Facility Name: Constellation – C.P.Crane **CCB Tonnage Report – 2009**

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.

**III. Required Information.** The following information must be provided to the Department by March 1, 2010:

A. Contact information:

Facility Name: C.P. Crane Electric Generation Station

Name of Permit Holder: Constellation Power Source Generation

Facility Address: 101 Carroll Island Road
Street

Facility Address: Chase Maryland 21220
City State Zip

County: Baltimore

Contact Information (Person filing report or Environmental Manager)

Facility Telephone No.: 410.682.9797 Facility Fax No.: 410.682.9805

Contact Name: John E. Murosko, P.G.

Contact Title: Program Manager, Environmental Services

Contact Address: 1005 Brandon Shores Road
Street

Contact Address: Baltimore Maryland 21226
City State Zip

Contact Email: john.murosko@constellation.com

Contact Telephone No.: 410.787.5471 Contact Fax No.: 410.787.6637

*For questions on how to complete this form, please call Mr. Edward Dexter, Administrator, Solid Waste Program at 410-537-3318.*

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

The C.P. Crane Generating Station (Crane) is located along Seneca Creek in eastern Baltimore County. The plant consists of two coal-fired units: Unit 1, which is nominally rated at 190 MW, and which began operating in 1961; and Unit 2, which is nominally rated at 209 MW, and which began operating in 1963. Both units use cyclone-type boilers manufactured by Babcock and Wilcox (B&W). Coal is supplied to the plant via rail and is stored adjacent to the plant. The coal is prepared for use by four Pennsylvania crushers per boiler. It is gravity-fed to the boilers after transport into the plant via mechanical conveyor. Each unit is equipped with a baghouse for capture and control of particulate matter (PM) emissions. Fly ash is collected from the baghouse hoppers and conveyed pneumatically to storage silos from where it is loaded into trucks for temporary staging on an asphalt pad on the coal pile prior to loading for final disposition. Boiler slag is recovered from the boilers and processed for shipping.

Coals burned in 2009 at the C.P. Crane Plant included bituminous coal from Northern Appalachian and South American sources, and sub-bituminous coal from Powder River Basin and Indonesian sources.

C. The annual volume of coal combustion byproducts generated during the last calendar year, including an identification of the different types of coal combustion byproducts generated and the volume of each type generated. If the space provided is insufficient, please attach additional pages in a similar format:

Table I: Volume of CCBs Generated for Previous Calendar Year:

| Reporting Year | Volume of CCB Type: Fly Ash (dry tons) | Volume of CCB Type: Boiler Slag (dry tons) | Volume of CCB Type: |
|---|---|---|---|
| 2009 | 24,752 | 21,983 | |

Additional notes:

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

Neither modeling nor risk assessments have been performed during the past year.

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

- Crane Bottom Ash, Penniman & Browne, Inc., January 19, 2009
- Flyash for TCLP Metals, Phase Separation Science, Inc., April 14, 2009
- Crane Fly Ash, Phase Separation Science, Inc., May 15, 2009
- Cyclean Test, Phase Separation Science, Inc., May 15, 2009
- Adaro Coal, Phase Separation Science, Inc., June 25, 2009
- Drummond Flyash, Phase Separation Science, Inc., July 27, 2009
- Fly Ash Tests for MDE, Phase Separation Science, Inc., September 22, 2009

F. A description of how you disposed of or used your coal combustion byproducts in the last calendar year, identifying:

(a) The types and volume of coal combustion byproducts disposed of or used (if different than described in Paragraph C above), the location of disposal, mine reclamation and use sites, and the type and volume of coal combustion byproducts disposed of or used at each site:

| Year | CCB Receiver | Fly Ash (dry tons) | Boiler Slag (dry tons) | CCBs Use |
|---|---|---|---|---|
| 2009 | Virginia Materials, Inc., MD | 0 | 21,983 | Abrasives/roofing mat'l |
| | Bulk Materials, Int'l, NY | 184 | 0 | cement kiln feed |
| | Waste Mgmt, VA | 19,690 | 0 | landfill, daily cover |
| | Mountainview LF, MD | 3,070 | 0 | landfill, daily cover |
| | The East End LF, VA | 25 | 0 | landfill, daily cover |
| | Tri-Cities LF, VA | 1,783 | 0 | landfill, structural fill |

and (b) The different uses by type and volume of coal combustion byproducts:

- CCBs delivered to Waste Management were used for daily cover in a municipal solid waste (MSW) landfill located in King George, VA.
- CCBs delivered to Mountainview Landfill in Allegany County, MD were used for daily cover in that MSW landfill, as authorized by MDE.
- CCBs delivered to The East End Landfill in Henrico, VA were used for daily cover in municipal solid waste (MSW) landfills.
- CCBs delivered to Tri-Cities Landfill in Petersburg, VA will be used as structural fill to build walls and barriers in that MSW landfill.
- CCBs delivered to Virginia Materials, Inc. in Baltimore, MD were used for abrasives and roofing granules.

- CCBs delivered to Bulk Materials, Inc. were subsequently shipped by BMI to a LaFarge cement plant New York for use as cement kiln feed

If the space provided is insufficient, please attach additional pages in a similar format. . (Please note that in subsequent years you need only provide the information in Section F for the last calendar year).

G. A description of how you intend to dispose of or use coal combustion byproducts in the next 5 years, identifying:

(a) The types and volume of coal combustion byproducts intended to be disposed of or used, the location of intended disposal, mine reclamation and use sites, and the type and volume of coal combustion byproducts intended to be disposed of or used at each site:

• Fly Ash: CPSG projects that approximately 43,000 tons will be generated each year for the next five years, all of which will be disposed of in landfills in Virginia and Maryland authorized to accept CCBs, used primarily for daily cover. Beginning in March 2011, CPSG will place unused flyash in a permitted industrial waste landfill in Baltimore City.

• Boiler Slag: CPSG projects that approximately 31,000 tons 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 coal combustion byproducts.

• Fly Ash: No beneficial use of fly ash generated at the C.P. Crane station is projected for the next 5 years; however, with proper certification as a Class C fly ash, there is a potential for beneficial use in concrete products. It's possible that all fly ash generated at C.P. Crane will be beneficially used.

• Boiler Slag: Approximately 31,000 tons each year will be beneficially used for blasting grit and/or roofing granules.

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

**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 | Quinn Morrison, Director-Asset Operations<br>410.787.5399<br>Name, Title, & Telephone No.<br><br>quinn.morrison@constellation.com<br>Your Email Address | 2/26/2010<br>Date |

PENNIMAN & BROWNE, INC.

CHEMISTS / ENGINEERS / INSPECTORS
INDUSTRIAL HYGIENE SERVICES

*Prepared for:*

Phase Separation Science, Inc.
Betsy Orr
6630 Baltimore National Pike
Route 40 West
Baltimore, MD. 21228

***Certificate of Analysis***

***1/19/2009***

9011401 Crane Bottom Ash

***Sample Information***

| | | | |
|---|---|---|---|
| Sample Number | 90000191-01 | Matrix | Miscellaneous Solid |
| Sample ID | 9011401-001 | Sample Date/Time | 01/13/09 7:00 |
| Description | | Sample Received | 01/14/09 11:55 |
| | | Sampler | Client |

| *Analysis* | *Units* | *PQL* | *Results* | *Analyst* | *Date / Time Tested* | *Method* |
|---|---|---|---|---|---|---|
| Loss on Ignition | % | 0.1 | 28.7 | BAS | 01/16/2009 17:00 | ASTM D2974 |
| Moisture | % | 0.1 | 33.6 | BAS | 01/16/2009 17:00 | ASTM D2974 |
| Total Solids | % | 0.1 | 66.4 | BAS | 01/16/2009 17:00 | ASTM D2974 |

Beth Slowik - Quality Assurance Manager

Barbara Schroyer, Laboratory Director

# Analytical Report for

## Constellation Energy Group - CP Crane plant

## Certificate of Analysis No.: 9040701

**Project Manager: Faith Davidson**
**Project Name : Flyash for TCLP-Metals**
**Project Location: CP Crane**

**April 14, 2009**

**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

# PHASE SEPARATION SCIENCE, INC.

April 14, 2009

**Faith Davidson**
**Constellation Energy Group - CP Crane plant**
1001 Carroll Island Rd
Baltimore, MD 21220

Reference: PSS Work Order No: **9040701**
Project Name : Flyash for TCLP-Metals
Project Location: CP Crane

Dear Faith Davidson :

The attached Analytical and QC Summary lists 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 numbered **9040701**.

All work reported herein has been performed in accordance with referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual. 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 May 12, 2009. 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 10 years, after which time it will be disposed 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.

Dan Prucnal

**Dan Prucnal**
Laboratory Manager

# Case Narrative Summary

## Client Name: Constellation Energy Group - CP Crane plant

## Project Name: Flyash for TCLP-Metals

**Project ID: N/A** **Work Order Number: 9040701**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 04/07/2009 at 08:06 am

| Lab Sample Id | Sample Id | Matrix | Date/Time Collected |
|---|---|---|---|
| 9040701-001 | CPC#1A Baghouse | SOLID | 04/06/2009 09:00 am |
| 9040701-002 | CPC#1B Baghouse | SOLID | 04/06/2009 09:00 am |

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 the Sample Receipt Checklist.

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.

**Notes:**

1. The presence of common laboratory contaminants such as acetone, methylene chloride and phthalates, 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.

**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.
D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
J The target analyte was positively identified below the reporting limit but greater than one-half of the reporting limit.
ND Not Detected at or above the reporting limit.
RL Reporting Limit.
U Not detected.

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: 9040701

**Constellation Energy Group - CP Crane plant, Baltimore, MD**

April 14, 2009

Project Name: Flyash for TCLP-Metals
Project Location: CP Crane

**Sample ID: CPC#1A Baghouse** **Date/Time Sampled: 04/06/2009 09:00** **PSS Sample ID: 9040701-001**
**Matrix: SOLID** **Date/Time Received: 04/07/2009 08:06**

TCLP Metals — Analytical Method: SW846 6020A — Preparation Method: SW846 3010A

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | mg/L | 5.0 | | 1 | 04/14/09 | 04/14/09 13:06 | 1034 |
| Barium | ND | mg/L | 100 | | 1 | 04/14/09 | 04/14/09 13:06 | 1034 |
| Cadmium | ND | mg/L | 1.0 | | 1 | 04/14/09 | 04/14/09 13:06 | 1034 |
| Chromium | ND | mg/L | 5.0 | | 1 | 04/14/09 | 04/14/09 13:06 | 1034 |
| Lead | ND | mg/L | 5.0 | | 1 | 04/14/09 | 04/14/09 13:06 | 1034 |
| Mercury | ND | mg/L | 0.200 | | 1 | 04/14/09 | 04/14/09 13:06 | 1034 |
| Selenium | ND | mg/L | 1.0 | | 1 | 04/14/09 | 04/14/09 13:06 | 1034 |
| Silver | ND | mg/L | 5.0 | | 1 | 04/14/09 | 04/14/09 13:06 | 1034 |

**Sample ID: CPC#1B Baghouse** **Date/Time Sampled: 04/06/2009 09:00** **PSS Sample ID: 9040701-002**
**Matrix: SOLID** **Date/Time Received: 04/07/2009 08:06**

TCLP Metals — Analytical Method: SW846 6020A — Preparation Method: SW846 3010A

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | mg/L | 5.0 | | 1 | 04/14/09 | 04/14/09 13:37 | 1034 |
| Barium | ND | mg/L | 100 | | 1 | 04/14/09 | 04/14/09 13:37 | 1034 |
| Cadmium | ND | mg/L | 1.0 | | 1 | 04/14/09 | 04/14/09 13:37 | 1034 |
| Chromium | ND | mg/L | 5.0 | | 1 | 04/14/09 | 04/14/09 13:37 | 1034 |
| Lead | ND | mg/L | 5.0 | | 1 | 04/14/09 | 04/14/09 13:37 | 1034 |
| Mercury | ND | mg/L | 0.200 | | 1 | 04/14/09 | 04/14/09 13:37 | 1034 |
| Selenium | ND | mg/L | 1.0 | | 1 | 04/14/09 | 04/14/09 13:37 | 1034 |
| Silver | ND | mg/L | 5.0 | | 1 | 04/14/09 | 04/14/09 13:37 | 1034 |

# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

## PHASE SEPARATION SCIENCE, INC.

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

(1) CLIENT: Constellation Energy OFFICE LOC. CP Crane

PROJECT MGR: PHONE NO.: (410) 652-9850

EMAIL: faith.davidson@constellation.com FAX NO.: (410) 652-9992

PROJECT NAME: Flyash for TCLP-Metals PROJECT NO.:

SITE LOCATION: CP Crane P.O. NO.: 255965

SAMPLERS: 2

PSS Work Order #: 9024076

PAGE 1 OF 1

Matrix Codes: SW=Surface Wtr DW=Drinking Wrt GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil WL=Waste Liquid WS=Waste Solid W= Wipe

(2)

| LAB NO | SAMPLE IDENTIFICATION | DATE | TIME | MATRIX (See Codes) | No. CONTAINERS | SAMPLE TYPE C=COMP G=GRAB | Preservatives Used | Analysis/ Method Required (3) TCLP-metals | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | CP#1 Baghouse | 9/6/09 | 900 | Solid | 1 | G | | ✓ | 2nd put on hold |
| 2 | CP#2 Baghouse | 9/6/09 | 900 | Solid | 1 | G | | ✓ | |

(5)

| Relinquished By: (1) | Date | Time | Received By: |
|---|---|---|---|
| David F. Davidson | 9/7/09 | 0806 | |
| Relinquished By: (2) | Date | Time | Received By: |
| Relinquished By: (3) | Date | Time | Received By: |
| Relinquished By: (4) | Date | Time | Received By: |

(4) Requested Turnaround Time

☑ 5-Day ☐ 3-Day ☐ 2-Day ☐ Next Day ☐ Emergency ☐ Other

Data Deliverables Required:

# of Coolers: 1

Custody Seal: Signed, dated intact

Ice Present: Yes Temp: 3°C

Shipping Carrier: Client

Special Instructions:

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

**Amy**

**From:** Davidson, Faith [Faith Davidson@constellation com]
**Sent:** Tuesday, April 07, 2009 9:35 AM
**To:** 'amyf@phaseonline.com'
**Cc:** Davidson, Faith
**Subject:** April 6, 2009 CPC Baghouse Flyash Samples

Please disregard hold notice in comments on the 4/6/09 CP Crane Baghouse flyash samples chain of custody sheet Please run both samples since both are labeled the same

Thanks and have an unbelievable day!
Faith E. Davidson
410-682-9850 Desk
443-824-8729 Cell
faith.davidson@constellation com
120/80, 100/125, 200, 35/40, Smile!

# Phase Separation Science, Inc

## Sample Receipt Checklist

| | | | |
|---|---|---|---|
| **Wo Number** | 9040701 | **Received By** | Amy Friedlander |
| **Client Name** | Constellation Energy Group - CP Cra | **Date Received** | 04/07/2009 08:06:00 AM |
| **Project Name** | Flyash for TCLP-Metals | **Delivered By** | Client |
| **Project Number** | N/A | **Tracking No** | Not Applicable |
| **Disposal Date:** | 05/12/2009 | **Logged In By** | Rachel Davis |

**Shipping Container(s)**

| | | | |
|---|---|---|---|
| No. of Coolers | 1 | Ice | Present |
| Custody Seals | Present | Temp (deg C) | 3 |
| Seal Condition | Intact, Dated And Signed | Temp Blank Present | No |

**Documentation**

COC agrees with sample labels? X Yes or (X) No

Chain of Custody (COC) X Yes or ___ No

**Sample Container**

| | | | |
|---|---|---|---|
| Appropiate for Specified Analysis? | Yes X No___ | Custody Seal(s) | Yes___ No X |
| Intact? | X ___ | Custody Seal(s) Intact? | ___ X |
| Labeled and Labels Legible | X ___ | Seal(s) Signed / Dated | ___ X |
| Total No. of Samples Received | 2 | Total No. of Containers Received | 2 |

**Preservation**

| | | Yes | No | N/A |
|---|---|---|---|---|
| Metals | (pH<2) | ___ | ___ | X |
| Cyanides | (pH>12) | ___ | ___ | X |
| Sulfide | (pH>9) | ___ | ___ | X |
| TOC, COD, Phenols | (pH<2) | ___ | ___ | X |
| TOX, TKN, NH3, Total Phos | (pH<2) | ___ | ___ | X |
| VOC, BTEX (VOA Vials Rcvd Preserved) | (pH<2) | ___ | ___ | X |
| Do VOA vials have zero headspace? | | ___ | ___ | X |

**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**

*Both container labels of samples received read, CPC#1 Baghouse. Per Faith Davidson, analyze both for TCLP Metals and name one CPC#1A and the other CPC#1B -rd 4/7/09

Samples Inspected/Checklist Completed By: _____ Date: 4/7/09

PM Review and Approval: _____ Date: 4/7/09

*04/07/2009 09:36 AM*

# Analytical Report for

## Constellation Energy Group

## Certificate of Analysis No.: 9051404

**Project Manager: John Basciano**
**Project Name : Crane Fly Ash**
**Project Location: Crane Station**

**May 15, 2009**

**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

# PHASE SEPARATION SCIENCE, INC.

May 15, 2009

**John Basciano**
**Constellation Energy Group**
1005 Brandon Shores Rd.
Baltimore, MD 21226

Reference: PSS Work Order No: **9051404**
Project Name : Crane Fly Ash
Project Location: Crane Station

Dear John Basciano :

The attached Analytical and QC Summary lists 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 numbered **9051404**.

All work reported herein has been performed in accordance with referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual. 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 18, 2009. 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 10 years, after which time it will be disposed 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.

**Dan Prucnal**
Laboratory Manager

# Case Narrative Summary

## Client Name: Constellation Energy Group

## Project Name: Crane Fly Ash

**Project ID: N/A** **Work Order Number: 9051404**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/14/2009 at 11:55 am

| Lab Sample Id | Sample Id | Matrix | Date/Time Collected |
|---|---|---|---|
| 9051404-001 | Crane Fly Ash | SOLID | 05/14/2009 12:00 am |

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 the Sample Receipt Checklist.

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.

**Notes:**

1. The presence of common laboratory contaminants such as acetone, methylene chloride and phthalates, 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].

**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.
D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
J The target analyte was positively identified below the reporting limit but greater than one-half of the reporting limit.
ND Not Detected at or above the reporting limit.
RL Reporting Limit.
U Not detected.

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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.

## CERTIFICATE OF ANALYSIS

No: 9051404

**Constellation Energy Group, Baltimore, MD**

May 15, 2009

Project Name: Crane Fly Ash
Project Location: Crane Station

**Sample ID: Crane Fly Ash** **Date/Time Sampled: 05/14/2009 00:00** **PSS Sample ID: 9051404-001**
**Matrix: SOLID** **Date/Time Received: 05/14/2009 11:55**

TCLP Metals Analytical Method: SW846 6020A Preparation Method: SW846 3010A

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | mg/L | 5.0 | | 1 | 05/15/09 | 05/15/09 11:59 | 1034 |
| Barium | ND | mg/L | 100 | | 1 | 05/15/09 | 05/15/09 11:59 | 1034 |
| Cadmium | ND | mg/L | 1.0 | | 1 | 05/15/09 | 05/15/09 11:59 | 1034 |
| Chromium | ND | mg/L | 5.0 | | 1 | 05/15/09 | 05/15/09 11:59 | 1034 |
| Lead | ND | mg/L | 5.0 | | 1 | 05/15/09 | 05/15/09 11:59 | 1034 |
| Mercury | ND | mg/L | 0.200 | | 1 | 05/15/09 | 05/15/09 11:59 | 1034 |
| Selenium | **0.111** | mg/L | 1.0 | | 1 | 05/15/09 | 05/15/09 11:59 | 1034 |
| Silver | ND | mg/L | 5.0 | | 1 | 05/15/09 | 05/15/09 11:59 | 1034 |

# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

## PHASE SEPARATION SCIENCE, INC.

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

(1) CLIENT: CPSG | OFFICE LOC.: BS coal yard
PROJECT MGR: John Basciano | PHONE NO.: 410-987-3202
EMAIL: john.m.basciano@constellation.com | FAX NO.: 410-787-5424
PROJECT NAME: Crane Ash (FA) | PROJECT NO.:
SITE LOCATION: Crane Station | P.O. NO.:
SAMPLERS: | DW CERT NO.:

PSS Work Order #: 9051409 | PAGE 1 OF 1

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

(2)

| LAB NO. | SAMPLE IDENTIFICATION | DATE | TIME | MATRIX (See Codes) | No. CONTAINERS | SAMPLE TYPE C = COMP G = GRAB | Click to enter Analysis | TCLP Metals | Preservative Used | Analysis/ Method Required | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Crane Fly Ash | 5/14/09 | | Fly Ash | 1 | G | | ✓ | | | Click to enter Remarks |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

(5)

| Relinquished By: (1) | Date | Time | Received By: |
|---|---|---|---|
| John Basciano | 5/14/09 | 1155A | |
| Relinquished By: (2) | Date | Time | Received By: |
| Relinquished By: (3) | Date | Time | Received By: |
| Relinquished By: (4) | Date | Time | Received By: |

(4)

Requested Turnaround Time: ☐ 5-Day ☐ 3-Day ☐ 2-Day ■ Next Day ☐ Emergency ☐ Other

# of Coolers: 0
Custody Seal: ABS
Ice Present: ABS Temp: 17°C
Shipping Carrier: CLIENT

Data Deliverables Required:

Special Instructions:
Please forward results ASAP.

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# Phase Separation Science, Inc

## Sample Receipt Checklist

| | | | |
|---|---|---|---|
| **Wo Number** | 9051404 | **Received By** | Rachel Davis |
| **Client Name** | Constellation Energy Group | **Date Received** | 05/14/2009 11:55:00 AM |
| **Project Name** | Crane Fly Ash | **Delivered By** | Client |
| **Project Number** | N/A | **Tracking No** | Not Applicable |
| **Disposal Date:** | 06/18/2009 | **Logged In By** | Rachel Davis |

**Shipping Container(s)**

| | | | |
|---|---|---|---|
| No. of Coolers | 0 | Ice | Absent |
| Custody Seals | Absent | Temp (deg C) | 17 |
| Seal Condition | None | Temp Blank Present | No |

**Documentation**

COC agrees with sample labels? X Yes or ___ No

Chain of Custody (COC) X Yes or ___ No

**Sample Container**

| | | | | | |
|---|---|---|---|---|---|
| Appropiate for Specified Analysis? | Yes X | No ___ | Custody Seal(s) | Yes ___ | No X |
| Intact? | X | ___ | Custody Seal(s) Intact? | ___ | X |
| Labeled and Labels Legible | X | ___ | Seal(s) Signed / Dated | ___ | X |
| Total No. of Samples Received | 1 | | Total No. of Containers Received | 1 | |

**Preservation**

| | | Yes | No | N/A |
|---|---|---|---|---|
| Metals | (pH<2) | ___ | ___ | X |
| Cyanides | (pH>12) | ___ | ___ | X |
| Sulfide | (pH>9) | ___ | ___ | X |
| TOC, COD, Phenols | (pH<2) | ___ | ___ | X |
| TOX, TKN, NH3, Total Phos | (pH<2) | ___ | ___ | X |
| VOC, BTEX (VOA Vials Rcvd Preserved) | (pH<2) | ___ | ___ | X |
| Do VOA vials have zero headspace? | | ___ | ___ | X |

**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 Inspected/Checklist Completed By: _____ Date: 5/14/9

PM Review and Approval: _____ Date: 5/14/09

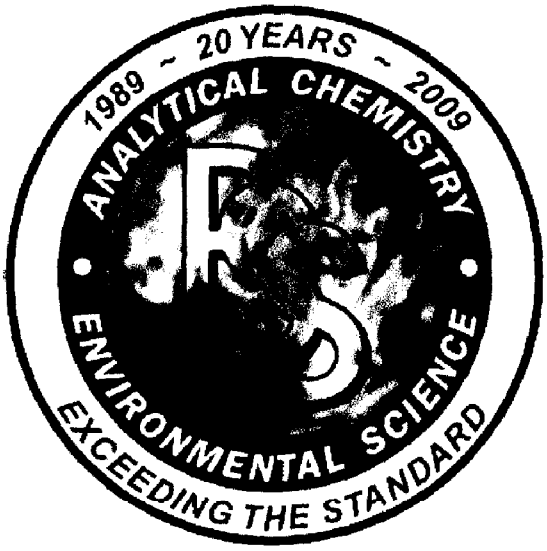
*05/14/2009 12:08 PM*

# Analytical Report for

## Constellation Energy Group

## Certificate of Analysis No.: 9051405

**Project Manager: John Basciano**
**Project Name : Cyclean Test**
**Project Location: Crane Station**




**May 15, 2009**

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

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800-932-9047

# PHASE SEPARATION SCIENCE, INC.

May 15, 2009

**John Basciano**
**Constellation Energy Group**
1005 Brandon Shores Rd.
Baltimore, MD 21226

Reference: PSS Work Order No: **9051405**
Project Name : Cyclean Test
Project Location: Crane Station

Dear John Basciano :

The attached Analytical and QC Summary lists 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 numbered **9051405**.

All work reported herein has been performed in accordance with referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual. 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 18, 2009. 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 10 years, after which time it will be disposed 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.

Dan Prucnal

**Dan Prucnal**
Laboratory Manager

# Case Narrative Summary
## Client Name: Constellation Energy Group
## Project Name: Cyclean Test

**Project ID: N/A** **Work Order Number: 9051405**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/14/2009 at 11:55 am

| Lab Sample Id | Sample Id | Matrix | Date/Time Collected |
|---|---|---|---|
| 9051405-001 | Crane Bottom Ash Slag | SOLID | 05/14/2009 11:15 am |

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 the Sample Receipt Checklist.

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.

**Notes:**

1. The presence of common laboratory contaminants such as acetone, methylene chloride and phthalates, 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].

**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.
D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
J The target analyte was positively identified below the reporting limit but greater than one-half of the reporting limit.
ND Not Detected at or above the reporting limit.
RL Reporting Limit.
U Not detected.

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# PHASE SEPARATION SCIENCE, INC.

## CERTIFICATE OF ANALYSIS

No: 9051405

**Constellation Energy Group, Baltimore, MD**

May 15, 2009

Project Name: Cyclean Test
Project Location: Crane Station

**Sample ID: Crane Bottom Ash Slag** **Date/Time Sampled: 05/14/2009 11:15** **PSS Sample ID: 9051405-001**
**Matrix: SOLID** **Date/Time Received: 05/14/2009 11:55**

TCLP Metals — Analytical Method: SW846 6020A — Preparation Method: SW846 3010A

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | mg/L | 5.0 | | 1 | 05/15/09 | 05/15/09 12:30 | 1034 |
| Barium | ND | mg/L | 100 | | 1 | 05/15/09 | 05/15/09 12:30 | 1034 |
| Cadmium | ND | mg/L | 1.0 | | 1 | 05/15/09 | 05/15/09 12:30 | 1034 |
| Chromium | ND | mg/L | 5.0 | | 1 | 05/15/09 | 05/15/09 12:30 | 1034 |
| Lead | ND | mg/L | 5.0 | | 1 | 05/15/09 | 05/15/09 12:30 | 1034 |
| Mercury | ND | mg/L | 0.200 | | 1 | 05/15/09 | 05/15/09 12:30 | 1034 |
| Selenium | ND | mg/L | 1.0 | | 1 | 05/15/09 | 05/15/09 12:30 | 1034 |
| Silver | ND | mg/L | 5.0 | | 1 | 05/15/09 | 05/15/09 12:30 | 1034 |

# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

## PHASE SEPARATION SCIENCE, INC.

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

(1) CLIENT: CPSG | OFFICE LOC.: BS coal yard | PSS Work Order #: 905405 | PAGE 1 OF 1

PROJECT MGR: John Basciano | PHONE NO.: 410-917-3202

EMAIL: john.m.basciano@constellation.com | FAX NO.: 410-787-5424

PROJECT NAME: Cylean test | PROJECT NO.:

SITE LOCATION: Crane Station | P.O. NO.:

SAMPLERS: | DW CERT NO.:

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

(2)

| LAB NO. | SAMPLE IDENTIFICATION | DATE | TIME | MATRIX (See Codes) | No. CONTAINERS | SAMPLE TYPE C = COMP G = GRAB | Click to enter Analysis | TCLP Metals | Preservative Used | Analysis/ Method Required | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Crane bottom ash slag | 5/14/09 | 11.15 a | slag | 1 | g | | | | | Click to enter Remarks |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

(5)

| Relinquished By: (1) | Date | Time | Received By: |
|---|---|---|---|
| [signature] | 5/14/09 | 11 45 | [signature] 1155A |
| Relinquished By: (2) | Date | Time | Received By: |
| Relinquished By: (3) | Date | Time | Received By: |
| Relinquished By: (4) | Date | Time | Received By: |

(4)

Requested Turnaround Time: ☐ 5-Day ☐ 3-Day ☐ 2-Day ■ Next Day ☐ Emergency ☐ Other

Data Deliverables Required:

# of Coolers: 0

Custody Seal: ABS

Ice Present: ABS Temp: 17°C

Shipping Carrier: CLIENT

Special Instructions:

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# Phase Separation Science, Inc

## Sample Receipt Checklist

| | | | |
|---|---|---|---|
| **Wo Number** | 9051405 | **Received By** | Rachel Davis |
| **Client Name** | Constellation Energy Group | **Date Received** | 05/14/2009 11:55:00 AM |
| **Project Name** | Cylean Test | **Delivered By** | Client |
| **Project Number** | N/A | **Tracking No** | Not Applicable |
| **Disposal Date:** | 06/18/2009 | **Logged In By** | Rachel Davis |

**Shipping Container(s)**

| | | | |
|---|---|---|---|
| No of Coolers | 0 | Ice | Absent |
| Custody Seals | Absent | Temp (deg C) | 17 |
| Seal Condition | None | Temp Blank Present | No |

**Documentation**

COC agrees with sample labels? X Yes or ___ No

Chain of Custody (COC) X Yes or ___ No

**Sample Container**

| | | | |
|---|---|---|---|
| Appropiate for Specified Analysis? | Yes X No ___ | Custody Seal(s) | Yes ___ No X |
| Intact? | X ___ | Custody Seal(s) Intact? | ___ X |
| Labeled and Labels Legible | X ___ | Seal(s) Signed / Dated | ___ X |
| Total No. of Samples Received | 1 | Total No. of Containers Received | 1 |

**Preservation**

| | | Yes | No | N/A |
|---|---|---|---|---|
| Metals | (pH<2) | ___ | ___ | X |
| Cyanides | (pH>12) | ___ | ___ | X |
| Sulfide | (pH>9) | ___ | ___ | X |
| TOC, COD, Phenols | (pH<2) | ___ | ___ | X |
| TOX, TKN, NH3, Total Phos | (pH<2) | ___ | ___ | X |
| VOC, BTEX (VOA Vials Rcvd Preserved) | (pH<2) | ___ | ___ | X |
| Do VOA vials have zero headspace? | | ___ | ___ | X |

**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 Inspected/Checklist Completed By: _____ Date: 5/14/9

PM Review and Approval: _____ Date: 5/14/09

*05/14/2009 12:10 PM*

# Analytical Report for

## Constellation Energy Group - CP Crane plant

## Certificate of Analysis No.: 9062414

**Project Manager: Faith Davidson**
**Project Name : Adaro Coal**
**Project Location: C.P. Crane**

**June 25, 2009**

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

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# PHASE SEPARATION SCIENCE, INC.

June 25, 2009

**Faith Davidson**
**Constellation Energy Group - CP Crane plant**
1001 Carroll Island Rd
Baltimore, MD 21220

Reference: PSS Work Order No: **9062414**
Project Name : Adaro Coal
Project Location: C.P. Crane

Dear Faith Davidson :

The attached Analytical and QC Summary lists 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 numbered **9062414**.

All work reported herein has been performed in accordance with referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual. 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 July 29, 2009. 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.

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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.

Dan Prucnal

**Dan Prucnal**
Laboratory Manager

# Case Narrative Summary

## Client Name: Constellation Energy Group - CP Crane plant

## Project Name: Adaro Coal

**Project ID: N/A** **Work Order Number: 9062414**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 06/24/2009 at 05:29 pm

| Lab Sample Id | Sample Id | Matrix | Date/Time Collected |
|---|---|---|---|
| 9062414-001 | CPC2 Baghouse | SOLID | 06/24/2009 01:00 pm |
| 9062414-002 | CPC2 Bottom Ash | SOLID | 06/24/2009 01:00 pm |

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 the Sample Receipt Checklist.

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.

**Notes:**

1. The presence of common laboratory contaminants such as acetone, methylene chloride and phthalates, 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].

**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.
D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
J The target analyte was positively identified below the reporting limit but greater than one-half of the reporting limit.
ND Not Detected at or above the reporting limit.
RL Reporting Limit.
U Not detected.

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# PHASE SEPARATION SCIENCE, INC.

## CERTIFICATE OF ANALYSIS

No: 9062414

**Constellation Energy Group - CP Crane plant, Baltimore, MD**

June 25, 2009

Project Name: Adaro Coal
Project Location: C.P. Crane

**Sample ID: CPC2 Baghouse** **Date/Time Sampled: 06/24/2009 13:00** **PSS Sample ID: 9062414-001**
**Matrix: SOLID** **Date/Time Received: 06/24/2009 17:29** **% Solids: 99**

Total Metals — Analytical Method: SW846 6020A — Preparation Method: SW846 3050B

| | Result | Units | Rep Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Iron | **26,000** | mg/kg | 4,800 | | 100 | 06/25/09 | 06/25/09 15:19 | 1033 |

**Sample ID: CPC2 Baghouse** **Date/Time Sampled: 06/24/2009 13:00** **PSS Sample ID: 9062414-001**
**Matrix: SOLID** **Date/Time Received: 06/24/2009 17:29**

TCLP Metals — Analytical Method: SW846 6020A — Preparation Method: SW846 3010A

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | mg/L | 5.0 | | 1 | 06/25/09 | 06/25/09 11:59 | 1033 |
| Barium | ND | mg/L | 100 | | 1 | 06/25/09 | 06/25/09 11:59 | 1033 |
| Cadmium | ND | mg/L | 1.0 | | 1 | 06/25/09 | 06/25/09 11:59 | 1033 |
| Chromium | ND | mg/L | 5.0 | | 1 | 06/25/09 | 06/25/09 11:59 | 1033 |
| Lead | ND | mg/L | 5.0 | | 1 | 06/25/09 | 06/25/09 11:59 | 1033 |
| Mercury | ND | mg/L | 0.200 | | 1 | 06/25/09 | 06/25/09 11:59 | 1033 |
| Selenium | ND | mg/L | 1.0 | | 1 | 06/25/09 | 06/25/09 11:59 | 1033 |
| Silver | ND | mg/L | 5.0 | | 1 | 06/25/09 | 06/25/09 11:59 | 1033 |

**Sample ID: CPC2 Bottom Ash** **Date/Time Sampled: 06/24/2009 13:00** **PSS Sample ID: 9062414-002**
**Matrix: SOLID** **Date/Time Received: 06/24/2009 17:29** **% Solids: 75**

Total Metals — Analytical Method: SW846 6020A — Preparation Method: SW846 3050B

| | Result | Units | Rep Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Iron | **120,000** | mg/kg | 5,400 | | 100 | 06/25/09 | 06/25/09 15:25 | 1033 |

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# PHASE SEPARATION SCIENCE, INC.

## CERTIFICATE OF ANALYSIS

No: 9062414

**Constellation Energy Group - CP Crane plant, Baltimore, MD**

June 25, 2009

Project Name: Adaro Coal
Project Location: C.P. Crane

**Sample ID: CPC2 Bottom Ash** **Date/Time Sampled: 06/24/2009 13:00** **PSS Sample ID: 9062414-002**
**Matrix: SOLID** **Date/Time Received: 06/24/2009 17:29**

TCLP Metals — Analytical Method: SW846 6020A — Preparation Method: SW846 3010A

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | mg/L | 5.0 | | 1 | 06/25/09 | 06/25/09 12:30 | 1033 |
| Barium | ND | mg/L | 100 | | 1 | 06/25/09 | 06/25/09 12:30 | 1033 |
| Cadmium | ND | mg/L | 1.0 | | 1 | 06/25/09 | 06/25/09 12:30 | 1033 |
| Chromium | ND | mg/L | 5.0 | | 1 | 06/25/09 | 06/25/09 12:30 | 1033 |
| Lead | ND | mg/L | 5.0 | | 1 | 06/25/09 | 06/25/09 12:30 | 1033 |
| Mercury | ND | mg/L | 0.200 | | 1 | 06/25/09 | 06/25/09 12:30 | 1033 |
| Selenium | ND | mg/L | 1.0 | | 1 | 06/25/09 | 06/25/09 12:30 | 1033 |
| Silver | ND | mg/L | 5.0 | | 1 | 06/25/09 | 06/25/09 12:30 | 1033 |

# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

## PHASE SEPARATION SCIENCE, INC.

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

(1) CLIENT: Constellation Energy OFFICE LOC.: CP Crane
PROJECT MGR.: Faith Davidson PHONE NO.: (410) 682-9750
EMAIL: FAX NO.: (410) 682-9992
PROJECT NAME: Adams Coal PROJECT NO.:
SITE LOCATION: CP Crane P.O. NO.:
SAMPLERS:

PSS Work Order #: 9062414 PAGE ____ OF ____

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

(2)

| LAB NO. | SAMPLE IDENTIFICATION | DATE | TIME | MATRIX (See Codes) | No. CONTAINERS | SAMPLE TYPE C = COMP G = GRAB | Preservatives Used | Analysis/ Method Required (3) TCLP | Total Iron | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CPC2 Baghouse | 6/24/09 | 13:00 | Solid | 1 | G | | ✓ | ✓ | Adams Coal Test 1.1 |
| 2 | CPC2 Bottom Ash | 6/24/09 | 13:00 | solid | 1 | G | | ✓ | ✓ | Adams Coal |

(5)

| Relinquished By: (1) | Date | Time | Received By: |
|---|---|---|---|
| Henry Nelson | 6/24/09 | 13:00 | Faith Davidson |
| Relinquished By: (2) | Date | Time | Received By: |
| Faith Davidson | 6/24 | 1729 | |
| Relinquished By: (3) | Date | Time | Received By: |
| Relinquished By: (4) | Date | Time | Received By: |

(4) Requested Turnaround Time
☐ 5-Day ☐ 3-Day ☐ 2-Day
☑ Next Day ☐ Emergency ☐ Other

Data Deliverables Required:

#of Coolers: 1
Custody Seal: INTACT-COOLER
Ice Present: Yes Temp: 4°C
Shipping Carrier: Client

Special Instructions:

*COB 6/25/09

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

# Phase Separation Science, Inc

## Sample Receipt Checklist

| | | | |
|---|---|---|---|
| **Wo Number** | 9062414 | **Received By** | Rachel Davis |
| **Client Name** | Constellation Energy Group - CP Cra | **Date Received** | 06/24/2009 05:29:00 PM |
| **Project Name** | Adaro Coal | **Delivered By** | Client |
| **Project Number** | N/A | **Tracking No** | Not Applicable |
| **Disposal Date:** | 07/29/2009 | **Logged In By** | Rachel Davis |

**Shipping Container(s)**

| | | | |
|---|---|---|---|
| No. of Coolers | 1 | Ice | Present |
| Custody Seals | Present ✓ | Temp (deg C) | 4 ✓ |
| Seal Condition | Intact, Dated And Signed | Temp Blank Present | No |

**Documentation**

COC agrees with sample labels? X Yes or ___ No

Chain of Custody (COC) X Yes or ___ No

**Sample Container**

| | | | |
|---|---|---|---|
| Appropiate for Specified Analysis? | Yes X No___ | Custody Seal(s) | Absent |
| Intact? | X ___ | Custody Seal(s) Intact? | Not Applicable |
| Labeled and Labels Legible | X ___ | Seal(s) Signed / Dated | Not Applicable ✓ |
| Total No. of Samples Received | 2 | Total No. of Containers Received | 2 |

**Preservation**

| | | Yes | No | N/A |
|---|---|---|---|---|
| Metals | (pH<2) | ___ | ___ | X |
| Cyanides | (pH>12) | ___ | ___ | X |
| Sulfide | (pH>9) | ___ | ___ | X |
| TOC, COD, Phenols | (pH<2) | ___ | ___ | X |
| TOX, TKN, NH3, Total Phos | (pH<2) | ___ | ___ | X |
| VOC, BTEX (VOA Vials Rcvd Preserved) | (pH<2) | ___ | ___ | X |
| Do VOA vials have zero headspace? | | ___ | ___ | X |

**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 Inspected/Checklist Completed By: _____ Date: 6/24/9

PM Review and Approval: _____ Date: 6/25/09

*Printed: 06/24/2009 05:35 PM*

# Analytical Report for

## Constellation Energy Group - CP Crane plant

## Certificate of Analysis No.: 9072312

**Project Manager: Faith Davidson**
**Project Name : Drummond Flyash**
**Project Location: 1001 Carroll Island Rd.**

**July 27, 2009**

**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

# PHASE SEPARATION SCIENCE, INC.

July 27, 2009

**Faith Davidson**
**Constellation Energy Group - CP Crane plant**
1001 Carroll Island Rd
Baltimore, MD 21220

Reference: PSS Work Order No: **9072312**
Project Name : Drummond Flyash
Project Location: 1001 Carroll Island Rd.

Dear Faith Davidson :

The attached Analytical and QC Summary lists 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 numbered **9072312.**

All work reported herein has been performed in accordance with referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual. 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 27, 2009. 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 10 years, after which time it will be disposed 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.

Dan Prucnal

**Dan Prucnal**
Laboratory Manager

# Case Narrative Summary

## Client Name: Constellation Energy Group - CP Crane plant

## Project Name: Drummond Flyash

**Work Order Number: 9072312**

**Project ID: N/A**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 07/23/2009 at 04:10 pm

| Lab Sample Id | Sample Id | Matrix | Date/Time Collected |
|---|---|---|---|
| 9072312-001 | Drummond Flyash | SOLID | 07/22/2009 12:00 pm |

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 the Sample Receipt Checklist.

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.

**Notes:**

1. The presence of common laboratory contaminants such as acetone, methylene chloride and phthalates, 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].

**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.
D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
J The target analyte was positively identified below the reporting limit but greater than one-half of the reporting limit.
ND Not Detected at or above the reporting limit.
RL Reporting Limit.
U Not detected.

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: 9072312

**Constellation Energy Group - CP Crane plant, Baltimore, MD**

July 27, 2009

Project Name: Drummond Flyash
Project Location: 1001 Carroll Island Rd.

**Sample ID: Drummond Flyash** **Date/Time Sampled: 07/22/2009 12:00** **PSS Sample ID: 9072312-001**
**Matrix: SOLID** **Date/Time Received: 07/23/2009 16:10**

TCLP Metals — Analytical Method: SW846 6020A — Preparation Method: SW846 3010A

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | mg/L | 5.0 | | 1 | 07/27/09 | 07/27/09 14:50 | 1033 |
| Barium | ND | mg/L | 100 | | 1 | 07/27/09 | 07/27/09 14:50 | 1033 |
| Cadmium | ND | mg/L | 1.0 | | 1 | 07/27/09 | 07/27/09 14:50 | 1033 |
| Chromium | ND | mg/L | 5.0 | | 1 | 07/27/09 | 07/27/09 14:50 | 1033 |
| Lead | ND | mg/L | 5.0 | | 1 | 07/27/09 | 07/27/09 14:50 | 1033 |
| Mercury | ND | mg/L | 0.200 | | 1 | 07/27/09 | 07/27/09 14:50 | 1033 |
| Selenium | **0.443** | mg/L | 1.0 | | 1 | 07/27/09 | 07/27/09 14:50 | 1033 |
| Silver | ND | mg/L | 5.0 | | 1 | 07/27/09 | 07/27/09 14:50 | 1033 |

# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

CONSTELLATION

## PHASE SEPARATION SCIENCE, INC.

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

(1) CLIENT: C Faith Davidson OFFICE LOC. CP Crane
PROJECT MGR: PHONE NO.: (410) 682-9850
EMAIL: faith.davidson@constellation.com FAX NO.: (410) 682-9292
PROJECT NAME: Drummond Flyash PROJECT NO.:
SITE LOCATION: 1001 Carroll Island Rd P.O. NO.:
SAMPLERS: 1

PSS Work Order #: 90723-2 PAGE ____ OF ____

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

(2)

| LAB NO | SAMPLE IDENTIFICATION | DATE | TIME | MATRIX (See Codes) | No. CONTAINERS | SAMPLE TYPE C = COMP G = GRAB | Preservatives Used | Analysis/ Method Required (3) TCLP Metals | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Drummond Flyash | 7/22/09 | 1200 | Solid | 1 | G | | ✓ | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
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| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

(5)

| Relinquished By: (1) | Date | Time | Received By: |
|---|---|---|---|
| Jeff E Davidson | 7/27/09 | 4:15 pm | |
| Relinquished By: (2) | Date | Time | Received By: |
| Relinquished By: (3) | Date | Time | Received By: |
| Relinquished By: (4) | Date | Time | Received By: |

(4) Requested Turnaround Time
☐ 5-Day ☐ 3-Day ☑ 2-Day
☐ Next Day ☐ Emergency ☐ Other

Data Deliverables Required:

# of Coolers: 0
Custody Seal: ABS
Ice Present: ABS Temp: 5°C
Shipping Carrier: Client

Special Instructions:

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

# Phase Separation Science, Inc

## Sample Receipt Checklist

| | | | |
|---|---|---|---|
| **Wo Number** | 9072312 | **Received By** | Rachel Davis |
| **Client Name** | Constellation Energy Group - CP Cra | **Date Received** | 07/23/2009 04:10:00 PM |
| **Project Name** | Drummond Flyash | **Delivered By** | Client |
| **Project Number** | N/A | **Tracking No** | Not Applicable |
| **Disposal Date:** | 08/27/2009 | **Logged In By** | Rachel Davis |

**Shipping Container(s)**

| | | | |
|---|---|---|---|
| No. of Coolers | 0 | Ice | Present |
| Custody Seals | Absent | Temp (deg C) | 5 |
| Seal Condition | Not Applicable | Temp Blank Present | No |

**Documentation**

COC agrees with sample labels? X Yes or ___ No  Sampler Name: Not Provided

Chain of Custody (COC) X Yes or ___ No

**Sample Container**

| | | | |
|---|---|---|---|
| Appropiate for Specified Analysis? | Yes X No___ | Custody Seal(s) | Absent |
| Intact? | X ___ | Custody Seal(s) Intact? | Not Applicable |
| Labeled and Labels Legible | X ___ | Seal(s) Signed / Dated | Not Applicable |
| Total No of Samples Received | 1 | Total No. of Containers Received | 1 |

**Preservation**

| | | Yes | No | N/A |
|---|---|---|---|---|
| Metals | (pH<2) | ___ | ___ | X |
| Cyanides | (pH>12) | ___ | ___ | X |
| Sulfide | (pH>9) | ___ | ___ | X |
| TOC, COD, Phenols | (pH<2) | ___ | ___ | X |
| TOX, TKN, NH3, Total Phos | (pH<2) | ___ | ___ | X |
| VOC, BTEX (VOA Vials Rcvd Preserved) | (pH<2) | ___ | ___ | X |
| Do VOA vials have zero headspace? | | ___ | ___ | X |

**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 Inspected/Checklist Completed By: _____ Date: 7/23/9

PM Review and Approval: _____ Date: 7/24/09

*Printed: 07/23/2009 05:57 PM*

# Analytical Report for

## Constellation Energy Group

## Certificate of Analysis No.: 9091404

**Project Manager: Beth Pittaway**
**Project Name : Fly Ash Tests for MDE**
**Project Location: Various Coal Plants**

**September 22, 2009**

**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

# PHASE SEPARATION SCIENCE, INC.

September 22, 2009

**Beth Pittaway**
**Constellation Energy Group**
1005 Brandon Shores Rd.
Baltimore, MD 21226

Reference: PSS Work Order No: **9091404**
Project Name : Fly Ash Tests for MDE
Project Location: Various Coal Plants

Dear Beth Pittaway :

The attached Analytical and QC Summary lists 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 numbered **9091404.**

All work reported herein has been performed in accordance with referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual. 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 October 19, 2009. 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 10 years, after which time it will be disposed 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.

**Dan Prucnal**
Laboratory Manager

# Case Narrative Summary

## Client Name: Constellation Energy Group

## Project Name: Fly Ash Tests for MDE

**Work Order Number: 9091404**

**Project ID: N/A**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 09/14/2009 at 01:21 pm

| Lab Sample Id | Sample Id | Matrix | Date/Time Collected |
|---|---|---|---|
| 9091404-001 | Brandon Shores #1 | SOLID | 09/14/2009 09:00 |
| 9091404-002 | Brandon Shores #2 | SOLID | 09/14/2009 09:00 |
| 9091404-003 | Crane | SOLID | 09/14/2009 09:00 |
| 9091404-004 | Wagner #2 | SOLID | 09/14/2009 09:00 |
| 9091404-005 | Wagner #3 | SOLID | 09/14/2009 09:00 |
| 9091404-006 | Brandon Shores #4 Silo | SOLID | 09/14/2009 09:00 |
| 9091404-007 | Wagner Bottom Ash | SOLID | 09/14/2009 09:00 |
| 9091404-008 | Brandon Shores Wastewater Slud | SOLID | 09/14/2009 09:00 |
| 9091404-009 | Brandon Shores Bottom Ash | SOLID | 09/14/2009 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 the Sample Receipt Checklist.

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.

**Narrative Comments:**

Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

All Sulfur results reported on an "as received" basis.

**Notes:**

1. The presence of common laboratory contaminants such as acetone, methylene chloride and phthalates, 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].

**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.
D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
J The target analyte was positively identified below the reporting limit but greater than one-half of the reporting limit.
ND Not Detected at or above the reporting limit.
RL Reporting Limit.
U Not detected.

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BALTIMORE, MD 21228
410-747-8770
800-932-9047
FAX 410-788-8723

# PHASE SEPARATION SCIENCE, INC.

## CERTIFICATE OF ANALYSIS

No: 9091404

**Constellation Energy Group, Baltimore, MD**

September 22, 2009

Project Name: Fly Ash Tests for MDE
Project Location: Various Coal Plants

**Sample ID: Crane** | **Date/Time Sampled: 09/14/2009 09:00** | **PSS Sample ID: 9091404-003**
**Matrix: SOLID** | **Date/Time Received: 09/14/2009 13:21** | **% Solids: 100**

Total Metals | Analytical Method: SW846 6020A | Preparation Method: SW846 3050B

| | Result | Units | Rep Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Aluminum | **46,000** | mg/kg | 24,000 | | 1000 | 09/14/09 | 09/16/09 21:38 | 1033 |
| Antimony | **4.1** | mg/kg | 2.4 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Arsenic | **170** | mg/kg | 0.2 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Barium | **910** | mg/kg | 240 | | 100 | 09/14/09 | 09/16/09 13:26 | 1033 |
| Beryllium | **5.9** | mg/kg | 2.4 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Boron | **780** | mg/kg | 240 | B | 100 | 09/14/09 | 09/16/09 13:26 | 1033 |
| Cadmium | **1.7** | mg/kg | 2.4 | J | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Calcium | **68,000** | mg/kg | 4,700 | | 100 | 09/14/09 | 09/16/09 13:26 | 1033 |
| Chromium | **120** | mg/kg | 2.4 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Cobalt | **26** | mg/kg | 2.4 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Copper | **88** | mg/kg | 2.4 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Iron | **70,000** | mg/kg | 4,700 | | 100 | 09/14/09 | 09/16/09 13:26 | 1033 |
| Lead | **80** | mg/kg | 2.4 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Lithium | **43** | mg/kg | 1.2 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Magnesium | **9,100** | mg/kg | 4,700 | | 100 | 09/14/09 | 09/16/09 13:26 | 1033 |
| Manganese | **160** | mg/kg | 2.4 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Mercury | **2.4** | mg/kg | 0.5 | | 5 | 09/14/09 | 09/17/09 15:34 | 1033 |
| Molybdenum | **16** | mg/kg | 4.9 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Nickel | **89** | mg/kg | 2.4 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Potassium | **9,800** | mg/kg | 4,700 | | 100 | 09/14/09 | 09/16/09 13:26 | 1033 |
| Selenium | **30** | mg/kg | 2.4 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Silver | ND | mg/kg | 2.4 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Sodium | **5,000** | mg/kg | 4,700 | B | 100 | 09/14/09 | 09/16/09 13:26 | 1033 |
| Thallium | **7.2** | mg/kg | 0.5 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Vanadium | **230** | mg/kg | 2.4 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |
| Zinc | **170** | mg/kg | 9.7 | | 1 | 09/14/09 | 09/15/09 15:22 | 1033 |

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410-747-8770
800-932-9047
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# PHASE SEPARATION SCIENCE, INC.

## CERTIFICATE OF ANALYSIS

No: 9091404

**Constellation Energy Group, Baltimore, MD**

September 22, 2009

Project Name: Fly Ash Tests for MDE
Project Location: Various Coal Plants

**Sample ID: Crane** **Date/Time Sampled: 09/14/2009 09:00** **PSS Sample ID: 9091404-003**
**Matrix: SOLID** **Date/Time Received: 09/14/2009 13:21**

Total Metals — Analytical Method: SW846 6010B

| | Result | Units | Rep Limit | Flag | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|
| Sulfur | **13,400** | mg/kg | 714 | | 09/15/09 | 09/15/09 14:14 | 4005 |

TCLP Metals — Analytical Method: SW846 6020A — Preparation Method: SW846 3050B

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | mg/L | 5.0 | | 1 | 09/14/09 | 09/15/09 16:12 | 1034 |
| Barium | ND | mg/L | 100 | | 1 | 09/14/09 | 09/15/09 16:12 | 1034 |
| Cadmium | ND | mg/L | 1.0 | | 1 | 09/14/09 | 09/15/09 16:12 | 1034 |
| Chromium | ND | mg/L | 5.0 | | 1 | 09/14/09 | 09/15/09 16:12 | 1034 |
| Lead | ND | mg/L | 5.0 | | 1 | 09/14/09 | 09/15/09 16:12 | 1034 |
| Mercury | ND | mg/L | 0.200 | | 1 | 09/14/09 | 09/15/09 16:12 | 1034 |
| Selenium | ND | mg/L | 1.0 | | 1 | 09/14/09 | 09/15/09 16:12 | 1034 |
| Silver | ND | mg/L | 5.0 | | 1 | 09/14/09 | 09/15/09 16:12 | 1034 |

TCLP Organochlorine Pesticides — Analytical Method: SW846 8081B — Preparation Method: SW846 3510C

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Chlordane | ND | mg/L | 0.030 | | 1 | 09/15/09 | 09/16/09 12:55 | 1029 |
| Endrin | ND | mg/L | 0.020 | | 1 | 09/15/09 | 09/16/09 12:55 | 1029 |
| gamma-BHC (Lindane) | ND | mg/L | 0.400 | | 1 | 09/15/09 | 09/16/09 12:55 | 1029 |
| Heptachlor | ND | mg/L | 0.008 | | 1 | 09/15/09 | 09/16/09 12:55 | 1029 |
| Heptachlor epoxide | ND | mg/L | 0.008 | | 1 | 09/15/09 | 09/16/09 12:55 | 1029 |
| Methoxychlor | ND | mg/L | 10 | | 1 | 09/15/09 | 09/16/09 12:55 | 1029 |
| Toxaphene | ND | mg/L | 0.500 | | 1 | 09/15/09 | 09/16/09 12:55 | 1029 |

TCLP Chlorinated Herbicides — Analytical Method: SW846 8151A

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| 2,4-D | ND | mg/L | 10 | | 1 | 09/15/09 | 09/15/09 20:56 | 1029 |
| 2,4,5-TP (Silvex) | ND | mg/L | 1.0 | | 1 | 09/15/09 | 09/15/09 20:56 | 1029 |

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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.

## CERTIFICATE OF ANALYSIS

No: 9091404

**Constellation Energy Group, Baltimore, MD**

September 22, 2009

Project Name: Fly Ash Tests for MDE
Project Location: Various Coal Plants

**Sample ID: Crane** **Date/Time Sampled: 09/14/2009 09:00** **PSS Sample ID: 9091404-003**
**Matrix: SOLID** **Date/Time Received: 09/14/2009 13:21**

TCLP Volatile Organic Compounds — Analytical Method: SW846 8260B — Preparation Method: SW846 5030B

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| Vinyl chloride | ND | mg/L | 0.2 | | 20 | 09/15/09 | 09/15/09 15:28 | 1011 |
| 1,1-Dichloroethene | ND | mg/L | 0.7 | | 20 | 09/15/09 | 09/15/09 15:28 | 1011 |
| 2-Butanone (MEK) | ND | mg/L | 200 | | 20 | 09/15/09 | 09/15/09 15:28 | 1011 |
| Chloroform | ND | mg/L | 6.0 | | 20 | 09/15/09 | 09/15/09 15:28 | 1011 |
| 1,2-Dichloroethane | ND | mg/L | 0.5 | | 20 | 09/15/09 | 09/15/09 15:28 | 1011 |
| Carbon tetrachloride | ND | mg/L | 0.5 | | 20 | 09/15/09 | 09/15/09 15:28 | 1011 |
| Benzene | ND | mg/L | 0.5 | | 20 | 09/15/09 | 09/15/09 15:28 | 1011 |
| Trichloroethene | ND | mg/L | 0.5 | | 20 | 09/15/09 | 09/15/09 15:28 | 1011 |
| Tetrachloroethene | ND | mg/L | 0.7 | | 20 | 09/15/09 | 09/15/09 15:28 | 1011 |
| Chlorobenzene | ND | mg/L | 100 | | 20 | 09/15/09 | 09/15/09 15:28 | 1011 |
| 1,4-Dichlorobenzene | ND | mg/L | 7.5 | | 20 | 09/15/09 | 09/15/09 15:28 | 1011 |

TCLP Semivolatile Organic Compounds — Analytical Method: SW846 8270C — Preparation Method: SW846 3550

| | Result | Units | TCLP Limit | Flag | Dil | Prepared | Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|
| 2,4-Dinitrotoluene | ND | mg/L | 0.130 | | 1 | 09/15/09 | 09/16/09 00:58 | 1014 |
| Hexachlorobenzene | ND | mg/L | 0.130 | | 1 | 09/15/09 | 09/16/09 00:58 | 1014 |
| Hexachlorobutadiene | ND | mg/L | 0.500 | | 1 | 09/15/09 | 09/16/09 00:58 | 1014 |
| Hexachloroethane | ND | mg/L | 3.0 | | 1 | 09/15/09 | 09/16/09 00:58 | 1014 |
| 2-Methyl phenol | ND | mg/L | 200 | | 1 | 09/15/09 | 09/16/09 00:58 | 1014 |
| 3&4-Methylphenol | ND | mg/L | 200 | | 1 | 09/15/09 | 09/16/09 00:58 | 1014 |
| Nitrobenzene | ND | mg/L | 2.0 | | 1 | 09/15/09 | 09/16/09 00:58 | 1014 |
| Pentachlorophenol | ND | mg/L | 100 | | 1 | 09/15/09 | 09/16/09 00:58 | 1014 |
| Pyridine | ND | mg/L | 5.0 | | 1 | 09/15/09 | 09/16/09 00:58 | 1014 |
| 2,4,6-Trichlorophenol | ND | mg/L | 2.0 | | 1 | 09/15/09 | 09/16/09 00:58 | 1014 |
| 2,4,5-Trichlorophenol | ND | mg/L | 400 | | 1 | 09/15/09 | 09/16/09 00:58 | 1014 |

# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

## PHASE SEPARATION SCIENCE, INC.

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

(1) CLIENT: CPSG — OFFICE LOC.: Coal Yard
PROJECT MGR: Beth Pittaway — PHONE NO.: 410-787-5320
EMAIL: beth.pittaway@constellation.com — FAX NO.: 410-787-5424
PROJECT NAME: Fly Ash Tests for MDE — PROJECT NO.:
SITE LOCATION: various coal plants — P.O. NO.:
SAMPLERS: — DW CERT NO.:

PSS Work Order #: 9091404 — PAGE 1 OF 1

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

(2)

| LAB NO. | SAMPLE IDENTIFICATION | DATE | TIME | MATRIX (See Codes) | No. CONTAINERS | SAMPLE TYPE C=COMP G=GRAB | Attached Comar | Preservative Used | Analysis/ Method Required | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Brandon Shores # 1 | 9/14/09 | 9am | Fly Ash | 1 | G | ✓ | | | Click to enter Remarks |
| 2 | Brandon Shores # 2 | 9/14/09 | 9am | Fly Ash | 1 | G | ✓ | | | |
| 3 | Crane | 9/14/09 | 9am | Fly Ash | 1 | G | ✓ | | | |
| 4 | Wagner # 2 | 9/14/09 | 9am | Fly Ash | 1 | G | ✓ | | | |
| 5 | Wagner # 3 | 9/14/09 | 9am | Fly Ash | 1 | G | ✓ | | | |
| 6 | Brandon Shores #4 Silo | 9/14/09 | 9am | Fly Ash | 1 | G | ✓ | | | |
| 7 | Wagner Bottom Ash | 9/14/09 | 9am | Btm Ash | 1 | G | ✓ | | | |
| 8 | Brandon Shores Wastewater Sludge | 9/14/09 | 9Am | Sludge | 1 | G | ✓ | | | |
| 9 | Brandon Shores Bottom Ash | 9/14/09 | 9Am | BtmAsh | 1 | G | ✓ | | | |
| | | | | | | | | | | |

(5)

| Relinquished By: (1) | Date | Time | Received By: |
|---|---|---|---|
| Kurt Blan | 9/14/9 | 1321 | |
| Relinquished By: (2) | Date | Time | Received By: |
| Relinquished By: (3) | Date | Time | Received By: |
| Relinquished By: (4) | Date | Time | Received By: |

(4)

Requested Turnaround Time
☐ 5-Day ☐ 3-Day ☐ 2-Day
☐ Next Day ■ Emergency ☐ Other

Data Deliverables Required:

# of Coolers: 0
Custody Seal: ABS
Ice Present: ABS Temp: 30°c
Shipping Carrier: CLIENT

Special Instructions:
Please test samples per attached Comar 26.21.04.05B
12 PM

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

9091404

**Amy**

**From:** Pittaway, Beth [Beth Pittaway@constellation.com]
**Sent:** Monday, September 14, 2009 2:17 PM
**To:** 'amyf@phaseonline.com'
**Cc:** despinoza@Geosyntec com; mlloyd1@a-oenv com
**Subject:** CCB analyses
**Attachments:** Document.pdf

Amy,

Nine samples were just dropped off to you for analysis labeled as:

1. Brandon Shores Unit 1
2. Brandon Shores Unit 2
3. Brandon Shores #4 Silo
4. Brandon Shores Bottom Ash
5. Brandon Wastewater sludge
6. Wagner Unit 2
7. Wagner Unit 3
8. Wagner Bottom Ash
9. Crane Ash

We require a Total analysis for the elements detailed in the attached COMAR 26.21.04.05 B. We also need a full TCLP on the samples as required in COMAR 26.21.04 03A(3) which references 40 CFR Section 261 24

Thanks for your help and the quick turn around.

Beth Pittaway
Assistant General Supervisor
Fuel and Ash Handling
410-787-5320
410-733-2165 (cell)

Phase Separation
410-747-8770
Amy f@
phase on line.com

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*26.21.04.05*

## .05 Initial and Ongoing Characterization.

A. A person who uses or intends to use, or gives, sells, or otherwise provides for use, coal combustion byproducts for noncoal surface mine reclamation shall develop and implement a sampling plan, using a methodology acceptable to the Department for the initial characterization of the coal combustion byproducts.

B. The sampling plan shall include the following:

(1) A list of the parameters to be analyzed and their detection limits (Practical Quantitation Limits—PQL), which shall include, at a minimum, the following:

| ELEMENTS AND INDICATOR PARAMETERS | PQL(mg/kg) |
|---|---|
| Total Aluminum | 40 |
| Total Antimony | 1 |
| Total Arsenic | 1 |
| Total Barium | 1 |
| Total Beryllium | 1 |
| Total Boron | 20 |
| Total Cadmium | 1 |
| Total Chromium | 1 |
| Total Calcium | 1 |
| Total Cobalt | 1 |
| Total Copper | 2 |
| Total Iron | 500 |
| Total Lead | 1 |
| Total Magnesium | 100 |
| Total Lithium | 1 |
| Total Manganese | 1 |
| Total Mercury | 0.2 |
| Total Molybdenum | 10 |
| Total Nickel | 5 |
| Total Potassium | 100 |
| Total Selenium | 4 |
| Total Silver | 1 |
| Total Sodium | 100 |
| Total Sulfur | 10 |
| Total Thallium | 50.0 |
| Total Vanadium | 4 |
| Total Zinc | 10 |

(2) A description of analytical methods to be used in the characterization, which is subject to the approval of the Department; and

(3) Other information as may be required by the Department.

C. Coal combustion byproducts shall be characterized in accordance with the sampling plan developed under §A of this regulation at least one time per calendar year.

D. Laboratory results from the initial and ongoing characterizations of the coal combustion byproducts shall be submitted to the Department and to any recipients of the coal combustion byproducts.

E. If there is a change in the raw materials or processes that generate the coal combustion byproducts, the generator of the coal combustion byproducts shall characterize the byproducts in accordance with the sampling plan and submit the results to the Department. All subsequent characterizations shall include any additional parameters found in the coal combustion byproducts.

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*26 21 04 03*

## .03 Authorization of Use and General Requirements.

A. Authorization of Use

(1) Coal combustion byproducts may be used in the reclamation of a permitted noncoal surface mine only when approved by the Department.

(2) The Department shall review and approve the use as part of a permit review or permit modification in accordance with this chapter and in accordance with the applicable provisions of Environment Article, Title 15, Subtitle 8, Annotated Code of Maryland, and COMAR 26.21.

B. General Requirements.

(1) Flue gas desulfurization sludge and other solid residuals recovered from flue gas by wet or dry methods that are generated by the combustion of coal may not be used in the reclamation of a noncoal surface mine.

(2) The use of coal combustion byproducts in the reclamation of a noncoal surface mine shall be designed to prevent the degradation of water quality.

(3) Coal combustion byproducts containing a constituent at a level exceeding the TCLP toxicity limits defined in 40 CFR §261.24 may not be used in the reclamation of a noncoal surface mine.

(4) To minimize leachate generation, coal combustion byproducts used in noncoal surface mine reclamation shall be placed in layers and compacted to at least 90 percent of its maximum dry density based on ASTM D698 (Standard Proctor), or to a permeability of less than 10-5 centimeters/second. Thickness of each layer may not be greater than 12 inches.

(5) Final grade of a site after reclamation may not exceed approximate pre-mining contours at the site, except where post-mining land use requires minimal variation and is approved by the Department.

(6) Coal combustion byproducts may not be placed in ground or surface waters and may not be placed within 3 feet of the maximum expected ground water elevation at the site, unless the Department approves otherwise upon a demonstration that ground water contamination will not occur.

(7) The area of exposed coal combustion byproducts at a site shall be minimized and may not exceed 5 acres unless approved by the Department.

(8) Coal combustion byproducts at a site shall be immediately placed and compacted and may not be stockpiled.

(9) If placement of coal combustion byproducts is halted for more than 15 days, the coal combustion byproducts shall be covered to prevent infiltration of ground or surface water.

(10) Adequate measures shall be taken to minimize dust at a site as follows:

(a) A person shall control dust by moisture-conditioning the coal combustion byproducts before they leave the coal combustion byproducts generating facility, or by handling them in sealed containers designed for transportation of powdery solids and moisture-conditioning them prior to off-loading them to the ground;

(b) A person shall control dust by spreading and compacting the coal combustion byproducts upon arrival at a site;

(c) A person may not store uncompacted coal combustion byproducts at a site;

(d) A water truck shall be available to add water at a site as needed for fugitive dust control; and

(e) The Department may require other measures it considers necessary to protect public health and the environment.

(11) Only coal combustion byproducts obtained from sources approved by the Department may be used at a site

(12) Coal combustion byproducts may not be placed within 200 feet of any lands not owned by the permittee or owner.

(13) A permittee shall implement an erosion and sediment control plan that satisfies the requirements of Environment Article, Title 4, Subtitle 1, Annotated Code of Maryland, and COMAR 26.17.01.

(14) A permittee shall provide a minimum of two upgradient and two downgradient monitoring wells at a site. The Department may require additional monitoring wells based upon site conditions. Monitoring wells shall be constructed and installed by a State-licensed well driller in accordance with COMAR 26.04.04. The well screen or slotted casing shall extend from the seasonally high water table downward a minimum of 15 feet.

(15) A permittee shall comply with all other permits and approvals required by the Department

in ASTM Standard D-3278-78 (incorporated by reference, see §260.11), or as determined by an equivalent test method approved by the Administrator under procedures set forth in §§260.20 and 260.21.

(2) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

(3) It is an ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the Administrator under §§260.20 and 260.21.

(4) It is an oxidizer as defined in 49 CFR 173.151.

(b) A solid waste that exhibits the characteristic of ignitability has the EPA Hazardous Waste Number of D001.

[45 FR 33119, May 19, 1980, as amended at 46 FR 35247, July 7, 1981; 55 FR 22684, June 1, 1990]

### § 261.22 Characteristic of corrosivity.

(a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

(1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using Method 9040 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter.

(2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55 °C (130 °F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM-01-69 as standardized in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter.

(b) A solid waste that exhibits the characteristic of corrosivity has the EPA Hazardous Waste Number of D002.

[45 FR 33119, May 19, 1980, as amended at 46 FR 35247, July 7, 1981; 55 FR 22684, June 1, 1990; 58 FR 46049, Aug. 31, 1993]

### § 261.23 Characteristic of reactivity.

(a) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has *any* of the following properties:

(1) It is normally unstable and readily undergoes violent change without detonating.

(2) It reacts violently with water.

(3) It forms potentially explosive mixtures with water.

(4) When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

(5) It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

(6) It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

(7) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

(8) It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.88.

(b) A solid waste that exhibits the characteristic of reactivity has the EPA Hazardous Waste Number of D003.

[45 FR 33119, May 19, 1980, as amended at 55 FR 22684, June 1, 1990]

### § 261.24 Toxicity characteristic.

(a) A solid waste (except manufactured gas plant waste) exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter, the extract from a representative sample of the waste contains any of the contaminants listed in table 1 at the concentration equal to or greater than the respective value given in that table. Where the waste contains less than 0.5 percent filterable solids, the waste

itself, after filtering using the methodology outlined in Method 1311, is considered to be the extract for the purpose of this section.

(b) A solid waste that exhibits the characteristic of toxicity has the EPA Hazardous Waste Number specified in Table I which corresponds to the toxic contaminant causing it to be hazardous.

TABLE I—MAXIMUM CONCENTRATION OF CONTAMINANTS FOR THE TOXICITY CHARACTERISTIC

| EPA HW No.[1] | Contaminant | CAS No.[2] | Regulatory Level (mg/L) |
|---|---|---|---|
| D004 | Arsenic | 7440-38-2 | 5.0 |
| D005 | Barium | 7440-39-3 | 100.0 |
| D018 | Benzene | 71-43-2 | 0.5 |
| D006 | Cadmium | 7440-43-9 | 1.0 |
| D019 | Carbon tetrachloride | 56-23-5 | 0.5 |
| D020 | Chlordane | 57-74-9 | 0.03 |
| D021 | Chlorobenzene | 108-90-7 | 100.0 |
| D022 | Chloroform | 67-66-3 | 6.0 |
| D007 | Chromium | 7440-47-3 | 5.0 |
| D023 | o-Cresol | 95-48-7 | [4]200.0 |
| D024 | m-Cresol | 108-39-4 | [4]200.0 |
| D025 | p-Cresol | 106-44-5 | [4]200.0 |
| D026 | Cresol | | [4]200.0 |
| D016 | 2,4-D | 94-75-7 | 10.0 |
| D027 | 1,4-Dichlorobenzene | 106-46-7 | 7.5 |
| D028 | 1,2-Dichloroethane | 107-06-2 | 0.5 |
| D029 | 1,1-Dichloroethylene | 75-35-4 | 0.7 |
| D030 | 2,4-Dinitrotoluene | 121-14-2 | [3]0.13 |
| D012 | Endrin | 72-20-8 | 0.02 |
| D031 | Heptachlor (and its epoxide) | 76-44-8 | 0.008 |
| D032 | Hexachlorobenzene | 118-74-1 | [3]0.13 |
| D033 | Hexachlorobutadiene | 87-68-3 | 0.5 |
| D034 | Hexachloroethane | 67-72-1 | 3.0 |
| D008 | Lead | 7439-92-1 | 5.0 |
| D013 | Lindane | 58-89-9 | 0.4 |
| D009 | Mercury | 7439-97-6 | 0.2 |
| D014 | Methoxychlor | 72-43-5 | 10.0 |
| D035 | Methyl ethyl ketone | 78-93-3 | 200.0 |
| D036 | Nitrobenzene | 98-95-3 | 2.0 |
| D037 | Pentachlorophenol | 87-86-5 | 100.0 |
| D038 | Pyridine | 110-86-1 | [5]5.0 |
| D010 | Selenium | 7782-49-2 | 1.0 |
| D011 | Silver | 7440-22-4 | 5.0 |
| D039 | Tetrachloroethylene | 127-18-4 | 0.7 |
| D015 | Toxaphene | 8001-35-2 | 0.5 |
| D040 | Trichloroethylene | 79-01-6 | 0.5 |
| D041 | 2,4,5-Trichlorophenol | 95-95-4 | 400.0 |
| D042 | 2,4,6-Trichlorophenol | 88-06-2 | 2.0 |
| D017 | 2,4,5-TP (Silvex) | 93-72-1 | 1.0 |
| D043 | Vinyl chloride | 75-01-4 | 0.2 |

[1] Hazardous waste number.
[2] Chemical abstracts service number.
[3] Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.
[4] If o-, (m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

[55 FR 11862, Mar. 29, 1990, as amended at 55 FR 22684, June 1, 1990; 65 FR 30987, June 28, 1990; 58 FR 46049, Aug. 31, 1993; 67 FR 11254, Mar. 13, 2002]

## Subpart D—Lists of Hazardous Wastes

### § 261.30 General.

(a) A solid waste is a hazardous waste if it is listed in this subpart, unless it has been excluded from this list under §§ 260.20 and 260.22.

(b) The Administrator will indicate his basis for listing the classes or types of wastes listed in this subpart by employing one or more of the following Hazard Codes:

| | |
|---|---|
| Ignitable Waste | (I) |
| Corrosive Waste | (C) |
| Reactive Waste | (R) |
| Toxicity Characteristic Waste | (E) |
| Acute Hazardous Waste | (H) |
| Toxic Waste | (T) |

Appendix VII identifies the constituent which caused the Administrator to list the waste as a Toxicity Characteristic Waste (E) or Toxic Waste (T) in §§ 261.31 and 261.32.

(c) Each hazardous waste listed in this subpart is assigned an EPA Hazardous Waste Number which precedes the name of the waste. This number must be used in complying with the notification requirements of Section 3010 of the Act and certain recordkeeping and reporting requirements under parts 262 through 265, 268, and part 270 of this chapter.

(d) The following hazardous wastes listed in § 261.31 or § 261.32 are subject to the exclusion limits for acutely hazardous wastes established in § 261.5: EPA Hazardous Wastes Nos. FO20, FO21, FO22, FO23, FO26, and FO27.

[45 FR 33119, May 19, 1980, as amended at 48 FR 14294, Apr. 1, 1983; 50 FR 2000, Jan. 14, 1985; 51 FR 40636, Nov. 7, 1986; 55 FR 11863, Mar. 29, 1990]

### § 261.31 Hazardous wastes from non-specific sources.

(a) The following solid wastes are listed hazardous wastes from non-specific sources unless they are excluded under §§ 260.20 and 260.22 and listed in appendix IX

# Phase Separation Science, Inc

## Sample Receipt Checklist

| | | | |
|---|---|---|---|
| **Wo Number** | 9091404 | **Received By** | Rachel Davis |
| **Client Name** | Constellation Energy Group | **Date Received** | 09/14/2009 01:21:00 PM |
| **Project Name** | Fly Ash Tests for MDE | **Delivered By** | Client |
| **Project Number** | N/A | **Tracking No** | Not Applicable |
| **Disposal Date:** | 10/19/2009 | **Logged In By** | Rachel Davis |

**Shipping Container(s)**

| | | | |
|---|---|---|---|
| No. of Coolers | 1 | Ice | Absent |
| Custody Seals | Absent | Temp (deg C) | 30 |
| Seal Condition | Not Applicable | Temp Blank Present | No |

**Documentation**

COC agrees with sample labels? X Yes or ____ No  Sampler Name: Not Provided

Chain of Custody (COC) X Yes or ____ No

**Sample Container**

| | | | |
|---|---|---|---|
| Appropiate for Specified Analysis? | Yes X No___ | Custody Seal(s) | Absent |
| Intact? | X ____ | Custody Seal(s) Intact? | Not Applicable |
| Labeled and Labels Legible | X ____ | Seal(s) Signed / Dated | Not Applicable |
| Total No of Samples Received | 9 | Total No. of Containers Received | 18 |

**Preservation**

| | | Yes | No | N/A |
|---|---|---|---|---|
| Metals | (pH<2) | ____ | ____ | X |
| Cyanides | (pH>12) | ____ | ____ | X |
| Sulfide | (pH>9) | ____ | ____ | X |
| TOC, COD, Phenols | (pH<2) | ____ | ____ | X |
| TOX, TKN, NH3, Total Phos | (pH<2) | ____ | ____ | X |
| VOC, BTEX (VOA Vials Rcvd Preserved) | (pH<2) | ____ | ____ | X |
| Do VOA vials have zero headspace? | | ____ | ____ | X |

**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 Inspected/Checklist Completed By: RDavis Date: 9/15/9

PM Review and Approval: ____ Date: 9/15/09

*Printed: 09/15/2009 10:27 AM*