



Consulting  
Engineers and  
Scientists



## Bottom Ash Pond Complex Initial Dam and Dike Inspection Report

Glen Lyn Plant, Glen Lyn, Virginia

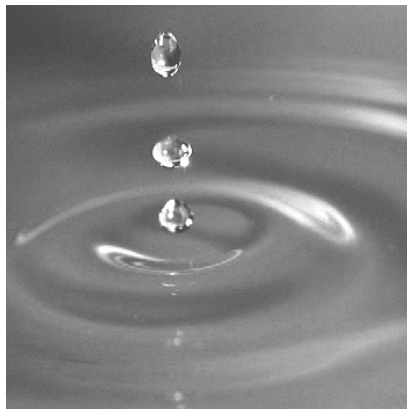
**Submitted to:**

American Electric Power Service Corporation  
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Columbus, OH 43215

**Submitted by:**

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February 6, 2025  
Project 2407654



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Senior Consultant

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Senior Engineer

# 2024 Annual Inspection Report



## Bottom Ash Pond Complex Glen Lyn Power Plant

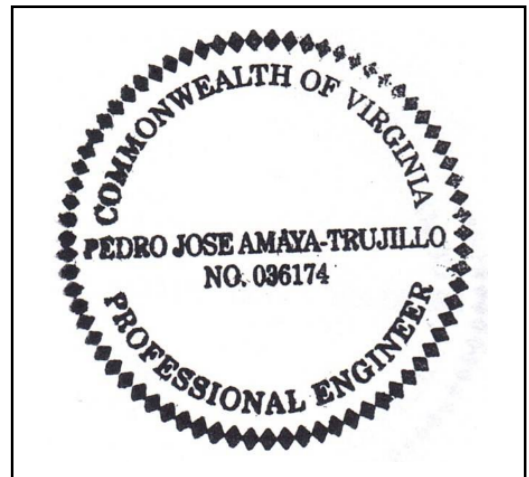
A handwritten signature in black ink that reads "Pedro J. Amaya". The signature is written in a cursive style with a horizontal line underneath it.

Signature

Pedro Amaya, PE  
Senior Consultant  
GEI Consultants, Inc.

**February 6, 2025**

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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JRP

B:\Working\AEP\2407654 AEP Legacy CCR SI Inspection\05\_GIS\Final\Glen Lyn Bottom Ash Pond Complex\DRAFT\_Bottom Ash Pond Complex.docx

# 1. Introduction

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GEI Consultants, Inc. was retained by AEP to implement the initial annual inspection of the Legacy CCR Surface Impoundments at various AEP facilities. The initial annual inspection is required by February 10, 2025 as a result of the EPA's provision to 40 CFR 257.50(e) in response to the August 21, 2018 USWAG decision. The provision indicates that Legacy CCR Surface Impoundments are subject to 40 CFR 257 (CCR Rule), where applicable, with an effective date of November 8, 2024.

As a result, GEI's Pedro Amaya, P.E. performed the initial annual inspection of the Bottom Ash Pond Complex at the Glen Lyn Power Plant to fulfill requirements of 40 CFR 257.83. This report was prepared by Pedro Amaya, P.E. and Jeff Piaskowski, P.E. of GEI and serves as a summary of the inspection and an assessment of the general conditions of the Bottom Ash Pond Complex at the Glen Lyn Power Plant.

The inspection was performed on July 24, 2024 in general accordance with the Mining Safety and Health Administration (MSHA) Dam Inspection Guidelines. Weather conditions were sunny with mild temperatures. Approximately 0.5-inches of precipitation was recorded in the 7 days prior to the inspection.

The Bottom Ash Pond Complex is located near Glen Lyn, Virginia as shown on Figure 1 – Site Location Map. The facility arrangement is provided on Figure 2 – Facility Plan. Bottom Ash Pond Complex and its appurtenances are shown on Figure 3 – Site Plan. Locations of items to be monitored are provided on Figure 4.



## 2. Description of Impoundments

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The Bottom Ash Pond Complex consists of the North and South Cells and a Clear Water Cell and was operated until 2015 when Glen Lyn Power Plant was permanently retired. The Bottom Ash Pond Complex is surrounded by an earthen berm as shown in Figure 2. The pond is approximately 9 acres and is located adjacent the New River and East River in Giles County, Virginia. While operating as a bottom ash pond, the water elevation was controlled with an outfall structure that was located in the northwest corner. During an overflow condition, decant from the pond was discharged into the East River.

### **3. Review of Available Information (257.83(b)(1)(i))**

GEI understands that AEP is currently gathering pertinent information related to the Bottom Ash Pond Complex. This information was not available for review prior to the inspection or during the report preparation. This section will be updated during future inspections.

## 4. Inspection (257.83(b)(1)(ii))

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### 4.1 Changes in Geometry Since Last Inspection (257.83(b)(2)(i))

This section is not applicable, as this is the Bottom Ash Pond Complex's initial annual inspection.

### 4.2 Instrumentation (257.83(b)(2)(ii))

This section is not applicable, as the Bottom Ash Pond Complex does not have any instrumentation.

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

Below is a summary of the Bottom Ash Pond Complex characteristics.

<b>IMPOUNDMENT CHARACTERISTICS BOTTOM ASH POND COMPLEX</b>	
Water Surface Elevation at time of the inspection	No water visible.
Approximate <b>Minimum, Maximum, and Present</b> depth/elevation of impounded water since last annual inspection	This is the initial inspection and there was no visible water.
Approximate <b>Minimum Maximum and Present</b> depth/elevation of CCR since last annual inspection	This is the initial inspection and there is roughly 8 feet of CCR present (1506 ft-msl).
Storage Capacity of impounding structure at the time of the inspection	Approximately 100,000 CY
Approximate volume of impounded water at the time of the inspection	No water visible.
Approximate volume of CCR at the time of the inspection	35,000 CY

Notes:

1. na

## 4.4 Definitions of Visual Observations and Deficiencies

This summary of the visual observations uses terms to describe the general appearance or condition of an observed item, activity, or structure. The meaning of these terms is 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/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, cracks, concrete surface 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, cracks, concrete surface etc.) where the current maintenance program has neglected to improve the condition. Usually, conditions that have been identified in previous inspections, but have not been corrected.
- Excessive:** A reference to an observed item (e.g. erosion, seepage, vegetation, cracks, concrete surface 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.

This document also uses the definition of a “deficiency” as referenced in the CCR rule section §257.84(b)(5) Inspection Requirements for CCR Landfills. This definition has been assembled using the CCR rule preamble as well as guidance from MSHA, “Qualifications for Impoundment Inspection” CI-31, 2004. These guidance documents further elaborate on the definition of deficiency. Items not defined by deficiency are considered maintenance or items to be monitored.

A “deficiency” is some evidence that the CCR Unit has developed a problem that could impact its structural integrity. There are four general categories of deficiencies. These four categories are described below:

1. Uncontrolled Seepage

Uncontrolled seepage is an uncontrolled release from the unit.

2. Displacement of the Embankment

Displacement of the embankment is large scale movement of part of the pond embankment. Common signs of displacement are cracks, scarps, 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.

#### **4.5 Visual Inspection (257.83(b)(2)(i))**

A visual inspection of the Bottom Ash Pond Complex was conducted to identify signs of distress or malfunction of the impoundment and appurtenant structures which includes its hydraulic structures. Specific items inspected included structural elements of the dam such as upstream and downstream slopes, crest, and toe; as well as appurtenances such as the outlet/spillway structure. Photographs taken during the inspection are provided in Attachment A - Photolog.

The following summarizes the visual inspection of the Bottom Ash Pond Complex:

The upstream slopes of the Bottom Ash Pond Complex are in fair condition as shown in Photograph Nos. 1, 2, 5, 11, and 15.

The downstream slope of the dam is in fair condition as shown in Photograph Nos. 3, 6, 9, 10 and 13.

The crest of the dam is in fair condition and is used as an access road as shown in Photograph No. 12.

The stormwater structures were in fair condition. Areas around the structures have vegetation that should be maintained to 12-inches or less as shown in Photographs No. 4 and No. 5. A minor blockage was observed at a culvert outlet. Sediment build-up around drainage structures should be monitored and addressed as needed as shown in Photograph No. 7.

#### **4.6 Changes that Effect Stability or Operation (257.83(b)(2)(vii))**

This section is not applicable, as this is the initial annual inspection report for Bottom Ash Pond Complex.

## **5. Summary of Findings**

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### **5.1 General Observations**

The Bottom ash Pond Complex is generally in fair to good condition. The Bottom ash Pond Complex appears to be functioning as intended with no signs of structural weakness. The constructed embankment/berms appear in fair condition structurally. The vegetation on the upstream and downstream slopes of the perimeter berm is in good condition and maintained to 12-inches or less. Vegetation around the drainage features was observed in excess of 12-inches and should be maintained more frequently to maintain less than 12-inch height.

The Bottom Ash Pond Complex's outlet is in fair condition. There were no signs of depression, settlement, or sinkholes along the general inspected areas. The Bottom Ash Pond Complex is graded to promote positive drainage.

### **5.2 Maintenance Items**

No maintenance items were identified during the inspection.

### **5.3 Items to be Monitored**

- Items 4, 5, 8, 10, and 11 – Monitor the vegetation within 25-feet of the upstream and downstream side slopes and around drainage features and maintain to a height of 12-inches or less.
- Item 7 – Monitor the inlets and outlets of drainage features and maintain sediment build-up if sediment build-up becomes significant or restricts flow.

### **5.4 Items to be Addressed**

No items were identified to be addressed.

## 6. Deficiencies (257.83(b)(2)(vi))

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There were no 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 this inspection or during any of the periodic inspections. A deficiency is defined as either:

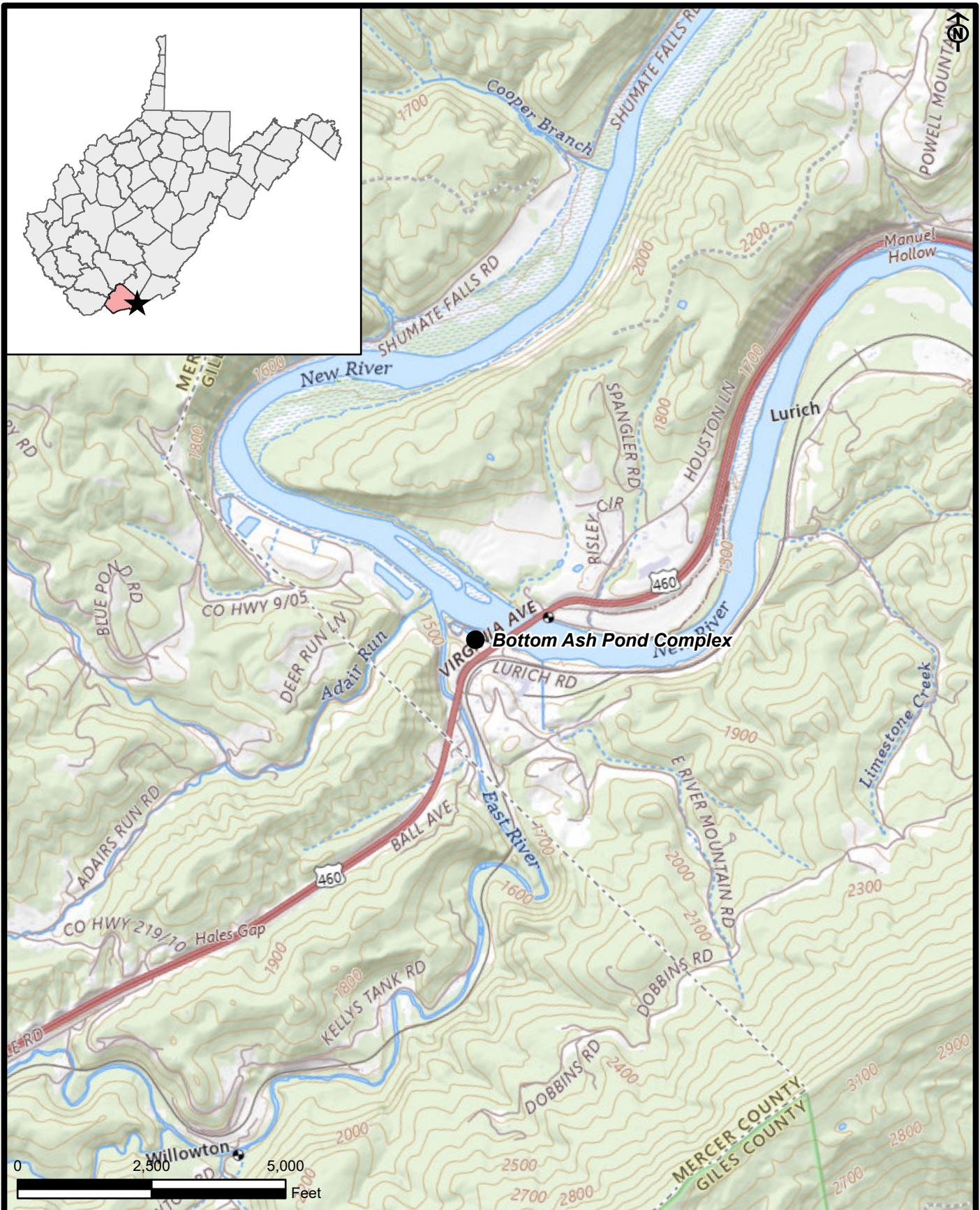
- uncontrolled seepage
- displacement of the embankment
- blockage of control features
- erosion, more than minor maintenance

If any of these conditions occur or if you have any questions with regard to this report, please contact Dan Murphy at 614-933-2467 / [dsmurphy1@aep.com](mailto:dsmurphy1@aep.com) or David Miller at 614-716-2281 / [damiller@aep.com](mailto:damiller@aep.com).



## **Figure 1 – Site Location Map**

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2024 Annual Bottom Ash Pond Complex Inspection Report  
 Glen Lyn Power Plant  
 Glen Lyn, Virginia

American Electric Power Service Corporation  
 Columbus, OH 43215



Project 2407654

SITE LOCATION MAP

February 2025

Fig. 1

## **Figure 2 – Facility Plan**

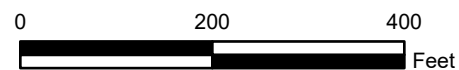
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**NOTES:**

1. Aerial image obtained from USDA NAIP. Image captured spring of 2021.
2. Contour data derived from 2017 Lidar flight\*  
OCM Partners, 2025: 2017 NRCS/FEMA/USGS Lidar: South Central VA, <https://www.fisheries.noaa.gov/inport/item/71879>.
3. Site conditions may change over time, accuracy is not guaranteed.



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Glen Lyn Power Plant  
Glen Lyn, Virginia

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Columbus, OH 43215



FACILITY PLAN

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Fig. 2




## Figure 3 – Site Plan

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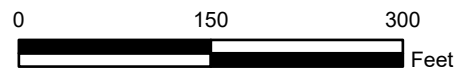


**LEGEND:**

 General Observation

**NOTES:**

1. Aerial image obtained from USDA NAIP. Image captured spring of 2021.
2. Points shown represent site conditions during time of inspection. Conditions may change overtime, accuracy is not guaranteed. Map should not be used for measurement.



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 Columbus, OH 43215



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SITE PLAN  
 February 2025  
 Fig. 3

Path: E:\Work\AEP\2305686 2024 Dam & Landfill Field Insp\05\_GIS\ArcGIS\_Pro\2305686 2024 Dam & Landfill Field Insp.aprx



## **Figure 4 – Items to be Monitored**

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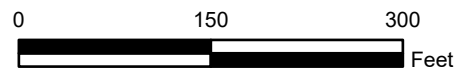


**LEGEND:**

● Monitor

**NOTES:**

1. Aerial image obtained from USDA NAIP. Image captured spring of 2021.
2. Points shown represent site conditions during time of inspection. Conditions may change overtime, accuracy is not guaranteed. Map should not be used for measurement.



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 Glen Lyn Power Plant  
 Glen Lyn, Virginia

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 Columbus, OH 43215



Project 2407654

ITEMS TO BE MONITORED

February 2025

Fig. 4





## **Appendix A - Photolog**

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# Photographic Log





**Project:** Glen Lyn Power Plant, Bottom Ash Pond Complex Inspection Report  
**Client:** American Electric Power **GEI Project:** 2407654

<b>PHOTOGRAPH NO: 1</b>	<b>DATE:</b> July 24, 2024 8:45 AM	<b>LATITUDE:</b> 37.37030537	<b>LONGITUDE:</b> -80.86221625
<b>DIRECTION:</b> 273°		<b>SITE LOCATION:</b> GLEN LYN, VIRGINIA	
<b>DESCRIPTION:</b>  Upstream Slope of Inboard Dike. General Photo, Typical Conditions of Historic Erosion Repair.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			
<b>PHOTOGRAPH NO: 2</b>	<b>DATE:</b> July 24, 2024 8:50 AM	<b>LATITUDE:</b> 37.37217351	<b>LONGITUDE:</b> -80.86402125
<b>DIRECTION:</b> 235°		<b>SITE LOCATION:</b> GLEN LYN, VIRGINIA	
<b>DESCRIPTION:</b>  Upstream Slope of Dam. Note Gravel Surface on Dam Crest Access Road.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			

# Photographic Log



**Project:** Glen Lyn Power Plant, Bottom Ash Pond Complex Inspection Report  
**Client:** American Electric Power **GEI Project:** 2407654



<b>PHOTOGRAPH NO: 3</b>	<b>DATE:</b> July 24, 2024 8:53 AM	<b>LATITUDE:</b> 37.37236843	<b>LONGITUDE:</b> -80.86408915
<b>DIRECTION:</b> 235°	<b>SITE LOCATION:</b> GLEN LYN, VIRGINIA		
<b>DESCRIPTION:</b>  Downstream Slope of Dam. General Photo, Typical Conditions.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			
<b>PHOTOGRAPH NO: 4</b>	<b>DATE:</b> July 24, 2024 8:59 AM	<b>LATITUDE:</b> 37.37318878	<b>LONGITUDE:</b> -80.86599641
<b>DIRECTION:</b> 158°	<b>SITE LOCATION:</b> GLEN LYN, VIRGINIA		
<b>DESCRIPTION:</b>  Drainage Feature Overflow Structure. Overgrown, Monitor Conditions and Address as Appropriate.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			



# Photographic Log



**Project:** Glen Lyn Power Plant, Bottom Ash Pond Complex Inspection Report  
**Client:** American Electric Power **GEI Project:** 2407654

<b>PHOTOGRAPH NO: 5</b>	<b>DATE:</b> July 24, 2024 9:03 AM	<b>LATITUDE:</b> 37.37347732	<b>LONGITUDE:</b> -80.8666989
<b>DIRECTION: 142°</b>	<b>SITE LOCATION: GLEN LYN, VIRGINIA</b>		
<b>DESCRIPTION:</b>  Upstream Slope of Inactive Area. Overgrown Vegetation, Address as Appropriate in and around Overflow Structure.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			
<b>PHOTOGRAPH NO: 6</b>	<b>DATE:</b> July 24, 2024 9:09 AM	<b>LATITUDE:</b> 37.3734601	<b>LONGITUDE:</b> -80.86724511
<b>DIRECTION: 70°</b>	<b>SITE LOCATION: GLEN LYN, VIRGINIA</b>		
<b>DESCRIPTION:</b>  Downstream Slope of Dam. Note Overgrown Brush and Vegetation, Recently Sprayed.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			



# Photographic Log



**Project:** Glen Lyn Power Plant, Bottom Ash Pond Complex Inspection Report  
**Client:** American Electric Power **GEI Project:** 2407654



<b>PHOTOGRAPH NO: 7</b>	<b>DATE:</b> July 24, 2024 9:12 AM	<b>LATITUDE:</b> 37.37338943	<b>LONGITUDE:</b> -80.86723661
<b>DIRECTION:</b> 103°	<b>SITE LOCATION:</b> GLEN LYN, VIRGINIA		
<b>DESCRIPTION:</b>  Toe of Outlet Pipe. Minor blockage, Monitor Conditions and Address Sediment as needed.	 A photograph showing a dark, circular opening of an outlet pipe in a wooded area. The pipe is partially obscured by dry grass and twigs. The surrounding ground is covered with green weeds, brown leaves, and a large, dark rock in the foreground.		
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			



# Photographic Log





**Project:** Glen Lyn Power Plant, Bottom Ash Pond Complex Inspection Report  
**Client:** American Electric Power **GEI Project:** 2407654

<b>PHOTOGRAPH NO: 8</b>	<b>DATE:</b> July 24, 2024 9:18 AM	<b>LATITUDE:</b> 37.37316136	<b>LONGITUDE:</b> -80.86694678
<b>DIRECTION: 19°</b>	<b>SITE LOCATION: GLEN LYN, VIRGINIA</b>		
<b>DESCRIPTION:</b>  Upstream Slope of Splitter Dike. Note Overgrown Vegetation Recently Sprayed. Address Additional Vegetation Growth as needed.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			
<b>PHOTOGRAPH NO: 9</b>	<b>DATE:</b> July 24, 2024 9:21 AM	<b>LATITUDE:</b> 37.37303993	<b>LONGITUDE:</b> -80.86712447
<b>DIRECTION: 293°</b>	<b>SITE LOCATION: GLEN LYN, VIRGINIA</b>		
<b>DESCRIPTION:</b>  Downstream Slope of Dam. Ground Cover, Typical Conditions.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			

# Photographic Log



**Project:** Glen Lyn Power Plant, Bottom Ash Pond Complex Inspection Report  
**Client:** American Electric Power **GEI Project:** 2407654



<b>PHOTOGRAPH No: 10</b>	<b>DATE:</b> July 24, 2024 9:22 AM	<b>LATITUDE:</b> 37.3730807	<b>LONGITUDE:</b> -80.86712031
<b>DIRECTION:</b> 39°	<b>SITE LOCATION:</b> GLEN LYN, VIRGINIA		
<b>DESCRIPTION:</b>  Downstream Slope of Dam. Note Small Trees and Brush, Address Overgrown Vegetation as needed.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			
<b>PHOTOGRAPH No: 11</b>	<b>DATE:</b> July 24, 2024 9:25 AM	<b>LATITUDE:</b> 37.3728014	<b>LONGITUDE:</b> -80.86649406
<b>DIRECTION:</b> 40°	<b>SITE LOCATION:</b> GLEN LYN, VIRGINIA		
<b>DESCRIPTION:</b>  Upstream Slope of Dam. Note overgrown vegetation recently sprayed, General Photo, Monitor Conditions. Address overgrown vegetation as needed.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			



# Photographic Log



**Project:** Glen Lyn Power Plant, Bottom Ash Pond Complex Inspection Report  
**Client:** American Electric Power **GEI Project:** 2407654



<b>PHOTOGRAPH No: 12</b>	<b>DATE:</b> July 24, 2024 9:28 AM	<b>LATITUDE:</b> 37.37273233	<b>LONGITUDE:</b> -80.86649703
<b>DIRECTION:</b> 253°	<b>SITE LOCATION:</b> GLEN LYN, VIRGINIA		
<b>DESCRIPTION:</b>  Crest of Dam. General Photo, Typical Conditions.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			
<b>PHOTOGRAPH No: 13</b>	<b>DATE:</b> July 24, 2024 9:32 AM	<b>LATITUDE:</b> 37.37150354	<b>LONGITUDE:</b> -80.86525236
<b>DIRECTION:</b> 39°	<b>SITE LOCATION:</b> GLEN LYN, VIRGINIA		
<b>DESCRIPTION:</b>  Downstream Slope of Drainage Feature. General Photo, Typical Conditions showing recent erosion repair.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			



# Photographic Log



**Project:** Glen Lyn Power Plant, Bottom Ash Pond Complex Inspection Report  
**Client:** American Electric Power **GEI Project:** 2407654

<b>PHOTOGRAPH No: 14</b>	<b>DATE:</b> July 24, 2024 9:36 AM	<b>LATITUDE:</b> 37.37154276	<b>LONGITUDE:</b> -80.8649388
<b>DIRECTION:</b> 217°	<b>SITE LOCATION:</b> GLEN LYN, VIRGINIA		
<b>DESCRIPTION:</b>  West of Highway Crossing, General Photo, Typical Conditions.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			
<b>PHOTOGRAPH No: 15</b>	<b>DATE:</b> July 24, 2024 9:41 AM	<b>LATITUDE:</b> 37.37163777	<b>LONGITUDE:</b> -80.86393594
<b>DIRECTION:</b> 239°	<b>SITE LOCATION:</b> GLEN LYN, VIRGINIA		
<b>DESCRIPTION:</b>  Upstream Slope of Perimeter Berm. General Photo, Note Splitter Dike between East / West Bottom Ash Ponds.			
<b>PHOTO BY:</b>  GEI CONSULTANTS, INC.			