



Raven Power

February 27, 2014

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

SOLID WASTE

MAR 05 2014

PROGRAM

Re: Annual Generator Tonnage Reports for Calendar Year 2013 for the Brandon Shores, C. P. Crane, and H. A. Wagner Electric Generating Stations

Dear Ms. Hynson:

Enclosed please find the 2013 Annual Generator Tonnage Reports for Raven Power's Brandon Shores, C. P. Crane, and H. A. Wagner generating facilities. These reports cover the period from January 1, 2013 to December 31, 2013 for all of the coal-fired units at these facilities and reflect coal combustion byproduct production, beneficial reuse, and disposal figures at all three facilities.

Please contact me with any questions regarding these reports at 410-787-5188, or by email at amontier@raven-power.com. You can also contact Thomas Weissinger, Director, Environmental, at 410-787-5532, or by email at tweissinger@raven-power.com.

Regards,

Anthony Montier
Environmental Manager, Raven Power

Enclosures (3)

SOLID WASTE

MAR 05 2014

PROGRAM

**Coal Combustion Byproducts (CCBs)
Annual Generator Tonnage Report
Instructions for Calendar Year 2013**

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 2013. 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.”*

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.

III. Required Information. The following information must be provided to the Department by March 1, 2014:

A. Contact information:

Facility Name: Brandon Shores Generating Station

Name of Permit Holder: Brandon Shores LLC

Facility Address: 2030 Brandon Shores Road
Street

Facility Address: Baltimore Maryland 21226
City State Zip

County: Anne Arundel

Contact Information (Person filing report or Environmental Manager)

Facility Telephone No.: 410-787-5531 Facility Fax No.: _____

Contact Name: Anthony Montier

Contact Title: Environmental Manager

Contact Address: 1005 Brandon Shores Road, Suite 100
Street

Contact Address: Baltimore Maryland 21226
City State Zip

Contact Email: amontier@raven-power.com

Contact Telephone No.: 410-787-5188 Contact Fax No.: 410-787-5160

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

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 Brandon Shores electrical generating station consists of two coal fired units which produce electricity for commercial sale. Both units are equipped with Babcock & Wilcox natural circulation radiant boilers. For both units, bituminous coal is delivered by barge and stored in a pile adjacent to the plant. A proprietary additive, Chem-Mod®, is added to the coal for NO_x and mercury reduction as it is conveyed by belt from the coal pile to storage bunkers in the plant. The coal is then pulverized and fed by air to the boilers where it is burned using low NO_x burners.

On both units, the heavier ash (a.k.a. bottom ash) drops to the bottom of the boilers where it is conveyed by high-pressure water to settling bins before being eventually loaded onto trucks for beneficial reuse or disposal. Lighter ash (a.k.a. fly ash) is conveyed by furnace air flow to electrostatic precipitators where the ash is collected on charged plates and falls to storage hoppers below. This fly ash is then conveyed pneumatically from the hoppers to storage silos before either being beneficially reused on site or loaded onto trucks for off-site beneficial reuse or disposal. Later in the flue gas stream, pulse jet fabric filters downstream of the precipitators remove any remaining fly ash which has been mixed with powdered activated carbon and hydrated lime injected into the flue gas stream for emissions control. This fly ash is conveyed to storage silos for eventual reuse or disposal.

Brandon Shores' wet flue gas desulfurization ("FGD") scrubbers produce CCBs which include fly ash, gypsum, and FGD sludge. These CCBs are stored under cover on site before being loaded onto trucks for eventual beneficial reuse or disposal.

Waste water fines are the product of CCB clean up or area wash downs and are sent to the settling basin at the internal waste water treatment plant for storage. This basin is periodically de-watered and the CCBs are allowed to dry before being dug out, loaded on trucks, and sent for disposal.

C. The volume and weight of CCBs generated during calendar year 2013, 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.

Table I: Volume and Weight of CCBs Generated for Calendar Year 2013: 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 and Weight of CCBs Generated for Calendar Year 2013				
Fly Ash Type of CCB	Bottom Ash Type of CCB	Gypsum Type of CCB	FGD Sludge Type of CCB	Waste Water Fines Type of CCB
254,890	22,861	171,520	3,897	1,044
Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards
189,256	16,974	127,354	2,894	775
Weight of CCB, in Tons	Weight of CCB, in Tons	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.

FGD sludge is generated from the operation of the FGD water treatment system.

Waste water fines are from the waste water settling basin and consist largely of fly ash and bottom ash.

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 performed in 2013.

E. Copies of all laboratory reports of all chemical characterizations of the CCBs. Please attach this information to the report.

See attached reports.

F. A description of how you disposed of or used your CCBs in calendar year 2013, 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 - Beneficial Reuse

170,706 tons (229,907 CY) delivered to Separation Technologies, Inc. in Baltimore, MD for use in concrete.

6,994 tons (9,420 CY) delivered to Lehigh in Union Bridge, MD for use in cement manufacturing.

70 tons (94 CY) delivered to Ashworks in Wilmington, DE for use as flow-able fill.

Fly Ash - Disposal

11,486 tons (15,469 CY) of fly ash was delivered to Fort Armistead Road – Lot 15 LLC landfill in Baltimore, MD for landfilling.

Bottom Ash - Beneficial Reuse

9,057 tons (12,198 CY) delivered to Lehigh in Union Bridge, MD for use in cement manufacturing.

Bottom Ash - Disposal

7,917 tons (10,663 CY) of bottom ash was delivered to Fort Armistead Road – Lot 15 LLC landfill in Baltimore, MD for landfilling.

Gypsum - Beneficial Reuse

87,615 tons (118,000 CY) delivered to US Gypsum in Baltimore, MD for use in wallboard manufacturing.

17,185 tons (23,145 CY) delivered to National Gypsum in Baltimore, MD for use in wallboard manufacturing.

11,841 tons (15,947 CY) delivered to SCB International in Keystone, PA for use in cement manufacturing.

3,016 tons (4,062 CY) delivered to the USDA in Crisfield, MD for use in agricultural runoff control experiments.

2,669 tons (3,595 CY) delivered to Lehigh in Union Bridge, MD for use in cement manufacturing.

272 tons (367 CY) delivered to MERG in Baltimore, MD for use in cement manufacturing.

223 tons (301 CY) delivered to MERG in Nazareth, PA for use in cement manufacturing.

142 tons (191 CY) delivered to Crop Production Services in New Church, VA for use in agriculture.

138 tons (185 CY) delivered to MERG in Martinsburg, VA for use in cement manufacturing.

68 tons (91 CY) delivered to Crop Production Services in Hallwood, VA for use in agriculture.

23 tons (31 CY) delivered to Sports Aggregate in Centreville, VA for use in fertilizer mix.

Gypsum - Disposal

4,162 tons (5,605 CY) of gypsum was delivered to Fort Armistead Road – Lot 15 LLC landfill in Baltimore, MD for landfilling.

FGD Sludge - Disposal

2,527 tons (3,403 CY) of FGD sludge was delivered to Fort Armistead Road – Lot 15 LLC landfill in Baltimore, MD for landfilling.

FGD Sludge - Storage

367 tons (494 CY) of FGD sludge was stored on site at the end of 2013.

Waste Water Fines - Disposal

654 tons (881 CY) of waste water fines was delivered to King George landfill in King George, VA for landfilling.

121 tons (163 CY) of waste water fines delivered to Fort Armistead Road – Lot 15 LLC landfill in Baltimore, MD for landfilling.

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

Fly Ash

177,770 tons (239,327 CY) of fly ash was used in concrete and cement manufacturing.

70 tons (94 CY) was used as flow-able fill.

Bottom Ash

9,057 tons (12,198 CY) of bottom ash was used in cement manufacturing.

Gypsum

104,800 tons (141,145 CY) of gypsum was used in wallboard manufacturing.

3,249 tons (4,375 CY) was used for use for agriculture and agricultural runoff control experiments.

15,143 tons (20,395 CY) was used in concrete and cement manufacturing.

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

Raven projects that as much as 296,000 tons (396,640 CY) of fly ash will be generated each year for the next five years. Approximately 285,000 tons (382,000 CY) of fly ash will be beneficially used in cement and/or concrete products, and the remaining 11,000 tons (14,740 CY) will be disposed of in the Fort Armistead Road - Lot 15 LLC Landfill in Baltimore, MD.

Bottom Ash

Raven projects that approximately 18,000 tons (23,600 CY) of bottom ash will be generated each year for the next five years, of which 15,000 tons (19,700) CY of will be beneficially used in cement and/or concrete products and 3,000 tons

(3,900 CY) will be disposed of in the Fort Armistead Road - Lot 15 LLC landfill in Baltimore, MD.

Gypsum

Raven projects that as much as 150,000 tons (202,000 CY) of gypsum will be generated each year for the next five years, all of which will be beneficially used in drywall, cement, or concrete products, and for agricultural uses.

FGD Sludge

Raven projects that as much as 4,000 tons (5,400 CY) of FGD Sludge will be generated each year for the next five years, all of which will be disposed of in the Fort Armistead Road - Lot 15 LLC landfill in Baltimore, MD.

Waste Water Fines

Raven projects that as much as 750 tons (1,000 CY) of waste water fines will be generated each year for the next five years, all of which will be disposed of in the Fort Armistead Road - Lot 15 LLC landfill in Baltimore, MD.

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

Fly Ash

Approximately 285,000 tons (396,640 CY) of fly ash each year will be beneficially used in the manufacturing of cement or concrete.


Bottom Ash

Approximately 15,000 tons (19,700 CY) of bottom ash each year will be beneficially used in the manufacturing of cement or concrete.

Gypsum

Approximately 150,000 tons (202,000 CY) of gypsum each year will be beneficially used in drywall, cement and concrete products, or agricultural uses.

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:

This is to certify that, to the best of my knowledge, the information contained in this report and any attached documents are true, accurate, and complete.		
 Signature	William Butler Authorized Representative, 410-787-5489 <hr/> Name, Title, & Telephone No. (Print or Type) wbutler@raven-power.com <hr/> Your Email Address	2/26/14 <hr/> Date

V: Attachments (please list):

1. Certificate of Analysis No. 13032204 - Brandon Shores Gypsum
2. Certificate of Analysis No. 13050111 - Brandon Shores Fly Ash
3. Certificate of Analysis No. 13071710 - Brandon Shores Gypsum Chlorides
4. Certificate of Analysis No. 13111508 - Brandon Shores Gypsum Sample
5. Certificate of Analysis No. 13112027 - Brandon Shores Gypsum Sample

Analytical Report for
Raven Power Holdings, LLC - BS Power Plant
Certificate of Analysis No.: 13050111

Project Manager: David May
Project Name : Brandon Flyash
Project Location: Brandon Shores



May 8, 2013
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 8, 2013

David May
Raven Power Holdings, LLC - BS Power Plant
2030 Brandon Shores Road
Baltimore, MD 21226

Reference: PSS Work Order(s) No: **13050111**
Project Name: Brandon Flyash
Project Location: Brandon Shores

Dear David May :

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 **13050111**.

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 5, 2013. 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 - BS Power Plant

Project Name: Brandon Flyash

Work Order Number(s): 13050111

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/01/2013 at 02:00 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
13050111-001	Brandon Flyash from Bag Filters	SOLID	05/01/13 00:00

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. The following analytical results are never reported on a dry weight basis: 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. The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for non-potable water samples tested for compliance for Virginia Pollution Discharge Elimination System (VDPES) permits and Virginia Pollutant Abatement (VPA) permits, have a maximum holding time of 15 minutes established by 40CFR136.3.

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 LOD.
- LOD Limit of Detection. An estimate of the minimum amount of a substance that an analytical process can reliably detect.
An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.



Case Narrative Summary

Client Name: Raven Power Holdings, LLC - BS Power Plant

Project Name: Brandon Flyash

Work Order Number(s): 13050111

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.

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.

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: 13050111

Raven Power Holdings, LLC - BS Power Plant, Baltimore, MD
May 8, 2013

Project Name: Brandon Flyash
Project Location: Brandon Shores

Sample ID: Brandon Flyash from Bag Filte Date/Time Sampled: 05/01/2013 00:00 PSS Sample ID: 13050111-001
Matrix: SOLID Date/Time Received: 05/01/2013 14:00

TCLP Metals

Analytical Method: SW-846 6020 A

Preparation Method: 3010A

	Result	Units	RL	Flag	Dil	TCLP Limit	Prepared	Analyzed	Analyst
Arsenic	ND	mg/L	0.050		1	5	05/02/13	05/02/13 14:33	1034
Barium	ND	mg/L	1.0		1	100	05/02/13	05/02/13 14:33	1034
Cadmium	ND	mg/L	0.050		1	1	05/02/13	05/02/13 14:33	1034
Chromium	0.15	mg/L	0.050		1	5	05/02/13	05/06/13 12:32	1034
Lead	ND	mg/L	0.050		1	5	05/02/13	05/02/13 14:33	1034
Mercury	ND	mg/L	0.0020		1	0.2	05/02/13	05/02/13 14:33	1034
Selenium	ND	mg/L	0.050		1	1	05/02/13	05/02/13 14:33	1034
Silver	ND	mg/L	0.050		1	5	05/02/13	05/02/13 14:33	1034

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

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

PHASE SEPARATION SCIENCE, INC.

1 CLIENT: raven power ft. smallwood llc. OFFICE LOC. brandon shores				PSS Work Order # 1305011				PAGE 1 OF 1			
PROJECT MGR: david may PHONE NO.: 4435646849				Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil WL=Waste Liquid WS=Waste Solid W=Wipe				Preservation: <input type="checkbox"/> Used <input checked="" type="checkbox"/>			
EMAIL: dlmay@raven-power.com FAX NO.: 4107875577				PROJECT NO.:				Analysis/Method Required <input checked="" type="checkbox"/>			
PROJECT NAME: Brandon Flyash				P.O. NO.:				REMARKS:			
SITE LOCATION: brandon shores				DW CERT NO.:				Click to enter Remarks			
SAMPLERS: david may				LAB NO. SAMPLE IDENTIFICATION DATE TIME MATRIX (See Codes)				TCLP Metals <input checked="" type="checkbox"/>			
Brandon Flyash				5-1-13 10:35 WS 1 C				Analysis/Method Required <input checked="" type="checkbox"/>			
BA6 FILTERS				(Empty rows for additional samples)				(Empty rows for additional remarks)			
5 Relinquished By: (1) <i>David May</i>				Date: 05/01/13 Time: 10:35 Received By: <i>Van Lark, #9035</i>				Requested Turnaround Time: <input checked="" type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day			
Relinquished By: (2) <i>Van Lark, #9035</i>				Date: 05/01/13 Time: 1400 Received By: <i>Van Lark</i>				Data Deliverables Required: COA			
Relinquished By: (3)				Date: Time: Received By:				Ice Present: <input checked="" type="checkbox"/> Temp: 72°C			
Relinquished By: (4)				Date: Time: Received By:				Shipping Carrier: TFE			

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 Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order #	13050111	Received By	Rachel Davis
Client Name	Raven Power Holdings, LLC - BS Po	Date Received	05/01/2013 02:00:00 PM
Project Name	Brandon Flyash	Delivered By	Trans Time Express
Disposal Date	06/05/2013	Tracking No	Not Applicable
Shipping Container(s)		Logged In By	Rachel Davis

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Ice

Absent

Seal(s) Signed / Dated?

N/A

Temp (deg C)

22

Temp Blank Present

No

Documentation

COC agrees with sample labels?

Yes

Sampler Name

David May

Chain of Custody

Yes

MD DW Cert. No.

N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Custody Seal(s) Intact? Not Applicable

Intact?

Yes

Seal(s) Signed / Dated Not Applicable

Labeled and Labels Legible?

Yes

Total No. of Samples Received 1

Total No. of Containers Received 1

Preservation

Metals

(pH<2)

N/A

Cyanides

(pH>12)

N/A

Sulfide

(pH>9)

N/A

TOC, COD, Phenols

(pH<2)

N/A

TOX, TKN, NH3, Total Phos

(pH<2)

N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2)

N/A

Do VOA vials have zero headspace?

N/A

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:

Rachel Davis

Date: 05/01/2013

Rachel Davis

PM Review and Approval:

Lynn Moran

Date: 05/01/2013

Lynn Moran

Analytical Report for
Raven Power Holdings, LLC - BS Power Plant
Certificate of Analysis No.: 13032204

Project Manager: John Basciano
Project Name : Gypsum
Project Location: Brandon Shores



March 28, 2013
Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
Phone: (410) 747-8770
Fax: (410) 788-8723

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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MD 21228
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FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



March 28, 2013

John Basciano
Raven Power Holdings, LLC - BS Power Plant
2030 Brandon Shores Road
Baltimore, MD 21226

Reference: PSS Work Order(s) No: **13032204**
Project Name: Gypsum
Project Location: Brandon Shores

Dear John Basciano :

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 **13032204**.

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 April 26, 2013. 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,

Cathy Thompson
QA Officer



Sample Summary

Client Name: Raven Power Holdings, LLC - BS Power Plant

Project Name: Gypsum

Work Order Number(s): 13032204

Project ID: N/A

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/22/2013 at 10:47 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
13032204-001	Gypsum	SOLID	03/22/13 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. The following analytical results are never reported on a dry weight basis: 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. The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for non-potable water samples tested for compliance for Virginia Pollution Discharge Elimination System (VDPES) permits and Virginia Pollutant Abatement (VPA) permits, have a maximum holding time of 15 minutes established by 40CFR136.3.

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 LOD.
- LOD Limit of Detection. An estimate of the minimum amount of a substance that an analytical process can reliably detect.
An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.



Case Narrative Summary

Client Name: Raven Power Holdings, LLC - BS Power Plant

Project Name: Gypsum

Work Order Number(s): 13032204

Project ID: N/A

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.

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.

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: 13032204

Raven Power Holdings, LLC - BS Power Plant, Baltimore, MD

March 28, 2013

Project Name: Gypsum

Project Location: Brandon Shores

Sample ID: Gypsum

Date/Time Sampled: 03/22/2013 09:00 PSS Sample ID: 13032204-001

Matrix: SOLID

Date/Time Received: 03/22/2013 10:47

TCLP Metals

Analytical Method: SW-846 6020 A

Preparation Method: 3010A

	Result	Units	RL	Flag	Dil	TCLP Limit	Prepared	Analyzed	Analyst
Arsenic	ND	mg/L	0.050		1	5	03/26/13	03/26/13 17:09	1034
Barium	ND	mg/L	1.0		1	100	03/26/13	03/26/13 17:09	1034
Cadmium	ND	mg/L	0.050		1	1	03/26/13	03/26/13 17:09	1034
Chromium	ND	mg/L	0.050		1	5	03/26/13	03/26/13 17:09	1034
Lead	ND	mg/L	0.050		1	5	03/26/13	03/26/13 17:09	1034
Mercury	ND	mg/L	0.0020		1	0.2	03/26/13	03/26/13 17:09	1034
Selenium	0.12	mg/L	0.050		1	1	03/26/13	03/26/13 17:09	1034
Silver	ND	mg/L	0.050		1	5	03/26/13	03/26/13 17:09	1034



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

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

1		CLIENT: Raven Power		OFFICE LOC: Brandon Shores		PSS Work Order #: 13032204		PAGE 1 OF 1	
PROJECT MGR: John Basciano		PHONE NO.: 410-917-3202		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil WL=Waste Liquid WS=Waste Solid W=Wipe					
EMAIL: jbasiano@raven-power.com		FAX NO.:		PROJECT NAME: gypsum		PROJECT NO.:			
SITE LOCATION: Brandon Shores		P.O. NO.:		SAMPLERS:		DW CERT NO.:			
LAB NO.		SAMPLE IDENTIFICATION		DATE		TIME		MATRIX (See Codes)	
1		Gypsum		3-22-13		9am		gypsum	
CONTAINER NO.		SAMPLE TYPE		C = COMP		G = GRAB		TCLP metals	
1		G							
RECEIVED BY: (1)		Date		Time		Received By:			
Relinquished By: (2)		Date		Time		Received By:			
Relinquished By: (3)		Date		Time		Received By:			
Relinquished By: (4)		Date		Time		Received By:			
Requested Turnaround Time		5-Day		3-Day		2-Day		Other	
Custody Seal: ABS		Ice Present: ABS		Temp: 18°C		Shipping Carrier: OUEAT			
Special Instructions:		Please forward results when available		PO # 273660					

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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order #	13032204	Received By	Rachel Davis
Client Name	Raven Power Holdings, LLC - BS Po	Date Received	03/22/2013 10:47:00 AM
Project Name	Gypsum	Delivered By	Client
Project Number	N/A	Tracking No	Not Applicable
Disposal Date	04/26/2013	Logged In By	Rachel Davis

Shipping Container(s)

No. of Coolers	1	Ice	Absent
Custody Seal(s) Intact?	N/A	Temp (deg C)	18
Seal(s) Signed / Dated?	N/A	Temp Blank Present	No

Documentation

COC agrees with sample labels?	Yes	Sampler Name	<u>Not Provided</u>
Chain of Custody	Yes		<u>N/A</u>

Sample Container

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

Total No. of Samples Received 1

Total No. of Containers Received 1

Preservation

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

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:

Rachel Davis

Rachel Davis

Date: 03/22/2013

PM Review and Approval:

Lynn Moran

Lynn Moran

Date: 03/22/2013

Analytical Report for
Raven Power Holdings, LLC - BS Power Plant
Certificate of Analysis No.: 13111508

Project Manager: Grace Counts-Smith
Project Name : Gypsum Sample



November 18, 2013
Phase Separation Science, Inc.
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Baltimore, MD 21228
Phone: (410) 747-8770
Fax: (410) 788-8723

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PHASE SEPARATION SCIENCE, INC.



November 18, 2013

Grace Counts-Smith
Raven Power Holdings, LLC - BS Power Plant
2030 Brandon Shores Road
Baltimore, MD 21226

Reference: PSS Work Order(s) No: **13111508**
Project Name: Gypsum Sample

Dear Grace Counts-Smith :

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 **13111508**.

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 December 20, 2013. 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,

John Richardson
Laboratory Director



Sample Summary

Client Name: Raven Power Holdings, LLC - BS Power Plant

Project Name: Gypsum Sample

Work Order Number(s): 13111508

The following samples were received under chain of custody by Phase Separation Science (PSS) on 11/15/2013 at 12:05 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
13111508-001	U1/U2 Gypsum	SOLID	11/15/13 00:00

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. The following analytical results are never reported on a dry weight basis: 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. The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for non-potable water samples tested for compliance for Virginia Pollution Discharge Elimination System (VDPES) permits and Virginia Pollutant Abatement (VPA) permits, have a maximum holding time of 15 minutes established by 40CFR136.3.
6. 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.

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 LOD.
- LOD Limit of Detection. An estimate of the minimum amount of a substance that an analytical process can reliably detect.
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 2200
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBA MWAA LD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 13111508

Raven Power Holdings, LLC - BS Power Plant, Baltimore, MD
November 18, 2013

Project Name: Gypsum Sample

Sample ID: U1/U2 Gypsum	Date/Time Sampled: 11/15/2013 00:00	PSS Sample ID: 13111508-001
Matrix: SOLID	Date/Time Received: 11/15/2013 12:05	% Solids: 76

Total Metals

Analytical Method: SW-846 6020 A

Preparation Method: 3050B

C-pending reanalysis

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Aluminum	310	mg/kg	64		1	11/15/13	11/18/13 15:04	1033
Antimony	ND	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Arsenic	ND	mg/kg	0.64		1	11/15/13	11/18/13 15:04	1033
Barium	15	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Beryllium	ND	mg/kg	3.2	C	1	11/15/13	11/18/13 15:04	1033
Boron	ND	mg/kg	6.4	C	1	11/15/13	11/18/13 15:04	1033
Cadmium	ND	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Calcium	280,000	mg/kg	6,400		100	11/15/13	11/18/13 15:39	1033
Chromium	ND	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Cobalt	ND	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Copper	ND	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Iron	310	mg/kg	64		1	11/15/13	11/18/13 15:04	1033
Lead	ND	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Lithium	ND	mg/kg	3.2	C	1	11/15/13	11/18/13 15:04	1033
Magnesium	130	mg/kg	64		1	11/15/13	11/18/13 15:04	1033
Manganese	12	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Mercury	ND	mg/kg	0.13		1	11/15/13	11/18/13 15:04	1033
Molybdenum	ND	mg/kg	6.4		1	11/15/13	11/18/13 15:04	1033
Nickel	ND	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Potassium	170	mg/kg	64		1	11/15/13	11/18/13 15:04	1033
Selenium	3.7	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Silver	ND	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Sodium	ND	mg/kg	64		1	11/15/13	11/18/13 15:04	1033
Thallium	ND	mg/kg	2.6		1	11/15/13	11/18/13 15:04	1033
Vanadium	ND	mg/kg	3.2		1	11/15/13	11/18/13 15:04	1033
Zinc	ND	mg/kg	13		1	11/15/13	11/18/13 15:04	1033



Case Narrative Summary

Client Name: Raven Power Holdings, LLC - BS Power Plant

Project Name: Gypsum Sample

Work Order Number(s): 13111508

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.

Sample Receipt:

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

General Comments:

Metals list per client.

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): 13111508

Report Prepared For: Raven Power Holdings, LLC - BS Power Plant

Project Name: Gypsum Sample

Project Manager: Grace Counts-Smith

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
ASTM D2216 05	U1/U2 Gypsum	Initial	13111508-001	1050	S	110071	110071	11/15/2013	11/17/2013 08:09	11/17/2013 08:09
SW-846 6020 A	U1/U2 Gypsum	Initial	13111508-001	1033	S	48184	110097	11/15/2013	11/15/2013 13:40	11/18/2013 15:04
	U1/U2 Gypsum	Reanalysis	13111508-001	1033	S	48184	110097	11/15/2013	11/15/2013 13:40	11/18/2013 15:39

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email: info@phaseonline.com

[illegible]

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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. * = REQUIRED



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order #	13111508	Received By	Robyn Rhudy
Client Name	Raven Power Holdings, LLC - BS Po	Date Received	11/15/2013 12:05:00 PM
Project Name	Gypsum Sample	Delivered By	Trans Time Express
Disposal Date	12/20/2013	Tracking No	Not Applicable
Shipping Container(s)		Logged In By	Robyn Rhudy

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Ice

Absent

Seal(s) Signed / Dated?

N/A

Temp (deg C) 16

Temp Blank Present No

Documentation

COC agrees with sample labels?

Yes

Sampler Name

Not Provided

Chain of Custody

Yes

N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Custody Seal(s) Intact? Not Applicable

Intact?

Yes

Seal(s) Signed / Dated Not Applicable

Labeled and Labels Legible?

Yes

Total No. of Samples Received 1

Total No. of Containers Received 1

Preservation

Metals

(pH<2)

N/A

Cyanides

(pH>12)

N/A

Sulfide

(pH>9)

N/A

TOC, COD, Phenols

(pH<2)

N/A

TOX, TKN, NH₃, Total Phos

(pH<2)

N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2)

N/A

Do VOA vials have zero headspace?

N/A

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

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

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

Samples Inspected/Checklist Completed By:

Robyn Rhudy

Date: 11/15/2013

PM Review and Approval:

Simon Crisp

Date: 11/15/2013

Analytical Report for
Raven Power Holdings, LLC - BS Power Plant
Certificate of Analysis No.: 13112027

Project Manager: Grace Counts-Smith
Project Name : Gypsum Sample



December 2, 2013
Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
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Fax: (410) 788-8723

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800-932-9047
FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



December 2, 2013

Grace Counts-Smith
Raven Power Holdings, LLC - BS Power Plant
2030 Brandon Shores Road
Baltimore, MD 21226

Reference: PSS Work Order(s) No: **13112027**
Project Name: Gypsum Sample

Dear Grace Counts-Smith :

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 **13112027**.

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 December 20, 2013. 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 - BS Power Plant

Project Name: Gypsum Sample

Work Order Number(s): 13112027

The following samples were received under chain of custody by Phase Separation Science (PSS) on 11/15/2013 at 12:05 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
13112027-001	U1/U2 Gypsum	SOLID	11/15/13 00:00

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. The following analytical results are never reported on a dry weight basis: 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. The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for non-potable water samples tested for compliance for Virginia Pollution Discharge Elimination System (VDPES) permits and Virginia Pollutant Abatement (VPA) permits, have a maximum holding time of 15 minutes established by 40CFR136.3.
6. 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.

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 LOD.
- LOD Limit of Detection. An estimate of the minimum amount of a substance that an analytical process can reliably detect. 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 2200
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBA MWAA LD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 13112027

Raven Power Holdings, LLC - BS Power Plant, Baltimore, MD
December 2, 2013

Project Name: Gypsum Sample

Sample ID: U1/U2 Gypsum Date/Time Sampled: 11/15/2013 00:00 PSS Sample ID: 13112027-001
Matrix: SOLID Date/Time Received: 11/15/2013 12:05 % Solids: 76

Inorganic Anions

Analytical Method: EPA 300.0

Preparation Method: E300.0P

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chloride	ND	mg/kg	66		1	11/26/13	11/27/13 13:42	1044
Nitrate (as N)	ND	mg/kg	1.3		1	11/26/13	11/27/13 13:42	1044
Nitrite (as N)	ND	mg/kg	1.3		1	11/26/13	11/27/13 13:42	1044
Sulfate	20,000	mg/kg	330		5	11/26/13	11/27/13 14:37	1044

Cyanide

Analytical Method: SW-846 9014

Preparation Method: SW9010

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Cyanide, Total	ND	mg/kg	0.079		1	11/26/13	11/26/13 11:04	1047

Sample ID: U1/U2 Gypsum Date/Time Sampled: 11/15/2013 00:00 PSS Sample ID: 13112027-001
Matrix: SOLID Date/Time Received: 11/15/2013 12:05

pH in Non-Aqueous Matrixes

Analytical Method: SW-846 9045 D

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
pH	6.8	SU			1	11/21/13	11/21/13 11:01	1047



Case Narrative Summary

Client Name: Raven Power Holdings, LLC - BS Power Plant

Project Name: Gypsum Sample

Work Order Number(s): 13112027

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.

Sample Receipt:

Refer to previous Work Order 13111508.

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): 13112027

Report Prepared For: Raven Power Holdings, LLC - BS Power Plant

Project Name: Gypsum Sample

Project Manager: Grace Counts-Smith

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
ASTM D2216 05 EPA 300.0	U1/U2 Gypsum	Initial	13112027-001	1050	S	110215	110215	11/15/2013	11/22/2013 18:20	11/22/2013 18:20
	U1/U2 Gypsum	Initial	13112027-001	1044	S	48303	110310	11/15/2013	11/26/2013 13:10	11/27/2013 13:42
	48303-1-BKS	BKS	48303-1-BKS	1044	S	48303	110310	-----	11/26/2013 13:10	11/27/2013 12:47
	48303-1-BLK	BLK	48303-1-BLK	1044	S	48303	110310	-----	11/26/2013 13:10	11/27/2013 12:20
	48303-1-BSD	BSD	48303-1-BSD	1044	S	48303	110310	-----	11/26/2013 13:10	11/27/2013 13:14
SW-846 9014	U1/U2 Gypsum S	MS	13112027-001 S	1044	S	48303	110310	11/15/2013	11/26/2013 13:10	11/27/2013 14:09
	U1/U2 Gypsum S	Reanalysis	13112027-001 S	1044	S	48303	110310	11/15/2013	11/26/2013 13:10	11/27/2013 14:09
	U1/U2 Gypsum	Reanalysis	13112027-001	1044	S	48303	110310	11/15/2013	11/26/2013 13:10	11/27/2013 14:37
	U1/U2 Gypsum	Initial	13112027-001	1047	S	48297	110278	11/15/2013	11/26/2013 09:34	11/26/2013 11:04
	48297-1-BKS	BKS	48297-1-BKS	1047	S	48297	110278	-----	11/26/2013 09:34	11/26/2013 10:49
SW-846 9045 D	48297-1-BLK	BLK	48297-1-BLK	1047	S	48297	110278	-----	11/26/2013 09:34	11/26/2013 10:46
	48297-1-BSD	BSD	48297-1-BSD	1047	S	48297	110278	-----	11/26/2013 09:34	11/26/2013 10:52
	Sample 1-5 S	MS	13112514-001 S	1047	S	48297	110278	11/25/2013	11/26/2013 09:34	11/26/2013 10:58
	Sample 1-5 SD	MSD	13112514-001 SD	1047	S	48297	110278	11/25/2013	11/26/2013 09:34	11/26/2013 11:01
	U1/U2 Gypsum	Initial	13112027-001	1047	S	110169	110169	11/15/2013	11/21/2013 11:01	11/21/2013 11:01
	U1/U2 Gypsum D	MD	13112027-001 D	1047	S	110169	110169	11/15/2013	11/21/2013 11:01	11/21/2013 11:01

Blank Summary 13112027

Raven Power Holdings, LLC - BS Power Plant, Baltimore, MD
Gypsum Sample

Analytical Method: EPA 300.0

Prep Method: E300.0P

Matrix: SOLID

Sample Id: 48303-1-BLK

Lab Sample Id: 48303-1-BLK

Date Analyzed: Nov-27-13 12:20

Analyst: 1044

Date Prep: Nov-26-13 13:10

Tech: 1044

Seq Number: 110310

Parameter	Cas Number	Result	RL	LOD	Units	Flag	Dil
Chloride	16887-00-6	ND	50.25	50.25	mg/kg	U	1
Nitrate (as N)	7727-37-9	ND	1.005	1.005	mg/kg	U	1
Nitrite (as N)	7727-37-9	ND	1.005	1.005	mg/kg	U	1
Sulfate	18785-72-3	ND	50.25	50.25	mg/kg	U	1

Blank Summary 13112027

Raven Power Holdings, LLC - BS Power Plant, Baltimore, MD

Gypsum Sample

Analytical Method: SW-846 9014

Prep Method: SW9010

Matrix: SOLID

Sample Id: 48297-1-BLK

Lab Sample Id: 48297-1-BLK

Date Analyzed: Nov-26-13 10:46

Analyst: 1047

Date Prep: Nov-26-13 09:34

Tech: 1047

Seq Number: 110278

Parameter	Cas Number	Result	RL	LOD	Units	Flag	Dil
Cyanide, Total	57-12-5	ND	0.06000	0.03000	mg/kg	U	1

LCS/LCSD Recoveries

Project Name: Gypsum Sample

Work Order #: 13112027
 Prep Batch #: 48303
 Lab Batch ID: 110310
 Units: mg/kg
 Date Prepared: 11/26/2013 13:10
 Date Analyzed: 11/27/2013 12:47
 Sample: 48303-1-BKS
 Method: E300.0P / E300.0
 Project ID: N/A
 Analyst: 1044
 Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
Inorganic Anions Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Chloride	<50.25	502.5	484.2	96	505.1	508.7	101	5	90-110	20
	Nitrate (as N)	<1.005	50.25	47.75	95	50.51	51.11	101	7	90-110	20
	Nitrite (as N)	<1.005	50.25	48.52	97	50.51	52.51	104	8	90-110	20
	Sulfate	<50.25	502.5	496.1	99	505.1	527.6	104	6	90-110	20

Relative Percent Difference $RPD = 200 * [(D-G)/(D+G)]$
 Laboratory Control Sample (LCS) Percent Recovery $[D] = 100 * (C)/[B]$
 Laboratory Control Sample Duplicate (LCSD) Percent Recovery $[G] = 100 * (F)/[E]$

Phase Separation Science, Inc.
 6630 Baltimore National Pike
 Baltimore, MD 21228

H = Recovery of BS, BSD or both exceeded the laboratory control limits
 F = RPD exceeded the laboratory control limits
 L = Recovery of BS, BSD or both below the laboratory control limits

LCS/LCSD Recoveries

Project Name: Gypsum Sample

Work Order #: 13112027

Prep Batch #: 48297

Lab Batch ID: 110278

Units: mg/kg

Date Prepared: 11/26/2013 09:34

Date Analyzed: 11/26/2013 10:49

Sample: 48297-1-BKS

Method: SW9010 / SW9014

Project ID: N/A

Analyst: 1047

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
Cyanide Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	<0.06000	0.6000	0.6143	102	0.6000	0.6153	103	0	90-110	20	
Cyanide, Total											

Relative Percent Difference $RPD = 200 * [(D-G)/(D+G)]$

Laboratory Control Sample (LCS) Percent Recovery $[D] = 100 * (C)/[B]$

Laboratory Control Sample Duplicate (LCSD) Percent Recovery $[G] = 100 * (F)/[E]$

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Baltimore, MD 21228

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

F = RPD exceeded the laboratory control limits

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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order #	13112027	Received By	Robyn Rhudy
Client Name	Raven Power Holdings, LLC - BS Po	Date Received	11/15/2013 12:05:00 PM
Project Name	Gypsum Sample	Delivered By	Trans Time Express
Disposal Date	12/20/2013	Tracking No	Not Applicable
Shipping Container(s)		Logged In By	Robyn Rhudy

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Ice

Absent

Seal(s) Signed / Dated?

N/A

Temp (deg C)

16

Temp Blank Present

No

Documentation

COC agrees with sample labels?

N/A

Sampler Name

Not Provided

Chain of Custody

N/A

N/A

Sample Container

Appropriate for Specified Analysis?

N/A

Custody Seal(s) Intact? Not Applicable

Intact?

N/A

Seal(s) Signed / Dated Not Applicable

Labeled and Labels Legible?

N/A

Total No. of Samples Received 1

Total No. of Containers Received 1

Preservation

Metals

(pH<2)

N/A

Cyanides

(pH>12)

N/A

Sulfide

(pH>9)

N/A

TOC, COD, Phenols

(pH<2)

N/A

TOX, TKN, NH3, Total Phos

(pH<2)

N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2)

N/A

Do VOA vials have zero headspace?

N/A

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.

Refer to previous Work Order 13111508.

Samples Inspected/Checklist Completed By:

Robyn Rhudy

Robyn Rhudy

Date: 11/21/2013

PM Review and Approval:

Simon Crisp

Simon Crisp

Date: 11/21/2013

Analytical Report for
Raven Power Holdings, LLC - BS Power Plant
Certificate of Analysis No.: 13071710

Project Manager: Grace Counts-Smith
Project Name : Gypsum Chlorides



July 18, 2013
Phase Separation Science, Inc.
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Baltimore, MD 21228
Phone: (410) 747-8770
Fax: (410) 788-8723

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

PHASE SEPARATION SCIENCE, INC.



July 18, 2013

Grace Counts-Smith
Raven Power Holdings, LLC - BS Power Plant
2030 Brandon Shores Road
Baltimore, MD 21226

Reference: PSS Work Order(s) No: **13071710**
Project Name: Gypsum Chlorides

Dear Grace Counts-Smith :

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 **13071710**.

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 August 21, 2013. 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 - BS Power Plant

Project Name: Gypsum Chlorides

Work Order Number(s): 13071710

The following samples were received under chain of custody by Phase Separation Science (PSS) on 07/17/2013 at 12:10 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
13071710-001	Gypsum	SOLID	07/17/13 08:00

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. The following analytical results are never reported on a dry weight basis: 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. The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for non-potable water samples tested for compliance for Virginia Pollution Discharge Elimination System (VDPES) permits and Virginia Pollutant Abatement (VPA) permits, have a maximum holding time of 15 minutes established by 40CFR136.3.

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 LOD.
- LOD Limit of Detection. An estimate of the minimum amount of a substance that an analytical process can reliably detect.
An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.



Case Narrative Summary

Client Name: Raven Power Holdings, LLC - BS Power Plant

Project Name: Gypsum Chlorides

Work Order Number(s): 13071710

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.

Sample Receipt:

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

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

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 13071710

Raven Power Holdings, LLC - BS Power Plant, Baltimore, MD
July 18, 2013

Project Name: Gypsum Chlorides

Sample ID: Gypsum **Date/Time Sampled: 07/17/2013 08:00** **PSS Sample ID: 13071710-001**

Matrix: SOLID **Date/Time Received: 07/17/2013 12:10** **% Solids: 78**

Inorganic Anions

Analytical Method: EPA 300.0

Preparation Method: E300.0P

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chloride	19	mg/kg	13		1	07/17/13	07/17/13 15:39	1044

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

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

[illegible]

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 Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order #	13071710	Received By	Rachel Davis
Client Name	Raven Power Holdings, LLC - BS Po	Date Received	07/17/2013 12:10:00 PM
Project Name	Gypsum Chlorides	Delivered By	Trans Time Express
Disposal Date	08/21/2013	Tracking No	Not Applicable
Shipping Container(s)		Logged In By	Robyn Rhudy

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Ice

Absent

Seal(s) Signed / Dated?

N/A

Temp (deg C)

31

Temp Blank Present

No

Documentation

COC agrees with sample labels?

Yes

Sampler Name

Not Provided

Chain of Custody

Yes

N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Custody Seal(s) Intact? Not Applicable

Intact?

Yes

Seal(s) Signed / Dated Not Applicable

Labeled and Labels Legible?

Yes

Total No. of Samples Received 1

Total No. of Containers Received 1

Preservation

Metals

(pH<2)

N/A

Cyanides

(pH>12)

N/A

Sulfide

(pH>9)

N/A

TOC, COD, Phenols

(pH<2)

N/A

TOX, TKN, NH3, Total Phos

(pH<2)

N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2)

N/A

Do VOA vials have zero headspace?

N/A

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

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

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

Samples Inspected/Checklist Completed By:

Robyn Rhudy

Robyn Rhudy

Date: 07/17/2013

PM Review and Approval:

Lynn Moran

Lynn Moran

Date: 07/17/2013