



February 22, 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 2021**

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 2021. 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](mailto:ed.dexter@maryland.gov).

**I. Background.** This requirement that generators of CCBs submit an annual report was instituted in the Code of Maryland Regulations COMAR 26.04.10.08, that was promulgated effective December 1, 2008. The regulation requires that any non-residential generator of CCBs submit a report to 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, 2022:

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, S.E. 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 (AFCB) 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 AFCB 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 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 Electric Power Company. The applicable SIC code for the facility is 4911—Electric Services.

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C. The volume and weight of CCBs generated during calendar year 2021, 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 2021:** Please note that this table includes both the volume and weight of the types of CCBs your facility produces.

<b>Volume and Weight of CCBs Generated for Calendar Year 2021</b>			
Fly Ash Type of CCB	Bed Ash Type of CCB	Slag Ash Type of CCB	Type of CCB
423,161.46	137,025.86	15,994.09	
Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards
239,159.69	88,737.49	9,578.64	
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.

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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 2021, 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:

2021	Fly Ash Tons	Fly Ash CuYds	Bed Ash Tons	Bed Ash CuYds	Slag Ash Tons	Slag Ash CuYds	Use
Cabin Run Mine	132,528.05	234,490.87	53,084.97	81,972.27	5,046.25	8,426.06	Mine Reclamation
Carlos Coal Mine	24,652.49	43,619.32	9,287.52	14,341.52	2,535.50	4,233.69	Mine Reclamation
Hampshire Hill Coal Mine	32,093.27	56,784.80	11,284.67	17,425.46	701.84	1,171.91	Mine Reclamation
419 Coal Mine	49,885.88	88,266.47	15,080.33	23,286.61	1,295.05	2,162.43	Mine Reclamation
<b>Total</b>	<b>239,159.69</b>	<b>423,161.46</b>	<b>88,737.49</b>	<b>137,025.86</b>	<b>9,578.64</b>	<b>15,994.09</b>	

and (b) The different uses by type and volume of CCBs:  
See chart above.

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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.

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

No change , same as previous years.

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

**IV. Signature and Certification.** An authorized official of the generator must sign the annual report, and certify as to the accuracy and completeness of the information contained in the annual report:

This is to certify that, to the best of my knowledge, the information contained in this report and any attached documents are true, accurate, and complete.		
Signature  <i>Peter Bajc</i>	<u>Peter Bajc, Plant Manager, 301-777-0055</u>  Name, Title, & Telephone No. (Print or Type)  peter.bajc@aes.com  Your Email Address	Date  02/18/2022

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

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

## Geochemical Testing

Date: 23-Mar-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash North
<b>Lab Order:</b>	G2103794		C98080
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2103794-001	<b>Collection Date:</b>	3/8/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	3/12/2021 8:15:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>TOTAL METALS</b>		Analyst: MEG				EPA 3050	EPA 6010 D
Aluminum	22600	20.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Antimony	< 10	10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Arsenic	39.1	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Barium	228	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Beryllium	1.80	0.10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Boron	39.3	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Chromium	32.0	5.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Cobalt	7.9	0.5		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Copper	23.0	10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Lead	4.4	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Lithium	40.6	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Manganese	106	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Molybdenum	4.5	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Nickel	18.2	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Vanadium	69.7	0.5		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
Zinc	24.4	10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:28 AM
<b>ACID BASE ACCOUNTING</b>		Analyst: BAB					DEP OB Man p67
Total Sulfur	6.27	0.01		%	1		03/12/21 12:15 PM
Max Potential Acidity	196	0.30		see note	1		03/12/21 12:15 PM
Fizz Rating	2				1		03/12/21 12:15 PM
Deficiency or Excess	92.3			see note	1		03/12/21 12:15 PM
Neutralization Potential (CaCO3 Tons)	288			see note	1		03/12/21 12:15 PM
<b>NOTES:</b>		units are: Tons CaCO3 / 1000 tons dry					
<b>MERCURY</b>		Analyst: CDJ					ASTM D 6722
Mercury	< 0.010	0.010		mg/Kg-dry	1		03/12/21 9:26 PM
<b>CARBONATE RESULTS</b>		Analyst: MEG					Calculated
Calcium Carbonate	48.4			%	1		03/15/21 1:21 PM
Calcium Carbonate Equivalent	53.8			%	1		03/15/21 1:21 PM
Magnesium Carbonate	4.5			%	1		03/15/21 1:21 PM
<b>MAJOR / MINOR ELEMENTS IN ASH</b>		Analyst: MEG				ASTM D 6349	EPA 6010 D



# Laboratory Results

## Geochemical Testing

Date: 23-Mar-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash North
<b>Lab Order:</b>	G2103794		C98080
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2103794-001	<b>Collection Date:</b>	3/8/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	3/12/2021 8:15:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Oxide	27.09	0.01		% Dry	1	03/13/21 5:20 AM	03/15/21 1:21 PM
Magnesium Oxide	2.16	0.01		% Dry	1	03/13/21 5:20 AM	03/15/21 1:21 PM
<b>TCLP EXTRACTION</b>		<b>Analyst: JIM</b>				<b>EPA 1311</b>	
Extraction Fluid Used	1.0				1		03/14/21 2:55 PM
Final pH	12.6	1.0		S.U.	1		03/14/21 2:55 PM
Initial pH	12.1	1.0		S.U.	1		03/14/21 2:55 PM
pH with HCl	2.8	1.0		S.U.	1		03/14/21 2:55 PM
TCLP, non-volatile	NA				1		03/14/21 2:55 PM
<b>TCLP METALS</b>		<b>Analyst: LXM</b>				<b>EPA 7470</b>	
Mercury	< 0.0020	0.0020		mg/L	1	03/16/21 7:50 AM	03/16/21 12:01 PM
<b>TCLP METALS</b>		<b>Analyst: MEG</b>				<b>EPA 3010 A</b>	
Aluminum	0.3	0.1		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Antimony	< 0.10	0.10		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Arsenic	< 0.02	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Barium	0.8	0.3		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Beryllium	< 0.001	0.001		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Boron	0.67	0.05		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Cadmium	< 0.002	0.002		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Chromium	< 0.01	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Cobalt	< 0.005	0.005		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Copper	< 0.01	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Lead	< 0.02	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Lithium	0.19	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Manganese	< 0.01	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Molybdenum	0.08	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Nickel	< 0.01	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Selenium	< 0.02	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Silver	< 0.005	0.005		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Vanadium	0.013	0.005		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM
Zinc	0.05	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:55 AM



# Laboratory Results

## Geochemical Testing

Date: 23-Mar-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash South
<b>Lab Order:</b>	G2103794		C98081
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2103794-002	<b>Collection Date:</b>	3/8/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	3/12/2021 8:15:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>TOTAL METALS</b>		Analyst: <b>MEG</b>				<b>EPA 3050</b>	<b>EPA 6010 D</b>
Aluminum	23300	20.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Antimony	< 10	10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Arsenic	42.3	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Barium	241	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Beryllium	1.90	0.10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Boron	38.4	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Chromium	32.9	5.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Cobalt	7.9	0.5		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Copper	22.8	10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Lead	4.6	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Lithium	41.7	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Manganese	101	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Molybdenum	4.7	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Nickel	18.1	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Vanadium	74.8	0.5		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
Zinc	25.0	10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:36 AM
<b>ACID BASE ACCOUNTING</b>		Analyst: <b>BAB</b>					<b>DEP OB Man p67</b>
Total Sulfur	6.50	0.01		%	1		03/12/21 12:15 PM
Max Potential Acidity	203	0.30		see note	1		03/12/21 12:15 PM
Fizz Rating	2				1		03/12/21 12:15 PM
Deficiency or Excess	93.9			see note	1		03/12/21 12:15 PM
Neutralization Potential (CaCO3 Tons)	297			see note	1		03/12/21 12:15 PM
<b>NOTES:</b>		units are: Tons CaCO3 / 1000 tons dry					
<b>MERCURY</b>		Analyst: <b>CDJ</b>					<b>ASTM D 6722</b>
Mercury	< 0.010	0.010		mg/Kg-dry	1		03/12/21 9:26 PM
<b>CARBONATE RESULTS</b>		Analyst: <b>MEG</b>					<b>Calculated</b>
Calcium Carbonate	51.1			%	1		03/15/21 1:44 PM
Calcium Carbonate Equivalent	56.7			%	1		03/15/21 1:44 PM
Magnesium Carbonate	4.7			%	1		03/15/21 1:44 PM
<b>MAJOR / MINOR ELEMENTS IN ASH</b>		Analyst: <b>MEG</b>				<b>ASTM D 6349</b>	<b>EPA 6010 D</b>



# Laboratory Results

## Geochemical Testing

Date: 23-Mar-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash South
<b>Lab Order:</b>	G2103794		C98081
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2103794-002	<b>Collection Date:</b>	3/8/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	3/12/2021 8:15:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Oxide	28.60	0.01		% Dry	1	03/13/21 5:20 AM	03/15/21 1:44 PM
Magnesium Oxide	2.24	0.01		% Dry	1	03/13/21 5:20 AM	03/15/21 1:44 PM

### TCLP EXTRACTION

Analyst: JIM

EPA 1311

Extraction Fluid Used	1.0				1		03/14/21 2:55 PM
Final pH	12.6	1.0		S.U.	1		03/14/21 2:55 PM
Initial pH	12.0	1.0		S.U.	1		03/14/21 2:55 PM
pH with HCl	3.0	1.0		S.U.	1		03/14/21 2:55 PM
TCLP, non-volatile	NA				1		03/14/21 2:55 PM

### TCLP METALS

Analyst: LXM

EPA 7470

EPA 7470

Mercury	< 0.0020	0.0020		mg/L	1	03/16/21 7:50 AM	03/16/21 12:03 PM
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### TCLP METALS

Analyst: MEG

EPA 3010 A

EPA 6010 D

Aluminum	0.4	0.1		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Antimony	< 0.10	0.10		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Arsenic	< 0.02	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Barium	0.9	0.3		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Beryllium	< 0.001	0.001		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Boron	0.84	0.05		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Cadmium	< 0.002	0.002		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Chromium	0.02	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Cobalt	< 0.005	0.005		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Copper	< 0.01	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Lead	< 0.02	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Lithium	0.16	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Manganese	< 0.01	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Molybdenum	0.08	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Nickel	< 0.01	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Selenium	< 0.02	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Silver	< 0.005	0.005		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Vanadium	0.015	0.005		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM
Zinc	0.06	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:57 AM



# Laboratory Results

## Geochemical Testing

Date: 23-Mar-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Fly Ash
<b>Lab Order:</b>	G2103794		C98082
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2103794-003	<b>Collection Date:</b>	3/8/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	3/12/2021 8:15:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>TOTAL METALS</b>		Analyst: MEG				EPA 3050	EPA 6010 D
Aluminum	37700	20.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Antimony	< 10	10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Arsenic	40.9	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Barium	349	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Beryllium	3.47	0.10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Boron	35.4	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Chromium	43.3	5.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Cobalt	13.7	0.5		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Copper	38.0	10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Lead	20.6	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Lithium	82.4	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Manganese	137	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Molybdenum	7.6	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Nickel	33.9	1.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Selenium	5.3	2.0		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Vanadium	100	0.5		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
Zinc	55.6	10		mg/Kg-dry	1	03/17/21 6:15 AM	03/17/21 9:38 AM
<b>ACID BASE ACCOUNTING</b>		Analyst: BAB					DEP OB Man p67
Total Sulfur	3.50	0.01		%	1		03/12/21 12:15 PM
Max Potential Acidity	109	0.30		see note	1		03/12/21 12:15 PM
Fizz Rating	2				1		03/12/21 12:15 PM
Deficiency or Excess	81.0			see note	1		03/12/21 12:15 PM
Neutralization Potential (CaCO3 Tons)	190			see note	1		03/12/21 12:15 PM
<b>NOTES:</b>							
units are: Tons CaCO3 / 1000 tons dry							
<b>MERCURY</b>		Analyst: CDJ					ASTM D 6722
Mercury	0.984	0.010		mg/Kg-dry	1		03/12/21 9:26 PM
<b>CARBONATE RESULTS</b>		Analyst: MEG					Calculated
Calcium Carbonate	29.1			%	1		03/15/21 1:49 PM
Calcium Carbonate Equivalent	32.7			%	1		03/15/21 1:49 PM
Magnesium Carbonate	3.0			%	1		03/15/21 1:49 PM
<b>MAJOR / MINOR ELEMENTS IN ASH</b>		Analyst: MEG				ASTM D 6349	EPA 6010 D



# Laboratory Results

## Geochemical Testing

Date: 23-Mar-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Fly Ash
<b>Lab Order:</b>	G2103794		C98082
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2103794-003	<b>Collection Date:</b>	3/8/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	3/12/2021 8:15:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Oxide	16.31	0.01		% Dry	1	03/13/21 5:20 AM	03/15/21 1:49 PM
Magnesium Oxide	1.42	0.01		% Dry	1	03/13/21 5:20 AM	03/15/21 1:49 PM

### TCLP EXTRACTION

Analyst: JIM

EPA 1311

Extraction Fluid Used	2.0				1		03/14/21 2:55 PM
Final pH	10.9	1.0		S.U.	1		03/14/21 2:55 PM
Initial pH	12.6	1.0		S.U.	1		03/14/21 2:55 PM
pH with HCl	12.2	1.0		S.U.	1		03/14/21 2:55 PM
TCLP, non-volatile	NA				1		03/14/21 2:55 PM

### TCLP METALS

Analyst: LXM

EPA 7470

EPA 7470

Mercury	< 0.0020	0.0020		mg/L	1	03/16/21 7:50 AM	03/16/21 12:05 PM
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### TCLP METALS

Analyst: MEG

EPA 3010 A

EPA 6010 D

Aluminum	1.6	0.1		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Antimony	< 0.10	0.10		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Arsenic	0.03	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Barium	0.5	0.3		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Beryllium	< 0.001	0.001		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Boron	1.5	0.05		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Cadmium	< 0.002	0.002		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Chromium	0.06	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Cobalt	< 0.005	0.005		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Copper	< 0.01	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Lead	< 0.02	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Lithium	0.31	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Manganese	< 0.01	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Molybdenum	0.18	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Nickel	< 0.01	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Selenium	0.05	0.02		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Silver	< 0.005	0.005		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Vanadium	0.34	0.005		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM
Zinc	0.08	0.01		mg/L	1	03/16/21 8:45 AM	03/17/21 6:58 AM



# Laboratory Results

## Geochemical Testing

Date: 24-May-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash North
<b>Lab Order:</b>	G2105A59		C98596
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2105A59-001	<b>Collection Date:</b>	5/12/2021
<b>Matrix:</b>		<b>Received Date:</b>	5/17/2021 10:30:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
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**TOTAL METALS**

Analyst: MEG

EPA 3050

EPA 6010 D

Aluminum	21500	20.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Antimony	< 10	10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Arsenic	46.7	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Barium	222	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Beryllium	1.62	0.10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Boron	42.6	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Chromium	33.9	5.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Cobalt	7.9	0.5		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Copper	19.6	10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Lead	2.8	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Lithium	35.1	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Manganese	125	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Molybdenum	6.1	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Nickel	18.4	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Vanadium	70.3	0.5		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM
Zinc	24.6	10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:32 AM

**ACID BASE ACCOUNTING**

Analyst: RLL

DEP OB Man p67

Total Sulfur	7.33	0.01		%	1		05/19/21 10:50 AM
Max Potential Acidity	229	0.30		see note	1		05/19/21 10:50 AM
Fizz Rating	2				1		05/19/21 10:50 AM
Deficiency or Excess	117			see note	1		05/19/21 10:50 AM
Neutralization Potential (CaCO3 Tons)	346			see note	1		05/19/21 10:50 AM

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

**MERCURY**

Analyst: RLL

ASTM D 6722

Mercury	< 0.010	0.010		mg/Kg-dry	1		05/19/21 9:47 AM
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**CARBONATE RESULTS**

Analyst: MEG

Calculated

Calcium Carbonate	53.0			%	1		05/21/21 12:00 AM
Calcium Carbonate Equivalent	62.1			%	1		05/21/21 12:00 AM
Magnesium Carbonate	7.7			%	1		05/21/21 12:00 AM

**MAJOR / MINOR ELEMENTS IN ASH**

Analyst: MEG

ASTM D 6349

EPA 6010 D



# Laboratory Results

## Geochemical Testing

Date: 24-May-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash North
<b>Lab Order:</b>	G2105A59		C98596
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2105A59-001	<b>Collection Date:</b>	5/12/2021
<b>Matrix:</b>		<b>Received Date:</b>	5/17/2021 10:30:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Oxide	29.68	0.01		% Dry	1	05/21/21 5:20 AM	05/21/21 12:46 PM
Magnesium Oxide	3.65	0.01		% Dry	1	05/21/21 5:20 AM	05/21/21 12:46 PM

**TCLP EXTRACTION**

Analyst: JIM

EPA 1311

Extraction Fluid Used	1.0				1		05/19/21 12:54 PM
Final pH	12.6	1.0		S.U.	1		05/19/21 12:54 PM
Initial pH	11.5	1.0		S.U.	1		05/19/21 12:54 PM
pH with HCl	1.9	1.0		S.U.	1		05/19/21 12:54 PM
TCLP, non-volatile	NA				1		05/19/21 12:54 PM

**TCLP METALS**

Analyst: LXM

EPA 7470

EPA 7470

Mercury	< 0.0020	0.0020		mg/L	1	05/20/21 11:25 AM	05/20/21 2:36 PM
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**TCLP METALS**

Analyst: MEG

EPA 3010 A

EPA 6010 D

Aluminum	0.5	0.1		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Antimony	< 0.10	0.10		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Arsenic	< 0.02	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Barium	0.8	0.3		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Beryllium	< 0.001	0.001		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Boron	0.64	0.05		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Cadmium	< 0.002	0.002		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Chromium	< 0.01	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Cobalt	< 0.005	0.005		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Copper	< 0.01	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Lead	< 0.02	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Lithium	0.10	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Manganese	< 0.01	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Molybdenum	0.12	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Nickel	< 0.01	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Selenium	< 0.02	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Silver	< 0.005	0.005		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Vanadium	0.011	0.005		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM
Zinc	0.05	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:14 AM





# Laboratory Results

## Geochemical Testing

Date: 24-May-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash South
<b>Lab Order:</b>	G2105A59		C98597
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2105A59-002	<b>Collection Date:</b>	5/12/2021
<b>Matrix:</b>		<b>Received Date:</b>	5/17/2021 10:30:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
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### TOTAL METALS

Analyst: MEG

EPA 3050

EPA 6010 D

Aluminum	20900	20.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Antimony	< 10	10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Arsenic	47.0	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Barium	225	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Beryllium	1.70	0.10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Boron	42.0	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Chromium	34.9	5.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Cobalt	8.2	0.5		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Copper	20.6	10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Lead	2.9	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Lithium	33.3	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Manganese	124	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Molybdenum	5.9	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Nickel	18.9	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Vanadium	73.6	0.5		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM
Zinc	24.0	10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:34 AM

### ACID BASE ACCOUNTING

Analyst: RLL

DEP OB Man p67

Total Sulfur	7.85	0.01	%	1	05/19/21 10:50 AM
Max Potential Acidity	245	0.30	see note	1	05/19/21 10:50 AM
Fizz Rating	2			1	05/19/21 10:50 AM
Deficiency or Excess	106		see note	1	05/19/21 10:50 AM
Neutralization Potential (CaCO3 Tons)	351		see note	1	05/19/21 10:50 AM

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

### MERCURY

Analyst: RLL

ASTM D 6722

Mercury	< 0.010	0.010		mg/Kg-dry	1	05/19/21 9:47 AM
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### CARBONATE RESULTS

Analyst: MEG

Calculated

Calcium Carbonate	56.4		%	1	05/21/21 12:00 AM
Calcium Carbonate Equivalent	65.9		%	1	05/21/21 12:00 AM
Magnesium Carbonate	8.0		%	1	05/21/21 12:00 AM

### MAJOR / MINOR ELEMENTS IN ASH

Analyst: MEG

ASTM D 6349

EPA 6010 D



# Laboratory Results

## Geochemical Testing

Date: 24-May-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash South
<b>Lab Order:</b>	G2105A59		C98597
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2105A59-002	<b>Collection Date:</b>	5/12/2021
<b>Matrix:</b>		<b>Received Date:</b>	5/17/2021 10:30:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Oxide	31.61	0.01		% Dry	1	05/21/21 5:20 AM	05/21/21 12:50 PM
Magnesium Oxide	3.79	0.01		% Dry	1	05/21/21 5:20 AM	05/21/21 12:50 PM

### TCLP EXTRACTION

Analyst: JIM

EPA 1311

Extraction Fluid Used	1.0				1		05/19/21 12:54 PM
Final pH	12.5	1.0		S.U.	1		05/19/21 12:54 PM
Initial pH	11.5	1.0		S.U.	1		05/19/21 12:54 PM
pH with HCl	1.9	1.0		S.U.	1		05/19/21 12:54 PM
TCLP, non-volatile	NA				1		05/19/21 12:54 PM

### TCLP METALS

Analyst: LXM

EPA 7470

EPA 7470

Mercury	< 0.0020	0.0020		mg/L	1	05/20/21 11:25 AM	05/20/21 2:38 PM
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### TCLP METALS

Analyst: MEG

EPA 3010 A

EPA 6010 D

Aluminum	0.5	0.1		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Antimony	< 0.10	0.10		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Arsenic	< 0.02	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Barium	0.8	0.3		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Beryllium	< 0.001	0.001		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Boron	0.62	0.05		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Cadmium	< 0.002	0.002		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Chromium	0.01	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Cobalt	< 0.005	0.005		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Copper	< 0.01	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Lead	< 0.02	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Lithium	0.11	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Manganese	< 0.01	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Molybdenum	0.12	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Nickel	< 0.01	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Selenium	< 0.02	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Silver	< 0.005	0.005		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Vanadium	0.013	0.005		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM
Zinc	0.05	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:16 AM



# Laboratory Results

## Geochemical Testing

Date: 24-May-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Fly Ash
<b>Lab Order:</b>	G2105A59		C98598
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2105A59-003	<b>Collection Date:</b>	5/12/2021
<b>Matrix:</b>		<b>Received Date:</b>	5/17/2021 10:30:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
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### TOTAL METALS

Analyst: MEG

EPA 3050

EPA 6010 D

Aluminum	38700	20.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Antimony	< 10	10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Arsenic	34.9	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Barium	494	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Beryllium	3.33	0.10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Boron	39.0	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Chromium	48.7	5.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Cobalt	13.8	0.5		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Copper	39.4	10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Lead	18.8	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Lithium	81.7	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Manganese	129	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Molybdenum	8.2	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Nickel	38.2	1.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Selenium	5.6	2.0		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Vanadium	96.5	0.5		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM
Zinc	46.6	10		mg/Kg-dry	1	05/20/21 11:30 AM	05/21/21 7:35 AM

### ACID BASE ACCOUNTING

Analyst: RLL

DEP OB Man p67

Total Sulfur	3.35	0.01		%	1		05/19/21 10:50 AM
Max Potential Acidity	105	0.30		see note	1		05/19/21 10:50 AM
Fizz Rating	2				1		05/19/21 10:50 AM
Deficiency or Excess	161			see note	1		05/19/21 10:50 AM
Neutralization Potential (CaCO3 Tons)	265			see note	1		05/19/21 10:50 AM

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

### MERCURY

Analyst: RLL

ASTM D 6722

Mercury	0.837	0.010		mg/Kg-dry	1		05/19/21 9:47 AM
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### CARBONATE RESULTS

Analyst: MEG

Calculated

Calcium Carbonate	31.4			%	1		05/21/21 12:00 AM
Calcium Carbonate Equivalent	40.8			%	1		05/21/21 12:00 AM
Magnesium Carbonate	7.8			%	1		05/21/21 12:00 AM

### MAJOR / MINOR ELEMENTS IN ASH

Analyst: MEG

ASTM D 6349

EPA 6010 D



# Laboratory Results

## Geochemical Testing

Date: 24-May-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Fly Ash
<b>Lab Order:</b>	G2105A59		C98598
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2105A59-003	<b>Collection Date:</b>	5/12/2021
<b>Matrix:</b>		<b>Received Date:</b>	5/17/2021 10:30:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Oxide	17.61	0.01		% Dry	1	05/21/21 5:20 AM	05/21/21 12:55 PM
Magnesium Oxide	3.74	0.01		% Dry	1	05/21/21 5:20 AM	05/21/21 12:55 PM

### TCLP EXTRACTION

Analyst: JIM

EPA 1311

Extraction Fluid Used	2.0				1		05/19/21 12:54 PM
Final pH	11.5	1.0		S.U.	1		05/19/21 12:54 PM
Initial pH	12.5	1.0		S.U.	1		05/19/21 12:54 PM
pH with HCl	12.0	1.0		S.U.	1		05/19/21 12:54 PM
TCLP, non-volatile	NA				1		05/19/21 12:54 PM

### TCLP METALS

Analyst: LXM

EPA 7470

EPA 7470

Mercury	< 0.0020	0.0020		mg/L	1	05/20/21 11:25 AM	05/20/21 2:40 PM
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### TCLP METALS

Analyst: MEG

EPA 3010 A

EPA 6010 D

Aluminum	0.6	0.1		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Antimony	< 0.10	0.10		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Arsenic	0.02	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Barium	1.1	0.3		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Beryllium	< 0.001	0.001		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Boron	0.80	0.05		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Cadmium	< 0.002	0.002		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Chromium	0.07	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Cobalt	< 0.005	0.005		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Copper	< 0.01	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Lead	< 0.02	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Lithium	0.21	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Manganese	< 0.01	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Molybdenum	0.15	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Nickel	< 0.01	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Selenium	< 0.02	0.02		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Silver	< 0.005	0.005		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Vanadium	0.047	0.005		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM
Zinc	0.04	0.01		mg/L	1	05/20/21 7:20 AM	05/21/21 7:17 AM

# Laboratory Results

## Geochemical Testing

Date: 28-Sep-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash North
<b>Lab Order:</b>	G2109B41		9-11-21-1
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2109B41-001	<b>Collection Date:</b>	9/11/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	9/20/2021 2:40:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				ASTM D 6316	
Carbon	3.10	0.501		%-dry	1		09/24/21 5:00 AM
CO2	1.25	1.00		%-dry	1		09/24/21 5:00 AM
<b>TOTAL METALS</b>		Analyst: <b>RLR</b>				EPA 3050	EPA 6010 D
Aluminum	14200	20.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Antimony	< 10	10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Arsenic	65.5	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Barium	124	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Beryllium	1.25	0.10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Boron	41.1	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Chromium	30.3	5.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Cobalt	5.8	0.5		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Copper	10.5	10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Lead	< 2.0	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Lithium	20.0	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Manganese	89.0	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Molybdenum	6.4	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Nickel	14.7	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/27/21 1:33 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Vanadium	68.3	0.5		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
Zinc	19.9	10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:27 AM
<b>ACID BASE ACCOUNTING</b>		Analyst: <b>RLR</b>				DEP OB Man p67	
Total Sulfur	5.64	0.01		%	1		09/24/21 8:00 AM
Max Potential Acidity	176	0.30		See Note	1		09/24/21 8:00 AM
Fizz Rating	2				1		09/24/21 8:00 AM
Deficiency or Excess	134			See Note	1		09/24/21 8:00 AM
Neutralization Potential (CaCO3 Tons)	311			See Note	1		09/24/21 8:00 AM
<b>NOTES:</b>							
units are: Tons CaCO3 / 1000 tons dry							
<b>MERCURY</b>		Analyst: <b>RLR</b>				ASTM D 6722	
Mercury	< 0.010	0.010		mg/Kg-dry	1		09/24/21 10:43 AM
<b>CARBONATE RESULTS</b>		Analyst: <b>RLR</b>				Calculated	
Calcium Carbonate	35.5			%	1		09/24/21 12:00 AM



# Laboratory Results

## Geochemical Testing

Date: 28-Sep-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash North
<b>Lab Order:</b>	G2109B41		9-11-21-1
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2109B41-001	<b>Collection Date:</b>	9/11/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	9/20/2021 2:40:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	40.6			%	1		09/24/21 12:00 AM
Magnesium Carbonate	4.3			%	1		09/24/21 12:00 AM

### MAJOR / MINOR ELEMENTS IN ASH

		Analyst: RLR			ASTM D 6349	EPA 6010 D
Calcium Oxide	19.91	0.01		% Dry	1	09/24/21 4:45 AM
Magnesium Oxide	2.03	0.01		% Dry	1	09/24/21 4:45 AM

### TCLP EXTRACTION

		Analyst: MAG			EPA 1311	
Extraction Fluid Used	1.0				1	09/21/21 1:05 PM
Final pH	12.5	1.0		S.U.	1	09/21/21 1:05 PM
Initial pH	12.0	1.0		S.U.	1	09/21/21 1:05 PM
pH with HCl	2.2	1.0		S.U.	1	09/21/21 1:05 PM
TCLP, non-volatile	NA				1	09/21/21 1:05 PM

### TCLP METALS

		Analyst: MEG			EPA 7470	EPA 7470
Mercury	< 0.0020	0.0020		mg/L	1	09/23/21 8:30 AM

### TCLP METALS

		Analyst: RLR			EPA 3010 A	EPA 6010 D
Aluminum	0.4	0.1		mg/L	1	09/22/21 9:20 AM
Antimony	< 0.10	0.10		mg/L	1	09/22/21 9:20 AM
Arsenic	< 0.02	0.02		mg/L	1	09/22/21 9:20 AM
Barium	0.8	0.3		mg/L	1	09/22/21 9:20 AM
Beryllium	< 0.001	0.001		mg/L	1	09/22/21 9:20 AM
Boron	0.61	0.05		mg/L	1	09/22/21 9:20 AM
Cadmium	< 0.002	0.002		mg/L	1	09/22/21 9:20 AM
Chromium	< 0.01	0.01		mg/L	1	09/22/21 9:20 AM
Cobalt	< 0.005	0.005		mg/L	1	09/22/21 9:20 AM
Copper	< 0.01	0.01		mg/L	1	09/22/21 9:20 AM
Lead	< 0.02	0.02		mg/L	1	09/22/21 9:20 AM
Lithium	0.11	0.01		mg/L	1	09/22/21 9:20 AM
Manganese	< 0.01	0.01		mg/L	1	09/22/21 9:20 AM
Molybdenum	0.10	0.02		mg/L	1	09/22/21 9:20 AM
Nickel	< 0.01	0.01		mg/L	1	09/22/21 9:20 AM
Selenium	< 0.02	0.02		mg/L	1	09/22/21 9:20 AM
Silver	< 0.005	0.005		mg/L	1	09/22/21 9:20 AM
Vanadium	0.010	0.005		mg/L	1	09/22/21 9:20 AM
Zinc	0.04	0.01		mg/L	1	09/22/21 9:20 AM

# Laboratory Results

## Geochemical Testing

Date: 28-Sep-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash South
<b>Lab Order:</b>	G2109B41		9-11-21-2
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2109B41-002	<b>Collection Date:</b>	9/11/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	9/20/2021 2:40:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>SOLID FORMS OF CARBON</b>		Analyst: BAB				ASTM D 6316	
Carbon	1.02	0.501		% dry	1		09/24/21 5:00 AM
CO2	1.21	1.00		% dry	1		09/24/21 5:00 AM
<b>TOTAL METALS</b>		Analyst: RLR				EPA 3050	EPA 6010 D
Aluminum	17100	20.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Antimony	< 10	10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Arsenic	67.4	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Barium	199	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Beryllium	1.64	0.10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Boron	45.8	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Chromium	34.9	5.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Cobalt	7.5	0.5		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Copper	17.0	10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Lead	< 2.0	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Lithium	25.2	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Manganese	120	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Molybdenum	6.6	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Nickel	19.1	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/27/21 1:38 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Vanadium	77.2	0.5		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
Zinc	23.0	10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:28 AM
<b>ACID BASE ACCOUNTING</b>		Analyst: RLL				DEP OB Man p67	
Total Sulfur	8.90	0.01		%	1		09/24/21 8:00 AM
Max Potential Acidity	278	0.30		See Note	1		09/24/21 8:00 AM
Fizz Rating	2				1		09/24/21 8:00 AM
Deficiency or Excess	78.9			See Note	1		09/24/21 8:00 AM
Neutralization Potential (CaCO3 Tons)	357			See Note	1		09/24/21 8:00 AM
<b>NOTES:</b>							
units are: Tons CaCO3 / 1000 tons dry							
<b>MERCURY</b>		Analyst: RLL				ASTM D 6722	
Mercury	0.085	0.010		mg/Kg-dry	1		09/24/21 10:43 AM
<b>CARBONATE RESULTS</b>		Analyst: RLR				Calculated	
Calcium Carbonate	49.9			%	1		09/24/21 12:00 AM



# Laboratory Results

## Geochemical Testing

Date: 28-Sep-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash South
<b>Lab Order:</b>	G2109B41		9-11-21-2
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2109B41-002	<b>Collection Date:</b>	9/11/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	9/20/2021 2:40:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	59.0			%	1		09/24/21 12:00 AM
Magnesium Carbonate	7.6			%	1		09/24/21 12:00 AM

### MAJOR / MINOR ELEMENTS IN ASH

		Analyst: RLR				ASTM D 6349	EPA 6010 D
Calcium Oxide	27.97	0.01		% Dry	1	09/24/21 4:45 AM	09/24/21 10:15 AM
Magnesium Oxide	3.64	0.01		% Dry	1	09/24/21 4:45 AM	09/24/21 10:15 AM

### TCLP EXTRACTION

		Analyst: MAG					EPA 1311
Extraction Fluid Used	2.0				1		09/21/21 1:05 PM
Final pH	12.4	1.0		S.U.	1		09/21/21 1:05 PM
Initial pH	12.4	1.0		S.U.	1		09/21/21 1:05 PM
pH with HCl	11.6	1.0		S.U.	1		09/21/21 1:05 PM
TCLP, non-volatile	NA				1		09/21/21 1:05 PM

### TCLP METALS

		Analyst: MEG				EPA 7470	EPA 7470
Mercury	< 0.0020	0.0020		mg/L	1	09/23/21 8:30 AM	09/23/21 11:11 AM

### TCLP METALS

		Analyst: RLR				EPA 3010 A	EPA 6010 D
Aluminum	0.4	0.1		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Antimony	< 0.10	0.10		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Arsenic	< 0.02	0.02		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Barium	0.8	0.3		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Beryllium	< 0.001	0.001		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Boron	0.57	0.05		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Cadmium	< 0.002	0.002		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Chromium	< 0.01	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Cobalt	< 0.005	0.005		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Copper	< 0.01	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Lead	< 0.02	0.02		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Lithium	0.07	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Manganese	< 0.01	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Molybdenum	0.12	0.02		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Nickel	< 0.01	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Selenium	< 0.02	0.02		mg/L	1	09/22/21 9:20 AM	09/24/21 2:52 PM
Silver	< 0.005	0.005		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Vanadium	0.011	0.005		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM
Zinc	0.04	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:09 AM



# Laboratory Results

## Geochemical Testing

Date: 28-Sep-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Fly Ash
<b>Lab Order:</b>	G2109B41		9-11-21-3
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2109B41-003	<b>Collection Date:</b>	9/11/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	9/20/2021 2:40:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>SOLID FORMS OF CARBON</b>		Analyst: BAB				ASTM D 6316	
Carbon	12.5	0.501		% dry	1		09/24/21 5:00 AM
CO2	1.86	1.00		% dry	1		09/24/21 5:00 AM
<b>TOTAL METALS</b>		Analyst: RLR				EPA 3050	EPA 6010 D
Aluminum	28200	20.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Antimony	< 10	10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Arsenic	33.4	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Barium	413	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Beryllium	2.45	0.10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Boron	31.0	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Chromium	31.8	5.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Cobalt	10.2	0.5		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Copper	29.9	10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Lead	13.0	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Lithium	60.2	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Manganese	73.2	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Molybdenum	6.0	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Nickel	26.4	1.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Selenium	3.8	2.0		mg/Kg-dry	1	09/23/21 7:30 AM	09/27/21 1:43 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Vanadium	78.2	0.5		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
Zinc	39.6	10		mg/Kg-dry	1	09/23/21 7:30 AM	09/23/21 11:33 AM
<b>ACID BASE ACCOUNTING</b>		Analyst: RLL				DEP OB Man p67	
Total Sulfur	3.19	0.01		%	1		09/24/21 8:00 AM
Max Potential Acidity	99.7	0.30		See Note	1		09/24/21 8:00 AM
Fizz Rating	2				1		09/24/21 8:00 AM
Deficiency or Excess	160			See Note	1		09/24/21 8:00 AM
Neutralization Potential (CaCO3 Tons)	260			See Note	1		09/24/21 8:00 AM
<b>NOTES:</b>							
units are: Tons CaCO3 / 1000 tons dry							
<b>MERCURY</b>		Analyst: RLL				ASTM D 6722	
Mercury	0.780	0.010		mg/Kg-dry	1		09/24/21 10:43 AM
<b>CARBONATE RESULTS</b>		Analyst: RLR				Calculated	
Calcium Carbonate	39.7			%	1		09/24/21 12:00 AM



# Laboratory Results

## Geochemical Testing

Date: 28-Sep-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Fly Ash
<b>Lab Order:</b>	G2109B41		9-11-21-3
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2109B41-003	<b>Collection Date:</b>	9/11/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	9/20/2021 2:40:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	45.7			%	1		09/24/21 12:00 AM
Magnesium Carbonate	5.1			%	1		09/24/21 12:00 AM

### MAJOR / MINOR ELEMENTS IN ASH

Analyst: RLR

ASTM D 6349

EPA 6010 D

Calcium Oxide	22.22	0.01		% Dry	1	09/24/21 4:45 AM	09/24/21 10:19 AM
Magnesium Oxide	2.41	0.01		% Dry	1	09/24/21 4:45 AM	09/24/21 10:19 AM

### TCLP EXTRACTION

Analyst: MAG

EPA 1311

Extraction Fluid Used	2.0				1		09/21/21 1:05 PM
Final pH	12.4	1.0		S.U.	1		09/21/21 1:05 PM
Initial pH	12.6	1.0		S.U.	1		09/21/21 1:05 PM
pH with HCl	12.2	1.0		S.U.	1		09/21/21 1:05 PM
TCLP, non-volatile	NA				1		09/21/21 1:05 PM

### TCLP METALS

Analyst: MEG

EPA 7470

EPA 7470

Mercury	< 0.0020	0.0020		mg/L	1	09/23/21 8:30 AM	09/23/21 11:13 AM
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### TCLP METALS

Analyst: RLR

EPA 3010 A

EPA 6010 D

Aluminum	0.6	0.1		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Antimony	< 0.10	0.10		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Arsenic	< 0.02	0.02		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Barium	0.7	0.3		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Beryllium	< 0.001	0.001		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Boron	0.73	0.05		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Cadmium	< 0.002	0.002		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Chromium	0.10	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Cobalt	< 0.005	0.005		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Copper	< 0.01	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Lead	< 0.02	0.02		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Lithium	0.13	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Manganese	< 0.01	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Molybdenum	0.15	0.02		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Nickel	< 0.01	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Selenium	< 0.02	0.02		mg/L	1	09/22/21 9:20 AM	09/24/21 2:57 PM
Silver	< 0.005	0.005		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Vanadium	0.009	0.005		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM
Zinc	0.05	0.01		mg/L	1	09/22/21 9:20 AM	09/23/21 10:11 AM



# Laboratory Results

## Geochemical Testing

Date: 15-Dec-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash North
<b>Lab Order:</b>	G2112423		12-3-21-1
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2112423-001	<b>Collection Date:</b>	12/3/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	12/7/2021 4:18:31 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>TOTAL METALS</b>		Analyst: LEB				EPA 3050B	EPA 6010 D
Aluminum	15900	20.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Antimony	< 10	10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Arsenic	50.8	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Barium	135	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Beryllium	1.48	0.10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Boron	46.6	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Chromium	31.3	5.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Cobalt	6.2	0.5		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Copper	13.1	10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Lead	< 2.0	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Lithium	20.9	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Manganese	111	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Molybdenum	5.8	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Nickel	14.8	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Vanadium	68.4	0.5		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM
Zinc	20.1	10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:03 AM

<b>ACID BASE ACCOUNTING</b>		Analyst: BAB				DEP OB Man p67
Total Sulfur	4.00	0.01		%	1	12/13/21 9:00 AM
Max Potential Acidity	125	0.30		see note	1	12/13/21 9:00 AM
Fizz Rating	2				1	12/13/21 9:00 AM
Deficiency or Excess	139			see note	1	12/13/21 9:00 AM
Neutralization Potential (CaCO3 Tons)	264			see note	1	12/13/21 9:00 AM

NOTES:  
units are: Tons CaCO3 / 1000 tons dry

<b>MERCURY</b>		Analyst: RLL				ASTM D 6722
Mercury	< 0.010	0.010		mg/Kg-dry	1	12/13/21 10:03 AM

<b>CARBONATE RESULTS</b>		Analyst: LEB				Calculated
Calcium Carbonate	36.2			%	1	12/14/21 12:00 AM
Calcium Carbonate Equivalent	40.4			%	1	12/14/21 12:00 AM
Magnesium Carbonate	3.5			%	1	12/14/21 12:00 AM

<b>MAJOR / MINOR ELEMENTS IN ASH</b>		Analyst: LEB			ASTM D6349-08	EPA 6010 D
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# Laboratory Results

## Geochemical Testing

Date: 15-Dec-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash North
<b>Lab Order:</b>	G2112423		12-3-21-1
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2112423-001	<b>Collection Date:</b>	12/3/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	12/7/2021 4:18:31 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Oxide	20.28	0.01		% Dry	1	12/11/21 5:00 AM	12/14/21 8:55 AM
Magnesium Oxide	1.69	0.01		% Dry	1	12/11/21 5:00 AM	12/14/21 8:55 AM
<b>TCLP EXTRACTION</b>		<b>Analyst: JIM</b>					<b>EPA 1311</b>
Extraction Fluid Used	1.0				1		12/08/21 12:57 PM
Final pH	12.5	1.0		S.U.	1		12/08/21 12:57 PM
Initial pH	11.7	1.0		S.U.	1		12/08/21 12:57 PM
pH with HCl	2.0	1.0		S.U.	1		12/08/21 12:57 PM
TCLP, non-volatile	NA				1		12/08/21 12:57 PM
<b>TCLP METALS</b>		<b>Analyst: LXM</b>					<b>EPA 7470A</b>
Mercury	< 0.0020	0.0020		mg/L	1	12/09/21 9:45 AM	12/09/21 2:04 PM
<b>TCLP METALS</b>		<b>Analyst: LEB</b>					<b>EPA 3010 A</b>
Aluminum	0.9	0.1		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Antimony	< 0.10	0.10		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Arsenic	0.02	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Barium	0.7	0.3		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Beryllium	< 0.001	0.001		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Boron	1.1	0.05		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Cadmium	< 0.002	0.002		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Chromium	< 0.01	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Cobalt	< 0.005	0.005		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Copper	< 0.01	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Lead	< 0.02	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Lithium	0.09	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Manganese	< 0.01	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Molybdenum	0.08	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Nickel	< 0.01	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Selenium	< 0.02	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Silver	< 0.005	0.005		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Vanadium	0.010	0.005		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM
Zinc	0.08	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:27 AM



# Laboratory Results

## Geochemical Testing

Date: 15-Dec-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash South
<b>Lab Order:</b>	G2112423		12-3-21-2
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2112423-002	<b>Collection Date:</b>	12/3/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	12/7/2021 4:18:31 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>TOTAL METALS</b>		Analyst: LEB		EPA 3050B		EPA 6010 D	
Aluminum	16200	20.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Antimony	< 10	10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Arsenic	82.1	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Barium	178	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Beryllium	1.16	0.10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Boron	58.3	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Chromium	35.4	5.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Cobalt	6.6	0.5		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Copper	13.0	10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Lead	< 2.0	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Lithium	22.3	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Manganese	122	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Molybdenum	7.1	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Nickel	16.1	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Vanadium	73.6	0.5		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM
Zinc	20.4	10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:05 AM

<b>ACID BASE ACCOUNTING</b>		Analyst: BAB		DEP OB Man p67	
Total Sulfur	6.93	0.01	%	1	12/13/21 9:00 AM
Max Potential Acidity	217	0.30	see note	1	12/13/21 9:00 AM
Fizz Rating	2			1	12/13/21 9:00 AM
Deficiency or Excess	151		see note	1	12/13/21 9:00 AM
Neutralization Potential (CaCO3 Tons)	368		see note	1	12/13/21 9:00 AM

**NOTES:**  
units are: Tons CaCO3 / 1000 tons dry

<b>MERCURY</b>		Analyst: RLL		ASTM D 6722	
Mercury	0.016	0.010	mg/Kg-dry	1	12/13/21 10:03 AM

<b>CARBONATE RESULTS</b>		Analyst: LEB		Calculated	
Calcium Carbonate	57.2		%	1	12/14/21 12:00 AM
Calcium Carbonate Equivalent	64.2		%	1	12/14/21 12:00 AM
Magnesium Carbonate	5.9		%	1	12/14/21 12:00 AM

<b>MAJOR / MINOR ELEMENTS IN ASH</b>		Analyst: LEB		ASTM D6349-08 EPA 6010 D	
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# Laboratory Results

## Geochemical Testing

Date: 15-Dec-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash South
<b>Lab Order:</b>	G2112423		12-3-21-2
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2112423-002	<b>Collection Date:</b>	12/3/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	12/7/2021 4:18:31 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Oxide	32.03	0.01		% Dry	1	12/11/21 5:00 AM	12/14/21 8:57 AM
Magnesium Oxide	2.83	0.01		% Dry	1	12/11/21 5:00 AM	12/14/21 8:57 AM

### TCLP EXTRACTION

Analyst: JIM

EPA 1311

Extraction Fluid Used	1.0				1	12/08/21 12:57 PM	
Final pH	12.5	1.0		S.U.	1	12/08/21 12:57 PM	
Initial pH	11.8	1.0		S.U.	1	12/08/21 12:57 PM	
pH with HCl	2.5	1.0		S.U.	1	12/08/21 12:57 PM	
TCLP, non-volatile	NA				1	12/08/21 12:57 PM	

### TCLP METALS

Analyst: LXM

EPA 7470A

EPA 7470A

Mercury	< 0.0020	0.0020		mg/L	1	12/09/21 9:45 AM	12/09/21 2:05 PM
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### TCLP METALS

Analyst: LEB

EPA 3010 A

EPA 6010 D

Aluminum	0.7	0.1		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Antimony	< 0.10	0.10		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Arsenic	0.03	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Barium	0.8	0.3		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Beryllium	< 0.001	0.001		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Boron	0.90	0.05		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Cadmium	< 0.002	0.002		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Chromium	0.01	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Cobalt	< 0.005	0.005		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Copper	< 0.01	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Lead	< 0.02	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Lithium	0.08	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Manganese	< 0.01	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Molybdenum	0.10	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Nickel	< 0.01	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Selenium	0.03	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Silver	< 0.005	0.005		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Vanadium	0.011	0.005		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM
Zinc	0.07	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:29 AM

# Laboratory Results

## Geochemical Testing

Date: 15-Dec-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Fly Ash
<b>Lab Order:</b>	G2112423		12-3-21-3
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2112423-003	<b>Collection Date:</b>	12/3/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	12/7/2021 4:18:31 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>TOTAL METALS</b>		Analyst: LEB				EPA 3050B	EPA 6010 D
Aluminum	34300	20.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Antimony	< 10	10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Arsenic	31.1	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Barium	506	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Beryllium	2.68	0.10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Boron	38.1	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Chromium	37.2	5.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Cobalt	11.4	0.5		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Copper	29.5	10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Lead	15.0	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Lithium	68.0	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Manganese	132	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Molybdenum	5.8	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Nickel	24.7	1.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Selenium	6.5	2.0		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Vanadium	87.1	0.5		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM
Zinc	40.8	10		mg/Kg-dry	1	12/10/21 6:00 AM	12/10/21 11:07 AM

<b>ACID BASE ACCOUNTING</b>		Analyst: BAB				DEP OB Man p67
Total Sulfur	3.12	0.01		%	1	12/13/21 9:00 AM
Max Potential Acidity	97.5	0.30		see note	1	12/13/21 9:00 AM
Fizz Rating	2				1	12/13/21 9:00 AM
Deficiency or Excess	157			see note	1	12/13/21 9:00 AM
Neutralization Potential (CaCO3 Tons)	254			see note	1	12/13/21 9:00 AM

**NOTES:**  
units are: Tons CaCO3 / 1000 tons dry

<b>MERCURY</b>		Analyst: RLL				ASTM D 6722
Mercury	0.717	0.010		mg/Kg-dry	1	12/13/21 10:03 AM

<b>CARBONATE RESULTS</b>		Analyst: LEB				Calculated
Calcium Carbonate	39.3			%	1	12/14/21 12:00 AM
Calcium Carbonate Equivalent	43.7			%	1	12/14/21 12:00 AM
Magnesium Carbonate	3.7			%	1	12/14/21 12:00 AM

<b>MAJOR / MINOR ELEMENTS IN ASH</b>		Analyst: LEB			ASTM D6349-08	EPA 6010 D
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# Laboratory Results

## Geochemical Testing

Date: 15-Dec-21

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Fly Ash
<b>Lab Order:</b>	G2112423		12-3-21-3
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2112423-003	<b>Collection Date:</b>	12/3/2021
<b>Matrix:</b>	ASH	<b>Received Date:</b>	12/7/2021 4:18:31 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Oxide	22.02	0.01		% Dry	1	12/11/21 5:00 AM	12/14/21 8:59 AM
Magnesium Oxide	1.76	0.01		% Dry	1	12/11/21 5:00 AM	12/14/21 8:59 AM

### TCLP EXTRACTION

Analyst: JIM

EPA 1311

Extraction Fluid Used	2.0				1		12/08/21 12:57 PM
Final pH	12.2	1.0		S.U.	1		12/08/21 12:57 PM
Initial pH	12.6	1.0		S.U.	1		12/08/21 12:57 PM
pH with HCl	12.0	1.0		S.U.	1		12/08/21 12:57 PM
TCLP, non-volatile	NA				1		12/08/21 12:57 PM

### TCLP METALS

Analyst: LXM

EPA 7470A

EPA 7470A

Mercury	< 0.0020	0.0020		mg/L	1	12/09/21 9:45 AM	12/09/21 2:08 PM
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### TCLP METALS

Analyst: LEB

EPA 3010 A

EPA 6010 D

Aluminum	0.9	0.1		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Antimony	< 0.10	0.10		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Arsenic	< 0.02	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Barium	1.1	0.3		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Beryllium	< 0.001	0.001		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Boron	1.1	0.05		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Cadmium	< 0.002	0.002		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Chromium	0.07	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Cobalt	< 0.005	0.005		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Copper	< 0.01	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Lead	< 0.02	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Lithium	0.13	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Manganese	< 0.01	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Molybdenum	0.14	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Nickel	< 0.01	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Selenium	0.04	0.02		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Silver	< 0.005	0.005		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Vanadium	0.013	0.005		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM
Zinc	0.09	0.01		mg/L	1	12/09/21 8:00 AM	12/10/21 9:34 AM