



GenOn Mid-Atlantic, LLC
Dickerson Generating Station
21200 Martinsburg Road
Dickerson, Md 20842

Certified Mail/Return Receipt Requested
7016 3560 0000 7263 4217

Mr. Ed Dexter
Maryland Department of the Environment
Land Management Administration
1800 Washington Boulevard, Suite 605
Baltimore MD 21230-1719

February 24, 2020

Re: 2019 CCB Tonnage Report for GenOn Mid-Atlantic, LLC's Dickerson Generating Station.

Dear Mr. Dexter,

Pursuant to COMAR 26.04.10.08, enclosed please find the 2019 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 Bruce.Heimlicher@genon.com.

Regards,

Peter Heimlicher
Environmental Specialist
GenOn Mid-Atlantic, LLC

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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

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LAND MANAGEMENT ADMIN
SOLID WASTE PROGRAM

Coal Combustion Byproducts (CCBs) Annual Generator Tonnage Report Instructions for Calendar Year 2019

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 2019. 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 requires both volume and weight of the CCBs produced. If you know one of these parameters but not the others, for example, you have the tonnage produced but not the volume, you may calculate the other parameter; however, please provide the calculations and assumptions that you used in your estimate.* Questions can be directed to the Solid Waste Program at (410) 537-3315 or via email at ed.dexter@maryland.gov.

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

II. General Information and Applicability.

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

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

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

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

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

III. Required Information. The following information must be provided to the Department by March 1, 2020:

A. Contact information:

Facility Name: Dickerson Generating Station

Name of Permit Holder: GenOn MidAtlantic, 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: Bruce.Heimlicher@genon.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.

C. The volume and weight of CCBs generated during calendar year 2019, 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 2019: Please note the change to this table from previous years, to include both the volume and weight of the types of CCBs your facility produces.

Volume and Weight of CCBs Generated for Calendar Year 2019				
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
8,163	1,355	2,672	449	246
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
8,163	1,355	5,219	878	480
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 Fly ash 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 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 2019, 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:

Of the 8,163 tons of dry fly ash generated at Dickerson in 2019, 6,290 tons were sold for beneficial use in state and 1,873 tons were disposed of at the Westland Ash Site, located in Montgomery Co., Md.
Of the 1,355 tons of bottom ash generated at Dickerson in 2019, 739 tons were sold for beneficial use in state and 616 tons were sent to the Westland Ash Site, located in Montgomery Co., Md for disposal.
On-Spec Gypsum generated at Dickerson in 2019 was 5,219 tons. 1,190 tons were stored on-site at the end of 2018 and 1,146 tons were stored on-site at the end of 2019, and 5,263 tons were sold to Continental, located in Buchanan, N.Y.

WWTP Fines produced in 2019 was 480 tons, all of which was disposed of at Waste Management’s Amelia Landfill, located in Jetersville, Va.

Off-Spec Gypsum produced in 2019 was 878 tons, all of which was sold in-state to Lehigh Cement in Union Bridge, MD.

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

Flyash:
Volume: 6,290 tons sold
Use: Beneficially used as a primary ingredient for Portland cement.

Bottom ash:
Volume: 739 tons sold
Use: Beneficially used as a primary ingredient for Portland cement.

Gypsum:
Volume: 5,263 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 8,200 tons/year to be generated and sold for beneficial use in-state.

Bottom Ash: Anticipate 1,300 tons/year to be generated and sold for beneficial use in-state.

On-Spec Gypsum: Anticipate 5,300 tons/year to be generated and sold to LaFarge, located in Buchanan, NY, for beneficial use.

WWTP Fines: Approximately 500 tons/year to be generated and disposed of at Waste Management’s Amelia Landfill located in Jetersville, Va.

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

On-Spec Gypsum: Volume: 5,300 tons/year to be sold.
Use: Wallboard

FlyAsh and BottomAsh: Volume:9,500 tons per year to be sold
Use: Input to cement.

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.

	<u>Mike Bennett, Plant Manager, Dickerson Generating Station</u> 301-601-6522	
Signature	Name, Title, & Telephone No. (Print or Type)	Date
	David.bennett@genon.com <hr/> Your Email Address	2/24/2020

V: Attachments (please list):

A) Dickerson Generating Station Process Description

B) Microbac Report # 19K0456: Analyses for Dickerson Ash, Gypsum and WWTP Fines

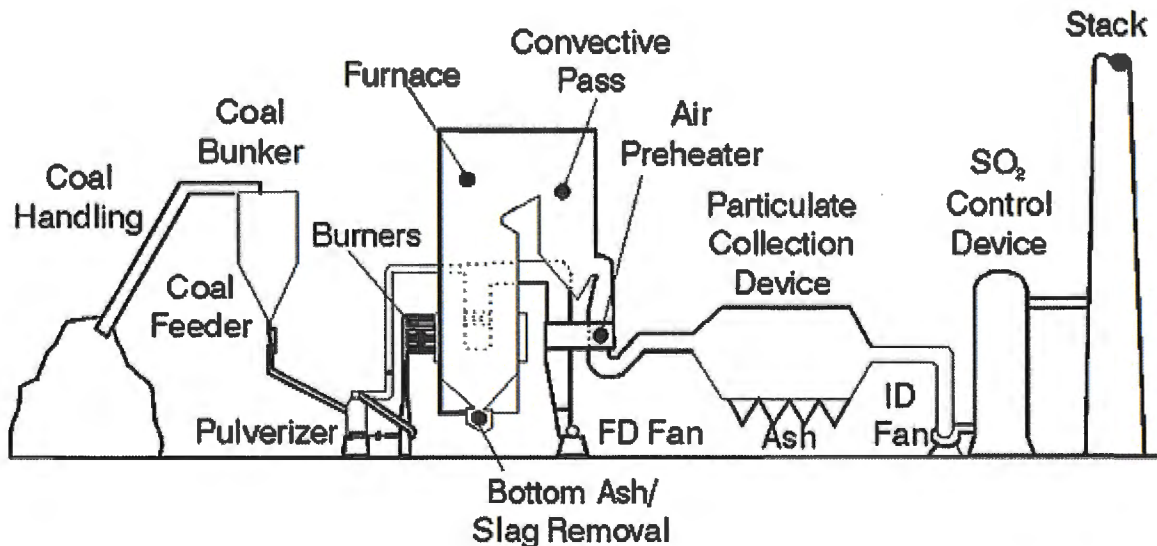
Attachment A

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 NO_x 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 (NO_x). 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

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 SO₂ removal by the Flue Gas Desulfurization (FGD) system, commonly known as a scrubber. Dickerson uses wet scrubbers for SO₂ removal. Wet scrubbing utilizes a chemical reaction with limestone alkaline sorbent to remove SO₂ 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 Continental 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

CERTIFICATE OF ANALYSIS

19H0645

Genon Energy - Dickerson

Project Name: Compliance Ash/Gypsum Samples

Andrew McCulloch
21200 Martinsburg Rd.
Dickerson, MD 20842

Project / PO Number: N/A
Received: 08/01/2019
Reported: 12/09/2019

Analytical Testing Parameters

Client Sample ID:	Fly Ash	Collected By:	Andrew McCulloch
Sample Matrix:	Solid	Collection Date:	07/24/2019 9:00
Lab Sample ID:	19H0645-01		

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

General Parameters	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: ASTM D2216-10								
Percent Solids	99.6		1.00	% by Weight		08/08/19 1325	08/09/19 0803	KMG
TCLP Metals - AA								
Method: EPA 7470A								
Mercury	<0.00200		0.00200	mg/L		08/09/19 1009	08/09/19 1417	KEH
TCLP Metals - ICP								
Method: EPA 6010B								
Arsenic	<0.200	5.00	0.200	mg/L		08/09/19 1031	08/09/19 1349	JYH
Barium	0.204	100	0.100	mg/L		08/09/19 1031	08/09/19 1349	JYH
Cadmium	<0.0200	1.00	0.0200	mg/L		08/09/19 1031	08/09/19 1349	JYH
Chromium	0.0554	5.00	0.0500	mg/L		08/09/19 1031	08/09/19 1349	JYH
Lead	<0.200	5.00	0.200	mg/L		08/09/19 1031	08/09/19 1349	JYH
Selenium	<0.350	1.00	0.350	mg/L		08/09/19 1031	08/09/19 1349	JYH
Silver	<0.100	5.00	0.100	mg/L		08/09/19 1031	08/09/19 1349	JYH
Total Metals - AA								
Method: EPA 7471A								
Mercury	0.498		0.236	mg/kg dry		08/08/19 0924	08/12/19 1123	KEH
Total Metals - ICP								
Method: EPA 6010C								
Aluminum	11300		15.4	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Antimony	<3.85		3.85	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Arsenic	76.7		0.770	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Barium	172		0.385	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Beryllium	2.97		0.0770	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Cadmium	0.365		0.0770	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Calcium	8480		3850	mg/kg dry	D3	08/08/19 0913	08/09/19 1226	JYH
Chromium	41.5		0.193	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH

Microbac Laboratories, Inc.

2101 Van Deman Street | Baltimore, MD 21224 | 410.633.1800 p | www.microbac.com



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

19H0645

Client Sample ID: Fly Ash	Collected By: Andrew McCulloch
Sample Matrix: Solid	Collection Date: 07/24/2019 9:00
Lab Sample ID: 19H0645-01	

Total Metals - ICP	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Cobalt	11.6		0.193	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Copper	39.8		0.770	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Iron	58300		770	mg/kg dry	D3	08/08/19 0913	08/09/19 1226	JYH
Lead	15.3		0.770	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Magnesium	789		19.3	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Manganese	73.4		0.385	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Nickel	34.5		1.54	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Potassium	1310		38.5	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Selenium	14.0		0.770	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Silver	2.20		0.385	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Sodium	577		19.3	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Thallium	<3.85		3.85	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Vanadium	88.5		0.385	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH
Zinc	36.5		0.770	mg/kg dry		08/08/19 0913	08/09/19 1132	JYH



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

19H0645

Client Sample ID: Gypsum	Collected By: Andrew McCulloch
Sample Matrix: Solid	Collection Date: 07/24/2019 10:15
Lab Sample ID: 19H0645-02	

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

General Parameters	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: ASTM D2216-10

Percent Solids	73.1		1.00	% by Weight		08/08/19 1325	08/09/19 0803	KMG
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TCLP Metals - AA	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: EPA 7470A

Mercury	<0.00200		0.00200	mg/L		08/09/19 1009	08/09/19 1419	KEH
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TCLP Metals - ICP	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: EPA 6010B

Arsenic	<0.200	5.00	0.200	mg/L		08/09/19 1031	08/09/19 1352	JYH
Barium	<0.100	100	0.100	mg/L		08/09/19 1031	08/09/19 1352	JYH
Cadmium	<0.0200	1.00	0.0200	mg/L		08/09/19 1031	08/09/19 1352	JYH
Chromium	<0.0500	5.00	0.0500	mg/L		08/09/19 1031	08/09/19 1352	JYH
Lead	<0.200	5.00	0.200	mg/L		08/09/19 1031	08/09/19 1352	JYH
Selenium	<0.350	1.00	0.350	mg/L		08/09/19 1031	08/09/19 1352	JYH
Silver	<0.100	5.00	0.100	mg/L		08/09/19 1031	08/09/19 1352	JYH

Total Metals - AA	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: EPA 7471A

Mercury	<0.316		0.316	mg/kg dry		08/08/19 0924	08/12/19 1125	KEH
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Total Metals - ICP	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: EPA 6010C

Aluminum	184		20.5	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Antimony	<5.13		5.13	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Arsenic	<1.03		1.03	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Barium	27.9		0.513	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Beryllium	<0.103		0.103	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Cadmium	<0.103		0.103	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Calcium	147000		5130	mg/kg dry	D3	08/08/19 0913	08/09/19 1229	JYH
Chromium	2.06		0.256	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Cobalt	<0.256		0.256	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Copper	2.09		1.03	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Iron	1600		10.3	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Lead	<1.03		1.03	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Magnesium	280		25.6	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Manganese	5.74		0.513	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Nickel	<2.05		2.05	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

19H0645

Client Sample ID: Gypsum	Collected By: Andrew McCulloch
Sample Matrix: Solid	Collection Date: 07/24/2019 10:15
Lab Sample ID: 19H0645-02	

Total Metals - ICP	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Potassium	60.0		51.3	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Selenium	2.85		1.03	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Silver	<0.513		0.513	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Sodium	<25.6		25.6	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Thallium	<5.13		5.13	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Vanadium	1.21		0.513	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH
Zinc	4.27		1.03	mg/kg dry		08/08/19 0913	08/09/19 1136	JYH



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

19H0645

Client Sample ID: Bottom Ash	Collected By: Andrew McCulloch
Sample Matrix: Solid	Collection Date: 07/24/2019 9:30
Lab Sample ID: 19H0645-03	

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

General Parameters	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: ASTM D2216-10								
Percent Solids	98.7		1.00	% by Weight		08/08/19 1325	08/09/19 0803	KMG
TCLP Metals - AA	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 7470A								
Mercury	<0.00200		0.00200	mg/L		08/09/19 1009	08/09/19 1422	KEH
TCLP Metals - ICP	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 6010B								
Arsenic	<0.200	5.00	0.200	mg/L		08/09/19 1031	08/09/19 1356	JYH
Barium	0.126	100	0.100	mg/L		08/09/19 1031	08/09/19 1356	JYH
Cadmium	<0.0200	1.00	0.0200	mg/L		08/09/19 1031	08/09/19 1356	JYH
Chromium	<0.0500	5.00	0.0500	mg/L		08/09/19 1031	08/09/19 1356	JYH
Lead	<0.200	5.00	0.200	mg/L		08/09/19 1031	08/09/19 1356	JYH
Selenium	<0.350	1.00	0.350	mg/L		08/09/19 1031	08/09/19 1356	JYH
Silver	<0.100	5.00	0.100	mg/L		08/09/19 1031	08/09/19 1356	JYH
Total Metals - AA	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 7471A								
Mercury	<0.251		0.251	mg/kg dry		08/08/19 0924	08/12/19 1128	KEH
Total Metals - ICP	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 6010C								
Aluminum	752		14.0	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Antimony	<3.50		3.50	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Arsenic	3.09		0.701	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Barium	6.98		0.350	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Beryllium	0.143		0.0701	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Cadmium	<0.0701		0.0701	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Calcium	843		35.0	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Chromium	1.93		0.175	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Cobalt	0.656		0.175	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Copper	3.86		0.701	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Iron	4610		7.01	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Lead	1.50		0.701	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Magnesium	53.1		17.5	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Manganese	6.41		0.350	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Nickel	3.50		1.40	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

19H0645

Client Sample ID: Bottom Ash	Collected By: Andrew McCulloch
Sample Matrix: Solid	Collection Date: 07/24/2019 9:30
Lab Sample ID: 19H0645-03	

Total Metals - ICP	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Potassium	42.8		35.0	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Selenium	<0.701		0.701	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Silver	<0.350		0.350	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Sodium	30.2		17.5	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Thallium	<3.50		3.50	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Vanadium	2.73		0.350	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH
Zinc	1.97		0.701	mg/kg dry		08/08/19 0913	08/09/19 1139	JYH

Results in **bold** have exceeded a limit defined for this project. Limits are provided for reference but as regulatory limits change frequently, Microbac Laboratories, Inc. advises the recipient of this report to confirm such limits and units of concentration with the appropriate Federal, state or local authorities before acting on the data.

Definitions

- D3: Dilution was performed due to high target analyte concentration.
- mg/L: Milligrams per Liter
- RL: Reporting Limit

Project Requested Certification(s)

Microbac Laboratories, Inc. - Baltimore
E871126

Florida - NELAC

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Reviewed and Approved By:

Evelyn Shinas
Customer Relationship Coordinator
Reported: 12/09/2019 14:42

Microbac Laboratories, Inc.

2101 Van Deman Street | Baltimore, MD 21224 | 410.633.1800 p | www.microbac.com

OBAC

Baltimore, MD 21224
(410) 633-1800

CHAIN OF CUSTODY RECORD
Number 19406
Instructions on back

TO BE COMPLETED BY MICROBAC

GENOVA DIKEKSON GW
2100 METHENSBURG RD.
DIKEKSON, MD 20842
Andrew Pleaucci

Invoice Address
Client Name:
Address:
City, State, Zip:
Contact:
Telephone No.:

Turnaround Time
 Routine (5 to 7 business days)
 RUSH* (notify lab)

Temperature Upon Receipt (°C)
Therm ID
Holding Time

301-601-6520

City, State, Zip:
Contact:
Telephone No.:

(needed by)
Report Type
 Results Only
 Level 1
 Level 2
 Level 3
 Level 4
 EDD

Samples Received on Ice? Yes No
Custody Seals Intact? Yes No

via: Mail Fax e-mail (address)

Location: Dikekson Gw. Stn.

Send Invoice via: Mail Fax e-mail (address)

Sampler Signature: [Signature]

Compliance Monitoring? Yes No
 Agency/Program

PRINT: Robert Orosi

Sampler Signature: [Signature]

Sampler Phone No.:

301-601-6520

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)
Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Thiosulfate, (8) Hexane, (U) Unpreserved
REQUESTED ANALYSIS

Client Sample ID
FLY ASH
Gyp Sum
Bottom ASH

Date Collected	Time Collected	No. of Containers	Matrix	Grab / Comp	Preservative Types **
7/24/19	0900	1	S Gens	NEAT	
7/24/19	1015	1	S Gens	NEAT	
7/24/19	0930	1	S Gens	NEAT	

19H0645



Additional No
See ATTACH
[Signature]

Identification Hazardous Non-Hazardous Radioactive

Sample Disposition Dispose as appropriate Return Archive

Relinquished By (signature)
Relinquished By (signature)
Relinquished By (signature)

Date/Time 8.1.19
Date/Time 8/1/19
Date/Time

1130
14:48

Received By (signature)
Received By (signature)
Received By (signature)

Date/Time 8/1/19
Date/Time
Date/Time

MICROBAC

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) ekennell@geo-ces.com
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
TCLP Metals	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
Total Metals		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



2012

Cooler Receipt Form / Sample Acceptance & Noncompliance Form

Microbac Laboratories, Inc., Baltimore Division
Control # 606-03
Effective Date: 11/30/2016
Page 1 of 1

Number of Coolers Received: 1
Client: Green
Form Completed By: Kamanah

Shipper:
Custody Tape Intact:
Containers Intact:

Sample Received on Ice or refrigerated:

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:

Water Soil Wipes Oil Filter Solid
Sludge Food Swab Other

YES / NO / NA

YES / NO / Not Checked

YES / NO

YES / NO

Infrared (IR) Temperature: 19.0°C

YES / NO / NA

YES / NO / NA

Microbac Client UPS FedEx

Work Order # 194645
Receipt Date / Time: 8/11/16

Container Type / Quantity:

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

Describe Anomalies:

Contact Information / Summary of Actions:

Date / Time:

Contact:

Contact By:

Comments:



**SUBCONTRACT ORDER
19H0645**

SENDING LABORATORY:

Microbac Laboratories, Inc. - Baltimore
2101 Van Deman Street
Baltimore, MD 21224
Phone: 410.633.1800
Lab Manager: Evelyn Shinas
Email: evelyn.shinas@microbac.com

RECEIVING LABORATORY:

Microbac - OVD
158 Starlite Dr
Marietta, OH 45750
Phone: (800) 373-4071

Project Info:

Project Name: Dickerson Gen. Sta.
Project No: Compliance Ash/Gypsum Sa

Client: Genon - Dickerson
Project Type: ENV-WasteWater
Project Location: Maryland (South)

Report TAT: 7
Due: 08/12/2019 17:00

Sample ID: 19H0645-01

Sampled: 07/24/2019 09:00

Matrix: Solid

Sampler: Andrew McCulloch

Analysis	Method	Analysis Due	Expires	Network \$
% Solid % Solids	SM 2540 G-11 0.05 % by Weig	08/09/2019 16:00	08/21/2019 09:00	\$ 11.20
Hg_Total Mercury	EPA 7471A 0.0002 mg/kg	08/09/2019 16:00	08/21/2019 09:00	\$ 30.76
M Ag ICP Silver	EPA 6010B 0.004 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Al ICP Aluminum	EPA 6010B 0.1 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M As ICP Arsenic	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Ba ICP Barium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Be ICP Beryllium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Ca ICP Calcium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Cd ICP Cadmium	EPA 6010B 0.01 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Co ICP Cobalt	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Cr ICP Chromium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Cu ICP Copper	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Fe ICP Iron	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M_K ICP Potassium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Mg ICP	EPA 6010B	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07



SUBCONTRACT ORDER
19H0645

Sample ID: 19H0645-01

Sampled: 07/24/2019 09:00

Matrix: Solid

Sampler: Andrew McCulloch

Analysis	Method	Analysis Due	Expires	Network \$
M_Mg_ICP Magnesium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Mn ICP Manganese	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Na ICP Sodium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Ni ICP Nickel	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Pb ICP Lead	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Sb ICP Antimony	EPA 6010B 0.04 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Se ICP Selenium	EPA 6010B 0.04 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M TI ICP Thallium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M V ICP Vanadium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
M Zn ICP Zinc	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:00	\$ 11.07
TCLP Ag ICP Silver	EPA 6010B 0.004 mg/L	08/09/2019 16:00	01/20/2020 09:00	\$ 10.61
TCLP As ICP Arsenic	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 09:00	\$ 10.61
TCLP Ba ICP Barium	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 09:00	\$ 10.61
TCLP Cd ICP Cadmium	EPA 6010B 0.01 mg/L	08/09/2019 16:00	01/20/2020 09:00	\$ 10.61
TCLP Cr ICP Chromium	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 09:00	\$ 10.61
TCLP_Extraction TCLP Extraction	EPA 1311 N/A	08/08/2019 18:00	08/07/2019 09:00	\$ 24.00
TCLP_Hg Mercury	EPA 7470A 0.0002 mg/L	08/09/2019 16:00	08/21/2019 09:00	\$ 26.53
TCLP Pb ICP Lead	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 09:00	\$ 10.61
TCLP Se ICP Selenium	EPA 6010B 0.04 mg/L	08/09/2019 16:00	01/20/2020 09:00	\$ 10.61



SUBCONTRACT ORDER
19H0645

Sample ID: 19H0645-02

Sampled: 07/24/2019 10:15

Matrix: Solid

Sampler: Andrew McCulloch

Analysis	Method	Analysis Due	Expires	Network \$
% Solid % Solids	SM 2540 G-11 0.05 % by Weig	08/09/2019 16:00	08/21/2019 10:15	\$ 11.20
Hg Total Mercury	EPA 7471A 0.0002 mg/kg	08/09/2019 16:00	08/21/2019 10:15	\$ 30.76
M Ag ICP Silver	EPA 6010B 0.004 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Al ICP Aluminum	EPA 6010B 0.1 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M As ICP Arsenic	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Ba ICP Barium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Be ICP Beryllium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Ca ICP Calcium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Cd ICP Cadmium	EPA 6010B 0.01 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Co ICP Cobalt	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Cr ICP Chromium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Cu ICP Copper	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Fe ICP Iron	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M K ICP Potassium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Mg ICP Magnesium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Mn ICP Manganese	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Na ICP Sodium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Ni ICP Nickel	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Pb ICP Lead	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07



SUBCONTRACT ORDER
19H0645

Sample ID: 19H0645-02

Sampled: 07/24/2019 10:15

Matrix: Solid

Sampler: Andrew McCulloch

Analysis	Method	Analysis Due	Expires	Network \$
M Sb_ICP Antimony	EPA 6010B 0.04 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Se ICP Selenium	EPA 6010B 0.04 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Tl ICP Thallium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M V_ICP Vanadium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
M Zn_ICP Zinc	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 10:15	\$ 11.07
TCLP Ag ICP Silver	EPA 6010B 0.004 mg/L	08/09/2019 16:00	01/20/2020 10:15	\$ 10.61
TCLP As ICP Arsenic	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 10:15	\$ 10.61
TCLP_Ba_ICP Barium	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 10:15	\$ 10.61
TCLP_Cd_ICP Cadmium	EPA 6010B 0.01 mg/L	08/09/2019 16:00	01/20/2020 10:15	\$ 10.61
TCLP Cr ICP Chromium	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 10:15	\$ 10.61
TCLP Extraction TCLP Extraction	EPA 1311 N/A	08/08/2019 18:00	08/07/2019 10:15	\$ 24.00
TCLP Hg Mercury	EPA 7470A 0.0002 mg/L	08/09/2019 16:00	08/21/2019 10:15	\$ 26.53
TCLP Pb ICP Lead	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 10:15	\$ 10.61
TCLP Se ICP Selenium	EPA 6010B 0.04 mg/L	08/09/2019 16:00	01/20/2020 10:15	\$ 10.61



SUBCONTRACT ORDER
19H0645

Sample ID: 19H0645-03

Sampled: 07/24/2019 09:30

Matrix: Solid

Sampler: Andrew McCulloch

Analysis	Method	Analysis Due	Expires	Network \$
% Solid % Solids	SM 2540 G-11 0.05 % by Weight	08/09/2019 16:00	08/21/2019 09:30	\$ 11.20
Hg Total Mercury	EPA 7471A 0.0002 mg/kg	08/09/2019 16:00	08/21/2019 09:30	\$ 30.76
M Ag ICP Silver	EPA 6010B 0.004 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Al ICP Aluminum	EPA 6010B 0.1 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M As ICP Arsenic	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Ba ICP Barium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Be ICP Beryllium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Ca ICP Calcium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Cd ICP Cadmium	EPA 6010B 0.01 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Co ICP Cobalt	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Cr ICP Chromium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Cu ICP Copper	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Fe ICP Iron	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M K ICP Potassium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Mg ICP Magnesium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Mn ICP Manganese	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Na ICP Sodium	EPA 6010B 0.2 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Ni ICP Nickel	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M Pb ICP Lead	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07



SUBCONTRACT ORDER
19H0645

Sample ID: 19H0645-03

Sampled: 07/24/2019 09:30

Matrix: Solid

Sampler: Andrew McCulloch

Analysis	Method	Analysis Due	Expires	Network \$
M_Sb ICP Antimony	EPA 6010B 0.04 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M_Se ICP Selenium	EPA 6010B 0.04 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M_Tl ICP Thallium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M_V ICP Vanadium	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
M_Zn ICP Zinc	EPA 6010B 0.02 mg/kg	08/09/2019 16:00	01/20/2020 09:30	\$ 11.07
TCLP Ag ICP Silver	EPA 6010B 0.004 mg/L	08/09/2019 16:00	01/20/2020 09:30	\$ 10.61
TCLP As ICP Arsenic	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 09:30	\$ 10.61
TCLP Ba ICP Barium	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 09:30	\$ 10.61
TCLP Cd ICP Cadmium	EPA 6010B 0.01 mg/L	08/09/2019 16:00	01/20/2020 09:30	\$ 10.61
TCLP Cr ICP Chromium	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 09:30	\$ 10.61
TCLP Extraction TCLP Extraction	EPA 1311 N/A	08/08/2019 18:00	08/07/2019 09:30	\$ 24.00
TCLP Hg Mercury	EPA 7470A 0.0002 mg/L	08/09/2019 16:00	08/21/2019 09:30	\$ 26.53
TCLP_Pb ICP Lead	EPA 6010B 0.02 mg/L	08/09/2019 16:00	01/20/2020 09:30	\$ 10.61
TCLP Se ICP Selenium	EPA 6010B 0.04 mg/L	08/09/2019 16:00	01/20/2020 09:30	\$ 10.61

[Signature]
Released By

08/05/19
Date

[Signature]
Received By

Date

Released By

Date

Received By

Date

MICROBAC

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) ekennell@geo-ces.com 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
TCLP Metals	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
Total Metals		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

2 of 2



Microbac Laboratories, Inc. - Baltimore
CERTIFICATE OF ANALYSIS

19K0456

Genon Energy - Dickerson

Project Name: Coal Combustion By Products

Andrew McCulloch
 21200 Martinsburg Rd.
 Dickerson, MD 20842

Project / PO Number: N/A
 Received: 11/07/2019
 Reported: 11/22/2019

Analytical Testing Parameters

Client Sample ID:	FGD Fines	Collected By:	Synmat
Sample Matrix:	Solid	Collection Date:	10/09/2019 9:00
Lab Sample ID:	19K0456-01		

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

General Parameters	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: ASTM D2216-10								
Percent Solids	67.2		1.00	% (by wt.)	H1	11/15/19 1108	11/18/19 1034	ERP
Inorganics								
Method: ASTM D129					Method Notes: H1			
Sulfur	25500		3930	mg/kg		11/19/19 1559	11/20/19 1412	TB
TCLP Metals - AA								
Method: EPA 7470A								
Mercury	<0.00200		0.00200	mg/L		11/19/19 0723	11/20/19 1012	TMM
TCLP Metals - ICP								
Method: EPA 6010B								
Arsenic	<0.200	5.00	0.200	mg/L		11/19/19 1106	11/20/19 1350	KEH
Barium	0.111	100	0.100	mg/L		11/19/19 1106	11/20/19 1350	KEH
Cadmium	<0.0200	1.00	0.0200	mg/L		11/19/19 1106	11/20/19 1350	KEH
Chromium	<0.0500	5.00	0.0500	mg/L		11/19/19 1106	11/20/19 1350	KEH
Lead	<0.200	5.00	0.200	mg/L		11/19/19 1106	11/20/19 1350	KEH
Selenium	<0.350	1.00	0.350	mg/L		11/19/19 1106	11/20/19 1350	KEH
Silver	<0.100	5.00	0.100	mg/L		11/19/19 1106	11/20/19 1350	KEH
Total Metals - AA								
Method: EPA 7471A								
Mercury	<18.0		18.0	mg/kg dry	AC, H1	11/22/19 0056	11/22/19 1445	TMM
Total Metals - ICP								
Method: EPA 6010C								
Aluminum	2790		22.7	mg/kg dry		11/20/19 0703	11/20/19 1506	JYH
Calcium	376000		7440	mg/kg dry	D3	11/20/19 0703	11/20/19 1610	JYH
Iron	13700		14.9	mg/kg dry		11/20/19 0703	11/20/19 1506	JYH

Microbac Laboratories, Inc.

2101 Van Deman Street | Baltimore, MD 21224 | 410.633.1800 p | www.microbac.com



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

19K0456

Client Sample ID: FGD Fines	Collected By: Synmat
Sample Matrix: Solid	Collection Date: 10/09/2019 9:00
Lab Sample ID: 19K0456-01	

Total Metals - ICP	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Lithium	8.15		7.44	mg/kg dry		11/20/19 0703	11/20/19 1506	JYH
Magnesium	4970		37.2	mg/kg dry		11/20/19 0703	11/20/19 1506	JYH
Molybdenum	5.34		4.46	mg/kg dry		11/20/19 0703	11/20/19 1506	JYH
Potassium	754		74.4	mg/kg dry		11/20/19 0703	11/20/19 1506	JYH
Sodium	225		37.2	mg/kg dry		11/20/19 0703	11/20/19 1506	JYH
Vanadium	18.8		0.569	mg/kg dry		11/20/19 0703	11/20/19 1506	JYH

Total Metals - ICP/MS	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 6020								
Antimony	0.669		0.233	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH
Arsenic	23.2		0.437	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH
Beryllium	0.289		0.0583	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH
Barium	207		2.19	mg/kg dry	D3	11/20/19 0651	11/20/19 1631	JYH
Cadmium	0.556		0.146	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH
Chromium	19.2		0.583	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH
Cobalt	4.43		0.729	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH
Copper	16.0		0.875	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH
Lead	6.40		0.292	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH
Nickel	32.2		1.17	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH
Selenium	47.9		1.46	mg/kg dry	D3	11/20/19 0651	11/20/19 1631	JYH
Silver	<0.292		0.292	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH
Thallium	0.301		0.0583	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH
Zinc	68.7		3.65	mg/kg dry		11/20/19 0651	11/20/19 1611	JYH

Results in **bold** have exceeded a limit defined for this project. Limits are provided for reference but as regulatory limits change frequently, Microbac Laboratories, Inc. advises the recipient of this report to confirm such limits and units of concentration with the appropriate Federal, state or local authorities before acting on the data.

Definitions

- % (by wt.):** Percent by Weight
- AC:** Hg was analyzed by the method of standard addition due to post digestion spike failure.
- D3:** Dilution was performed due to high target analyte concentration.
- H1:** Sample was received past holding time.
- mg/kg:** Milligrams per Kilogram
- mg/L:** Milligrams per Liter
- RL:** Reporting Limit

Project Requested Certification(s)

Microbac Laboratories, Inc. - Baltimore
E871126

Florida - NELAC



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

19K0456

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Reviewed and Approved By:

A handwritten signature in black ink that reads "Marissa Mamone".

Marissa Mamone

Client Relations

Reported: 11/22/2019 17:17

Baltimore, MD 21224
(410) 633-1800

CHAIN OF CUSTODY RECORD
Number **19K0456**
Instructions on back

Address

Client Name: **GEN ON**
Address: **1200 MARTINSBURG RD.**
City, State, Zip: **DICKERSON, MD 20842**
Contact: **ANDREW McCULLOCH**
Telephone No.: **301-601-6520**
Send Invoice via: Mail Fax e-mail (address)

Invoice Address

Client Name: **DICKERSON GEN STA.**
Address: **SAMS**
City, State, Zip: **DICKERSON, MD 20842**
Contact: **ANDREW McCULLOCH**
Telephone No.: **301-601-6520**
Send Invoice via: Mail Fax e-mail (address)

Turnaround Time

Routine (5 to 7 business days)
 RUSH* (notify lab)

Holding Time

Samples Received on Ice? Yes No
Custody Seals Intact? Yes No

TO BE COMPLETED BY MICROBAC

Temperature Upon Receipt (°C)
Therm ID

Level 1 Level 2 Level 3 Level 4 EDD

Compliance Monitoring? Yes No

Agency/Program

Sampler Phone No.: **301-601-6520**

Matrix Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

Requested Analysis

Preservative Types **

Grab / Comp

Matrix

No. of Containers

Date Collected

Time Collected

Client Sample ID

Additional Notes

FGD FINES 10/9/19 0900 1 S GENB N000 ✓

PER ATTACHMENT



19K0456

Identification

Hazardous

Non-Hazardous

Radioactive

Sample Disposition

Dispose as appropriate

Return

Archive

Relinquished By (signature)

Date/Time

Received By (signature)

Date/Time

Relinquished By (signature)

Date/Time

Received By (signature)

Date/Time

Relinquished By (signature)

Date/Time

Received By (signature)

Date/Time

MICROBAC

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) ekennell@geo-ces.com
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
TCLP Metals	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
Total Metals		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

2 of 2



**SUBCONTRACT ORDER
19K0456**

SENDING LABORATORY:

Microbac Laboratories, Inc. - Baltimore
2101 Van Deman Street
Baltimore, MD 21224
Phone: 410.633.1800
Lab Manager: Jake Mason
Email: jake.mason@microbac.com

RECEIVING LABORATORY:

Microbac - OVD
158 Starlite Dr
Marietta, OH 45750
Phone: (800) 373-4071

Project Info:

Project Name: Coal Combustion By Product
Project No: Coal Combustion By Product

Client:

Project Type:
Project Location:

Genon - Dickerson

ENV-WasteAnalysis
Maryland (West)

Report TAT: 10
Due: 11/21/2019 17:00

Sample ID: 19K0456-01

Sampled: 10/09/2019 09:00

Matrix: Solid

Sampler: Synmat

Analysis	Method	Analysis Due	Expires	Network \$
% Solid % Solids	SM 2540 G-11 0.05 % by Weight	11/20/2019 15:00	11/06/2019 09:00	\$ 11.20
Hg Total Mercury	EPA 7471A 0.0002 mg/kg	11/20/2019 15:00	11/06/2019 09:00	\$ 28.00
M Ag ICPMS Silver	EPA 6020 0.001 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Al ICPMS Aluminum	EPA 6020 0.01 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M As ICPMS Arsenic	EPA 6020 0.005 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Ba ICPMS Barium	EPA 6020 0.001 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Be ICPMS Beryllium	EPA 6020 0.001 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Ca ICP Calcium	EPA 6010B 0.2 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Cd ICPMS Cadmium	EPA 6020 0.0005 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Co ICPMS Cobalt	EPA 6020 0.001 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Cr ICPMS Chromium	EPA 6020 0.02 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Cu ICPMS Copper	EPA 6020 0.001 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Fe ICP Iron	EPA 6010B 0.02 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M K ICP Potassium	EPA 6010B 0.2 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Li ICP	EPA 6010B	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20



SUBCONTRACT ORDER
19K0456

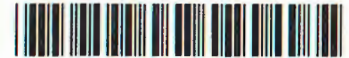
Sample ID: 19K0456-01

Sampled: 10/09/2019 09:00

Matrix: Solid

Sampler: Synmat

Analysis	Method	Analysis Due	Expires	Network \$
M Li ICP Lithium	EPA 6010B 0.02 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Mg ICPMS Magnesium	EPA 6020 0.02 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Mo ICPMS Molybdenum	EPA 6020 0.005 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Na ICP Sodium	EPA 6010B 0.2 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Ni ICPMS Nickel	EPA 6020 0.005 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Pb ICPMS Lead	EPA 6020 0.001 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Sb ICPMS Antimony	EPA 6020 0.005 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Se ICPMS Selenium	EPA 6020 0.005 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Tl ICPMS Thallium	EPA 6020 0.001 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M V ICPMS Vanadium	EPA 6020 0.04 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
M Zn ICPMS Zinc	EPA 6020 0.01 mg/kg	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
SUB Sulfur Sulfur	ASTM D129-91 0.05 % by Weight	11/20/2019 15:00	11/06/2019 09:00	\$ 42.00
TCLP Ag ICP Silver	EPA 6010B 0.004 mg/L	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
TCLP As ICP Arsenic	EPA 6010B 0.02 mg/L	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
TCLP Ba ICP Barium	EPA 6010B 0.02 mg/L	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
TCLP Cd ICP Cadmium	EPA 6010B 0.01 mg/L	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
TCLP Cr ICP Chromium	EPA 6010B 0.02 mg/L	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
TCLP Extraction TCLP Extraction	EPA 1311 N/A	11/20/2019 15:00	10/23/2019 09:00	\$ 28.00
TCLP Hg Mercury	EPA 7470A 0.0002 mg/L	11/20/2019 15:00	11/06/2019 09:00	\$ 28.00



SUBCONTRACT ORDER
19K0456


Sample ID: 19K0456-01

Sampled: 10/09/2019 09:00

Matrix: Solid

Sampler: Synmat

Analysis	Method	Analysis Due	Expires	Network \$
TCLP Pb ICP Lead	EPA 6010B 0.02 mg/L	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20
TCLP Se ICP Selenium	EPA 6010B 0.04 mg/L	11/20/2019 15:00	04/06/2020 09:00	\$ 11.20

 11/13/19
Released By Date


Received By Date

Released By

Date

Received By

Date



GEOCHEMICAL TESTING

Environmental and Energy Analysis

2005 N. Center Ave.
Somerset, PA 15501

814/443-1671

814/445-6666

FAX: 814/445-6729

Wednesday, August 14, 2019

Andrew Mcculloch
NRG - DICKERSON GENERATING STATION
21200 MARTINSBURG ROAD
DICKERSON, MD 20842

Order No.: G1908011

Dear Andrew Mcculloch:

Geochemical Testing received 2 sample(s) on 8/1/2019 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser
Director of Technical Services

Geochemical Testing

Date: 14-Aug-19

CLIENT: NRG - DICKERSON GENERATING STA
Project:
Lab Order: G1908011

CASE NARRATIVE

No problems were encountered during analysis of this workorder, except if noted in this report.

SAMPLE RECEIPT CHECKLIST

	Response
COC is present	Yes
COC is filled out in ink and legible	Yes
COC relinquished, signature, date, and time	Yes
Samples arrived within hold time (field parameter HTs excluded)	Yes
Sample containers have legible labels	Yes
Containers properly labeled and preservation verified. (Determined at Sample Receiving – see Comments)	Yes
Appropriate sample containers are used	Yes
Sample container(s) received at proper temperature	Yes
Sufficient volume for all requested analyses	See Note

Comments on the above checklist: Any EPA preservation exceedance determined in the lab is qualified with the test result(s):

Sample container for Bottom Ash broken during transit and could not be analyzed.

Legend:

ND - Not Detected	S - Surrogate Recovery outside accepted recovery limits
J - Indicates an estimated value.	R - RPD outside accepted recovery limits
U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.	E - Value above quantitation range
B - Analyte detected in the associated Method Blank	** - Value exceeds Action Limit
Q1 - See case narrative	H - Method Hold Time Exceeded
Q - Qualifier	MCL - Contaminant Limit
QL - Quantitation Limit	T - Sample received above required temp.
DF - Dilution Factor	



Laboratory Results

Geochemical Testing

Date: 14-Aug-19

CLIENT:	NRG - DICKERSON GENERATING STATION	Client Sample ID:	Gypsum
Lab Order:	G1908011	Sampled By:	GenOn
Project:		Collection Date:	7/24/2019 10:15:00 AM
Lab ID:	G1908011-001	Received Date:	8/1/2019 9:16:16 AM
Matrix:	SOLID		

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
FORMS OF SULFUR		Analyst: JCS					ASTM 2492
Sulfate Sulfur	21.8	0.01		%-dry	1		08/02/19 8:54 AM
COLORIMETRIC SOLID ANIONS		Analyst: CML				EPA 9038	ASTM D516-02 (MO)
Sulfate	170	5.0	M2	mg/Kg	1	08/06/19 10:29 AM	08/12/19 6:01 PM
NOTES:							
M2 - MS recovery below the acceptance limits.							
PHYSICAL TESTS		Analyst: CJP					EPA 9095
Paint Filter Test	No Free Liquid	1.0			1		08/01/19 2:15 PM
SOLID PH		Analyst: CJP					EPA 9045
Solid pH	7.86	1.00		S.U.	1		08/02/19 6:30 AM
Temperature	23.20			S.U.	1		08/02/19 6:30 AM



Laboratory Results

Geochemical Testing

Date: 14-Aug-19

CLIENT:	NRG - DICKERSON GENERATING STATION	Client Sample ID:	Fly Ash
Lab Order:	G1908011		
Project:		Sampled By:	GenOn
Lab ID:	G1908011-002	Collection Date:	7/24/2019 9:00:00 AM
Matrix:	ASH	Received Date:	8/1/2019 9:16:16 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
FORMS OF SULFUR		Analyst: JCS					ASTM 2492
Sulfate Sulfur	0.28	0.01		%-dry	1		08/02/19 8:54 AM
COLORIMETRIC SOLID ANIONS		Analyst: CML				EPA 9038	ASTM D516-02 (MO)
Sulfate	520	5.0		mg/Kg	1	08/06/19 10:29 AM	08/12/19 6:01 PM
PHYSICAL TESTS		Analyst: CJP					EPA 9095
Paint Filter Test	No Free Liquid	1.0			1		08/01/19 2:21 PM
SOLID PH		Analyst: CJP					EPA 9045
Solid pH	4.70	1.00		S.U.	1		08/02/19 6:30 AM
Temperature	22.70			S.U.	1		08/02/19 6:30 AM



Shuttle/Cooler ID#:

CHAIN OF CUSTODY

Geochemical Testing

Form F-5002, 01.15

Geochemical Testing • 2005 North Center Avenue • Somerset PA 15501 • (814) 443-1671 • Fax (814) 445-6729

Billing Client: <u>GENON-DICKERSON GEN. STA.</u>	Contact (Company):	Phone: <u>(301) 661-6520</u>
Address: <u>21200 MARTINSBURG RD.</u>	e-mail: <u>ANDREW.MCCULLOCH@GENON.COM</u>	Fax: ()
City: <u>DICKERSON</u> State: <u>MD</u> Zip: <u>20842</u>	Sampled by: <u>ROBERT CARDOSI</u>	Preservatives by <u>Sampler</u> <u>GT</u>
WO#: <u>61908011</u>	Project: <u>Compliance</u> DEP Reporting	PO/Quote#:

Sample Matrix:	<input type="checkbox"/> GW Ground Water	<input type="checkbox"/> SW Surface Water	<input type="checkbox"/> PW Potable Water	<input type="checkbox"/> WW Wastewater	<input type="checkbox"/> SO Soil	<input type="checkbox"/> SL Sludge	<input type="checkbox"/> nHZ Not Hazardous / HZ Hazardous	<input type="checkbox"/> PCBs
Sample Type:	<input type="checkbox"/> G Grab	<input type="checkbox"/> C Composite	<input type="checkbox"/> D Distribution/DW	<input type="checkbox"/> R Raw/DW	<input type="checkbox"/> S Special/DW	<input type="checkbox"/> O Other	Containers Supplied by: <input type="checkbox"/> Client <input type="checkbox"/> GT Lab	

Sample Location/Description	Lab Number	Sample Matrix	Date	Time (Military)	Sample Type	**Analyses Requested	Remarks/Preservatives, etc	Number of Containers
**NOTE: IF multiple analytes from one bottle, OR if multiple bottles for one analyte, THEN list separately on one line UNLESS LISTED ON ATTACHED FIELD LOG								
<u>FLY ASH</u>	<u>-002 (ELK) 08/08/19</u>	<u>SOLID</u>	<u>7/24/19</u>	<u>0900</u>	<u>G</u>	<u>See Attached</u>	<u>Field Filtered: Y/N</u> <u>unfiltered</u>	<u>1</u>
<u>Gypsum</u>	<u>-002</u>	<u>SOLID</u>	<u>7/24/19</u>	<u>1015</u>	<u>G</u>	<u> </u>	<u>Field Filtered: Y/N</u>	<u>1</u>
<u>POTOM ASH</u>	XXXX	<u>SOLID</u>	<u>7/26/19</u>	<u>0930</u>	<u>G</u>	<u> </u>	<u>Field Filtered: Y/N</u>	<u>1</u>
							Field Filtered: Y / N	
							Field Filtered: Y / N	
							Field Filtered: Y / N	
							Field Filtered: Y / N	
							Field Filtered: Y / N	

Note Comments/Deficiencies Here: Bottom Ash sample container broken during transit ELK 08/08/19

Relinquished by (Company & Signature)	Date	Time (Military)	Received by (Company & Signature):	Date	Time (Military)
<u>Genon / Robert Cardosi</u>	<u>7/30/19</u>	<u>1100</u>	<u>Tom Kelly</u>	<u>7-30-19</u>	<u>11:00</u>
			<u>Jim Paul</u>	<u>8-1-19</u>	<u>9:16</u>

SAMPLES MUST BE PRESERVED ON ICE. Ice present on receipt: Yes or X No | Bottle(s) Temp (°C) on receipt: 18
 Sample Receiving (1st Review): NE | Client Support (2nd Review): ELK

GEOCHEMICAL

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) ekennell@geo.ces.com
Sulfate as SO4	ASTM D516-02 (M) /	Geochemical Testing 2005 North Center Avenue Somerset, PA 15501
pH (as received)	EPA 9045 /	Geochemical Testing
Paint Filter Test	EPA 9095 /	Geochemical Testing
Sulfate / Sulfur	ASTM D 2492 /	Geochemical Testing
CLP Metals	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
Total Metals		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
Tinellium	EPA 6010B	Microbac
Vanadium	EPA 6010B	Microbac
Zinc	EPA 6010B	Microbac



2 of 2



GEOCHEMICAL TESTING

Environmental and Energy Analysis

2005 N. Center Ave.
Somerset, PA 15501

814/443-1671
814/445-6666
FAX: 814/445-6729

Thursday, November 21, 2019

Andrew Mcculloch
NRG - DICKERSON GENERATING STATION
21200 MARTINSBURG ROAD
DICKERSON, MD 20842

Order No.: G1911336

Dear Andrew Mcculloch:

Geochemical Testing received 2 sample(s) on 11/6/2019 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser
Director of Technical Services



Geochemical Testing

Date: 21-Nov-19

CLIENT: NRG - DICKERSON GENERATING STA
Project:
Lab Order: G1911336

CASE NARRATIVE

No problems were encountered during analysis of this workorder, except if noted in this report.

Legend:
H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.
U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.
B - Analyte detected in the associated Method Blank
Q1 - See case narrative ND - Not Detected
MCL - Contaminant Limit J - Indicates an estimated value.
Q - Qualifier QL - Quantitation Limit DF - Dilution Factor

S - Surrogate Recovery outside accepted recovery limits
T - Sample received above required temperature and is not compliant with 40CFR136 Table II.
T1 - Sample received above required temperature
MDA - Minimum Detectable Activity.
** - Value exceeds Action Limit
TICs - Tentatively Identified Compounds.
E - Value above quantitation range



Laboratory Results

Geochemical Testing

Date: 21-Nov-19

CLIENT:	NRG - DICKERSON GENERATING STATION	Client Sample ID:	FGD-WT (FGD FINES)
Lab Order:	G1911336		
Project:		Sampled By:	GenOn
Lab ID:	G1911336-001	Collection Date:	10/9/2019 9:00:00 AM
Matrix:	SOLID	Received Date:	11/6/2019 2:58:21 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
COLORIMETRIC SOLID ANIONS						EPA 9038	ASTM D516-02 (Mo
Sulfate	16000	250		mg/Kg	50.1	11/10/19 9:55 AM	11/11/19 5:15 PM
FORMS OF SULFUR							ASTM 2492
Sulfate Sulfur	8.29	0.01		%-dry	1		11/12/19 10:00 AM
PHYSICAL TESTS							EPA 9095
Paint Filter Test	Yes Free Liquid	1.0			1		11/07/19 10:00 AM
SOLID PH							EPA 9045
Solid pH	7.48	1.00		S.U.	1		11/07/19 1:34 PM
Temperature	20.80			S.U.	1		11/07/19 1:34 PM



Laboratory Results

Geochemical Testing

Date: 21-Nov-19

CLIENT:	NRG - DICKERSON GENERATING STATION	Client Sample ID:	STA-D Bottom Ash
Lab Order:	G1911336		
Project:		Sampled By:	GenOn
Lab ID:	G1911336-002	Collection Date:	11/4/2019 1:30:00 PM
Matrix:	SOLID	Received Date:	11/6/2019 2:58:21 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
COLORIMETRIC SOLID ANIONS		Analyst: CML				EPA 9038	ASTM D516-02 (Mo
Sulfate	350	5.0	M2	mg/Kg	1	11/10/19 9:55 AM	11/11/19 5:15 PM
NOTES:		M2 - MS recovery below the acceptance limits.					
FORMS OF SULFUR		Analyst: JCS					ASTM 2492
Sulfate Sulfur	0.62	0.01		%-dry	1		11/12/19 10:00 AM
PHYSICAL TESTS		Analyst: MAG				EPA 9095	
Paint Filter Test	No Free Liquid	1.0			1		11/07/19 10:30 AM
SOLID PH		Analyst: MAG				EPA 9045	
Solid pH	5.51	1.00		S.U.	1		11/07/19 1:34 PM
Temperature	20.80			S.U.	1		11/07/19 1:34 PM

