



February 23, 2022

Re: CCB Report

Mr. Edward Dexter, Administrator
Solid Waste Program
Maryland Department of the Environment
1800 Washington Blvd.
Baltimore, MD 21230-1719

Mr. Dexter,

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,

A handwritten signature in black ink that reads "Kara Hawkins".

Kara Hawkins
Environmental Specialist
AES Warrior Run

Cc Andrew Grenzer

**Coal Combustion Byproducts (CCBs)
Annual Generator Tonnage Report
Instructions for Calendar Year 2022**

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 2022. 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 MDE 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 MDE by March 1, 2023:

A. Contact information:

Facility Name: AES Warrior Run

Name of Permit Holder: _____

Facility Address: 11600 Mexico Farms Road SE
Street

Facility Address: Cumberland MD 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: Kara Hawkins

Contact Title: Environmental Specialist

Contact Address: 11600 Mexico Farms Road SE
Street

Contact Address: Cumberland MD 21502
City State Zip

Contact Email: kara.hawkins@aes.com

Contact Telephone No.: 301-777-0055 ext.1105 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, SE in Cumberland Allegany County in Maryland. The facility operates a 180-Megawatt coal-fired steam electric co-generation 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 (ACFB) 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 (NOx) to the ACFB 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 back-pass sections and is kept segregated from the bed ash in a different silo. Both fly ash 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 Edison Company. The applicable SIC code for the facility is 4911—Electric Services.

C. The volume and weight of CCBs generated during calendar year 2022, 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 2022: Please note that this table includes both the volume and weight of the types of CCBs your facility produces.

Volume and Weight of CCBs Generated for Calendar Year 2022			
Fly Ash Type of CCB	Bed Ash Type of CCB	Slag Ash Type of CCB	Type of CCB
399,823.62	138,581.35	37,954.44	
Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards
225,969.76	89,744.82	22,730.69	
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 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 2022, 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:

2022	Fly Ash Tons	Fly Ash CuYds	Bed Ash Tons	Bed Ash CuYds	Slag Ash Tons	Slag Ash CuYds	Use
Cabin Run Mine	144,350.90	255,409.84	55,327.22	85,434.69	15,036.61	25,107.63	Mine Reclamation
Carlos Coal Mine	9,718.84	17,196.20	5,491.94	8,480.49	1,305.41	2,179.73	Mine Reclamation
Hampshire Hill Coal Mine	28,821.23	50,995.36	13,938.42	21,523.30	3,947.32	6,591.10	Mine Reclamation
419 Coal Mine	43,078.79	76,222.22	14,987.24	23,142.86	2,441.35	4,076.48	Mine Reclamation
Total	225,969.76	399,823.62	89,744.82	138,581.35	22,730.69	37,954.94	

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:

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.		
 <hr/> Signature	<u>Matt Ottaviani, Plant Manager, 301-777-0055</u> <hr/> Name, Title, & Telephone No. (Print or Type) matt.ottaviani@aes.com <hr/> Your Email Address	2/22/2023 <hr/> Date

V: Attachments (please list):

- TCLP- Total Metals analysis of fly and bed ash
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Laboratory Results

Geochemical Testing

Date: 16-Mar-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash North
Lab Order:	G2203481		22622-1
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2203481-001	Collection Date:	2/26/2022
Matrix:	ASH	Received Date:	3/8/2022 1:28:11 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst: BAB					ASTM D6316-04
Carbon	0.991	0.501		%-dry	1	03/10/22 7:00 AM	03/10/22 7:00 AM
CO2	1.03	1.00		%-dry	1	03/10/22 7:00 AM	03/10/22 7:00 AM
TOTAL METALS		Analyst: LEB				EPA 3050B	EPA 6010 D
Aluminum	17900	20.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/14/22 2:02 PM
Antimony	< 10	10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Arsenic	67.9	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Barium	154	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Beryllium	1.38	0.10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Boron	45.4	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Chromium	33.8	5.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Cobalt	4.8	0.5		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Copper	15.2	10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Lead	2.4	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Lithium	19.4	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Manganese	106	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Molybdenum	6.4	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Nickel	13.6	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Vanadium	69.1	0.5		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Zinc	22.9	10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
ACID BASE ACCOUNTING		Analyst: RLL					DEP OB Man p67
Total Sulfur	5.76	0.01		%	1	03/10/22 8:00 AM	03/10/22 8:00 AM
Max Potential Acidity	180	0.30		see note	1	03/10/22 8:00 AM	03/10/22 8:00 AM
Fizz Rating	2				1	03/10/22 8:00 AM	03/10/22 8:00 AM
Deficiency or Excess	158			see note	1	03/10/22 8:00 AM	03/10/22 8:00 AM
Neutralization Potential (CaCO3 Tons)	338			see note	1	03/10/22 8:00 AM	03/10/22 8:00 AM
NOTES:							
units are: Tons CaCO3 / 1000 tons dry							
MERCURY		Analyst: RLL					ASTM D 6722
Mercury	< 0.010	0.010		mg/Kg-dry	1	03/10/22 10:26 AM	03/10/22 10:26 AM
CARBONATE RESULTS		Analyst: LEB					Calculated
Calcium Carbonate	59.6			%	1	03/11/22 12:00 AM	03/11/22 12:00 AM



Laboratory Results

Geochemical Testing

Date: 16-Mar-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash North
Lab Order:	G2203481		22622-1
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2203481-001	Collection Date:	2/26/2022
Matrix:	ASH	Received Date:	3/8/2022 1:28:11 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	64.9			%	1		03/11/22 12:00 AM
Magnesium Carbonate	4.4			%	1		03/11/22 12:00 AM

MAJOR / MINOR ELEMENTS IN ASH

		Analyst: LEB		ASTM D6349-08	EPA 6010 D
Calcium Oxide	33.40	0.01	% Dry	1	03/10/22 6:15 AM
Magnesium Oxide	2.11	0.01	% Dry	1	03/10/22 6:15 AM

TCLP EXTRACTION

		Analyst: MAG		EPA 1311
Extraction Fluid Used	1.0			1
Final pH	12.5	1.0	S.U.	1
Initial pH	11.9	1.0	S.U.	1
pH with HCl	2.3	1.0	S.U.	1
TCLP, non-volatile	NA			1

TCLP METALS

		Analyst: MAS		EPA 7470A	EPA 7470A
Mercury	< 0.0020	0.0020	mg/L	1	03/10/22 2:30 PM

TCLP METALS

		Analyst: LEB		EPA 3010 A	EPA 6010 D
Aluminum	0.3	0.1	mg/L	1	03/11/22 8:10 AM
Antimony	< 0.10	0.10	mg/L	1	03/11/22 8:10 AM
Arsenic	0.03	0.02	mg/L	1	03/11/22 8:10 AM
Barium	0.6	0.3	mg/L	1	03/11/22 8:10 AM
Beryllium	< 0.001	0.001	mg/L	1	03/11/22 8:10 AM
Boron	0.33	0.05	mg/L	1	03/11/22 8:10 AM
Cadmium	< 0.002	0.002	mg/L	1	03/11/22 8:10 AM
Chromium	< 0.01	0.01	mg/L	1	03/11/22 8:10 AM
Cobalt	< 0.005	0.005	mg/L	1	03/11/22 8:10 AM
Copper	< 0.01	0.01	mg/L	1	03/11/22 8:10 AM
Lead	< 0.02	0.02	mg/L	1	03/11/22 8:10 AM
Lithium	0.11	0.01	mg/L	1	03/11/22 8:10 AM
Manganese	< 0.01	0.01	mg/L	1	03/11/22 8:10 AM
Molybdenum	0.10	0.02	mg/L	1	03/11/22 8:10 AM
Nickel	< 0.01	0.01	mg/L	1	03/11/22 8:10 AM
Selenium	< 0.02	0.02	mg/L	1	03/11/22 8:10 AM
Silver	< 0.005	0.005	mg/L	1	03/11/22 8:10 AM
Vanadium	0.010	0.005	mg/L	1	03/11/22 8:10 AM
Zinc	0.02	0.01	mg/L	1	03/11/22 8:10 AM



Laboratory Results

Geochemical Testing

Date: 16-Mar-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash South
Lab Order:	G2203481		22622-2
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2203481-002	Collection Date:	2/26/2022
Matrix:	ASH	Received Date:	3/8/2022 1:28:11 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst: BAB			ASTM D6316-04		
Carbon	0.991	0.501		%-dry	1	03/10/22 7:00 AM	
CO2	1.00	1.00		%-dry	1	03/10/22 7:00 AM	
TOTAL METALS		Analyst: LEB			EPA 3050B	EPA 6010 D	
Aluminum	15400	20.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/14/22 2:05 PM
Antimony	< 10	10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Arsenic	90.2	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Barium	180	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Beryllium	1.10	0.10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Boron	50.8	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Chromium	34.6	5.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Cobalt	4.8	0.5		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Copper	14.8	10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Lead	2.1	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Lithium	16.0	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Manganese	117	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Molybdenum	7.1	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Nickel	14.2	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Vanadium	69.0	0.5		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Zinc	19.4	10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
ACID BASE ACCOUNTING		Analyst: RLL			DEP OB Man p67		
Total Sulfur	7.56	0.01		%	1	03/10/22 8:00 AM	
Max Potential Acidity	236	0.30		see note	1	03/10/22 8:00 AM	
Fizz Rating	2				1	03/10/22 8:00 AM	
Deficiency or Excess	134			see note	1	03/10/22 8:00 AM	
Neutralization Potential (CaCO3 Tons)	370			see note	1	03/10/22 8:00 AM	
NOTES:							
units are: Tons CaCO3 / 1000 tons dry							
MERCURY		Analyst: RLL			ASTM D 6722		
Mercury	0.022	0.010		mg/Kg-dry	1	03/10/22 10:26 AM	
CARBONATE RESULTS		Analyst: LEB			Calculated		
Calcium Carbonate	69.1			%	1	03/11/22 12:00 AM	



Laboratory Results

Geochemical Testing

Date: 16-Mar-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash South
Lab Order:	G2203481		22622-2
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2203481-002	Collection Date:	2/26/2022
Matrix:	ASH	Received Date:	3/8/2022 1:28:11 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	75.0			%	1		03/11/22 12:00 AM
Magnesium Carbonate	5.0			%	1		03/11/22 12:00 AM

MAJOR / MINOR ELEMENTS IN ASH

		Analyst: LEB				ASTM D6349-08	EPA 6010 D
Calcium Oxide	38.69	0.01		% Dry	1	03/10/22 6:15 AM	03/11/22 1:48 PM
Magnesium Oxide	2.38	0.01		% Dry	1	03/10/22 6:15 AM	03/11/22 1:48 PM

TCLP EXTRACTION

		Analyst: MAG					EPA 1311
Extraction Fluid Used	1.0				1		03/09/22 1:05 PM
Final pH	12.5	1.0		S.U.	1		03/09/22 1:05 PM
Initial pH	12.1	1.0		S.U.	1		03/09/22 1:05 PM
pH with HCl	3.0	1.0		S.U.	1		03/09/22 1:05 PM
TCLP, non-volatile	NA				1		03/09/22 1:05 PM

TCLP METALS

		Analyst: MAS				EPA 7470A	EPA 7470A
Mercury	< 0.0020	0.0020		mg/L	1	03/10/22 2:30 PM	03/14/22 9:12 AM

TCLP METALS

		Analyst: LEB				EPA 3010 A	EPA 6010 D
Aluminum	0.3	0.1		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Antimony	< 0.10	0.10		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Arsenic	0.04	0.02		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Barium	0.7	0.3		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Beryllium	< 0.001	0.001		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Boron	0.36	0.05		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Cadmium	< 0.002	0.002		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Chromium	0.01	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Cobalt	< 0.005	0.005		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Copper	< 0.01	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Lead	< 0.02	0.02		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Lithium	0.08	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Manganese	< 0.01	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Molybdenum	0.11	0.02		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Nickel	< 0.01	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Selenium	< 0.02	0.02		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Silver	< 0.005	0.005		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Vanadium	0.008	0.005		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM
Zinc	0.02	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM

Laboratory Results

Geochemical Testing

Date: 16-Mar-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Fly Ash
Lab Order:	G2203481		22622-3
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2203481-003	Collection Date:	2/26/2022
Matrix:	ASH	Received Date:	3/8/2022 1:28:11 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON							
		Analyst: BAB					ASTM D6316-04
Carbon	9.50	0.501		%-dry	1	03/10/22 7:00 AM	03/10/22 7:00 AM
CO2	1.05	1.00		%-dry	1	03/10/22 7:00 AM	03/10/22 7:00 AM
TOTAL METALS							
		Analyst: LEB				EPA 3050B	EPA 6010 D
Aluminum	35400	20.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/14/22 2:07 PM
Antimony	< 10	10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Arsenic	42.2	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Barium	497	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Beryllium	2.80	0.10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Boron	41.4	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Chromium	37.7	5.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Cobalt	9.8	0.5		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Copper	31.7	10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Lead	15.0	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Lithium	66.5	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Manganese	100	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Molybdenum	5.5	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Nickel	25.6	1.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Selenium	7.0	2.0		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Vanadium	86.5	0.5		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Zinc	44.2	10		mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
ACID BASE ACCOUNTING							
		Analyst: RLL					DEP OB Man p67
Total Sulfur	3.26	0.01		%	1	03/10/22 8:00 AM	03/10/22 8:00 AM
Max Potential Acidity	102	0.30		see note	1	03/10/22 8:00 AM	03/10/22 8:00 AM
Fizz Rating	2				1	03/10/22 8:00 AM	03/10/22 8:00 AM
Deficiency or Excess	153			see note	1	03/10/22 8:00 AM	03/10/22 8:00 AM
Neutralization Potential (CaCO3 Tons)	255			see note	1	03/10/22 8:00 AM	03/10/22 8:00 AM
NOTES:							
units are: Tons CaCO3 / 1000 tons dry							
MERCURY							
		Analyst: RLL					ASTM D 6722
Mercury	0.795	0.010		mg/Kg-dry	1	03/10/22 10:26 AM	03/10/22 10:26 AM
CARBONATE RESULTS							
		Analyst: LEB					Calculated
Calcium Carbonate	42.6			%	1	03/11/22 12:00 AM	03/11/22 12:00 AM



Laboratory Results

Geochemical Testing

Date: 16-Mar-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Fly Ash
Lab Order:	G2203481		22622-3
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2203481-003	Collection Date:	2/26/2022
Matrix:	ASH	Received Date:	3/8/2022 1:28:11 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	46.8			%	1		03/11/22 12:00 AM
Magnesium Carbonate	3.5			%	1		03/11/22 12:00 AM

MAJOR / MINOR ELEMENTS IN ASH

		Analyst: LEB		ASTM D6349-08	EPA 6010 D
Calcium Oxide	23.86	0.01	% Dry	1	03/10/22 6:15 AM
Magnesium Oxide	1.67	0.01	% Dry	1	03/10/22 6:15 AM

TCLP EXTRACTION

		Analyst: MAG			EPA 1311
Extraction Fluid Used	2.0			1	03/09/22 1:05 PM
Final pH	12.2	1.0	S.U.	1	03/09/22 1:05 PM
Initial pH	12.7	1.0	S.U.	1	03/09/22 1:05 PM
pH with HCl	12.1	1.0	S.U.	1	03/09/22 1:05 PM
TCLP, non-volatile	NA			1	03/09/22 1:05 PM

TCLP METALS

		Analyst: MAS		EPA 7470A	EPA 7470A
Mercury	< 0.0020	0.0020	mg/L	1	03/10/22 2:30 PM

TCLP METALS

		Analyst: LEB		EPA 3010 A	EPA 6010 D
Aluminum	0.2	0.1	mg/L	1	03/11/22 8:10 AM
Antimony	< 0.10	0.10	mg/L	1	03/11/22 8:10 AM
Arsenic	0.03	0.02	mg/L	1	03/11/22 8:10 AM
Barium	0.9	0.3	mg/L	1	03/11/22 8:10 AM
Beryllium	< 0.001	0.001	mg/L	1	03/11/22 8:10 AM
Boron	0.28	0.05	mg/L	1	03/11/22 8:10 AM
Cadmium	< 0.002	0.002	mg/L	1	03/11/22 8:10 AM
Chromium	0.08	0.01	mg/L	1	03/11/22 8:10 AM
Cobalt	< 0.005	0.005	mg/L	1	03/11/22 8:10 AM
Copper	< 0.01	0.01	mg/L	1	03/11/22 8:10 AM
Lead	< 0.02	0.02	mg/L	1	03/11/22 8:10 AM
Lithium	0.15	0.01	mg/L	1	03/11/22 8:10 AM
Manganese	< 0.01	0.01	mg/L	1	03/11/22 8:10 AM
Molybdenum	0.14	0.02	mg/L	1	03/11/22 8:10 AM
Nickel	< 0.01	0.01	mg/L	1	03/11/22 8:10 AM
Selenium	< 0.02	0.02	mg/L	1	03/11/22 8:10 AM
Silver	< 0.005	0.005	mg/L	1	03/11/22 8:10 AM
Vanadium	0.012	0.005	mg/L	1	03/11/22 8:10 AM
Zinc	0.02	0.01	mg/L	1	03/11/22 8:10 AM



Laboratory Results

Geochemical Testing

Date: 13-Jul-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash-North
Lab Order:	G2207112		62922-1
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2207112-001	Collection Date:	6/29/2022
Matrix:	ASH	Received Date:	7/1/2022 1:15:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst: BAB					ASTM D6316-04
Carbon	1.07	0.501		%-dry	1		07/08/22 5:00 AM
CO2	1.03	1.00		%-dry	1		07/08/22 5:00 AM
TOTAL METALS		Analyst: LEB				EPA 3050B	EPA 6010 D
Aluminum	21300	20.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Antimony	< 10	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Arsenic	54.9	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Barium	205	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Beryllium	1.29	0.10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Boron	48.0	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/12/22 8:53 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Chromium	33.4	5.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Cobalt	7.7	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Copper	19.7	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Lead	6.0	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Lithium	31.4	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Manganese	100	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Molybdenum	5.3	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Nickel	17.8	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Vanadium	65.6	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Zinc	22.9	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
ACID BASE ACCOUNTING		Analyst: BAB					DEP OB Man p67
Total Sulfur	8.20	0.01		%	1		07/08/22 10:00 AM
Max Potential Acidity	256	0.30		see note	1		07/08/22 10:00 AM
Fizz Rating	2				1		07/08/22 10:00 AM
Deficiency or Excess	80.5			see note	1		07/08/22 10:00 AM
Neutralization Potential (CaCO3 Tons)	337			see note	1		07/08/22 10:00 AM
NOTES:							
units are: Tons CaCO3 / 1000 tons dry							
MERCURY		Analyst: BAB					ASTM D 6722
Mercury	< 0.010	0.010		mg/Kg-dry	1		07/07/22 6:58 AM
CARBONATE RESULTS		Analyst: LEB					Calculated
Calcium Carbonate	61.3			%	1		07/08/22 12:00 AM



Laboratory Results

Geochemical Testing

Date: 13-Jul-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash-North
Lab Order:	G2207112		62922-1
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2207112-001	Collection Date:	6/29/2022
Matrix:	ASH	Received Date:	7/1/2022 1:15:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	66.0			%	1		07/08/22 12:00 AM
Magnesium Carbonate	4.0			%	1		07/08/22 12:00 AM

MAJOR / MINOR ELEMENTS IN ASH		Analyst: LEB		ASTM D6349-08		EPA 6010 D	
Calcium Oxide	34.33	0.01		% Dry	1	07/08/22 7:00 AM	07/08/22 1:17 PM
Magnesium Oxide	1.90	0.01		% Dry	1	07/08/22 7:00 AM	07/08/22 1:17 PM

TCLP EXTRACTION		Analyst: RJY				EPA 1311	
Extraction Fluid Used	1.0				1		07/07/22 1:32 PM
Final pH	12.5	1.0		S.U.	1		07/07/22 1:32 PM
Initial pH	11.8	1.0		S.U.	1		07/07/22 1:32 PM
pH with HCl	2.1	1.0		S.U.	1		07/07/22 1:32 PM
TCLP _p non-volatile	NA				1		07/07/22 1:32 PM

TCLP METALS		Analyst: LXM		EPA 7470A		EPA 7470A	
Mercury	< 0.0020	0.0020		mg/L	1	07/08/22 11:55 AM	07/11/22 11:49 AM

TCLP METALS		Analyst: LEB		EPA 3010 A		EPA 6010 D	
Aluminum	0.5	0.1		mg/L	1	07/08/22 9:00 AM	07/12/22 9:01 AM
Antimony	< 0.10	0.10		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Arsenic	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Barium	0.8	0.3		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Beryllium	< 0.001	0.001		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Boron	0.62	0.05		mg/L	1	07/08/22 9:00 AM	07/12/22 9:01 AM
Cadmium	< 0.002	0.002		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Chromium	0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Cobalt	< 0.005	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Copper	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Lead	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Lithium	0.08	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Manganese	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Molybdenum	0.08	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Nickel	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Selenium	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Silver	< 0.005	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Vanadium	0.007	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM
Zinc	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM



Laboratory Results

Geochemical Testing

Date: 13-Jul-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash South
Lab Order:	G2207112		62922-2
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2207112-002	Collection Date:	6/29/2022
Matrix:	ASH	Received Date:	7/1/2022 1:15:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst: BAB				ASTM D6316-04	
Carbon	2.77	0.500		%-dry	1	07/08/22 7:15 AM	07/08/22 5:00 AM
CO2	1.04	1.00		%-dry	1	07/08/22 7:15 AM	07/08/22 5:00 AM
TOTAL METALS		Analyst: LEB				EPA 3050B	EPA 6010 D
Aluminum	23000	20.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Antimony	< 10	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Arsenic	38.0	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Barium	190	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Beryllium	1.19	0.10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Boron	39.6	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/12/22 8:56 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Chromium	27.1	5.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Cobalt	7.2	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Copper	20.9	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Lead	7.8	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Lithium	43.2	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Manganese	83.6	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/12/22 8:56 AM
Molybdenum	3.5	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Nickel	16.5	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Vanadium	49.1	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Zinc	26.2	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
ACID BASE ACCOUNTING		Analyst: BAB				DEP OB Man p67	
Total Sulfur	6.11	0.01		%	1	07/08/22 7:15 AM	07/08/22 10:00 AM
Max Potential Acidity	191	0.30		see note	1	07/08/22 7:15 AM	07/08/22 10:00 AM
Fizz Rating	2				1	07/08/22 7:15 AM	07/08/22 10:00 AM
Deficiency or Excess	92.5			see note	1	07/08/22 7:15 AM	07/08/22 10:00 AM
Neutralization Potential (CaCO3 Tons)	283			see note	1	07/08/22 7:15 AM	07/08/22 10:00 AM
NOTES:							
units are: Tons CaCO3 / 1000 tons dry							
MERCURY		Analyst: BAB				ASTM D 6722	
Mercury	< 0.010	0.010		mg/Kg-dry	1	07/07/22 6:58 AM	07/07/22 6:58 AM
CARBONATE RESULTS		Analyst: LEB				Calculated	
Calcium Carbonate	48.3			%	1	07/08/22 12:00 AM	07/08/22 12:00 AM



Laboratory Results

Geochemical Testing

Date: 13-Jul-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash South
Lab Order:	G2207112		62922-2
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2207112-002	Collection Date:	6/29/2022
Matrix:	ASH	Received Date:	7/1/2022 1:15:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	52.2			%	1		07/08/22 12:00 AM
Magnesium Carbonate	3.3			%	1		07/08/22 12:00 AM
MAJOR / MINOR ELEMENTS IN ASH		Analyst: LEB				ASTM D6349-08	EPA 6010 D
Calcium Oxide	27.06	0.01		% Dry	1	07/08/22 7:00 AM	07/08/22 1:22 PM
Magnesium Oxide	1.57	0.01		% Dry	1	07/08/22 7:00 AM	07/08/22 1:22 PM
TCLP EXTRACTION		Analyst: RJY					EPA 1311
Extraction Fluid Used	1.0				1		07/07/22 1:32 PM
Final pH	12.4	1.0		S.U.	1		07/07/22 1:32 PM
Initial pH	11.7	1.0		S.U.	1		07/07/22 1:32 PM
pH with HCl	1.8	1.0		S.U.	1		07/07/22 1:32 PM
TCLP, non-volatile	NA				1		07/07/22 1:32 PM
TCLP METALS		Analyst: LXM				EPA 7470A	EPA 7470A
Mercury	< 0.0020	0.0020		mg/L	1	07/08/22 11:55 AM	07/11/22 11:50 AM
TCLP METALS		Analyst: LEB				EPA 3010 A	EPA 6010 D
Aluminum	0.6	0.1		mg/L	1	07/08/22 9:00 AM	07/12/22 9:04 AM
Antimony	< 0.10	0.10		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Arsenic	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Barium	0.8	0.3		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Beryllium	< 0.001	0.001		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Boron	3.7	0.05		mg/L	1	07/08/22 9:00 AM	07/12/22 9:04 AM
Cadmium	< 0.002	0.002		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Chromium	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Cobalt	< 0.005	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Copper	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Lead	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Lithium	0.12	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Manganese	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Molybdenum	0.08	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Nickel	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Selenium	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Silver	< 0.005	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Vanadium	0.007	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM
Zinc	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM



Laboratory Results

Geochemical Testing

Date: 13-Jul-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Fly Ash
Lab Order:	G2207112		62922-3
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2207112-003	Collection Date:	6/29/2022
Matrix:	ASH	Received Date:	7/1/2022 1:15:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst: BAB				ASTM D6316-04	
Carbon	12.1	0.500		%-dry	1	07/08/22 7:15 AM	07/08/22 5:00 AM
CO2	1.02	1.00		%-dry	1	07/08/22 7:15 AM	07/08/22 5:00 AM
TOTAL METALS		Analyst: LEB				EPA 3050B	EPA 6010 D
Aluminum	40100	20.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Antimony	< 10	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Arsenic	41.3	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Barium	649	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Beryllium	3.10	0.10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Boron	37.1	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/12/22 8:59 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Chromium	46.9	5.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Cobalt	15.8	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Copper	36.8	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Lead	26.4	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Lithium	69.4	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Manganese	83.2	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/12/22 8:59 AM
Molybdenum	6.4	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Nickel	38.4	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Selenium	7.9	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Vanadium	91.3	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Zinc	55.9	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
ACID BASE ACCOUNTING		Analyst: BAB				DEP OB Man p67	
Total Sulfur	3.12	0.01		%	1	07/08/22 7:15 AM	07/08/22 10:00 AM
Max Potential Acidity	97.5	0.30		see note	1	07/08/22 7:15 AM	07/08/22 10:00 AM
Fizz Rating	2				1	07/08/22 7:15 AM	07/08/22 10:00 AM
Deficiency or Excess	109			see note	1	07/08/22 7:15 AM	07/08/22 10:00 AM
Neutralization Potential (CaCO3 Tons)	206			see note	1	07/08/22 7:15 AM	07/08/22 10:00 AM
NOTES:							
units are: Tons CaCO3 / 1000 tons dry							
MERCURY		Analyst: BAB				ASTM D 6722	
Mercury	0.861	0.010		mg/Kg-dry	1	07/07/22 7:15 AM	07/07/22 6:58 AM
CARBONATE RESULTS		Analyst: LEB				Calculated	
Calcium Carbonate	35.1			%	1	07/08/22 7:15 AM	07/08/22 12:00 AM



Laboratory Results

Geochemical Testing

Date: 13-Jul-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Fly Ash
Lab Order:	G2207112		62922-3
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2207112-003	Collection Date:	6/29/2022
Matrix:	ASH	Received Date:	7/1/2022 1:15:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	38.8			%	1		07/08/22 12:00 AM
Magnesium Carbonate	3.1			%	1		07/08/22 12:00 AM

MAJOR / MINOR ELEMENTS IN ASH

Analyst: LEB

ASTM D6349-08

EPA 6010 D

Calcium Oxide	19.66	0.01		% Dry	1	07/08/22 7:00 AM	07/08/22 1:27 PM
Magnesium Oxide	1.48	0.01		% Dry	1	07/08/22 7:00 AM	07/08/22 1:27 PM

TCLP EXTRACTION

Analyst: MAG

EPA 1311

Extraction Fluid Used	2.0				1		07/06/22 12:30 PM
Final pH	12.0	1.0		S.U.	1		07/06/22 12:30 PM
Initial pH	12.6	1.0		S.U.	1		07/06/22 12:30 PM
pH with HCl	12.0	1.0		S.U.	1		07/06/22 12:30 PM
TCLP, non-volatile	NA				1		07/06/22 12:30 PM

TCLP METALS

Analyst: LXM

EPA 7470A

EPA 7470A

Mercury	< 0.0020	0.0020		mg/L	1	07/08/22 11:55 AM	07/11/22 11:14 AM
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TCLP METALS

Analyst: LEB

EPA 3010 A

EPA 6010 D

Aluminum	0.4	0.1		mg/L	1	07/08/22 9:00 AM	07/12/22 9:06 AM
Antimony	< 0.10	0.10		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Arsenic	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Barium	0.8	0.3		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Beryllium	< 0.001	0.001		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Boron	0.40	0.05		mg/L	1	07/08/22 9:00 AM	07/12/22 9:06 AM
Cadmium	< 0.002	0.002		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Chromium	0.17	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Cobalt	< 0.005	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Copper	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Lead	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Lithium	0.12	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Manganese	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Molybdenum	0.16	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Nickel	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Selenium	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Silver	< 0.005	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Vanadium	0.019	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM
Zinc	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM



Laboratory Results

Geochemical Testing

Date: 21-Nov-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash-North
Lab Order:	G2211634		11422-1
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2211634-001	Collection Date:	11/4/2022 12:00:01 AM
Matrix:	ASH	Received Date:	11/10/2022 8:33:23 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
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SOLID FORMS OF CARBON		Analyst: BAB				ASTM D6316-04	
Carbon	0.811	0.501		%-dry	1		11/14/22 5:00 AM
CO2	< 1.00	1.00		%-dry	1		11/14/22 5:00 AM

TOTAL METALS		Analyst: LEB			EPA 3050B	EPA 6010 D
Aluminum	24500	20.0		mg/Kg-dry	1	11/11/22 8:15 AM
Antimony	< 10	10	M2	mg/Kg-dry	1	11/17/22 8:00 AM
Arsenic	53.0	2.0		mg/Kg-dry	1	11/11/22 8:15 AM
Barium	201	1.0		mg/Kg-dry	1	11/11/22 8:15 AM
Beryllium	1.68	0.10		mg/Kg-dry	1	11/11/22 8:15 AM
Boron	48.8	2.0		mg/Kg-dry	1	11/11/22 8:15 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	11/11/22 8:15 AM
Chromium	34.5	5.0		mg/Kg-dry	1	11/11/22 8:15 AM
Cobalt	6.6	0.5		mg/Kg-dry	1	11/11/22 8:15 AM
Copper	25.4	10		mg/Kg-dry	1	11/11/22 8:15 AM
Lead	6.3	2.0		mg/Kg-dry	1	11/11/22 8:15 AM
Lithium	40.5	1.0	M1	mg/Kg-dry	1	11/17/22 8:00 AM
Manganese	127	1.0		mg/Kg-dry	1	11/11/22 8:15 AM
Molybdenum	4.1	2.0		mg/Kg-dry	1	11/11/22 8:15 AM
Nickel	19.1	1.0		mg/Kg-dry	1	11/11/22 8:15 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	11/11/22 8:15 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	11/11/22 8:15 AM
Vanadium	66.7	0.5		mg/Kg-dry	1	11/11/22 8:15 AM
Zinc	24.7	10		mg/Kg-dry	1	11/11/22 8:15 AM

NOTES:
M1 - MS recovery above the acceptance limits.
M2 - MS recovery below the acceptance limits.

ACID BASE ACCOUNTING		Analyst: JCS			DEP OB Man p67	
Total Sulfur	6.86	0.01		%	1	11/11/22 1:00 PM
Max Potential Acidity	214	0.30		see note	1	11/11/22 1:00 PM
Fizz Rating	2				1	11/11/22 1:00 PM
Deficiency or Excess	91.3			see note	1	11/11/22 1:00 PM
Neutralization Potential (CaCO3 Tons)	306			see note	1	11/11/22 1:00 PM

NOTES:
units are: Tons CaCO3 / 1000 tons dry

MERCURY		Analyst: RLL			ASTM D 6722	
Mercury	< 0.010	0.010		mg/Kg-dry	1	11/15/22 11:03 AM



Laboratory Results

Geochemical Testing

Date: 21-Nov-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash-North
Lab Order:	G2211634		11422-1
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2211634-001	Collection Date:	11/4/2022 12:00:01 AM
Matrix:	ASH	Received Date:	11/10/2022 8:33:23 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
CARBONATE RESULTS		Analyst: LEB				Calculated		
Calcium Carbonate	83.0			%	1		11/14/22 7:45 PM	
Calcium Carbonate Equivalent	91.3			%	1		11/14/22 7:45 PM	
Magnesium Carbonate	7.0			%	1		11/14/22 7:45 PM	
MAJOR / MINOR ELEMENTS IN ASH		Analyst: LEB				ASTM D6349-08	EPA 6010 D	
Calcium Oxide	46.48	0.01		% Dry	1	11/12/22 6:40 AM	11/14/22 7:45 PM	
Magnesium Oxide	3.35	0.01		% Dry	1	11/12/22 6:40 AM	11/14/22 7:45 PM	
TCLP EXTRACTION		Analyst: RJY				EPA 1311		
Extraction Fluid Used	1.0				1		11/13/22 11:51 AM	
Final pH	12.5	1.0		S.U.	1		11/13/22 11:51 AM	
Initial pH	11.9	1.0		S.U.	1		11/13/22 11:51 AM	
pH with HCl	1.9	1.0		S.U.	1		11/13/22 11:51 AM	
TCLP, non-volatile	NA				1		11/13/22 11:51 AM	
TCLP METALS		Analyst: LXM				EPA 7470A	EPA 7470A	
Mercury	< 0.0020	0.0020		mg/L	1	11/16/22 7:55 AM	11/17/22 9:34 AM	
TCLP METALS		Analyst: LEB				EPA 3010 A	EPA 6010 D	
Aluminum	0.6	0.1		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Antimony	< 0.10	0.10		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Arsenic	< 0.02	0.02		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Barium	0.6	0.3		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Beryllium	< 0.001	0.001		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Boron	1.1	0.05		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Cadmium	< 0.002	0.002		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Chromium	0.02	0.01		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Cobalt	< 0.005	0.005		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Copper	< 0.01	0.01		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Lead	< 0.02	0.02		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Lithium	0.17	0.01		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Manganese	< 0.01	0.01		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Molybdenum	0.08	0.02		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Nickel	< 0.01	0.01		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Selenium	0.02	0.02		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Silver	< 0.005	0.005		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	
Vanadium	0.011	0.005		mg/L	1	11/15/22 8:10 AM	11/15/22 11:50 AM	



Laboratory Results

Geochemical Testing

Date: 21-Nov-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash-North
Lab Order:	G2211634		11422-1
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2211634-001	Collection Date:	11/4/2022 12:00:01 AM
Matrix:	ASH	Received Date:	11/10/2022 8:33:23 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Zinc	0.04	0.01		mg/L	1	11/15/22 8:10 AM	11/18/22 9:19 AM

Laboratory Results

Geochemical Testing

Date: 21-Nov-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash South
Lab Order:	G2211634		11422-2
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2211634-002	Collection Date:	11/4/2022 12:00:01 AM
Matrix:	ASH	Received Date:	11/10/2022 8:33:23 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
SOLID FORMS OF CARBON		Analyst: BAB				ASTM D6316-04		
Carbon	0.701	0.501		%-dry	1	11/14/22 5:00 AM		
CO2	< 1.00	1.00		%-dry	1	11/14/22 5:00 AM		
TOTAL METALS		Analyst: LEB				EPA 3050B	EPA 6010 D	
Aluminum	25800	20.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Antimony	< 10	10		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Arsenic	50.2	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Barium	209	1.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Beryllium	1.88	0.10		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Boron	45.2	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Cadmium	< 5.0	5.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Chromium	35.0	5.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Cobalt	7.0	0.5		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Copper	27.6	10		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Lead	7.3	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Lithium	47.9	1.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/14/22 9:00 PM	
Manganese	108	1.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Molybdenum	4.2	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Nickel	20.0	1.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Selenium	< 2.0	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Silver	< 0.5	0.5		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Vanadium	70.3	0.5		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:57 AM	
Zinc	26.8	10		mg/Kg-dry	1	11/11/22 8:15 AM	11/14/22 9:00 PM	
ACID BASE ACCOUNTING		Analyst: JCS				DEP OB Man p67		
Total Sulfur	7.51	0.01		%	1	11/11/22 1:00 PM		
Max Potential Acidity	235	0.30		see note	1	11/11/22 1:00 PM		
Fizz Rating	2				1	11/11/22 1:00 PM		
Deficiency or Excess	54.0			see note	1	11/11/22 1:00 PM		
Neutralization Potential (CaCO3 Tons)	289			see note	1	11/11/22 1:00 PM		
NOTES:		units are: Tons CaCO3 / 1000 tons dry						
MERCURY		Analyst: RLL				ASTM D 6722		
Mercury	< 0.010	0.010		mg/Kg-dry	1	11/15/22 11:03 AM		
CARBONATE RESULTS		Analyst: LEB				Calculated		
Calcium Carbonate	81.7			%	1	11/14/22 7:47 PM		



Laboratory Results

Geochemical Testing

Date: 21-Nov-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash South
Lab Order:	G2211634		11422-2
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2211634-002	Collection Date:	11/4/2022 12:00:01 AM
Matrix:	ASH	Received Date:	11/10/2022 8:33:23 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	90.8			%	1		11/14/22 7:47 PM
Magnesium Carbonate	7.6			%	1		11/14/22 7:47 PM

MAJOR / MINOR ELEMENTS IN ASH	Analyst: LEB		ASTM D6349-08	EPA 6010 D
Calcium Oxide	45.77	0.01	% Dry	1 11/12/22 6:40 AM 11/14/22 7:47 PM
Magnesium Oxide	3.63	0.01	% Dry	1 11/12/22 6:40 AM 11/14/22 7:47 PM

TCLP EXTRACTION	Analyst: RJY			EPA 1311
Extraction Fluid Used	1.0			1 11/13/22 11:51 AM
Final pH	12.5	1.0	S.U.	1 11/13/22 11:51 AM
Initial pH	11.8	1.0	S.U.	1 11/13/22 11:51 AM
pH with HCl	1.9	1.0	S.U.	1 11/13/22 11:51 AM
TCLP, non-volatile	NA			1 11/13/22 11:51 AM

TCLP METALS	Analyst: LXM		EPA 7470A	EPA 7470A
Mercury	< 0.0020	0.0020	mg/L	1 11/16/22 7:55 AM 11/17/22 9:36 AM

TCLP METALS	Analyst: LEB		EPA 3010 A	EPA 6010 D
Aluminum	0.6	0.1	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Antimony	< 0.10	0.10	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Arsenic	< 0.02	0.02	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Barium	0.6	0.3	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Beryllium	< 0.001	0.001	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Boron	0.90	0.05	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Cadmium	< 0.002	0.002	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Chromium	0.03	0.01	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Cobalt	< 0.005	0.005	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Copper	< 0.01	0.01	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Lead	< 0.02	0.02	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Lithium	0.17	0.01	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Manganese	< 0.01	0.01	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Molybdenum	0.08	0.02	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Nickel	< 0.01	0.01	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Selenium	< 0.02	0.02	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Silver	< 0.005	0.005	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Vanadium	0.015	0.005	mg/L	1 11/15/22 8:10 AM 11/15/22 11:52 AM
Zinc	0.04	0.01	mg/L	1 11/15/22 8:10 AM 11/18/22 9:32 AM



Laboratory Results

Geochemical Testing

Date: 21-Nov-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Fly Ash
Lab Order:	G2211634		11422-3
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2211634-003	Collection Date:	11/4/2022 12:00:01 AM
Matrix:	ASH	Received Date:	11/10/2022 8:33:23 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
SOLID FORMS OF CARBON		Analyst: BAB				ASTM D6316-04		
Carbon	6.24	0.501		%-dry	1	11/14/22 5:00 AM	11/14/22 5:00 AM	
CO2	1.28	1.00		%-dry	1	11/14/22 5:00 AM	11/14/22 5:00 AM	
TOTAL METALS		Analyst: LEB				EPA 3050B	EPA 6010 D	
Aluminum	35400	20.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Antimony	< 10	10		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Arsenic	52.4	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Barium	351	1.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Beryllium	2.74	0.10		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Boron	40.7	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Cadmium	< 5.0	5.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Chromium	39.9	5.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Cobalt	11.1	0.5		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Copper	41.0	10		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Lead	18.0	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Lithium	69.5	1.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/14/22 9:13 PM	
Manganese	138	1.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Molybdenum	7.4	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Nickel	30.8	1.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Selenium	6.0	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Silver	< 0.5	0.5		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Vanadium	79.7	0.5		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 11:00 AM	
Zinc	56.9	10		mg/Kg-dry	1	11/11/22 8:15 AM	11/14/22 9:13 PM	
ACID BASE ACCOUNTING		Analyst: JCS				DEP OB Man p67		
Total Sulfur	4.53	0.01		%	1	11/11/22 1:00 PM	11/11/22 1:00 PM	
Max Potential Acidity	142	0.30		see note	1	11/11/22 1:00 PM	11/11/22 1:00 PM	
Fizz Rating	2				1	11/11/22 1:00 PM	11/11/22 1:00 PM	
Deficiency or Excess	71.7			see note	1	11/11/22 1:00 PM	11/11/22 1:00 PM	
Neutralization Potential (CaCO3 Tons)	213			see note	1	11/11/22 1:00 PM	11/11/22 1:00 PM	
NOTES:		units are: Tons CaCO3 / 1000 tons dry						
MERCURY		Analyst: RLL				ASTM D 6722		
Mercury	0.500	0.010		mg/Kg-dry	1	11/15/22 11:03 AM	11/15/22 11:03 AM	
CARBONATE RESULTS		Analyst: LEB				Calculated		
Calcium Carbonate	80.6			%	1	11/14/22 7:50 PM	11/14/22 7:50 PM	



Laboratory Results

Geochemical Testing

Date: 21-Nov-22

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Fly Ash
Lab Order:	G2211634		11422-3
Project:	AES Warrior Ash Samples	Sampled By:	AES Warrior Run
Lab ID:	G2211634-003	Collection Date:	11/4/2022 12:00:01 AM
Matrix:	ASH	Received Date:	11/10/2022 8:33:23 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	88.1			%	1		11/14/22 7:50 PM
Magnesium Carbonate	6.3			%	1		11/14/22 7:50 PM

MAJOR / MINOR ELEMENTS IN ASH	Analyst: LEB		ASTM D6349-08	EPA 6010 D
Calcium Oxide	45.16	0.01	% Dry	1 11/12/22 6:40 AM 11/14/22 8:00 PM
Magnesium Oxide	3.00	0.01	% Dry	1 11/12/22 6:40 AM 11/14/22 8:00 PM

TCLP EXTRACTION	Analyst: RJY			EPA 1311
Extraction Fluid Used	2.0			1 11/10/22 1:33 PM
Final pH	12.1	1.0	S.U.	1 11/10/22 1:33 PM
Initial pH	12.6	1.0	S.U.	1 11/10/22 1:33 PM
pH with HCl	12.2	1.0	S.U.	1 11/10/22 1:33 PM
TCLP, non-volatile	NA			1 11/10/22 1:33 PM

TCLP METALS	Analyst: LXM		EPA 7470A	EPA 7470A
Mercury	< 0.0020	0.0020	mg/L	1 11/16/22 7:55 AM 11/17/22 9:50 AM

TCLP METALS	Analyst: LEB		EPA 3010 A	EPA 6010 D
Aluminum	0.6	0.1	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Antimony	< 0.10	0.10	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Arsenic	< 0.02	0.02	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Barium	0.5	0.3	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Beryllium	< 0.001	0.001	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Boron	0.90	0.05	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Cadmium	< 0.002	0.002	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Chromium	0.17	0.01	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Cobalt	< 0.005	0.005	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Copper	< 0.01	0.01	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Lead	< 0.02	0.02	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Lithium	0.21	0.01	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Manganese	< 0.01	0.01	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Molybdenum	0.23	0.02	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Nickel	< 0.01	0.01	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Selenium	0.05	0.02	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Silver	< 0.005	0.005	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Vanadium	0.016	0.005	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM
Zinc	0.04	0.01	mg/L	1 11/14/22 8:55 AM 11/14/22 3:26 PM

