

AES Warrior Run

we are the energy

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

February 28, 2020

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,



Kara Hawkins
Environmental Specialist
AES Warrior Run

RECEIVED

MAR 03 2020

LANDMANAGEMENTADMIN
SOLIDWASTEPROGRAM

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

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AND MANAGEMENT AND
SOLID WASTE PROGRA

Coal Combustion Byproducts (CCBs) Annual Generator Tonnage Report Instructions for Calendar Year 2019

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 2019. Please answer the questions on the form provided, attaching additional information and any requested supplemental information to the back of the form. *Note that the form requires both volume and weight of the CCBs produced. If you know one of these parameters but not the others, for example, you have the tonnage produced but not the volume, you may calculate the other parameter; however, please provide the calculations and assumptions that you used in your estimate.* Questions can be directed to the Solid Waste Program at (410) 537-3315 or via email at ed.dexter@maryland.gov.

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

II. General Information and Applicability.

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

*“(3) Coal Combustion Byproducts. (a) "Coal combustion byproducts" means the residue generated by or resulting from the burning of coal.
(b) "Coal combustion byproducts" includes fly ash, bottom ash, boiler slag, pozzolan, and other solid residuals removed by air pollution control devices from the flue gas and combustion chambers of coal burning furnaces and boilers, including flue gas desulfurization sludge and other solid residuals recovered from flue gas by wet or dry methods.”*

A generator of CCBs is defined in COMAR 26.04.10.02B as:

*“(9) Generator.
(a) "Generator" means a person whose operations, activities, processes, or actions create coal combustion byproducts.
(b) "Generator" does not include a person who only generates coal combustion byproducts by burning coal at a private residence.”*

Facility Name: AES Warrior Run

CCB Tonnage Report – 2019

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 MDE 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, 2020:

A. Contact information:

Facility Name: AES Warrior Run

Name of Permit Holder: _____

Facility Address: 11600 Mexico Farms Rd. SE
Street

Facility Address: _____
City State Zip

County: Cumberland MD 21502

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 Rd. SE
Street

Contact Address: Cumberland MD 21502
City State Zip

Contact Email: kara.hawkins@aes.com

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

For questions on how to complete this form, please contact the Solid Waste Program at 410-537-3315

Facility Name: AES Warrior Run

CCB Tonnage Report – 2019

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

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

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

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

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

C. The volume and weight of CCBs generated during calendar year 2019, 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 2019: Please note that this table includes both the volume and weight of the types of CCBs your facility produces.

Volume and Weight of CCBs Generated for Calendar Year 2019			
Fly Ash	Bed Ash	Slag Ash	
Type of CCB	Type of CCB	Type of CCB	Type of CCB
351,900.75	135,419.24	20,419.71	
Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards
198,885.02	87,697.05	12,229.08	
Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons

Facility Name: AES Warrior Run

CCB Tonnage Report – 2019

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 = 0.60tons/cu yd

D. Descriptions of any modeling or risk assessments, or both, conducted relating to the CCBs or their use that were performed by you or your company during the reporting year. Please attach this information to the report.

E. Copies of all laboratory reports of all chemical characterizations of the CCBs. Please attach this information to the report.

F. A description of how you disposed of or used your CCBs in calendar year 2019, 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:

2019	Fly Ash Tons	Fly Ash CuYds	Bed Ash Tons	Bed Ash CuYds	Slag Ash Tons	Slag Ash CuYds	Use
Cabin Run Mine	94,039.54	166,390.53	46,266.31	71,443.10	12,055.35	20,129.62	Mine Reclamation
Carlos Coal Mine	47,719.99	84,434.21	21,974.52	33,932.42	157.82	263.52	Mine Reclamation
Hampshire Hill Coal Mine	16,886.80	29,878.96	5,819.84	8,986.83	15.91	26.57	Mine Reclamation
419 Coal Mine	40,238.69	71,197.04	13,636.38	21,056.90	-	-	Mine Reclamation
Total	198,885.02	351,900.75	87,697.05	135,419.24	12,229.08	20,419.71	

Facility Name: AES Warrior Run

CCB Tonnage Report – 2019

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

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

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

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

No change, same as previous years.

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

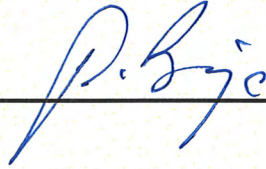
No change, same as previous years.

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

Facility Name: AES Warrior Run

CCB Tonnage Report – 2019

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	 Peter Bajc, Plant Manager, 301-777-0055 Name, Title, & Telephone No. (Print or Type) peter.bajc@aes.com Your Email Address	02/27/2020 Date

V: Attachments (please list):

TCLP-Total Metals analysis fly and bed ash



GEOCHEMICAL TESTING

Environmental and Energy Analysis

2005 N. Center Ave
Somerset, PA 15501

814/443-1671
814/445-6600
FAX: 814/445-6729

Friday, March 01, 2019

Michelle Stahlman
AES - WARRIOR RUN INC
11600 MEXICO FARMS SE
CUMBERLAND, MD 21502

RE: TCLP Ash Analysis

Order No.: G1902A15

Dear Michelle Stahlman:

Geochemical Testing received 3 sample(s) on 2/19/2019 for the analyses presented in the following report.

There were no problems with the analyses and all QC data met NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser
Director of Technical Services



Geochemical Testing

Date: 01-Mar-19

CLIENT: AES - WARRIOR RUN INC
Project: TCLP Ash Analysis
Lab Order: G1902A15

CASE NARRATIVE

No problems were encountered during analysis of this workorder, except if noted in this report.

Legend:

ND - Not Detected

I - Indicates an estimated value

l - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q - Qualifier QL - Quantitation Limit DF - Dilution Factor

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

l - Value above quantitation range

** - Value exceeds Action Limit

H - Method Hold Time Exceeded

MCL - Contaminant Limit



Laboratory Results

Geochemical Testing

Date: 01-Mar-19

CLIENT: AES - WARRIOR RUN INC
 Lab Order: G1902A15
 Project: TCLP Ash Analysis
 Lab ID: G1902A15-001
 Matrix: ASH

Client Sample ID: Fly Ash
 C92202
 Sampled By: AES Warrior Run
 Collection Date: 2/13/2019
 Received Date: 2/19/2019 11:57:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS		Analyst: LXM			EPA 3050		EPA 6010
Aluminum	38900	20.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Antimony	< 10	10		mg/Kg-dry	1	02/21/19 7:45 AM	02/22/19 11:01 AM
Arsenic	42.0	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Barium	624	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Beryllium	2.70	0.10		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Boron	40.3	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Chromium	60.2	5.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Cobalt	15.2	0.5		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Copper	40.3	10		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Lead	21.6	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Lithium	73.2	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Manganese	97.9	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Molybdenum	6.1	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Nickel	40.0	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Selenium	6.0	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Vanadium	92.4	0.5		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
Zinc	70.3	10		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:17 PM
MERCURY		Analyst: RLL					ASTM D 6722
Mercury	0.828	0.010		mg/Kg-dry	1	02/20/19 9:30 AM	
CARBONATE RESULTS		Analyst: LXM					Calculated
Calcium Carbonate	30.2			%	1	02/20/19 10:13 AM	
Calcium Carbonate Equivalent	34.3			%	1	02/20/19 10:13 AM	
Magnesium Carbonate	3.5			%	1	02/20/19 10:13 AM	
MAJOR / MINOR ELEMENTS IN ASH		Analyst: LXM			ASTM D 6349		EPA 6010
Calcium Oxide	16.93	0.02		% Dry	2	02/20/19 3:20 AM	02/20/19 10:13 AM
Magnesium Oxide	1.65	0.02		% Dry	2	02/20/19 3:20 AM	02/20/19 10:13 AM
TCLP EXTRACTION		Analyst: MAG					EPA 1311
Extraction Fluid Used	2.0				1	02/21/19 12:00 PM	
Final pH	9.5	1.0			1	02/21/19 12:00 PM	
Initial pH	12.6	1.0			1	02/21/19 12:00 PM	
pH with HCl	12.1	1.0			1	02/21/19 12:00 PM	



Laboratory Results

Geochemical Testing

Date: 01-Mar-19

CLIENT: AES - WARRIOR RUN INC
Lab Order: G1902A15
Project: TCLP Ash Analysis
Lab ID: G1902A15-001
Matrix: ASH

Client Sample ID: Fly Ash
Sampled By: AES Warrior Run
Collection Date: 2/13/2019
Received Date: 2/19/2019 11:57:00 AM
C92202

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TCLP, non-volatile	NA				1		02/21/19 12:00 PM
TCLP METALS		Analyst: GXI				SM 3112 B	EPA 7470
Mercury	< 0.0020	0.0020		mg/L	1	02/22/19 11:10 AM	02/22/19 2:23 PM
TCLP METALS		Analyst: LXM				EPA 200.2	EPA 6010
Aluminum	0.2	0.1		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Antimony	< 0.10	0.10		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Arsenic	0.05	0.02		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Barium	1.1	0.3		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Beryllium	< 0.001	0.001		mg/L	1	02/22/19 8:50 AM	02/26/19 4:37 PM
Boron	1.4	0.05		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Cadmium	< 0.002	0.002		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Chromium	0.05	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Cobalt	< 0.005	0.005		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Copper	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Lead	< 0.02	0.02		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Lithium	0.34	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Manganese	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/26/19 4:37 PM
Molybdenum	0.19	0.02		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Nickel	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Selenium	0.08	0.02		mg/L	1	02/22/19 8:50 AM	02/26/19 4:37 PM
Silver	< 0.005	0.005		mg/L	1	02/22/19 8:50 AM	02/27/19 12:40 PM
Vanadium	0.50	0.005		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM
Zinc	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 8:53 PM

Laboratory Results

Geochemical Testing

Date: 01-Mar-19

CLIENT: AES - WARRIOR RUN INC
 Lab Order: G1902A15
 Project: TCLP Ash Analysis
 Lab ID: G1902A15-002
 Matrix: ASH

Client Sample ID: Bed Ash North
 C92203
 Sampled By: AES Warrior Run
 Collection Date: 2/13/2019
 Received Date: 2/19/2019 11:57:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS		Analyst: LXM			EPA 3050		EPA 6010
Aluminum	21400	20.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Antimony	< 10	10		mg/Kg-dry	1	02/21/19 7:45 AM	02/22/19 11:10 AM
Arsenic	38.8	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Barium	196	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Beryllium	1.10	0.10		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Boron	37.0	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Chromium	74.5	5.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Cobalt	6.9	0.5		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Copper	26.0	10		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Lead	5.1	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Lithium	41.8	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Manganese	102	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Molybdenum	9.1	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Nickel	42.5	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Selenium	< 2.0	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Vanadium	54.4	0.5		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
Zinc	28.9	10		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:26 PM
MERCURY		Analyst: RLL					ASTM D 6722
Mercury	< 0.010	0.010		mg/Kg-dry	1		02/20/19 9:30 AM
CARBONATE RESULTS		Analyst: LXM					Calculated
Calcium Carbonate	51.6			%	1		02/20/19 10:17 AM
Calcium Carbonate Equivalent	57.8			%	1		02/20/19 10:17 AM
Magnesium Carbonate	5.2			%	1		02/20/19 10:17 AM
MAJOR / MINOR ELEMENTS IN ASH		Analyst: LXM			ASTM D 6349		EPA 6010
Calcium Oxide	28.94	0.02		% Dry	2	02/20/19 3:20 AM	02/20/19 10:17 AM
Magnesium Oxide	2.48	0.02		% Dry	2	02/20/19 3:20 AM	02/20/19 10:17 AM
TCLP EXTRACTION		Analyst: MAG					EPA 1311
Extraction Fluid Used	1.0				1		02/21/19 12:00 PM
Final pH	12.5	1.0			1		02/21/19 12:00 PM
Initial pH	11.8	1.0			1		02/21/19 12:00 PM
pH with HCl	2.0	1.0			1		02/21/19 12:00 PM



I.D. 56-00306 PA DEP

Laboratory Results

Geochemical Testing

Date: 01-Mar-19

CLIENT: AES - WARRIOR RUN INC
Lab Order: G1902A15
Project: TCLP Ash Analysis
Lab ID: G1902A15-002
Matrix: ASH

Client Sample ID: Bed Ash North

C92203

Sampled By: AES Warrior Run
Collection Date: 2/13/2019

Received Date: 2/19/2019 11:57:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TCLP, non-volatile	NA				1		02/21/19 12:00 PM
TCLP METALS		Analyst: GXI				SM 3112 B	EPA 7470
Mercury	< 0.0020	0.0020		mg/L	1	02/22/19 11:10 AM	02/22/19 2:25 PM
TCLP METALS		Analyst: LXM				EPA 200.2	EPA 6010
Aluminum	< 0.1	0.1		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Antimony	< 0.10	0.10		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Arsenic	< 0.02	0.02		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Barium	0.8	0.3		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Beryllium	< 0.001	0.001		mg/L	1	02/22/19 8:50 AM	02/26/19 4:42 PM
Boron	0.25	0.05		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Cadmium	< 0.002	0.002		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Chromium	0.02	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Cobalt	< 0.005	0.005		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Copper	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Lead	< 0.02	0.02		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Lithium	0.13	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Manganese	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/26/19 4:42 PM
Molybdenum	0.10	0.02		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Nickel	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Selenium	< 0.02	0.02		mg/L	1	02/22/19 8:50 AM	02/26/19 4:42 PM
Silver	< 0.005	0.005		mg/L	1	02/22/19 8:50 AM	02/27/19 12:45 PM
Vanadium	0.009	0.005		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM
Zinc	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 8:58 PM



Laboratory Results

Geochemical Testing

Date: 01-Mar-19

CLIENT: AES - WARRIOR RUN INC
 Lab Order: G1902A15
 Project: TCLP Ash Analysis
 Lab ID: G1902A15-003
 Matrix: ASH

Client Sample ID: Bed Ash South

C92204

Sampled By: AES Warrior Run

Collection Date: 2/13/2019

Received Date: 2/19/2019 11:57:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS		Analyst: LXM		EPA 3050		EPA 6010	
Aluminum	19800	20.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Antimony	< 10	10		mg/Kg-dry	1	02/21/19 7:45 AM	02/22/19 11:14 AM
Arsenic	42.9	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Barium	193	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Beryllium	1.09	0.10		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Boron	40.1	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Chromium	71.8	5.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Cobalt	7.2	0.5		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Copper	20.6	10		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Lead	4.1	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Lithium	33.5	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Manganese	113	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Molybdenum	8.9	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Nickel	40.7	1.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Selenium	< 2.0	2.0		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Vanadium	58.1	0.5		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
Zinc	28.2	10		mg/Kg-dry	1	02/21/19 7:45 AM	02/21/19 7:30 PM
MERCURY		Analyst: RLL		ASTM D 6722			
Mercury	< 0.010	0.010		mg/Kg-dry	1		02/20/19 9:30 AM
CARBONATE RESULTS		Analyst: LXM		Calculated			
Calcium Carbonate	51.7			%	1		02/20/19 10:22 AM
Calcium Carbonate Equivalent	57.8			%	1		02/20/19 10:22 AM
Magnesium Carbonate	5.1			%	1		02/20/19 10:22 AM
MAJOR / MINOR ELEMENTS IN ASH		Analyst: LXM		ASTM D 6349		EPA 6010	
Calcium Oxide	28.99	0.02		% Dry	2	02/20/19 3:20 AM	02/20/19 10:22 AM
Magnesium Oxide	2.44	0.02		% Dry	2	02/20/19 3:20 AM	02/20/19 10:22 AM
TCLP EXTRACTION		Analyst: MAG		EPA 1311			
Extraction Fluid Used	1.0				1		02/21/19 12:00 PM
Final pH	12.5	1.0			1		02/21/19 12:00 PM
Initial pH	11.8	1.0			1		02/21/19 12:00 PM
pH with HCl	2.1	1.0			1		02/21/19 12:00 PM



I.D. 56-00306 PA DEP

Laboratory Results

Geochemical Testing

Date: 01-Mar-19

CLIENT: AES - WARRIOR RUN INC
Lab Order: G1902A15
Project: TCLP Ash Analysis
Lab ID: G1902A15-003
Matrix: ASH

Client Sample ID: Bed Ash South

C92204

Sampled By: AES Warrior Run

Collection Date: 2/13/2019

Received Date: 2/19/2019 11:57:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TCLP, non-volatile	NA				1		02/21/19 12:00 PM
TCLP METALS		Analyst: GXI				SM 3112 B	EPA 7470
Mercury	< 0.0020	0.0020		mg/L	1	02/22/19 11:10 AM	02/22/19 2:27 PM
TCLP METALS		Analyst: LXM				EPA 200.2	EPA 6010
Aluminum	< 0.1	0.1		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Antimony	< 0.10	0.10		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Arsenic	< 0.02	0.02		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Barium	0.8	0.3		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Beryllium	< 0.001	0.001		mg/L	1	02/22/19 8:50 AM	02/26/19 4:46 PM
Boron	0.25	0.05		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Cadmium	< 0.002	0.002		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Chromium	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Cobalt	< 0.005	0.005		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Copper	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Lead	< 0.02	0.02		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Lithium	0.11	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Manganese	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/26/19 4:46 PM
Molybdenum	0.10	0.02		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Nickel	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Selenium	< 0.02	0.02		mg/L	1	02/22/19 8:50 AM	02/26/19 4:46 PM
Silver	< 0.005	0.005		mg/L	1	02/22/19 8:50 AM	02/27/19 12:50 PM
Vanadium	0.009	0.005		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM
Zinc	< 0.01	0.01		mg/L	1	02/22/19 8:50 AM	02/22/19 9:21 PM



GEOCHEMICAL TESTING

Environmental and Energy Analysis

2005 N. Center Ave.
Somerset, PA 15501

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

Tuesday, July 09, 2019

Michelle Stahlman
AES - WARRIOR RUN INC
11600 MEXICO FARMS SE
CUMBERLAND, MD 21502

RE: TCLP Ash Analysis

Order No.: G1906D12

Dear Michelle Stahlman:

Geochemical Testing received 3 sample(s) on 6/19/2019 for the analyses presented in the following report.

There were no problems with the analyses and all QC data met NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser
Director of Technical Services



Geochemical Testing

Date: 09-Jul-19

CLIENT: AES - WARRIOR RUN INC
Project: TCLP Ash Analysis
Lab Order: G1906D12

CASE NARRATIVE

No problems were encountered during analysis of this workorder, except if noted in this report.

Legend:

ND - Not Detected
J - Indicates an estimated value.
U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.
B - Analyte detected in the associated Method Blank
Q1 - See case narrative
Q - Qualifier QL - Quantitation Limit DF - Dilution Factor

S - Surrogate Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
** - Value exceeds Action Limit
H - Method Hold Time Exceeded
MCL - Contaminant Limit
T - Sample received above required temp.



Laboratory Results

Geochemical Testing

Date: 09-Jul-19

CLIENT: AES - WARRIOR RUN INC
Lab Order: G1906D12
Project: TCLP Ash Analysis
Lab ID: G1906D12-001
Matrix: ASH

Client Sample ID: Fly Ash
Sampled By: AES Warrior Run
Collection Date: 6/10/2019 12:01:00 AM
Received Date: 6/19/2019 12:18:00 PM
C93187

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS		Analyst: GXI		EPA 3050		EPA 6010	
Aluminum	28700	20.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Antimony	< 10	10	M2	mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Arsenic	37.5	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:09 PM
Barium	295	1.0	M1	mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Beryllium	2.34	0.10		mg/Kg-dry	1	06/26/19 8:10 AM	06/28/19 12:10 PM
Boron	29.9	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:09 PM
Chromium	31.9	5.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Cobalt	9.6	0.5		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Copper	127	10		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Lead	28.2	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:09 PM
Lithium	60.5	1.0	M1	mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Manganese	123	1.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Molybdenum	5.7	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Nickel	27.3	1.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Selenium	7.8	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 12:21 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	06/26/19 8:10 AM	06/28/19 12:10 PM
Vanadium	68.1	0.5		mg/Kg-dry	1	06/26/19 8:10 AM	07/05/19 2:01 PM
Zinc	69.2	10		mg/Kg-dry	1	06/26/19 8:10 AM	07/05/19 2:01 PM

NOTES:

M1 - MS recovery above the acceptance limits.

M2 - MS recovery below the acceptance limits.

MERCURY		Analyst: RLL		ASTM D 6722		
Mercury	0.298	0.010		mg/Kg-dry	1	06/20/19 10:50 AM

CARBONATE RESULTS		Analyst: GXI		Calculated		
Calcium Carbonate	25.0			%	1	06/20/19 12:00 AM
Calcium Carbonate Equivalent	28.7			%	1	06/20/19 12:00 AM
Magnesium Carbonate	3.1			%	1	06/20/19 12:00 AM

MAJOR / MINOR ELEMENTS IN ASH		Analyst: GXI		ASTM D 6349		EPA 6010	
Calcium Oxide	13.99	0.01		% Dry	1	06/20/19 4:50 AM	06/20/19 11:16 AM
Magnesium Oxide	1.48	0.01		% Dry	1	06/20/19 4:50 AM	06/20/19 11:16 AM

TCLP EXTRACTION		Analyst: MAG		EPA 1311		
Extraction Fluid Used	2.0				1	06/20/19 10:54 AM
Final pH	9.2	1.0			1	06/20/19 10:54 AM



Laboratory Results

Geochemical Testing

Date: 09-Jul-19

CLIENT: AES - WARRIOR RUN INC

Client Sample ID: Fly Ash

Lab Order: G1906D12

C93187

Project: TCLP Ash Analysis

Sampled By: AES Warrior Run

Lab ID: G1906D12-001

Collection Date: 6/10/2019 12:01:00 AM

Matrix: ASH

Received Date: 6/19/2019 12:18:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Initial pH	12.6	1.0			1		06/20/19 10:54 AM
pH with HCl	12.2	1.0			1		06/20/19 10:54 AM
TCLP, non-volatile	NA				1		06/20/19 10:54 AM

TCLP METALS

Analyst: LXM

EPA 7470

EPA 7470

Mercury	< 0.0020	0.0020		mg/L	1	06/21/19 8:40 AM	06/24/19 9:12 AM
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TCLP METALS

Analyst: GXI

EPA 200.2

EPA 6010

Aluminum	1.2	0.1		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Antimony	< 0.10	0.10		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Arsenic	< 0.02	0.02		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Barium	1.1	0.3		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Beryllium	< 0.001	0.001		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Boron	1.1	0.05		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Cadmium	< 0.002	0.002		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Chromium	0.15	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Cobalt	< 0.005	0.005		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Copper	< 0.01	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Lead	< 0.02	0.02		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Lithium	0.31	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Manganese	< 0.01	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Molybdenum	0.16	0.02		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Nickel	< 0.01	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Selenium	0.07	0.02		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Silver	< 0.005	0.005		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Vanadium	0.21	0.005		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM
Zinc	0.05	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:10 AM



Laboratory Results

Geochemical Testing

Date: 09-Jul-19

CLIENT: AES - WARRIOR RUN INC
Lab Order: G1906D12
Project: TCLP Ash Analysis
Lab ID: G1906D12-002
Matrix: ASH

Client Sample ID: Bed Ash North
C93188
Sampled By: AES Warrior Run
Collection Date: 6/10/2019 12:01:00 AM
Received Date: 6/19/2019 12:18:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS		Analyst: GXI				EPA 3050	EPA 8010
Aluminum	22400	20.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Antimony	< 10	10	M2	mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Arsenic	35.5	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/28/19 2:34 PM
Barium	243	1.0		mg/Kg-dry	1	07/03/19 12:00 PM	07/05/19 2:45 PM
Beryllium	1.68	0.10		mg/Kg-dry	1	08/26/19 8:10 AM	06/28/19 3:49 PM
Boron	27.0	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:27 PM
Chromium	49.1	5.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Cobalt	6.6	0.5		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Copper	24.5	10		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Lead	11.5	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:27 PM
Lithium	56.7	1.0	M1	mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Manganese	120	1.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Molybdenum	6.0	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Nickel	33.2	1.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Vanadium	50.3	0.5		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:15 AM
Zinc	28.8	10		mg/Kg-dry	1	06/26/19 8:10 AM	06/28/19 3:49 PM

NOTES:

M1 - MS recovery above the acceptance limits.

M2 - MS recovery below the acceptance limits.

MERCURY		Analyst: RLL				ASTM D 6722
Mercury	< 0.010	0.010		mg/Kg-dry	1	06/20/19 10:50 AM

CARBONATE RESULTS		Analyst: GXI				Calculated
Calcium Carbonate	44.1			%	1	06/20/19 12:00 AM
Calcium Carbonate Equivalent	49.8			%	1	06/20/19 12:00 AM
Magnesium Carbonate	4.8			%	1	06/20/19 12:00 AM

MAJOR / MINOR ELEMENTS IN ASH		Analyst: GXI				ASTM D 6349	EPA 8010
Calcium Oxide	24.70	0.01		% Dry	1	06/20/19 4:50 AM	06/20/19 11:39 AM
Magnesium Oxide	2.29	0.01		% Dry	1	06/20/19 4:50 AM	06/20/19 11:39 AM

TCLP EXTRACTION		Analyst: MAG				EPA 1311
Extraction Fluid Used	1.0				1	06/20/19 10:54 AM
Final pH	12.5	1.0			1	06/20/19 10:54 AM



Laboratory Results

Geochemical Testing

Date: 09-Jul-19

CLIENT: AES - WARRIOR RUN INC
Lab Order: G1906D12
Project: TCLP Ash Analysis
Lab ID: G1906D12-002
Matrix: ASH

Client Sample ID: Bed Ash North
Sampled By: AES Warrior Run
Collection Date: 6/10/2019 12:01:00 AM
Received Date: 6/19/2019 12:18:00 PM
C93188

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Initial pH	12.2	1.0			1		06/20/19 10:54 AM
pH with HCl	2.9	1.0			1		06/20/19 10:54 AM
TCLP, non-volatile	NA				1		06/20/19 10:54 AM

TCLP METALS

Analyst: LXM

EPA 7470

EPA 7470

Mercury	< 0.0020	0.0020		mg/L	1	06/21/19 8:40 AM	06/24/19 9:14 AM
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TCLP METALS

Analyst: GXI

EPA 200.2

EPA 6010

Aluminum	0.2	0.1		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Antimony	< 0.10	0.10		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Arsenic	< 0.02	0.02		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Barium	0.6	0.3		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Beryllium	< 0.001	0.001		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Boron	0.57	0.05		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Cadmium	< 0.002	0.002		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Chromium	0.01	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Cobalt	< 0.005	0.005		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Copper	< 0.01	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Lead	< 0.02	0.02		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Lithium	0.31	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Manganese	< 0.01	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Molybdenum	0.07	0.02		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Nickel	< 0.01	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Selenium	< 0.02	0.02		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Silver	< 0.005	0.005		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Vanadium	< 0.005	0.005		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM
Zinc	0.05	0.01		mg/L	1	06/21/19 10:30 AM	06/24/19 11:19 AM



Laboratory Results

Geochemical Testing

Date: 09-Jul-19

CLIENT: AES - WARRIOR RUN INC
Lab Order: G1906D12
Project: TCLP Ash Analysis
Lab ID: G1906D12-003
Matrix: ASH

Client Sample ID: Bed Ash South
C93189
Sampled By: AES Warrior Run
Collection Date: 6/10/2019 12:01:00 AM
Received Date: 6/19/2019 12:18:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS		Analyst: GXI		EPA 3050		EPA 6010	
Aluminum	23200	20.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Antimony	< 10	10	M2	mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Arsenic	24.3	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Barium	260	1.0		mg/Kg-dry	1	07/03/19 12:00 PM	07/05/19 3:07 PM
Beryllium	1.46	0.10		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 3:21 PM
Boron	22.7	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:36 PM
Chromium	44.9	5.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Cobalt	6.1	0.5		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Copper	21.0	10		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Lead	7.3	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 3:21 PM
Lithium	56.7	1.0	M1	mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Manganese	126	1.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Molybdenum	5.0	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Nickel	29.6	1.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 3:21 PM
Vanadium	44.7	0.5		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 1:46 AM
Zinc	42.5	10		mg/Kg-dry	1	06/26/19 8:10 AM	06/27/19 3:21 PM

NOTES:

M1 - MS recovery above the acceptance limits.

M2 - MS recovery below the acceptance limits.

MERCURY		Analyst: RLL		ASTM D 6722		
Mercury	< 0.010	0.010		mg/Kg-dry	1	06/20/19 10:50 AM

CARBONATE RESULTS		Analyst: GXI		Calculated		
Calcium Carbonate	35.3			%	1	06/20/19 12:00 AM
Calcium Carbonate Equivalent	39.9			%	1	06/20/19 12:00 AM
Magnesium Carbonate	3.9			%	1	06/20/19 12:00 AM

MAJOR / MINOR ELEMENTS IN ASH		Analyst: GXI		ASTM D 6349		EPA 6010	
Calcium Oxide	19.78	0.01		% Dry	1	06/20/19 4:50 AM	08/20/19 11:44 AM
Magnesium Oxide	1.85	0.01		% Dry	1	06/20/19 4:50 AM	08/20/19 11:44 AM

TCLP EXTRACTION		Analyst: MAG		EPA 1311		
Extraction Fluid Used	1.0				1	06/20/19 10:54 AM
Final pH	12.4	1.0			1	06/20/19 10:54 AM



Laboratory Results

Geochemical Testing

Date: 09-Jul-19

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash South
Lab Order:	G1906D12		C93189
Project:	TCLP Ash Analysis	Sampled By:	AES Warrior Run
Lab ID:	G1906D12-003	Collection Date:	6/10/2019 12:01:00 AM
Matrix:	ASH	Received Date:	6/19/2019 12:18:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
Initial pH	12.0	1.0			1		06/20/19 10:54 AM
pH with HCl	2.2	1.0			1		06/20/19 10:54 AM
TCLP, non-volatile	NA				1		06/20/19 10:54 AM

TCLP METALS	Analyst: LXM	EPA 7470	EPA 7470
Mercury	< 0.0020	0.0020	mg/L

TCLP METALS	Analyst: GXI	EPA 200.2	EPA 6010
Aluminum	0.2	0.1	mg/L
Antimony	< 0.10	0.10	mg/L
Arsenic	< 0.02	0.02	mg/L
Barium	0.5	0.3	mg/L
Beryllium	< 0.001	0.001	mg/L
Boron	0.46	0.05	mg/L
Cadmium	< 0.002	0.002	mg/L
Chromium	< 0.01	0.01	mg/L
Cobalt	< 0.006	0.005	mg/L
Copper	< 0.01	0.01	mg/L
Lead	< 0.02	0.02	mg/L
Lithium	0.49	0.01	mg/L
Manganese	< 0.01	0.01	mg/L
Molybdenum	0.05	0.02	mg/L
Nickel	< 0.01	0.01	mg/L
Selenium	< 0.02	0.02	mg/L
Silver	< 0.005	0.005	mg/L
Vanadium	0.006	0.005	mg/L
Zinc	0.04	0.01	mg/L





GEOCHEMICAL TESTING

Environmental and Energy Analysis

2005 N. Center Ave.
Somerset, PA 15501

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

Wednesday, September 25, 2019

Michelle Stahlman
AES - WARRIOR RUN INC
11600 MEXICO FARMS SE
CUMBERLAND, MD 21502

RE: TCLP Ash Analysis

Order No.: G1909778

Dear Michelle Stahlman:

Geochemical Testing received 3 sample(s) on 9/10/2019 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser
Director of Technical Services

Geochemical Testing

Date: 25-Sep-19

CLIENT: AES - WARRIOR RUN INC
Project: TCLP Ash Analysis
Lab Order: G1909778

CASE NARRATIVE

No problems were encountered during analysis of this workorder, except if noted in this report.

Results are reported on a dry and on a non-ashed basis.

Legend: H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.
U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.
B - Analyte detected in the associated Method Blank
QI - See case narrative ND - Not Detected
MCL - Contaminant Limit J - Indicates an estimated value.
Q - Qualifier QL -Quantitation Limit DF - Dilution Factor

S - Surrogate Recovery outside accepted recovery limits
T - Sample received above required temperature and is not compliant with 40CFR136 Table II.
E - Value above quantitation range
MDA - Minimum Detectable Activity.
** - Value exceeds Action Limit
TICs - Tentatively Identified Compounds.



Laboratory Results

Geochemical Testing

Date: 25-Sep-19

CLIENT: AES - WARRIOR RUN INC

Client Sample ID: Fly Ash

Lab Order: G1909778

Project: TCLP Ash Analysis

Sampled By: AES Warrior Run

Lab ID: G1909778-001

Collection Date: 9/5/2019 12:00:01 AM

Matrix: ASH

Received Date: 9/10/2019 8:00:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS		Analyst: AVH				EPA 3050	EPA 6010
Aluminum	35800	20.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Antimony	< 10	10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Arsenic	59.6	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Barium	472	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Beryllium	3.66	0.10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Boron	26.6	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Chromium	56.5	5.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Cobalt	16.8	0.5		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Copper	39.3	10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Lead	28.4	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Lithium	68.8	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/18/19 12:23 PM
Manganese	132	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Molybdenum	7.2	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Nickel	44.4	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Selenium	8.0	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	09/16/19 11:20 AM	09/19/19 6:11 PM
Vanadium	87.0	0.5		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
Zinc	82.8	10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:17 PM
MERCURY		Analyst: RLL					ASTM D 6722
Mercury	1.07	0.010		mg/Kg-dry	1		09/16/19 12:00 PM
CARBONATE RESULTS		Analyst: AVH					Calculated
Calcium Carbonate	25.3			%	1		09/13/19 12:00 AM
Calcium Carbonate Equivalent	28.0			%	1		09/13/19 12:00 AM
Magnesium Carbonate	2.3			%	1		09/13/19 12:00 AM
MAJOR / MINOR ELEMENTS IN ASH		Analyst: AVH				ASTM D 6349	EPA 6010
Calcium Oxide	14.16	0.01		% Dry	1	09/11/19 3:35 AM	09/13/19 9:29 AM
Magnesium Oxide	1.08	0.01		% Dry	1	09/11/19 3:35 AM	09/13/19 9:29 AM
TCLP EXTRACTION		Analyst: ALD					EPA 1311
Extraction Fluid Used	2.0				1		09/15/19 12:31 PM
Final pH	11.0	1.0			1		09/15/19 12:31 PM
Initial pH	12.6	1.0			1		09/15/19 12:31 PM
pH with HCl	12.2	1.0			1		09/15/19 12:31 PM



I.D. 56-00306 PA DEP

Laboratory Results

Geochemical Testing

Date: 25-Sep-19

CLIENT: AES - WARRIOR RUN INC
Lab Order: G1909778
Project: TCLP Ash Analysis
Lab ID: G1909778-001
Matrix: ASH

Client Sample ID: Fly Ash

Sampled By: AES Warrior Run
Collection Date: 9/5/2019 12:00:01 AM
Received Date: 9/10/2019 8:00:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TCLP, non-volatile	NA				1		09/15/19 12:31 PM
TCLP METALS		Analyst: LXM				EPA 7470	EPA 7470
Mercury	< 0.0020	0.0020		mg/L	1	09/17/19 2:00 PM	09/19/19 9:46 AM
TCLP METALS		Analyst: AVH				EPA 200.2	EPA 6010
Aluminum	0.5	0.1		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Antimony	< 0.10	0.10		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Arsenic	< 0.02	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Barium	0.8	0.3		mg/L	1	09/16/19 8:35 AM	09/18/19 8:25 PM
Beryllium	< 0.001	0.001		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Boron	0.48	0.05		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Cadmium	< 0.002	0.002		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Chromium	0.09	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Cobalt	< 0.005	0.005		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Copper	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Lead	< 0.02	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Lithium	0.22	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Manganese	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Molybdenum	0.18	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Nickel	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Selenium	0.03	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Silver	< 0.005	0.005		mg/L	1	09/16/19 8:35 AM	09/18/19 8:25 PM
Vanadium	0.23	0.005		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM
Zinc	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:35 AM



Laboratory Results

Geochemical Testing

Date: 25-Sep-19

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash North
Lab Order:	G1909778	Sampled By:	AES Warrior Run
Project:	TCLP Ash Analysis	Collection Date:	9/5/2019 12:00:01 AM
Lab ID:	G1909778-002	Received Date:	9/10/2019 8:00:00 AM
Matrix:	ASH		

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS				Analyst: AVH		EPA 3050	EPA 6010
Aluminum	25600	20.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Antimony	< 10	10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Arsenic	68.6	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Barium	226	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Beryllium	2.39	0.10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Boron	33.0	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Chromium	48.0	5.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Cobalt	10.8	0.5		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Copper	23.1	10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Lead	9.4	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Lithium	47.7	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	08/18/19 3:28 PM
Manganese	148	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Molybdenum	5.2	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Nickel	28.1	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Selenium	< 2.0	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	09/16/19 11:20 AM	09/19/19 6:15 PM
Vanadium	70.7	0.5		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
Zinc	48.4	10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:21 PM
MERCURY				Analyst: RLL		ASTM D 6722	
Mercury	< 0.010	0.010		mg/Kg-dry	1	09/16/19 12:00 PM	
CARBONATE RESULTS				Analyst: AVH		Calculated	
Calcium Carbonate	46.1			%	1	09/13/19 12:00 AM	
Calcium Carbonate Equivalent	50.1			%	1	09/13/19 12:00 AM	
Magnesium Carbonate	3.4			%	1	09/13/19 12:00 AM	
MAJOR / MINOR ELEMENTS IN ASH				Analyst: AVH		ASTM D 6349	EPA 6010
Calcium Oxide	25.82	0.01		% Dry	1	09/11/19 3:35 AM	09/13/19 9:34 AM
Magnesium Oxide	1.60	0.01		% Dry	1	09/11/19 3:35 AM	09/13/19 9:34 AM
TCLP EXTRACTION				Analyst: ALD		EPA 1311	
Extraction Fluid Used	1.0				1	09/15/19 12:31 PM	
Final pH	12.5	1.0			1	09/15/19 12:31 PM	
Initial pH	11.8	1.0			1	09/15/19 12:31 PM	
pH with HCl	2.7	1.0			1	09/15/19 12:31 PM	



Laboratory Results

Geochemical Testing

Date: 25-Sep-19

CLIENT: AES - WARRIOR RUN INC
Lab Order: G1909778
Project: TCLP Ash Analysis
Lab ID: G1909778-002
Matrix: ASH

Client Sample ID: Bed Ash North

Sampled By: AES Warrior Run
Collection Date: 9/5/2019 12:00:01 AM
Received Date: 9/10/2019 8:00:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TCLP, non-volatile	NA				1		09/15/19 12:31 PM
TCLP METALS		Analyst: LXM				EPA 7470	EPA 7470
Mercury	< 0.0020	0.0020		mg/L	1	09/17/19 2:00 PM	09/19/19 9:48 AM
TCLP METALS		Analyst: AVH				EPA 200.2	EPA 6010
Aluminum	< 0.1	0.1		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Antimony	< 0.10	0.10		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Arsenic	0.02	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Barium	0.8	0.3		mg/L	1	09/16/19 8:35 AM	09/18/19 8:30 PM
Beryllium	< 0.001	0.001		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Boron	0.34	0.05		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Cadmium	< 0.002	0.002		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Chromium	0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Cobalt	< 0.005	0.005		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Copper	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Lead	< 0.02	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Lithium	0.15	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Manganese	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Molybdenum	0.09	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Nickel	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Selenium	< 0.02	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Silver	< 0.005	0.005		mg/L	1	09/16/19 8:35 AM	09/18/19 8:30 PM
Vanadium	0.012	0.005		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM
Zinc	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:39 AM



Laboratory Results

Geochemical Testing

Date: 25-Sep-19

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash South
Lab Order:	G1909778	Sampled By:	AES Warrior Run
Project:	TCLP Ash Analysis	Collection Date:	9/5/2019 12:00:01 AM
Lab ID:	G1909778-003	Received Date:	9/10/2019 8:00:00 AM
Matrix:	ASH		

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS		Analyst: AVH				EPA 3050	EPA 6010
Aluminum	26800	20.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Antimony	< 10	10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Arsenic	59.6	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Barium	230	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Beryllium	2.30	0.10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Boron	28.9	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Chromium	43.8	5.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Cobalt	10.2	0.5		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Copper	28.2	10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Lead	11.7	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Lithium	68.3	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/18/19 3:32 PM
Manganese	143	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Molybdenum	4.6	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Nickel	26.4	1.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Selenium	< 2.0	2.0		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Silver	< 0.5	0.5		mg/Kg-dry	1	09/16/19 11:20 AM	09/19/19 6:19 PM
Vanadium	65.4	0.5		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
Zinc	48.3	10		mg/Kg-dry	1	09/16/19 11:20 AM	09/17/19 5:25 PM
MERCURY		Analyst: RLL					ASTM D 6722
Mercury	< 0.010	0.010		mg/Kg-dry	1		09/16/19 12:00 PM
CARBONATE RESULTS		Analyst: AVH					Calculated
Calcium Carbonate	42.5			%	1		09/13/19 12:00 AM
Calcium Carbonate Equivalent	46.4			%	1		09/13/19 12:00 AM
Magnesium Carbonate	3.3			%	1		09/13/19 12:00 AM
MAJOR / MINOR ELEMENTS IN ASH		Analyst: AVH				ASTM D 6349	EPA 6010
Calcium Oxide	23.78	0.01		% Dry	1	09/11/19 3:35 AM	09/13/19 9:38 AM
Magnesium Oxide	1.58	0.01		% Dry	1	09/11/19 3:35 AM	09/13/19 9:38 AM
TCLP EXTRACTION		Analyst: ALD					EPA 1311
Extraction Fluid Used	2.0				1		09/15/19 12:31 PM
Final pH	12.4	1.0			1		09/15/19 12:31 PM
Initial pH	12.1	1.0			1		09/15/19 12:31 PM
pH with HCl	10.5	1.0			1		09/15/19 12:31 PM



Laboratory Results

Geochemical Testing

Date: 25-Sep-19

CLIENT: AES - WARRIOR RUN INC

Client Sample ID: Bed Ash South

Lab Order: G1909778

Project: TCLP Ash Analysis

Sampled By: AES Warrior Run

Lab ID: G1909778-003

Collection Date: 9/5/2019 12:00:01 AM

Matrix: ASH

Received Date: 9/10/2019 8:00:00 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TCLP, non-volatile	NA				1		09/15/19 12:31 PM
TCLP METALS		Analyst: LXM				EPA 7470	EPA 7470
Mercury	< 0.0020	0.0020		mg/L	1	09/17/19 2:00 PM	09/19/19 9:50 AM
TCLP METALS		Analyst: AVH				EPA 200.2	EPA 6010
Aluminum	< 0.1	0.1		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Antimony	< 0.10	0.10		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Arsenic	< 0.02	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Barium	0.6	0.3		mg/L	1	09/16/19 8:35 AM	09/18/19 8:34 PM
Beryllium	< 0.001	0.001		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Boron	0.26	0.05		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Cadmium	< 0.002	0.002		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Chromium	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Cobalt	< 0.005	0.005		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Copper	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Lead	< 0.02	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Lithium	0.09	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Manganese	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Molybdenum	0.09	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Nickel	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Selenium	< 0.02	0.02		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Silver	< 0.005	0.005		mg/L	1	09/16/19 8:35 AM	09/18/19 8:34 PM
Vanadium	0.010	0.005		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM
Zinc	< 0.01	0.01		mg/L	1	09/16/19 8:35 AM	09/18/19 12:44 AM





**GEOCHEMICAL
TESTING**
Environmental and Energy Analysis

2005 N. Center Ave.
Somerset, PA 15501

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

Monday, December 30, 2019

Michelle Stahlman
AES - WARRIOR RUN INC
11600 MEXICO FARMS SE
CUMBERLAND, MD 21502

RE: TCLP Ash Analysis

Order No.: G1912A79

Dear Michelle Stahlman:

Geochemical Testing received 5 sample(s) on 12/16/2019 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser
Director of Technical Services

Geochemical Testing

Date: 30-Dec-19

CLIENT: AES - WARRIOR RUN INC
Project: TCLP Ash Analysis
Lab Order: G1912A79

CASE NARRATIVE

No problems were encountered during analysis of this workorder, except if noted in this report.

Legend:
H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.
U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.
B - Analyte detected in the associated Method Blank
Q1 - See case narrative ND - Not Detected
MCL - Contaminant Limit J - Indicates an estimated value.
Q - Qualifier QL - Quantitation Limit DF - Dilution Factor

S - Surrogate Recovery outside accepted recovery limits
T - Sample received above required temperature and is not compliant with 40CFR136 Table II.
T1 - Sample received above required temperature
MDA - Minimum Detectable Activity.
** - Value exceeds Action Limit
TICs - Tentatively Identified Compounds.
E - Value above quantitation range



Laboratory Results

Geochemical Testing

Date: 30-Dec-19

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash - North 12-11-19-1
Lab Order:	G1912A79		C94807 / O46186
Project:	TCLP Ash Analysis	Sampled By:	AES Warrior Run
Lab ID:	G1912A79-001	Collection Date:	12/11/2019 12:00:01 A
Matrix:	ASH	Received Date:	12/16/2019 1:00:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS		Analyst: LRR			EPA 3050		EPA 6010
Aluminum	25300	20.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Antimony	< 10	10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Arsenic	55.7	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/23/19 4:49 PM
Barium	224	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Beryllium	2.38	0.10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Boron	21.7	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Chromium	38.3	5.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Cobalt	9.2	0.5		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Copper	20.0	10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Lead	7.3	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Lithium	42.7	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Manganese	130	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Molybdenum	4.2	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Nickel	23.5	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Vanadium	70.4	0.5		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
Zinc	42.3	10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:10 AM
MERCURY		Analyst: RLL			ASTM D 6722		
Mercury	< 0.010	0.010		mg/Kg-dry	1		12/18/19 10:50 AM
CARBONATE RESULTS		Analyst: MEG			Calculated		
Calcium Carbonate	49.0			%	1		12/18/19 12:00 AM
Calcium Carbonate Equivalent	53.6			%	1		12/18/19 12:00 AM
Magnesium Carbonate	3.9			%	1		12/18/19 12:00 AM
MAJOR / MINOR ELEMENTS IN ASH		Analyst: MEG			ASTM D 6349		EPA 6010
Calcium Oxide	27.43	0.01		% Dry	1	12/18/19 3:30 AM	12/18/19 11:30 AM
Magnesium Oxide	1.86	0.01		% Dry	1	12/18/19 3:30 AM	12/18/19 11:30 AM
TCLP EXTRACTION		Analyst: MAG			EPA 1311		
Extraction Fluid Used	2.0				1		12/17/19 5:00 PM
Final pH	12.1	1.0			1		12/17/19 5:00 PM
Initial pH	12.6	1.0			1		12/17/19 5:00 PM
pH with HCl	11.9	1.0			1		12/17/19 5:00 PM



Laboratory Results

Geochemical Testing

Date: 30-Dec-19

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash - North 12-11-19-1
Lab Order:	G1912A79		C94807 / O46186
Project:	TCLP Ash Analysis	Sampled By:	AES Warrior Run
Lab ID:	G1912A79-001	Collection Date:	12/11/2019 12:00:01 A
Matrix:	ASH	Received Date:	12/16/2019 1:00:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TCLP, non-volatile	NA				1		12/17/19 5:00 PM
TCLP METALS		Analyst: LXM				EPA 7470	EPA 7470
Mercury	< 0.0020	0.0020		mg/L	1	12/18/19 3:35 PM	12/20/19 10:17 AM
TCLP METALS		Analyst: LRR				EPA 200.2	EPA 6010
Aluminum	< 0.1	0.1		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Antimony	< 0.10	0.10		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Arsenic	< 0.02	0.02		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Barium	0.5	0.3		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Beryllium	< 0.001	0.001		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Boron	0.36	0.05		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Cadmium	< 0.002	0.002		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Chromium	< 0.01	0.01		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Cobalt	< 0.005	0.005		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Copper	< 0.01	0.01		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Lead	< 0.02	0.02		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Lithium	0.20	0.01		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Manganese	< 0.01	0.01		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Molybdenum	0.09	0.02		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Nickel	< 0.01	0.01		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Selenium	< 0.02	0.02		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Silver	< 0.005	0.005		mg/L	1	12/18/19 1:00 PM	12/20/19 8:11 PM
Vanadium	0.016	0.005		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM
Zinc	0.04	0.01		mg/L	1	12/18/19 1:00 PM	12/19/19 11:58 PM



Laboratory Results

Geochemical Testing

Date: 30-Dec-19

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash - South 12-11-19-2
Lab Order:	G1912A79		C94808 / O46187
Project:	TCLP Ash Analysis	Sampled By:	AES Warrior Run
Lab ID:	G1912A79-002	Collection Date:	12/11/2019 12:00:01 A
Matrix:	ASH	Received Date:	12/16/2019 1:00:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS		Analyst: LRR			EPA 3050		EPA 6010
Aluminum	25700	20.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Antimony	< 10	10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Arsenic	39.1	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/23/19 4:41 PM
Barium	263	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Beryllium	2.04	0.10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Boron	20.8	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Chromium	38.0	5.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Cobalt	9.5	0.5		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Copper	22.1	10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Lead	6.1	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Lithium	46.7	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Manganese	134	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Molybdenum	4.5	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Nickel	24.6	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Selenium	< 2.0	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Vanadium	62.9	0.5		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
Zinc	33.3	10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:01 AM
MERCURY		Analyst: RLL			ASTM D 6722		
Mercury	< 0.010	0.010		mg/Kg-dry	1		12/18/19 10:50 AM
CARBONATE RESULTS		Analyst: MEG			Calculated		
Calcium Carbonate	44.7			%	1		12/18/19 12:00 AM
Calcium Carbonate Equivalent	51.0			%	1		12/18/19 12:00 AM
Magnesium Carbonate	5.3			%	1		12/18/19 12:00 AM
MAJOR / MINOR ELEMENTS IN ASH		Analyst: MEG			ASTM D 6349		EPA 6010
Calcium Oxide	25.04	0.01		% Dry	1	12/18/19 3:30 AM	12/18/19 11:34 AM
Magnesium Oxide	2.51	0.01		% Dry	1	12/18/19 3:30 AM	12/18/19 11:34 AM
TCLP EXTRACTION		Analyst: MAG			EPA 1311		
Extraction Fluid Used	2.0				1		12/17/19 5:00 PM
Final pH	12.3	1.0			1		12/17/19 5:00 PM
Initial pH	12.5	1.0			1		12/17/19 5:00 PM
pH with HCl	11.6	1.0			1		12/17/19 5:00 PM



Laboratory Results

Geochemical Testing

Date: 30-Dec-19

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Bed Ash - South 12-11-19-2
Lab Order:	G1912A79		C94808 / O46187
Project:	TCLP Ash Analysis	Sampled By:	AES Warrior Run
Lab ID:	G1912A79-002	Collection Date:	12/11/2019 12:00:01 A
Matrix:	ASH	Received Date:	12/16/2019 1:00:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TCLP, non-volatile	NA				1		12/17/19 5:00 PM
TCLP METALS		Analyst: LXM				EPA 7470	EPA 7470
Mercury	< 0.0020	0.0020		mg/L	1	12/18/19 3:35 PM	12/20/19 10:23 AM
TCLP METALS		Analyst: LRR				EPA 200.2	EPA 6010
Aluminum	< 0.1	0.1		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Antimony	< 0.10	0.10		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Arsenic	< 0.02	0.02		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Barium	0.5	0.3		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Beryllium	< 0.001	0.001		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Boron	0.39	0.05		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Cadmium	< 0.002	0.002		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Chromium	< 0.01	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Cobalt	< 0.005	0.005		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Copper	< 0.01	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Lead	< 0.02	0.02		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Lithium	0.19	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Manganese	< 0.01	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Molybdenum	0.09	0.02		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Nickel	< 0.01	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Selenium	< 0.02	0.02		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Silver	< 0.005	0.005		mg/L	1	12/18/19 1:00 PM	12/20/19 8:16 PM
Vanadium	0.009	0.005		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM
Zinc	0.03	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:02 AM



Laboratory Results

Geochemical Testing

Date: 30-Dec-19

CLIENT:	AES - WARRIOR RUN INC	Client Sample ID:	Fly Ash 12-11-19-3
Lab Order:	G1912A79		C94809 / O46188
Project:	TCLP Ash Analysis	Sampled By:	AES Warrior Run
Lab ID:	G1912A79-003	Collection Date:	12/11/2019 12:00:01 A
Matrix:	ASH	Received Date:	12/16/2019 1:00:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TOTAL METALS		Analyst: LRR				EPA 3050	EPA 6010
Aluminum	36400	20.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Antimony	< 10	10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Arsenic	36.7	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/23/19 4:45 PM
Barium	549	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Beryllium	2.97	0.10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Boron	15.5	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Cadmium	< 5.0	5.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Chromium	41.8	5.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Cobalt	14.0	0.5		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Copper	36.4	10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Lead	23.2	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Lithium	77.1	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Manganese	129	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Molybdenum	7.0	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Nickel	34.2	1.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Selenium	6.8	2.0		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Silver	< 0.5	0.5		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Vanadium	75.5	0.5		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
Zinc	64.7	10		mg/Kg-dry	1	12/19/19 9:00 AM	12/21/19 7:06 AM
MERCURY		Analyst: RLL					ASTM D 6722
Mercury	0.849	0.010		mg/Kg-dry	1		12/18/19 10:50 AM
CARBONATE RESULTS		Analyst: MEG					Calculated
Calcium Carbonate	27.8			%	1		12/18/19 12:00 AM
Calcium Carbonate Equivalent	32.3			%	1		12/18/19 12:00 AM
Magnesium Carbonate	3.8			%	1		12/18/19 12:00 AM
MAJOR / MINOR ELEMENTS IN ASH		Analyst: MEG				ASTM D 6349	EPA 6010
Calcium Oxide	15.56	0.01		% Dry	1	12/18/19 3:30 AM	12/18/19 11:39 AM
Magnesium Oxide	1.83	0.01		% Dry	1	12/18/19 3:30 AM	12/18/19 11:39 AM
TCLP EXTRACTION		Analyst: MAG					EPA 1311
Extraction Fluid Used	2.0				1		12/17/19 5:00 PM
Final pH	11.3	1.0			1		12/17/19 5:00 PM
Initial pH	12.7	1.0			1		12/17/19 5:00 PM
pH with HCl	12.2	1.0			1		12/17/19 5:00 PM



Laboratory Results

Geochemical Testing

Date: 30-Dec-19

CLIENT: AES - WARRIOR RUN INC	Client Sample ID: Fly Ash 12-11-19-3
Lab Order: G1912A79	C94809 / O46188
Project: TCLP Ash Analysis	Sampled By: AES Warrior Run
Lab ID: G1912A79-003	Collection Date: 12/11/2019 12:00:01 A
Matrix: ASH	Received Date: 12/16/2019 1:00:00 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
TCLP, non-volatile	NA				1		12/17/19 5:00 PM
TCLP METALS		Analyst: LXM				EPA 7470	EPA 7470
Mercury	< 0.0020	0.0020		mg/L	1	12/18/19 3:35 PM	12/20/19 10:25 AM
TCLP METALS		Analyst: LRR				EPA 200.2	EPA 6010
Aluminum	0.2	0.1		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Antimony	< 0.10	0.10		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Arsenic	< 0.02	0.02		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Barium	1.0	0.3		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Beryllium	< 0.001	0.001		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Boron	0.60	0.05		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Cadmium	< 0.002	0.002		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Chromium	0.09	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Cobalt	< 0.005	0.005		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Copper	< 0.01	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Lead	< 0.02	0.02		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Lithium	0.22	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Manganese	< 0.01	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Molybdenum	0.20	0.02		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Nickel	< 0.01	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Selenium	0.02	0.02		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Silver	< 0.005	0.005		mg/L	1	12/18/19 1:00 PM	12/20/19 8:20 PM
Vanadium	0.11	0.005		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM
Zinc	0.05	0.01		mg/L	1	12/18/19 1:00 PM	12/20/19 12:07 AM

