HALEY ALDRICH

www.haleyaldrich.com

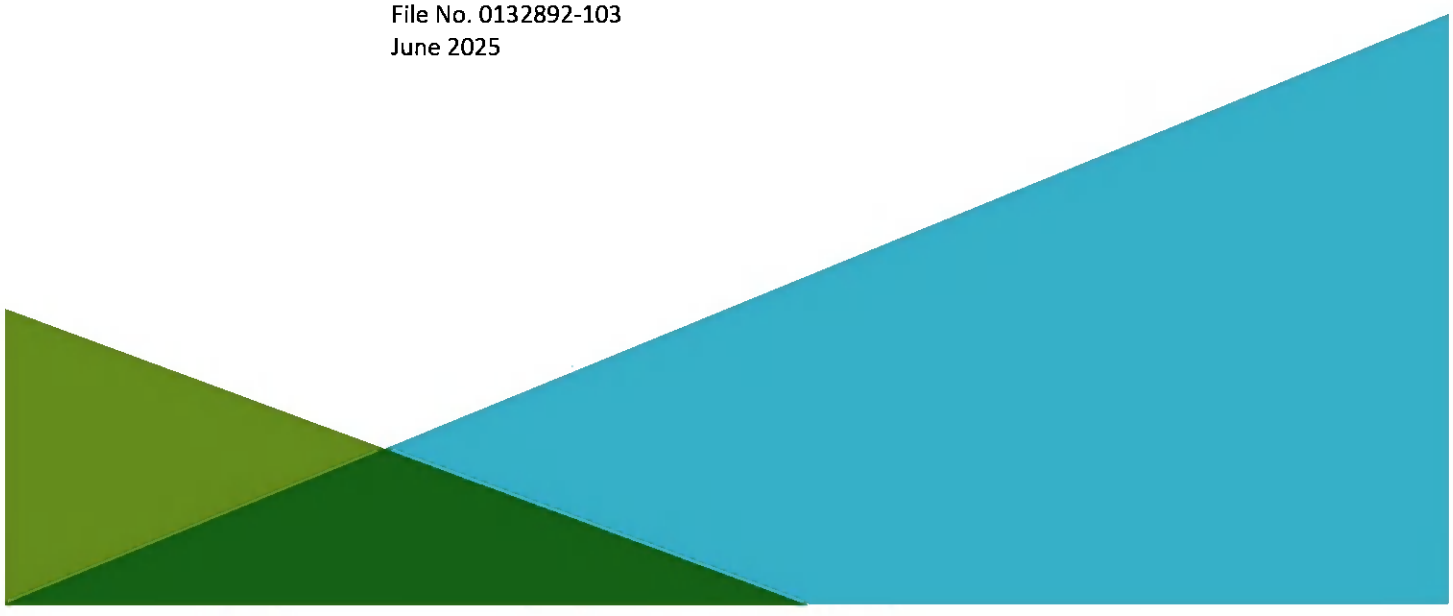
REPORT ON

INITIAL HAZARD POTENTIAL CLASSIFICATION – ASH POND A
JEFFERIES GENERATING STATION
MONCKS CORNER, SOUTH CAROLINA

by
Haley & Aldrich, Inc.
Greenville, South Carolina

for
Santee Cooper
Moncks Corner, South Carolina

File No. 0132892-103
June 2025



HALEY & ALDRICH, INC.
400 Augusta Street
Suite 100
Greenville, SC 29601
864.214.8750

June 30, 2025
File No. 0132892-103

Santee Cooper
1 Riverwood Drive
Moncks Corner, South Carolina 29461

Attention: Jeremey C. Poetzscher, P.E.
Senior Engineer
843.761.8000 ext. 5035

Subject: Initial Hazard Potential Classification – Ash Pond A
Jefferies Generating Station
Moncks Corner, South Carolina

Dear Mr. Poetzscher:

On behalf of Santee Cooper, Haley & Aldrich, Inc. (Haley & Aldrich) has prepared the *Initial Hazard Potential Classification* for Jefferies Generating Station, Ash Pond A. Ash Pond A was designated as a legacy surface impoundment as defined in Title 40 Code of Federal Regulations (40 CFR) § 257.53 under the new 2024 Legacy Coal Combustion Residual Rule. As such, Ash Pond A is now subject to the requirements of 40 CFR § 257.73(a)(2) and § 257.100 (f)(2)(iii).

This report was prepared in accordance with the United States Environmental Protection Agency's Hazardous and Solid Waste Management System, Disposal of Coal Combustion Residuals from Electric Utilities, 40 CFR § 257.73(c)t and as outlined within the *Request for Proposal for Legacy CCR Surface Impoundment Rule Professional Services* agreement.

We appreciate the opportunity to provide environmental consulting and engineering services on this project. Please do not hesitate to call if you have any questions or comments.

Sincerely yours,
HALEY & ALDRICH, INC.

Rob Yeoman
Staff Engineer

Nick Davis, P.E.
Senior Engineer

Susan Jackson, P.E.
Client Leader

HALEY & ALDRICH, INC.
400 AUGUSTA STREET
SUITE 100
GREENVILLE, SC 29601
864.214.8750

SIGNATURE PAGE FOR

REPORT ON
INITIAL HAZARD POTENTIAL CLASSIFICATION
ASH POND A
JEFFERIES GENERATING STATION
MONCKS CORNER, SOUTH CAROLINA

PREPARED FOR
SANTEE COOPER
MONCKS CORNER, SOUTH CAROLINA

PREPARED BY:

Rob Yeoman
Staff Engineer
Haley & Aldrich, Inc.

REVIEWED AND APPROVED BY:

Nick Davis, P.E.
Senior Engineer
Haley & Aldrich, Inc.

Susan W Jackson, P.E.
Susan Jackson, P.E.
Client Leader
Haley & Aldrich, Inc.

Table of Contents

Page

List of Tables iv
List of Figures iv
List of Abbreviations iv

1. Introduction 1

1.1 JEFFERIES GENERATING STATION FACILITY BACKGROUND 1
1.2 ASH POND BACKGROUND 1
1.3 ASH POND DESCRIPTION 1

2. Hazard Potential Classification Assessment 4

2.1 GENERAL INFORMATION PURSUANT TO 40 CFR § 257.73(A) 4
2.2 HAZARD POTENTIAL CLASSIFICATION 4
2.3 CERTIFICATION AND CLOSING 6

References 7

List of Tables

Table No.	Title
1	Hazard Potential Classifications (**Page 4**)

List of Figures

Figure No.	Title
1	Site Location Map
2	Horizontal Extents and Stored Volume of CCR Comparison for Ash Pond A

List of Abbreviations

Abbreviation	Definition
40 CFR	Title 40 Code of Federal Regulations
cfs	cubic feet per second
CCR	Coal-combustion residuals
EPA	United States Environmental Protection Agency
JGS	Jefferies Generating Station
NAVD88	North American Vertical Datum of 1988

1. Introduction

Ash Pond A is the sole coal combustion residual (CCR) legacy surface impoundment at the Jefferies Generating Station (JGS) as noted in the *Jefferies Generating Station – Ash Pond A – Applicability Report* prepared by Santee Cooper as specified by Title 40 Code of Federal Regulations (40 CFR) § 257.100(f)(1). This document compiles the initial hazard potential classification assessment of Ash Pond A, which contains information specified within 40 CFR § 257.73(a)(2) and § 257.100(f)(2)(iii) under the CCR Rule and as presented below. As indicated in the preamble to the CCR Rule, the compilation of this data is "only to the extent available" and the United States Environmental Protection Agency (EPA) does not expect the owners or operators to generate new information or provide anecdotal or speculative information for this initial hazard potential classification assessment. Therefore, the information presented is based on readily accessible information.

1.1 JEFFERIES GENERATING STATION FACILITY BACKGROUND

The JGS facility previously consisted of four fossil fuel generating units totaling 398 megawatts, which were owned and operated by Santee Cooper. The first two fossil units entered commercial operation in 1954 and could initially burn both coal and oil. Prior to 1967, they were converted to oil fired units only. The second two fossil fuel units came online in 1970 and were coal-fired. The two coal-fired units were retired on December 31, 2012, and the oil-fired units were retired on October 1, 2015.

1.2 ASH POND BACKGROUND

The approximate 136-acre, unlined Ash Pond A was constructed in 1970 to support operations of the two coal-fired generating units. Ash Pond A has received predominately fly ash, bottom ash, boiler slag, and cenospheres as well as industrial wastewater streams, including ash sluice water from these former operations until 2012 when the coal-fired units ceased operations upon retirement. During unit operations however, CCR was sluiced to Ash Pond A for settling and storage. The effluent wastewater from Ash Pond A entered the station's Decant Pond, which was formally designated as Ash Pond B, for polishing and pH adjustment as needed. CCR was never sluiced to the Decant Pond. These two ponds continue to operate under National Pollutant Discharge Elimination System Permit Number SC0001091.

Ash Pond A has not received CCR or CCR wastewater since 2012 and since that time, operations and maintenance of Ash Pond A has been limited to industrial stormwater treatment from the site industrial runoff and activities associated with excavation and closure-by-removal of the CCR. Ash Pond A is in the late stages of closure-by-removal of CCR and a layer of subsurface soil in accordance with the South Carolina Department of Environmental Services-approved state closure plan, formerly known as the South Department of Health and Environmental Control.

1.3 ASH POND DESCRIPTION

Ash Pond A is bounded at the northwest by a graded access road that runs parallel with an adjacent railbed and railroad; at the east by a dike comprised of clayey, sandy material followed by a stormwater run-on diversion berm and; at the south by the cross dike, which forms a separation with the Decant Pond, built from clay with silt and sand material; and at the west by a spoil pile, approximately 20-feet higher than the other pond dikes, constructed using reconstituted, dredged silty clay with sand material from the excavation of the adjoining Tailrace Canal.

Ash Pond A is located around 0.2 miles southwest of the main operations building at JGS, around 0.4 miles southeast of the Pinopolis Dam, and approximately a mile northeast of downtown Moncks Corner. This general location with former estimated horizontal extents of received CCR is displayed on **Figure 1**.

Ash Pond A currently accepts JGS-permitted industrial stormwater and stormwater that precipitates directly into the footprint of the unit. These inflows accumulate and are routed through a series of internal drainage ditches within the pond that gravity drain from the north end to the southeast. These internal ditches are occasionally re-routed as needed for decanting to support ash removal operations. The Ash Pond A water level is managed by routinely pumping down accumulated water slightly upstream of the outlet control structure (drop inlet with weir). The structure discharges into a 36-inch diameter reinforced concrete pipe via hose, with an inlet invert elevation of 13.07 feet North American Vertical Datum of 1988 (NAVD88), which connects to the Decant Pond which ultimately discharges to the Tailrace Canal (Geosyntec, 2016).

During periods of substantially higher rainfall, stormwater will free-drain through the outlet structure and culvert. These features were implemented prior to a stormwater diversion project, which was completed in September 2016. The stormwater diversion project was completed to redivert approximately 305 acres of contributory stormwater that had been entering the Ash Pond A thus greatly reducing the overall volume stormwater. Accordingly, the discharge system in Ash Pond A now handles approximately 305 acres less of contributory run-on than originally designed. This diverted, non-contact stormwater is now re-routed around the eastern side through a constructed series of dikes and channels and is no longer a part of the ash pond system. Before these enhancements, the culvert had a peak flow during a 24-hour, 100-year storm event of 393.43 cubic feet per second (cfs) (Santee Cooper, 2015; which now is reduced significantly post-construction). In comparison, the Tailrace Canal has an average daily flow of 6,196 cfs, and a maximum of 11,200 cfs over the past year (USGS, 2002).

During more common rainfall events and dry periods, the majority of Ash Pond A remains decanted with minimal water stored near the outlet structure. Upon review of the previous five years of routine monthly and weekly Impoundment Inspection Reports from 2020 to 2024, provided by Santee Cooper, the water level was noted as being below the first reading of the installed staff gauge. It continues to remain pumped down to facilitate CCR excavation activities and stays around 10.0 feet NAVD88 as the normal pond elevation, which is well below the cross dike at 17.0 feet NAVD88, adjacent to the Decant Pond, and the surrounding dikes spanning from 19.0 to 50.0 feet NAVD88 (Haley & Aldrich, 2025). Currently, the total water storage capacity of Ash Pond A is projected to be 1,518 acre-feet or 2,449,040 cubic yards (Santee Cooper, 2025).

Santee Cooper continues to excavate and remove CCR from the ash pond primarily for beneficial use purposes. Only the small amount of CCR unsuitable for beneficial use is disposed of in one of Santee Cooper's Subtitle D Class 3 landfills. Inventory Quantity Transaction forms, dated March 1, 2025, and provided by Santee Cooper indicated a record of 337,487 tons of impounded CCR remaining within Ash Pond A. Applying a generalized CCR unit weight of 1.12 tons per cubic yard, which was calculated by comparing similar dates of reported weight and volume of impounded CCR and forming this conversion, this tonnage equates to 301,950 cubic yards (Santee Cooper, 2025).

Historically, the maximum amount of CCR retained within Ash Pond A was around 2,483,890 tons (2,222,337 cubic yards) at an unknown point in time across its 55-year lifespan, per interviews conducted on March 24, 2025, with facility personnel.

During a site assessment conducted by Dewberry & Davis, LLC on June 29, 2010, it was noted that the volume present within Ash Pond A was 1,268,080 cubic yards. The CCR volume has been further reduced, through reclamation and disposal activities on-site, to 301,950 cubic yards as of March 1, 2025. Importantly, this amount of CCR will only decline further as no new CCR is authorized to enter the pond and the pond is being closed by removal of all visible CCR. This decrease in the CCR volume and its horizontal extents over time is shown on **Figure 2**.

2. Hazard Potential Classification Assessment

2.1 GENERAL INFORMATION PURSUANT TO 40 CFR § 257.73(A)

The Hazard Potential Classification of a CCR surface impoundment is based on the potential for loss of human life, economic losses, environmental damage, and/or disruption to lifelines caused by failure or mis-operation of the surface impoundment as defined within Federal Emergency Management Agency's *Federal Guidelines for Dam Safety* for dam or water-retaining structures (FEMA, 2004). These three hazard potential classifications are listed in **Table 1** below.

Table 1 – Hazard Potential Classifications[1]

Category	Description
High Hazard Potential Classification	A diked surface impoundment where failure or mis-operation will probably cause loss of human life
Significant Hazard Potential Classification	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 other concerns
Low Hazard Potential Classification	A diked surface impoundment where failure or mis-operation results in no probable loss of life, and low economic and/or economic losses. Losses are principally limited to the surface impoundment's owner's property

Note:
1. Categories and descriptions shown are presented from Section III – Classification System of Federal Emergency Management Agency's Federal Guidelines for Dam Safety – Hazard Classification System for Dams

2.2 HAZARD POTENTIAL CLASSIFICATION

Ash Pond A at JGS warrants a Low Hazard Potential Classification in accordance with 40 CFR § 257 based on observations as outlined in Section 1.3, the documentation provided by Santee Cooper, and the reasons highlighted below.

- Stormwater and contact water would be released from Ash Pond A, in the event of a failure, from a maximum pool elevation of 17.0 feet NAVD88, which is lower than the previously determined 20.0 feet NAVD88 elevation (Dewberry & Davis, 2011), and when assessing nearby topography, the release would likely be retained on-property or within the Tailrace Canal (USGS, 2024).
- Volume of CCR within the ash pond continues to be reduced and isolated to an upgradient northeastern corner, near an incised portion of the ash pond's perimeter, with removal operations ongoing and no CCR having been deposited within its footprint since 2012, thus lowering the risk of mobilized CCR, if a failure were to occur, as time progresses.
- The nearest, most probable downstream receptor in the direction of a path of potential release from the ash pond is located approximately 1 mile away (Berkeley, 2024). Failure of the pond dike would result in no probable loss of life.

- A perimeter dike failure or mis-operation of the ash pond resulting in a discharge or the displacement of water and/or CCR would likely result in low economic losses as the land in the direction of a possible release is generally wooded or swampy areas.
- Likely, any financial and/or ecological damage would be limited to Santee Cooper's property and possibly the Tailrace Canal.

A review of available documents and the site assessment completed by Dewberry & Davis, LLC in January 2011, which was compiled into a dam assessment report, documented that the Ash Pond A Dam was considered a Significant Hazard Potential Classification based on 2011 pond conditions (Dewberry & Davis, 2011). Weighing into this decision at the time was the remaining CCR volume, which has been substantially removed since 2011, and the 305-acre watershed that is no longer flowing into the footprint of the ash pond due to the stormwater diversion project in 2016. Additionally, the cross dike separating the ash pond from the Decant Pond was previously erroneously determined to be 3 feet higher than the most recently surveyed elevation of 17.0 feet NAVD88; therefore, the 2011 analysis accounted for a larger potential volume of stormwater than would have actually been stored in the basin if a release occurred.

Further reasoning for this updated Low Hazard Potential Classification is summarized within the statements below.

- Normal water levels have decreased from an elevation of 14.4 to 10.0 feet NAVD88 since 2011 and there is no evidence of captured water ever overtopping the dikes of the ash pond within its 55-year lifespan. This is supported by a review of spill and release reporting documentation, inspection reports, and interviews with current and prior JGS employees, per interviews conducted on March 24, 2025, with facility personnel.

Failure, unless occurring on the western dike (spoil pile) side would likely be contained within the permitted Decant Pond, Biggin Swamp, adjacent Santee Cooper-owned property, and the channel system west of the site's eastern access road based on existing topography, which generally drains north to south around the ash pond and surrounding area.

Failure occurring along the western dike, which is unlikely given the size and width relative to the other dikes, would inundate the Tailrace Canal that already has an average flow of 6,200 cfs when compared to the 24-hour, 100-year storm event discharge of the ash pond of less than 400 cfs.
The volume of CCR remaining in Ash Pond A has been reduced by approximately 76 percent and the horizontal extents of remaining ash are currently isolated to the northeastern corner of the original ash pond footprint. In the event of a failure, it is unlikely there would be a release of any CCR based on the current location and volume.

This recommended Low Hazard Potential Classification status is further supported by Santee Cooper most recently in 2025 (Santee Cooper, 2025). In addition, WorleyParsons in 2012 backed this determination and notably, their evaluation confirmed, the Ash Pond A configuration met the industry-accepted static stability factors of safety limits and could safely pass its projected design storm flooding condition (WorleyParsons, 2012).

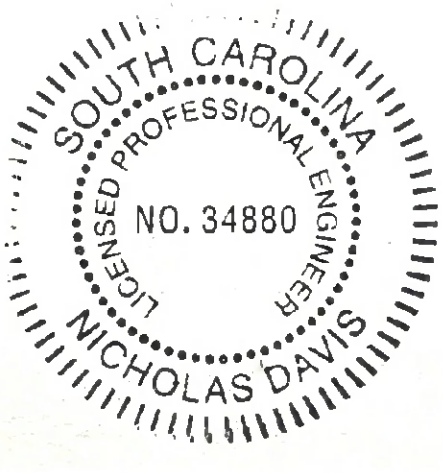
2.3 CERTIFICATION AND CLOSING

For Ash Pond A at JGS, limited construction or operational records were available for several reasons.

First, Santee Cooper has a corporate records retention policy. The policy includes retention timeframes for specific types of records even though construction drawings typically do not have retention timeframes. Environmental records typically have retention timeframes that align with state or federal regulatory requirements. Per Santee Cooper's policy, unless there is a specific reason to hold records beyond the regulatory driven timeframes in the policy, records are purged after the specific retention periods. Records with legal holds are not purged. JGS commenced initial operations of the hydro units located at the site in 1942 and the oil and coal units began operating in in 1954. Thus, many records are no longer available as they have exceeded their retention timeframes.

However, based on the data provided herein, review of publicly available documents, and those documents provided by Santee Cooper, I certify that the initial hazard potential classification of Santee Cooper's Ash Pond A at JGS was completed in accordance with 40 CFR § 257.73(a)(2) and § 257.100 (f)(2)(iii) of the EPA's Final CCR Rule.

Nicholas Davis, P.E.
South Carolina Professional Engineer No. 34880
Haley & Aldrich, Inc.



References

1. Berkeley County GIS, 2024. Advanced Desktop Mapping Database. https://gis.berkeleycountysc.gov/maps/desktop/advanced-mapping.html. 2024.

2. Dewberry & Davis, LLC, 2011. *Coal Combustion Waste Impoundment, Round 5 – Dam Assessment Report, Jefferies Generating Station (Site #002), Santee Cooper, Moncks Corner, South Carolina.* January.

3. Geosyntec Consultants, 2016. *Conceptual Closure Plan Ash Pond A And Ash Pond B Jefferies Station Moncks Corner, South Carolina.* November.

4. Haley & Aldrich, 2025. *History of Construction – Ash Pond A, Jefferies Generating Station, Moncks Corner, South* Carolina. 7 March.

5. Santee Cooper, 2015. *Jefferies Generating Station – Work Plan (Divert Stormwater Run-on around Existing Ash Ponds).* 4 May.

6. Santee Cooper, 2024. *Jefferies Generating Station – Ash Pond A – Applicability Report*. November 8.

7. Santee Cooper, 2025. *Coal Combustion Residual Impoundment Inspection – Jefferies Generating Station, Moncks Corner, South Carolina*. January.

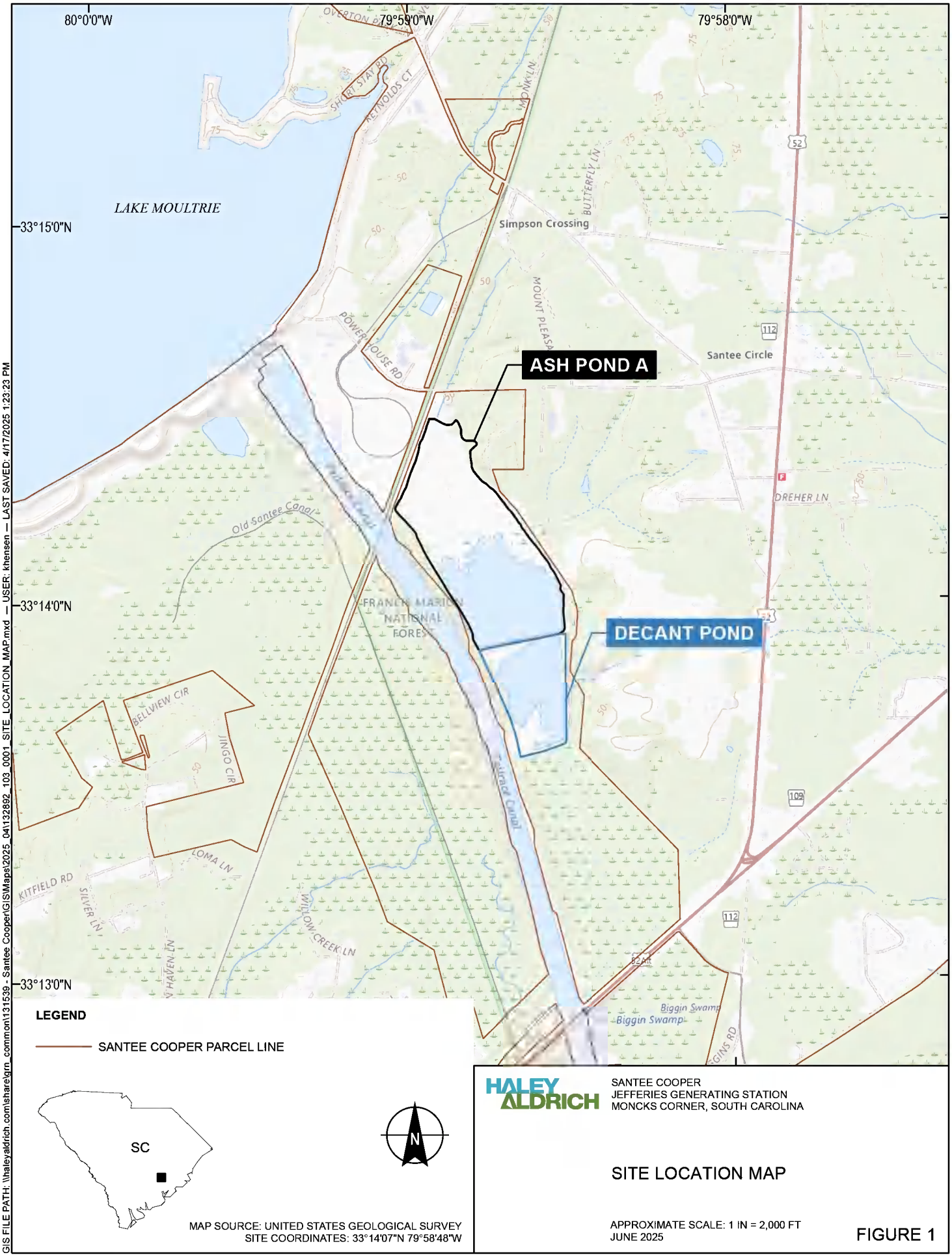
8. U.S. Department Of Homeland Security Federal Emergency Management Agency, 2004. *Federal Guidelines for Dam Safety – Hazard Potential Classification System for Dams*. April.

9. United States Geological Survey, 2002. Lake Moultrie Tailrace Canal at Moncks Corner, SC - USGS Water Data for the Nation. 17 February.

10. United States Geological Survey, 2024. Cordesville Quadrangle – South Carolina – Berkeley County 7.5-Minute Series. https://ngmdb.usgs.gov/topoview/viewer/#15/33.2387/-79.9959.

11. WorleyParsons, 2012. *Jefferies Generating Station – Impoundments A and B – Static Stability Analysis*. 28 March.

FIGURES



MAP SOURCE: UNITED STATES GEOLOGICAL SURVEY
SITE COORDINATES: 33°14'07"N 79°58'48"W

HALEY ALDRICH

SANTEE COOPER
JEFFERIES GENERATING STATION
MONCKS CORNER, SOUTH CAROLINA

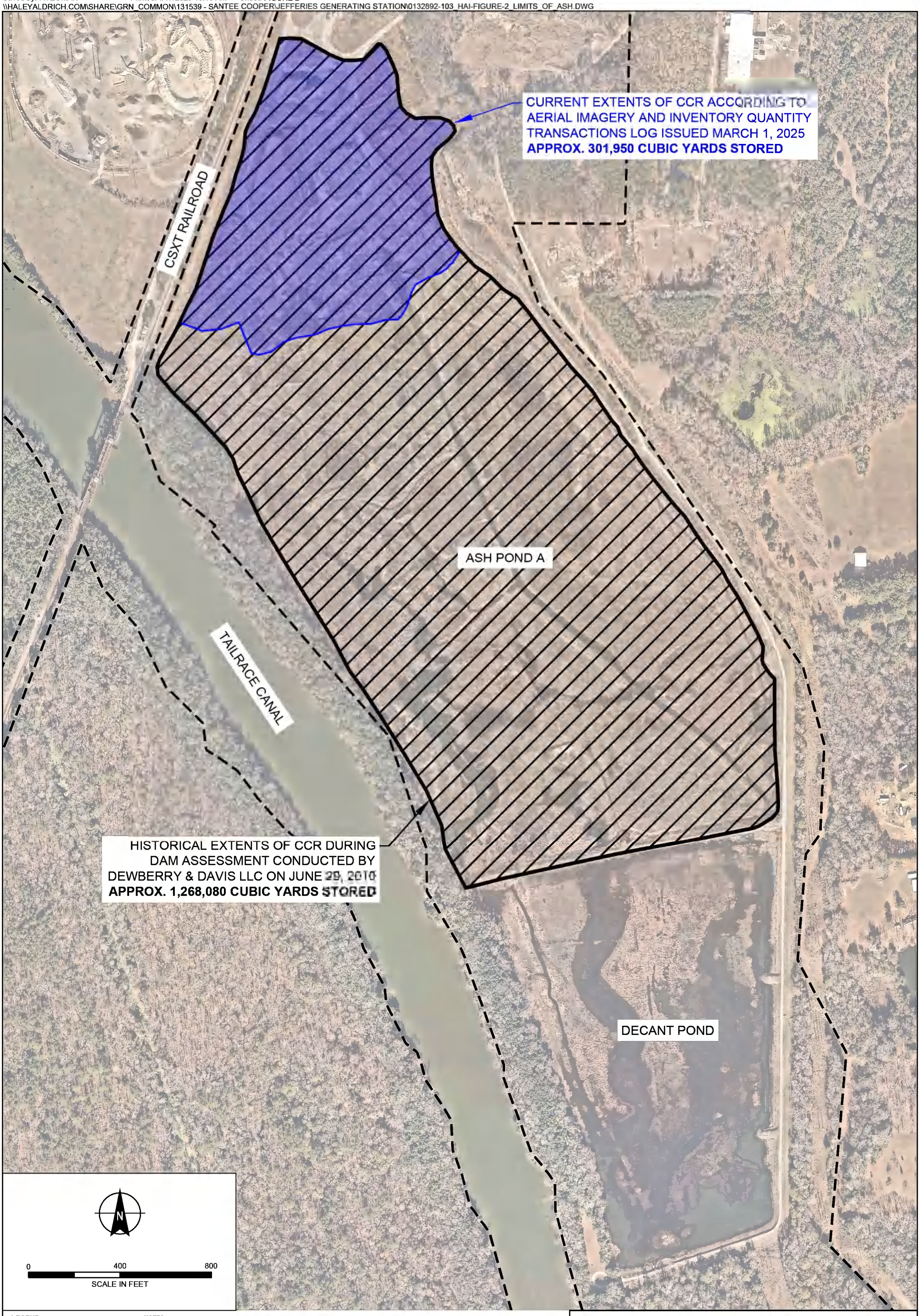
SITE LOCATION MAP

APPROXIMATE SCALE: 1 IN = 2,000 FT
JUNE 2025

FIGURE 1

GIS FILE PATH: \\haleyaldrich.com\share\grn_common\131539 - Santee Cooper\GISMaps\2025_04\132892_103_0001_SITE_LOCATION_MAP.mxd — USER: khensen — LAST SAVED: 4/17/2025 1:23:23 PM

Saved by: RYEOMAN Printed: 4/17/2025 10:13 AM Sheet: FIGURE 2
\\HALEYALDRICH.COM\SHARE\GRN_COMMON\131539 - SANTEE COOPER\JEFFERIES GENERATING STATION\0132892-103_HAI-FIGURE-2_LIMITS_OF_ASH.DWG



LEGEND

- CCR EXTENTS CIRCA JUNE 2010
- CCR EXTENTS CIRCA MARCH 2025
- SANTEE COOPER PARCEL LINES

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. IMAGERY SOURCE: NEARMAP.COM, DATED 02 JANUARY 2025.
3. AVERAGE UNIT WEIGHT OF COAL COMBUSTION RESIDUALS (CCR): 1.12 TONS PER CUBIC YARD. GENERAL ASSUMED VALUE DETERMINED BY COMPARING WEIGHT AND VOLUME OF IMPOUNDED CCR RECORDED ON SAME DATE (31 JANUARY 2025). DATA CAN BE FOUND WITHIN "INVENTORY QUANTITY TRANSACTIONS" DOCUMENT DATED 1 MARCH 2025, PROVIDED BY SANTEE COOPER AND "COAL COMBUSTION RESIDUAL IMPOUNDMENT INSPECTION" REPORT DATED 31 JANUARY 2025, DRAFTED BY SANTEE COOPER.
4. APPROXIMATE CCR VOLUMES DISPLAYED FOR FORMER AND CURRENT AREAS WERE TAKEN FROM "COAL COMBUSTION WASTE IMPOUNDMENT ROUND 5 - DAM ASSESSMENT REPORT" DATED JANUARY 2011, WRITTEN BY DEWBERRY & DAVIS AND "INVENTORY QUANTITY TRANSACTIONS" DOCUMENT DATED 1 MARCH 2025, PROVIDED BY SANTEE COOPER, RESPECTIVELY. UNIT WEIGHT CONVERSION WAS APPLIED AS NEEDED.
5. APPROXIMATE PARCEL LINES SHOWN WERE IMPORTED FROM BERKELEY COUNTY GEOGRAPHIC INFORMATION SYSTEM (GIS) ADVANCED DESKTOP MAPPING WEBSITE AND WERE DEFINED AS BEING OWNED BY SOUTH CAROLINA PUBLIC SERVICE AUTHORITY (SCPSA OR SANTEE COOPER).

HALEY ALDRICH

SANTEE COOPER
JEFFERIES GENERATING STATION
MONCKS CORNER, SOUTH CAROLINA

HORIZONTAL EXTENTS AND STORED VOLUME OF CCR COMPARISON FOR ASH POND A

SCALE: AS SHOWN
JUNE 2025

FIGURE 2