



Initial Hazard Potential Classification Assessment for South Recycle Pond



*Entergy -
White Bluff Steam Electric
Station
White Bluff, Arkansas*

November 19, 2020

ERM Project Number: 0558908

QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify, as a Professional Engineer in the State of Arkansas, that the information in this document was assembled under my direct supervisory control. This report is not intended or represented to be suitable for reuse by Entergy Arkansas, LLC, White Bluff Steam Electric Station or others without specific verification or adaptation by the Engineer.

This report has been prepared for the exclusive use of Entergy Arkansas, LLC, in accordance with the general engineering standards at the time the services were performed. This work has been performed for the sole purpose of assisting Entergy in evaluating the Facility's South Recycle Pond consistent with the provisions of 40 CFR 257.73(a)(2)

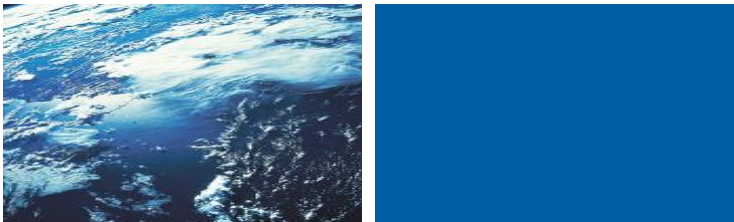
The findings of the assessment, as represented within this report, must be viewed in recognition of certain limiting conditions. The scope of work commissioned for this project represents a reasonable engineering analysis, consistent with good commercial practice and subject to all of the limitations; both stated and unstated in the report as well as identified assumptions. In the course of this assessment, ERM has relied on information previously provided by Entergy in the completion of two companion reports mentioned in Section 1.0 herein, and the project team's experience. ERM has made no independent investigation as to the validity, completeness, or accuracy of such information provided. For the purposes of this assessment, such information is assumed accurate unless contradictory evidence is noted, and ERM does not express or imply any warranty regarding information provided to us.

Wayne T. Sicora P.E., Arkansas



Seals

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1.0 PURPOSE AND SCOPE

The South Recycle Pond was used primarily, but not exclusively, for recycling bottom ash sluice water at the White Bluff Steam Electric Station. The South Recycle Pond ceased all waste receipt in October 2018. This sluice water may have contained filtrate deposits of bottom ash, which also present finer-grained particles intermixed with the bottom ash. For purposes of this assessment, ERM has assumed that the recycle pond is a coal combustion residuals (CCR) surface impoundment as defined by the *Hazardous and Solid Waste Management System, Disposal of Coal Combustion Residuals from Electric Utilities* (the “CCR Rule”) in 40 CFR 257.2.

ERM has prepared this Initial Hazard Potential Classification Assessment for the South Recycle Pond at the White Bluff Steam Electric Station to ensure that the South Recycle Pond is consistent with the requirements described in 40 CFR 257.73(a)(2) (*i and ii*), which are part of the broader provisions of the 40 CFR 257.73, *Structural Integrity Criteria for existing CCR surface impoundments*. This assessment may be considered a companion to the reports entitled “Factor of Safety Assessment, South Recycle Pond”, dated November 19, 2020, and “Structural Stability Assessment South Recycle Pond”, dated November 19, 2020, that addressed compliance with 40 CFR 257.73(e) and 257.73(d), respectively.

1.1 Site Description

The White Bluff Steam Electric Station (the “Facility”) is a coal combustion generating station that is owned and operated by Entergy Arkansas, LLC. The Facility is located at 1100 White Bluff Road in the City of Redfield, Arkansas. The general location of the Facility is depicted on **Figure 1-1**. An aerial view of the facility is presented as **Figure 1-2**, which depicts the South Recycle Pond (as well as the separate North Recycle Pond) to be centrally located with respect to the full extent of the Facility. Relative to the location of this pond, the processing operations are to the north and west. The South Recycle Pond did not have surface-water discharge as designed. Pool elevations were controlled through active pumping from the ponds as required to recover water for recycled use. As noted above, Entergy posted notice of intent to close the South Recycle Pond on October 5, 2018, and has since ceased waste receipt and initiated closure of the pond.

2.0 HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

This Initial Hazard Potential Classification Assessment classifies the dams of the South Pond based on the potential impact of a release due to failure or mis-operation to the upstream and downstream areas. Based upon the Federal Emergency Management Agency (FEMA) Federal Guidelines for Dam Safety, Hazard Potential Classification System for Dams, April 2004 the negative impacts to consider are primarily concerned with the probable loss of human life, the potential for economic loss, environmental damage, and disruption to lifelines. The assessment is provided below.

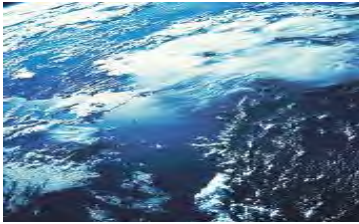
The South Pond is an incised pond with its northern perimeter berm, or the inner berm shared between the South Pond and North Pond, and the southern perimeter berm being constructed. The floor of both ponds is presumed to have been constructed on or within the native in-situ soils. While the original construction specifications are unavailable, a 2018 subsurface investigation discussed in the companion report, “Structural Stability Assessment South Recycle Pond”, dated November 19, 2020, indicates the berms to be composed of fine-grained, cohesive soils exhibiting a high clay content (CH), with intermediate lenses, of non-cohesive materials. The berms containing the South Pond exhibit relatively uniform crest configurations at approximately elevation 280 feet above mean sea level (amsl), with a maximum height of 24 feet, and consistent side slopes at a maximum 2.5H:1V. This configuration is typical for earthwork berms and other containment facilities, and likely routine approaches were employed in their construction. The permanence of the berms to-date, and their current conditions are testimony to their adequate construction. Any exceedance of the maximum pool elevation in the ponds in an emergency storm event would result in overtopping by sheet flow and drainage to the Clear Water Holding Pond, as indicated by the following description of site topography.

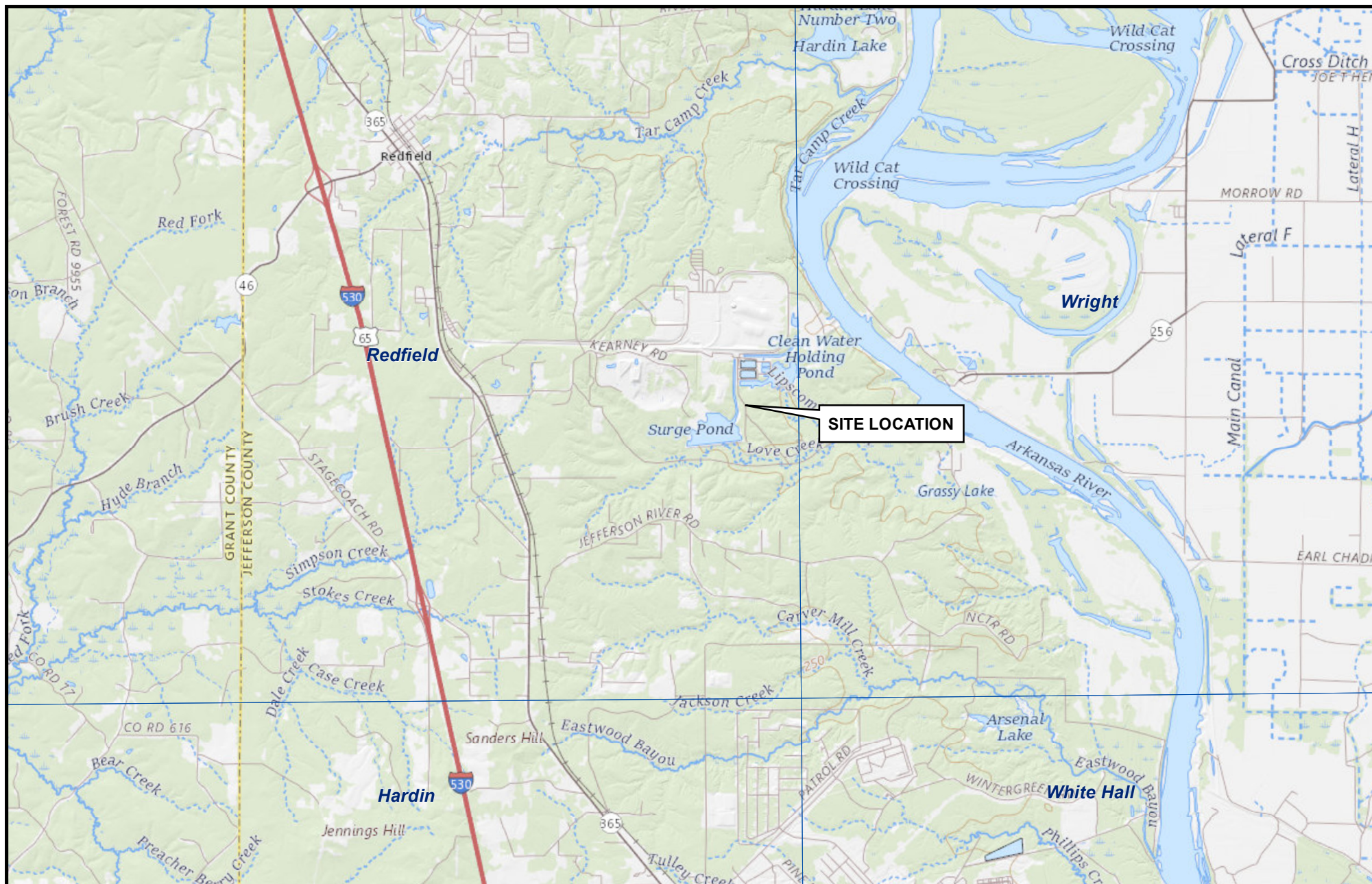
The Facility relies on the Clear Water Holding Pond and the Surge Pond as impoundments for water management in normal operations. The Clear Water Holding Pond, with a crest elevation of 285 feet amsl was created by installing two dams within natural drainage ways in the existing topography – eastward towards the Arkansas River. Dam #1 and Dam #2 (identified on **Figure 1-2**) were constructed in the late 1970’s at the time the plant was constructed and became operational. Below Dam #1 is the Arkansas River to the east, and below Dam #2 is a forested area, with a natural drainage way to the Arkansas River at a ground elevation of approximately 240 feet amsl. The Surge Pond, formed by Dam #3 with an approximate crest elevation of 280 feet amsl, is located south of the South Recycle Ponds and southwest of the Clear Water Holding Pond. Downstream of Dam #3 is forested land, overhead electric lines following Love Creek at an approximate ground elevation of 250 feet amsl, and thereafter occasional residential areas at an approximate ground elevation of 330 feet amsl.

In the event of a failure or worst-case release from the South Recycle Pond, the impacted area would be limited to the White Bluff Steam Electric Station. The Clear Water Holding Pond is designed to receive overflow released from the South Recycle Pond; furthermore, Dams #1, #2, and #3 all have an existing hazard classification of “Low” per the Arkansas Natural Resources Commission (under Permit 321, Permit 322, and Permit 323, respectively).

Given that there is no probable loss of human life and low economic and environmental losses in the event of failure or mis-operation of the impoundment, the South Recycle Pond is classified as a **low hazard surface impoundment**.

Figures





Legend

 USGS 24k QUAD

Scale:

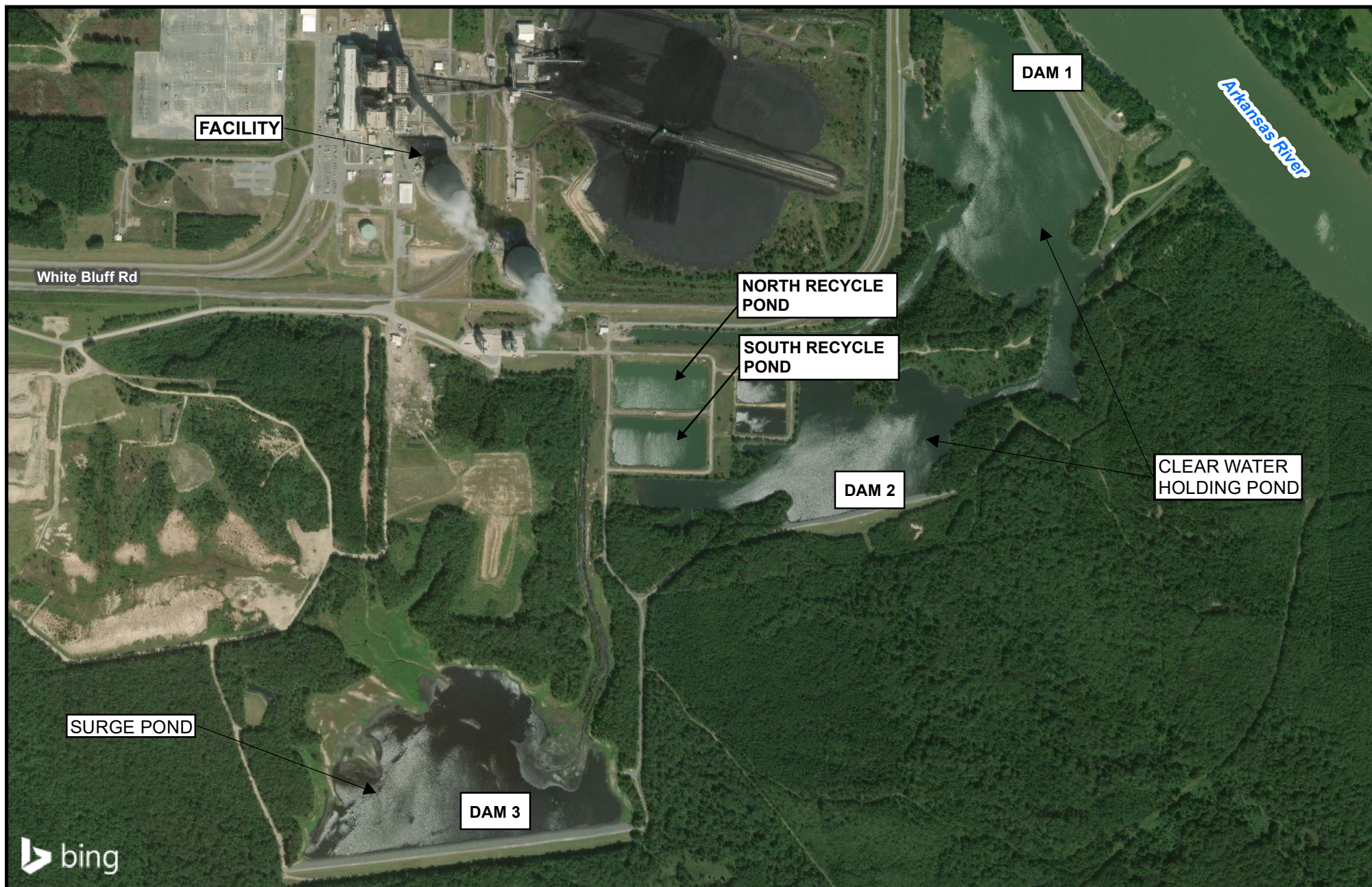


0 5,500 11,000
Feet



Figure 1-1
Site Location Map
Entergy - Redfield, AR





Scale:

N



0

1,000

2,000

Feet



Figure 1-2

Recycle Ponds Location
Entergy - Redfield, AR

