

NRG Energy  
Dickerson Generating Station  
21200 Martinsburg Road  
Dickerson, Maryland 20842

Certified Mail/Return Receipt Requested  
7011 3500 0003 6606 3993

Ms. Martha Hynson  
Maryland Department of the Environment  
Land Management Administration  
1800 Washington Boulevard, Suite 605  
Baltimore MD 21230-1719

RECEIVED

FEB 23 2015

LAND MANAGEMENT ADMINISTRATION  
SCHEDULE 1000

February 24, 2015

Re: 2015 CCB Tonnage Report for GenOn Mid-Atlantic, LLC's Dickerson Generating Station.

Dear Ms. Hynson,

Pursuant to COMAR 26.04.10.08, enclosed please find the 2015 CCB Tonnage Report for GenOn Mid-Atlantic, LLC's Dickerson Generating Station.

If you have any questions regarding this report, please contact me at 301-601-6515, or at Peter.Heimlicher@nrg.com.

Regards,

Peter Heimlicher  
Environmental Specialist

# MARYLAND DEPARTMENT OF THE ENVIRONMENT

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

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

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

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

### **II. General Information and Applicability.**

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

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

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

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

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

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

A. Contact information:

Facility Name: Dickerson Generating Station

Name of Permit Holder: GenOn Mid-Atlantic, LLC

Facility Address: 21200 Martinsburg Road  
Street

Facility Address: Dickerson Maryland 20842  
City State Zip

County: Montgomery

Contact Information (Person filing report or Environmental Manager)

Facility Telephone No.: 301-601-6500 Facility Fax No.: 301-601-6556

Contact Name: Peter Heimlicher

Contact Title: Environmental Specialist

Contact Address: 21200 Martinsburg Road  
Street

Contact Address: Dickerson Maryland 20842  
City State Zip

Contact Email: Peter.Heimlicher@nrg.com

Contact Telephone No.: 301-601-6515 Contact Fax No.: \_\_\_\_\_

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

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

See Attachment A.

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

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

<b>Volume and Weight of CCBs Generated for Calendar Year 2015</b>				
Flyash Type of CCB	Bottom Ash Type of CCB	On-Spec Gypsum Type of CCB	Off Spec Gypsum Type of CCB	WWTP Fines Type of CCB
14,590	2,423	16,366	109	480
Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards
14,590	2,423	31,970	214	938
Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons

Additional notes:

CCB Tonnages are reported in dry short tons. CCB volumes are reported in dry Cubic Yards.  
WWTP Tons represent fines from the Flue Gas Desulfurization's Waste Water Treatment.  
Volumes of Flyash in Dry Cubic Yards are calculated from dry short tons using a density of 1.0 Tons/Dry CY.  
Volumes of Bottom Ash in Dry Cubic Yards are calculated from dry short tons using a density of 1.0 Tons/Dry CY.  
Volumes of On-Spec Gypsum, Off-Spec Gypsum and WWTP Fines are calculated from dry short tons using a density of 1.95 Tons/Dry CY.

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

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

F. A description of how you disposed of or used your CCBs in calendar year 2015, identifying:

(a) The types and volume of CCBs disposed of or used (if different than described in Paragraph C above) including any CCBs stored during the previous calendar year, the location of disposal, mine reclamation and use sites, and the type and volume of CCBs disposed of or used at each site:

All of the 14,590 tons of **flyash** generated at Dickerson in 2015 were disposed of at the Westland Ash Site, located in Montgomery Co., Md.

All of the 2,423 tons of **bottom ash** generated in 2015 were sent to the Westland Ash Site, located in Montgomery Co., Md for disposal.

**On-Spec Gypsum** generated at Dickerson in 2015 was 31,970 tons. 33 tons were stored on-site at the end of 2014, and 390 tons were stored on-site at the end of 2015. Of this total, 31,613 tons were transported by barge to LaFarge, located in Buchanan, NY.

**Off-Spec Gypsum** generated in 2015 was 214 tons, all of which was disposed of at Waste Management's Amelia Landfill located in Jetersville, Va.

**WWTP Fines** produced in 2015 was 938 tons, all of which was disposed of at Waste Management's Amelia Landfill located in Jetersville, Va.

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

**On-Spec Gypsum:** \_\_\_\_\_  
Volume: 31,613 tons sold  
Use: Wallboard  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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

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

**FlyAsh:** Approximately 14,950 tons/year to be generated and sent for disposal at the Westland Ash Site, located in Montgomery Co., Md.

**Bottom Ash:** Anticipate 2,423 tons/year to be generated and sent to the Westland Ash Site, located in Montgomery Co., Md, for disposal.

**On-Spec Gypsum:** Anticipate 32,000 tons/year to be generated, with approximately 400 tons stored on site at the Dickerson Generating Station and approximately 31,600 tons/year being transported by barge to LaFarge, located in Buchanan, NY.

**Off-Spec Gypsum:** Approximately 214 tons/year to be generated and disposed of at Waste Management's Amelia Landfill located in Jetersville, Va.

**WWTP Fines:** Approximately 900 tons/year to be generated and disposed of at Waste Management's Amelia Landfill located in Jetersville, Va.  
\_\_\_\_\_  
\_\_\_\_\_


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

**On-Spec Gypsum:** \_\_\_\_\_  
Volume: 31,600 tons/year to be sold.  
Use: Wallboard  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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	<u>Mike Bennett, Plant Manager, Dickerson Generating Station</u> 301-601-6522 <hr/> Name, Title, & Telephone No. (Print or Type)	<u>2/24/2016</u> Date
	David.m.bennett@nrg.com <hr/> Your Email Address	

**V: Attachments (please list):**

A) Dickerson Generating Station Process Description

B) Microbac Report #15FI443:Analyses for Dickerson Flyash, Botton Ash, Off- Spec Gypsum and WWTP Fines

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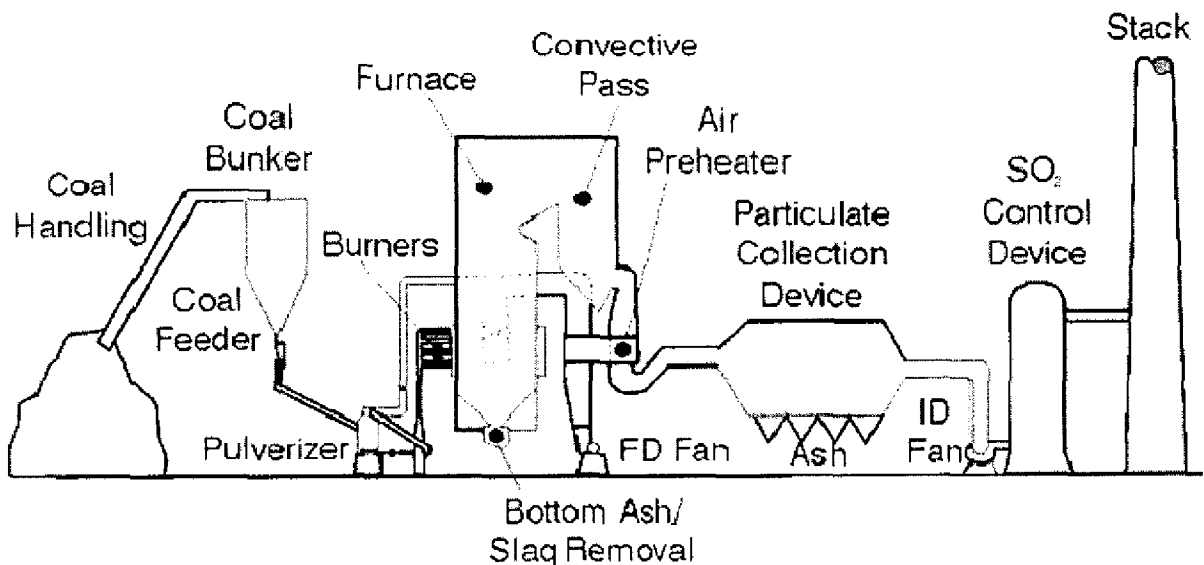
## Attachment A

Dickerson Generating Station  
21200 Martinsburg Road,  
Dickerson, Montgomery County, MD. 20842  
301-601-6500

The Dickerson Generating Station is located on the Potomac River, south of the Monocacy River in upper Montgomery County, near Dickerson, MD. The facility is engaged in the generation of electric energy for sale. The primary SIC code for this facility is 4911. The facility consists of three steam units, each rated at 173 MWs (base loaded), firing bituminous coal. Each unit is tangentially fired, with a superheater, reheat and economizer. Electrostatic precipitators (ESPs) and a baghouse are installed for particulate control. Low NOx burners, Separated Over-Fired Air (SOFA), Selective Non Catalytic Reduction (SNCR) along with an advanced combustion control system are installed on each unit to reduce and control emissions of oxides of nitrogen (NOx). A Wet Scrubber (FGD) was installed and went in service on the three units in late 2009. The units exhaust through the scrubber stack or, when the FGD is not in service, through a common 700 ft. stack.

Coal is delivered to the Dickerson facility by rail. The rail cars are emptied using a rotary dumper, then transferred by conveyor to either a storage pile or fed directly to a unit's bunker.

The illustration below shows a simple schematic diagram for a typical pulverized coal combustion system. The coal is prepared by grinding to a very fine consistency for combustion.





## **Attachment A**

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The CCBs currently produced and used are a result of the combustion of pulverized coal.

Ash is formed in the boiler while coal combusts. In general, pulverized coal combustion results in approximately 10 % ash, of which 65%–85% is fly ash, and the remainder is coarser bottom ash. Bottom ash is a coarse material and falls to the bottom of the boiler. Fly ash is finer than bottom ash and is carried along the combustion process with flue gas. Particulate collection devices remove fly ash from the flue gas and the collected ash is transferred to two ash silos. Fly ash that is not marketed is sent to the Westland Ash Site, whose property is separated from the Dickerson facility by a public road, and is also located in Montgomery County. The bottom ash is conveyed out of the bottom of the boiler via a wet sluice system to hydrobins, where the water is then decanted and the bottom ash sent to the Westland Ash Site, where it is often used in the construction of flyash disposal cells.

Gypsum is a byproduct of SO<sub>2</sub> removal by the Flue Gas Desulfurization (FGD) system, commonly known as a scrubber. Dickerson uses wet scrubbers for SO<sub>2</sub> removal. Wet scrubbing utilizes a chemical reaction with limestone alkaline sorbent to remove SO<sub>2</sub> from the air stream. The byproduct - gypsum - is sent by rail to the Morgantown Generating Station where it is then conveyed to a barge and transported to La Farge located in Buchanan, New York where it is made into wallboard. Gypsum that doesn't meet the specifications for wallboard production is transported for disposal to Waste Management's Amelia Landfill in Virginia. Waste Water Treatment Plant Fines (WWTP Fines) are removed from the Scrubber's WWTP as needed and transported to Waste Management's Amelia Landfill in Virginia for disposal.



**Microbac Laboratories, Inc.**

**Baltimore Division**  
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**COVER LETTER**

Andrew McCulloch  
NRG Energy - Dickerson  
21200 Martinsburg Rd.  
Dickerson, MD 20842  
RE: Coal Combustion By Products

August 25, 2015  
Report No.: 15F1443

The report of analyses contains test results for samples received at Microbac Laboratories, Inc., Baltimore Division on 06/25/2015 14:00.

The enclosed results were obtained from and applicable to the sample(s) as received at the laboratory. All sample results are reported on an "as received" basis unless otherwise noted.

All data included in this report has been reviewed and meet the applicable project and certification specific requirements, unless otherwise noted.

This report has been paginated in its entirety and shall not be reproduced except in full, without the written approval of Microbac Laboratories, Inc.

We appreciate the opportunity to service your analytical needs. If you have any questions, please feel free to contact us.

This Data Package contains the following:

- This Cover Page
- Sample Summary
- Test Results
- Certifications/Notes and Definitions
- Cooler Receipt Log
- Chain of Custody

8/25/2015

Final report reviewed by:

Kimberley M. Mack/Project Manager

Report issue date

*All samples received in proper condition and results conform to ISO 17025 and TNI NELAP standards unless otherwise noted.*

*If we have not met or exceeded your expectations, please contact Kimberley M. Mack/Project Manager at 410-633-1800. You may also contact Trevor Boyce, President at [trevor.boyce@microbac.com](mailto:trevor.boyce@microbac.com)*



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Baltimore Division

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Fax: 410-633-6553

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**CERTIFICATE OF ANALYSIS**

NRG Energy - Dickerson  
21200 Martinsburg Rd.  
Dickerson, MD 20842

Project: Coal Combustion By Products  
Project Number: Coal Combustion By Products  
Project Manager: Andrew McCulloch

Report: 15F1443  
Reported: 08/25/2015 08:43

**SAMPLE SUMMARY**

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
Fly Ash	15F1443-01	Solid	Grab	06/18/2015 10:50	06/25/2015 14:00
Bottom Ash	15F1443-02	Solid	Grab	06/18/2015 11:00	06/25/2015 14:00
Gypsum	15F1443-03	Solid	Grab	06/18/2015 11:15	06/25/2015 14:00
WWTP Fines	15F1443-04	Solid	Grab	06/18/2015 11:25	06/25/2015 14:00

Microbac Laboratories, Inc. - Baltimore

Kimberley M. Mack, Project Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

**Original Report**

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Baltimore Division

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**CERTIFICATE OF ANALYSIS**

NRG Energy - Dickerson 21200 Martinsburg Rd. Dickerson, MD 20842	Project: Coal Combustion By Products Project Number: Coal Combustion By Products Project Manager: Andrew McCulloch	Report: 15F1443 Reported: 08/25/2015 08:43
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**Fly Ash**

15F1443-01 (Solid) Sampled: 06/18/2015 10:50; Type: Grab

Analyte	Result	Reporting			Prepared	Analyzed	Analyst	Method	Notes
		Limit	Units	Limits					

**Microbac Laboratories, Inc. - Baltimore**

**Wet Chemistry**

% Solids	100.5	0.05	% by Weight	070115 0619	070215 0810	LCR	SM 2540 G-11	
pH	4.16	0.100	pH Units	063015 1114	063015 1226	LCR	SW-846 9045D	Z10
Sulfate as SO4	6200	99	mg/kg dry	062915 0714	063015 1219	PPM	SW-846 9056A	

**General Chemistry**

Paint Filter Free Liquid	NEGATIVE		P/A	062915 0905	062915 0925	VAS	SW-846 9095B	
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**Mercury, Total by EPA 7000 Series Methods**

Mercury	1.2	0.050	mg/kg dry	070715 1059	070715 1554	FAK	EPA 7471A	
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**Metals, Total by EPA 6000/7000 Series Methods**

Aluminum	11000	11	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Antimony	ND	8.9	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Arsenic	78	4.5	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Barium	180	2.2	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Beryllium	4.7	0.89	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Cadmium	ND	0.45	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Calcium	4400	22	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Chromium	11	2.2	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Cobalt	17	2.2	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Copper	ND	2.2	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Iron	96000	45	mg/kg dry	070115 0943	070615 1509	APS	EPA 6010B	
Lead	19	4.5	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Lithium	38	4.5	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Magnesium	560	22	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Molybdenum	ND	4.5	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	
Nickel	ND	4.5	mg/kg dry	070115 0943	070615 1504	APS	EPA 6010B	

Microbac Laboratories, Inc. - Baltimore

*Kimberley Mack*

Kimberley M. Mack, Project Manager

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**CERTIFICATE OF ANALYSIS**

NRG Energy - Dickerson 21200 Martinsburg Rd. Dickerson, MD 20842	Project: Coal Combustion By Products Project Number: Coal Combustion By Products Project Manager: Andrew McCulloch	Report: 15F1443 Reported: 08/25/2015 08:43
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**Fly Ash**

15F1443-01 (Solid) Sampled: 06/18/2015 10:50; Type: Grab

Analyte	Result	Reporting Limit	Units	Limits	Prepared	Analyzed	Analyst	Method	Notes
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**Microbac Laboratories, Inc. - Baltimore**

**Metals, Total by EPA 6000/7000 Series Methods**

Potassium	1400	22	mg/kg dry		070115 0943	070615 1504	APS	EPA 6010B	
Selenium	7.8	4.5	mg/kg dry		070115 0943	070615 1504	APS	EPA 6010B	
Silver	ND	2.2	mg/kg dry		070115 0943	070615 1504	APS	EPA 6010B	L3
Sodium	490	450	mg/kg dry		070115 0943	070615 1504	APS	EPA 6010B	B17, B18
Thallium	ND	45	mg/kg dry		070115 0943	070615 1509	APS	EPA 6010B	
Vanadium	70	2.2	mg/kg dry		070115 0943	070615 1504	APS	EPA 6010B	
Zinc	39	2.2	mg/kg dry		070115 0943	070615 1504	APS	EPA 6010B	

**TCLP Extraction by EPA 1311**

TCLP Extraction	COMPLETED		N/A		070115 1522	070215 1105	TRD	EPA 1311	
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**TCLP Metals by 6000/7000 Series Methods**

Arsenic	0.078	0.040	mg/L	5.0	070715 1801	070815 1610	APS	EPA 6020	
Barium	0.25	0.10	mg/L	100	070715 1801	070815 1610	APS	EPA 6020	B16
Cadmium	ND	0.010	mg/L	1.0	070715 1801	070815 1610	APS	EPA 6020	
Chromium	0.066	0.040	mg/L	5.0	070715 1801	070815 1610	APS	EPA 6020	
Lead	ND	0.020	mg/L	5.0	070715 1801	070815 1610	APS	EPA 6020	
Mercury	ND	0.0020	mg/L	0.20	070815 1513	070915 1522	FAK	EPA 7470A	
Selenium	ND	0.10	mg/L	1.0	070715 1801	070815 1610	APS	EPA 6020	
Silver	ND	0.020	mg/L	5.0	070715 1801	070815 1610	APS	EPA 6020	

**Microbac Laboratories, Inc. - Chicagoland**

**Wet Chemistry**

Percent Solids	100	0.10	wt%		070915 1257	070915 1313	agrie	SM 2540 G-1997	
Sulfur (from SO4)	0.18	0.030	% WT		071015 1206	071415 1443	AGRIE	ASTM D129 MOD	

Microbac Laboratories, Inc. - Baltimore

*Kimberley Mack*

Kimberley M. Mack, Project Manager

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**CERTIFICATE OF ANALYSIS**

NRG Energy - Dickerson 21200 Martinsburg Rd. Dickerson, MD 20842	Project: Coal Combustion By Products Project Number: Coal Combustion By Products Project Manager: Andrew McCulloch	Report: 15F1443 Reported: 08/25/2015 08:43
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**Bottom Ash**

15F1443-02 (Solid) Sampled: 06/18/2015 11:00; Type: Grab

Analyte	Result	Reporting		Limits	Prepared	Analyzed	Analyst	Method	Notes
		Limit	Units						

**Microbac Laboratories, Inc. - Baltimore**

**Wet Chemistry**

% Solids	47.03	0.05	% by Weight	070115 0619	070215 0810	LCR	SM 2540 G-11	
pH	6.59	0.100	pH Units	063015 1114	063015 1226	LCR	SW-846 9045D	Z10c
Sulfate as SO4	110	10	mg/kg dry	062915 0714	062915 2043	PPM	SW-846 9056A	

**General Chemistry**

Paint Filter Free Liquid	POSITIVE		P/A	062915 0905	062915 0925	VAS	SW-846 9095B	
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**Mercury, Total by EPA 7000 Series Methods**

Mercury	ND	0.047	mg/kg dry	070715 1059	070715 1519	FAK	EPA 7471A	
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**Metals, Total by EPA 6000/7000 Series Methods**

Aluminum	8100	21	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Antimony	ND	17	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Arsenic	100	8.3	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Barium	120	4.1	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Beryllium	2.2	1.7	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Cadmium	ND	0.83	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Calcium	3000	41	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Chromium	92	4.1	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Cobalt	9.7	4.1	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Copper	82	4.1	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Iron	51000	17	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Lead	200	8.3	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Lithium	15	8.3	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Magnesium	1000	41	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Molybdenum	8.7	8.3	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Nickel	92	8.3	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	
Potassium	860	41	mg/kg dry	070115 0943	070615 1529	APS	EPA 6010B	

Microbac Laboratories, Inc. - Baltimore

*Kimberley Mack*

Kimberley M. Mack, Project Manager

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**CERTIFICATE OF ANALYSIS**

NRG Energy - Dickerson 21200 Martinsburg Rd Dickerson, MD 20842	Project: Coal Combustion By Products Project Number: Coal Combustion By Products Project Manager: Andrew McCulloch	Report: 15F1443 Reponed: 08/25/2015 08:43
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**Bottom Ash**

15F1443-02 (Solid) Sampled: 06/18/2015 11:00; Type: Grab

Analyte	Result	Reporting			Prepared	Analyzed	Analyst	Method	Notes
		Limit	Units	Limits					

**Microbac Laboratories, Inc. - Baltimore**

**Metals, Total by EPA 6000/7000 Series Methods**

Selenium	ND	8.3	mg/kg dry		070115 0943	070615 1529	APS	EPA 6010B	
Silver	ND	4.1	mg/kg dry		070115 0943	070615 1529	APS	EPA 6010B	L3
Sodium	ND	830	mg/kg dry		070115 0943	070615 1529	APS	EPA 6010B	
Thallium	ND	17	mg/kg dry		070115 0943	070615 1529	APS	EPA 6010B	
Vanadium	46	4.1	mg/kg dry		070115 0943	070615 1529	APS	EPA 6010B	
Zinc	400	4.1	mg/kg dry		070115 0943	070615 1529	APS	EPA 6010B	

**TCLP Extraction by EPA 1311**

TCLP Extraction	COMPLETED		N/A		070115 1522	070215 1105	TRB	EPA 1311	
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**TCLP Metals by 6000/7000 Series Methods**

Arsenic	ND	0.040	mg/L	5.0	070715 1801	070815 1619	APS	EPA 6020	
Barium	0.24	0.10	mg/L	100	070715 1801	070815 1619	APS	EPA 6020	B16
Cadmium	0.012	0.010	mg/L	1.0	070715 1801	070815 1619	APS	EPA 6020	
Chromium	ND	0.040	mg/L	5.0	070715 1801	070815 1619	APS	EPA 6020	
Lead	0.14	0.020	mg/L	5.0	070715 1801	070815 1619	APS	EPA 6020	B1
Mercury	ND	0.0020	mg/L	0.20	070815 1513	070915 1526	FAK	EPA 7470A	
Selenium	ND	0.10	mg/L	1.0	070715 1801	070815 1619	APS	EPA 6020	
Silver	ND	0.020	mg/L	5.0	070715 1801	070815 1619	APS	EPA 6020	

**Microbac Laboratories, Inc. - Chicagoland**

**Wet Chemistry**

Percent Moisture	43	0.10	wt%		070915 1256	070915 1258	agric	SM 2540 B-1997	H
Sulfur (from SO4)	ND	0.032	% WT		071015 1206	071415 1456	AGRIE	ASTM D129 MOD	

Microbac Laboratories, Inc. - Baltimore

*Kimberley Mack*

Kimberley M. Mack, Project Manager

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Baltimore Division

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**CERTIFICATE OF ANALYSIS**

NRG Energy - Dickerson  
21200 Martinsburg Rd.  
Dickerson, MD 20842

Project: Coal Combustion By Products  
Project Number: Coal Combustion By Products  
Project Manager: Andrew McCulloch

Report: 15F1443  
Reported: 08/25/2015 08:43

**Gypsum**

15F1443-03 (Solid) Sampled: 06/18/2015 11:15; Type: Grab

Analyte	Result	Reporting Limit	Units	Limits	Prepared	Analyzed	Analyst	Method	Notes
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**Microbac Laboratories, Inc. - Baltimore**

**Wet Chemistry**

% Solids	77.33	0.05	% by Weight		070115 0619	070215 0810	LCR	SM 2540 G-11	
pH	7.10	0.100	pH Units		063015 1114	063015 1226	LCR	SW-846 9045D	Z10b
Sulfate as SO4	13000	320	mg/kg dry		062915 0714	063015 1015	PPM	SW-846 9056A	

**General Chemistry**

Paint Filter Free Liquid	NEGATIVE		P/A		062915 0905	062915 0925	VAS	SW-846 9025B	
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**Mercury, Total by EPA 7000 Series Methods**

Mercury	0.40	0.032	mg/kg dry		070715 1059	070715 1521	FAK	EPA 7471A	
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**Metals, Total by EPA 6000/7000 Series Methods**

Aluminum	220	16	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Antimony	ND	12	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Arsenic	ND	6.2	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Barium	35	3.1	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Beryllium	ND	1.2	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Cadmium	ND	0.62	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Calcium	180000	160	mg/kg dry		070115 0943	070615 1636	APS	EPA 6010B	
Chromium	ND	3.1	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Cobalt	ND	3.1	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Copper	ND	3.1	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Iron	470	12	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Lead	ND	6.2	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Lithium	ND	6.2	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Magnesium	ND	31	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Molybdenum	ND	6.2	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Nickel	ND	6.2	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Potassium	120	31	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	

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Kimberley M. Mack, Project Manager

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**CERTIFICATE OF ANALYSIS**

NRG Energy - Dickerson 21200 Martinsburg Rd Dickerson, MD 20842	Project: Coal Combustion By Products Project Number: Coal Combustion By Products Project Manager: Andrew McCulloch	Report: 15F1443 Reported: 08/25/2015 08:43
---	--	---

**Gypsum**

15F1443-03 (Solid) Sampled: 06/18/2015 11:15; Type: Grab

Analyze	Result	Reporting		Limits	Prepared	Analyzed	Analyst	Method	Notes
		Limit	Units						

**Microbac Laboratories, Inc. - Baltimore**

**Metals, Total by EPA 6000/7000 Series Methods**

Selenium	ND	6.2	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Silver	ND	3.1	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	L3
Sodium	ND	620	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Thallium	ND	62	mg/kg dry		070115 0943	070615 1636	APS	EPA 6010B	
Thallium	ND	12	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010H	
Vanadium	ND	3.1	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	
Zinc	ND	3.1	mg/kg dry		070115 0943	070615 1532	APS	EPA 6010B	

**TCLP Extraction by EPA 1311**

TCLP Extraction	COMPLETED		N/A		070115 1522	070215 1105	TRB	EPA 1311	
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**TCLP Metals by 6000/7000 Series Methods**

Arsenic	ND	0.040	mg/L	5.0	070715 1801	070815 1622	APS	EPA 6020	
Barium	ND	0.10	mg/L	100	070715 1801	070815 1622	APS	EPA 6020	
Cadmium	ND	0.010	mg/L	1.0	070715 1801	070815 1622	APS	EPA 6020	
Chromium	ND	0.040	mg/L	5.0	070715 1801	070815 1622	APS	EPA 6020	
Lead	0.043	0.020	mg/L	5.0	070715 1801	070815 1622	APS	EPA 6020	B1
Mercury	ND	0.0020	mg/L	0.20	070815 1513	070915 1528	FAK	EPA 7470A	
Selenium	ND	0.10	mg/L	1.0	070715 1801	070815 1622	APS	EPA 6020	
Silver	ND	0.020	mg/L	5.0	070715 1801	070815 1622	APS	EPA 6020	

**Microbac Laboratories, Inc. - Chicagoland**

**Wet Chemistry**

Percent Solids	75	0.10	wt%		070915 1257	070915 1313	agrie	SM 2540 G-1997	
Sulfur (from SO4)	2.1	0.33	% WT		071015 1206	071415 1554	AGRIE	ASTM D129 MOD	

Microbac Laboratories, Inc. - Baltimore

*Kimberley Mack*

Kimberley M. Mack, Project Manager

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**CERTIFICATE OF ANALYSIS**

NRG Energy - Dickerson 21200 Martinsburg Rd. Dickerson, MD 20842	Project: Coal Combustion By Products Project Number: Coal Combustion By Products Project Manager: Andrew McCulloch	Report: 15F1443 Reported: 08/25/2015 08:43
--	--	---

**WWTP Fines**

15F1443-04 (Solid) Sampled: 06/18/2015 11:25; Type: Grab

Analyte	Result	Reporting		Limits	Prepared	Analyzed	Analysis	Method	Notes
		Limit	Units						

**Microbac Laboratories, Inc. - Baltimore**

**Wet Chemistry**

% Solids	69.19	0.05	% by Weight	070115 0619	070215 0810	LCR	SM 2540 G-11	
pH	7.58	0.100	pH Units	063015 1114	063015 1226	LCR	SW-846 9945D	Z10a
Sulfate as SO4	17000	360	mg/kg dry	062915 0714	063015 1129	PPM	SW-846 9056A	

**General Chemistry**

Paint Filter Free Liquid	NEGATIVE		P/A	062915 0905	062915 0925	VAS	SW-846 9095B	
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**Mercury, Total by EPA 7000 Series Methods**

Mercury	14	0.71	mg/kg dry	070715 1059	070715 1611	FAK	EPA 7471A	
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**Metals, Total by EPA 6000/7000 Series Methods**

Aluminum	5500	18	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Antimony	ND	14	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Arsenic	17	7.1	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Barium	180	3.5	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Beryllium	ND	1.4	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Cadmium	ND	0.71	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Calcium	230000	180	mg/kg dry	070115 0943	070615 1640	APS	EPA 6010B	
Chromium	34	3.5	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Cobalt	5.2	3.5	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Copper	10	3.5	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Iron	15000	14	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Lead	ND	7.1	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Lithium	ND	7.1	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Magnesium	4500	35	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Molybdenum	ND	7.1	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Nickel	35	7.1	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	
Potassium	1900	35	mg/kg dry	070115 0943	070615 1537	APS	EPA 6010B	

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*Kimberley Mack*

Kimberley M. Mack, Project Manager

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--	--	---

**WWTP Fines**

15F1443-04 (Solid) Sampled: 06/18/2015 11:25; Type: Grab

Analyte	Result	Reporting		Units	Limits	Prepared	Analyzed	Analyst	Method	Notes
		Limit	Limit							

**Microbac Laboratories, Inc. - Baltimore**

**Metals, Total by EPA 6000/7000 Series Methods**

Selenium	89	7.1	mg/kg dry		070115 0943	070615 1537	APS	EPA 6010B	
Silver	ND	3.5	mg/kg dry		070115 0943	070615 1537	APS	EPA 6010B	L3
Sodium	1000	710	mg/kg dry		070115 0943	070615 1537	APS	EPA 6010B	B17, B18
Thallium	ND	71	mg/kg dry		070115 0943	070615 1640	APS	EPA 6010B	
Vanadium	17	3.5	mg/kg dry		070115 0943	070615 1537	APS	EPA 6010B	
Zinc	70	3.5	mg/kg dry		070115 0943	070615 1537	APS	EPA 6010B	

**TCLP Extraction by EPA 1311**

TCLP Extraction	COMPLETED		N/A		070115 1522	070215 1105	TRB	EPA 1311	
-----------------	-----------	--	-----	--	-------------	-------------	-----	----------	--

**TCLP Metals by 6000/7000 Series Methods**

Arsenic	ND	0.040	mg/L	5.0	070715 1801	070815 1624	APS	EPA 6020	
Barium	0.11	0.10	mg/L	100	070715 1801	070815 1624	APS	EPA 6020	B16
Cadmium	ND	0.010	mg/L	1.0	070715 1801	070815 1624	APS	EPA 6020	
Chromium	ND	0.040	mg/L	5.0	070715 1801	070815 1624	APS	EPA 6020	
Lead	ND	0.020	mg/L	5.0	070715 1801	070815 1624	APS	EPA 6020	
Mercury	ND	0.0020	mg/L	0.20	070815 1513	070915 1541	FAK	EPA 7470A	
Selenium	ND	0.10	mg/L	1.0	070715 1801	070815 1624	APS	EPA 6020	
Silver	ND	0.020	mg/L	5.0	070715 1801	070815 1624	APS	EPA 6020	

**Microbac Laboratories, Inc. - Chicagoland**

**Wet Chemistry**

Percent Solids	68	0.10	wt%		070915 1257	070915 1313	agric	SM 2540 G-1997	
Sulfur (from SO4)	0.70	0.033	% WT		071015 1206	071415 1500	AGRIE	ASTM D129 MOD	

Microbac Laboratories, Inc. - Baltimore

*Kimberley Mack*

Kimberley M. Mack, Project Manager

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**CERTIFICATE OF ANALYSIS**

NRG Energy - Dickerson  
21200 Martinsburg Rd.  
Dickerson, MD 20842

Project: Coal Combustion By Products  
Project Number: Coal Combustion By Products  
Project Manager: Andrew McCulloch

Report: 15F1443  
Reported: 08/25/2015 08:43

**Project Requested Certification(s):**

A2LA (Environmental)

*Analyte Certification Exception Summary*

No certification exceptions

All analysis performed were analyzed under the required certification unless otherwise noted in the above summary.

Microbac Laboratories, Inc. - Baltimore

Kimberley M. Mack, Project Manager

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**CERTIFICATE OF ANALYSIS**

NRG Energy - Dickerson 21200 Martinsburg Rd. Dickerson, MD 20842	Project: Coal Combustion By Products Project Number: Coal Combustion By Products Project Manager: Andrew McCulloch	Report: 15F1443 Reported: 08/25/2015 08:43
--	--	---

**Certification List**

*Below is a list of certifications maintained by Microbac Laboratories, Inc. All data included in this report has been reviewed for and meets all project specific and quality control requirements of the applicable accreditation, unless otherwise noted. A complete list of individual analytes pursuant to each certification below is available upon request.*

Code	Description	Certification Number	Expires
<b>Microbac Laboratories, Inc. - Baltimore</b>			
A2LA1	A2LA (Biology)	410.02	04/30/2017
A2LA2	A2LA (Environmental)	410.01	04/30/2017
CPSC	CPSC Testing of Childrens Products and Jewelry	1115	04/30/2017
Pb	Environmental Lead (ELLAP)	410.01	04/30/2017
MD	State of Maryland (Drinking Water)	109	06/30/2016
WV	West Virginia	054	08/31/2015
<b>Microbac Laboratories, Inc. - Chicagoland</b>			
A2LA_	A2LA ISO/IEC 17025 Biological Testing	3045.01	09/30/2018
A2LA	A2LA ISO/IEC 17025 Env. DoD Testing	3045.02	09/30/2018
CDC-ELITE	c Center for Disease Control (CDC) ELITE Proficiency Progr		05/14/2015
ILDPH	Illinois DOPH Micro analysis of drinking water	1755266	12/31/2016
ILEPA	Illinois EPA wastewater and solid waste analysis	200064	04/01/2016
INDEM	Indiana DEM support lab wastewater and solid waste	A305-9-292	12/31/2013
INSDH	Indiana SDH chemical analysis of drinking water	C-45-03	08/14/2016
INDH	Indiana SDH Micro analysis of drinking water	M-45-8	12/31/2016
ISBOAH	Indiana State Board of Animal Health for microbiological anal	18137	03/01/2016
KSDOH	Kansas Dept Health & Env. NELAP	E-10397	01/31/2016
KYEPP	Kentucky EPPC analysis Underground Storage Tanks	75	04/01/2016
KYDEP	Kentucky Wastwater Laboratory Certification Program	90147	12/31/2015
NYDOH	New York State Department of Health Wadsworth	52733	04/01/2016
NCDEN	North Carolina DENR NPDES effluent, surface water	597	12/31/2015
PEDEP	Pennsylvania DEP Registration for Air analysis	68-04863	
PADEP	Pennsylvania Department of Environmental Protect	68-04863	07/31/2015
USDAS	USDA Permit To Receive Soil	P330-12-00174	09/18/2016
WADOE	Washington State Department of Ecology	C992	10/22/2015
WIDNR	Wisconsin DRN chemical analysis wastewater, solids	998036710	08/31/2015
<b>Microbac Laboratories, Inc. - Richmond</b>			
VA-R	Commonwealth of Virginia (NELAC) - Richmond	460022	06/14/2016

Microbac Laboratories, Inc. - Baltimore

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Kimberley M. Mack, Project Manager

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**CERTIFICATE OF ANALYSIS**

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--	--	---

**Qualifiers/Notes and Definitions**

**General Definitions:**

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

**Analysis Qualifiers/Notes:**

**Microbac Laboratories, Inc. - Baltimore**

- Z10c pH@22.7°C
- Z10b pH@20.7°C
- Z10a pH@20.5°C
- Z10 pH@20.4°C

- L3 The LCS recovery was below the laboratory acceptance limits. The reported result is estimated.
- B18 Target analyte detected in the initial calibration blank >2.2 times the MDL but less than the reporting limit.
- B17 Target analyte detected in continuing calibration blank >2.2 times the MDL but less than the reporting limit.
- B16 Target analyte detected in method blank >2.2 times the MDL but less than the reporting limit.
- B1 Target analyte detected in method blank at or above reporting limit.

**Microbac Laboratories, Inc. - Chicago/land**

- H Analyte was prepared and/or analyzed outside of the analytical method holding time



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**Cooler Receipt Log**

---

<b>Cooler ID:</b> Default Cooler	<b>Cooler Temp:</b> 0.30°C	<b>Work Order:</b> ISF1443
<b>Custody Seals Intact:</b> Yes	<b>COC/Containers Agree:</b> Yes	
<b>Containers Intact:</b> Yes	<b>Correct Preservation:</b> Yes	
<b>Received On Ice:</b> Yes	<b>Correct Number of Containers Received:</b> Yes	
<b>Radiation Scan Acceptable:</b> Yes	<b>Sufficient Sample Volume for Testing:</b> Yes	
<b>COC Present:</b> Yes	<b>Samples Received in Proper Condition:</b> Yes	

---

**Comments:**

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 Tel: 410-633-1800  
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**Chain of Custody Record**

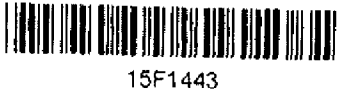
Work Order Number:

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Instructions for completing the Chain of Custody Record on back

Client Name: AKS ENERGY Project: COB TESTING  
 Address: 21200 MARTINSBURG RD Location: DICKERSON GEN STA  
 City, State, Zip: DICKERSON, MD 20834 PO #:  
 Contact: A. McALLOCH  
 Telephone # 301-601-6520  
 Sampled by (PRINT): Robert (Bob) ... Sampler Phone # 301-601-6520 Sampler (DW) Card#  
 Send Report via  e-mail (address)  Mail  Telephone  Fax (fax #)

Client Sample ID	Matrix**	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analysis	Comments
<u>FLY ASH</u>	<u>S</u>	<u>✓</u>			<u>6/19/15</u>	<u>1050</u>	<u>1</u>		
<u>BOTTOM ASH</u>	<u>S</u>	<u>✓</u>			<u>6/19/15</u>	<u>1100</u>	<u>1</u>		
<u>GYPSUM</u>	<u>S</u>	<u>✓</u>			<u>6/19/15</u>	<u>1115</u>	<u>1</u>		
<u>WWTP FINES</u>	<u>S</u>	<u>✓</u>			<u>6/19/15</u>	<u>1125</u>	<u>1</u>		



Possible Hazard Identification:  Hazardous  Non-Hazardous  
 Relinquished By (signature): Christina  
 Relinquished By (signature): B. Reddick  
 Relinquished By (signature):  
 Relinquished By (signature):  
 Relinquished By (signature):

Number of Containers: 40  
 Sample Number: 0.3%  
 Sample Received on location (Yes/No): Yes  
 Signature Scan Acceptable: Yes / No

Sample Disposition:  Dispose as appropriate  Return  Archive

Date/Time Received By (signature): 6/25/15 0930 Received By (signature): Brian Reddick Printed Name/Amidation: MRB  
 Date/Time Received By (signature): 6/25/15 1444 Received By (signature): J. Oyer Printed Name/Amidation: J. Oyer  
 Date/Time Received for Lab By (signature):  
 Received for Lab By (signature):  
 Received for Lab By (signature):



**Cooler Receipt Form / Sample  
Acceptance & Noncompliance Form**

Microbac Laboratories, Inc., Baltimore Division  
Control # 606-01  
Effective Date 01/23/15  
Page 1 of 1

Number of Coolers Received: 1

Client: new energy Dickens

Form Completed By: [Signature]

Shipper:

Custody Tape Intact:

Containers Intact:

Sample Received on Ice or refrigerated:

Radiation Scan:

Chain of Custody Present with shipment:

Sample Bottle IDs agree with COC:

Preservation requirements met:

Correct Number of Containers / Sample Volume:

Headspace in container:

Type of Sample:

Receipt Date / Time: 6/25/15 1400

Work Order #: ISF1443 PNO

Microbac  Client  UPS  FedEx

YES / NO / NA

YES / NO

YES / NO

Infrared (IR) Temperature: 0.3 °C

Negative or \_\_\_\_\_ mR/hr

YES / NO

YES / NO

YES / NO / Not Checked

YES / NO (If No, contact client immediately)

YES / NO NA

Water Soil Wipes Oil Filter Solid

Sludge Food Swab Other

**Container Type / Quantity:**

A -	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	
B -	<u>4</u>	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
C -	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	
D -	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	
E -	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	
H -	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	
K -	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	
L -	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	
M -	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	
W -	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	
V -	Unpreserved	HCl	HCl / Ascorbic Acid	HCl / NaTHIO	(Checked at time of Analysis)			
F -	Unpreserved	NaTHIO (Checked at time of Analysis)						
S -	Unpreserved	NaTHIO (Checked at time of Analysis)						
SN -	Unpreserved	NaTHIO / NaTHIO/EDTA (Checked at time of Analysis)						
	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	
	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	
	Unpreserved	H2SO4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10	

**Describe preservation requirements not met:**

*All Acid preserved <2 pH      NaOH preserved >12 pH      All others >2 and <10 (usually 4-8)*

Sample ID: \_\_\_\_\_ H<sub>2</sub>SO<sub>4</sub> HNO<sub>3</sub> NaOH \_\_\_\_\_ mls added

Sample ID: \_\_\_\_\_ H<sub>2</sub>SO<sub>4</sub> HNO<sub>3</sub> NaOH \_\_\_\_\_ mls added

Sample ID: \_\_\_\_\_ H<sub>2</sub>SO<sub>4</sub> HNO<sub>3</sub> NaOH \_\_\_\_\_ mls added

Sample ID: \_\_\_\_\_ H<sub>2</sub>SO<sub>4</sub> HNO<sub>3</sub> NaOH \_\_\_\_\_ mls added

*H<sub>2</sub>SO<sub>4</sub> - Sulfuric Acid, HNO<sub>3</sub> - Nitric Acid, NaOH - Sodium Hydroxide, ASC - Ascorbic Acid, NaTHIO - Sodium Thiosulfate*

Describe Anomalies: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Contact information / Summary of Actions:**

Date / Time: \_\_\_\_\_ Contact: \_\_\_\_\_ Contact By: \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

GenOn Dickerson Generating Station  
Annual CCB Analysis List  
(CCB – Fly Ash, Bottom Ash, FGD WWTP Fines & Synthetic Gypsum)

Analysis	Test Method	
Chloride	USGS I-1187-85	Geochemical Testing @ 814-443-1671 Elwood L. Kennell (Woody) <a href="mailto:ekennell@geo-ces.com">ekennell@geo-ces.com</a>  Geochemical Testing 2005 North Center Avenue Somerset, PA 15501
Sulfate as SO4	ASTM D516-02 (M)	Geochemical Testing
pH (as received)	EPA 9045	Geochemical Testing
Paint Filter Test	EPA 9095	Geochemical Testing
Sulfate / Sulfur	ASTM D 2492	Geochemical Testing
<b>TCLP Metals</b>	EPA 6010B	Microbac
Silver	EPA 6010B	Microbac
Arsenic	EPA 6010B	Microbac
Barium	EPA 6010B	Microbac
Cadmium	EPA 6010B	Microbac
Chromium	EPA 6010B	Microbac
Mercury	SW846 7471A	Microbac
Lead	EPA 6010B	Microbac
Selenium	EPA 6010B	Microbac
		Microbac
<b>Total Metals</b>		Microbac
Silver	EPA 6010B	Microbac
Aluminum	EPA 6010B	Microbac
Arsenic	EPA 6010B	Microbac
Antimony	EPA 6010B	Microbac
Barium	EPA 6010B	Microbac
Beryllium	EPA 6010B	Microbac
Calcium	EPA 6010B	Microbac
Cadmium	EPA 6010B	Microbac
Cobalt	EPA 6010B	Microbac
Copper	EPA 6010B	Microbac
Chromium	EPA 6010B	Microbac
Iron	EPA 6010B	Microbac
Lead	EPA 6010B	Microbac
Lithium	EPA 6010B	Microbac
Potassium	EPA 6010B	Microbac
Magnesium	EPA 6010B	Microbac
Mercury	SW846 7471A	Microbac
Molybdenum	EPA 6010B	Microbac
Nickel	EPA 6010B	Microbac
Selenium	EPA 6010B	Microbac
Sodium	EPA 6010B	Microbac
Sulfur	EPA 6010B	Microbac
Thallium	EPA 6010B	Microbac
Vanadium	EPA 6010B	Microbac
Zinc	EPA 6010B	Microbac



SUBCONTRACT ORDER



Microbac Laboratories, Inc. - Baltimore

15F1443

SENDING LABORATORY:

Microbac Laboratories, Inc. - Baltimore
2101 Van Deman Street
Baltimore, MD 21224
Phone: 410.633.1800
Project Manager: Jacob T. Wellen

RECEIVING LABORATORY:

Microbac - CGL
250 West 84th Drive
Merrillville, IN 46410
Phone: (219) 769-8378

Project Info:

Client Name: NRG Energy - Dickerson

Project Name: Coal Combustion By/Produ Project Type: Solid Waste Report TAT: 10

Project No: Coal Combustion By/Produ Project Location: Maryland (West) Due: 07/10/2015 17:00

Sample ID: 15F1443-01 Matrix: Solid Sampled: 06/18/2015 10:50

Table with 4 columns: Analysis, Method, Analysis Due, Expires. Row 1: SUB\_Sulfur, ASTM D129-91, 07/10/2015 15:00, 07/16/2015 10:50.

Sample ID: 15F1443-02 Matrix: Solid Sampled: 06/18/2015 11:00

Table with 4 columns: Analysis, Method, Analysis Due, Expires. Row 1: SUB\_Sulfur, ASTM D129-91, 07/10/2015 15:00, 07/16/2015 11:00.

Sample ID: 15F1443-03 Matrix: Solid Sampled: 06/18/2015 11:15

Table with 4 columns: Analysis, Method, Analysis Due, Expires. Row 1: SUB\_Sulfur, ASTM D129-91, 07/10/2015 15:00, 07/16/2015 11:15.

Sample ID: 15F1443-04 Matrix: Solid Sampled: 06/18/2015 11:25

Table with 4 columns: Analysis, Method, Analysis Due, Expires. Row 1: SUB\_Sulfur, ASTM D129-91, 07/10/2015 15:00, 07/16/2015 11:25.

(4) K jars neat / reported 07/06/15 @ 1617

Handwritten signatures and dates for Release and Receipt.

Released By Date Received By Date

Released By Date Received By Date