GENON BRANDYWINE ASH STORAGE SITE
BRANDYWINE, MARYLAND
2021 ANNUAL CCR INSPECTION REPORT

To: Jay Spence, GenOn MD Ash Management LLC (GenOn)

From: Tom White, P.E., AECOM Technical Services, Inc. (AECOM)

Date: December 22, 2021

RE: Annual Coal Combustion Residuals (CCR) Inspection Report
Brandywine Ash Storage Site Operating Cell Phase 2

1.0 Introduction

As of October 19, 2015, the Brandywine Ash Storage Site (Brandywine site) located at 11700 North Keys Road, Brandywine, Prince George's County, Maryland has been regulated by the Code of Federal Regulations (CFR) under 40 CFR §257 Subpart D – Standards for Disposal of Coal Combustion Residuals (CCR) in Landfills and Surface Impoundments. Section §257.84 of this regulation requires operators of existing CCR units to conduct an annual inspection by a qualified professional engineer to ensure the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering practices.

The initial 2015 Annual CCR Inspection Report for the Brandywine Phase 2 site was completed and placed in the Brandywine Operating Record on January 18, 2016, as required by Section §257.84.b(3). The regulations require that subsequent to completion of the initial Annual CCR Inspection Report, the owner/operator conduct inspections on an annual basis, with the completion date of the Annual Inspection Report being based on the completion date of the previous Annual Inspection Report.

The annual inspection for the Phase 2 operational area for the Brandywine site was conducted on November 15, 2021 and will be placed in the Brandywine operating record by January 18, 2022.

2.0 Site Background

The Brandywine site is located at the intersection of North Keys Road and Gibbons Church Road in the town of Brandywine in Prince George's County, Maryland. The Brandywine site has historically received and stored CCRs produced at GenOn's Morgantown and Chalk Point Generating Stations in Newburg, MD and Aquasco, MD, respectively. The Morgantown Generating Station will be decommissioned on June 1, 2022, and the Chalk Point Generating Station was decommissioned on June 1, 2021. The Brandywine site was initially constructed in 1971 and has received ash in four (4) cells since then, including Phase 1, Phase 2, and two (2) historical areas.

Phase 2, which is the current operational cell at the site, encompasses approximately 33 acres. It is located south of Phase 1, the two historical areas, and the main access road into the site. Phase 2 is subdivided into the current operational northern Phase 2A area that is receiving CCRs, and the southern Phase 2B area which has reached final design elevation and has been fully stabilized with a soil cover layer and vegetation. Approximately six (6) acres of Phase 2A is active CCR disposal area, while the remainder of Phase 2A plus all of Phase 2B totaling twenty-seven (27) acres is fully stabilized with a soil cover layer and vegetation.

Phase 1 and the two historical areas have been closed for many years and were previously capped with a soil cover layer and stabilized with heavy vegetation. During the period from 2016 to 2018, these cells were closure capped with an engineered geosynthetic closure capping system approved by the Maryland Department of the Environment (MDE). MDE conducted a final walkthrough on the closure cap constructed on Historical Areas 1 and 2 and Phase 1 on November 20, 2018. On June 21, 2019, MDE issued a letter to GenOn approving the closure cap.

3.0 Phase 2 Inspection Results

On November 15, 2021, Tom White, a Maryland Registered Professional Engineer employed by AECOM Technical Services, Inc. (AECOM), accompanied by Jay Spence of GenOn, conducted an inspection of the operational Phase 2 area of the Brandywine site. The results of the inspection are presented in the subsections below. The inspection form that was prepared for the inspection is attached to this report.

3.1 Access Roads and Security

From North Keys Road, access to the Brandywine site is by way of a 2,200-foot long paved/crushed aggregate road that leads to the fenced and gated entrance to the site. Any person, contractor, or vendor entering the Brandywine site must pass through an automated security gate entrance into the site that is closed during all hours of the day. Access to the site is gained only through contact with site personnel or by pre-authorized entry. The gate is activated by onsite GenOn or Bowling Brothers (GenOn's operations contractor) personnel that must be contacted by way of a telephone number that is posted on the automated fence.

From the gated entrance, the access road to the site office trailers is paved and is in reasonably good condition. Roadside drainage features are well kept and in acceptable condition. The access road around Phase 2 is a thick layer of crushed aggregate in good condition, and it runs from the office trailers to Pond 006.

The interior access roads have a speed limit of 15 miles per hour and have the proper signage.

3.2 Phase 2 Operational Areas

- Exterior Side Slopes: The exterior side slopes of Phase 2 are well stabilized with cover soil and dense vegetation, and there was no erosion or ponding observed on the slopes or benches.
    - The Phase 2A exterior side slopes run along the western, northern and eastern sides of the Phase 2 cell. The western slope abuts the access road and begins at the Phase 2A/2B juncture. These slopes are all well stabilized with cover soil and dense vegetation. The western and eastern side slopes contain drainage benches that are well stabilized with vegetation, with no signs of erosion along the drainage pathways. The haul road onto the active Phase 2A area is also well stabilized with a crushed-aggregate surface.
    - The Phase 2B exterior side slopes run along the western, southern and eastern sides of the Phase 2 area and have reached design elevations. These slopes are all well stabilized with cover soil and dense vegetation. The slopes contain drainage benches that are well stabilized with vegetation, with no signs of erosion along the drainage pathways.
- Interior Side Slopes: The interior slopes of Phase 2A are vegetated and appear to be stable and well maintained. A vegetated berm surrounds the 6-acre active operations area of Phase 2A for separation of the active (contact water) area from inactive (stormwater) areas. The berm is elevated above the current elevation of the active CCR area and appears to be functioning as intended. There are no interior slopes in Phase 2B as it has reached design elevation and its plateau is graded to drain to the perimeter slopes

and drainage benches. The Phase 2B plateau is also well vegetated.

- CCR Storage in 2021: During the period from December 1, 2020 to December 1, 2021, the Brandywine site received 12,220 tons of CCR material (mostly bottom ash) from the Morgantown Generating Station and 4,328 tons of CCR material (pond solids and bottom ash) from the Chalk Point Generating Station for a total tonnage received of 16,548 tons.
- Dust Control: During this reporting period, GenOn implemented the measures described in the Initial CCR Fugitive Dust Control Plan to control all sources of CCR fugitive dust from the existing Phase 2 site. This includes, but it not limited to, use of a mobile water truck, use of an onsite wheel wash, stabilization of inactive areas with cover soil and vegetation, and stabilized asphalt and crushed-aggregate road surfaces.
- Estimated In-place CCR Volume: The 2020 Annual Inspection Report estimated that the in-place volume of CCR in Phase 2 is approximately 1,369,000 cubic yards of the total 1,468,300 cubic yards capacity of Phase 2. A volume calculation prepared for GenOn of the airspace consumed between the 12-26-19 and 12-26-20 aerial flyovers by L.R. Kimball calculated 36,260 cubic yards of fill and 27,522 cubic yards of cut (i.e. settlement / re-grading) between aerials for a total net fill of 8,738 cubic yards. Therefore, as of the 12-26-20 aerial, it is estimated that approximately 1,378,000 cubic yards of the total 1,468,300 cubic yard capacity of Phase 2 has been consumed.
- Site Geometry: The exterior side slopes of Phase 2 remain fixed in location; consequently, there has been no change in the overall geometry of Phase 2 during 2021.
- Phase 2 Contact Water Drainage and Chimney Drains: The Phase 2A operating area has been properly compacted and graded to promote positive drainage of contact water to the chimney drains and ultimately to the leachate collection piping system at the bottom of the landfill. The active chimney drains appear to be functioning properly, and they have been constructed to higher elevations in advance of any future CCR placement.
- There do not appear to be any areas in Phase 2A or 2B that represent actual or potential areas of structural weakness of the CCR unit. There do not appear to be any existing conditions that are disrupting or have the potential to disrupt the operation or safety of the CCR unit.

3.3 Erosion and Sediment Control Measures

- Satisfactory erosion and sediment control measures are being employed in Phase 2, including:
  - Stabilized asphalt and crushed-aggregate road surfaces.
  - Use of the mobile water truck to minimize dust generation.
  - Use of the onsite wheel wash.
  - Stabilization of inactive areas of Phase 2 with cover soil and dense vegetation.
  - Installation of the vegetated separation berm around the Phase 2A active area to separate the active CCR area from inactive stabilized areas of Phase 2.
  - Bench and perimeter channels are in place to convey stormwater runoff to Pond 006.

3.4 Storm Drainage Features

- Roadside Drainage Channels: Drainage channels along the access roads are well stabilized with vegetation, with no signs of erosion or ponding along the drainage pathways.
- Operating Area Floor & Chimney Drains: The Phase 2A operating area has been properly compacted and graded to promote positive drainage of contact water to the chimney drains and ultimately to the leachate collection piping system at the bottom of the landfill.

The active chimney drains appear to be functioning properly, and they have been constructed to higher elevations in advance of any future CCR placement.

- Exterior Slope Benches: The Phase 2 exterior slope drainage benches are well stabilized with vegetation, with no signs of erosion or ponding along the drainage pathways.
- Run-on Control: Phase 2 is topographically isolated from the remaining portions of the Brandywine site and is a topographical high point. Phase 2 has stabilized and vegetated side slopes around its entire perimeter and all stormwater falling onto the Phase 2 area is contained within the Phase 2 internal drainage system, while all stormwater falling beyond the limits of Phase 2 drains away from Phase 2 due to the presence of the vegetated side slopes and drainage channels that surround Phase 2.
- Pond 006: Pond 006 manages all of the stormwater runoff from the inactive vegetated areas of Phase 2 and leachate generated and collected within Phase 2. The Pond 006 forebay receives leachate discharge from three (3) leachate collection pipes and stormwater from the perimeter stormwater channels. The Pond 006 embankments are stable with no signs of erosion. There was phragmites present in the Pond 006 forebay. The forebay spillway into Pond 006 and the Pond 006 emergency spillway showed no signs of damage. The Pond 006 discharge barrel is plugged as all water collected within Pond 006 is pumped through forcemain piping to the onsite treatment plant or influent pond.

3.5 Recordkeeping

- Daily operations and maintenance inspection reports and weekly CCR inspection reports are kept in binders in the onsite GenOn MD Ash office trailer. These reports are organized and maintained by Bowling Brothers, GenOn's onsite operations and maintenance contractor.

4.0 Brandywine Phase 2 Operational Areas Overview

During the 2021 reporting period, the operating portion of Phase 2 (Phase 2A) received 16,548 tons of CCR material from the Morgantown and Chalk Point Generating Stations. The material was offloaded, compacted, and graded in the active working area. The geometry of the site, the floor of the operating area, and internal drainage system, including the existing chimney drains, have not changed during 2021. The internal features of Phase 2A are well maintained and in good condition.

Phase 2 is well-maintained and the drainage and erosion control features appear to be functioning properly. There did not appear to be any areas in Phase 2 that represent actual or potential areas of structural weakness of the CCR unit. There are no existing conditions that are disrupting or have the potential to disrupt the operation or safety of the CCR unit.

Name: Thomas White Date: 12/22/2021

Company: AECOM Technical Services, Inc.

Maryland PE #: 32921

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ANNUAL CCR STORAGE SITE INSPECTION CHECKLIST

Facility Name:	Brandywine Ash Storage Facility		
Address:	11710 North Keys Road, Brandywine, Maryland 20613		
Date: 11/15/2021	Time: 9 AM - 12 PM	Weather:	Mostly sunny, 45° F

Inspection Representatives

GenOn:	Jay Spence		
AECOM:	Tom White	MD PE License #:	32921
Other:			

Site Data

Cell ID: Phase 2	Acreage:	33 acres	
Operational Area of Cell:	6 acres (Phase 2A)	Closed Area of Cell:	27 acres (Phase 2B and Portion of Phase 2A)

Operational Criteria

	Acceptable	Needs Improvement	Comments
1. Security/Entrance Gate	√		Appears to be in good condition.
2. Condition of Access Road	√		
3. Operating Cell	√		
3a. Condition of Exposed Ash	√		
3b. Condition of Periodic Cover Soils	√		
3c. Acceptable Dust Control Measures	√		
3d General Integrity of Operating Cell/Signs of Distress	√		
3e. Condition of Chimney Drains	√		
3f. Condition of Erosion Control Measures	√		
3g. Visual signs of Erosion or Washouts	√		None.
3h. General Condition of Leachate Piping, Cleanouts	√		Appears to be in good condition.
4. Stormwater Management	√		
4a. Condition of Ditches, Diversions, Letdowns	√		
4b. Condition of Run-Off Control System	√		
4c. Condition of Perimeter Areas (stable, unstable, erosion, etc.)	√		

Comments:

The operating portion of Phase 2 is well maintained with no areas of instability or potential weakness.

There are no conditions at the present time that are disrupting or have the potential to disrupt the operation or safety of Phase 2.

Tom White	Tom White	12/22/2021
Print Name of Engineer Completing Form	Signature	Date