.58	1326	1144	86	1159	88	66-115	1	25	ug/kg	
Atrazine	<165.8	1326	576.3	43	591	45	7-109	3	25	ug/kg	
Benzo(a)anthracene	<16.58	1326	1241	94	1228	93	71-113	1	25	ug/kg	
Benzo(a)pyrene	<16.58	1326	1204	91	1179	89	69-118	2	25	ug/kg	
Benzo(b)fluoranthene	<16.58	1326	1209	91	1156	87	65-126	4	25	ug/kg	
Benzo(g,h,i)perylene	<16.58	1326	1164	88	1148	87	69-112	1	25	ug/kg	
Benzo(k)fluoranthene	<16.58	1326	1127	85	1167	88	57-129	3	25	ug/kg	
Biphenyl (Diphenyl)	<165.8	1326	1183	89	1161	88	62-117	2	25	ug/kg	
Butyl benzyl phthalate	<165.8	1326	1311	99	1313	99	81-111	0	25	ug/kg	
bis(2-chloroethoxy) methane	<165.8	1326	1137	86	1136	86	56-119	0	25	ug/kg	
bis(2-chloroethyl) ether	<165.8	1326	1088	82	1053	80	55-107	3	25	ug/kg	
bis(2-chloroisopropyl) ether	<165.8	1326	1054	79	1068	81	44-103	1	25	ug/kg	
bis(2-ethylhexyl) phthalate	<165.8	1326	1322	100	1324	100	84-109	0	25	ug/kg	
4-Bromophenylphenyl ether	<165.8	1326	1194	90	1172	89	63-125	2	25	ug/kg	
Di-n-butyl phthalate	<165.8	1326	1143	86	1157	87	76-110	1	25	ug/kg	
Carbazole	<165.8	1326	1261	95	1200	91	58-133	5	25	ug/kg	
Caprolactam	<165.8	1326	1679	127	1656	125	51-122	1	25	ug/kg	H
4-Chloro-3-methyl phenol	<165.8	1326	1208	91	1182	89	74-119	2	25	ug/kg	
4-Chloroaniline	<165.8	1326	1192	90	1187	90	45-107	0	25	ug/kg	
2-Chloronaphthalene	<165.8	1326	1132	85	1116	84	56-113	1	25	ug/kg	
2-Chlorophenol	<165.8	1326	1098	83	1074	81	59-113	2	25	ug/kg	
4-Chlorophenyl Phenyl ether	<165.8	1326	1169	88	1151	87	62-111	2	25	ug/kg	
Chrysene	<16.58	1326	1288	97	1298	98	72-114	1	25	ug/kg	
Dibenz(a,h)Anthracene	<16.58	1326	1160	87	1132	85	72-110	2	25	ug/kg	
Dibenzofuran	<165.8	1326	1186	89	1168	88	62-118	2	25	ug/kg	
3,3-Dichlorobenzidine	<165.8	1326	1479	112	1490	113	66-141	1	25	ug/kg	
2,4-Dichlorophenol	<165.8	1326	1176	89	1166	88	68-118	1	25	ug/kg	
Diethyl phthalate	<165.8	1326	1208	91	1196	90	61-113	1	25	ug/kg	
Dimethyl phthalate	<165.8	1326	1171	88	1157	87	69-109	1	25	ug/kg	
2,4-Dimethylphenol	<165.8	1326	1138	86	1096	83	57-122	4	25	ug/kg	
4,6-Dinitro-2-methyl phenol	<165.8	1326	1284	97	1265	96	50-134	1	25	ug/kg	
2,4-Dinitrophenol	<331.6	1326	1421	107	1325	100	24-144	7	25	ug/kg	
2,4-Dinitrotoluene	<165.8	1326	1256	95	1215	92	61-124	3	25	ug/kg	
2,6-Dinitrotoluene	<165.8	1326	1198	90	1206	91	59-124	1	25	ug/kg	
Fluoranthene	<16.58	1326	1183	89	1173	89	69-119	1	25	ug/kg	
Fluorene	<16.58	1326	1179	89	1167	88	65-115	1	25	ug/kg	
Hexachlorobenzene	<165.8	1326	1209	91	1225	93	63-118	1	25	ug/kg	
Hexachlorobutadiene	<165.8	1326	1142	86	1129	85	55-120	1	25	ug/kg	
Hexachlorocyclopentadiene	<165.8	1326	1277	96	1179	89	29-138	8	25	ug/kg	
Hexachloroethane	<165.8	1326	1098	83	1097	83	54-110	0	25	ug/kg	
Indeno(1,2,3-c,d)Pyrene	<16.58	1326	1210	91	1174	89	60-127	3	25	ug/kg	
Isophorone	<165.8	1326	1363	103	1370	103	57-116	1	25	ug/kg	
2-Methylnaphthalene	<16.58	1326	1176	89	1165	88	70-109	1	25	ug/kg	
2-Methyl phenol	<165.8	1326	1119	84	1088	82	59-118	3	25	ug/kg	
3&4-Methylphenol	<165.8	1326	1131	85	1100	83	59-113	3	25	ug/kg	
Naphthalene	<16.58	1326	1102	83	1100	83	59-108	0	25	ug/kg	
2-Nitroaniline	<165.8	1326	1174	89	1139	86	51-116	3	25	ug/kg	
3-Nitroaniline	<165.8	1326	1210	91	1183	89	57-111	2	25	ug/kg	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19052018

Hillis Carnes Engineering Associates
Slag Processing Area

Analytical Method: SW-846 8270 C

Seq Number: 164534

MB Sample Id: 76895-1-BLK

Matrix: Solid

LCS Sample Id: 76895-1-BKS

Prep Method: SW3550C

Date Prep: 05/21/19

LCSD Sample Id: 76895-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
4-Nitroaniline	<165.8	1326	1192	90	1165	88	55-125	2	25	ug/kg	
Nitrobenzene	<165.8	1326	1104	83	1112	84	53-110	1	25	ug/kg	
2-Nitrophenol	<165.8	1326	1166	88	1147	87	58-124	2	25	ug/kg	
4-Nitrophenol	<165.8	1326	1294	98	1260	95	51-116	3	25	ug/kg	
N-Nitrosodi-n-propyl amine	<165.8	1326	1167	88	1077	81	60-98	8	25	ug/kg	
N-Nitrosodiphenylamine	<165.8	1326	1184	89	1175	89	65-111	1	25	ug/kg	
Di-n-octyl phthalate	<165.8	1326	1203	91	1203	91	69-120	0	25	ug/kg	
Pentachlorophenol	<165.8	1326	1203	91	1153	87	56-124	4	25	ug/kg	
Phenanthrene	<16.58	1326	1167	88	1147	87	67-117	2	25	ug/kg	
Phenol	<165.8	1326	1027	77	989.1	75	58-114	4	25	ug/kg	
Pyrene	<16.58	1326	1280	97	1290	97	77-111	1	25	ug/kg	
Pyridine	<165.8	1326	986.7	74	1017	77	37-110	3	25	ug/kg	
2,4,5-Trichlorophenol	<165.8	1326	1218	92	1179	89	64-114	3	25	ug/kg	
2,4,6-Trichlorophenol	<165.8	1326	1140	86	1114	84	60-125	2	25	ug/kg	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
2-Fluorobiphenyl	81		91		90		32-107	%
2-Fluorophenol	73		81		80		34-113	%
Nitrobenzene-d5	78		87		88		35-123	%
Phenol-d6	73		81		79		34-120	%
Terphenyl-D14	89		93		94		46-154	%
2,4,6-Tribromophenol	86		99		95		31-113	%

Analytical Method: SW-846 8015C

Seq Number: 164550

MB Sample Id: 76930-2-BLK

Matrix: Solid

LCS Sample Id: 76930-2-BKS

Prep Method: SW5030

Date Prep: 05/21/19

LCSD Sample Id: 76930-2-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
TPH-GRO (Gasoline Range Organic:	<99.60	4980	5320	107	5245	105	65-139	1	25	ug/kg	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
a,a,a-Trifluorotoluene	97		110		110		56-114	%

Analytical Method: SW-846 8015C

Seq Number: 164555

MB Sample Id: 76935-2-BLK

Matrix: Solid

LCS Sample Id: 76935-2-BKS

Prep Method: SW5030

Date Prep: 05/22/19

LCSD Sample Id: 76935-2-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
TPH-GRO (Gasoline Range Organic:	<100	5000	5448	109	4842	97	65-139	12	25	ug/kg	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
a,a,a-Trifluorotoluene	100		110		110		56-114	%

PHASE SEPARATION SCIENCE, INC.

QC Summary 19052018

Hillis Carnes Engineering Associates
Slag Processing Area

Analytical Method: SW-846 8260 B

Seq Number: 164538

MB Sample Id: 76923-1-BLK

Matrix: Solid

LCS Sample Id: 76923-1-BKS

Prep Method: SW5035

Date Prep: 05/21/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	16	61	60	98	66-136	ug/kg	
Benzene	<1.0	61	57	93	79-131	ug/kg	
Bromochloromethane	<1.0	61	58	95	82-124	ug/kg	
Bromodichloromethane	<1.0	61	57	93	81-128	ug/kg	
Bromoform	<1.0	61	70	115	75-128	ug/kg	
Bromomethane	<1.0	61	55	90	71-135	ug/kg	
2-Butanone (MEK)	<5.1	61	64	105	63-135	ug/kg	
Carbon Disulfide	<1.0	61	58	95	73-134	ug/kg	
Carbon tetrachloride	<1.0	61	58	95	73-130	ug/kg	
Chlorobenzene	<1.0	61	59	97	80-126	ug/kg	
Chloroethane	<1.0	61	52	85	77-133	ug/kg	
Chloroform	<5.1	61	53	87	79-125	ug/kg	
Chloromethane	<1.0	61	56	92	73-127	ug/kg	
Cyclohexane	<1.0	61	54	89	70-126	ug/kg	
1,2-Dibromo-3-chloropropane	<1.0	61	67	110	61-127	ug/kg	
Dibromochloromethane	<1.0	61	73	120	82-123	ug/kg	
1,2-Dibromoethane	<1.0	61	64	105	73-122	ug/kg	
1,2-Dichlorobenzene	<1.0	61	62	102	64-125	ug/kg	
1,3-Dichlorobenzene	<1.0	61	65	107	65-125	ug/kg	
1,4-Dichlorobenzene	<1.0	61	63	103	81-122	ug/kg	
Dichlorodifluoromethane	<1.0	61	67	110	62-134	ug/kg	
1,1-Dichloroethane	<1.0	61	54	89	80-128	ug/kg	
1,2-Dichloroethane	<1.0	61	54	89	81-124	ug/kg	
1,1-Dichloroethene	<1.0	61	56	92	75-124	ug/kg	
1,2-Dichloropropane	<1.0	61	54	89	77-134	ug/kg	
cis-1,2-Dichloroethene	<1.0	61	56	92	79-122	ug/kg	
cis-1,3-Dichloropropene	<1.0	61	54	89	71-123	ug/kg	
trans-1,2-Dichloroethene	<1.0	61	57	93	79-127	ug/kg	
trans-1,3-Dichloropropene	<1.0	61	57	93	68-126	ug/kg	
Ethylbenzene	<1.0	61	58	95	77-123	ug/kg	
2-Hexanone (MBK)	<1.0	61	63	103	58-136	ug/kg	
Isopropylbenzene	<1.0	61	61	100	78-134	ug/kg	
Methyl Acetate	<1.0	61	56	92	76-127	ug/kg	
Methylcyclohexane	<1.0	61	57	93	73-124	ug/kg	
Methylene chloride	<5.1	61	53	87	75-117	ug/kg	
4-Methyl-2-Pentanone (MIBK)	<1.0	61	60	98	67-130	ug/kg	
Methyl-t-Butyl Ether	<1.0	61	48	79	72-124	ug/kg	
Naphthalene	<1.0	61	61	100	27-128	ug/kg	
Styrene	<1.0	61	62	102	71-125	ug/kg	
1,1,2,2-Tetrachloroethane	<1.0	61	68	111	76-130	ug/kg	
Tetrachloroethene	<1.0	61	60	98	72-129	ug/kg	
Toluene	<1.0	61	56	92	76-132	ug/kg	
1,2,3-Trichlorobenzene	<1.0	61	69	113	35-131	ug/kg	
1,2,4-Trichlorobenzene	<1.0	61	67	110	67-114	ug/kg	
1,1,1-Trichloroethane	<1.0	61	54	89	77-129	ug/kg	
1,1,2-Trichloroethane	<1.0	61	62	102	77-132	ug/kg	
Trichloroethene	<1.0	61	55	90	78-129	ug/kg	
Trichlorofluoromethane	<1.0	61	57	93	73-135	ug/kg	
1,1,2-Trichlorotrifluoroethane	<1.0	61	54	89	73-129	ug/kg	
Vinyl chloride	<5.1	61	68	111	76-138	ug/kg	
m&p-Xylene	<2.0	120	110	92	79-121	ug/kg	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19052018

Hillis Carnes Engineering Associates Slag Processing Area

Analytical Method: SW-846 8260 B

Seq Number: 164538

MB Sample Id: 76923-1-BLK

Matrix: Solid

LCS Sample Id: 76923-1-BKS

Prep Method: SW5035

Date Prep: 05/21/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.0	61	60	98	75-124	ug/kg	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	
4-Bromofluorobenzene	100		96		81-146	%	
Dibromofluoromethane	100		102		89-120	%	
Toluene-D8	104		106		86-116	%	

PHASE SEPARATION SCIENCE, INC.

QC Summary 19052018

Hillis Carnes Engineering Associates
Slag Processing Area

Analytical Method: SW-846 8260 B

Seq Number: 164549

MB Sample Id: 76931-1-BLK

Matrix: Solid

LCS Sample Id: 76931-1-BKS

Prep Method: SW5035

Date Prep: 05/22/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	10	61	63	103	66-136	ug/kg	
Benzene	<1.0	61	68	111	79-131	ug/kg	
Bromochloromethane	<1.0	61	70	115	82-124	ug/kg	
Bromodichloromethane	<1.0	61	71	116	81-128	ug/kg	
Bromoform	<1.0	61	70	115	75-128	ug/kg	
Bromomethane	<1.0	61	67	110	71-135	ug/kg	
2-Butanone (MEK)	<5.1	61	62	102	63-135	ug/kg	
Carbon Disulfide	<1.0	61	71	116	73-134	ug/kg	
Carbon tetrachloride	<1.0	61	70	115	73-130	ug/kg	
Chlorobenzene	<1.0	61	68	111	80-126	ug/kg	
Chloroethane	<1.0	61	67	110	77-133	ug/kg	
Chloroform	<5.1	61	65	107	79-125	ug/kg	
Chloromethane	<1.0	61	65	107	73-127	ug/kg	
Cyclohexane	<1.0	61	66	108	70-126	ug/kg	
1,2-Dibromo-3-chloropropane	<1.0	61	70	115	61-127	ug/kg	
Dibromochloromethane	<1.0	61	81	133	82-123	ug/kg	H
1,2-Dibromoethane	<1.0	61	74	121	73-122	ug/kg	
1,2-Dichlorobenzene	<1.0	61	66	108	64-125	ug/kg	
1,3-Dichlorobenzene	<1.0	61	71	116	65-125	ug/kg	
1,4-Dichlorobenzene	<1.0	61	71	116	81-122	ug/kg	
Dichlorodifluoromethane	<1.0	61	75	123	62-134	ug/kg	
1,1-Dichloroethane	<1.0	61	66	108	80-128	ug/kg	
1,2-Dichloroethane	<1.0	61	64	105	81-124	ug/kg	
1,1-Dichloroethene	<1.0	61	72	118	75-124	ug/kg	
1,2-Dichloropropane	<1.0	61	66	108	77-134	ug/kg	
cis-1,2-Dichloroethene	<1.0	61	68	111	79-122	ug/kg	
cis-1,3-Dichloropropene	<1.0	61	63	103	71-123	ug/kg	
trans-1,2-Dichloroethene	<1.0	61	72	118	79-127	ug/kg	
trans-1,3-Dichloropropene	<1.0	61	67	110	68-126	ug/kg	
Ethylbenzene	<1.0	61	68	111	77-123	ug/kg	
2-Hexanone (MBK)	<1.0	61	57	93	58-136	ug/kg	
Isopropylbenzene	<1.0	61	73	120	78-134	ug/kg	
Methyl Acetate	<1.0	61	66	108	76-127	ug/kg	
Methylcyclohexane	<1.0	61	67	110	73-124	ug/kg	
Methylene chloride	<5.1	61	64	105	75-117	ug/kg	
4-Methyl-2-Pentanone (MIBK)	<1.0	61	57	93	67-130	ug/kg	
Methyl-t-Butyl Ether	<1.0	61	52	85	72-124	ug/kg	
Naphthalene	<1.0	61	70	115	27-128	ug/kg	
Styrene	<1.0	61	69	113	71-125	ug/kg	
1,1,2,2-Tetrachloroethane	<1.0	61	69	113	76-130	ug/kg	
Tetrachloroethene	<1.0	61	80	131	72-129	ug/kg	H
Toluene	<1.0	61	71	116	76-132	ug/kg	
1,2,3-Trichlorobenzene	<1.0	61	73	120	35-131	ug/kg	
1,2,4-Trichlorobenzene	<1.0	61	69	113	67-114	ug/kg	
1,1,1-Trichloroethane	<1.0	61	72	118	77-129	ug/kg	
1,1,2-Trichloroethane	<1.0	61	68	111	77-132	ug/kg	
Trichloroethene	<1.0	61	69	113	78-129	ug/kg	
Trichlorofluoromethane	<1.0	61	67	110	73-135	ug/kg	
1,1,2-Trichlorotrifluoroethane	<1.0	61	72	118	73-129	ug/kg	
Vinyl chloride	<5.1	61	84	138	76-138	ug/kg	
m&p-Xylene	<2.0	120	150	125	79-121	ug/kg	H

PHASE SEPARATION SCIENCE, INC.

QC Summary 19052018

Hillis Carnes Engineering Associates Slag Processing Area

Analytical Method: SW-846 8260 B

Seq Number: 164549

MB Sample Id: 76931-1-BLK

Matrix: Solid

LCS Sample Id: 76931-1-BKS

Prep Method: SW5035

Date Prep: 05/22/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.0	61	71	116	75-124	ug/kg	
Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	
4-Bromofluorobenzene	100		100		81-146	%	
Dibromofluoromethane	102		96		89-120	%	
Toluene-D8	90		98		86-116	%	

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



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

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

1 *CLIENT: <i>Hillis-Carnes (HCCA)</i> *OFFICE LOC. <i>AS</i> *PROJECT MGR: <i>Keith Progin</i> *PHONE NO.: <i>(410) 890 4788</i> EMAIL: <i>kprogin@HCCA.com</i> FAX NO.: () *PROJECT NAME: <i>Slag Processing Area</i> PROJECT NO.: <i>18019A</i> SITE LOCATION: <i>TPA</i> P.O. NO.: SAMPLER(S): <i>Nick Stella</i> DW CERT NO.:					PSS Work Order #: <i>19052018</i> PAGE <i>1</i> OF <i>2</i>												
2 LAB NO. *SAMPLE IDENTIFICATION *DATE (SAMPLED) *TIME (SAMPLED) MATRIX (See Codes)					Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe												
					No. CONTAINERS C = COMP G = GRAB												
					Preservatives Used Analysis/Method Required * 3												
					<i>PCBs</i> <i>PP Metals</i> <i>Manganese</i> <i>TPH-DRG</i> <i>TPH-GRG</i> <i>VOCs</i> <i>SVOCs</i>												
					REMARKS												
1	SP-1-N	5/20/19	2:15P	Slag	2	C	✓	✓	✓								
2	SP-1-N-A	5/20/19	2:15P	Slag	2	G				✓	✓	✓	✓				
3	SP-1-S	5/20/19	2:25P	Slag	2	C	✓	✓	✓								
4	SP-1-S-A	5/20/19	2:25P	Slag	2	G				✓	✓	✓	✓				
5	SP-2	5/20/19	2:45P	Slag	2	C	✓	✓	✓								
6	SP-2-A	5/20/19	2:45P	Slag	2	G				✓	✓	✓	✓				
7	SP-3	5/20/19	3:00P	Slag	2	C	✓	✓	✓								
8	SP-3-A	5/20/19	3:00P	Slag	2	G				✓	✓	✓	✓				
9	SP-4	5/20/19	3:15P	Slag	2	C	✓	✓	✓								
10	SP-4-A	5/20/19	3:15P	Slag	2	G				✓	✓	✓	✓				
5 Relinquished By: (1) <i>Nick Stella</i> Date: <i>5/20/19</i> Time: <i>5:15P</i> Received By: <i>[Signature]</i>					4 *Requested TAT (One TAT per COC) <input type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input checked="" type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input type="checkbox"/> Other												
Relinquished By: (2) Date: Time: Received By:					# of Coolers: <i>1</i> Custody Seal: <i>ABS</i> Ice Present: <i>PREP</i> Temp: <i>8.8-11.0C</i> Shipping Carrier: <i>CIM2</i>												
Relinquished By: (3) Date: Time: Received By:					Data Deliverables Required: COA QC SUMM CLP LIKE OTHER <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>												
Relinquished By: (4) Date: Time: Received By:					Special Instructions: DW COMPLIANCE? YES <input type="checkbox"/> EDD FORMAT TYPE STATE RESULTS REPORTED TO: MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> OTHER												



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

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

① *CLIENT:		*OFFICE LOC.:		PSS Work Order #: <u>19052018</u>				PAGE <u>2</u> OF <u>2</u>					
*PROJECT MGR:		*PHONE NO.:()		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe									
EMAIL:		FAX NO.:()		No. C O N T A I N E R S	SAMPLE TYPE	C = COMP	G = GRAB	Preservatives Used	Analysis/ Method Required	③	* PCBs PP Metals Magnesium TPH-DRO TPH-GRO VOCs SVOCs	REMARKS	
*PROJECT NAME:		PROJECT NO.:											
SITE LOCATION:		P.O. NO.:											
SAMPLER(S):		DW CERT NO.:											
② LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)									
	C-1	5/20/12	3:30p	Slag	4	G							
	C-2	5/20/12	3:40p	Slag	4	G							
⑤ Relinquished By: (1)		Date	Time	Received By:		④ *Requested TAT (One TAT per COC)				# of Coolers:			
		5/20/12	5:15p			<input 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				1			
Relinquished By: (2)		Date	Time	Received By:		Data Deliverables Required: COA QC SUMM CLP LIKE OTHER				Custody Seal: <u>ABS</u>			
						<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> _____				Ice Present: <u>PRE</u> Temp: <u>8-11.2</u>			
Relinquished By: (3)		Date	Time	Received By:		Special Instructions:				Shipping Carrier: <u>CM</u>			
Relinquished By: (4)		Date	Time	Received By:		DW COMPLIANCE?	EDD FORMAT TYPE	STATE RESULTS REPORTED TO:					
						YES <input type="checkbox"/>	_____	MD	DE	PA	VA	WV	OTHER



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 19052018 **Received By** Thomas Wingate
Client Name Hillis Carnes Engineering Associates **Date Received** 05/20/2019 05:15:00 PM
Project Name Slag Processing Area **Delivered By** Client
Project Number 18019A **Tracking No** Not Applicable
Disposal Date 06/24/2019 **Logged In By** Thomas Wingate

Shipping Container(s)

No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	N/A	Temp (deg C)	11.2
Seal(s) Signed / Dated?	N/A	Temp Blank Present	No

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Nick Stella
MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 12

Total No. of Containers Received 28

Preservation

Total Metals	(pH<2)	N/A
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), 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
524 VOC (Rcvd with trip blanks)	(pH<2)	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.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 05/20/2019

PM Review and Approval:

Amber Confer

Date: 05/21/2019