



GenOn Chalk Point, LLC
Chalk Point Generating Station
25100 Chalk Point Road
Aquasco, Maryland 20608

Certified Mail/Return Receipt Requested
7008 1830 0003 6436 2708

Mr. Ed Dexter
Maryland Department of the Environment
Land Management Administration
1800 Washington Boulevard, Suite 605
Baltimore MD 21230-1719

February 28, 2019

Re: 2018 CCB Tonnage Report for GenOn Chalk Point, LLC's Chalk Point Generating Station

Dear Mr. Dexter,

Pursuant to COMAR 26.04.10.08, enclosed please find the 2018 CCB Tonnage Report for GenOn Chalk Point, LLC's Chalk Point Generating Station.

If you have any questions regarding this report, please contact me at 301-843-4439, or Mark.Nitz@genon.com.

Regards,

Mark Nitz
Environmental Specialist

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SOLID WASTE PROGRAM

**Coal Combustion Byproducts (CCBs)
Annual Generator Tonnage Report
Instructions for Calendar Year 2018**

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 2018. 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 for this year 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 the Department by March 1 of each year describing the manner in which CCBs generated within the State were managed during the preceding calendar year. Additional information and specific instructions follow. For more detailed information, please refer to COMAR 26.04.10.08.

II. General Information and Applicability.

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

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

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

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

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

III. Required Information. The following information must be provided to the Department by March 1, 2019:

A. Contact information:

Facility Name: Chalk Point Generating Station

Name of Permit Holder: GenOn Chalk Point, LLC

Facility Address: 25100 Chalk Point Road
Street

Facility Address: Aquasco Maryland 20608
City State Zip

County: Prince George's County

Contact Information (Person filing report or Environmental Manager)

Facility Telephone No.: 301-843-4100 Facility Fax No.: 301-843-4281

Contact Name: Mark Nitz

Contact Title: Environmental Specialist

Contact Address: 25100 Chalk Point Road
Street

Contact Address: Aquasco Maryland 20608
City State Zip

Contact Email: Mark.Nitz@genon.com

Contact Telephone No.: 301-843-4439 Contact Fax No.: 301-843-4156

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

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

See Attachment A.

C. The volume and weight of CCBs generated during calendar year 2018, 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 2018: Please note the change to this table from previous years, to include both the volume and weight of the types of CCBs your facility produces.

Volume and Weight of CCBs Generated for Calendar Year 2018				
Flyash Type of CCB	Bottom Ash Type of CCB	On-Spec Gypsum Type of CCB	Off Spec Gypsum Type of CCB	WWTP Fines Type of CCB
28,563	2,872	16,218	314	78
Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards	Volume of CCB, in Cubic Yards
28,563	2,872	31,681	614	153
Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons	Weight of CCB, in Tons

Additional notes:

CCB Tonnages are reported in dry short tons. CCB volumes are reported in dry Cubic Yards.
WWTP Tons represent fines from the Flue Gas Desulfurization's Waste Water Treatment
Volumes of Flyash in Dry Cubic Yards are calculated from dry short tons using a density of 1.0
Tons/Dry CY.
Volumes of Bottom Ash in Dry Cubic Yards are calculated from dry short tons using a density of
1.0 Tons/Dry CY.
Volumes of On-Spec Gypsum, Off-Spec Gypsum and WWTP Fines are calculated from dry
short tons using a density of 1.95 Tons/Dry CY.

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 2018, 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:

FlyAsh: 28,563 tons of flyash were generated at Chalk Point in 2018 and sent to Morgantown for processing at the STAR Facility, where Morgantown flyash and Chalk Point flyash are comingled and injected into the Staged Turbulent Air Reactor (STAR) as a fuel to produce flyash that is suitable for beneficial uses. During the STAR process, the mass and volume of ash injected is reduced as Carbon and moisture are released from the ash, and the resulting beneficiated ash is sent to the Morgantown storage dome for sale and shipment by the SEFA Group, headquartered in Columbia, SC for beneficial use. The 28,563 tons of Chalk Point ash were reduced to 25,521 tons of dry flyash. At the end of 2017, 6,161 tons of flyash were stored on site at the STAR facility, and 5,116 tons were stored on site at the end of 2018. Of this ash, 26,566 tons of ash were sold (3,580 tons of which were sold in Maryland for beneficial use, and 22,986 tons of which were sold in six other states for beneficial use).

BottomAsh: 2,872 tons of dry bottom ash were generated at Chalk Point in 2018, all of which were disposed of at Waste Management's Amelia Landfill located in Jetersville, Va.

On-Spec Gypsum: generated at Chalk Point in 2018 was 31,681 tons. A total of 598 tons were stored on-site at the end of 2018, and 2,867 tons were stored on-site at the end of 2017. Of this total, 33,950 dry tons were sold to and transported by barge to Continental, Inc. located in Buchanan, NY.

Off-Spec Gypsum generated in 2018 was 614 tons, all of which was disposed of at Waste Management's Amelia Landfill located in Jetersville, Va.

WWTP Fines produced in 2018 was 153 tons, all of which was disposed of at Waste Management Inc's Amelia Landfill, located in Jetersville, Va.

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

On-Spec Gypsum: _____

Volume: 33,950 tons sold.

Use: Wallboard

Flyash: 26,566 tons sold.

Use: Cementitious material for concrete products.

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:

FlyAsh: Approximately 28,500 tons/year to be generated and sent to the Morgantown STAR facility for processing.

Bottom Ash: Anticipate 2,870 tons/year to be generated and sent to Waste Management's Amelia Landfill located in Jetersville, Va. for disposal.

On-Spec Gypsum: Anticipate approximately 32,000 tons/year to be generated and sold to Continental, located in Buchanan, NY. for beneficial use.

Off-Spec Gypsum: Approximately 600 tons/year to be generated and disposed of at Waste Management's Amelia Landfill located in Jetersville, Va.

WWTP Fines: Approximately 150 tons/year to be generated and disposed of at Waste Management's Amelia Landfill located in Jetersville, Va.

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

On-Spec Gypsum: _____

Volume: 32,000 tons/year to be sold.

Use: Wallboard

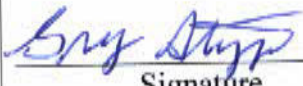
Flyash: _____

Volume: 27,000 tons/year to be sold.

Use: Cementitious material for concrete products.

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

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

This is to certify that, to the best of my knowledge, the information contained in this report and any attached documents are true, accurate, and complete.		
 _____ Signature	<u>Greg Stagers, General Manager, Chalk Point Generating Station</u> 301-843-4121 <hr/> Name, Title, & Telephone No. (Print or Type) _____ gregory.stagers@genon.com <hr/> Your Email Address	<u>2/28/19</u> <hr/> Date

V: Attachments (please list):

- A) Chalk Point Generating Station Process Description
- B) Microbac Report #18L1382: Analyses for Fly Ash, Bottom Ash, Off- Spec Gypsum and WWTP Fines
- _____
- _____
- _____
- _____
- _____

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:

See Attachment A.

C. The volume and weight of CCBs generated during calendar year 2018, 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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Additional notes:

CCB Tonnages are reported in dry short tons. CCB volumes are reported in dry Cubic Yards.

WWTP Tons represent fines from the Flue Gas Desulfurization's Waste Water Treatment

Volumes of Flyash in Dry Cubic Yards are calculated from dry short tons using a density of 1.0 Tons/Dry CY.

Volumes of Bottom Ash in Dry Cubic Yards are calculated from dry short tons using a density of 1.0 Tons/Dry CY.

Volumes of On-Spec Gypsum, Off-Spec Gypsum and WWTP Fines are calculated from dry short tons using a density of 1.95 Tons/Dry CY.

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.

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BottomAsh: 2,872 tons of dry bottom ash were generated at Chalk Point in 2018, all of which were disposed of at Waste Management's Amelia Landfill located in Jetersville, Va..

On-Spec Gypsum: generated at Chalk Point in 2018 was 31,681 tons. A total of 598 tons were stored on-site at the end of 2018, and 2,867 tons were stored on-site at the end of 2017. Of this total, 33,950 dry tons were sold to and transported by barge to Continental, Inc, located in Buchanan, NY.

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WWTP Fines produced in 2018 was 153 tons, all of which was disposed of at Waste Management Inc's Amelia Landfill, located in Jetersville, Va.

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On-Spec Gypsum: _____

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Use: Wallboard

Flyash: 26,566 tons sold.

Use: Cementitious material for concrete products.

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On-Spec Gypsum: _____

Volume: 32,000 tons/year to be sold.

Use: Wallboard


Flyash: _____

Volume: 27,000 tons/year to be sold.

Use: Cementitious material for concrete products.

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.		
	<u>Greg Stagers, General Manager, Chalk Point Generating Station</u> 301-843-4121	<u>3/22/2019</u>
	Name, Title, & Telephone No. (Print or Type)	Date
	<u>gregory.stagers@genon.com</u>	
	Your Email Address	

Note: This report was originally submitted on February 28, 2019. Page 4 was amended per discussion with Ms. Sara Halle to provide clarification regarding end-of-year on-site storage of flyash.

V: Attachments (please list):

A)Chalk Point Generating Station Process Description

B)Microbac Report #18L1382: Analyses for Fly Ash, Bottom Ash, Off- Spec Gypsum and WWTP Fines

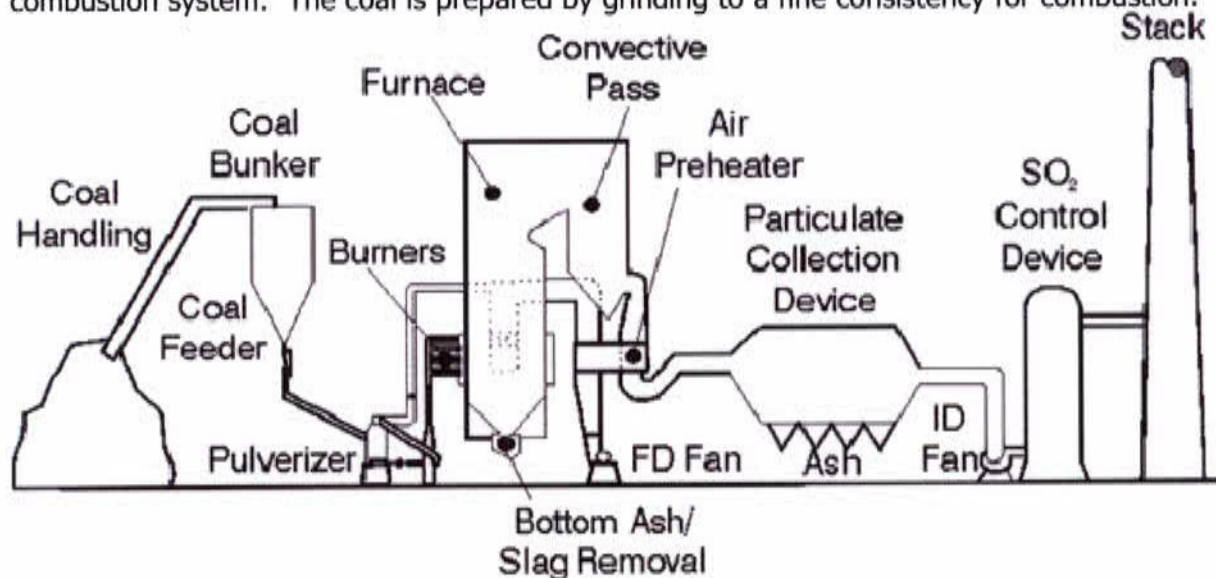
Attachment A

Chalk Point Generating Station
25100 Chalk Point Road,
Aquasco, Prince George's County, MD. 20608
301-843-4100

The Chalk Point Generating Station is located on the Patuxent River at Swanson's Creek in Prince George's County, MD. The facility is engaged in the generation of electrical energy for sale. The primary SIC code is 4911. There are two coal burning, opposite wall fired units each with a superheater, double reheat and economizer and each rated at 365 MWs (base loaded). The primary fuel for these boilers is bituminous coal. Pollution control devices on Unit 1 include low NOx burners with Separated Over-Fired Air (SOFA), and Selective Catalytic Reduction (SCR) for control of oxides of nitrogen (NOx); and electrostatic precipitators (ESP) for the control of particulate matter. Pollution control devices on Unit 2 include low NOx burners with Separated Over-Fired Air (SOFA), and Selective Auto-Catalytic Reduction (SACR) for control of oxides of nitrogen (NOx); and electrostatic precipitators (ESP) for the control of particulate matter. A Wet Scrubber (FGD) was installed and went in service on both units in late 2009. Units 1 & 2 exhausts through the scrubber stack or, when the FGD is not in service, through a common single stack.

Coal is currently delivered by rail. The rail cars are emptied using a rotary dumper then transferred by conveyor and dravo to either a storage pile or is fed directly to the units' bunker.

The illustration below shows a simple schematic diagram for a typical pulverized coal combustion system. The coal is prepared by grinding to a fine consistency for combustion.



Attachment A

The CCBs currently produced and used are a result of the combustion of pulverized coal.

Ash is formed in the boiler while coal combusts. In general, pulverized coal combustion results in approximately 10% ash, of which 65%–85% is fly ash, and the rest is coarser bottom ash. Bottom ash is a coarse material and falls to the bottom of the boiler. Fly ash is finer than bottom ash and is carried along the combustion process with flue gas. Particulate collection devices remove fly ash from the flue gas and the collected ash is transferred to one of two ash silos. Flyash that is marketed is sent by truck for further processing to the STAR facility, which is located at GenOn's Morgantown Generating Station in Newburg, Md. Flyash that is not marketed is sent to the Brandywine Ash Site, located in Prince George's County, MD, or to Waste Management's Amelia Landfill, located in Jetersville, Va.

Bottom ash is conveyed out of the bottom of the boiler via a wet sluice system to hydrobins, where the water is then decanted, and the bottom ash sent by truck to GenOn's Brandywine Ash Site, or to Waste Management's Amelia Landfill, located in Jetersville, Va.

Gypsum is a byproduct of SO₂ removal by the Flue Gas Desulfurization (FGD) system, known as a scrubber. Chalk Point uses wet scrubbers for SO₂ removal. Wet scrubbing uses a slurry of limestone alkaline sorbent to remove SO₂ from the air stream. The byproduct - gypsum - is conveyed to a storage dome temporarily where it is then delivered by rail to the Morgantown Station and sent to Buchanan, New York to be made into wallboard. Gypsum that does not meet the specifications for wallboard production is transported for disposal to Waste Management's Amelia Landfill in Virginia. Waste Water Treatment Plant Fines (WWTP Fines) are removed from the Scrubber's WWTP as needed and transported to Waste Management's Amelia Landfill in Virginia for disposal.



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

18L1382

NRG Energy - Chalk Point Gen. Sta.

Project Name: Chalk Pt-FGD Special Yearly

Greg Conden
25100 Chalk Point Road
Aguasco, MD 20608

Project / PO Number: 4501720406
Received: 12/26/2018
Reported: 02/14/2019

Case Narrative

Insufficient volume to perform pH on fraction -04.

Analytical Testing Parameters

Client Sample ID: 089-122618-Gypsum-1 A+B	Collected By: Cal Adams
Sample Matrix: Solid	Collection Date: 12/26/2018 9:00
Lab Sample ID: 18L1382-01	

Wet Chemistry	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: SM 2540 G-11								
% Solids	82.22		0.05	% by Weight		01/02/19 1518	01/03/19 0930	LCR
Method: SW-846 9045D								
pH	7.99		0.100	pH Units		01/17/19 0845	01/17/19 0937	RDM
General Chemistry	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: SW-846 9095B								
Paint Filter Free Liquid	Negative			P/A		01/03/19 1110	01/03/19 1120	SRZ
Mercury, Total by EPA 7000 Series Methods	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 7471A								
Mercury	0.23		0.030	mg/kg dry		01/08/19 0843	01/08/19 1723	APS
Metals, Total by EPA 6000/7000 Series Methods	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 3050B/EPA 6010B								
Aluminum	100		30	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Antimony	<12		12	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Arsenic	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Barium	35		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Beryllium	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Cadmium	<3.0		3.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Calcium	270000		600	mg/kg dry		01/02/19 1124	01/08/19 1319	APS
Chromium	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Cobalt	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Copper	9.4		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Iron	590		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Lead	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Magnesium	<600		600	mg/kg dry		01/02/19 1124	01/08/19 1319	APS

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

18L1382

Client Sample ID: 089-122618-Gypsum-1 A+B	Collected By: Cal Adams
Sample Matrix: Solid	Collection Date: 12/26/2018 9:00
Lab Sample ID: 18L1382-01	

Metals, Total by EPA 6000/7000 Series Methods	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Manganese	<30		30	mg/kg dry		01/02/19 1124	01/03/19 1639	APS
Manganese	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Nickel	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Potassium	160		60	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Selenium	<12		12	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Silver	<1.2		1.2	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Sodium	64		60	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Thallium	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Vanadium	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS
Zinc	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1507	APS

TCLP Extraction by EPA 1311	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 1311 TCLP Extraction	COMPLETE D			N/A		01/03/19 1600	01/04/19 1000	APS

TCLP Metals by 6000/7000 Series Methods	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 6010B								
Arsenic	<0.20		0.20	mg/L		01/07/19 1346	01/08/19 1247	APS
Barium	<0.20		0.20	mg/L		01/07/19 1346	01/08/19 1247	APS
Cadmium	<0.10		0.10	mg/L		01/07/19 1346	01/08/19 1247	APS
Chromium	<0.20		0.20	mg/L		01/07/19 1346	01/08/19 1247	APS
Lead	<0.20		0.20	mg/L		01/07/19 1346	01/08/19 1247	APS
Selenium	<0.40		0.40	mg/L		01/07/19 1346	01/08/19 1247	APS
Silver	<0.040		0.040	mg/L		01/07/19 1346	01/08/19 1247	APS

Method: EPA 7470A Mercury	<0.0020	0.20	0.0020	mg/L		01/07/19 1720	01/08/19 1413	APS
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Analyses Subcontracted to: Microbac Laboratories, Inc. - Ohio Valley

Common anions	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: 9056								
Chloride	54.7		12.9	mg/kg DRY		01/03/19 1208	01/04/19 0348	AT
Sulfate	17600		258	mg/kg DRY		01/03/19 1208	01/04/19 0406	AT

Percent Solids	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: ASTM D2216-10								
Percent Solids	77.3		1.00	weight %			01/04/18 0754	ACG

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

18L1382

Client Sample ID: 089-122618-Gypsum-1 A+B	Collected By: Cal Adams
Sample Matrix: Solid	Collection Date: 12/26/2018 9:00
Lab Sample ID: 18L1382-01	

Percent Solids	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

18L1382

Client Sample ID: 089-122618-Fly Ash-2 A+B	Collected By: Cal Adams
Sample Matrix: Solid	Collection Date: 12/26/2018 9:00
Lab Sample ID: 18L1382-02	

Wet Chemistry

	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: SM 2540 G-11								
% Solids	99.64		0.05	% by Weight		01/02/19 1518	01/03/19 0930	LCR
Method: SW-846 9045D								
pH	5.09		0.100	pH Units		01/17/19 0845	01/17/19 0937	RDM

General Chemistry

	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: SW-846 9095B								
Paint Filter Free Liquid	Negative			P/A		01/03/19 1110	01/03/19 1120	SRZ

Mercury, Total by EPA 7000 Series Methods

	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 7471A								
Mercury	0.53		0.048	mg/kg dry		01/08/19 0843	01/08/19 1725	APS

Metals, Total by EPA 6000/7000 Series Methods

	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 3050B/EPA 6010B								
Aluminum	11000		220	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Antimony	<86		86	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Arsenic	76		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Barium	170		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Beryllium	<43		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Cadmium	<22		22	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Calcium	10000		430	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Chromium	68		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Cobalt	<43		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Copper	63		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Iron	59000		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Lead	<43		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Magnesium	870		430	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Manganese	110		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Nickel	<43		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Potassium	1200		430	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Selenium	<86		86	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Silver	<8.6		8.6	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Sodium	550		430	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Thallium	<43		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Vanadium	72		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS
Zinc	<43		43	mg/kg dry		01/02/19 1124	01/03/19 1511	APS

Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

18L1382

Client Sample ID: 089-122618-Fly Ash-2 A+B	Collected By: Cal Adams
Sample Matrix: Solid	Collection Date: 12/26/2018 9:00
Lab Sample ID: 18L1382-02	

TCLP Extraction by EPA 1311

Method: EPA 1311	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
TCLP Extraction	COMPLETE D			N/A		01/03/19 1600	01/04/19 1000	APS

TCLP Metals by 6000/7000 Series Methods

Method: EPA 6010B	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Arsenic	<0.20		0.20	mg/L		01/07/19 1346	01/08/19 1301	APS
Barium	0.32		0.20	mg/L		01/07/19 1346	01/08/19 1301	APS
Cadmium	<0.10		0.10	mg/L		01/07/19 1346	01/08/19 1301	APS
Chromium	<0.20		0.20	mg/L		01/07/19 1346	01/08/19 1301	APS
Lead	<0.20		0.20	mg/L		01/07/19 1346	01/08/19 1301	APS
Selenium	<0.40		0.40	mg/L		01/07/19 1346	01/08/19 1301	APS
Silver	<0.040		0.040	mg/L		01/07/19 1346	01/08/19 1301	APS

Method: EPA 7470A	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Mercury	<0.0020	0.20	0.0020	mg/L		01/07/19 1720	01/08/19 1419	APS

Analyses Subcontracted to: Microbac Laboratories, Inc. - Ohio Valley

Common anions

Method: 9056	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Chloride	67.0		10.1	mg/kg DRY		01/03/19 1208	01/04/19 0501	AT
Sulfate	8070		202	mg/kg DRY		01/03/19 1208	01/04/19 0519	AT

Percent Solids

Method: ASTM D2216-10	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Percent Solids	99.2		1.00	weight %			01/04/18 0754	ACG



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

18L1382

Client Sample ID: 089-122618-Bottom Ash-3 A+B	Collected By: Cal Adams
Sample Matrix: Solid	Collection Date: 12/26/2018 9:00
Lab Sample ID: 18L1382-03	

Wet Chemistry **Result** **Limit(s)** **RL** **Units** **Note** **Prepared** **Analyzed** **Analyst**

Method: SM 2540 G-11								
% Solids	78.74		0.05	% by Weight		01/02/19 1518	01/03/19 0930	LCR
Method: SW-846 9045D								
pH	6.11		0.100	pH Units		01/17/19 0845	01/17/19 0937	RDM

General Chemistry **Result** **Limit(s)** **RL** **Units** **Note** **Prepared** **Analyzed** **Analyst**

Method: SW-846 9095B								
Paint Filter Free Liquid	Negative			P/A		01/03/19 1110	01/03/19 1120	SRZ

Mercury, Total by EPA 7000 Series Methods **Result** **Limit(s)** **RL** **Units** **Note** **Prepared** **Analyzed** **Analyst**

Method: EPA 7471A								
Mercury	<0.032		0.032	mg/kg dry		01/08/19 0843	01/08/19 1727	APS

Metals, Total by EPA 6000/7000 Series Methods **Result** **Limit(s)** **RL** **Units** **Note** **Prepared** **Analyzed** **Analyst**

Method: EPA 3050B/EPA 6010B								
Aluminum	11000		150	mg/kg dry		01/02/19 1124	01/03/19 1518	APS
Antimony	<12		12	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Arsenic	70		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Barium	93		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Beryllium	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Cadmium	<3.0		3.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Calcium	6300		60	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Chromium	25		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Cobalt	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Copper	19		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Iron	32000		30	mg/kg dry		01/02/19 1124	01/03/19 1518	APS
Lead	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Magnesium	520		60	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Manganese	55		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Nickel	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Potassium	720		60	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Selenium	<12		12	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Silver	<1.2		1.2	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Sodium	500		60	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Thallium	<6.0		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Vanadium	30		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS
Zinc	9.8		6.0	mg/kg dry		01/02/19 1124	01/03/19 1514	APS



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

18L1382

Client Sample ID: 089-122618-Bottom Ash-3 A+B	Collected By: Cal Adams
Sample Matrix: Solid	Collection Date: 12/26/2018 9:00
Lab Sample ID: 18L1382-03	

TCLP Extraction by EPA 1311

Method: EPA 1311	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
TCLP Extraction	COMPLETE D			N/A		01/03/19 1600	01/04/19 1000	APS

TCLP Metals by 6000/7000 Series Methods

Method: EPA 6010B	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Arsenic	<0.20	0.20	0.20	mg/L		01/07/19 1346	01/08/19 1312	APS
Barium	0.31	0.20	0.20	mg/L		01/07/19 1346	01/08/19 1312	APS
Cadmium	<0.10	0.10	0.10	mg/L		01/07/19 1346	01/08/19 1312	APS
Chromium	<0.20	0.20	0.20	mg/L		01/07/19 1346	01/08/19 1312	APS
Lead	<0.20	0.20	0.20	mg/L		01/07/19 1346	01/08/19 1312	APS
Selenium	<0.40	0.40	0.40	mg/L		01/07/19 1346	01/08/19 1312	APS
Silver	<0.040	0.040	0.040	mg/L		01/07/19 1346	01/08/19 1312	APS

Method: EPA 7470A	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Mercury	<0.0020	0.20	0.0020	mg/L		01/07/19 1720	01/08/19 1426	APS

Analyses Subcontracted to: Microbac Laboratories, Inc. - Ohio Valley

Common anions

Method: 9056	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Chloride	249	8.06	8.06	mg/kg DRY		01/03/19 1208	01/04/19 2028	KWD
Sulfate	1010	13.4	13.4	mg/kg DRY		01/03/19 1208	01/04/19 0537	AT

Percent Solids

Method: ASTM D2216-10	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
Percent Solids	74.4	1.00	1.00	weight %			01/04/18 0754	ACG



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

18L1382

Client Sample ID: 089-122618-WWTP Fines-4 A+B	Collected By: Cal Adams
Sample Matrix: Solid	Collection Date: 12/26/2018 9:00
Lab Sample ID: 18L1382-04	

Wet Chemistry	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: SM 2540 G-11								
% Solids	94.15		0.05	% by Weight		01/02/19 1518	01/03/19 0930	LCR

General Chemistry	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: SW-846 9095B								
Paint Filter Free Liquid	Negative			P/A		01/03/19 1110	01/03/19 1120	SRZ

Mercury, Total by EPA 7000 Series Methods	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: EPA 7471A								
Mercury	32		1.1	mg/kg dry		01/08/19 0843	01/09/19 0903	APS

Metals, Total by EPA 6000/7000 Series Methods	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: EPA 3050B/EPA 6010B								
Aluminum	18000		370	mg/kg dry		01/02/19 1124	01/03/19 1650	APS
Antimony	<29		29	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Arsenic	76		73	mg/kg dry		01/02/19 1124	01/03/19 1650	APS
Barium	880		15	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Beryllium	<15		15	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Cadmium	<7.3		7.3	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Calcium	150000		730	mg/kg dry		01/02/19 1124	01/03/19 1650	APS
Chromium	110		15	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Cobalt	<15		15	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Copper	71		15	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Iron	38000		73	mg/kg dry		01/02/19 1124	01/03/19 1650	APS
Lead	20		15	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Magnesium	17000		730	mg/kg dry		01/02/19 1124	01/03/19 1650	APS
Manganese	1500		15	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Nickel	110		15	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Potassium	7800		150	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Selenium	200		29	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Silver	<2.9		2.9	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Sodium	3700		150	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Thallium	<15		15	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Vanadium	55		15	mg/kg dry		01/02/19 1124	01/03/19 1537	APS
Zinc	150		15	mg/kg dry		01/02/19 1124	01/03/19 1537	APS

TCLP Extraction by EPA 1311	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: EPA 1311								
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Microbac Laboratories, Inc.



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

18L1382

Client Sample ID: 089-122618-WWTP Fines-4 A+B	Collected By: Cal Adams
Sample Matrix: Solid	Collection Date: 12/26/2018 9:00
Lab Sample ID: 18L1382-04	

TCLP Extraction by EPA 1311	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
TCLP Extraction	COMPLETE D			N/A		01/03/19 1600	01/04/19 1000	APS

TCLP Metals by 6000/7000 Series Methods	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: EPA 6010B								
Arsenic	<0.20		0.20	mg/L		01/07/19 1346	01/08/19 1316	APS
Barium	<0.20		0.20	mg/L		01/07/19 1346	01/08/19 1316	APS
Cadmium	<0.10		0.10	mg/L		01/07/19 1346	01/08/19 1316	APS
Chromium	<0.20		0.20	mg/L		01/07/19 1346	01/08/19 1316	APS
Lead	<0.20		0.20	mg/L		01/07/19 1346	01/08/19 1316	APS
Selenium	<0.40		0.40	mg/L		01/07/19 1346	01/08/19 1316	APS
Silver	<0.040		0.040	mg/L		01/07/19 1346	01/08/19 1316	APS

Method: EPA 7470A								
Mercury	<0.0020	0.20	0.0020	mg/L		01/07/19 1720	01/08/19 1428	APS

Analyses Subcontracted to: Microbac Laboratories, Inc. - Ohio Valley

Common anions	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: 9056								
Chloride	5170		109	mg/kg DRY		01/03/19 1208	01/04/19 0650	AT
Sulfate	23100		544	mg/kg DRY		01/03/19 1208	01/04/19 0650	AT

Percent Solids	Result	Limit(s)	RL	Units	Note	Prepared	Analyzed	Analyst
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Method: ASTM D2216-10								
Percent Solids	91.9		1.00	weight %			01/04/18 0754	ACG

Results in **bold** have exceeded a limit defined for this project. Limits are provided for reference but as regulatory limits change frequently, Microbac Laboratories, Inc. advises the recipient of this report to confirm such limits and units of concentration with the appropriate Federal, state or local authorities before acting on the data.

Definitions

MDL: Minimum Detection Limit
RL: Reporting Limit

Project Requested Certification(s)

Microbac Laboratories, Inc. - Baltimore
 E871126 Florida - NELAC
 Microbac Laboratories, Inc. - Ohio Valley
 460187 Commonwealth of Virginia (NELAC)



Microbac Laboratories, Inc. - Baltimore

CERTIFICATE OF ANALYSIS

18L1382

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Reviewed and Approved By:

A handwritten signature in black ink, appearing to read "Jake Mason", written over a light blue rectangular background.

Jake Mason

Client Relations

Reported: 02/14/2019 13:06



SUBCONTRACT ORDER
18L1382

SENDING LABORATORY:

Microbac Laboratories, Inc. - Baltimore
2101 Van Deman Street
Baltimore, MD 21224
Phone: 410.633.1800
Project Manager: Jake Mason

RECEIVING LABORATORY:

Microbac - OVD
158 Starlite Dr
Marietta, OH 45750
Phone: (800) 373-4071

Project Info:

Project Name: Chalk Point-FGD Special Yearly	Client: NRG Energy - Chalk Point Gen. Sta.	Project Type: ENV-WasteAnalysis	Report TAT: 7
Project No: Chalk Pt-FGD Special Yearly	Project Location: Maryland (Central)	Due: 01/07/2019 17:00	

Sample ID: 18L1382-01

Matrix: Solid

Sampled: 12/26/2018 09:00

Analysis	Method	Analysis Due	Expires
CI_IC Chloride	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00
SO4_IC Sulfate as SO4	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00

Sample ID: 18L1382-02

Matrix: Solid

Sampled: 12/26/2018 09:00

Analysis	Method	Analysis Due	Expires
CI_IC Chloride	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00
SO4_IC Sulfate as SO4	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00

Sample ID: 18L1382-03

Matrix: Solid

Sampled: 12/26/2018 09:00

Analysis	Method	Analysis Due	Expires
CI_IC Chloride	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00
SO4_IC Sulfate as SO4	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00

Sample ID: 18L1382-04

Matrix: Solid

Sampled: 12/26/2018 09:00

Analysis	Method	Analysis Due	Expires
CI_IC Chloride	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00
SO4_IC Sulfate as SO4	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00

[Signature]
Released By

12/27/18
Date

[Signature]
Received By

Date

Released By

Date

Received By

Date

MICROBAC
 Microbac Laboratories Inc., Baltimore Division
 2101 Van Daman St, Baltimore, MD 21224
 Tel: 410-633-1800
 Fax: 410-633-8553
 www.microbac.com

Work Order Number
 18L1382

Chain of Custody Record

Page 1 of 1
 Instructions for completing the Chain of Custody Record on back.

Client Name: Genon
 Address: 25100 Chalk A Rd
 City, State, Zip: Agawasco, MD 20608
 Contact: Greg Conder
 Telephone #: 301-843-4170

Project: Special FGD - Yrly
 Location: CP-FGD Specie's Yrly
 PO #: _____
 Compliance Monitoring? Yes No
 (1) Agency Program: _____

QC and EDD Type (Required)
 Level I (NAC) EDD
 Level II** Format:
 Level III** Comments:
 Level IV**

Turnaround Time: _____
 Standard (7 Business Days)
 RUSH* Needed By: _____
 * Please notify lab prior to drop off.

Sampler Signature: _____
 Sampler Phone #: 301-843-4170 Sampler (DW) Cert# _____
 [] Telephone [] Fax (fax #) - 4475
 [] Mail [] Email

Send Report via [] e-mail (address) genon@conder.com

Client Sample ID	Matrix**	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analysis	Comments	Sample Disposition		Printed Name/Initiation
										<input type="checkbox"/> Hazardous <input type="checkbox"/> Non-Hazardous	<input type="checkbox"/> Radioactive	
089-122618-Gypsum-1AHD		<input checked="" type="checkbox"/>			12/26/18	0900	2	Chlorides Sulfate as SO ₄ PH (as received) TCLP-A, No. 5 Total Metals Point F.H. Test Sulfate Method (101)	SM(20) 4800-CL-CM ASTM 0516-050CM EPA 9045 EPA 6010P SW 84679 1A Conar 26-21-04-05 EPA 9095 ASTM D2472	<input type="checkbox"/>	<input type="checkbox"/>	Printed Name/Initiation R. G. Conder 12/26/18
089-122618-Fly Ash-2AHD		<input checked="" type="checkbox"/>					2			<input type="checkbox"/>	<input type="checkbox"/>	Printed Name/Initiation R. G. Conder 12/26/18
089-122618-Bottom Ash-3AHD		<input checked="" type="checkbox"/>					2			<input type="checkbox"/>	<input type="checkbox"/>	Printed Name/Initiation R. G. Conder 12/26/18
089-122618-WWT Pans-4AHD		<input checked="" type="checkbox"/>					2			<input type="checkbox"/>	<input type="checkbox"/>	Printed Name/Initiation R. G. Conder 12/26/18

Reviewed By: RMC
 Date: 12/21/18



18L1382

Cooler Receipt Form / Sample Acceptance & Noncompliance Form

Microbac Laboratories, Inc., Baltimore Division
 Control # 606-03
 Effective Date: 11/30/2016
 Page 1 of 1

Number of Coolers Received: 1

Client: NRC - CP

Form Completed By: Handwritten Signature

Shipper:

Custody Tape Intact:

Containers Intact:

Sample Received on Ice or refrigerated:

Chain of Custody Present with shipment:

Sample Bottle IDs agree with COC:

Preservation requirements met:

Correct Number of Containers / Sample Volume:

Headspace in container:

Type of Sample:

Receipt Date / Time: 12/26/18 1450
 Work Order # 18L0144/0145/0153/0154/0160/1382

Microbac Client UPS FedEx

YES / NO / NA

YES / NO

YES / NO / NA

Infrared (IR) Temperature: 3.1 °C

YES / NO

YES / NO

YES / NO / Not Checked

YES / NO (If No, contact client immediately)

YES / NO / NA

Water Soil Wipes Oil Filter Solid Sludge Food Swab Other

Container Type / Quantity:

A - Unpreserved	H2SO4	1	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
B - Unpreserved	H2SO4	4	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
C - Unpreserved	H2SO4		HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
D - Unpreserved	H2SO4		HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
E - Unpreserved	H2SO4	2	HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
H - Unpreserved	H2SO4		HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
K - 8 Unpreserved	H2SO4		HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
L - Unpreserved	H2SO4		HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
M - Unpreserved	H2SO4		HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
P - Unpreserved	H2SO4		HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
W - Unpreserved	H2SO4		HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
V - Unpreserved	HCl		HCl / Ascorbic Acid	HCl / NaTHIO	(Checked at time of Analysis)		
F - Unpreserved	NaTHIO (Checked at time of Analysis)						
S - Unpreserved	NaTHIO (Checked at time of Analysis)						
SN - Unpreserved	NaTHIO NaTHIO/EDTA (Checked at time of Analyr's)						
Unpreserved	H2SO4		HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
Unpreserved	H2SO4		HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10
Unpreserved	H2SO4		HNO3	HCl	NaOH	NaOH/Ascorbic Acid	If preserved pH <2, pH >10

Describe preservation requirements not met:

All Acid preserved < 2 pH NaOH preserved > 12 pH All others > 2 and < 10 (usually 4-8)

Sample ID: _____ H₂SO₄ HNO₃ NaOH _____ mls added
 Sample ID: _____ H₂SO₄ HNO₃ NaOH _____ mls added
 Sample ID: _____ H₂SO₄ HNO₃ NaOH _____ mls added
 Sample ID: _____ H₂SO₄ HNO₃ NaOH _____ mls added

H₂SO₄ - Sulfuric Acid, HNO₃ - Nitric Acid, NaOH - Sodium Hydroxide, ASC - Ascorbic Acid, NaTHIO - Sodium Thiosulfate

Describe Anomalies: _____

Contact information / Summary of Actions:

Date / Time: _____ Contact: _____ Contact By: _____

Comments: _____



Laboratory Report Number: L18122347

Jake Mason
Microbac Laboratories
Baltimore Division
Baltimore, MD 21224

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:

—
(740) 373-4071
Alicia.walker@microbac.com

I certify that all test results meet all of the requirements of the accrediting authority listed below. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

This report was certified on January 07 2019

Leslie Bucina – Managing Director

State of Origin: MD
Accrediting Authority: N/A ID: N/A
QAPP: Microbac OVD



Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

There were no discrepancies.

Discrepancy				Resolution	
Coolers					
Cooler #	Temperature Gun	Temperature	COC #	Airbill #	Temp Required?
00113690	I	0.0		1001891774060004575000680736397987	X

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	NA
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct preservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	NA
12	Were VOA samples free of headspace (less than 6mm)?	NA

Lab Report #: L18122347

Lab Project #: 2941.055

Project Name: Baltimore Division

Lab Contact:

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
18L1382-01	L18122347-01	12/26/2018 09:00	12/28/2018 10:22
18L1382-02	L18122347-02	12/26/2018 09:00	12/28/2018 10:22
18L1382-03	L18122347-03	12/26/2018 09:00	12/28/2018 10:22
18L1382-04	L18122347-04	12/26/2018 09:00	12/28/2018 10:22



Login Number: L18122347
Department: General Chromatography
Analyst: Asa Timmons
Analyst #2: Kurtis Decker

METHOD

Analysis EPA300.0/SW846 9056

HOLDING TIMES

Sample Analysis: Hold times for NO₂ and NO₃ are 48 hours and the hold times for F, Cl, Br, and SO₄ are 28 days. The hold time forms calculate the hold time based on 48 hours. All samples were analyzed in hold.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: The client did not specify an MS/MSD for this sample delivery group. The laboratory selected sample 03 for MS/MSD analysis and recoveries out of range were observed for chloride and sulfate.

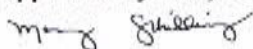
SAMPLES

Samples: Samples 01, 02, and 04 were analyzed at dilutions only due to their pre-run screen results for SO₄ which were greater than 200 ppm. Any sample that has a single anion load greater than 200 ppm will be diluted in order to prevent damage to the ion chromatograph, which is caused by repeated overloading of the analytical column and oversaturation of the conductivity suppressor and/or detector.
Sample 03 was analyzed at a dilution to obtain results within the analytical range of the calibration curve.

MANUAL INTEGRATION: No manual integrations were required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 145351
Approved By: Mary Schilling



Certificate of Analysis

Sample #: L18122347-01	PrePrep Method: N/A	Instrument: IC1
Client ID: 18L1382-01	Prep Method: 9056	Prep Date: 01/03/2019 12:08
Matrix: Soil	Analytical Method: 9056	Cal Date: 09/03/2018 14:58
Workgroup #: WG690848	Analyst: AT	Run Date: 01/04/2019 03:48
Collect Date: 12/26/2018 09:00	Dilution: 5	File ID: I1_010319-37
Sample Tag: DL01	Units: mg/kg	Percent Solid: 77.3

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	54.7		12.9	6.46

Sample #: L18122347-01	PrePrep Method: N/A	Instrument: IC1
Client ID: 18L1382-01	Prep Method: 9056	Prep Date: 01/03/2019 12:08
Matrix: Soil	Analytical Method: 9056	Cal Date: 09/03/2018 14:58
Workgroup #: WG690848	Analyst: AT	Run Date: 01/04/2019 04:06
Collect Date: 12/26/2018 09:00	Dilution: 20	File ID: I1_010319-38
Sample Tag: DL02	Units: mg/kg	Percent Solid: 77.3

Analyte	CAS #	Result	Qual	RL	MDL
Sulfate	14808-79-8	17600		258	129

Sample #: L18122347-02	PrePrep Method: N/A	Instrument: IC1
Client ID: 18L1382-02	Prep Method: 9056	Prep Date: 01/03/2019 12:08
Matrix: Soil	Analytical Method: 9056	Cal Date: 09/03/2018 14:58
Workgroup #: WG690848	Analyst: AT	Run Date: 01/04/2019 05:01
Collect Date: 12/26/2018 09:00	Dilution: 5	File ID: I1_010319-41
Sample Tag: DL01	Units: mg/kg	Percent Solid: 99.2

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	67.0		10.1	5.04

Sample #: L18122347-02	PrePrep Method: N/A	Instrument: IC1
Client ID: 18L1382-02	Prep Method: 9056	Prep Date: 01/03/2019 12:08
Matrix: Soil	Analytical Method: 9056	Cal Date: 09/03/2018 14:58
Workgroup #: WG690848	Analyst: AT	Run Date: 01/04/2019 05:19
Collect Date: 12/26/2018 09:00	Dilution: 20	File ID: I1_010319-42
Sample Tag: DL02	Units: mg/kg	Percent Solid: 99.2

Analyte	CAS #	Result	Qual	RL	MDL
Sulfate	14808-79-8	8070		202	101

Certificate of Analysis

Sample #: L18122347-03	PrePrep Method: N/A	Instrument: IC1
Client ID: 18L1382-03	Prep Method: 9056	Prep Date: 01/03/2019 12:08
Matrix: Soil	Analytical Method: 9056	Cal Date: 09/03/2018 14:58
Workgroup #: WG690848	Analyst: AT	Run Date: 01/04/2019 05:37
Collect Date: 12/26/2018 09:00	Dilution: 1	File ID: I1_010319-43
Sample Tag: 01	Units: mg/kg	Percent Solid: 74.4

Analyte	CAS #	Result	Qual	RL	MDL
Sulfate	14808-79-8	1010		13.4	6.71

Sample #: L18122347-03	PrePrep Method: N/A	Instrument: IC1
Client ID: 18L1382-03	Prep Method: 9056	Prep Date: 01/03/2019 12:08
Matrix: Soil	Analytical Method: 9056	Cal Date: 09/03/2018 14:58
Workgroup #: WG690848	Analyst: KWD	Run Date: 01/04/2019 20:28
Collect Date: 12/26/2018 09:00	Dilution: 3	File ID: I1_010419-07
Sample Tag: DL01	Units: mg/kg	Percent Solid: 74.4

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	249		8.06	4.03

Sample #: L18122347-04	PrePrep Method: N/A	Instrument: IC1
Client ID: 18L1382-04	Prep Method: 9056	Prep Date: 01/03/2019 12:08
Matrix: Soil	Analytical Method: 9056	Cal Date: 09/03/2018 14:58
Workgroup #: WG690848	Analyst: AT	Run Date: 01/04/2019 06:50
Collect Date: 12/26/2018 09:00	Dilution: 50	File ID: I1_010319-47
Sample Tag: DL01	Units: mg/kg	Percent Solid: 91.9

Analyte	CAS #	Result	Qual	RL	MDL
Chloride	16887-00-6	5170		109	54.4
Sulfate	14808-79-8	23100		544	272

Sample #:	Client ID:	Matrix:	Collect Date:
L18122347-01	18L1382-01	Soil	12/26/2018 09:00
	Analyte	Result	Units Qualifier
Percent Solids		77.3	weight %
L18122347-02	18L1382-02	Soil	12/26/2018 09:00
	Analyte	Result	Units Qualifier
Percent Solids		99.2	weight %
L18122347-03	18L1382-03	Soil	12/26/2018 09:00
	Analyte	Result	Units Qualifier
Percent Solids		74.4	weight %
L18122347-04	18L1382-04	Soil	12/26/2018 09:00
	Analyte	Result	Units Qualifier
Percent Solids		91.9	weight %

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
January 7, 2019

001 - BIO-CHEM TESTING WVDEP 220	002 - REIC Consultants, Inc. WVDEP 060
003 - Sturm Environmental	004 - MICROBAC PITTSBURGH
005 - ES LABORATORIES	006 - ALCOSAN LABORATORIES
007 - ALS LABORATORIES	008 - BENCHMARK LABORATORIES
010 - MICROBAC CHICAGOLAND	AC - AMBER R. CARMICHAEL
ACG - ALEX C. GEDON	ADC - ANTHONY D. CANTER
ADG - APRIL D. GREENE	ADW - ALICIA D. WALKER
ALS - ADRIANE L. STEED	APH - ANDREW P. HOUT
AT - Asa R. Timmons	ATK - ALEX T. KLINTWORTH
AWE - ANDREW W. ESSIG	AZH - AFTER HOURS
BDW - Byron D. Westfall	BLG - BRENDA L. GREENWALT
BRG - BRENDA R. GREGORY	CAS - Craig A. Smith
CEB - CHAD E. BARNES	CLC - CHRYS L. CRAWFORD
COR - Corporate IT	CPD - CHAD P. DAVIS
CSH - CHRIS S. HILL	DIH - DEANNA I. HESSON
DLB - DAVID L. BUMGARNER	DLP - DOROTHY L. PAYNE
DSM - DAVID S. MOSSOR	ECL - ERIC C. LAWSON
EEA - EMILY E. ALLEN	EGS - EMILY G. SHILLING
EPT - ETHAN P. TIDD	ERP - ERIN R. PORTER
JAO - Jeff A. Ogle	JDH - JUSTIN D. HESSON
JDS - JARED D. SMITH	JDW - JAMES D. WRIGHT
JKP - JACQUELINE K. PARSONS	JLR - JIMMY L. RUSH
JRH - Justin R. Hill	JST - JOSHUA S. TAYLOR
JTP - JOSHUA T. PEMBERTON	JWR - JOHN W. RICHARDS
JYH - JI Y. HU	KAK - KATHY A. KIRBY
KEB - KATIE E. BARNES	KEH - Katelyn E. Hoover
KFR - KARISSA F. REYNOLDS	KHR - KIM H. RHODES
KKB - KERRI K. BUCK	KMC - KAYLA M. CHEVALIER
KMG - KALEN M. GANDOR	KRA - KATHY R. ALBERTSON
KRP - KATHY R. PARSONS	KWD - Kurtis W. Decker
LLS - LARRY L. STEPHENS	LSB - LESLIE S. BUCINA
LSJ - LAURA S. JONES	MAP - MARLA A. PORTER
MES - MARY E. SCHILLING	MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR	PDM - PIERCE D. MORRIS
PIT - MICROBAC WARRENDALE	RLB - BOB BUCHANAN
RNM - Rene N. Miller	RNP - RICK N. PETTY
SAV - SARAH A. VANDENBERG	SCB - SARAH C. BOGOLIN
SDC - SHALYN D. CONLEY	SLB - STACY L. BOSTON
SLM - STEPHANIE L. MOSSBURG	TB - TODD BOYLE
TMM - TAMMY M. MORRIS	VC - VICKI COLLIER
WTD - WADE T. DELONG	XXX - UNAVAILABLE OR SUBCONTRACT
ZTB - ZACH T. BARNES	

Microbac Laboratories Inc.

List of Valid Qualifiers

January 07, 2019

Qualkey: STD_ND=U

Qualifier	Description
*	Surrogate or spike compound out of range
†	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Result is greater than the associated numerical value.
A	See the report narrative
B	Analyte present in method blank
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
CT1	The cooler temperature at receipt exceeded regulatory guidance.
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
FL	Free Liquid
FP1	Did not ignite.
H1	Sample analysis performed past holding time.
I	Semiquantitative result (out of instrument calibration range)
J	The analyte was positively identified, but the quantitation was below the RL
J,B	Analyte detected in both the method blank and sample above the MDL.
J,CT1	Estimated. The cooler temperature at receipt exceeded the regulatory guidance.
J,H1	The analyte was positively identified, but the quantitation was below the RL. Sample analysis performed past holding time
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Tentatively identified compound(TIC)
NA	Not applicable
ND, S	Not detected; analyzed by method of standard addition (MSA)
ND,L	Not detected; sample reporting limit (RL) elevated due to interference
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Not detected at or above adjusted sample detection limit
U,CT1	Not detected. The cooler temperature at receipt exceeded regulatory guidance.
U,H1	Not detected; sample analysis performed past holding time.
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Y	This analyte is not on the laboratory's current scope of accreditation.
Z	Cannot be resolved from isomer - see below





SUBCONTRACT ORDER
18L1382

SENDING LABORATORY:

Microbac Laboratories, Inc. - Baltimore
2101 Van Deman Street
Baltimore, MD 21224
Phone: 410.633.1800
Project Manager: Jake Mason

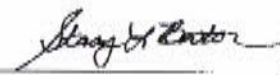
REC'D

Micr
158
Mari
Phor

Microbac OVD

Received: 12/28/2018 10:22
By: STACY BOSTON

221000130561



Project Info:

Project Name: Chalk Point-FGD Special Yearly Client: NRG Energy - Chalk Point Gen. Sta.
Project No: Chalk Pt-FGD Special Yearly Project Type: ENV-Waste Analysis Report TAT: 7
Project Location: Maryland (Central) Due: 01/07/2019 17:00

Sample ID: 18L1382-01

Matrix: Solid

Sampled: 12/26/2018 09:00

Analysis	Method	Analysis Due	Expires
Cl_IC Chloride	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00
SO4_IC Sulfate as SO4	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00

Sample ID: 18L1382-02

Matrix: Solid

Sampled: 12/26/2018 09:00

Analysis	Method	Analysis Due	Expires
Cl_IC Chloride	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00
SO4_IC Sulfate as SO4	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00

Sample ID: 18L1382-03

Matrix: Solid

Sampled: 12/26/2018 09:00

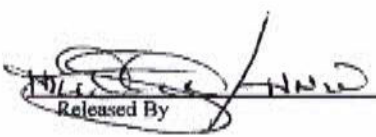
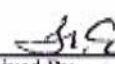
Analysis	Method	Analysis Due	Expires
Cl_IC Chloride	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00
SO4_IC Sulfate as SO4	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00

Sample ID: 18L1382-04

Matrix: Solid

Sampled: 12/26/2018 09:00

Analysis	Method	Analysis Due	Expires
Cl_IC Chloride	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00
SO4_IC Sulfate as SO4	SW-846 9056A 0.1 mg/kg	01/04/2019 16:00	01/23/2019 09:00

 Released By _____ Date 12/27/18 Received By  _____ Date _____

Released By _____ Date _____ Received By _____ Date _____

Cooler ID 0561

SAMPLE ID	Bottle 1 °C	Bottle 2 °C	Bottle 3 °C	Bottle 4 °C	Bottle 5 °C	Bottle 6 °C

12-28-18 SB

pH Lot # 112857466

pH Exceptions

SAMPLE ID	Bottle 1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6

**PRESERVATION
EXCEPTION
NONE**

AS NOTED
12-28-18 SB

Document Control # 1957
Last 10-07-2016

Issued to: Document Master File