

February 23, 2022

Re: CCB Report

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

Mr. Dexter,

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

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

Regards,

Kan Hu

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

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

The following is general information relating to the requirement for reporting quantities of coal combustion byproducts (CCBs) that were managed in the State of Maryland during calendar year 2022. Please answer the questions on the form provided, attaching additional information and any requested supplemental information to the back of the form. Note that the form requires both volume and weight of the CCBs produced. If you know one of these parameters but not the others, for example, you have the tonnage produced but not the volume, you may calculate the other parameter; however, please provide the calculations and assumptions that you used in your estimate. Questions can be directed to the Solid Waste Program at (410) 537-3315 or via email at ed.dexter@maryland.gov.

<u>I. Background.</u> 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."

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

III. Required Information. The following information must be provided to MDE by March 1, 2023:

A. Contact information:		
Facility Name: <u>AES Warrior Run</u>		
Name of Permit Holder:		
Facility Address: <u>11600 Mexico Farms Roa</u>	ad SE Street	
Facility Address: Cumberland City	MD State	21502 Zip
County: <u>Allegany</u>		
Contact Information (Person filing report or	Environmental Manager)	
Facility Telephone No.: 301-777-0055	Facility Fax No.: <u>301-777-8772</u>	
Contact Name: <u>Kara Hawkins</u>		
Contact Title: Environmental Specialist		
Contact Address: 11600 Mexico Farms Roa	ad SE Street	
Contact Address: Cumberland City	MD State	21502 Zip
Contact Email: <u>kara.hawkins@aes.com</u>		
Contact Telephone No.: 301-777-0055 ext.1	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

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B. A description of the process that generates the CCBs, including the type of coal or other raw material that generates the CCBs. If the space provided is insufficient, please attach additional pages:

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

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

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

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

C. The volume and weight of CCBs generated during calendar year 2022, including an identification of the different types of CCBs generated and the volume of each type generated. If the space provided is insufficient, please attach additional pages in a similar format. If converting from volume to weight or weight to volume, please provide your calculations and assumptions.

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Volume and Weight of CCBs Generated for Calendar Year 2022								
Fly Ash Type of CCB	Bed Ash Type of CCB	Slag Ash Type of CCB	Type of CCB					
399,823.62 Volume of CCB, in Cubic Yards	138,581.35 Volume of CCB, in Cubic Yards	37,954.44 Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards					
225,969.76 Weight of CCB, in Tons	89,744.82 Weight of CCB, in Tons	22,730.69 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 2022, identifying:
- (a) The types and volume of CCBs disposed of or used (if different than described in Paragraph C above) including any CCBs stored during the previous calendar year, the location of disposal, mine reclamation and use sites, and the type and volume of CCBs disposed of or used at each site:

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

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Facility Name: <u>AES Warrior Run</u>	CCB Tonnage Report – 2022
and (b) The different uses by type and volume of Co	CBs:
See chart above	
If the among maryided is insufficient places attach as	Hitianal massa in a similar format
If the space provided is insufficient, please attach ac	iditional pages in a similar format.
G. A description of how you intend to dispose of or	r use CCBs in the next 5 years, identifying:
(a) The types and volume of CCBs intended intended disposal, mine reclamation and use sites, a be disposed of or used at each site:	
No change, same as previous years.	
and (b) The different intended uses by type and volu	ume of CCBs.
No change, same as previous years	
	-

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

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

This is to certify that, to the best of my knowledge, the information contained in this report and any attached documents are true, accurate, and complete.						
	_Matt Ottaviani, Plant Manager, 301-777-0055					
Mo		2/22/2023				
Signature	Name, Title, & Telephone No. (Print or Type)	Date				
	matt.ottaviani@aes.com					
	Your Email Address					

V: Attachments (please list):

TCLP- Total Metals analysis of fly and bed ash

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Geochemical Testing

CLIENT: **AES - WARRIOR RUN INC**

Lab Order:

G2203481

Client Sample ID: Bed Ash North

Date: 16-Mar-22

22622-1

Project:

Lab ID:

AES Warrior Ash Samples

G2203481-001

Sampled By: **Collection Date:**

AES Warrior Run

2/26/2022

Matrix: ASH	<i>,</i> 1	Collection Date: 2/26/2022 Received Date: 3/8/2022 1:28:11 PM				
			Received	Date	3/8/2022 1:28	::11 PM
Analyses	Result	QL Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst: BAB	}			ASTM D6316-04
Carbon	0.991	0.501	%-dry	1		03/10/22 7:00 AM
CO2	1.03	1.00	%-dry	1		03/10/22 7:00 AM
TOTAL METALS		Analyst: LEB			EPA 3050B	FD4 0040 B
Aluminum	17900	20.0				EPA 6010 D
Antimony	< 10	10	mg/Kg-dry	1	03/10/22 7:00 AM	03/14/22 2:02 PM
Arsenic	67.9	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Barium	154	1.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Beryllium	1.38	0.10	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Boron	45.4	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Cadmium	< 5.0	5.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Chromium	33.8	5.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Cobalt	4.8	0.5	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Copper	15.2	10	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Lead	2.4	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Lithium	19.4	1.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Manganese	106	1.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Molybdenum	6.4	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Nickel	13.6	1,0	mg/Kg-dry mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Selenium	< 2.0	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Silver	< 0.5	0.5	mg/Kg-dry	1 1	03/10/22 7:00 AM	03/10/22 11:15 AM
Vanadium	69.1	0.5	mg/Kg-dry mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:15 AM
Zinc	22.9	10	mg/Kg-dry	1	03/10/22 7:00 AM 03/10/22 7:00 AM	03/10/22 11:15 AM 03/10/22 11:15 AM
ACID BASE ACCOUNTING		Analyst: RLL				
Total Sulfur	5.76	0.01	0.4			DEP OB Man p67
Max Potential Acidity	180	0.30	%	1		03/10/22 8:00 AM
Fizz Rating	2	0,30	see note	1		03/10/22 8:00 AM
Deficiency or Excess	158			1		03/10/22 8:00 AM
Neutralization Potential (CaCO3 Tons NOTES:	338		see note see note	1		03/10/22 8:00 AM 03/10/22 8:00 AM
units are: Tons CaCO3 / 1000 tons	dry					
MERCURY		Analyst: RLL				ASTM D 6722
Mercury	< 0.010	0.010	mg/Kg-dry	1		03/10/22 10:26 AM
CARBONATE RESULTS		Analyst: LEB				Calculated
Calcium Carbonate	59.6	,				Calculated

Geochemical Testing

AES - WARRIOR RUN INC

Client Sample ID: Bed Ash North

Sampled By:

Lab Order: G2203481

22622-1

Project: **AES Warrior Ash Samples**

AES Warrior Run Collection Date:

Lab ID: G2203481-001

2/26/2022

Matrix: ASH

CLIENT:

Date: 16-Mar-22

Matrix:	ASH				Received Date:		3/8/2022 1:28:11 PM	
Analyses		Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate		64.9			%	1		03/11/22 12:00 AM
Magnesium Carbona	ate	4.4			%	1		03/11/22 12:00 AM
MAJOR / MINOR	ELEMENTS IN AS	ВН	Analyst:	LEB			ASTM D6349-08	EPA 6010 D
Calcium Oxide		33.40	0.01		% Dry	1	03/10/22 6:15 AM	
Magnesium Oxide		2.11	0.01		% Dry	1	03/10/22 6:15 AM	03/11/22 1:45 PM 03/11/22 1:45 PM
TCLP EXTRACTION	ON		Analyst:	MAG				EPA 1311
Extraction Fluid Use	d	1.0	7 			1		
Final pH		12.5	1.0		S.U.	1		03/09/22 1:05 PM
Initial pH		11.9	1.0		S.U.	1		03/09/22 1:05 PM
pH with HCI		2.3	1.0		S.U.	1		03/09/22 1:05 PM
TCLP, non-volatile		NA	1.0		3.0.	1		03/09/22 1:05 PM
		,				1		03/09/22 1:05 PM
TCLP METALS			Analyst:	MAS			EPA 7470A	EPA 7470A
Mercury		< 0.0020	0.0020		mg/L	1	03/10/22 2:30 PM	03/14/22 9:10 AM
TCLP METALS			Analyst:	LEB			EPA 3010 A	EPA 6010 D
Aluminum		0.3	0.1		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Antimony		< 0.10	0.10		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Arsenic		0.03	0.02		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Barium		0.6	0.3		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Beryllium		< 0.001	0.001		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Boron		0,33	0.05		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Cadmium		< 0.002	0.002		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Chromium		< 0.01	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Cobalt		< 0.005	0.005		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Copper		< 0.01	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Lead		< 0.02	0.02		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Lithium		0.11	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Manganese		< 0.01	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Molybdenum		0.10	0.02		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Nickel		< 0.01	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Selenium		< 0.02	0.02		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Silver		< 0.005	0.005		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
/anadium		0,010	0.005		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM
Zinc		0.02	0.01		mg/L	1	03/11/22 8:10 AM	03/14/22 9:44 AM

Geochemical Testing

CLIENT: AES - WARRIOR RUN INC

Lab Order: G2203481

Project: **AES Warrior Ash Samples**

Lab ID:

Matrix:

G2203481-002

ASH

Date: 16-Mar-22

Client Sample ID: Bed Ash South

22622-2

Sampled By: **AES Warrior Run Collection Date:**

2/26/2022

Received Date: 3/8/2022 1:28:11 PM

Received Date: 5/8/2022 1:28:11 PM						:II PM
Analyses	Result	QL Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst: BAE	}.		N	ASTM D6316-04
Carbon	0.991	0.501	%-dry	1		03/10/22 7:00 AM
CO2	1.00	1.00	%-dry	1		03/10/22 7:00 AM
TOTAL METALS		Analyst: LEB			EPA 3050B	EPA 6010 D
Aluminum	15400	20.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/14/22 2:05 PM
Antimony	< 10	10	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Arsenic	90.2	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Barium	180	1.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Beryllium	1.10	0.10	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Boron	50.8	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Cadmium	< 5.0	5.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Chromium	34.6	5.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Cobalt	4.8	0.5	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Copper	14.8	10	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Lead	2.1	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Lithium	16.0	1.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Manganese	117	1.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Molybdenum	7.1	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Nickel	14.2	1.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Selenium	< 2.0	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Silver	< 0.5	0.5	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Vanadium	69.0	0.5	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
Zinc	19.4	10	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:18 AM
ACID BASE ACCOUNTING		Analyst: RLL				DEP OB Man p67
Total Sulfur	7.56	0.01	%	4		
Max Potential Acidity	236	0.30	see note	1		03/10/22 8:00 AM
Fizz Rating	2	0.50	See Hote	1 1		03/10/22 8:00 AM
Deficiency or Excess	134		see note	1		03/10/22 8:00 AM
Neutralization Potential (CaCO3 Tons) NOTES:	370		see note	1		03/10/22 8:00 AM 03/10/22 8:00 AM
units are: Tons CaCO3 / 1000 tons dry						
MERCURY		Analyst: RLL				ASTM D 6722
Mercury	0.022	0.010	mg/Kg-dry	1		03/10/22 10:26 AM
CARBONATE RESULTS		Analyst: LEB				Calculated
Calcium Carbonate	69.1		%	1		
	30.1		70	1		03/11/22 12:00 AM

Geochemical Testing

AES - WARRIOR RUN INC

Lab Order: G2203481

Project: AES Warrior Ash Samples

Lab ID:

CLIENT:

G2203481-002

C0000 404

Sampled By: Collection Date:

AES Warrior Run

22622-2

2/26/2022

Date: 16-Mar-22

Client Sample ID: Bed Ash South

Matrix:	ASH				ection Date:		.11 DM	
	AUII			***************************************		e: 3/8/2022 1:28:11 PM		
Analyses		Result	QL	Q Unit	s DF	Date Prepared	Date Analyzed	
Calcium Carbonate		75.0		%	1		03/11/22 12:00 AN	
Magnesium Carbo	nate	5.0		%	1.		03/11/22 12:00 AM	
MAJOR / MINOF	R ELEMENTS IN ASH	I	Analyst: I	LEB		ASTM D6349-08	EPA 6010 D	
Calcium Oxide		38.69	0.01	% Dr	v 1	03/10/22 6:15 AM	03/11/22 1:48 PM	
Magnesium Oxide		2.38	0.01	% Dr	-	03/10/22 6:15 AM	03/11/22 1:48 PM	
TCLP EXTRACT	TION		Analyst: I	MAG			FDA 4044	
Extraction Fluid Us	ed	1.0	,a.you	ii.AO	4		EPA 1311	
Final pH		12.5	1.0	S.U.	1		03/09/22 1:05 PM	
Initial pH		12.1	1.0	S.U. S.U.	1		03/09/22 1:05 PM	
pH with HCI		3.0	1.0	S.U.	1		03/09/22 1:05 PM	
TCLP, non-volatile		NA	1.0	3.0.	1 1		03/09/22 1:05 PM 03/09/22 1:05 PM	
TCLP METALS			Analyst: i	MAS		EPA 7470A	EPA 7470A	
Mercury		< 0.0020	0.0020	mg/L	1	03/10/22 2:30 PM	03/14/22 9:12 AM	
TCLP METALS			Analyst: I	FR		EPA 3010 A	EPA 6010 D	
Aluminum		0.3	0.1	mg/L	1			
Antimony		< 0.10	0.10	mg/L	1	03/11/22 8:10 AM 03/11/22 8:10 AM	03/14/22 9:46 AM	
Arsenic		0.04	0.02	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Barium		0.7	0.3	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Beryllium		< 0.001	0.001	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM 03/14/22 9:46 AM	
Boron		0.36	0.05	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Cadmium		< 0.002	0.002	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Chromium		0.01	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Cobalt		< 0.005	0.005	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Copper		< 0.01	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Lead		< 0.02	0.02	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
_ithium		0.08	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Manganese		< 0.01	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Molybdenum		0.11	0.02	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Nickel		< 0.01	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Selenium		< 0.02	0.02	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Silver		< 0.005	0.005	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
/anadium		0.008	0.005	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	
Zinc		0.02	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:46 AM	

Geochemical Testing

CLIENT: AES - WARRIOR RUN INC

Lab Order: G2203481

Project: **AES Warrior Ash Samples**

Lab ID:

G2203481-003 Matrix: ASH

Client Sample ID: Fly Ash

Sampled By:

AES Warrior Run

22622-3

Collection Date: 2/26/2022

Received Date: 3/8/2022 1:28:11 PM

Date: 16-Mar-22

Analyses	Result	QL Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst: BA	3			ASTM D6316-04
Carbon	9.50	0.501	%-dry	1		03/10/22 7:00 AM
CO2	1.05	1.00	%-dry	1		03/10/22 7:00 AM
TOTAL METALS		Analyst: LEE	3		EPA 3050B	EPA 6010 D
Aluminum	35400	20.0	mg/Kg-dry	1	03/10/22 7:00 AM	
Antimony	< 10	10	mg/Kg-dry	1	03/10/22 7:00 AM	03/14/22 2:07 PM
Arsenic	42.2	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 A
Barium	497	1.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AN
Beryllium	2.80	0.10	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Boron	41.4	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AM
Cadmium	< 5.0	5.0	mg/Kg-dry	1		03/10/22 11:21 AN
Chromium	37.7	5.0			03/10/22 7:00 AM	03/10/22 11:21 AM
Cobalt	9.8	0.5	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AN
Copper	31.7	10	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AN
Lead	15.0	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AN
Lithium	66.5	1.0	mg/Kg-dry mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AN
Manganese	100	1.0		1	03/10/22 7:00 AM	03/10/22 11:21 AN
Molybdenum	5.5	2.0	mg/Kg-dry mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AN
Nickel	25.6	1.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AN
Selenium	7.0	2.0	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AN
Silver	< 0.5	0.5		1	03/10/22 7:00 AM	03/10/22 11:21 AN
Vanadium	86.5	0.5	mg/Kg-dry	1	03/10/22 7:00 AM	03/10/22 11:21 AN
Zinc	44.2	10	mg/Kg-dry mg/Kg-dry	1 1	03/10/22 7:00 AM 03/10/22 7:00 AM	03/10/22 11:21 AN 03/10/22 11:21 AN
ACID BASE ACCOUNTING		Analyst: RLL				DED OD 14
Total Sulfur	3.26	0.01	%			DEP OB Man p67
Max Potential Acidity	102	0.30		1		03/10/22 8:00 AM
Fizz Rating	2	0.50	see note	1		03/10/22 8:00 AM
Deficiency or Excess	153			1		03/10/22 8:00 AM
Neutralization Potential (CaCO3 Tons) NOTES:	255		see note see note	1		03/10/22 8:00 AM 03/10/22 8:00 AM
units are: Tons CaCO3 / 1000 tons dry						
MERCURY		Analyst: RLL				ASTM D 6722
Mercury	0.795	0.010	mg/Kg-dry	1		03/10/22 10:26 AM
CARBONATE RESULTS		Analyst: LEB				Coloulated
Calcium Carbonate	42.6	. analysis EED	%	1		O3/11/22 12:00 AM

Geochemical Testing

AES - WARRIOR RUN INC

Lab Order: G2203481

AES Warrior Ash Samples

Lab ID:

CLIENT:

Project:

G2203481-003

Matrix: ASH

Date: 16-Mar-22

22622-3

Client Sample ID: Fly Ash

Sampled By: AES Warrion

Sampled By: AES Warrior Run
Collection Date: 2/26/2022

Received Date: 3/8/2022 1:28:11 PM

Matrix: A5H		Received Date: 3/8/2022 1:28:11 P							
Analyses	Result	QL	Q Units	DF	Date Prepared	Date Analyzed			
Calcium Carbonate Equivalent	46.8		%	1	 	03/11/22 12:00 AN			
Magnesium Carbonate	3.5		%	1		03/11/22 12:00 AN			
MAJOR / MINOR ELEMENTS IN A	SH	Analyst:	LEB		ASTM D6349-08	EPA 6010 D			
Calcium Oxide	23.86	0.01	% Dry	1	03/10/22 6:15 AM				
Magnesium Oxide	1.67	0.01	% Dry	1	03/10/22 6:15 AM	03/11/22 1:50 PM 03/11/22 1:50 PM			
TCLP EXTRACTION		Analyst:	MAG			ED4 444			
Extraction Fluid Used	2.0	Allalyst.	IVIAG			EPA 1311			
Final pH	12.2	1.0	0.11	1		03/09/22 1:05 PM			
Initial pH	12.7	1.0	S.U.	1		03/09/22 1:05 PM			
pH with HCI	12.7	1.0	S.U.	1		03/09/22 1:05 PM			
TCLP, non-volatile		1.0	S.U.	1		03/09/22 1:05 PM			
Total , non-volatile	NA			1		03/09/22 1:05 PM			
TCLP METALS		Analyst:	MAS		EPA 7470A	EPA 7470A			
Mercury	< 0.0020	0.0020	mg/L	1	03/10/22 2:30 PM	03/14/22 9:14 AM			
TCLP METALS		Analyst:	LEB		EPA 3010 A	EPA 6010 D			
Aluminum	0.2	0.1	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Antimony	< 0.10	0.10	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Arsenic	0.03	0.02	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Barium	0.9	0.3	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Beryllium	< 0.001	0.001	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Boron.	0.28	0.05	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Cadmium	< 0.002	0.002	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Chromium	0.08	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Cobalt	< 0.005	0.005	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Copper	< 0.01	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Lead	< 0.02	0.02	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Lithium	0.15	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Manganese	< 0.01	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Molybdenum	0.14	0.02	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Nickel	< 0.01	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Selenium	< 0.02	0.02	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Silver	< 0.005	0.005	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Vanadium	0.012	0.005	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			
Zinc	0.02	0.01	mg/L	1	03/11/22 8:10 AM	03/14/22 9:49 AM			

Geochemical Testing

AES - WARRIOR RUN INC

Client Sample ID: Bed Ash-North

Date: 13-Jul-22

CLIENT: Lab Order:

G2207112

62922-1

Project:

Sampled By:

Lab ID:

AES Warrior Ash Samples

AES Warrior Run 6/29/2022

G2207112-001

Collection Date:

Matrix: ASH				Received	Date:	7/1/2022 1:15	:00 PM
Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst:	ВАВ				ASTM D6316-04
Carbon	1.07	0.501		%-dry	1		07/08/22 5:00 AM
CO2	1.03	1.00		%-dry	1		07/08/22 5:00 AM
TOTAL METALS		Analyst:	LEB			EPA 3050B	EPA 6010 D
Aluminum	21300	20.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Antimony	< 10	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Arsenic	54.9	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Barium	205	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Beryllium	1.29	0.10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Boron	48.0	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/12/22 8:53 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Chromium	33.4	5.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Cobalt	7.7	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Copper	19.7	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Lead	6.0	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Lithium	31.4	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Manganese	100	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Molybdenum	5,3	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Nickel	17.8	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Vanadium	65.6	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
Zinc	22,9	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:54 AM
ACID BASE ACCOUNTING		Analyst:	BAB				DEP OB Man p67
Total Sulfur	8,20	0.01		%	1		07/08/22 10:00 AM
Max Potential Acidity	256	0.30		see note	1		07/08/22 10:00 AM
Fizz Rating	2	0.00		occ note	1		07/08/22 10:00 AM
Deficiency or Excess	80.5			see note	1		07/08/22 10:00 AM
Neutralization Potential (CaCO3 Tons) NOTES: units are: Tons CaCO3 / 1000 tons dry	337			see note	1		07/08/22 10:00 AM
MERCURY		Analyst:	BAB				ASTM D 6722
Mercury	< 0.010	0.010		mg/Kg-dry	1		07/07/22 6:58 AM
CARBONATE RESULTS		Analyst:	LEB				Calculated
Calcium Carbonate	61.3	,		%	1		07/08/22 12:00 AM

Geochemical Testing

Date: 13-Jul-22

CLIENT: AES - WARRIOR RUN INC

Lab Order:

Client Sample ID: Bed Ash-North

62922-1

Project:

G2207112

AES Warrior Ash Samples

Sampled By:

AES Warrior Run

Lab ID:

G2207112-001

Collection Date:

6/29/2022

Matrix: G220/112-001 Matrix: ASH				ed Date:			
Analyses	Result	QL () Units	DF	Date Prepared	Date Analyzed	
Calcium Carbonate Equivalent	66.0	······································	%	1	t also	07/08/22 12:00 AM	
Magnesium Carbonate	4.0		%	1		07/08/22 12:00 AM	
MAJOR / MINOR ELEMENTS IN ASH	l	Analyst: LE	В		ASTM D6349-08	EPA 6010 D	
Calcium Oxide	34.33	0.01	% Dry	1	07/08/22 7:00 AM	07/08/22 1:17 PM	
Magnesium Oxide	1.90	0.01	% Dry	1	07/08/22 7:00 AM	07/08/22 1:17 PM	
TCLP EXTRACTION		Analyst: R.	JΥ			EPA 1311	
Extraction Fluid Used	1.0	-		1		07/07/22 1:32 PM	
Final pH	12.5	1.0	S.U.	1		07/07/22 1:32 PM	
Initial pH	11.8	1.0	S.U.	1		07/07/22 1:32 PM	
pH with HCl	2.1	1.0	S.U.	1		07/07/22 1:32 PM	
TCLP, non-volatile	NA			1		07/07/22 1:32 PM	
TCLP METALS		Analyst: L)	CM		EPA 7470A	EPA 7470A	
Mercury	< 0.0020	0.0020	mg/L	1	07/08/22 11:55 AM	07/11/22 11:49 AM	
TCLP METALS		Analyst: LE	В		EPÁ 3010 A	EPA 6010 D	
Aluminum	0.5	0.1	mg/L	1	07/08/22 9:00 AM	07/12/22 9:01 AM	
Antimony	< 0.10	0.10	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Arsenic	< 0.02	0.02	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Barium	0.8	0.3	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Beryllium	< 0.001	0.001	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Boron	0.62	0.05	mg/L	1	07/08/22 9:00 AM	07/12/22 9:01 AM	
Cadmium	< 0.002	0.002	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Chromium	0.01	0.01	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Cobalt	< 0.005	0.005	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Copper	< 0.01	0.01	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Lead	< 0.02	0.02	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Lithium	0.08	0.01	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Manganese	< 0.01	0.01	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Molybdenum	0.08	0.02	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Nickel	< 0.01	0.01	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Selenium	< 0.02	0.02	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Silver	< 0.005	0.005	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Vanadium	0.007	0.005	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	
Zinc	< 0.01	0.01	mg/L	1	07/08/22 9:00 AM	07/08/22 12:21 PM	

Geochemical Testing

Date: 13-Jul-22

CLIENT: AES - WARRIOR RUN INC

Client Sample ID: Bed Ash South

Lab Order:

G2207112

62922-2

Project:

AES Warrior Ash Samples

Sampled By:

AES Warrior Run

Lab ID:

G2207112-002

Collection Date:

6/29/2022

Matrix: ASH			Received	Date:	7/1/2022 1:15	:00 PM
Analyses	Result	QL Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst: BAB				ASTM D6316-04
Carbon	2.77	0.500	%-dry	1		07/08/22 5:00 AM
CO2	1.04	1.00	%-dry	1		07/08/22 5:00 AM
TOTAL METALS		Analyst: LEB			EPA 3050B	EPA 6010 D
Aluminum	23000	20.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Antimony	< 10	10	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Arsenic	38.0	2.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Barium	190	1.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Beryllium	1.19	0.10	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Boron	39.6	2.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/12/22 8:56 AM
Cadmium	< 5.0	5.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Chromium	27.1	5.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Cobalt	7.2	0.5	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Copper	20.9	10	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Lead	7.8	2.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Lithium	43.2	1.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Manganese	83.6	1.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/12/22 8:56 AM
Molybdenum	3.5	2.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Nickel	16.5	1.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Selenium	< 2.0	2.0	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Silver	< 0.5	0.5	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Vanadium	49.1	0.5	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
Zinc	26.2	10	mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 10:58 AM
ACID BASE ACCOUNTING		Analyst: BAB				DEP OB Man p67
Total Sulfur	6.11	0.01	%	1		07/08/22 10:00 AM
Max Potential Acidity	191	0.30	see note	1		07/08/22 10:00 AM
Fizz Rating	2			1		07/08/22 10:00 AM
Deficiency or Excess	92.5		see note	1		07/08/22 10:00 AM
Neutralization Potential (CaCO3 Tons) NOTES: units are: Tons CaCO3 / 1000 tons dry	283		see note	1		07/08/22 10:00 AM
-						
MERCURY		Analyst: BAB				ASTM D 6722
Mercury	< 0.010	0.010	mg/Kg-dry	1		07/07/22 6:58 AM
CARBONATE RESULTS		Analyst: LEB				Calculated
Calcium Carbonate	48.3	-	%	1		07/08/22 12:00 AM

Geochemical Testing

Date: 13-Jul-22

CLIENT:

AES - WARRIOR RUN INC

Client Sample ID: Bed Ash South

Sampled By:

Lab Order:

G2207112

Project:

AES Warrior Ash Samples

AES Warrior Run

62922-2

Lab ID:

G2207112-002

Collection Date: 6/29/2022

Matrix: ASH				Received Date		e: 7/1/2022 1:15:00 PM		
Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
Calcium Carbonate Equivalent	52.2	West		%	1		07/08/22 12:00 AM	
Magnesium Carbonate	3.3			%	1		07/08/22 12:00 AM	
MAJOR / MINOR ELEMENTS IN AS	Н	Analyst:	LEB			ASTM D6349-08	EPA 6010 D	
Calcium Oxide	27.06	0.01		% Dry	1	07/08/22 7:00 AM	07/08/22 1:22 PM	
Magnesium Oxide	1.57	0.01		% Dry	1	07/08/22 7:00 AM	07/08/22 1:22 PM	
TCLP EXTRACTION		Analyst:	RJY				EPA 1311	
Extraction Fluid Used	1.0				1		07/07/22 1:32 PM	
Final pH	12.4	1.0		S.U.	1		07/07/22 1:32 PM	
Initial pH	11.7	1.0		S.U.	1		07/07/22 1:32 PM	
pH with HCl	1.8	1.0		S.U.	1		07/07/22 1:32 PM	
TCLP, non-volatile	NA				1		07/07/22 1:32 PM	
TCLP METALS		Analyst:	LXM			EPA 7470A	EPA 7470A	
Mercury	< 0.0020	0.0020		mg/L	1	07/08/22 11:55 AM	07/11/22 11:50 AM	
TCLP METALS		Analyst:	LEB			EPA 3010 A	EPA 6010 D	
Aluminum	0.6	0.1		mg/L	1	07/08/22 9:00 AM	07/12/22 9:04 AM	
Antimony	< 0.10	0.10		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Arsenic	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Barium	0.8	0.3		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Beryllium	< 0.001	0.001		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Boron	3.7	0.05		mg/Ĺ	1	07/08/22 9:00 AM	07/12/22 9:04 AM	
Cadmium	< 0.002	0.002		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Chromium	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Cobalt	< 0.005	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Copper	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Lead	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Lithium	0.12	0,01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Manganese	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Molybdenum	9.08	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Nickel	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Selenium	< 0.02	0.02		mg/L	1	07/08/22 9:00 AM	07/08/22 12;25 PM	
Silver	< 0.005	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Vanadium	0.007	0.005		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	
Zinc	< 0.01	0.01		mg/L	1	07/08/22 9:00 AM	07/08/22 12:25 PM	

Geochemical Testing

Date: 13-Jul-22

CLIENT:

AES - WARRIOR RUN INC

AES Warrior Ash Samples

Client Sample ID: Fly Ash

62922-3

Lab Order: Project:

G2207112

Sampled By:

AES Warrior Run

Lab ID:

G2207112-003

Collection Date: 6/29/2022

Matrix: ASH				Received	Date:	7/1/2022 1:15	:00 PM
Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst:	BAB				ASTM D6316-04
Carbon	12.1	0.500		%-dry	1		07/08/22 5:00 AM
CO2	1.02	1.00		%-dry	1		07/08/22 5:00 AM
TOTAL METALS		Analyst:	LEB			EPA 3050B	EPA 6010 D
Aluminum	40100	20.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Antimony	< 10	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Arsenic	41.3	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Barium	649	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Beryllium	3.10	0.10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Boron	37.1	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/12/22 8:59 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Chromium	46.9	5.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Cobalt	15.8	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Copper	36.8	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Lead	26.4	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Lithium	69.4	1,0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Manganese	83.2	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/12/22 8:59 AM
Molybdenum	6.4	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Nickel	38.4	1.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Selenium	7.9	2.0		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Vanadium	91.3	0.5		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
Zinc	55.9	10		mg/Kg-dry	1	07/08/22 7:15 AM	07/08/22 11:03 AM
ACID BASE ACCOUNTING		Analyst:	BAB				DEP OB Man p67
Total Sulfur	3.12	0.01		%	1		07/08/22 10:00 AM
Max Potential Acidity	97.5	0.30		see note	1		07/08/22 10:00 AM
Fizz Rating	2				1		07/08/22 10:00 AM
Deficiency or Excess	109			see note	1		07/08/22 10:00 AM
Neutralization Potential (CaCO3 Tons) NOTES: units are: Tons CaCO3 / 1000 tons dry	206			see note	1		07/08/22 10:00 AM
MERCURY		Analyst:	BAB				ASTM D 6722
Mercury	0.861	0.010		mg/Kg-dry	1		07/07/22 6:58 AM
CARBONATE RESULTS		Analyst:	LEB				Calculated
Calcium Carbonate	35.1			%	1		07/08/22 12:00 AM
No. 10. No. 10	JJ. 1			,,,	•		THOUSE TE.OU AIVI

Geochemical Testing

Date: 13-Jul-22

CLIENT:

AES - WARRIOR RUN INC

Client Sample ID: Fly Ash

Lab Order:

G2207112

62922-3

Project:

AES Warrior Ash Samples

Sampled By:

AES Warrior Run

Lab ID:

G2207112-003

Collection Date:

6/29/2022

Analyses Result QL Q Units DF Date Prepared Date Analyst	Lab ID: G220/112-003 Matrix: ASH				ed Date:			
Magnesium Carbonate 3.1 % 1 07/08/22 12:0 MAJOR / MINOR ELEMENTS IN ASH Analyst: LEB ASTM D6349-08 EPA 6010 D Calcium Oxide 19.66 0.01 % Dry 1 07/08/22 7:00 AM 07/08/22 1:27 TCLP EXTRACTION Analyst: MAG EPA 1311 EPA 1311 Extraction Fluid Used 2.0 1 07/06/22 12:3 Final pH 12.0 1.0 S.U. 1 07/06/22 12:3 PH with HCl 12.0 1.0 S.U. 1 07/06/22 12:3 TCLP, non-volatile NA 1 07/06/22 12:3 07/06/22 12:3 TCLP METALS Analyst: LXM EPA 7470A EPA 7470A Mercury < 0.0020 0.0020 mg/L 1 07/08/22 9:00 AM 07/11/22 11:1 TCLP METALS Analyst: LEB EPA 3010 A EPA 6010 D D Aluminum 0.4 0.1 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 TCLP METALS Analyst: LEB EPA 3010 A E	Analyses	Result	QL Q	Units	DF	Date Prepared	Date Analyzed	
MAJOR / MINOR ELEMENTS IN ASH Analyst: LEB ASTM D6349-08 EPA 6010 D Calcium Oxide 19.66 0.01 % Dry 1 07/08/22 7:00 AM 07/08/22 1:27 Magnesium Oxide 1.48 0.01 % Dry 1 07/08/22 7:00 AM 07/08/22 1:27 TCLP EXTRACTION Analyst: MAG EPA 1311 Extraction Fluid Used 2.0 1 0.0 5.U 1 07/06/22 12:3 Final pH 12.0 1.0 S.U 1 07/06/22 12:3 07/06/22 12:3 Hillial pH 12.0 1.0 S.U 1 07/06/22 12:3 07/06/22 12:3 TCLP, non-volatile NA 1 0.7/06/22 12:3 07/06/22 12:3 TCLP METALS Analyst: LXM EPA 7470A EPA 7470A Mercury < 0.0020	Calcium Carbonate Equivalent	38.8		%	1		07/08/22 12:00 AM	
Calcium Oxide 19.66 0.01 % Dry 1 07/08/22 7:00 AM 07/08/22 1:27 Magnesium Oxide 1.48 0.01 % Dry 1 07/08/22 7:00 AM 07/08/22 1:23 TCLP EXTRACTION Analyst: MAG EPA 1311 Extraction Fluid Used 2.0 1 07/06/22 12:3 Final pH 12.0 1.0 S.U. 1 07/06/22 12:3 PH with HCl 12.0 1.0 S.U. 1 07/06/22 12:3 TCLP, non-volatile NA S.U. 1 07/08/22 11:55 AM 07/11/22 11:1 TCLP METALS Analyst: LXM EPA 7470A EPA 6010 D D Murinium 0.4 0.1 mg/L 1 07/08/22 10:0 AM 07/11/22 11:1 TCLP METALS Analyst: LEB EPA 3010 A EPA 6010 D Aluminum 0.4 0.1 mg/L 1 07/08/22 9:00 AM 07/12/22 9:06 Arsenic 0.02 0.02 mg/L 1 07/08/22 9:00 AM 07/12/22 9:06	Magnesium Carbonate	3.1		%	1		07/08/22 12:00 AM	
Magnesium Oxide	MAJOR / MINOR ELEMENTS IN ASH		Analyst: LE	В		ASTM D6349-08	EPA 6010 D	
TCLP EXTRACTION Analyst: MAG Etha 1311 Extraction Fluid Used 2.0 1 07/06/22 12:3 Final pH 12.0 1.0 S.U. 1 07/06/22 12:3 pH with HCl 12.0 1.0 S.U. 1 07/06/22 12:3 TCLP, non-volatile NA Analyst: LXM EPA 7470A EPA 7470A EPA 7470A EPA 7470A Mercury < 0.0020 0.0020 mg/L 1 07/08/22 11:55 AM 07/11/22 11:1 TCLP METALS Analyst: LEB EPA 3010 A EPA 6010 D Aluminum 0.4 0.11 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Arsenic < 0.002 0.002 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 EPA 3010 A EPA 6010 D Aluminum 0.4 0.10 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Arsenic < 0.02 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Barium 0.8 0.3 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium < 0.001 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Boron 0.40 0.05 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Boron 0.40 0.05 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Boron 0.40 0.05 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Boron 0.40 0.05 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cadmium < 0.002 0.002 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt 0.010 0.011 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt 0.020 0.030 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt 0.010 0.011 mg/L 0.07/08/22 9:00 AM 07/08/22 12:3 Cobalt 0.020 0.030 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt 0.010 0.011 mg/L 0.07/08/22 9:00 AM 07/08/22 12:3 Cobalt 0.020 0.030 0.0	Calcium Oxide	19.66	0.01	% Dry	1	07/08/22 7:00 AM	07/08/22 1:27 PM	
Extraction Fluid Used 2.0 1.0 S.U. 1 07/06/22 12:3 Final pH 12.0 1.0 S.U. 1 07/06/22 12:3 Initial pH 12.6 1.0 S.U. 1 07/06/22 12:3 PH with HCl 12.0 1.0 S.U. 1 07/06/22 12:3 PH with HCl 12.0 1.0 S.U. 1 07/06/22 12:3 TCLP, non-volatile NA 1 07/06/22 12:3 TCLP METALS Analyst: LXM EPA 7470A EPA 7470A Mercury <0.0020 0.0020 mg/L 1 07/08/22 11:55 AM 07/11/22 11:1 TCLP METALS Analyst: LEB EPA 3010 A EPA 6010 D Aluminum 0.4 0.1 mg/L 1 07/08/22 9:00 AM 07/12/22 9:00 Antimony 0.10 0.10 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Barium 0.8 0.3 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium 0.01 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium 0.001 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium 0.001 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Boron 0.040 0.05 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Boron 0.040 0.05 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cadmium 0.17 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Manganese 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Molydenum 0.16 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Molydenum 0.16 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Silver 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Silver 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Vanadium 0.019 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3	Magnesium Oxide	1.48	0.01	% Dry	1	07/08/22 7:00 AM	07/08/22 1:27 PM	
Final pH	TCLP EXTRACTION		Analyst: MA	∖G			EPA 1311	
Final pH 12.0 1.0 S.U. 1 07/06/22 12:3 Initial pH 12.6 1.0 S.U. 1 07/06/22 12:3 pH with HCl 12.0 1.0 S.U. 1 07/06/22 12:3 TCLP, non-volatile NA 1 07/06/22 12:3 TCLP METALS Analyst: LXM EPA 7470A EPA 7470A Mercury < 0.0020	Extraction Fluid Used	2.0	•		1		07/06/22 12:30 PM	
Initial pH 12.6 1.0 S.U. 1 07/06/22 12:3 pH with HCl 12.0 1.0 S.U. 1 07/06/22 12:3 TCLP, non-volatile NA 1 07/06/22 12:3 TCLP METALS Analyst: LEB EPA 7470A EPA 6010 D D TCLP METALS Analyst: LEB EPA 3010 A EPA 6010 D D Aluminum 0.4 0.1 mg/L 1 07/08/22 9:00 AM 07/11/22 9:06 Antimony < 0.10	Final pH		1.0	S.U.	1		07/06/22 12:30 PM	
pH with HCl 12.0 1.0 S.U. 1 07/06/22 12:3 TCLP, non-volatile NA 1 07/06/22 12:3 TCLP, non-volatile NA 1 07/06/22 12:3 TCLP METALS Analyst: LEB EPA 7470A EPA 6010 D TCLP METALS Analyst: LEB EPA 3010 A EPA 6010 D Aluminum 0.4 0.1 mg/L 1 07/08/22 9:00 AM 07/12/22 9:00 Antimony 0.10 0.10 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Arsenic 0.02 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium 0.8 0.3 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium 0.001 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium 0.001 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cadmium 0.002 0.002 0.002 mg/L 1 <td>Initial pH</td> <td>12.6</td> <td></td> <td></td> <td>1</td> <td></td> <td>07/06/22 12:30 PM</td>	Initial pH	12.6			1		07/06/22 12:30 PM	
TCLP METALS Mercury Analyst: LEB Analyst: LEB EPA 3010 A EPA 6010 D Aluminum 0.4 0.10 mg/L 1 07/08/22 11:55 AM 07/11/22 11:1 TCLP METALS Analyst: LEB EPA 3010 A EPA 6010 D Aluminum 0.4 0.10 mg/L 1 07/08/22 9:00 AM 07/08/22 9:00 AM 07/08/22 9:00 AM 07/08/22 9:00 AM 07/08/22 9:00 AM 07/08/22 9:00 AM 07/08/22 9:00 AM 07/08/22 9:00 AM 07/08/22 9:00 AM 07/08/22 9:00 AM 07/08/22 9:00 AM 07/08/22 9:00 AM 07/08/22 12:3 Beryllium 0.8 0.3 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium 4 0.001 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium 4 0.001 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cadmium 4 0.002 0.002 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt 4 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper 4 0.01 0.0	pH with HCI	12.0	1.0	S.U.	1		07/06/22 12:30 PM	
Mercury < 0.0020 0.0020 mg/L 1 07/08/22 11:55 AM 07/11/22 11:15 TCLP METALS Analyst: LEB EPA 3010 A EPA 6010 D Aluminum 0.4 0.1 mg/L 1 07/08/22 9:00 AM 07/12/22 9:00 Antimony < 0.10 0.10 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Arsenic < 0.02 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Barium 0.8 0.3 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium < 0.001 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Boron 0.40 0.05 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cadmium < 0.002 0.002 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Chromium 0.17 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt < 0.005 0.005 mg/L 1 07/08/22 9:0	TCLP, non-volatile	NA			1		07/06/22 12:30 PM	
Mercury < 0.0020 0.0020 mg/L 1 07/08/22 11:55 AM 07/11/22 11:15 TCLP METALS Analyst: LEB EPA 3010 A EPA 6010 D Aluminum 0.4 0.1 mg/L 1 07/08/22 9:00 AM 07/12/22 9:06 Antimony < 0.10 0.10 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Arsenic < 0.02 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium 0.8 0.3 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Boron 0.40 0.05 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt < 0.001 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper < 0.01	TCLP METALS		Analyst: LX	M		EPA 7470A	EPA 7470A	
Aluminum 0.4 0.1 mg/L 1 07/08/22 9:00 AM 07/12/22 9:06 Antimony < 0.10 0.10 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Arsenic < 0.02 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Barium 0.8 0.3 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium < 0.001 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Boron 0.40 0.05 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Boron 0.40 0.05 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cadmium < 0.002 0.002 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Chromium 0.17 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt < 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper < 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Lithium 0.12 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Manganese < 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Molybdenum 0.16 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Molybdenum 0.16 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Selenium < 0.002 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Silver < 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Silver < 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3	Mercury	< 0.0020			1	07/08/22 11:55 AM	07/11/22 11:14 AM	
Aluminum 0.4 0.1 mg/L 1 07/08/22 9:00 AM 07/12/22 9:06 9:06 Antimony < 0.10 0.10 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 12:3 Arsenic < 0.02 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 12:3 Barium 0.8 0.3 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 12:3 Beryllium < 0.001 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 12:3 Boron 0.40 0.05 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 12:3 Cadmium < 0.002 0.002 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 12:3 Chromium 0.17 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 12:3 Cobalt < 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 12:3 Copper < 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 12:3 L	TCLP METALS		Analyst: LE	В		EPA 3010 A	EPA 6010 D	
Antimony < 0.10 0.10 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Arsenic < 0.02	Aluminum	0.4	=		1	07/08/22 9:00 AM	07/12/22 9:06 AM	
Arsenic < 0.02 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Barium 0.8 0.3 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium < 0.001	Antimony	< 0.10	0.10	-			07/08/22 12:30 PM	
Barium 0.8 0.3 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Beryllium < 0.001	Arsenic	< 0.02	0.02		1		07/08/22 12:30 PM	
Beryllium < 0.001 0.001 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Boron 0.40 0.05 mg/L 1 07/08/22 9:00 AM 07/12/22 9:06 Cadmium < 0.002	Barium	0.8	0.3		1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Cadmium < 0.002 0.002 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Chromium 0.17 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt < 0.005	Beryllium	< 0.001	0.001		1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Chromium 0.17 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Cobalt < 0.005	Boron	0.40	0.05	mg/L	1	07/08/22 9:00 AM	07/12/22 9:06 AM	
Cobalt < 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Copper < 0.01	Cadmium	< 0.002	0.002	mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Copper < 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Lead < 0.02	Chromium	0.17	0.01	mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Lead < 0.02	Cobalt	< 0.005	0.005	mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Lithium 0.12 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Manganese < 0.01	Copper	< 0.01	0.01	mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Manganese < 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Molybdenum 0.16 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Nickel < 0.01	Lead	< 0.02	0.02	mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Molybdenum 0.16 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Nickel < 0.01	Lithium	0.12	0.01	mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Nickel < 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Selenium < 0.02	Manganese	< 0.01	0.01	mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Selenium < 0.02 0.02 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Silver < 0.005	•			-	1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Silver < 0.005 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3 Vanadium 0.019 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3				mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Vanadium 0.019 0.005 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3			0.02	mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM	
				mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM	
Zinc < 0.01 0.01 mg/L 1 07/08/22 9:00 AM 07/08/22 12:3				mg/L	1		07/08/22 12:30 PM	
	∠inc	< 0.01	0.01	mg/L	1	07/08/22 9:00 AM	07/08/22 12:30 PM	

Date: 21-Nov-22

Geochemical Testing

CLIENT: AES - WARRIOR RUN INC Client Sample ID: Bed Ash-North

Lab Order: G2211634

11422-1 **Project: AES Warrior Ash Samples** Sampled By: **AES Warrior Run**

Collection Date: 11/4/2022 12:00:01 AM Lab ID: G2211634-001

Matrix: ASH				Received	Date:	11/10/2022 8:	33:23 AM
Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
SOLID FORMS OF CARBON		Analyst:	BAB				ASTM D6316-04
Carbon	0.811	0.501		%-dry	1		11/14/22 5:00 AM
CO2	< 1.00	1.00		%-dry	1		11/14/22 5:00 AM
TOTAL METALS		Analyst:	LEB			EPA 3050B	EPA 6010 D
Aluminum	24500	20.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Antimony	< 10	10	M2	mg/Kg-dry	1	11/17/22 8:00 AM	11/17/22 2:41 PM
Arsenic	53.0	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Barium	201	1.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Beryllium	1.68	0.10		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Boron	48.8	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Chromium	34.5	5.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Cobalt	6.6	0.5		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Copper	25.4	10		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Lead	6.3	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Lithium	40.5	1.0	M1	mg/Kg-dry	1	11/17/22 8:00 AM	11/17/22 2:41 PM
Manganese	127	1.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Molybdenum	4.1	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Nickel	19.1	1.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Vanadium	66.7	0.5		mg/Kg-dry	1	11/11/22 8:15 AM	11/11/22 10:23 AM
Zinc NOTES:	24.7	10		mg/Kg-dry	1	11/11/22 8:15 AM	11/14/22 8:49 PM
M1 - MS recovery above the acceptance lin	nits.						
M2 - MS recovery below the acceptance lim	nits.						
ACID BASE ACCOUNTING		Analyst:	JCS				DEP OB Man p67
Total Sulfur	6.86	0.01		%	1		11/11/22 1:00 PM
Max Potential Acidity	214	0.30		see note	1		11/11/22 1:00 PM
Fizz Rating	2				1		11/11/22 1:00 PM
Deficiency or Excess	91.3			see note	1		11/11/22 1:00 PM
Neutralization Potential (CaCO3 Tons)	306			see note	1		11/11/22 1:00 PM
NOTES:							
units are: Tons CaCO3 / 1000 tons dry							
MERCURY		Analyst:	RLL				ASTM D 6722
Mercury	< 0.010	0.010		mg/Kg-dry	1		11/15/22 11:03 AM



Date: 21-Nov-22

Geochemical Testing

Vanadium

CLIENT: AES - WARRIOR RUN INC Client Sample ID: Bed Ash-North

G2211634 Lab Order:

11422-1 Sampled By: **Project: AES Warrior Ash Samples AES Warrior Run**

Collection Date: 11/4/2022 12:00:01 AM Lab ID: G2211634-001 11/10/2022 8:33:23 AM Matrix: **ASH Received Date:**

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

11/15/22 11:50 AM

11/15/22 8:10 AM

0.005

mg/L

0.011

Date: 21-Nov-22

11422-1

Geochemical Testing

CLIENT: AES - WARRIOR RUN INC Client Sample ID: Bed Ash-North

Lab Order: G2211634

 Project:
 AES Warrior Ash Samples
 Sampled By:
 AES Warrior Run

 Lab ID:
 G2211634-001
 Collection Date:
 11/4/2022 12:00:01 AM

 Matrix:
 ASH
 Received Date:
 11/10/2022 8:33:23 AM

 Analyses
 Result
 QL
 Q Units
 DF
 Date Prepared
 Date Analyzed

 Zinc
 0.04
 0.01
 mg/L
 1
 11/15/22 8:10 AM
 11/18/22 9:19 AM

Date: 21-Nov-22

Geochemical Testing

CLIENT: AES - WARRIOR RUN INC Client Sample ID: Bed Ash South

G2211634 Lab Order:

11422-2 **Project: AES Warrior Ash Samples** Sampled By: **AES Warrior Run**

11/4/2022 12:00:01 AM **Collection Date:** Lab ID: G2211634-002

11/10/2022 8:33:23 AM **Received Date:** Matrix: ASH

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

Date: 21-Nov-22

Geochemical Testing

CLIENT: AES - WARRIOR RUN INC Client Sample ID: Bed Ash South

Lab Order:G221163411422-2Project:AES Warrior Ash SamplesSampled By:AES Warrior Run

Lab ID: G2211634-002 **Collection Date:** 11/4/2022 12:00:01 AM

Lab ID:	G2211634-002				Collection Date: 11/4/2022 12:00:01 AM				
Matrix:	ASH				Receive	ed Date:	11/10/2022 8:	33:23 AM	
Analyses		Result	QL	Q	Units	DF	Date Prepared	Date Analyzed	
Calcium Carbona	ate Equivalent	90.8			%	1		11/14/22 7:47 PM	
Magnesium Carb	oonate	7.6			%	1		11/14/22 7:47 PM	
MAJOR / MINO	OR ELEMENTS IN ASH	4	Analyst:	LEB			ASTM D6349-08	EPA 6010 D	
Calcium Oxide		45.77	0.01		% Dry	1	11/12/22 6:40 AM	11/14/22 7:47 PM	
Magnesium Oxid	le	3.63	0.01		% Dry	1	11/12/22 6:40 AM	11/14/22 7:47 PM	
TCLP EXTRAC	CTION		Analyst:	RJY				EPA 1311	
Extraction Fluid I	Used	1.0				1		11/13/22 11:51 AM	
Final pH		12.5	1.0		S.U.	1		11/13/22 11:51 AM	
Initial pH		11.8	1.0		S.U.	1		11/13/22 11:51 AM	
pH with HCl		1.9	1.0		S.U.	1		11/13/22 11:51 AM	
TCLP, non-volati	ile	NA				1		11/13/22 11:51 AM	
TCLP METALS	S		Analyst:	LXM			EPA 7470A	EPA 7470A	
Mercury		< 0.0020	0.0020		mg/L	1	11/16/22 7:55 AM	11/17/22 9:36 AM	
TCLP METALS	S		Analyst:	LFB			EPA 3010 A	EPA 6010 D	
Aluminum	-	0.6	7 (naryot.) 0.1		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Antimony		< 0.10	0.10		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Arsenic		< 0.02	0.02		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Barium		0.6	0.3		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Beryllium		< 0.001	0.001		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Boron		0.90	0.05		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Cadmium		< 0.002	0.002		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Chromium		0.03	0.01		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Cobalt		< 0.005	0.005		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Copper		< 0.01	0.01		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Lead		< 0.02	0.02		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Lithium		0.17	0.01		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Manganese		< 0.01	0.01		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Molybdenum		0.08	0.02		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Nickel		< 0.01	0.01		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Selenium		< 0.02	0.02		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Silver		< 0.005	0.005		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Vanadium		0.015	0.005		mg/L	1	11/15/22 8:10 AM	11/15/22 11:52 AM	
Zinc		0.04	0.01		mg/L	1	11/15/22 8:10 AM	11/18/22 9:32 AM	

Date: 21-Nov-22

11422-3

Geochemical Testing

CLIENT: AES - WARRIOR RUN INC Client Sample ID: Fly Ash

Lab Order: G2211634

Project: AES Warrior Ash Samples Sampled By: AES Warrior Run

 Lab ID:
 G2211634-003
 Collection Date:
 11/4/2022 12:00:01 AM

 Matrix:
 ASH
 Received Date:
 11/10/2022 8:33:23 AM

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

Date: 21-Nov-22

Geochemical Testing

CLIENT: AES - WARRIOR RUN INC **Client Sample ID:** Fly Ash

G2211634 Lab Order:

11422-3 **Project: AES Warrior Ash Samples** Sampled By: **AES Warrior Run**

Collection Date: 11/4/2022 12:00:01 AM Lab ID: G2211634-003

11/10/2022 9.22.22 AM

Matrix: ASH				Received Date:		11/10/2022 8:33:23 AM	
Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Calcium Carbonate Equivalent	88.1			%	1		11/14/22 7:50 PM
Magnesium Carbonate	6.3			%	1		11/14/22 7:50 PM
MAJOR / MINOR ELEMENTS IN ASH		Analyst:	LEB			ASTM D6349-08	EPA 6010 D
Calcium Oxide	45.16	0.01		% Dry	1	11/12/22 6:40 AM	11/14/22 8:00 PM
Magnesium Oxide	3.00	0.01		% Dry	1	11/12/22 6:40 AM	11/14/22 8:00 PM
TCLP EXTRACTION		Analyst:	RJY				EPA 1311
Extraction Fluid Used	2.0	·			1		11/10/22 1:33 PM
Final pH	12.1	1.0		S.U.	1		11/10/22 1:33 PM
Initial pH	12.6	1.0		S.U.	1		11/10/22 1:33 PM
pH with HCl	12.2	1.0		S.U.	1		11/10/22 1:33 PM
TCLP, non-volatile	NA				1		11/10/22 1:33 PM
TCLP METALS		Analyst:	LXM			EPA 7470A	EPA 7470A
Mercury	< 0.0020	0.0020		mg/L	1	11/16/22 7:55 AM	11/17/22 9:50 AM
TCLP METALS		Analyst:	LEB			EPA 3010 A	EPA 6010 D
Aluminum	0.6	0.1		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Antimony	< 0.10	0.10		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Arsenic	< 0.02	0.02		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Barium	0.5	0.3		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Beryllium	< 0.001	0.001		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Boron	0.90	0.05		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Cadmium	< 0.002	0.002		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Chromium	0.17	0.01		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Cobalt	< 0.005	0.005		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Copper	< 0.01	0.01		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Lead	< 0.02	0.02		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Lithium	0.21	0.01		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Manganese	< 0.01	0.01		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Molybdenum	0.23	0.02		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Nickel	< 0.01	0.01		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Selenium	0.05	0.02		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Silver	< 0.005	0.005		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Vanadium	0.016	0.005		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM
Zinc	0.04	0.01		mg/L	1	11/14/22 8:55 AM	11/14/22 3:26 PM