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COAL COMBUSTION RESIDUAL CLASS 3 LANDFILL INSPECTION – WINYAH GENERATING STATION – REV. 1

Georgetown, South Carolina

santee cooper®

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Executive Summary

This assessment of the stability and functionality of the Winyah Generating Station (WGS) coal combustion residual (CCR) Class 3 Landfills Area 1 and Area 2 (within Ash Pond A) is based on a review of available documents and on-site assessment conducted by Santee Cooper engineering staff on September 27, 2022.

In summary, the WGS CCR Class 3 Landfills Area 1 and Area 2 were generally found in satisfactory condition. No recognized existing or potential management unit safety deficiencies were noted at the time of inspection within the parameters of design and operation.

Summary of Recommendations

1. Bare soil areas should be reseeded and continued to be monitored as part of routine maintenance.
2. Water elevation within the perimeter dikes of Landfill Area 2 should continue to be lowered by temporary pumps, until the installed drainage system is able to be used. Efforts should be made to prevent stagnant ponding of runoff surface water when possible.

This assessment of the Class 3 Landfills at Winyah Generating Station reported herein is based on field observations and review of readily available information provided to the inspection team of the subject coal combustion residual (CCR) management unit(s). Qualified Santee Cooper engineering staff performed the field observations and review of pertinent information and made the assessment in conformance with the requirements of Section 257.84 of the Code of Federal Regulations and in accordance with reasonable and generally accepted engineering practices.

Coal Combustion Residual Class 3 Landfill Inspection – WINYAH Generating Station – Rev. 1

1.0 General Information and Introduction

1.1 Purpose and Scope

The purpose of this report is to fulfill the requirements of Section 257.84(b) of the Code of Federal Regulations regarding the safety and inspection of CCR storage units. Section 257.84(b) states that "Existing and new CCR landfills and any lateral expansion of a CCR landfill must be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards." The inspection must, at a minimum, include:

i. A review of available information regarding the status and condition of the CCR unit, including, but not limited, to, files available in the operating record (e.g., the results of inspections by a qualified person, and results of previous annual inspections)
ii. A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.

The inspection report must also be written by a qualified professional engineer and must address the following:

i. Any changes in geometry of the structure since the previous annual inspection
    - **No changes in the geometry of the Class 3 Landfill Area 1 beyond normal filling operations**
    - **Class 3 Landfill Area 2 started construction July 2021 and was not part of the Landfill inspection last year.**
ii. The approximate volume of CCR contained in the unit at the time of the inspection
    - **The Class 3 Landfill Area 1 contains approximately 1,662,577 cubic yards of material and the Class 3 Landfill Area 2 contains approximately**

487,332 cubic yards of material

iii. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit

- **Several maintenance items noted on Class 3 Landfills as discussed in the Executive Summary and Sections 4.2 and 5.3; however, the landfills are safe for continued operation**

iv. Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection

- **No other changes noted on the Class 3 Landfills that impact the stability or operation of the landfill**

2.0 Description of Coal Combustion Residual Management Units

2.1 Location and General Description

The Winyah Generating Station (WGS) is located on Penny Royal Road, Georgetown, South Carolina, near Penny Royal Creek.

WGS currently has two (2) operational Class 3 CCR landfills (Area 1 and Area 2), Area 1 entered operation at the end of 2018 and Area 2 started construction July 2021 and began operation earlier this year. Table 2.1 below shows a summary of the size and general dimensions of the CCR management units at WGS as well as the current volume:

Table 2.1: Summary of Landfill Dimensions and Size

	Class 3 Landfill Area 1	Class 3 Landfill Area 2
Base Width (ft)	850	2,000
Base Length (ft)	1,600	1,500
Side Slopes H:V	3:1 (design)	3:1 (design)
Approximate Current Storage Volume (cy)	1,662,577	487,332

2.2 Type of CCRs Currently Stored in Landfills

Landfill Area 1 started receiving material in November of 2018. It has received approximately 1,662,577 cy of material. This includes contact soil from the GGS site and CCRs from the WGS Ponds. Landfill Area 2 started receiving material in March 2022 and has received approximately 487,332 cy of CCR materials from WGS ash ponds.

2.3 Principal Project Structures

The WGS Class 3 Landfill Area 1 is regulated under SCDHEC's Solid Waste Management regulations. It was permitted to operate in November 2018 and started receiving materials at that time. Landfill Area 1 is approximately 850 feet wide at its base and 1600

feet long. The side slopes are designed to be 3:1 (horizontal to vertical).

The WGS Class 3 Landfill Area 2 is regulated under SCDHEC's Solid Waste Management regulations. It was permitted at the same time with Landfill Area 1 and started accepting materials March 2022. It has an approximate width of 2,000 feet long and length of about 1,500 feet and has designed side slopes of 3:1 (horizontal to vertical).

3.0 Summary of Relevant Reports and Incidents

3.1 Summary of Reports on the Safety of CCR Units

Furnished reports of weekly inspections conducted by WGS personnel indicated no major structural or operational problems at the WGS Class 3 Landfills. No significant deterioration was indicated in the documentation reviewed.

4.0 Field Observations

4.1 Project Overview and Significant Findings

Santee Cooper qualified engineering staff performed the inspection on September 27th, 2022. Weather conditions during the visit were sunny and dry with temperatures of approximately 72 degrees Fahrenheit.

The overall condition of the CCR Class 3 Landfills was found to be in satisfactory condition with no significant findings noted.

4.2 Class 3 Landfill Area 1

4.2.1 Crest/Operating Area

The operating area of the Class 3 landfill was found to be in satisfactory condition upon inspection.

4.2.2 Outside Slopes

The outside slopes of the Class 3 Landfill were generally found to be in satisfactory condition. No obvious signs of slumps, slides, bulges, tension cracks, seepage, or animal burrows were observed on the slope.

4.2.3 Stormwater Conveyance Structures

Stormwater is now routed to the partially installed drainage system. The drainage system can handle the current stormwater flow without the use of pumps. The stormwater flow is routed to the Cooling Pond per the intended design.

4.2.4 Roads/Ramps/Other Infrastructure

All roads and ramps were found to be in satisfactory condition, other than normal wear and tear due to everyday use.

4.3 Class 3 Landfill Area 2

4.3.1 Crest/Operating Area

The operating areas of the Class 3 Landfill was found to be in satisfactory condition upon inspection.

4.3.2 Outside Slopes

The outside slopes of the Class 3 Landfill were generally found to be in satisfactory condition. No obvious signs of slumps, slides, bulges, tension cracks, seepage, or animal burrows were observed on the slope. Several areas on the slope have bare spots and need to be reseeded.

4.3.3 Stormwater Conveyance Structures

Stormwater is routed to the onsite Cooling Pond via the Discharge Canal. Currently stormwater is being pumped to the Discharge Canal using temporary pumps. Once the landfill has been filled to an elevation that allows the permanent drainage system to be utilized, the temporary pumps will be removed.

4.3.4 Roads/Ramps/Other Infrastructure

All roads and ramps were found to be in satisfactory condition, other than normal wear and tear due to everyday use.

4.4 Adequacy of Maintenance, Operating, and Surveillance Procedures

4.4.1 Adequacy of Maintenance Procedures

Overall, maintenance of the Class 3 CCR Landfills appear to be adequate. No major maintenance issues were noted during the field inspection or in the weekly inspection reports completed by WGS personnel and reviewed by the inspection team.

4.4.2 Adequacy of Operating Procedures

Based on field observations and discussions with WGS personnel, the operating procedures for the Class 3 CCR Landfills appear to be adequate.

4.4.3 Adequacy of Surveillance Procedures

WGS personnel complete daily informal inspections and weekly formal inspections on the Class 3 CCR Landfills in accordance with good engineering practice and Section 257.84 of the Code of Federal Regulations. These inspections are being properly documented and should continue as they are currently being conducted.

5.0 Conclusions and Recommendations

Conclusions are based on visual observations from a one-day site visit on September 27, 2022, and review of technical documentation provided to the inspector.

5.1 Conclusions Regarding the Structural Soundness of the Management Unit(s)

Based on a review of the engineering data provided and observations during the inspection, the WGS Class 3 Landfills appear to be structurally sound under static loading conditions.

5.2 Conclusions Regarding Field Observations

The Class 3 Landfills were found to be in satisfactory condition, with no apparent indications of unsafe conditions. Recommendations regarding minor maintenance issues and water elevation within the landfill are noted in Section 5.3.

5.3 Recommendations

5.3.1 – Landfill Area 1

Maintenance and monitoring recommendations:

1. Bare soil areas should be reseeded and continued to be monitored as part of routine maintenance.

5.3.2 – Landfill Area 2

Maintenance and monitoring recommendations:

1. Bare soil areas should be reseeded and continued to be monitored as part of routine maintenance.
2. Water elevation within the perimeter dikes should continue to be lowered by temporary pumps, until the installed drainage system is able to be used. Efforts should be made to prevent stagnant ponding of runoff surface water when possible.