





# CCR Bottom Ash Storage Pond 2024 Annual Dam and Dike Inspection Report

Welsh Power Plant, Cason, Texas

### Submitted to:

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August 13, 2024 Project 2305686 AEP Document ID: GEVR-24-015

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# **2024** Annual Inspection Report



**Bottom Ash Storage Pond Welsh Power Plant AEP Document ID: GEVR-24-015** 

Nocce Laspard
Signature

Noelle Gaspard, PE Water Resources Practice Lead GEI Consultants, Inc.

August 13, 2024 Date



I certify, to the best of my knowledge, that the information provided in this report satisfies the requirements of 40 CFR 257.83(b).

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#### JR P

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# 1. Introduction

GEI Consultants, Inc. was retained by AEP to implement the 2024 Dam and Dike Inspection and Maintenance Program (DIMP) at AEP facilities. As part of the DIMP, GEI's Pedro Amaya, PE and Aria Fathi, PE performed the 2024 inspection for the Bottom Ash Storage Pond at the Welsh Power Plant. Mr. W. Greg Carter, PE of AEP's Regional Engineering participated in the inspection and provided contextual background. This report was prepared by Pedro Amaya, PE and Jeff Piaskowski, PE of GEI and serves as a summary of the inspection and an assessment of the general conditions of the facility.

The inspection was performed on March 19, 2024 in general accordance with the Mining Safety and Health Administration (MSHA) Dam Inspection Guidelines. Weather conditions were sunny with mild temperatures approximately 60 degrees Fahrenheit. According to the rain gauge at the plant, there was approximately 1.85-inches of rain in the 7 days prior to the inspection, and no precipitation the day of this inspection.

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 as shown on Figure 1 – Site Location Map. The facility arrangement is provided on Figure 2 – Facility Plan. This report contains the inspection findings, observations, photographic descriptions, conclusions, and maintenance recommendations. Details of the visual inspection are presented below. Photographs taken during the inspection are included in Appendix A - Photolog. The location of each photograph is presented on Figure 3 – Site Plan.

At present, closure by removal activities are ongoing at the Bottom Ash Storage Pond and the CCR materials has being excavated and disposed of at the existing landfill. The 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.

# 2. Description of Impoundment

# 2.1 Bottom Ash Storage Pond

The Bottom Ash Storage 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 broadcrested 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. 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. Changes in Geometry Since Last Information (257.83(b)(2)(i))

Portions of the Bottom Ash Storage Pond perimeter berm have been removed and as a result, the pond is no longer capable of impounding water. Precipitation and stormwater is being controlled by the contractor who is removing CCR from the pond as part of the closure operations. At present, pond closure by CCR removal activities are approximately 50 percent complete and will continue until all the CCR materials are removed and placed in the existing landfill.

# 5. 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. The Bottom Ash Storage Pond also stopped receiving all storm water runoff from the landfill and surrounding areas. We do not anticipate that these operational changes would affect the stability of the impounding structure.

# 6. Impoundment Characteristics (257.83(b)(2)(iii, iv, v))

# 6.1 Bottom Ash Storage Pond

Table 1 is a summary of the minimum, maximum, and present depth and elevation of the impounded water and CCR material 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

	Bottom Ash Storage Pond Depth
Approximate <b>Minimum</b> depth of	0.0 ft
impounded water since last annual	(340.0 ft)
inspection	
Approximate <b>Maximum</b> depth of	0.0 ft
impounded water since last annual	(340.0 ft)
inspection	
Approximate <b>Present</b> depth of impounded	0.0 ft
water at the time of	(340.0 ft)
the inspection	
Approximate <b>Minimum</b> depth of	0.0 ft
CCR since last annual inspection	(340.0 ft)
Approximate <b>Maximum</b> depth of	18.0 ft
CCR since last annual inspection	(358.0 ft)
Approximate <b>Present</b> depth of	18.0 ft
CCR at the time of the inspection	(358.0 ft)
Storage Capacity of impounding structure at the time of the inspection	*NA
Approximate volume of impounded water at the time of the inspection	0.0 Gallons
Approximate volume of CCR at the time of the inspection	92 acre-ft

<sup>\*</sup>NA – Not Applicable. Pond is in the process of being closed by removal of CCR.

# 7. 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 particular area being observed or which may be a concern from a

structure safety or stability point of view.

CCR Bottom Ash Storage Pond 2024 Annual Dam and Dike Inspection Report Welsh Power Plant, Cason, Texas August 13, 2024

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

# Uncontrolled Seepage

O 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.]

# • Displacement:

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

# • Blockage of Control Features:

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

#### • 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 Bottom Ash Storage Pond 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.

# 7.2.1 Bottom Ash Storage Pond General Observations and Maintenance Considerations

The Bottom Ash Storage Pond is currently being closed by removal of CCR materials. In general, the crest, interior and exterior slopes of the remaining sections of the dike appear to be in satisfactory and stable condition. No significant settlement or misalignment was observed. Seeps were not observed during the inspection. No animal burrows or activity were observed during the inspection.

- 1. Areas of the embankment have been removed as part of the closure-by-removal activities.
- 2. Overall, the Bottom Ash Storage Pond dike is in good and stable condition. There were no visual signs of settlement, misalignment, and cracking.
- 3. The general condition of the slopes, and the crest of the west dike of the Bottom Ash Storage Pond appeared in satisfactory and stable condition. There were some minor erosion rills on the slopes but no visual signs of settlement, misalignment, or sloughing.
- 4. The overflow discharge structure had been removed as part of the pond closure.
- 5. Overall, the CCR Unit is in good condition, without the ability to impound water.

# 8. 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.

- 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 remaining sections of 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.

# 8.1 General Maintenance Considerations

Continue to maintain CCR materials within the Bottom Ash Storage Pond during the pond closure activities.

# 8.2 Items to be Monitored

Not applicable

## 8.3 Items to be Addressed

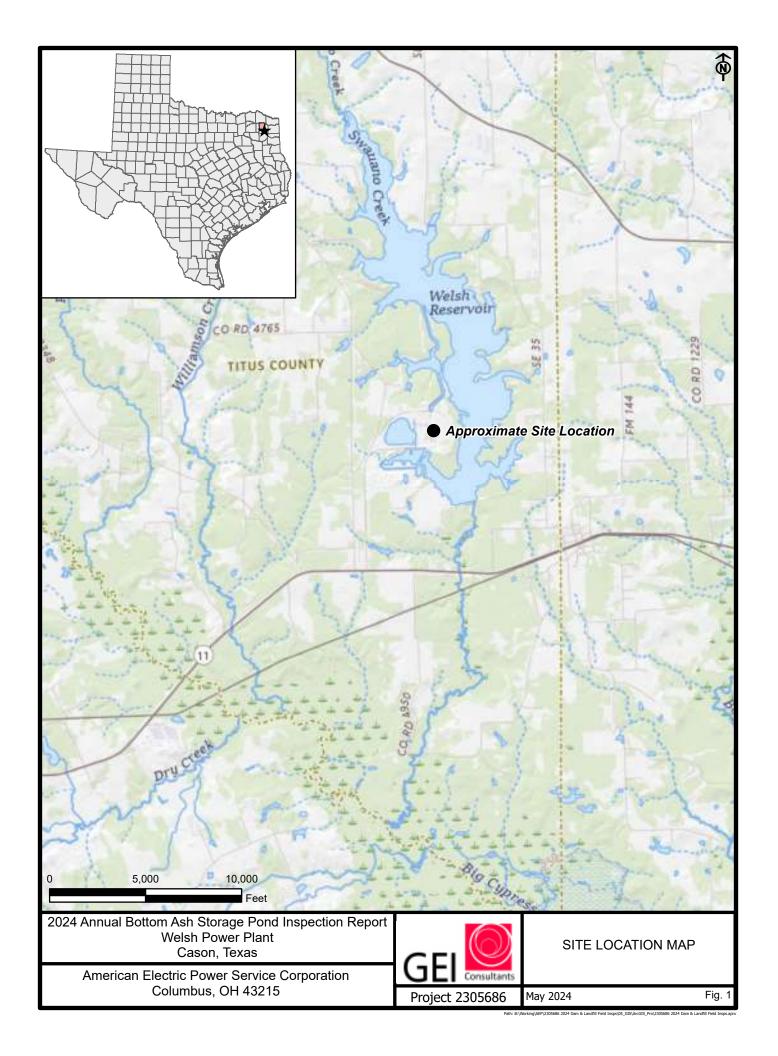
Not applicable

# 8.4 Deficiencies (257.83(b)(2)(i))

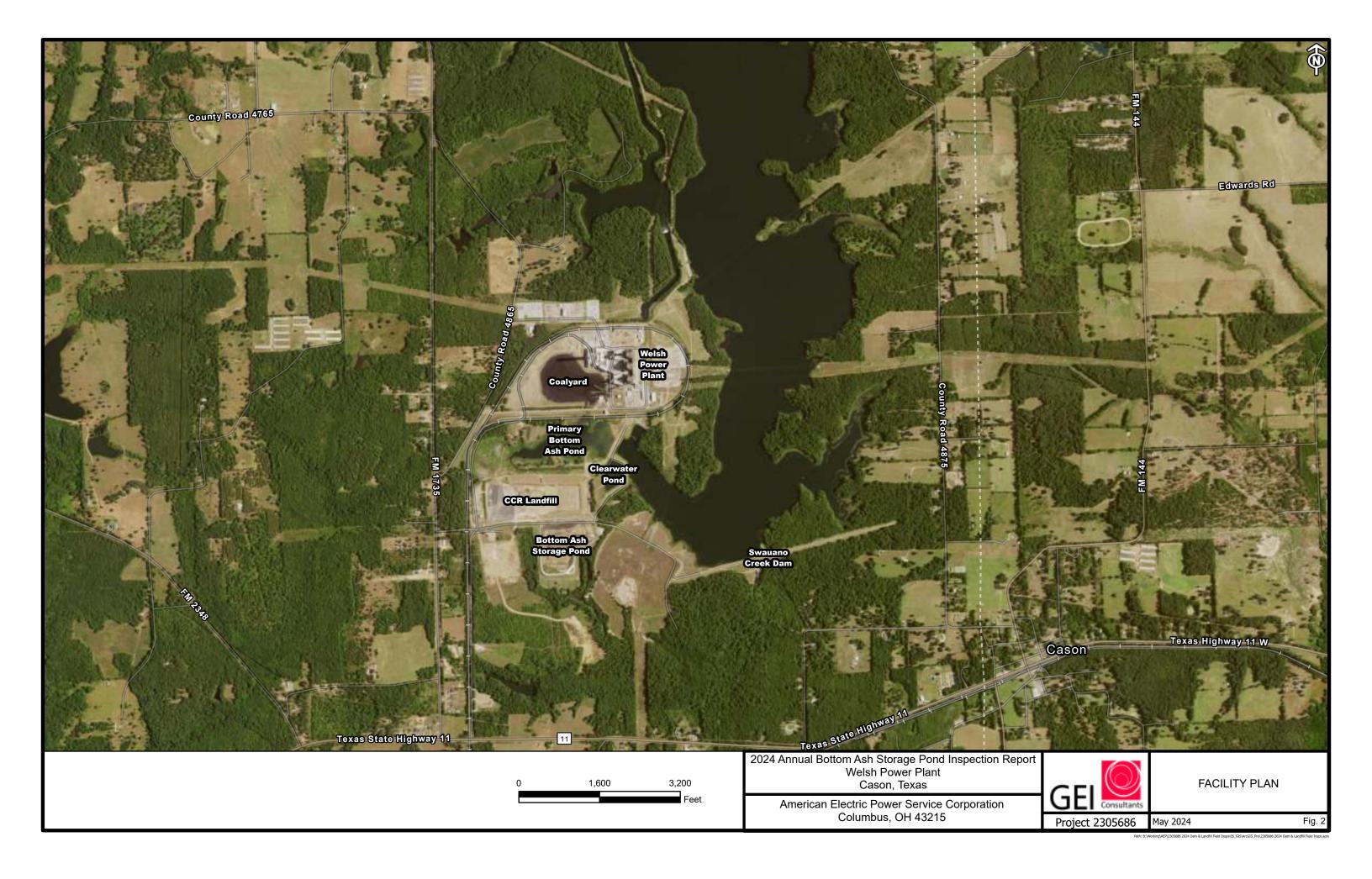
There were no deficiencies or signs of structural integrity issues or disruptive conditions that were observed at the time of the inspection that would require additional investigation or remedial action.

If you have any questions with regard to this report, please do not hesitate to contact Greg Carter at (903) 927-5896 / wgcarter@aep.com or Bryan Brunton at (614) 477-2659 / bwbrunton@aep.com.

# Figure 1 – Site Location Map



# Figure 2 – Facility Plan



# Figure 3 – Site Plan



# Appendix A - Photolog



Project: Welsh Power Plant, Bottom Ash Storage Pond Inspection
Client: American Electric Power GEI Project:

**SITE LOCATION:** CASON, TEXAS

**GEI Project**: 2305686

Duezachanu No. 1	DATE:	LATITUDE:	LONGITUDE:
PHOTOGRAPH NO: 1	March 18, 2024 5:48 PM	33.046956171439	-94.8430901186814

#### **DESCRIPTION:**

**DIRECTION:** South

Upstream Slope. Looking South. General Photo, Typical Conditions.



### рното ву:

### **GEI CONSULTANTS, INC.**

DIRECTION: South	SITE LOCATION: CASON TEVAS		3310010
PHOTOGRAPH NO: 2	March 18, 2024 5:47 PM	33.04694526	-94.84310816
Buotochanu No. 3	DATE:	LATITUDE:	LONGITUDE:

# DESCRIPTION:

Upstream Slope of Upstream Dike. Looking South. Typical Conditions.



РНОТО ВҮ:



Project: Welsh Power Plant, Bottom Ash Storage Pond Inspection Client: American Electric Power **GEI Project:** 

2305686

PHOTOGRAPH NO: 3	<b>D</b> ате: March 19, 2024 4:52 РМ	<b>Latitude:</b> 33.0467098377658	<b>Longitude:</b> -94.8426555044572
DIRECTION: South	SITE LOCATION: CASON, TEXAS		

#### **DESCRIPTION:**

Downstream Slope of Outboard Dike. Looking South. General Photo, Typical Conditions.



### рното ву:

# **GEI CONSULTANTS, INC.**

PHOTOGRAPH NO: 4	<b>DATE:</b> March 18, 2024 5:54 PM	LATITUDE: 33.04590577	<b>Longitude:</b> -94.84264626
DIRECTION: East	SITE LOCATION: CASON. TEXAS		

# **DESCRIPTION:**

Upstream Slope of Original Dam. Looking East. General Photo, Typical Conditions.



## рното ву:



Project: Welsh Power Plant, Bottom Ash Storage Pond Inspection
Client: American Electric Power GEI Project:

2305686

	LONGITUDE:
Рнотодгарн No: 5         March 19, 2024 4:57 PM         33.0455077077291         -94.	4.8427395124093

**DIRECTION:** South **SITE LOCATION:** CASON, TEXAS

#### **DESCRIPTION:**

Downstream Slope of Drainage Feature. Looking Southeast. Typical Conditions of Riprap.



рното ву:

**GEI CONSULTANTS, INC.** 

PHOTOGRAPH NO: 6	<b>D</b> ATE: March 19, 2024 4:58 РМ	<b>L</b> ATITUDE: 33.0454897955821	<b>Longitude:</b> -94.8428134103689
DIRECTION: West	SITE LOCATION: CASON, TEXAS		

# DESCRIPTION:

Downstream Slope. Looking Southwest. General Photo, Typical Conditions.



РНОТО ВҮ:



Project: Welsh Power Plant, Bottom Ash Storage Pond Inspection
Client: American Electric Power GEI Project:

2305686

PHOTOGRAPH NO: 7	<b>D</b> ATE: March 19, 2024 5:00 РМ	<b>LATITUDE:</b> 33.0453527766715	<b>Longitude:</b> -94.8433968572266
DIRECTION: Southeast	SITE LOCATION: CASON, TEXAS		

#### **DESCRIPTION:**

Downstream Slope, Drainage Feature. Looking Southeast. Riprap.



#### рното ву:

**GEI CONSULTANTS, INC.** 

PHOTOGRAPH NO: 8	<b>DATE:</b> March 19, 2024 5:01 PM	LATITUDE: 33.0452812413131	Longitude: -94.8435000353703
DIRECTION: South	SITE LOCATION: CASON, TEXAS		

# DESCRIPTION:

East area, Crest and Downstream Slope. Looking South. General Photo, Typical Conditions.



#### РНОТО ВҮ:



Project: Welsh Power Plant, Bottom Ash Storage Pond Inspection
Client: American Electric Power GEI Project:

**SITE LOCATION:** CASON, TEXAS

I **Project**: 2305686

	Duotochanu No. 0	DATE:	LATITUDE:	LONGITUDE:
PHOTOGRAPH NO: 9	March 18, 2024 5:59 PM	33.0453224810753	-94.8437046776976	

#### **DESCRIPTION:**

**DIRECTION**: West

South area, Crest. Looking West. Typical Conditions of Storage Pond.



#### рното ву:

### **GEI CONSULTANTS, INC.**

PHOTOGRAPH NO: 10	<b>DATE:</b> March 18, 2024 5:58 PM	<b>LATITUDE:</b> 33.04531649	<b>LONGITUDE:</b> -94.84372417
DIRECTION: South	SITE LOCATION: CASON TEXAS		

# DESCRIPTION:

East area, Upstream Slope of Original Dam. Looking South. Typical Conditions of Cut Down Berm.



## РНОТО ВҮ:



Project: Welsh Power Plant, Bottom Ash Storage Pond Inspection
Client: American Electric Power GEI Project:

**GEI Project**: 2305686

PHOTOGRAPH NO: 11	DATE:	LATITUDE:	LONGITUDE:
PHOTOGRAPH NO. 11	March 19, 2024 5:04 PM	33.0446721861726	-94.8437873177648

**DIRECTION:** East **SITE LOCATION:** CASON, TEXAS

#### **DESCRIPTION:**

East area, Crest of Drainage Feature. Looking East. Typical Riprap.



#### рното ву:

**GEI CONSULTANTS, INC.** 

PHOTOGRAPH NO: 12	<b>DATE:</b> March 19, 2024 5:05 PM	<b>LATITUDE:</b> 33.04419355	<b>Longitude:</b> -94.84388557
DIRECTION: North	SITE LOCATION: CASON, TEXAS	1	

# DESCRIPTION:

South area, Upstream Slope of Inboard Dike. Looking North. Note area of Closure by Removal near Final Subgrade Elevation.



#### РНОТО ВҮ:



Welsh Power Plant, Bottom Ash Storage Pond Inspection Project: Client: American Electric Power **GEI Project:** 

2305686

PHOTOGRAPH NO: 13	<b>DATE:</b>	LATITUDE:	<b>Longitude:</b>
	March 19, 2024 5:09 PM	33.0437717149903	-94.844122902979
DIRECTION: West	SITE LOCATION: CASON, TEXAS		

#### **DESCRIPTION:**

South area, Downstream Slope. Looking West. General Photo, Typical Conditions.



### рното ву:

**GEI CONSULTANTS, INC.** 

PHOTOGRAPH NO: 14	<b>DATE:</b> March 19, 2024 5:08 PM	<b>LATITUDE:</b> 33.0437488102054	LONGITUDE: -94.8441371487598
DIRECTION: Southeast	SITE LOCATION: CASON TEVAS		

# **DESCRIPTION:**

South area, Downstream Slope. Looking Southeast. General Photo, Typical Conditions.



## рното ву:



Project: Welsh Power Plant, Bottom Ash Storage Pond Inspection
Client: American Electric Power GEI Project:

**SITE LOCATION:** CASON, TEXAS

**GEI Project**: 2305686

Рнотодгарн No: 15	DATE:	LATITUDE:	LONGITUDE:	
	March 19, 2024 5:13 PM	33.0438336473822	-94.8459234167427	

#### **DESCRIPTION:**

South area, Toe. Looking Northeast. General Photo, Typical Conditions.

**DIRECTION**: Northeast



#### рното ву:

### **GEI CONSULTANTS, INC.**

PHOTOGRAPH NO: 16	<b>DATE:</b> March 19, 2024 5:14 PM	<b>Latitude:</b> 33.0438436247929	<b>LONGITUDE:</b> -94.8459236676379	
DIRECTION: West	SITE LOCATION: CASON TEVAS			_

# DESCRIPTION:

South area, Toe. Looking West. General Photo, Typical Conditions.



#### PHOTO BY:



Project: Welsh Power Plant, Bottom Ash Storage Pond Inspection

Client: American Electric Power GEI Project: 2305686

PHOTOGRAPH NO: 17	DATE:	LATITUDE:	LONGITUDE:
PHOTOGRAPH NO: 17	March 19, 2024 5:13 PM	33.04386002	-94.84595354

**DIRECTION**: Northeast **SITE LOCATION:** CASON, TEXAS

#### **DESCRIPTION:**

South area, Outboard Dike. Looking Northeast into Active Pond Closure Area. Typical Conditions.



#### рното ву:

GEI CONSULTANTS, INC.

PHOTOGRAPH No: 18	<b>DATE:</b> March 19, 2024 5:21 PM	<b>L</b> ATITUDE: 33.0468143055288	Longitude: -94.8461336625621
DIRECTION: South	SITE LOCATION: CASON, TEXAS		

# DESCRIPTION:

West area, Downstream Slope. Looking South. General Photo, Typical Conditions.



#### РНОТО ВҮ:



Project: Welsh Power Plant, Bottom Ash Storage Pond Inspection
Client: American Electric Power GEI Project:

2305686

PHOTOGRAPH NO: 19	DATE:	LATITUDE:	LONGITUDE:
PHOTOGRAPH NO. 19	March 19, 2024 5:23 PM	33.0469492719872	-94.8460717913858

**DIRECTION:** East **SITE LOCATION:** CASON, TEXAS

#### **DESCRIPTION:**

North area, Crest. Looking East. General Photo, Typical Conditions.



#### рното ву:

# GEI CONSULTANTS, INC.

	PHOTOGRAPH NO: 20	DATE:	LATITUDE:	LONGITUDE:
		March 19, 2024 5:26 PM	33.0470612738046	-94.8444390546181
	DIRECTION: East	SITE LOCATION: CASON, TEXAS		

# **DESCRIPTION:**

North area of Dam. Looking East. General Photo, Typical Conditions.



#### РНОТО ВҮ: