

# 2023 ANNUAL DAM AND DIKE INSPECTION REPORT

CCR BOTTOM ASH STORAGE POND

WELSH POWER PLANT  
CASON, TEXAS

September 2023

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GERS-23-025


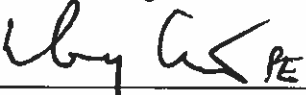

# 2023 Annual Dam & Dike Inspection Report

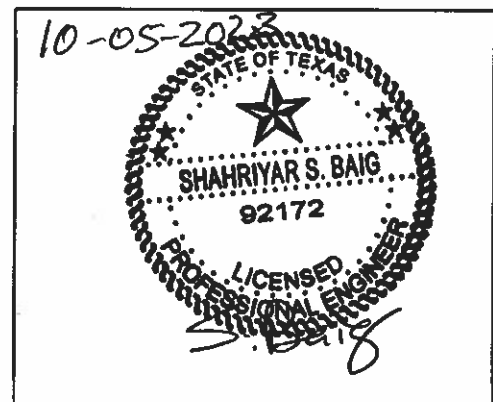
## CCR Bottom Ash Pond

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**WELSH POWER PLANT  
CASON, TEXAS**

**INSPECTION DATE** September 12, 2023

<b>PREPARED BY:</b>		<b>DATE</b>	<u>09-28-2023</u>
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**PROFESSIONAL ENGINEER  
SEAL & SIGNATURE**

I certify to the best of my knowledge, information, and belief the information contained in this report meets the requirements of 40 CFR § 257.83(b).

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## **1.0 INTRODUCTION**

This report was prepared by AEP- Geotechnical Engineering Services (GES) section, in part, to fulfill requirements of 30 TAC 352.831 (40 CFR 257.83) and to provide Southwestern Electric Power Company (SWEPCO) and Welsh Power Plant with an evaluation of the facility.

The AEP J. Robert Welsh Plant is located in southern Titus County, approximately 8 miles northeast of Pittsburg, Texas, and approximately two miles northwest of Cason, Texas. Figure 1 shows the plant inspection vicinity map. The Ash ponds at the Welsh Plant include the Primary Bottom Ash Pond and the Bottom Ash Storage Pond. The Primary Bottom Ash Pond CCR unit is located southwest of the Plant and directly west of the Welsh Reservoir. The Bottom Ash Storage Pond CCR unit is located at the south end of the Plant and approximately 1,000 feet west of the Welsh Reservoir. Figure 2 shows the two Ash Ponds general layout. Figures 1 and 2 are included at Appendix A.

At present, closure by removal activities are performed at the Bottom Ash Storage Pond and the CCR materials has being excavated and disposed of at the existing landfill. This pond closure activities will continue until all the CCR materials removed and disposed of at the landfill and the pond area backfilled with soil and reclaimed to the normal grades.

Mr. Shah Baig, P.E., from the Geotechnical Engineering Services Section, conducted the Bottom Ash Storage Pond (aka Winston Pond) Inspection. Mr. Greg Carter, P.E. Regional Engineering for Welsh Plant and was the facility contact for the inspection and participated during the inspection. The inspection was performed on September 12, 2023. Weather conditions were mostly sunny, with temperature was 85° F, clear skies, and light breeze. There was 0.61 inch of rainfall over the seven days prior to the inspection.

This report has been prepared by Mr. Shah Baig, P.E., under the direct supervision of Mr. Bryan Brunton, P.E., AEP's Geotechnical section manager. The report presents: Description of the Bottom Ash Storage Pond, Summary of Visual Observations; Conclusions; and Recommendations. Photographs identifying typical conditions of area findings, items that need

correction or requiring additional monitoring, have been selected from the inspection field photographic file and provided in the Appendix B of this report.

## **2.0 DESCRIPTION OF IMPOUNDMENT**

### **2.1 BOTTOM ASH STORAGE POND**

The Bottom Ash Storage Pond (Winston Pond) was placed into operation in 2000 and is located in a topographically high area of the Plant. The Bottom Ash Storage Pond embankments are approximately 20 feet in height and are constructed of compacted clay on a 3:1 slope (3 feet horizontal, 1 foot vertical). The elevation at the base of the embankment is approximately 340 feet above msl, and the elevation at the top of the embankment around the perimeter of the Bottom Ash Storage Pond is approximately 360 feet above msl.

The Bottom Ash Storage Pond is approximately 22 acres in size. The principal spillway for the Bottom Ash Storage Pond is located near the southeast corner of the pond and consists primarily of an 18-inch pipe drain at elevation 350.5 feet above msl and also of a 40-foot-long broad-crested weir with a crest elevation of 355 feet above msl. The emergency spillway is an 8-foot-wide weir with a rock rip-rap discharge chute located along the southern embankment at an elevation of 358 feet above msl. The storage capacity of the Bottom Ash Storage Pond at elevation 358 feet above msl is approximately 344 acre-ft.

### **3.0 REVIEW OF AVAILABLE INFORMATION (257.83(b)(1)(i))**

A review of available information regarding the status and condition of the CCR Ponds, which include files available in the CCR operating record, such as design and construction information, periodic structural stability assessments, previous 7-day inspection reports, 30-day instrumentation data, and previous annual inspections has been conducted. Based on the review of the data there were no signs of actual or potential structural weakness or adverse conditions.

### **4.0 CHANGES IN GEOMETRY SINCE LAST INSPECTION (257.83(b)(2)(i))**

No modifications have been made to the geometry of the Primary Bottom Ash Pond and the Bottom Ash Storage Pond since the last annual inspection. The geometry of the impoundment has

remained essentially unchanged. At present, pond closure by removal activities have being going on and will continue until all the CCR materials is removed and placed in the existing landfill.

**5.0 CHANGES THAT EFFECT STABILITY OR OPERATION (257.83(b)(2)(vii))**

In April of 2021, the Bottom Ash Storage Pond ceased operations and no longer receives any CCR transport waters or CCR materials into the pond. Bottom Ash Storage Pond also stopped receiving all storm water runoff from the landfill and surrounding areas. These operational changes would not be expected to affect the stability of the impounding structure.

**6.0 IMPOUNDMENT CHARACTERISTICS (257.83(b)(2)(iii, iv, v))**

**6.1 BOTTOM ASH STORAGE POND**

Table 2 is a summary of the minimum, maximum, and present depth, and elevation of the impounded water since the previous annual inspection; the storage capacity of the impounding structure at the time of the inspection; and the approximate volume of the impounded water at the time of the inspection.

**Table 1 - Summary of Relevant Storage Information for Bottom Ash Storage Pond**

	<b>Bottom Ash Storage Pond</b>
Approximate <b>Minimum</b> depth of impounded water since last annual inspection	0.0 ft (340.0 ft)
Approximate <b>Maximum</b> depth of impounded water since last annual inspection	0.0 ft (340.0 ft)
Approximate <b>Present</b> depth of impounded water at the time of the inspection	0.0 ft (340.0 ft)
Approximate <b>Minimum</b> depth of CCR since last annual inspection	0.0 ft (340.0 ft)
Approximate <b>Maximum</b> depth of CCR since last annual inspection	18.0 ft (358.0 ft)
Approximate <b>Present</b> depth of CCR at the time of the inspection	18.0 ft (358.0 ft)

Storage Capacity of impounding structure at the time of the inspection	344 acre-ft
Approximate volume of impounded water at the time of the inspection	0 acre-ft
Approximate volume of CCR at the time of the inspection	172 acre-ft

## **7.0 INSPECTION (257.83(b)(1)(ii))**

### **7.1 GENERAL**

The summary of the visual observations uses terms to describe the general appearance or condition of an observed item, activity, or structure. Their meaning is understood as follows:

- Good:** A condition or activity that is generally better or slightly better than what is minimally expected or anticipated from a design or maintenance point of view.
- Fair or Satisfactory:** A condition or activity that generally meets what is minimally expected or anticipated from a design or maintenance point of view.
- Poor:** A condition or activity that is generally below what is minimally expected or anticipated from a design or maintenance point of view.
- Minor:** A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is below what is normal or desired, but which is not currently causing concern from a structure safety or stability point of view.
- Significant:** A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance program has neglected to improve the condition. Usually, conditions that have been previously identified in the previous inspections but have not yet been corrected.
- Excessive:** A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is below or worse than what is normal or desired, and which may have affected the ability of the observer

to properly evaluate the structure or area being observed or which may be a concern from a structure safety or stability point of view.

In addition, a “deficiency” is some evidence that a dam/dike has developed a problem that could impact the structural integrity of the dam/dike. There are four general categories of deficiencies. These four categories are described below:

1. Uncontrolled Seepage

Uncontrolled seepage is seepage that is not behaving as the design engineer has intended. An example of uncontrolled seepage is seepage that comes through or around the embankment and is not picked up and safely carried off by a drain. Seepage that is collected by a drain can still be uncontrolled if it is not safely collected and transported, such as seepage that is not clear. Seepage that is unable to be measured and/or observe it is considered uncontrolled seepage.

[Wet or soft areas are not considered as uncontrolled seepage but can lead to this type of deficiency. These areas should be monitored frequently]

2. Displacement:

Displacement of the embankment is large scale movement of part of the dam/dike. Common signs of displacement are cracks, scraps, bulges, depressions, sinkholes, and slides.

3. Blockage of Control Features:

Blockage of Control Features is the restriction of flow at spillways, decant or pipe spillways, or drains.

4. Erosion:

Erosion is the gradual movement of surface material by water, wind, or ice. Erosion is considered a deficiency when it is more than a minor routine maintenance item.

**7.2 VISUAL INSPECTION (257.83(b)(2)(i))**

A visual inspection of the CCR Ponds was conducted to identify any signs of distress or malfunction of the impoundment and appurtenant structures. Specific items inspected included all structural elements of the dam such as upstream and downstream slopes, crest, and toe.



Photograph's location map and inspection photographs are included in Appendix B.

### **7.2.1 BOTTOM ASH STORAGE POND**

- (i) The eastern portion of the downstream slope is illustrated in Photographs No. 1-4. The slope appeared in satisfactory and stable condition with no signs of settlement, misalignment, sloughing or erosion. Slightly overgrown vegetation was noticed on the uppermost section of the slope.
- (ii) Photographs No. 5 and 6 illustrate the south and southeast downstream slope areas. Overall, the downstream slopes appeared in satisfactory and stable condition with some minor overgrown vegetation in the spillway ripped channels. There were no signs of settlement, misalignment, sloughing or erosion.
- (iii) The west dike downstream slope and access road is illustrated in Photographs No. 7-9. The slope appeared in satisfactory and stable condition with minor erosion in the northern section of the dike (Photograph No. 9). There were no signs of settlement, misalignment, sloughing or erosion. Overall, the dike appeared in good condition and the setback distance was adequate without any trees within 25 feet of the dike.
- (iv) Typical condition of the north dike is illustrated in Photograph No. 10. This dike also used as an access road and also located adjacent to the landfill. Some minor rutting of the access road was noticed due to the construction vehicular traffic. Excessive vegetation was noticed along this dike section.
- (v) Typical interior slope of the west dike is illustrated in Photographs No. 11 and 12. The interior slope and the liner is still intact and in good condition with the pond closure activities.
- (vi) The interior of the pond is illustrated in Photographs No. 13 and 14. Most of the CCR materials had been removed and the remaining CCR materials is in the process of being removed. The service spillway (Photograph No. 14) is removed due to the closure by

removal of the pond.

## **8.0 SUMMARY OF FINDINGS**

Based on the visual observations and the inspection of the facilities, the Bottom Ash Storage Pond structures are generally in satisfactory condition. Specific conclusions related to this inspection is included as follows.

### Bottom Ash Storage (Winston) Pond:

- There is no evidence of distress that would indicate the possibility of immediate sliding, slope instability, settlement, misalignment or cracking of the bottom ash pond embankments/slopes. As such it is concluded that the dikes are performing as designed.
- Vegetation management for the facilities is considered satisfactory. However, some limited areas are overgrown and should be maintained accordingly or as part of the pond closure activities.

## **9.0 RECOMMENDATIONS**

A summary of our recommendations for general maintenance and continued monitoring, as well as any recommendations for remedial activities, is provided as follows:

- Continue to maintain CCR materials within the pond or CCR unit during the pond closure activities.

## **9.1 MAINTENANCE ITEMS**

The following maintenance items were identified during the visual inspection:

- None.

## **9.2 ITEMS TO MONITOR**

- None.

### **9.3 DEFICIENCIES (257.83(b)(2)(vi))**

There were no deficiencies or signs of structural weakness or disruptive conditions that were observed at the time of the inspection that would require additional investigation or remedial action. There were no deficiencies noted during any of the quarterly inspections. If any of these conditions occur before the next annual inspection, contact AEP Geotechnical Engineering immediately.

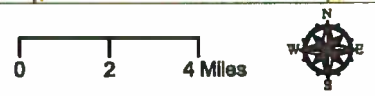
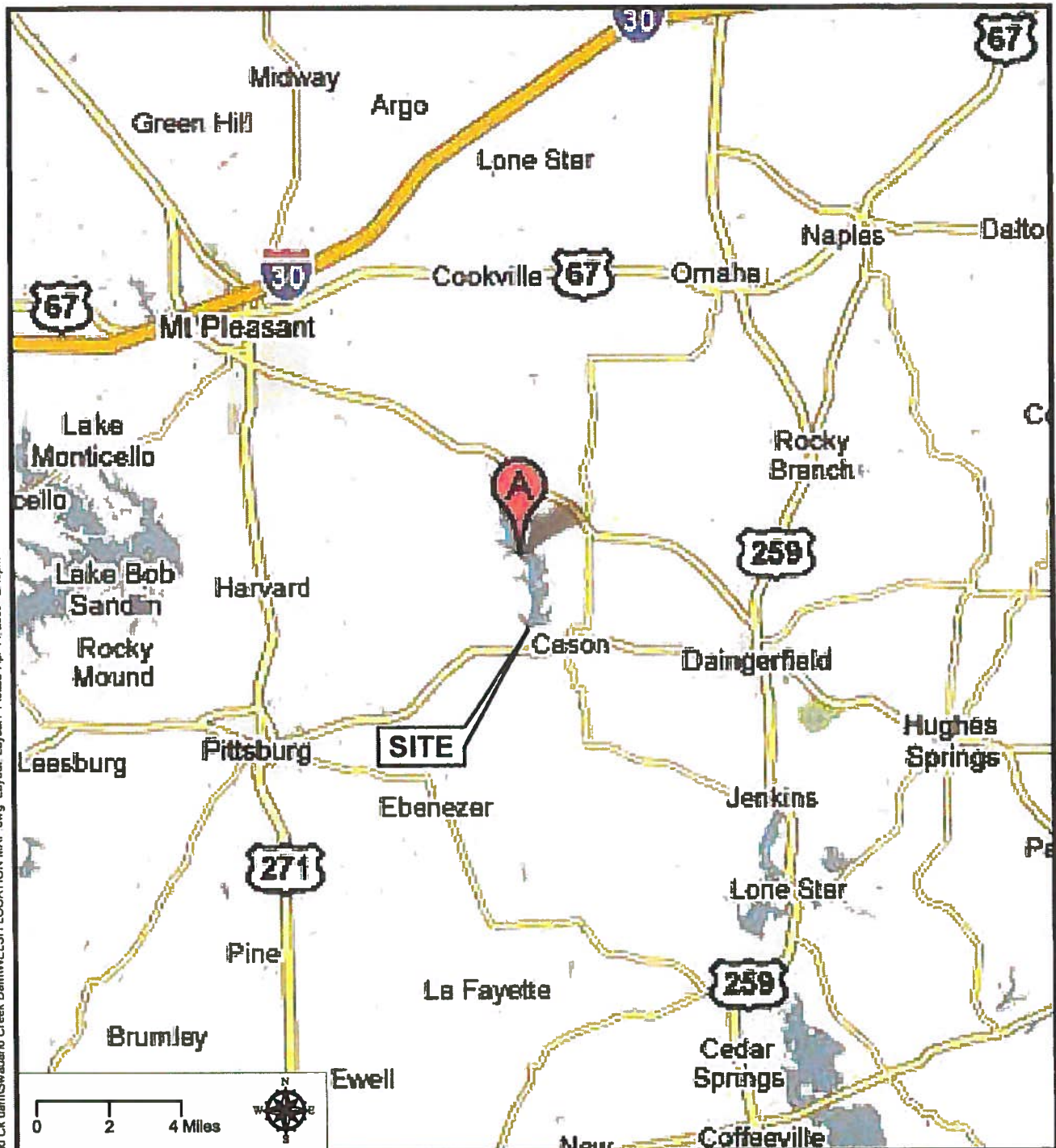
If you have any questions regarding this report, please contact Shah Baig (Ph: 614-716-2241, email: sbaig@aep.com) or Bryan Brunton (Ph: 614-716-3090, email: bwbrunton@aep.com).

## Appendix A

Figure 1 - Vicinity Map

Figure 2 - CCR Pond Complex General Layout

File: Q:\AEP Dam Inspections\Welsh\Drawings\Swauano Ck dam\Swauano Creek Dam\WELSH LOCATION MAP.dwg Layout: Layout1 Plotted: Apr 14, 2009 - 2:45pm



Source: Google Maps

<b>AEP WELSH POWER PLANT SWAUANO CREEK DAM TITUS COUNTY, TX</b>	
URS Corporation 9400 Amberglen Blvd. Austin, Texas 78729	
<b>DAM &amp; DIKE INSPECTION VICINITY MAP</b>	
DATE: 4/14/2009	SCALE: 1" = 4 MILES
URS JOB NUMBER: 41009103	DRAWN BY: SLC

Figure 1 Plant Inspection Vicinity Map

# **FIGURE 2 - SITE LOCATION MAP**

## **WELSH POWER PLANT, CASON, TX**






## Appendix B

Figure 3 – Photograph Location Map, Bottom Ash Storage Pond  
Photographs of Bottom Ash Storage Pond

**FIGURE 3 - PHOTOGRAPH LOCATION MAP**  
**BOTTOM ASH STORAGE POND, WELSH POWER PLANT, CASON, TX**





<p>Photograph No. 1</p> <p>View of the upper section of the downstream slope of the east dike (looking north).</p>	 A photograph showing the upper section of the downstream slope of the east dike. The foreground is dominated by tall, green grasses. A chain-link fence runs along the top of the slope. In the background, there are trees, a utility pole, and a blue cylindrical tank.
<p>Photograph No. 2</p> <p>View of the upper section of the downstream slope of the east dike (looking south).</p>	 A photograph showing the upper section of the downstream slope of the east dike from a different angle. The slope is covered in green grass. A chain-link fence is visible on the right side. The background shows a dense line of trees.
<p>Photograph No. 3</p> <p>View of the lower section of the downstream slope of the east dike (looking north).</p>	 A photograph showing the lower section of the downstream slope of the east dike. The foreground is covered in green grass. A dirt path or road runs across the middle ground. In the background, there are trees and a utility pole.

Photograph No. 4  
Overall view of the  
east dike downstream  
slope.









Photograph No. 5



Photograph No. 6  
Southeast  
downstream slope.



<p>Photograph No. 7 Downstream west slope (looking south).</p>	 A photograph showing a dirt road on the right side of a grassy slope. The slope is covered in green and brown grass. In the background, there is a chain-link fence and some trees under a cloudy sky.
<p>Photograph No. 8 Downstream west slope (looking north).</p>	 A photograph showing a dirt road on the left side of a grassy slope. The slope is covered in green and brown grass. In the background, there is a chain-link fence and some trees under a cloudy sky.
<p>Photograph No. 9 Access road adjacent to the west dike.</p>	 A photograph showing a dirt road on the right side of a grassy slope. The slope is covered in green and brown grass. In the background, there is a chain-link fence and some trees under a cloudy sky.

<p>Photograph No. 10 Typical condition of the north dike.</p>	
<p>Photograph No. 11 Typical condition of the interior slope (looking north).</p>	
<p>Photograph No. 12 Typical condition of the interior slope (looking south).</p>	

Photograph No. 13  
Pond interior  
illustrating excavation  
of CCR materials.



Photograph No. 14  
Interior area service  
spillway removed.

