

February 12, 2016

Martha Hynson
Maryland Department of the Environment
Land Management Administration
Solid Waste Program
1800 Washington Boulevard, Suite 605
Baltimore, Maryland 21230-1719



Re: Calendar Year 2015 Generator Tonnage Reports for the C. P. Crane

Generating Stations

Dear Ms. Hynson:

Enclosed please find the 2015 Coal Combustion Byproducts (CCBs) Annual Generator Tonnage Report for the Charles P. Crane generating facility. This report covers the period from January 1, 2015 to December 31, 2015 for the coal-fired units at this facility and reflects coal combustion byproduct production and disposal.

Please note that effective February 16, 2016, Raven Power will no longer be providing operational support for C.P. Crane LLC. Going forward, please direct any questions regarding this report to Joshua Sawyers, Environmental Technician for C.P. Crane, by phone at 410-682-9715, or by email to <a href="mailto:isawyers@cpcranepower.com">isawyers@cpcranepower.com</a>. All future notifications and invoices should be sent to Mr. Sawyers at the following address:

Joshua Sawyers Environmental Technician C.P. Crane LLC 1001 Carroll Island Road Middle River, MD 21220

Regards,

Anthony Montier

Environmental Manager, Raven Power

Along Monties

Enclosure

# MARYLAND DEPARTMENT OF THE ENVIRONMENT

Land Management Administration • Solid Waste Program
1800 Washington Boulevard • Suite 605 • Baltimore Maryland 21230-1719
410-537-3315 • 800-633-6101 x3315 • www.mde.maryland.gov

# Coal Combustion Byproducts (CCBs) Annual Generator Tonnage Report Instructions for Calendar Year 2015

The following is general information relating to the requirement for reporting quantities of coal combustion byproducts (CCBs) that were managed in the State of Maryland during calendar year 2015. Please answer the questions on the form provided, attaching additional information and any requested supplemental information to the back of the form. Note that the form for this year requires both volume and weight of the CCBs produced. If you know one of these parameters but not the others, for example, you have the tonnage produced but not the volume, you may calculate the other parameter; however, please provide the calculations and assumptions that you used in your estimate. Questions can be directed to the Solid Waste Program at (410) 537-3315 or via email at ed.dexter@maryland.gov.

I. Background. This requirement that generators of CCBs submit an annual report was instituted in the Code of Maryland Regulations COMAR 26.04.10.08, that was promulgated effective December 1, 2008. The regulation requires that any non-residential generator of CCBs submit a report to the Department by March 1 of each year describing the manner in which CCBs generated within the State were managed during the preceding calendar year. Additional information and specific instructions follow. For more detailed information, please refer to COMAR 26.04.10.08.

### II. General Information and Applicability.

A. Definitions. CCBs are defined in COMAR 26.04.10.02B as:

- "(3) Coal Combustion Byproducts. (a) "Coal combustion byproducts" means the residue generated by or resulting from the burning of coal.
- (b) "Coal combustion byproducts" includes fly ash, bottom ash, boiler slag, pozzolan, and other solid residuals removed by air pollution control devices from the flue gas and combustion chambers of coal burning furnaces and boilers, including flue gas desulfurization sludge and other solid residuals recovered from flue gas by wet or dry methods."

A generator of CCBs is defined in COMAR 26.04.10.02B as:

- "(9) Generator.
- (a) "Generator" means a person whose operations, activities, processes, or actions create coal combustion byproducts.
- (b) "Generator" does not include a person who only generates coal combustion byproducts by burning coal at a private residence."

Page 1 of 5
Printed on Recycled Paper

B. Applicability. If you or your company meets the definition of a generator of CCBs as defined above, you must provide the information as required below. For the purposes of this report, "you" shall hereinafter refer to the generator defined above. Please note that COMAR 26.04.10.08 requires generators of CCBs to submit an annual report to the Department concerning the disposition of the CCBs that they generated the previous year. THIS INCLUDES CCBS THAT WERE NOT SEPARATELY COLLECTED BUT WERE PRODUCED BY THE BURNING OF COAL AND WERE DIRECTLY CONTRIBUTED TO A PRODUCT, such as cement. Where the amount cannot be directly measured, estimates based on the amount of coal burned can be used. The method of determining the volume of CCBs produced must be described.

**<u>III. Required Information.</u>** The following information must be provided to the Department by March 1, 2016:

A. Contact information:		
Facility Name: <u>C. P. Crane</u>		
Name of Permit Holder: C. P. Crane LL	C	
Facility Address: <u>1001 Carroll Island Road</u> Str	reet	
Facility Address: Chase City	Maryland State	21220zip
County: <u>Baltimore County</u>		
Contact Information (Person filing report or Env	ironmental Manager)	
Facility Telephone No.: 410-682-9797	Facility Fax No.: _410-6	682-9805
Contact Name: Anthony Montier		
Contact Title: Environmental Manager		<del> </del>
Contact Address: <u>1005 Brandon Shores Road,</u> Str	Suite 100	
Contact Address: Baltimore City	Maryland State	2 <u>1226</u> Zip
Contact Email: <u>amontier@raven-power.com</u>		
Contact Telephone No.: <u>410-787-5188</u>	Contact Fax No.: _410-7	787-5160

For questions on how to complete this form, please contact the Solid Waste Program at 410-537-3315

21-Jan-16

TTY Users: 800-735-2258

B. A description of the process that generates the CCBs, including the type of coal or other raw material that generates the CCBs. If the space provided is insufficient, please attach additional pages:

The C. P. Crane electric generating facility has two coal fired units which produce electricity for commercial sale. Unit 1 is equipped with a Babcock & Wilcox once-through subcritical, cyclone-fired, wet bottom boiler, and Unit 2 is equipped with a Babcock & Wilcox drum-type, cyclone-fired, wet bottom boiler. Both units burn subbituminous coal alone, or in combination with bituminous coal. Coal is transported to the plant by rail and stored in a pile adjacent to the plant. The coal is prepared for use by two Pennsylvania hammer-mill type crushers. After crushing, a proprietary additive, Cyclean, is added to the coal to aid in slag flow and reduce mercury in the flue gas.

The CCB handling process is the same for both units. Boiler slag (a.k.a. bottom ash) created by the combustion process is recovered from the bottom of the boilers and stored in de-watering bins. Heavier fly ash particles in the flue gas stream drop into hoppers below the air heaters, are removed by vacuum truck, and transported to a temporary storage area on site. Finer particulate fly ash is captured on fabric bags in bag houses downstream of the air heaters and falls down to storage hoppers below before being pneumatically conveyed from the hoppers to storage silos. All types of CCBs are eventually loaded onto trucks and sent off site for beneficial reuse or disposal.

C. The volume and weight of CCBs generated during calendar year 2015, including an identification of the different types of CCBs generated and the volume of each type generated. If the space provided is insufficient, please attach additional pages in a similar format. If converting from volume to weight or weight to volume, please provide your calculations and assumptions.

<u>Table I: Volume and Weight of CCBs Generated for Calendar Year 2015:</u> Please note the change to this table from previous years, to include both the volume and weight of the types of CCBs your facility produces.

Volume a	and Weight of CCBs Ge	nerated for Calendar Y	ear 2015
Fly Ash Type of CCB	Boiler Slag Type of CCB	Type of CCB	Type of CCB
13,856 Volume of CCB, in Cubic Yards	1,611 Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards
10,288 Weight of CCB, in Tons	1,196 Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons

### Additional notes:

Coal combustion byproducts ("CCB") are reported in dry tons. Cubic yards are calculated using a conversion factor of 1 ton = 1.3468 cubic yards.

D. Descriptions of any modeling or risk assessments, or both, conducted relating to the CCBs or their use that were performed by you or your company during the reporting year. Please attach this information to the report.

No modeling or risk assessments were conducted during 2015.

- E. Copies of all laboratory reports of all chemical characterizations of the CCBs. Please attach this information to the report.
- F. A description of how you disposed of or used your CCBs in calendar year 2015, identifying:
- (a) The types and volume of CCBs disposed of or used (if different than described in Paragraph C above) including any CCBs stored during the previous calendar year, the location of disposal, mine reclamation and use sites, and the type and volume of CCBs disposed of or used at each site:

# Fly Ash - Disposal

10,288 tons (13,856 CY) of fly ash was landfilled at Fort Armistead Road – Lot 15 Landfill in Baltimore, MD.

# Bottom Ash (Boiler Slag) - Beneficial Reuse

1,196 tons (1,611 CY) of boiler slag was landfilled at Fort Armistead Road – Lot 15 Landfill in Baltimore, MD.

and (b) The different uses by type and volume of CCBs:

See (a) above.

If the space provided is insufficient, please attach additional pages in a similar format.

- G. A description of how you intend to dispose of or use CCBs in the next 5 years, identifying:
- (a) The types and volume of CCBs intended to be disposed of or used, the location of intended disposal, mine reclamation and use sites, and the type and volume of CCBs intended to be disposed of or used at each site:

# Fly Ash

C.P. Crane LLC projects that as much as 12,000 tons (16,162 CY) of fly ash will be generated each year for the next five years. Unless suitable beneficial uses are identified, the fly ash will be disposed of in the Fort Armistead Road - Lot 15 LLC landfill in Baltimore, Maryland or another available landfill out of state permitted and authorized to accept CCBs for disposal.

# **Boiler Slag**

C.P. Crane LLC projects that approximately 6,000 tons (8,081 CY) of boiler slag will be generated each year for the next five years, all of which will be beneficially used for blasting grit and/or roofing granules.

and (b) The different intended uses by type and volume of CCBs.

## Fly Ash

While there are currently no identified beneficial uses for the projected 12,000 tons (16,162 CY) of fly ash that may be generated annually over the next 5 years, it is possible that all or some portion of the fly ash generated at C.P. Crane will be beneficially used. The potential exists that with proper certification as a Class C fly ash, it can be beneficially used in concrete products.

# Boiler Slag

Approximately 6,000 tons (8,081 CY) each year will be beneficially used for blasting grit and/or roofing granules.

IV. Signature and Certification. An authorized official of the generator must sign the annual report, and certify as to the accuracy and completeness of the information contained in the annual report:

	best of my knowledge, the information contained in true, accurate, and complete.	n this report and
I tol	John Forbes Authorized Representative, C.P. Crane LLC 410-682-9701	2/11/2016
Signature	Name, Title, & Telephone No. (Print or Type)	Date
	jforbes@raven-power.com	
	Your Email Address	

# V: Attachments (please list):

1. Certificate of Analysis Report No. 15122311

# **Analytical Report for**

Raven Power Holdings, LLC - CP Crane Plant Certificate of Analysis No.: 15122311

**Project Manager: Joshua Sawyers** 

**Project Name: TCLP15** 

Project Location: Carroll Island Road, MD



December 31, 2015
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.



December 31, 2015

Joshua Sawyers Raven Power Holdings, LLC - CP Crane Plant 1001 Carroll Island Rd Baltimore, MD 21220

Reference: PSS Work Order(s) No: 15122311

Project Name: TCLP15

Project Location: Carroll Island Road, MD

# Dear Joshua Sawyers:

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 15122311.

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 January 27, 2016, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

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

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

Sincerely,

Dan Prucnal
Laboratory Manager



# **Sample Summary**

# Client Name: Raven Power Holdings, LLC - CP Crane Plant Project Name: TCLP15

Work Order Number(s):

15122311

The following samples were received under chain of custody by Phase Separation Science (PSS) on 12/23/2015 at 12:50 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected	
15122311-001	BottomAsh2015	SOLID	12/18/15 07:10	<u></u>
15122311-002	Flyash2015	SOLID	12/17/15 09:00	

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 ICOMAR 26.08.05.07.C.21.
- 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 contaminates, and part 141.3, for the secondary drinking water contaminates.
- 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 aerolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
- 7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
- 8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

### Standard Flags/Abbreviations:

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

### Certifications:

NELAP Certifications: PA 68-03330, VA 460156 State Certifications: MD 179, WV 303 Regulated Soil Permit: P330-12-00268 NSWC USCG Accepted Laboratory LDBE MWAA LD1997-0041-2015 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: 15122311

Raven Power Holdings, LLC - CP Crane Plant, Baltimore, MD

December 31, 2015

Project Name: TCLP15

Project Location: Carroll Island Road, MD

Sample ID: BottomAsh2015

Matrix: SOLID

Date/Time Sampled: 12/18/2015 07:10 PSS Sample ID: 15122311-001

Date/Time Sampled: 12/17/2015 09:00 PSS Sample ID: 15122311-002

Date/Time Received: 12/23/2015 12:50

TCLP Metals Analytical Method: SW-846 6020 A

Preparation Method: 3010A

	Result	Units	RL Flag	Dil TO	LP Limit	Prepared	Analyzed	Analyst
Arsenic	ND	mg/L	0.050	1	5	12/29/15	12/29/15 17:33	1053
Barium	ND	mg/L	1.0	1	100	12/29/15	12/29/15 17:33	1053
Cadmium	ND	mg/L	0.050	1	1	12/29/15	12/29/15 17:33	1053
Chromium	ND	mg/L	0.050	1	5	12/29/15	12/29/15 17:33	1053
Lead	ND	mg/L	0.050	1	5	12/29/15	12/30/15 19:41	1053
Mercury	ND	mg/L	0.0020	1	0.2	12/29/15	12/30/15 19:41	1053
Selenium	NĐ	mg/L	0.050	1	1	12/29/15	12/29/15 17:33	1053
Silver	ND	mg/L	0.050	1	5	12/29/15	12/29/15 17:33	1053

Sample ID: Flyash2015

Matrix: SOLID Date/Time Received: 12/23/2015 12:50

TCLP Metals Analytical Method: SW-846 6020 A Preparation Method: 3010A

_	Result	Units	RL	Flag	Dil TC	LP Limit	Prepared	Analyzed	Analyst
Arsenic	0.095	mg/L	0.050		1	5	12/29/15	12/30/15 19:47	1053
Barium	1.2	mg/L	1.0		1	100	12/29/15	12/30/15 19:47	1053
Cadmium	ND	mg/L	0.050		1	1	12/29/15	12/29/15 18:04	1053
Chromium	ND	mg/L	0.050		1	5	12/29/15	12/29/15 18:04	1053
Lead	ND	mg/L	0.050		1	5	12/29/15	12/30/15 19:47	1053
Mercury	ND	mg/L	0.0020		1	0.2	12/29/15	12/30/15 19:47	1053
Selenium	0.17	mg/L	0.050		1	1	12/29/15	12/29/15 18:04	1053
Silver	ND	mg/L	0.050		1	5	12/29/15	12/29/15 18:04	1053



# **Case Narrative Summary**

Client Name: Raven Power Holdings, LLC - CP Crane Plant

**Project Name: TCLP15** 

Work Order Number(s): 15122311

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.

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



# Analytical Data Package Information Summary

Work Order(s): 15122311
Report Prepared For: Raven Power Holdings, LLC - CP Crane Plant.
Project Name: TCLP15
Project Manager: Joshua Sawyers

Method	Client Sample Id	Analysis Type	Client Sample id Analysis Type Lab Sample Id Analyst Mtx Prep Batch Analytical Batch Sampled	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
:										
SW-846 6020 A	BottomAsh2015	Initial	15122311-001	1053	*	58828	129106	12/18/2015	12/29/2015 09:05	12/29/2015 17:33
	Flyash2015	Initial	15122311-002	1053	W	58828	129106	12/17/2015	12/29/2015 09:05	12/29/2015 18:04
	58828-1-BKS	BKS	58828-1-BKS	1053	×	58828	129106		12/29/2015 09:05	12/29/2015 16:50
	58828-1-BLK	BLK	58828-1-BLK	1053	≱	58828	129106		12/29/2015 09:05	12/29/2015 16:44
	WR-309L-15 S	MS	15122208-001 S	1053	≱	58828	129106	12/21/2015	12/29/2015 09:05	12/29/2015 17:03
	WR-309L-15 SD	MSD	15122208-001 SD	1053	⋧	58828	129106	12/21/2015	12/29/2015 09:05	12/29/2015 17:09
	BottomAsh2015	Reanalysis	15122311-001	1053	≱	58828	129141	12/18/2015	12/29/2015 09:05	12/30/2015 19:41
	Flyash2015	Reanalysis	15122311-002	1053	¥	58828	129141	12/17/2015	12/29/2015 09:05	12/30/2015 19:47

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Final 1.000

# PHASE SEPARATION SCIENCE, INC.

QC Summary 15122311

# Raven Power Holdings, LLC - CP Crane Plant TCLP15

Analytical Metho	d: SW-846 6020 A					Prep Method:	SW	3010A	
Seq Number:	129106			Matrix:	Water	Date Prep:	12/2	29/15	
MB Sample Id:	58828-1-BLK		LCS San	nple Id;	58828-1-BK\$				
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Ur	nits	Analysis Date	Flag
Arsenic	<0.05000	0.4000	0.3859	96	80-120	m	g/L.	12/29/15 16:50	
Barium	<1,000	2.000	2.284	114	80-120	m	g/L	12/29/15 16:50	
Cadmium	< 0.05000	0.4000	0.3902	98	80-120	m	g/L	12/29/15 16:50	
Chromium	< 0.05000	0.4000	0.3898	97	80-120	m	g/L	12/29/15 16:50	
Lead	< 0.05000	0.4000	0.4207	105	80-120	m	g/L	12/29/15 16:50	
Mercury	<0.002000	0.01000	0.01020	102	80-120	m	g/L	12/29/15 16:50	
Selenium	< 0.05000	0.4000	0.3909	98	80-120	m	g/L	12/29/15 16:50	
Silver	< 0.05000	0.4000	0.3952	99	80-120	mg	g/L	12/29/15 16:50	

$$<sup>\</sup>label{eq:F} \begin{split} F &\approx \text{RPD exceeded the laboratory control limits} \\ X &\approx \text{Recovery of MS, MSD or both outside of QC Criteria} \\ H &\approx \text{Recovery of BS,BSD or both exceeded the laboratory control limits} \\ L &\approx \text{Recovery of BS,BSD or both below the laboratory control limits} \end{split}$$

# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

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

MMENTAL 3					Section of the second second	Carlot Strain	75 A 30 8 8 10 10 10 10 10 10 10 10 10 10 10 10 10			20 C	30	,	+
Outre Daylor Dowler	OFFICE LOC. C.P.		Crane									PAGE	- l
CLENI: INSVOIT OFF		3	0007		Matrix Code SW-Surface	is: "Wfr ∩W=D	rinking Wrd	. GW=Groun	d Wtr WW≈	Naste Wtr O=C	Ji S≂Sail W	L=Waste Liqu	Matrix Godes: SW-Surface Witt DW-Prioking Wift GW=Ground Wit WW-Waste Wit O=Dil S=Soil WL-Waste Liquid WS-Waste Soild W=Wipe
PROJECT MGR: Joshua Sawyers	PHONE NO: 443	5. 443-9.	-934-4890		No.								Preservative
EMAIL: JSawyers@raven-power.comFAX NO.:	MFAX NO.:					SAMPLE	SI	T	T		+	+	
PROJECT NAME: TCLP15		PROJE	PROJECT NO.:		<u></u>		 						Analysis/
SITE LOCATION: Carroll Island Road, MD	ad, MD	P.O. NC	, NO.: 7522928	28		COMP	- M				···· .		Method Required
SAMPLERS: Sawyers		CERT NO.			<b>Z</b> W I	G= C	dП						
SAMPLE IDENTIFICATION		DATE	TIME	MATRIX (See Codes)	oc v		<u> </u>			1			REMARKS
BottomAsh2015		12/18/15	07:10	WS	-	Ö	<b>\</b>				$\dashv$		Click to enter Remarks
Flyash2015		12/17/15	00:60	ws	1	ပ	<b>&gt;</b>				-	$\frac{1}{1}$	
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Relinquished By: (7)	Date	Time	122		H		Req 5-Day Next Day		ed Turnarour ] 3-Day ] Emergency	Ind Time 2-Day Other			
Reinquistand By: (2)	Date	1250	Received By:		. }	(	Data Del	Data Deliverables Required	Required:				
Relinquished 6y: (3)	Date	Jime	Received By:	ha h			Special	Special Instructions:	ij				
Relinquished By; (4)	Date	Time	Received By:	By:									
												9	

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723
The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

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Final 1.000

# Phase Separation Science, Inc

# Sample Receipt Checklist

Work Order#	15122311		Received By	Rachel Davis
Client Name	Raven Power Holdings, LL	-C - CP Cra	Date Received	12/23/2015 12:50:00 PM
Project Name	TCLP15		Delivered By	Trans Time Express
Disposal Date	01/27/2016		Tracking No	Not Applicable
			Logged In By	Rachel Davis
Shipping Contai No. of Coolers	ner(s) 1			
Custody Seal(s) Seal(s) Signed		N/A N/A	lce Temp (deg 0 Temp Blank	Absent C) 24 Present No
Documentation				
COC agrees wit Chain of Custoo	th sample labels? dy	Yes Yes	Sampler Nar MD DW Cen	
Sample Containe Appropriate for Intact? Labeled and La	Specified Analysis?	Yes Yes Yes	Custody Sea Seal(s) Signo	
Total No. of Sar	mples Received 2		Total No. of	Containers Received 2
Preservation				
Metals			(pH<2)	N/A
Cyanides			(pH>12)	N/A
Sulfide			(pH>9)	N/A
TOC, COD, Phe			(pH<2)	N/A
TOX, TKN, NH3			(pH<2)	N/A
	DA Vials Rovd Preserved) ave zero headspace?		(pH<2)	N/A N/A
	at least one unpreserved \	/OA vial)		N/A
•	y "No" response must	•	d in the comme	
For any improper documentation of a should be analyzed preservation shall hand delivered on the shall be a should be a shall be a sh	preservation conditions, list s any client notification as well a d as soon as possible, preferab be considered acceptable whe	ample ID, pr as client instr bly in the field an received a nay not meet	reservative added (re ructions. Samples for i at the time of samp t a temperature abor these criteria but sha	eagent ID number) below as well as preperty of the property of
Samples Inspected/G	Checklist Completed By:	ed Daw Rachel D	d [	Date: 12/23/2015
PN	A Review and Approval:	J. J. ackso Lynn Jack	n) (	Date: 12/24/2015