



Prepared for

Santee Cooper
One Riverwood Drive
Moncks Corner, SC 29461

**HAZARD POTENTIAL
CLASSIFICATION ASSESSMENT
– SOUTH ASH POND
WINYAH GENERATING STATION**

Prepared by

Geosyntec 
consultants

engineers | scientists | innovators

104 South Main Street, Suite 115
Greenville, SC 29601

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INTRODUCTION

Winyah Generating Station (WGS) is a 1,260 megawatt coal-fired steam electric generating facility owned and operated by South Carolina Public Service Authority (Santee Cooper). The Site is situated between Pennyroyal and Turkey Creeks and is located at 661 Steam Plant Drive in Georgetown, South Carolina. Coal combustion residuals (CCR) generated at WGS have been historically managed in existing CCR surface impoundments.

This report presents Geosyntec Consultants' (Geosyntec's) hazard potential assessment for the South Ash Pond at the Winyah Generating Station (WGS).

Hazard potential classification of impoundments is required under the United States Environmental Protection Agency (USEPA) Coal Combustion Residual (CCR) Rule (CCR Rule) published on 17 April 2015 (40 CFR 257.73(a)(2)). Under the CCR Rule, the South Ash Pond is an "existing surface impoundment" and its hazard potential must be assessed by a Qualified Professional Engineer.

The CCR Rule categorizes and defines hazard potentials as follows:

- *High Hazard Potential*— a diked surface impoundment where failure or mis-operation will probably cause loss of human life.
- *Significant Hazard Potential*—a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact to other concerns.
- *Low Hazard Potential*—a diked surface impoundment where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

The FEMA guidance document¹, which was used by USEPA as one of the guidance documents further states the following:

¹ Federal Guidelines for Dam Safety – Hazard Potential Classification System for Dams, Federal Emergency Management Agency (FEMA).

“... The classification assigned should be based on the worst-case probable scenario of failure or mis-operation of the dam, i.e., the assigned classification should be based on failure consequences that will result in the assignment of the highest hazard potential classification of all probable failure and mis-operation scenarios...”

Moreover, the FEMA document also states the following:

“In most situations, the investigation of the impact of failure or mis-operation of a dam on downstream human life, property damage, lifeline disruption, and environmental concerns is sufficient to determine the appropriate hazard potential classification. However, if failure or mis-operation of a dam contributes to failure of a downstream dam(s), the hazard potential classification of the dam should be at least as high as the classification of the downstream dam(s) and should consider the adverse incremental consequences of the domino failures.”

SOUTH ASH POND

The South Ash Pond is encircled by the Site’s railroad track, which delivers coal for combustion and steam generation. The coal stockpile and plant area resides north of the South Ash Pond; while, Pennyroyal Creek and undeveloped forested areas bound the pond to the west and south, respectively. The discharge canal to the cooling pond lies east of the pond.

A worst case scenario of this impoundment would be when it is affected by the probable maximum flood (PMF), which in this area is 53” in 72 hours. Although the impoundment safely routes the PMF to the Cooling Pond, the level of water in the South Ash Pond would reach a maximum of 35.3’ National Geodesic Vertical Datum (NGVD) and the amount of water stored would be in the order of 206 ac-ft. An additional amount of CCR equivalent to 50% of the water stored at normal operating level is assumed to liquefy and flow out with the water yielding a total volume of 226 ac-ft.

A perimeter dike failure or mis-operation of the impoundment could result in a discharge or the displacement of water and CCR into the Cooling Pond, which is located within the property boundary of WGS. The Cooling Pond is a diked pond bounded primarily by forested area to the southwest, south and east and bounded by a small residential community and Turkey Creek to the north. However, given the size of the Cooling Pond, a failure of the South Ash will provoke a rise in the level of the Cooling Pond of approximately 0.6 feet. This rise in water level will not cause the Cooling Pond to fail.

A perimeter dike failure or mis-operation of the impoundment resulting in a discharge or the displacement of water and CCR materials would likely result in environmental damage, but likely limited to Santee Cooper's property. However, no probable loss of human life is expected. Moreover, the release of water and CCR will likely not disrupt the facility's long-term ability to operate, would not result in lifeline losses, and would not affect critical habitats. Based on these considerations, the South Ash Pond was assigned a "Low Hazard Potential" classification.

CERTIFICATION

The initial hazard potential classification specified in paragraph (a)(2)(i) of this section (§ 257.73 Structural integrity criteria for existing CCR surface impoundments.) was conducted in accordance with the requirements of this section.

Certified by:



Date 10/22/2016

C. Fabian Benavente, P.E. South Carolina License Number 32067
Senior Engineer