



February 15, 2024

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

# MARYLAND DEPARTMENT OF THE ENVIRONMENT

Land and Materials Administration • Solid Waste Program

1800 Washington Boulevard • Suite 605 • Baltimore Maryland 21230-1719

410-537-3315 • 800-633-6101 x3315 • [www.mde.maryland.gov](http://www.mde.maryland.gov)

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## **Coal Combustion Byproducts (CCBs) Annual Generator Tonnage Report Instructions for Calendar Year 2023**

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 2023. 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

Facility Name: AES Warrior Run **CCB Tonnage Report – 2023**

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, 2024:

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.: 301-777-0055x-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.

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C. The volume and weight of CCBs generated during calendar year 2023, 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 2023:** Please note that this table includes both the volume and weight of the types of CCBs your facility produces.

<b><u>Volume and Weight of CCBs Generated for Calendar Year 2023</u></b>			
<u>Fly Ash</u> Type of CCB	<u>Bed Ash</u> Type of CCB	<u>Slag Ash</u> Type of CCB	<u>Type of CCB</u>
203,761.64	83,060.51	9,551.20	
Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards
115,160.70	53,789.71	5,720.08	
Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons

Additional notes:

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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.

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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 2023, 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:

2023	Fly Ash Tons	Fly Ash CuYds	Bed Ash Tons	Bed Ash CuYds	Slag Ash Tons	Slag Ash CuYds	Use
Cabin Run Mine	42,984.49	76,055.37	15,645.26	24,158.96	800.81	1,337.17	Mine Reclamation
Carlos Coal Mine	27,246.98	48,209.93	15,279.21	23,593.71	2,223.26	3,712.32	Mine Reclamation
Hampshire Hill Coal Mine	18,253.94	32,297.93	9,827.28	15,175.00	1,616.20	2,698.68	Mine Reclamation
419 Coal Mine	26,675.29	47,198.40	13,037.96	20,132.84	1,079.81	1,803.03	Mine Reclamation
<b>Total</b>	<b>115,160.70</b>	<b>203,761.64</b>	<b>53,789.71</b>	<b>83,060.51</b>	<b>5,720.08</b>	<b>9,551.20</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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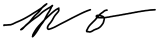
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If the space provided is insufficient, please attach additional pages in a similar format.

**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  	<u>Matt Ottaviani, Plant Manager, 301-777-0055</u>  Name, Title, & Telephone No. (Print or Type)  <u>matt.ottaviani@aes.com</u> Your Email Address	Date  2/15/2024

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

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

## Geochemical Testing

Date: 27-Feb-23

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash-North
<b>Lab Order:</b>	G2302973		02-17-23-1
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2302973-001	<b>Collection Date:</b>	2/17/2023
<b>Matrix:</b>	ASH	<b>Received Date:</b>	2/20/2023 10:23:02 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				<b>ASTM D6316-04</b>		
Carbon	2.69	0.500		%-dry	1		02/23/23 4:00 AM	
CO2	< 1.00	1.00		%-dry	1		02/23/23 4:00 AM	

<b>TOTAL METALS</b>		Analyst: <b>LEB</b>			<b>EPA 3050B</b>	<b>EPA 6010 D</b>
Aluminum	31800	20.0		mg/Kg-dry	1	02/22/23 6:30 AM
Antimony	< 10	10		mg/Kg-dry	1	02/22/23 6:30 AM
Arsenic	31.8	2.0		mg/Kg-dry	1	02/22/23 6:30 AM
Barium	238	1.0		mg/Kg-dry	1	02/22/23 6:30 AM
Beryllium	1.95	0.10		mg/Kg-dry	1	02/22/23 6:30 AM
Boron	36.9	2.0		mg/Kg-dry	1	02/22/23 6:30 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	02/22/23 6:30 AM
Chromium	32.9	5.0		mg/Kg-dry	1	02/22/23 6:30 AM
Cobalt	7.8	0.5		mg/Kg-dry	1	02/22/23 6:30 AM
Copper	25.3	10		mg/Kg-dry	1	02/22/23 6:30 AM
Lead	10.4	2.0		mg/Kg-dry	1	02/22/23 6:30 AM
Lithium	72.3	1.0		mg/Kg-dry	1	02/22/23 6:30 AM
Manganese	114	1.0		mg/Kg-dry	1	02/22/23 6:30 AM
Molybdenum	3.2	2.0		mg/Kg-dry	1	02/22/23 6:30 AM
Nickel	20.9	1.0		mg/Kg-dry	1	02/22/23 6:30 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	02/22/23 6:30 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	02/22/23 6:30 AM
Vanadium	62.1	0.5		mg/Kg-dry	1	02/22/23 6:30 AM
Zinc	33.0	10		mg/Kg-dry	1	02/22/23 6:30 AM

<b>ACID BASE ACCOUNTING</b>		Analyst: <b>RLL</b>			<b>DEP OB Man p67</b>		
Total Sulfur	3.77	0.01		%	1	02/22/23 10:20 AM	
Max Potential Acidity	118	0.30		see note	1	02/22/23 10:20 AM	
Fizz Rating	2				1	02/22/23 10:20 AM	
Deficiency or Excess	88.5			see note	1	02/22/23 10:20 AM	
Neutralization Potential (CaCO3 Tons)	206			see note	1	02/22/23 10:20 AM	

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

<b>MERCURY</b>		Analyst: <b>RLL</b>			<b>ASTM D 6722</b>		
Mercury	< 0.010	0.010		mg/Kg-dry	1	02/23/23 9:14 AM	

<b>CARBONATE RESULTS</b>		Analyst: <b>LEB</b>			<b>Calculated</b>		
Calcium Carbonate	29.9			%	1	02/23/23 12:00 AM	



# Laboratory Results

## Geochemical Testing

Date: 27-Feb-23

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash-North
<b>Lab Order:</b>	G2302973		02-17-23-1
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2302973-001	<b>Collection Date:</b>	2/17/2023
<b>Matrix:</b>	ASH	<b>Received Date:</b>	2/20/2023 10:23:02 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	33.3			%	1		02/23/23 12:00 AM
Magnesium Carbonate	2.9			%	1		02/23/23 12:00 AM

### MAJOR / MINOR ELEMENTS IN ASH

Analyst: **LEB**

**ASTM D6349-08**

**EPA 6010 D**

Calcium Oxide	16.73	0.01		% Dry	1	02/23/23 5:00 AM	02/23/23 4:45 PM
Magnesium Oxide	1.36	0.01		% Dry	1	02/23/23 5:00 AM	02/23/23 4:45 PM

### TCLP EXTRACTION

Analyst: **MAG**

**EPA 1311**

Extraction Fluid Used	1.0				1		02/20/23 2:10 PM
Final pH	12.5	1.0		S.U.	1		02/20/23 2:10 PM
Initial pH	12.2	1.0		S.U.	1		02/20/23 2:10 PM
pH with HCl	2.6	1.0		S.U.	1		02/20/23 2:10 PM
TCLP, non-volatile	NA				1		02/20/23 2:10 PM

### TCLP METALS

Analyst: **LXM**

**EPA 7470A**

**EPA 7470A**

Mercury	< 0.0020	0.0020		mg/L	1	02/21/23 8:00 AM	02/22/23 11:59 AM
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### TCLP METALS

Analyst: **LEB**

**EPA 3010 A**

**EPA 6010 D**

Aluminum	0.5	0.1		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Antimony	< 0.10	0.10		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Arsenic	0.02	0.02		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Barium	0.5	0.3		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Beryllium	< 0.001	0.001		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Boron	0.77	0.05		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Cadmium	< 0.002	0.002		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Chromium	0.01	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Cobalt	< 0.005	0.005		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Copper	< 0.01	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Lead	< 0.02	0.02		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Lithium	0.27	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Manganese	< 0.01	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Molybdenum	0.05	0.02		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Nickel	< 0.01	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Selenium	< 0.02	0.02		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Silver	< 0.005	0.005		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM
Vanadium	0.011	0.005		mg/L	1	02/21/23 9:00 AM	02/22/23 8:57 AM
Zinc	0.04	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:28 PM



# Laboratory Results

## Geochemical Testing

Date: 27-Feb-23

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash South
<b>Lab Order:</b>	G2302973		02-17-23-2
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2302973-002	<b>Collection Date:</b>	2/17/2023
<b>Matrix:</b>	ASH	<b>Received Date:</b>	2/20/2023 10:23:02 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				<b>ASTM D6316-04</b>		
Carbon	1.59	0.500		%-dry	1		02/23/23 4:00 AM	
CO2	< 1.00	1.00		%-dry	1		02/23/23 4:00 AM	

<b>TOTAL METALS</b>		Analyst: <b>LEB</b>			<b>EPA 3050B</b>	<b>EPA 6010 D</b>
Aluminum	26300	20.0		mg/Kg-dry	1	02/22/23 6:30 AM
Antimony	< 10	10		mg/Kg-dry	1	02/22/23 6:30 AM
Arsenic	46.0	2.0		mg/Kg-dry	1	02/22/23 6:30 AM
Barium	218	1.0		mg/Kg-dry	1	02/22/23 6:30 AM
Beryllium	2.05	0.10		mg/Kg-dry	1	02/22/23 6:30 AM
Boron	37.0	2.0		mg/Kg-dry	1	02/22/23 6:30 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	02/22/23 6:30 AM
Chromium	31.9	5.0		mg/Kg-dry	1	02/22/23 6:30 AM
Cobalt	7.4	0.5		mg/Kg-dry	1	02/22/23 6:30 AM
Copper	21.6	10		mg/Kg-dry	1	02/22/23 6:30 AM
Lead	7.3	2.0		mg/Kg-dry	1	02/22/23 6:30 AM
Lithium	50.6	1.0		mg/Kg-dry	1	02/22/23 6:30 AM
Manganese	102	1.0		mg/Kg-dry	1	02/22/23 6:30 AM
Molybdenum	4.0	2.0		mg/Kg-dry	1	02/22/23 6:30 AM
Nickel	18.8	1.0		mg/Kg-dry	1	02/22/23 6:30 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	02/22/23 6:30 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	02/22/23 6:30 AM
Vanadium	68.2	0.5		mg/Kg-dry	1	02/22/23 6:30 AM
Zinc	28.8	10		mg/Kg-dry	1	02/22/23 6:30 AM

<b>ACID BASE ACCOUNTING</b>		Analyst: <b>RLL</b>			<b>DEP OB Man p67</b>		
Total Sulfur	5.72	0.01		%	1		02/22/23 10:20 AM
Max Potential Acidity	179	0.30		see note	1		02/22/23 10:20 AM
Fizz Rating	2				1		02/22/23 10:20 AM
Deficiency or Excess	95.4			see note	1		02/22/23 10:20 AM
Neutralization Potential (CaCO3 Tons)	274			see note	1		02/22/23 10:20 AM

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

<b>MERCURY</b>		Analyst: <b>RLL</b>			<b>ASTM D 6722</b>		
Mercury	< 0.010	0.010		mg/Kg-dry	1		02/23/23 9:14 AM

<b>CARBONATE RESULTS</b>		Analyst: <b>LEB</b>			<b>Calculated</b>		
Calcium Carbonate	42.5			%	1		02/23/23 12:00 AM



# Laboratory Results

## Geochemical Testing

Date: 27-Feb-23

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash South
<b>Lab Order:</b>	G2302973		02-17-23-2
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2302973-002	<b>Collection Date:</b>	2/17/2023
<b>Matrix:</b>	ASH	<b>Received Date:</b>	2/20/2023 10:23:02 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	46.4			%	1		02/23/23 12:00 AM
Magnesium Carbonate	3.3			%	1		02/23/23 12:00 AM

**MAJOR / MINOR ELEMENTS IN ASH**

Analyst: **LEB**

**ASTM D6349-08**

**EPA 6010 D**

Calcium Oxide	23.80	0.01		% Dry	1	02/23/23 5:00 AM	02/23/23 4:47 PM
Magnesium Oxide	1.57	0.01		% Dry	1	02/23/23 5:00 AM	02/23/23 4:47 PM

**TCLP EXTRACTION**

Analyst: **MAG**

**EPA 1311**

Extraction Fluid Used	1.0				1		02/20/23 2:10 PM
Final pH	12.5	1.0		S.U.	1		02/20/23 2:10 PM
Initial pH	12.0	1.0		S.U.	1		02/20/23 2:10 PM
pH with HCl	2.0	1.0		S.U.	1		02/20/23 2:10 PM
TCLP, non-volatile	NA				1		02/20/23 2:10 PM

**TCLP METALS**

Analyst: **LXM**

**EPA 7470A**

**EPA 7470A**

Mercury	< 0.0020	0.0020		mg/L	1	02/21/23 8:00 AM	02/22/23 12:00 PM
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**TCLP METALS**

Analyst: **LEB**

**EPA 3010 A**

**EPA 6010 D**

Aluminum	0.3	0.1		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Antimony	< 0.10	0.10		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Arsenic	0.02	0.02		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Barium	0.6	0.3		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Beryllium	< 0.001	0.001		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Boron	0.43	0.05		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Cadmium	< 0.002	0.002		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Chromium	0.05	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Cobalt	< 0.005	0.005		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Copper	< 0.01	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Lead	< 0.02	0.02		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Lithium	0.18	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Manganese	< 0.01	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Molybdenum	0.08	0.02		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Nickel	< 0.01	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Selenium	< 0.02	0.02		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Silver	< 0.005	0.005		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM
Vanadium	0.018	0.005		mg/L	1	02/21/23 9:00 AM	02/22/23 9:00 AM
Zinc	0.02	0.01		mg/L	1	02/21/23 9:00 AM	02/21/23 4:30 PM



# Laboratory Results

## Geochemical Testing

Date: 27-Feb-23

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Fly Ash
<b>Lab Order:</b>	G2302973		02-17-23-3
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2302973-003	<b>Collection Date:</b>	2/17/2023
<b>Matrix:</b>	ASH	<b>Received Date:</b>	2/20/2023 10:23:02 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				<b>ASTM D6316-04</b>		
Carbon	8.14	0.501		%-dry	1		02/23/23 4:00 AM	
CO2	1.36	1.00		%-dry	1		02/23/23 4:00 AM	

<b>TOTAL METALS</b>		Analyst: <b>LEB</b>				<b>EPA 3050B</b>	<b>EPA 6010 D</b>
Aluminum	38900	20.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Antimony	< 10	10		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Arsenic	41.2	2.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Barium	440	1.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Beryllium	2.89	0.10		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Boron	30.2	2.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Chromium	42.1	5.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Cobalt	13.1	0.5		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Copper	43.8	10		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Lead	20.7	2.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Lithium	75.0	1.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Manganese	110	1.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Molybdenum	7.1	2.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Nickel	32.8	1.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Selenium	6.3	2.0		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Vanadium	80.3	0.5		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM
Zinc	61.0	10		mg/Kg-dry	1	02/22/23 6:30 AM	02/22/23 9:41 AM

<b>ACID BASE ACCOUNTING</b>		Analyst: <b>RLL</b>				<b>DEP OB Man p67</b>	
Total Sulfur	3.17	0.01		%	1		02/22/23 10:20 AM
Max Potential Acidity	99.1	0.30		see note	1		02/22/23 10:20 AM
Fizz Rating	2				1		02/22/23 10:20 AM
Deficiency or Excess	77.1			see note	1		02/22/23 10:20 AM
Neutralization Potential (CaCO3 Tons)	176			see note	1		02/22/23 10:20 AM

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

<b>MERCURY</b>		Analyst: <b>RLL</b>				<b>ASTM D 6722</b>	
Mercury	0.750	0.010		mg/Kg-dry	1		02/23/23 9:14 AM

<b>CARBONATE RESULTS</b>		Analyst: <b>LEB</b>				<b>Calculated</b>	
Calcium Carbonate	27.8			%	1		02/23/23 12:00 AM



# Laboratory Results

## Geochemical Testing

Date: 27-Feb-23

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Fly Ash
<b>Lab Order:</b>	G2302973		02-17-23-3
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2302973-003	<b>Collection Date:</b>	2/17/2023
<b>Matrix:</b>	ASH	<b>Received Date:</b>	2/20/2023 10:23:02 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	30.9			%	1		02/23/23 12:00 AM
Magnesium Carbonate	2.6			%	1		02/23/23 12:00 AM

<b>MAJOR / MINOR ELEMENTS IN ASH</b>		Analyst: <b>LEB</b>		<b>ASTM D6349-08</b>	<b>EPA 6010 D</b>
Calcium Oxide	15.58	0.01	% Dry	1	02/23/23 5:00 AM
Magnesium Oxide	1.22	0.01	% Dry	1	02/23/23 5:00 AM

<b>TCLP EXTRACTION</b>		Analyst: <b>MAG</b>		<b>EPA 1311</b>
Extraction Fluid Used	2.0			1
Final pH	7.1	1.0	S.U.	1
Initial pH	12.5	1.0	S.U.	1
pH with HCl	12.1	1.0	S.U.	1
TCLP, non-volatile	NA			1

<b>TCLP METALS</b>		Analyst: <b>LXM</b>		<b>EPA 7470A</b>	<b>EPA 7470A</b>
Mercury	< 0.0020	0.0020	mg/L	1	02/21/23 8:00 AM

<b>TCLP METALS</b>		Analyst: <b>LEB</b>		<b>EPA 3010 A</b>	<b>EPA 6010 D</b>
Aluminum	0.9	0.1	mg/L	1	02/21/23 9:00 AM
Antimony	< 0.10	0.10	mg/L	1	02/21/23 9:00 AM
Arsenic	0.05	0.02	mg/L	1	02/21/23 9:00 AM
Barium	0.5	0.3	mg/L	1	02/21/23 9:00 AM
Beryllium	< 0.001	0.001	mg/L	1	02/21/23 9:00 AM
Boron	1.2	0.05	mg/L	1	02/21/23 9:00 AM
Cadmium	< 0.002	0.002	mg/L	1	02/21/23 9:00 AM
Chromium	0.05	0.01	mg/L	1	02/21/23 9:00 AM
Cobalt	< 0.005	0.005	mg/L	1	02/21/23 9:00 AM
Copper	< 0.01	0.01	mg/L	1	02/21/23 9:00 AM
Lead	< 0.02	0.02	mg/L	1	02/21/23 9:00 AM
Lithium	0.37	0.01	mg/L	1	02/21/23 9:00 AM
Manganese	< 0.01	0.01	mg/L	1	02/21/23 9:00 AM
Molybdenum	0.16	0.02	mg/L	1	02/21/23 9:00 AM
Nickel	< 0.01	0.01	mg/L	1	02/21/23 9:00 AM
Selenium	0.05	0.02	mg/L	1	02/21/23 9:00 AM
Silver	< 0.005	0.005	mg/L	1	02/21/23 9:00 AM
Vanadium	0.48	0.005	mg/L	1	02/21/23 9:00 AM
Zinc	0.03	0.01	mg/L	1	02/21/23 9:00 AM



# Laboratory Results

## Geochemical Testing

Date: 14-Jul-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2306H39  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2306H39-001  
**Matrix:** ASH

**Client Sample ID:** Bed Ash-North  
**Sampled By:** AES Warrior Run  
**Collection Date:** 6/27/2023 8:00:00 AM  
**Received Date:** 6/30/2023 10:24:22 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				<b>ASTM D6316-04</b>	
Carbon	3.61	0.500		%-dry	1		07/11/23 5:00 AM
CO2	1.04	1.00		%-dry	1		07/11/23 5:00 AM
<b>TOTAL METALS</b>		Analyst: <b>LXM</b>				<b>EPA 3050B</b>	<b>EPA 6010 D</b>
Aluminum	25400	20.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Antimony	< 10	10		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Arsenic	35.9	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Barium	230	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Beryllium	2.02	0.10		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Boron	110	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/07/23 8:22 AM
Chromium	345	5.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/07/23 8:22 AM
Cobalt	8.4	0.5		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Copper	43.6	10		mg/Kg-dry	1	07/05/23 10:00 AM	07/07/23 8:22 AM
Lead	5.3	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Lithium	43.6	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Manganese	150	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Molybdenum	9.3	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Nickel	858	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/07/23 8:22 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Vanadium	70.0	0.5		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
Zinc	55.4	10		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:25 PM
<b>ACID BASE ACCOUNTING</b>		Analyst: <b>CDJ</b>				<b>DEP OB Man p67</b>	
Total Sulfur	4.66	0.01		%	1		07/05/23 10:45 AM
Max Potential Acidity	146	0.30		see note	1		07/05/23 10:45 AM
Fizz Rating	2				1		07/05/23 10:45 AM
Deficiency or Excess	58.1			see note	1		07/05/23 10:45 AM
Neutralization Potential (CaCO3 Tons)	204			see note	1		07/05/23 10:45 AM
<b>NOTES:</b> units are: Tons CaCO3 / 1000 tons dry							
<b>MERCURY</b>		Analyst: <b>BAB</b>				<b>ASTM D 6722</b>	
Mercury	< 0.010	0.010		mg/Kg-dry	1		07/06/23 5:47 AM
<b>CARBONATE RESULTS</b>		Analyst: <b>LXM</b>				<b>Calculated</b>	
Calcium Carbonate	37.8			%	1		07/06/23 12:00 AM



# Laboratory Results

## Geochemical Testing

Date: 14-Jul-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2306H39  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2306H39-001  
**Matrix:** ASH

**Client Sample ID:** Bed Ash-North  
**Sampled By:** AES Warrior Run  
**Collection Date:** 6/27/2023 8:00:00 AM  
**Received Date:** 6/30/2023 10:24:22 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	41.5			%	1		07/06/23 12:00 AM
Magnesium Carbonate	3.2			%	1		07/06/23 12:00 AM

**MAJOR / MINOR ELEMENTS IN ASH**

Analyst: **LXM**

**ASTM D6349-08**

**EPA 6010 D**

Calcium Oxide	21.15	0.01		% Dry	1	07/06/23 4:45 AM	07/06/23 5:56 PM
Magnesium Oxide	1.50	0.01		% Dry	1	07/06/23 4:45 AM	07/06/23 5:56 PM

**TCLP EXTRACTION**

Analyst: **CML**

**EPA 1311**

Extraction Fluid Used	1.0				1		07/02/23 11:20 AM
Final pH	12.4	1.0		S.U.	1		07/02/23 11:20 AM
Initial pH	11.3	1.0		S.U.	1		07/02/23 11:20 AM
pH with HCl	1.7	1.0		S.U.	1		07/02/23 11:20 AM
TCLP, non-volatile	NA				1		07/02/23 11:20 AM

**TCLP METALS**

Analyst: **LAP**

**EPA 7470A**

**EPA 7470A**

Mercury	< 0.0020	0.0020		mg/L	1	07/03/23 11:15 AM	07/05/23 7:49 AM
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**TCLP METALS**

Analyst: **LXM**

**EPA 3010 A**

**EPA 6010 D**

Aluminum	0.7	0.1		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Antimony	< 0.10	0.10		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Arsenic	0.02	0.02		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Barium	0.6	0.3		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Beryllium	< 0.001	0.001		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Boron	0.88	0.05		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Cadmium	< 0.002	0.002		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Chromium	0.02	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Cobalt	< 0.005	0.005		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Copper	< 0.01	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Lead	< 0.02	0.02		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Lithium	0.18	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Manganese	< 0.01	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Molybdenum	0.08	0.02		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Nickel	< 0.01	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Selenium	< 0.02	0.02		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Silver	< 0.005	0.005		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Vanadium	0.014	0.005		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM
Zinc	0.01	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:52 AM





# Laboratory Results

## Geochemical Testing

Date: 14-Jul-23

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Bed Ash South
<b>Lab Order:</b>	G2306H39	<b>Sampled By:</b>	AES Warrior Run
<b>Project:</b>	AES Warrior Ash Samples	<b>Collection Date:</b>	6/27/2023 8:00:00 AM
<b>Lab ID:</b>	G2306H39-002	<b>Received Date:</b>	6/30/2023 10:24:22 AM
<b>Matrix:</b>	ASH		

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				ASTM D6316-04		
Carbon	2.73	0.501		%-dry	1		07/11/23 5:00 AM	
CO2	< 1.00	1.00		%-dry	1		07/11/23 5:00 AM	
<b>TOTAL METALS</b>		Analyst: <b>LXM</b>				<b>EPA 3050B</b>	<b>EPA 6010 D</b>	
Aluminum	21300	20.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Antimony	< 10	10		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Arsenic	35.5	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Barium	206	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Beryllium	1.77	0.10		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Boron	53.9	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Cadmium	< 5.0	5.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/07/23 8:35 AM	
Chromium	72.1	5.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Cobalt	6.8	0.5		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Copper	20.9	10		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Lead	4.2	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Lithium	35.4	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Manganese	131	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Molybdenum	4.7	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Nickel	135	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Selenium	< 2.0	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Silver	< 0.5	0.5		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Vanadium	63.4	0.5		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
Zinc	72.0	10		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:28 PM	
<b>ACID BASE ACCOUNTING</b>		Analyst: <b>CDJ</b>				DEP OB Man p67		
Total Sulfur	4.81	0.01		%	1		07/05/23 10:45 AM	
Max Potential Acidity	150	0.30		see note	1		07/05/23 10:45 AM	
Fizz Rating	2				1		07/05/23 10:45 AM	
Deficiency or Excess	76.7			see note	1		07/05/23 10:45 AM	
Neutralization Potential (CaCO3 Tons)	227			see note	1		07/05/23 10:45 AM	
<b>NOTES:</b>		units are: Tons CaCO3 / 1000 tons dry						
<b>MERCURY</b>		Analyst: <b>BAB</b>				ASTM D 6722		
Mercury	0.017	0.010		mg/Kg-dry	1		07/06/23 5:47 AM	
<b>CARBONATE RESULTS</b>		Analyst: <b>LXM</b>				Calculated		
Calcium Carbonate	45.2			%	1		07/06/23 12:00 AM	



# Laboratory Results

## Geochemical Testing

Date: 14-Jul-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2306H39  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2306H39-002  
**Matrix:** ASH

**Client Sample ID:** Bed Ash South  
**Sampled By:** AES Warrior Run  
**Collection Date:** 6/27/2023 8:00:00 AM  
**Received Date:** 6/30/2023 10:24:22 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	49.4			%	1		07/06/23 12:00 AM
Magnesium Carbonate	3.6			%	1		07/06/23 12:00 AM

### MAJOR / MINOR ELEMENTS IN ASH

Analyst: **LXM**

**ASTM D6349-08**

**EPA 6010 D**

Calcium Oxide	25.30	0.01		% Dry	1	07/06/23 4:45 AM	07/06/23 5:58 PM
Magnesium Oxide	1.69	0.01		% Dry	1	07/06/23 4:45 AM	07/06/23 5:58 PM

### TCLP EXTRACTION

Analyst: **CML**

**EPA 1311**

Extraction Fluid Used	1.0				1		07/02/23 11:20 AM
Final pH	12.3	1.0		S.U.	1		07/02/23 11:20 AM
Initial pH	11.4	1.0		S.U.	1		07/02/23 11:20 AM
pH with HCl	2.1	1.0		S.U.	1		07/02/23 11:20 AM
TCLP, non-volatile	NA				1		07/02/23 11:20 AM

### TCLP METALS

Analyst: **LAP**

**EPA 7470A**

**EPA 7470A**

Mercury	< 0.0020	0.0020		mg/L	1	07/03/23 11:15 AM	07/05/23 7:54 AM
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### TCLP METALS

Analyst: **LXM**

**EPA 3010 A**

**EPA 6010 D**

Aluminum	0.4	0.1		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Antimony	< 0.10	0.10		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Arsenic	0.03	0.02		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Barium	0.5	0.3		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Beryllium	< 0.001	0.001		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Boron	0.56	0.05		mg/L	1	07/03/23 7:45 AM	07/06/23 11:49 AM
Cadmium	< 0.002	0.002		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Chromium	0.01	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Cobalt	< 0.005	0.005		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Copper	< 0.01	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Lead	< 0.02	0.02		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Lithium	0.11	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Manganese	< 0.01	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Molybdenum	0.06	0.02		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Nickel	< 0.01	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Selenium	< 0.02	0.02		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Silver	< 0.005	0.005		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Vanadium	0.024	0.005		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM
Zinc	< 0.01	0.01		mg/L	1	07/03/23 7:45 AM	07/05/23 8:54 AM



# Laboratory Results

## Geochemical Testing

Date: 14-Jul-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2306H39  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2306H39-003  
**Matrix:** ASH

**Client Sample ID:** Fly Ash  
**Sampled By:** AES Warrior Run  
**Collection Date:** 6/27/2023 8:15:00 AM  
**Received Date:** 6/30/2023 10:24:22 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				<b>ASTM D6316-04</b>	
Carbon	11.7	0.502		%-dry	1	07/11/23 5:00 AM	
CO2	1.36	1.00		%-dry	1	07/11/23 5:00 AM	

<b>TOTAL METALS</b>		Analyst: <b>LXM</b>			<b>EPA 3050B</b>	<b>EPA 6010 D</b>	
Aluminum	33500	20.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Antimony	< 10	10		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Arsenic	37.6	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Barium	475	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Beryllium	3.18	0.10		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Boron	41.9	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/07/23 8:38 AM
Chromium	41.2	5.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Cobalt	12.5	0.5		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Copper	37.5	10		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Lead	18.0	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Lithium	61.7	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Manganese	127	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Molybdenum	7.0	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Nickel	33.3	1.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Selenium	4.0	2.0		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Vanadium	89.4	0.5		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM
Zinc	51.6	10		mg/Kg-dry	1	07/05/23 10:00 AM	07/06/23 12:30 PM

<b>ACID BASE ACCOUNTING</b>		Analyst: <b>CDJ</b>			<b>DEP OB Man p67</b>	
Total Sulfur	3.61	0.01		%	1	07/05/23 10:45 AM
Max Potential Acidity	113	0.30		see note	1	07/05/23 10:45 AM
Fizz Rating	2				1	07/05/23 10:45 AM
Deficiency or Excess	71.0			see note	1	07/05/23 10:45 AM
Neutralization Potential (CaCO3 Tons)	184			see note	1	07/05/23 10:45 AM

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

<b>MERCURY</b>		Analyst: <b>BAB</b>			<b>ASTM D 6722</b>	
Mercury	0.838	0.010		mg/Kg-dry	1	07/06/23 5:47 AM

<b>CARBONATE RESULTS</b>		Analyst: <b>LXM</b>			<b>Calculated</b>	
Calcium Carbonate	37.8			%	1	07/06/23 12:00 AM



# Laboratory Results

## Geochemical Testing

Date: 14-Jul-23

<b>CLIENT:</b>	AES - WARRIOR RUN INC	<b>Client Sample ID:</b>	Fly Ash
<b>Lab Order:</b>	G2306H39		
<b>Project:</b>	AES Warrior Ash Samples	<b>Sampled By:</b>	AES Warrior Run
<b>Lab ID:</b>	G2306H39-003	<b>Collection Date:</b>	6/27/2023 8:15:00 AM
<b>Matrix:</b>	ASH	<b>Received Date:</b>	6/30/2023 10:24:22 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	41.2			%	1		07/06/23 12:00 AM
Magnesium Carbonate	2.9			%	1		07/06/23 12:00 AM

### MAJOR / MINOR ELEMENTS IN ASH

Analyst: LXM

ASTM D6349-08

EPA 6010 D

Calcium Oxide	21.16	0.01		% Dry	1	07/06/23 4:45 AM	07/06/23 6:01 PM
Magnesium Oxide	1.36	0.01		% Dry	1	07/06/23 4:45 AM	07/06/23 6:01 PM

### TCLP EXTRACTION

Analyst: MAG

EPA 1311

Extraction Fluid Used	2.0				1		07/05/23 11:25 AM
Final pH	12.0	1.0		S.U.	1		07/05/23 11:25 AM
Initial pH	12.2	1.0		S.U.	1		07/05/23 11:25 AM
pH with HCl	5.2	1.0		S.U.	1		07/05/23 11:25 AM
TCLP, non-volatile	NA				1		07/05/23 11:25 AM

### TCLP METALS

Analyst: LAP

EPA 7470A

EPA 7470A

Mercury	< 0.0020	0.0020		mg/L	1	07/07/23 5:30 AM	07/07/23 7:52 AM
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### TCLP METALS

Analyst: LXM

EPA 3010 A

EPA 6010 D

Aluminum	0.4	0.1		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Antimony	< 0.10	0.10		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Arsenic	< 0.02	0.02		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Barium	1.5	0.3		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Beryllium	< 0.001	0.001		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Boron	0.64	0.05		mg/L	1	07/06/23 9:00 AM	07/10/23 12:38 PM
Cadmium	< 0.002	0.002		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Chromium	0.20	0.01		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Cobalt	< 0.005	0.005		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Copper	< 0.01	0.01		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Lead	< 0.02	0.02		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Lithium	0.19	0.01		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Manganese	< 0.01	0.01		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Molybdenum	0.18	0.02		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Nickel	< 0.01	0.01		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Selenium	< 0.02	0.02		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Silver	< 0.005	0.005		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Vanadium	0.020	0.005		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM
Zinc	< 0.01	0.01		mg/L	1	07/06/23 9:00 AM	07/07/23 9:22 AM

# Laboratory Results

## Geochemical Testing

Date: 18-Aug-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2308786  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2308786-001  
**Matrix:** SOLID

**Client Sample ID:** Bed Ash North  
**Sampled By:** AES Warrior Run  
**Collection Date:** 8/11/2023 8:00:00 AM  
**Received Date:** 8/14/2023 2:10:06 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				ASTM D6316-04		
Carbon	5.07	0.500		%-dry	1		08/17/23 4:00 AM	
CO2	1.59	1.00		%-dry	1		08/17/23 4:00 AM	
<b>TOTAL METALS</b>		Analyst: <b>TMS</b>				<b>EPA 3050B</b>	<b>EPA 6010 D</b>	
Aluminum	24200	20.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Antimony	< 10	10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Arsenic	36.1	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Barium	201	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Beryllium	2.03	0.10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Boron	40.4	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Cadmium	< 5.0	5.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Chromium	35.2	5.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Cobalt	7.9	0.5		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Copper	21.2	10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Lead	7.6	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Lithium	45.1	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Manganese	132	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Molybdenum	4.6	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Nickel	24.3	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Selenium	< 2.0	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Silver	< 0.5	0.5		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Vanadium	67.6	0.5		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
Zinc	30.2	10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:16 PM	
<b>ACID BASE ACCOUNTING</b>		Analyst: <b>BAB</b>				DEP OB Man p67		
Total Sulfur	4.63	0.01		%	1		08/16/23 8:00 AM	
Max Potential Acidity	145	0.30		see note	1		08/16/23 8:00 AM	
Fizz Rating	2				1		08/16/23 8:00 AM	
Deficiency or Excess	115			see note	1		08/16/23 8:00 AM	
Neutralization Potential (CaCO3 Tons)	259			see note	1		08/16/23 8:00 AM	
<b>NOTES:</b>		units are: Tons CaCO3 / 1000 tons dry						
<b>MERCURY</b>		Analyst: <b>BAB</b>				ASTM D 6722		
Mercury	0.044	0.010		mg/Kg-dry	1		08/16/23 6:47 AM	
<b>CARBONATE RESULTS</b>		Analyst: <b>TMS</b>				Calculated		
Calcium Carbonate	39.6			%	1		08/17/23 12:00 AM	



# Laboratory Results

## Geochemical Testing

Date: 18-Aug-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2308786  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2308786-001  
**Matrix:** SOLID

**Client Sample ID:** Bed Ash North  
**Sampled By:** AES Warrior Run  
**Collection Date:** 8/11/2023 8:00:00 AM  
**Received Date:** 8/14/2023 2:10:06 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	44.4			%	1		08/17/23 12:00 AM
Magnesium Carbonate	4.1			%	1		08/17/23 12:00 AM

**MAJOR / MINOR ELEMENTS IN ASH**

Analyst: **TMS**

**ASTM D6349-08**

**EPA 6010 D**

Calcium Oxide	22.17	0.01		% Dry	1	08/17/23 4:00 AM	08/17/23 5:38 PM
Magnesium Oxide	1.94	0.01		% Dry	1	08/17/23 4:00 AM	08/17/23 5:38 PM

**TCLP EXTRACTION**

Analyst: **TRR**

**EPA 1311**

Extraction Fluid Used	2.0				1		08/15/23 1:00 PM
Final pH	12.4	1.0		S.U.	1		08/15/23 1:00 PM
Initial pH	12.3	1.0		S.U.	1		08/15/23 1:00 PM
pH with HCl	10.3	1.0		S.U.	1		08/15/23 1:00 PM
TCLP, non-volatile	NA				1		08/15/23 1:00 PM

**TCLP METALS**

Analyst: **LAP**

**EPA 7470A**

**EPA 7470A**

Mercury	< 0.0020	0.0020		mg/L	1	08/16/23 2:00 PM	08/17/23 10:36 AM
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**TCLP METALS**

Analyst: **TMS**

**EPA 3010 A**

**EPA 6010 D**

Aluminum	0.2	0.1		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Antimony	< 0.10	0.10		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Arsenic	< 0.02	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Barium	0.5	0.3		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Beryllium	< 0.001	0.001		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Boron	0.21	0.05		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Cadmium	< 0.002	0.002		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Chromium	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Cobalt	< 0.005	0.005		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Copper	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Lead	< 0.02	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Lithium	0.18	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Manganese	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Molybdenum	0.07	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Nickel	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Selenium	< 0.02	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Silver	< 0.005	0.005		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Vanadium	< 0.005	0.005		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM
Zinc	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:06 AM



# Laboratory Results

## Geochemical Testing

Date: 18-Aug-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2308786  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2308786-002  
**Matrix:** SOLID

**Client Sample ID:** Bed Ash South  
**Sampled By:** AES Warrior Run  
**Collection Date:** 8/11/2023 8:00:00 AM  
**Received Date:** 8/14/2023 2:10:06 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				ASTM D6316-04		
Carbon	5.15	0.500		%-dry	1		08/17/23 4:00 AM	
CO2	1.67	1.00		%-dry	1		08/17/23 4:00 AM	
<b>TOTAL METALS</b>		Analyst: <b>TMS</b>				<b>EPA 3050B</b>	<b>EPA 6010 D</b>	
Aluminum	24500	20.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Antimony	< 10	10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Arsenic	31.5	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Barium	200	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Beryllium	1.98	0.10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Boron	37.6	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Cadmium	< 5.0	5.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Chromium	37.2	5.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Cobalt	7.8	0.5		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Copper	20.9	10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Lead	8.3	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Lithium	46.4	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Manganese	130	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Molybdenum	4.2	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Nickel	24.7	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Selenium	< 2.0	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Silver	< 0.5	0.5		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Vanadium	63.8	0.5		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
Zinc	32.2	10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:18 PM	
<b>ACID BASE ACCOUNTING</b>		Analyst: <b>BAB</b>				DEP OB Man p67		
Total Sulfur	4.43	0.01		%	1		08/16/23 8:00 AM	
Max Potential Acidity	138	0.30		see note	1		08/16/23 8:00 AM	
Fizz Rating	2				1		08/16/23 8:00 AM	
Deficiency or Excess	137			see note	1		08/16/23 8:00 AM	
Neutralization Potential (CaCO3 Tons)	276			see note	1		08/16/23 8:00 AM	
<b>NOTES:</b>		units are: Tons CaCO3 / 1000 tons dry						
<b>MERCURY</b>		Analyst: <b>BAB</b>				ASTM D 6722		
Mercury	0.020	0.010		mg/Kg-dry	1		08/16/23 6:47 AM	
<b>CARBONATE RESULTS</b>		Analyst: <b>TMS</b>				Calculated		
Calcium Carbonate	42.0			%	1		08/17/23 12:00 AM	



# Laboratory Results

## Geochemical Testing

Date: 18-Aug-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2308786  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2308786-002  
**Matrix:** SOLID

**Client Sample ID:** Bed Ash South  
**Sampled By:** AES Warrior Run  
**Collection Date:** 8/11/2023 8:00:00 AM  
**Received Date:** 8/14/2023 2:10:06 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	47.1			%	1		08/17/23 12:00 AM
Magnesium Carbonate	4.3			%	1		08/17/23 12:00 AM

### MAJOR / MINOR ELEMENTS IN ASH

Analyst: **TMS**

**ASTM D6349-08**

**EPA 6010 D**

Calcium Oxide	23.53	0.01		% Dry	1	08/17/23 4:00 AM	08/17/23 5:41 PM
Magnesium Oxide	2.03	0.01		% Dry	1	08/17/23 4:00 AM	08/17/23 5:41 PM

### TCLP EXTRACTION

Analyst: **TRR**

**EPA 1311**

Extraction Fluid Used	1.0				1		08/15/23 1:00 PM
Final pH	12.5	1.0		S.U.	1		08/15/23 1:00 PM
Initial pH	12.1	1.0		S.U.	1		08/15/23 1:00 PM
pH with HCl	2.5	1.0		S.U.	1		08/15/23 1:00 PM
TCLP, non-volatile	NA				1		08/15/23 1:00 PM

### TCLP METALS

Analyst: **LAP**

**EPA 7470A**

**EPA 7470A**

Mercury	< 0.0020	0.0020		mg/L	1	08/16/23 2:00 PM	08/17/23 10:38 AM
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### TCLP METALS

Analyst: **TMS**

**EPA 3010 A**

**EPA 6010 D**

Aluminum	0.2	0.1		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Antimony	< 0.10	0.10		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Arsenic	< 0.02	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Barium	0.5	0.3		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Beryllium	< 0.001	0.001		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Boron	0.32	0.05		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Cadmium	< 0.002	0.002		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Chromium	0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Cobalt	< 0.005	0.005		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Copper	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Lead	< 0.02	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Lithium	0.21	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Manganese	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Molybdenum	0.07	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Nickel	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Selenium	< 0.02	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Silver	< 0.005	0.005		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Vanadium	< 0.005	0.005		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM
Zinc	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:19 AM





# Laboratory Results

## Geochemical Testing

Date: 18-Aug-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2308786  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2308786-003  
**Matrix:** SOLID

**Client Sample ID:** Fly Ash  
**Sampled By:** AES Warrior Run  
**Collection Date:** 8/11/2023 8:15:00 AM  
**Received Date:** 8/14/2023 2:10:06 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				<b>ASTM D6316-04</b>	
Carbon	11.0	0.503		%-dry	1		08/17/23 4:00 AM
CO2	2.09	1.01		%-dry	1		08/17/23 4:00 AM
<b>TOTAL METALS</b>		Analyst: <b>TMS</b>				<b>EPA 3050B</b>	<b>EPA 6010 D</b>
Aluminum	33900	20.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Antimony	< 10	10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Arsenic	41.8	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Barium	415	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Beryllium	3.25	0.10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Boron	31.6	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Chromium	38.2	5.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Cobalt	12.8	0.5		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Copper	37.5	10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Lead	20.5	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Lithium	62.6	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Manganese	112	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Molybdenum	7.7	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Nickel	35.9	1.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Selenium	4.8	2.0		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Vanadium	90.4	0.5		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
Zinc	56.0	10		mg/Kg-dry	1	08/16/23 10:30 AM	08/17/23 12:40 PM
<b>ACID BASE ACCOUNTING</b>		Analyst: <b>BAB</b>				<b>DEP OB Man p67</b>	
Total Sulfur	3.17	0.01		%	1		08/16/23 8:00 AM
Max Potential Acidity	99.1	0.30		see note	1		08/16/23 8:00 AM
Fizz Rating	2				1		08/16/23 8:00 AM
Deficiency or Excess	85.2			see note	1		08/16/23 8:00 AM
Neutralization Potential (CaCO3 Tons)	184			see note	1		08/16/23 8:00 AM
<b>NOTES:</b> units are: Tons CaCO3 / 1000 tons dry							
<b>MERCURY</b>		Analyst: <b>BAB</b>				<b>ASTM D 6722</b>	
Mercury	0.832	0.010		mg/Kg-dry	1		08/16/23 6:47 AM
<b>CARBONATE RESULTS</b>		Analyst: <b>TMS</b>				<b>Calculated</b>	
Calcium Carbonate	30.8			%	1		08/17/23 12:00 AM



# Laboratory Results

## Geochemical Testing

Date: 18-Aug-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2308786  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2308786-003  
**Matrix:** SOLID

**Client Sample ID:** Fly Ash  
**Sampled By:** AES Warrior Run  
**Collection Date:** 8/11/2023 8:15:00 AM  
**Received Date:** 8/14/2023 2:10:06 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	34.4			%	1		08/17/23 12:00 AM
Magnesium Carbonate	3.0			%	1		08/17/23 12:00 AM

### MAJOR / MINOR ELEMENTS IN ASH

Analyst: **TMS**

**ASTM D6349-08**

**EPA 6010 D**

Calcium Oxide	17.25	0.01		% Dry	1	08/17/23 4:00 AM	08/17/23 5:43 PM
Magnesium Oxide	1.45	0.01		% Dry	1	08/17/23 4:00 AM	08/17/23 5:43 PM

### TCLP EXTRACTION

Analyst: **TRR**

**EPA 1311**

Extraction Fluid Used	2.0				1		08/15/23 1:00 PM
Final pH	6.3	1.0		S.U.	1		08/15/23 1:00 PM
Initial pH	12.4	1.0		S.U.	1		08/15/23 1:00 PM
pH with HCl	11.9	1.0		S.U.	1		08/15/23 1:00 PM
TCLP, non-volatile	NA				1		08/15/23 1:00 PM

### TCLP METALS

Analyst: **LAP**

**EPA 7470A**

**EPA 7470A**

Mercury	< 0.0020	0.0020		mg/L	1	08/16/23 2:00 PM	08/17/23 10:39 AM
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### TCLP METALS

Analyst: **TMS**

**EPA 3010 A**

**EPA 6010 D**

Aluminum	0.4	0.1		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Antimony	< 0.10	0.10		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Arsenic	0.04	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Barium	0.4	0.3		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Beryllium	< 0.001	0.001		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Boron	0.89	0.05		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Cadmium	< 0.002	0.002		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Chromium	0.04	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Cobalt	< 0.005	0.005		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Copper	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Lead	< 0.02	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Lithium	0.28	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Manganese	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Molybdenum	0.20	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Nickel	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Selenium	0.05	0.02		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Silver	< 0.005	0.005		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Vanadium	0.49	0.005		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM
Zinc	< 0.01	0.01		mg/L	1	08/16/23 9:30 AM	08/17/23 8:21 AM



# Laboratory Results

## Geochemical Testing

Date: 16-Nov-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2311223  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2311223-001  
**Matrix:** SOLID

**Client Sample ID:** Bed Ash North  
**Sampled By:** AES Warrior Run  
**Collection Date:** 11/2/2023 8:00:00 AM  
**Received Date:** 11/6/2023 9:24:19 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				<b>ASTM D6316-04</b>		
CO2	1.51	0.500	N1	%-dry	1	11/09/23 5:00 AM	11/09/23 5:00 AM	
Total Carbon	0.720	0.500	N1	%-dry	1	11/09/23 5:00 AM	11/09/23 5:00 AM	

<b>TOTAL METALS</b>		Analyst: <b>TMS</b>			<b>EPA 3050B</b>		<b>EPA 6010 D</b>	
Aluminum	20300	20.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Antimony	< 10	10	M2	mg/Kg-dry	1	11/07/23 7:45 AM	11/09/23 12:21 PM	
Arsenic	47.6	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Barium	209	1.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Beryllium	2.47	0.10		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Boron	41.0	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/09/23 12:21 PM	
Cadmium	< 5.0	5.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Chromium	33.9	5.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Cobalt	7.4	0.5		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Copper	17.9	10		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Lead	< 2.0	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Lithium	26.7	1.0	M1	mg/Kg-dry	1	11/07/23 7:45 AM	11/09/23 12:21 PM	
Manganese	178	1.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Molybdenum	5.4	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Nickel	23.2	1.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Selenium	< 2.0	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Silver	< 0.5	0.5		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Vanadium	78.9	0.5		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	
Zinc	30.4	10		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:00 AM	

<b>ACID BASE ACCOUNTING</b>		Analyst: <b>BAB</b>			<b>DEP OB Man p67</b>		
Total Sulfur	6.34	0.01		%	1	11/14/23 8:00 AM	11/14/23 8:00 AM
Max Potential Acidity	198	0.30		see note	1	11/14/23 8:00 AM	11/14/23 8:00 AM
Fizz Rating	2				1	11/14/23 8:00 AM	11/14/23 8:00 AM
Deficiency or Excess	107			see note	1	11/14/23 8:00 AM	11/14/23 8:00 AM
Neutralization Potential (CaCO3 Tons)	305			see note	1	11/14/23 8:00 AM	11/14/23 8:00 AM

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

<b>MERCURY</b>		Analyst: <b>RLI</b>			<b>ASTM D 6722</b>		
Mercury	< 0.010	0.010		mg/Kg-dry	1	11/08/23 8:02 AM	11/08/23 8:02 AM

<b>CARBONATE RESULTS</b>		Analyst: <b>TMS</b>			<b>Calculated</b>		
Calcium Carbonate	50.4			%	1	11/10/23 12:00 AM	11/10/23 12:00 AM



# Laboratory Results

## Geochemical Testing

Date: 16-Nov-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2311223  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2311223-001  
**Matrix:** SOLID

**Client Sample ID:** Bed Ash North  
**Sampled By:** AES Warrior Run  
**Collection Date:** 11/2/2023 8:00:00 AM  
**Received Date:** 11/6/2023 9:24:19 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	58.3			%	1		11/10/23 12:00 AM
Magnesium Carbonate	6.6			%	1		11/10/23 12:00 AM

**MAJOR / MINOR ELEMENTS IN ASH**

Analyst: **TMS**

**ASTM D6349-08**

**EPA 6010 D**

Calcium Oxide	28.26	0.01		% Dry	1	11/09/23 3:15 AM	11/10/23 10:37 AM
Magnesium Oxide	3.14	0.01		% Dry	1	11/09/23 3:15 AM	11/10/23 10:37 AM

**TCLP EXTRACTION**

Analyst: **MAG**

**EPA 1311**

Extraction Fluid Used	1.0				1		11/08/23 11:40 AM
Final pH	12.5	1.0		S.U.	1		11/08/23 11:40 AM
Initial pH	12.0	1.0		S.U.	1		11/08/23 11:40 AM
pH with HCl	2.6	1.0		S.U.	1		11/08/23 11:40 AM
TCLP, non-volatile	NA				1		11/08/23 11:40 AM

**TCLP METALS**

Analyst: **LAP**

**EPA 7470A**

**EPA 7470A**

Mercury	< 0.0020	0.0020		mg/L	1	11/09/23 1:15 PM	11/10/23 6:39 AM
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**TCLP METALS**

Analyst: **TMS**

**EPA 3010 A**

**EPA 6010 D**

Aluminum	0.3	0.1		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Antimony	< 0.10	0.10		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Arsenic	< 0.02	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Barium	0.7	0.3		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Beryllium	< 0.001	0.001		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Boron	0.48	0.05		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Cadmium	< 0.002	0.002		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Chromium	0.02	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Cobalt	< 0.005	0.005		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Copper	< 0.01	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Lead	< 0.02	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Lithium	0.10	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Manganese	< 0.01	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Molybdenum	0.09	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Nickel	< 0.01	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Selenium	< 0.02	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Silver	< 0.005	0.005		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Vanadium	< 0.005	0.005		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM
Zinc	0.03	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:33 AM



# Laboratory Results

## Geochemical Testing

Date: 16-Nov-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2311223  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2311223-002  
**Matrix:** SOLID

**Client Sample ID:** Bed Ash South  
**Sampled By:** AES Warrior Run  
**Collection Date:** 11/2/2023 8:00:00 AM  
**Received Date:** 11/6/2023 9:24:19 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				<b>ASTM D6316-04</b>		
CO2	1.87	0.501	N1	%-dry	1	11/09/23 5:00 AM	11/09/23 5:00 AM	
Total Carbon	0.792	0.501	N1	%-dry	1	11/09/23 5:00 AM	11/09/23 5:00 AM	

<b>TOTAL METALS</b>		Analyst: <b>TMS</b>			<b>EPA 3050B</b>	<b>EPA 6010 D</b>	
Aluminum	21200	20.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Antimony	< 10	10		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Arsenic	46.9	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Barium	218	1.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Beryllium	2.66	0.10		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Boron	38.4	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/09/23 12:26 PM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Chromium	35.2	5.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Cobalt	7.6	0.5		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Copper	18.5	10		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Lead	< 2.0	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Lithium	25.9	1.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Manganese	195	1.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Molybdenum	5.4	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Nickel	24.1	1.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Vanadium	83.2	0.5		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM
Zinc	30.6	10		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 10:16 AM

<b>ACID BASE ACCOUNTING</b>		Analyst: <b>BAB</b>			<b>DEP OB Man p67</b>	
Total Sulfur	6.51	0.01		%	1	11/14/23 8:00 AM
Max Potential Acidity	203	0.30		see note	1	11/14/23 8:00 AM
Fizz Rating	2				1	11/14/23 8:00 AM
Deficiency or Excess	111			see note	1	11/14/23 8:00 AM
Neutralization Potential (CaCO3 Tons)	314			see note	1	11/14/23 8:00 AM

**NOTES:**

units are: Tons CaCO3 / 1000 tons dry

<b>MERCURY</b>		Analyst: <b>RLL</b>			<b>ASTM D 6722</b>	
Mercury	< 0.010	0.010		mg/Kg-dry	1	11/08/23 8:02 AM

<b>CARBONATE RESULTS</b>		Analyst: <b>TMS</b>			<b>Calculated</b>	
Calcium Carbonate	47.1			%	1	11/10/23 12:00 AM



# Laboratory Results

## Geochemical Testing

Date: 16-Nov-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2311223  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2311223-002  
**Matrix:** SOLID

**Client Sample ID:** Bed Ash South  
**Sampled By:** AES Warrior Run  
**Collection Date:** 11/2/2023 8:00:00 AM  
**Received Date:** 11/6/2023 9:24:19 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	53.7			%	1		11/10/23 12:00 AM
Magnesium Carbonate	5.6			%	1		11/10/23 12:00 AM

**MAJOR / MINOR ELEMENTS IN ASH**

Analyst: **TMS**

**ASTM D6349-08**

**EPA 6010 D**

Calcium Oxide	26.40	0.01		% Dry	1	11/09/23 3:15 AM	11/10/23 10:40 AM
Magnesium Oxide	2.65	0.01		% Dry	1	11/09/23 3:15 AM	11/10/23 10:40 AM

**TCLP EXTRACTION**

Analyst: **MAG**

**EPA 1311**

Extraction Fluid Used	1.0				1		11/08/23 11:40 AM
Final pH	12.6	1.0		S.U.	1		11/08/23 11:40 AM
Initial pH	11.9	1.0		S.U.	1		11/08/23 11:40 AM
pH with HCl	2.3	1.0		S.U.	1		11/08/23 11:40 AM
TCLP, non-volatile	NA				1		11/08/23 11:40 AM

**TCLP METALS**

Analyst: **LAP**

**EPA 7470A**

**EPA 7470A**

Mercury	< 0.0020	0.0020		mg/L	1	11/09/23 1:15 PM	11/10/23 6:44 AM
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**TCLP METALS**

Analyst: **TMS**

**EPA 3010 A**

**EPA 6010 D**

Aluminum	0.3	0.1		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Antimony	< 0.10	0.10		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Arsenic	< 0.02	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Barium	0.8	0.3		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Beryllium	< 0.001	0.001		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Boron	0.40	0.05		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Cadmium	< 0.002	0.002		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Chromium	0.03	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Cobalt	< 0.005	0.005		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Copper	< 0.01	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Lead	< 0.02	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Lithium	0.11	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Manganese	< 0.01	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Molybdenum	0.11	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Nickel	< 0.01	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Selenium	< 0.02	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Silver	< 0.005	0.005		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Vanadium	< 0.005	0.005		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM
Zinc	0.02	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:35 AM



# Laboratory Results

## Geochemical Testing

Date: 16-Nov-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2311223  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2311223-003  
**Matrix:** SOLID

**Client Sample ID:** Fly Ash  
**Sampled By:** AES Warrior Run  
**Collection Date:** 11/2/2023 8:15:00 AM  
**Received Date:** 11/6/2023 9:24:19 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
<b>SOLID FORMS OF CARBON</b>		Analyst: <b>BAB</b>				<b>ASTM D6316-04</b>		
CO2	2.05	0.501	N1	%-dry	1	11/09/23 5:00 AM	11/09/23 5:00 AM	
Total Carbon	10.3	0.501	N1	%-dry	1	11/09/23 5:00 AM	11/09/23 5:00 AM	

<b>TOTAL METALS</b>		Analyst: <b>TMS</b>			<b>EPA 3050B</b>		<b>EPA 6010 D</b>	
Aluminum	32100	20.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Antimony	< 10	10	M2	mg/Kg-dry	1	11/07/23 7:45 AM	11/09/23 12:44 PM	
Arsenic	40.8	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Barium	531	1.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Beryllium	3.39	0.10		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Boron	28.3	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/09/23 12:44 PM	
Cadmium	< 5.0	5.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Chromium	36.7	5.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Cobalt	13.0	0.5		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Copper	38.6	10		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Lead	16.9	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Lithium	60.4	1.0	M1	mg/Kg-dry	1	11/07/23 7:45 AM	11/09/23 12:44 PM	
Manganese	207	1.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Molybdenum	8.0	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Nickel	37.5	1.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Selenium	6.2	2.0		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Silver	< 0.5	0.5		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Vanadium	87.1	0.5		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	
Zinc	54.5	10		mg/Kg-dry	1	11/07/23 7:45 AM	11/08/23 9:37 AM	

<b>ACID BASE ACCOUNTING</b>		Analyst: <b>BAB</b>			<b>DEP OB Man p67</b>		
Total Sulfur	3.22	0.01		%	1	11/14/23 8:00 AM	11/14/23 8:00 AM
Max Potential Acidity	101	0.30		see note	1	11/14/23 8:00 AM	11/14/23 8:00 AM
Fizz Rating	2				1	11/14/23 8:00 AM	11/14/23 8:00 AM
Deficiency or Excess	86.9			see note	1	11/14/23 8:00 AM	11/14/23 8:00 AM
Neutralization Potential (CaCO3 Tons)	187			see note	1	11/14/23 8:00 AM	11/14/23 8:00 AM

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

<b>MERCURY</b>		Analyst: <b>RLL</b>			<b>ASTM D 6722</b>		
Mercury	0.907	0.010		mg/Kg-dry	1	11/08/23 8:02 AM	11/08/23 8:02 AM

<b>CARBONATE RESULTS</b>		Analyst: <b>TMS</b>			<b>Calculated</b>		
Calcium Carbonate	30.4			%	1	11/10/23 12:00 AM	11/10/23 12:00 AM



# Laboratory Results

## Geochemical Testing

Date: 16-Nov-23

**CLIENT:** AES - WARRIOR RUN INC  
**Lab Order:** G2311223  
**Project:** AES Warrior Ash Samples  
**Lab ID:** G2311223-003  
**Matrix:** SOLID

**Client Sample ID:** Fly Ash  
**Sampled By:** AES Warrior Run  
**Collection Date:** 11/2/2023 8:15:00 AM  
**Received Date:** 11/6/2023 9:24:19 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	35.0			%	1		11/10/23 12:00 AM
Magnesium Carbonate	3.8			%	1		11/10/23 12:00 AM

**MAJOR / MINOR ELEMENTS IN ASH**

Analyst: **TMS**

**ASTM D6349-08**

**EPA 6010 D**

Calcium Oxide	17.04	0.01		% Dry	1	11/09/23 3:15 AM	11/10/23 10:42 AM
Magnesium Oxide	1.82	0.01		% Dry	1	11/09/23 3:15 AM	11/10/23 10:42 AM

**TCLP EXTRACTION**

Analyst: **MAG**

**EPA 1311**

Extraction Fluid Used	2.0				1		11/08/23 11:40 AM
Final pH	11.6	1.0		S.U.	1		11/08/23 11:40 AM
Initial pH	12.6	1.0		S.U.	1		11/08/23 11:40 AM
pH with HCl	12.2	1.0		S.U.	1		11/08/23 11:40 AM
TCLP, non-volatile	NA				1		11/08/23 11:40 AM

**TCLP METALS**

Analyst: **LAP**

**EPA 7470A**

**EPA 7470A**

Mercury	< 0.0020	0.0020		mg/L	1	11/09/23 1:15 PM	11/10/23 6:46 AM
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**TCLP METALS**

Analyst: **TMS**

**EPA 3010 A**

**EPA 6010 D**

Aluminum	0.4	0.1		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Antimony	< 0.10	0.10		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Arsenic	< 0.02	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Barium	1.0	0.3		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Beryllium	< 0.001	0.001		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Boron	0.55	0.05		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Cadmium	< 0.002	0.002		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Chromium	0.08	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Cobalt	< 0.005	0.005		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Copper	< 0.01	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Lead	< 0.02	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Lithium	0.16	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Manganese	< 0.01	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Molybdenum	0.24	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Nickel	< 0.01	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Selenium	< 0.02	0.02		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Silver	< 0.005	0.005		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Vanadium	0.042	0.005		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM
Zinc	0.03	0.01		mg/L	1	11/09/23 10:45 AM	11/10/23 8:38 AM

