



AES Warrior Run

the power of being global

11600 Mexico Farms Road, SE • Cumberland, MD 21502 • (301) 777-0055 • FAX (301) 777-8772

February 19, 2015

Re: CCB Report

Ms. Martha Hynson, Chief
Solid Waste Operations Division
Maryland Department of the Environment
1800 Washington Blvd.
Baltimore, MD 21230-1719

Ms. Hynson,

Please find the enclosed CCB report for AES Warrior Run, LLC. We have completed the report as required and included applicable attachments.

If there are any questions about this report please do not hesitate to contact us.

Regards,



Jeff Leaf
Environmental Manager
AES Warrior Run

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PROGRAM

**Coal Combustion Byproducts (CCBs)
Annual Generator Tonnage Report
Instructions for Calendar Year 2014**

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 2014. Please answer the questions on the form provided, attaching additional information and any requested supplemental information to the back of the form. Note that the form for this year requires both volume and weight of the CCBs produced. If you know one of these parameters but not the others, for example, you have the tonnage produced but not the volume, you may calculate the other parameter; however, please provide the calculations and assumptions that you used in your estimate. Questions can be directed to the Solid Waste Program at (410) 537-3315 or via email at ed.dexter@maryland.gov.

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

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II. General Information and Applicability.

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

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*“(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, 2015:

A. Contact information:

Facility Name: AES Warrior Run

Name of Permit Holder: AES Warrior Run LLC

Facility Address: 11600 Mexico Farms RD SE
Street

Facility Address: Cumberland Maryland 21502
City State Zip

County: Allegany

Contact Information (Person filing report or Environmental Manager)

Facility Telephone No.: 301-777-0055 Facility Fax No.: 301-777-8772

Contact Name: Jeff Leaf

Contact Title: Environmental Manager

Contact Address: 11600 Mexico Farms RD SE
Street

Contact Address: Cumberland Maryland 21502
City State Zip

Contact Email: jeff.leaf@aes.com

Contact Telephone No.: 301-777-0055 ext.1167 Contact Fax No.: 301-777-8772

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:

AES Warrior Run (AES) is an electric co-generation facility located at 11600 Mexico Farms Road, S.E in Cumberland in Allegany County in Maryland. The Facility operates a 180-megawatt coal-fired steam electric cogeneration plant and a 150-ton per day food grade carbon dioxide production plant. The facility consists of an ABB CE coal-fired atmospheric fluidized bed combustion boiler (AFBC) burning bituminous coal and Number 2 fuel oil as a start up fuel.

Selective non-catalytic reduction (SNCR) system provides supplemental control of nitrogen oxides (NO_x) to the AFBC boiler design. Sulfur dioxide (SO₂) emissions are controlled by the introduction of limestone into the fluidized bed of the boiler. A bag house controls particulate emissions in the boiler flue gas.

Bed ash is removed at the bottom of the boiler and is loaded into a silo for eventual removal. Fly ash is removed at the bottom of the baghouse, air heater, and boiler backpass sections and is kept segregated from the bed ash in a separate silo. Both flyash and bed ash are mixed with small amounts of service water (to control dusting) and loaded into trucks for disposal off-site.

AES commenced commercial operation on February 10, 2000, and produces electricity for distribution by the Potomac Electric Power Company. The applicable SIC Code for the facility is 4911 - Electric Services

C. The volume and weight of CCBs generated during calendar year 2014, 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 2014: 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.

<u>Volume and Weight of CCBs Generated for Calendar Year 2014</u>			
Fly Ash	Bed Ash	Slag Ash	
Type of CCB	Type of CCB	Type of CCB	Type of CCB
438,136.98	165,066.39	23,574.58	
Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards
247,623.46	106,896.44	14,118.49	
Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons

Additional notes:

Slag ash consists of fly ash and bed ash as a mixture. We use the term slag ash to differentiate from the discreet fly ash and bed ash in our system.

Volumes were determined with the calculated densities of: Fly Ash = 0.57 tons/cu yd, Bed Ash = 0.65 tons/cu yd, Slag Ash = 0.60 tons/cu yd

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 2014, 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:

2014	Fly Ash Tons	Fly Ash CuYds	Bed Ash Tons	Bed Ash CuYds	Slag Ash Tons	Slag Ash CuYds	Use
Cabin Run Mine	247,623.46	438,136.98	106,896.44	165,066.39	14,118.49	23,574.58	Mine Reclamation
Total	247,623.46	438,136.98	106,896.44	165,066.39	14,118.49	23,574.58	

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

See Chart Above

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

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

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

NO CHANGE - SAME AS PREVIOUS YEARS

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

NO CHANGE - SAME AS PREVIOUS YEARS

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:

 <hr/> Signature	Peter Bajc Plant Manager (301) 777-0055 <hr/> Name, Title, & Telephone No. (Print or Type) peter.bajc@aes.com <hr/> Your Email Address	2/19/2015 <hr/> Date
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V: Attachments (please list):

1. Ash Acid Base Analysis 2014
2. TCLP-Total Metals Analysis_Bed Ash_02_14
3. TCLP-Total Metals Analysis_Fly Ash_02_14



GEOCHEMICAL TESTING

Environmental and Energy Analysis

2005 N. Center Ave.
Somerset, PA 15501

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

Overburden Analysis Report

Client AES - Warrior Run

Sampled By Client

Analysis Completed 3/6/2014

Description Fly Ash and Bed Ash

Sample Number	Interval From	To	Description	Soil pH 2:1	Total Sulfur %	Sulfate plus Sulfide Sulfur %	Maximum Potential Acidity (1)	Fizz Rating (3)	Neutra- lization Potential (1)	Deficiency or Excess (1,2)
O-43117			Fly Ash		2.98		92.60	2	185.10	92.60
O-43118			Bed Ash		6.35		198.44	2	243.18	44.74

Notes: (1) Tons CaCO3/1000 tons overburden.
(2) Negative Number indicates deficiency.
(3) Legend 0=None 1=Slight 2=Moderate 3=Strong

Sample Preparation and Testing Techniques

All samples are top sized at 1/2". The gross samples are divided by riffing. One portion is pulverized to -60 mesh for all acid-base account testing and the other portion is saved for any further testing or examination. All preparation and testing procedures are performed according to the "Overburden Sampling and Testing Manual" as prepared for the Pennsylvania Department of Environmental Resources by Energy Center, Inc., T. Bergstresser, D. Noll, J Woodcock.

The maximum potential acidity is calculated from the sulfate plus sulfide sulfurs. Whenever the forms of sulfur are not determined, the total sulfur value is used to calculate the maximum potential acidity.

Robert L. Stull
Director of Coal Services



Laboratory Results

Geochemical Testing

Date: 19-Feb-14

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID: Fly Ash
Lab Order:	G1402484	
Project:		Sampled By: Client
Lab ID:	G1402484-001	Collection Date: 2/10/2014
Matrix:	ASH	Received Date: 2/12/2014 3:00:00 PM

Analyses	Result	QL	Q	Units	DF	Date Analyzed
TOTAL METALS		EPA 6010				Analyst: GMG
Aluminum	39100	5.0		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Antimony	< 1.0	1.0		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Arsenic	49.1	1.0		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Barium	644	0.5		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Beryllium	2.35	0.05		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Boron	37.8	2.5		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Cadmium	< 0.1	0.1		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Chromium	35.4	0.5		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Cobalt	10.4	0.2		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Copper	35.8	0.5		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Lead	21.7	1.0		mg/Kg-dry	1	2/17/2014 1:37:44 PM
Lithium	87.5	1.0		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Manganese	65.0	0.5		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Molybdenum	4.2	1.0		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Nickel	25.2	0.5		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Selenium	6.5	1.0		mg/Kg-dry	1	2/17/2014 1:37:44 PM
Silver	< 0.2	0.2		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Vanadium	73.5	0.2		mg/Kg-dry	1	2/14/2014 10:00:00 PM
Zinc	42.7	0.5		mg/Kg-dry	1	2/14/2014 10:00:00 PM
FLUORINE		D 3761/EPA9056				Analyst: BAB
Fluorine	458	20		mg/Kg-dry	1	2/17/2014 1:14:00 PM
MERCURY		ASTM D6722				Analyst: GAL
Mercury	0.958	0.0100		mg/Kg-dry	1	2/13/2014 12:53:00 PM
TCLP EXTRACTION		EPA 1311				Analyst: DMS
Extraction Fluid Used	2.0	0			1	2/12/2014 3:30:00 PM
Final pH	12	1.0			1	2/12/2014 3:30:00 PM
Initial pH	12	1.0			1	2/12/2014 3:30:00 PM
TCLP, non-volatile	NA	0			1	2/12/2014 3:30:00 PM
TCLP METALS		EPA 7470				Analyst: RXS
Mercury	< 0.0002	0.0002		mg/L	1	2/17/2014 9:11:30 AM
TCLP METALS		EPA 6010				Analyst: GMG
Aluminum	0.2	0.1		mg/L	1	2/14/2014 7:23:15 PM
Antimony	< 0.02	0.02		mg/L	1	2/14/2014 7:23:15 PM
Arsenic	< 0.02	0.02		mg/L	1	2/14/2014 7:23:15 PM
Barium	1.5	0.3		mg/L	1	2/14/2014 7:23:15 PM
Beryllium	< 0.001	0.001		mg/L	1	2/14/2014 7:23:15 PM
Cadmium	< 0.002	0.002		mg/L	1	2/14/2014 7:23:15 PM
Chromium	0.08	0.01		mg/L	1	2/14/2014 7:23:15 PM



Laboratory Results

Geochemical Testing

Date: 19-Feb-14

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Fly Ash
Lab Order:	G1402484	Sampled By:	Client
Project:		Collection Date:	2/10/2014
Lab ID:	G1402484-001	Received Date:	2/12/2014 3:00:00 PM
Matrix:	ASH		

Analyses	Result	QL	Q	Units	DF	Date Analyzed
TCLP METALS				EPA 6010		Analyst: GMG
Cobalt	< 0.005	0.005		mg/L	1	2/14/2014 7:23:15 PM
Copper	< 0.01	0.01		mg/L	1	2/14/2014 7:23:15 PM
Lead	< 0.02	0.02		mg/L	1	2/14/2014 7:23:15 PM
Manganese	< 0.01	0.01		mg/L	1	2/14/2014 7:23:15 PM
Nickel	< 0.01	0.01		mg/L	1	2/14/2014 7:23:15 PM
Selenium	< 0.02	0.02		mg/L	1	2/14/2014 7:23:15 PM
Silver	< 0.005	0.005		mg/L	1	2/14/2014 7:23:15 PM
Vanadium	0.017	0.005		mg/L	1	2/14/2014 7:23:15 PM
Zinc	0.11	0.01		mg/L	1	2/14/2014 7:23:15 PM



Laboratory Results

Geochemical Testing

Date: 19-Feb-14

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash
Lab Order:	G1402484		
Project:		Sampled By:	Client
Lab ID:	G1402484-002	Collection Date:	2/10/2014
Matrix:	ASH	Received Date:	2/12/2014 3:00:00 PM

Analyses	Result	QL	Q	Units	DF	Date Analyzed
TOTAL METALS		EPA 6010				Analyst: GMG
Aluminum	22500	5.0		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Antimony	< 1.0	1.0		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Arsenic	44.8	1.0		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Barium	259	0.5		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Beryllium	1.54	0.05		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Boron	33.8	2.5		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Cadmium	< 0.1	0.1		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Chromium	54.0	0.5		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Cobalt	7.4	0.2		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Copper	21.0	0.5		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Lead	5.4	1.0		mg/Kg-dry	1	2/17/2014 1:58:26 PM
Lithium	36.3	1.0		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Manganese	104	0.5		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Molybdenum	6.5	1.0		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Nickel	30.8	0.5		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Selenium	< 1.0	1.0		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Silver	< 0.2	0.2		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Vanadium	82.5	0.2		mg/Kg-dry	1	2/14/2014 10:12:37 PM
Zinc	29.8	0.5		mg/Kg-dry	1	2/14/2014 10:12:37 PM
FLUORINE		D 3761/EPA9056				Analyst: BAB
Fluorine	24	20		mg/Kg-dry	1	2/17/2014 1:14:00 PM
MERCURY		ASTM D6722				Analyst: GAL
Mercury	< 0.0100	0.0100		mg/Kg-dry	1	2/13/2014 12:53:00 PM
TCLP EXTRACTION		EPA 1311				Analyst: DMS
Extraction Fluid Used	1.0	0			1	2/12/2014 3:30:00 PM
Final pH	12	1.0			1	2/12/2014 3:30:00 PM
Initial pH	12	1.0			1	2/12/2014 3:30:00 PM
TCLP, non-volatile	NA	0			1	2/12/2014 3:30:00 PM
TCLP METALS		EPA 7470				Analyst: RXS
Mercury	< 0.0002	0.0002		mg/L	1	2/17/2014 9:13:07 AM
TCLP METALS		EPA 6010				Analyst: GMG
Aluminum	0.1	0.1		mg/L	1	2/14/2014 7:25:50 PM
Antimony	< 0.02	0.02		mg/L	1	2/14/2014 7:25:50 PM
Arsenic	< 0.02	0.02		mg/L	1	2/14/2014 7:25:50 PM
Barium	1.0	0.3		mg/L	1	2/14/2014 7:25:50 PM
Beryllium	< 0.001	0.001		mg/L	1	2/14/2014 7:25:50 PM
Cadmium	< 0.002	0.002		mg/L	1	2/14/2014 7:25:50 PM
Chromium	< 0.01	0.01		mg/L	1	2/14/2014 7:25:50 PM



Laboratory Results

Geochemical Testing

Date: 19-Feb-14

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID: Bed Ash
Lab Order:	G1402484	
Project:		Sampled By: Client
Lab ID:	G1402484-002	Collection Date: 2/10/2014
Matrix:	ASH	Received Date: 2/12/2014 3:00:00 PM

Analyses	Result	QL	Q	Units	DF	Date Analyzed
TCLP METALS				EPA 6010		Analyst: GMG
Cobalt	< 0.005	0.005		mg/L	1	2/14/2014 7:25:50 PM
Copper	< 0.01	0.01		mg/L	1	2/14/2014 7:25:50 PM
Lead	< 0.02	0.02		mg/L	1	2/14/2014 7:25:50 PM
Manganese	< 0.01	0.01		mg/L	1	2/14/2014 7:25:50 PM
Nickel	< 0.01	0.01		mg/L	1	2/14/2014 7:25:50 PM
Selenium	< 0.02	0.02		mg/L	1	2/14/2014 7:25:50 PM
Silver	< 0.005	0.005		mg/L	1	2/14/2014 7:25:50 PM
Vanadium	0.017	0.005		mg/L	1	2/14/2014 7:25:50 PM
Zinc	0.18	0.01		mg/L	1	2/14/2014 7:25:50 PM



I.D. 56-00306 PA DEP