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Bottom Ash Pond Complex

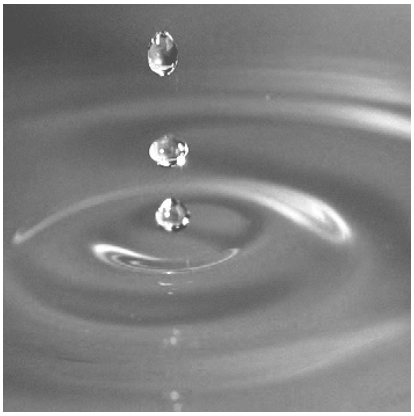
Initial Dam and Dike Inspection Report

Former Philo Power Plant, Muskingum County, Ohio

Submitted to:
American Electric Power Service Corporation
1 Riverside Plaza
Columbus, OH 43215

Submitted by:
GEI Consultants, Inc.
3159 Voyager Drive
Green Bay, Wisconsin 54311
920.455.8200

January 2025
Project 2407654



Pedro Amaya, PE
Senior Consultant

Jeff Piaskowski, PE
Senior Engineer

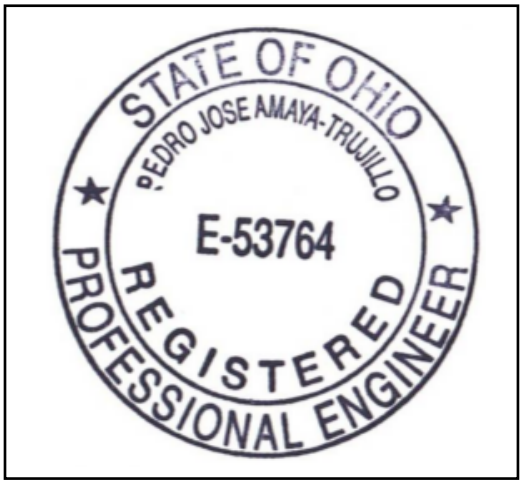
2024 Annual Inspection Report

Bottom Ash Pond Complex
Former Philo Power Plant

Signature

Pedro Amaya, PE
Senior Consultant
GEI Consultants, Inc.

January 31, 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).

Table of Contents

JRP
B:\Working\AEP\2407654 AEP Legacy CCR SI Inspection\05_GIS\Final\Philo Bottom Ash Pond Complex\DRAFT_Philo_BAP_Complex.docx

1. Introduction

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 Chris Keenan performed the initial annual inspection of the Bottom Ash Pond Complex at the former Philo Power Generating Plant to fulfill requirements of 40 CFR 257.83. Mr. Justin R. Jent was the AEP contact who assisted with the initial annual inspection and provided history of Legacy CCR Surface Impoundment. This report was prepared under the supervision of 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 Bottom Ash Pond Complex at the former Philo Power Generating Plant.

The inspection was performed on October 16, 2024, in general accordance with the Mining Safety and Health Administration (MSHA) Dam Inspection Guidelines. Weather conditions were sunny with mild temperatures between 40- and 50-degrees Fahrenheit. Less than 0.2-inches of precipitation was recorded at the regional airport in Columbus, Ohio in the 7 days prior to the inspection.

The former Philo Power Generating Plant is located near Philo, Ohio as shown on Figure 1 – Site Location Map. The facility arrangement is provided on Figure 2 – Facility Plan. The Bottom Ash Pond Complex and its appurtenances are shown on Figure 3 – Site Plan. Locations of items to be monitored and items to be addressed are provided on Figure 4 and Figure 5, respectively.

2. Description of Impoundments

The Philo Power Plant began commercial operation in October 1924 and was closed by the middle of 1975. The Bottom Ash Pond Complex is believed to have been in operation while the plant was generating electricity.

The Bottom Ash Pond Complex is separated from the Muskingum River by an earthen berm that has an elevation of approximately 702 feet msl based on topographic data presented in the Figure 2. The Bottom Ash Complex is approximately 9 acres and is located adjacent to the Muskingum River in Muskingum County, Ohio.

The Bottom Ash Pond Complex consists of three cells separated by splitter dikes. The three ponds are known as Pond A, Pond B, and the Clearwater Pond. While the ponds were in service, the total storage capacity of all three cells of the Bottom Ash Complex is approximately 83,000 CY.

While in operation, the water elevation was controlled with an outfall structure for each of the three cells. The outfalls from each of the three cells combined into a single outlet pipe before being discharged to the Muskingum River.

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

GEI understands that AEP is currently gathering pertinent information related to the Philo Bottom Ash Complex. This information was not available for review prior to preparing this report. This section will be updated in subsequent annual inspection reports.

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

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

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

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

This section is not applicable, as the Philo 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 Philo Bottom Ash Pond Complex characteristics.

IMPOUNDMENT CHARACTERISTICS	
Water Surface Elevation at time of the inspection	No water visible.
Approximate **Minimum, Maximum, and Present** depth/elevation of impounded water since last annual inspection	This is the initial inspection and there was no visible water.
Approximate **Minimum Maximum and Present** depth/elevation of CCR since last annual inspection	This is the initial inspection and the approximate depth of CCR varied from 1 to 14 feet during this inspection.
Storage Capacity of impounding structure at the time of the inspection	Approximately 83,000 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	Approximately 14,500 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 Philo 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 Philo Bottom Ash Pond Complex:

The upstream slope of the dam is in fair condition. The vegetation on the slope is overgrown with woody vegetation as shown in Photograph Nos. 3, 14, 15, and 16. AEP should consider identifying the unit boundary so vegetation on the upstream slope can be addressed/maintained to 12-inches or less.

The downstream slope of the dam is in fair condition. The vegetation on the slope is overgrown with woody vegetation as shown in Photograph Nos. 8, 9, and 10. AEP should consider identifying the unit boundary so vegetation on the downstream slope can be addressed/maintained to 12-inches or less.

The crest of the dam is in fair condition. The surface is overgrown with woody vegetation that should be maintained to 12-inches or less.

One minor depression was observed near the inlet to Pond B as shown in Photograph No. 17. The downstream slope was checked at this location, but no seepage was observed coming through the embankment.

Multiple decant structures were observed as shown in Photograph Nos. 1, 2, 5, 6, 11, 12, and 13. Additional drainage structures were observed as shown in Photograph Nos. 4, 7, 8, and 16. It was unknow if any of these structures are still functional. AEP should review its existing documentation to confirm if any of these structures were properly abandoned. If AEP determined that these structures are no longer required, they should be removed or properly abandoned.

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 the Philo Bottom Ash Pond Complex.

5. Summary of Findings

5.1 General Observations

The Philo Bottom Ash Pond Complex is generally in fair condition. The Bottom Ash Pond Complex appears to be functioning with no signs of structural weakness. The constructed embankment/berms appear in fair condition, however, vegetation on the site has become overgrown and should be addressed/maintained to 12-inches or less within 25-feet of the limits of the embankments. AEP should consider identifying the unit boundary to establish limits where the vegetation should be maintained. AEP could consider following up with a logging company to determine if logging these areas is a cost-effective approach to addressing the vegetation. Alternatively, AEP could also consider retaining a company that specializes in forestry mulching for transmission and power line easements to address the woody vegetation that exceeds 12-inches in height.

5.2 Maintenance Items

No items were identified as items to be maintained during the visual inspection.

5.3 Items to be Monitored

The following items were identified during the inspection as items that should be monitored and if necessary, addressed if conditions become more significant.

Item 17 – Monitor the depression near the Pond B inlet.

5.4 Items to be Addressed

The following items were identified during the inspection as items that should be addressed.

- Address/maintain vegetation to 12-inches or less within 25-feet of the limits of the embankments. AEP should consider identifying the unit boundary to establish limits where the vegetation should be maintained. Applies to Item 3, 8, 9, 10, 14, 15, and 16.

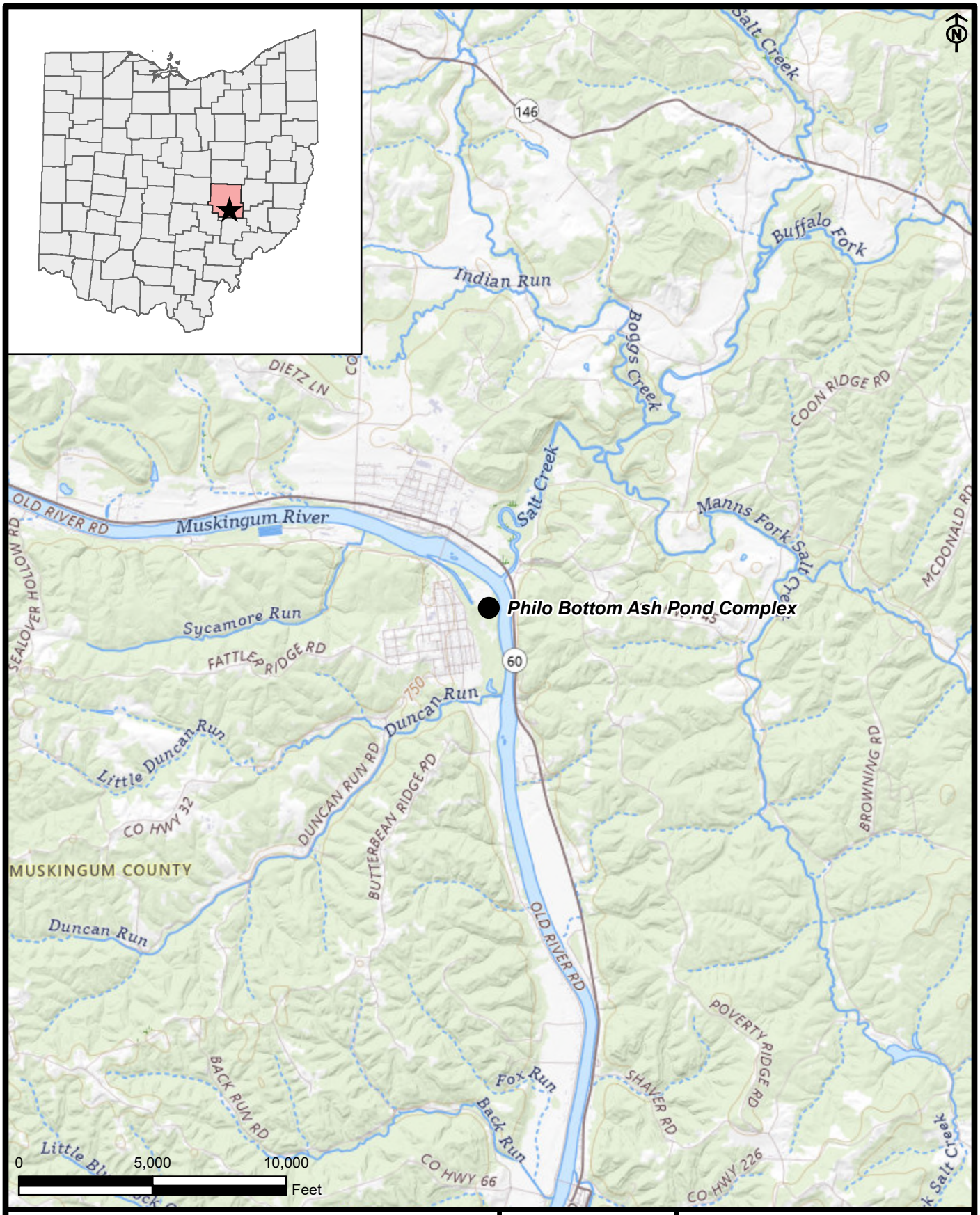
6. Deficiencies (257.83(b)(2)(vi))

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 or David Miller at 614-716-2281 / damiller@aep.com.

Figure 1 – Site Location Map



2024 Bottom Ash Pond Complex Inspection Report
Philo Power Plant
Philo, Ohio

American Electric Power Service Corporation
Columbus, OH 43215

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SITE LOCATION MAP

Project 2407654 | January 2025 | Fig. 1

Path: C:\Users\jhansen\OneDrive - GEI Consultants, Inc\Documents\GIS_Work\MISCELLANEOUS\2024\2407654 AEP Legacy CCR SI Inspection\2407654 AEP Legacy CCR SI Inspection.aprx

Figure 2 – Facility Plan

LEGEND:

- 2020 Contours (10ft Intervals)
- 2020 Contours (2ft Intervals)

NOTES:

1. Aerial image obtained from USDA NAIP. Image captured summer of 2022.
2. Contours derived from 2020 LiDAR USGS Lidar - OCM Partners, 2025: 2020 - 2021 USGS Lidar: Ohio Statewide - Phase 2, https://www.fisheries.noaa.gov/inport/item/70095.
3. Site conditions may change over time, accuracy is not guaranteed.

0 400 800 Feet

2024 Bottom Ash Pond Complex Inspection Report
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Philo, Ohio

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FACILITY PLAN

Project 2407654 | January 2025 | Fig. 2

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Figure 3 – Site Plan

LEGEND:

General Observation

NOTES:

1. Aerial image obtained from USDA NAIP. Image captured summer of 2022.

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.

0 240 480 Feet

2024 Bottom Ash Pond Complex Inspection Report
Philo Power Plant
Philo, Ohio

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Columbus, OH 43215

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SITE PLAN

Project 2407654 | January 2025 | Fig. 3

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Figure 4 – Items to be Monitored

LEGEND:

- Monitor

NOTES:

1. Aerial image obtained from USDA NAIP. Image captured summer of 2022.

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.

0 240 480 Feet

2024 Bottom Ash Pond Complex Inspection Report
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ITEMS TO BE MONITORED

Project 2407654 | January 2025 | Fig. 4

Path: C:\Users\jhansen\OneDrive - GEI Consultants, Inc\Documents\GIS_Work\MISCELLANEOUS\2024\2407654 AEP Legacy CCR SI Inspection\2407654 AEP Legacy CCR SI Inspection.aprx

Figure 5 – Items to be Addressed

LEGEND:

Repair

NOTES:

1. Aerial image obtained from USDA NAIP. Image captured summer of 2022.

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.

0 240 480 Feet

2024 Bottom Ash Pond Complex Inspection Report
Philo Power Plant
Philo, Ohio

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ITEMS TO BE ADDRESSED

Project 2407654 | January 2025 | Fig. 5

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Appendix A - Photolog

Photographic Log

Project: Philo Bottom Ash Pond Complex Inspection Report
Client: American Electric Power **GEI Project:** 2407654

PHOTOGRAPH NO: 1	**DATE:** October 16, 2024 7:12 AM	**LATITUDE:** 39.86326694	**LONGITUDE:** -81.90206407
DIRECTION: 113°	**SITE LOCATION:** PHILO, OHIO		
DESCRIPTION: Decant Structure. General Photo, Monitor Conditions.			
PHOTO BY: **GEI CONSULTANTS, INC.**			

PHOTOGRAPH NO: 2	**DATE:** October 16, 2024 7:14 AM	**LATITUDE:** 39.86319897	**LONGITUDE:** -81.90224042
DIRECTION: 86°	**SITE LOCATION:** PHILO, OHIO		
DESCRIPTION: Outlet Works. General Photo, Monitor Conditions.			
PHOTO BY: **GEI CONSULTANTS, INC.**			

Photographic Log

Project: Philo Bottom Ash Pond Complex Inspection Report
Client: American Electric Power **GEI Project:** 2407654

PHOTOGRAPH NO: 3	**DATE:** October 16, 2024 7:20 AM	**LATITUDE:** 39.86298142	**LONGITUDE:** -81.90214484
DIRECTION: 344°	**SITE LOCATION:** PHILO, OHIO		
DESCRIPTION: Upstream Slope. Ground Cover, Typical Conditions.			
PHOTO BY: **GEI CONSULTANTS, INC.**			

PHOTOGRAPH NO: 4	**DATE:** October 16, 2024 7:23 AM	**LATITUDE:** 39.86311988	**LONGITUDE:** -81.9020795
DIRECTION: 142°	**SITE LOCATION:** PHILO, OHIO		
DESCRIPTION: Outlet Works. General Photo, Typical Conditions.			
PHOTO BY: **GEI CONSULTANTS, INC.**			

Photographic Log

Project: Philo Bottom Ash Pond Complex Inspection Report
Client: American Electric Power **GEI Project:** 2407654

PHOTOGRAPH NO: 5	**DATE:** October 16, 2024 7:26 AM	**LATITUDE:** 39.86256205	**LONGITUDE:** -81.90201288
DIRECTION: 110°	**SITE LOCATION:** PHILO, OHIO		
DESCRIPTION: Decant Structure. General Photo, Typical Conditions. Basin B.			
PHOTO BY: **GEI CONSULTANTS, INC.**			

PHOTOGRAPH NO: 6	**DATE:** October 16, 2024 7:28 AM	**LATITUDE:** 39.86261871	**LONGITUDE:** -81.90230538
DIRECTION: 47°	**SITE LOCATION:** PHILO, OHIO		
DESCRIPTION: Decant Structure. General Photo, Typical Conditions. Pond B.			
PHOTO BY: **GEI CONSULTANTS, INC.**			

Photographic Log

Project: Philo Bottom Ash Pond Complex Inspection Report
Client: American Electric Power **GEI Project:** 2407654

PHOTOGRAPH NO: 7	**DATE:** October 16, 2024 7:32 AM	**LATITUDE:** 39.86230919	**LONGITUDE:** -81.90182479
DIRECTION: 133°	**SITE LOCATION:** PHILO, OHIO		
DESCRIPTION: Outlet Works. General Photo, Typical Conditions.			
PHOTO BY: **GEI CONSULTANTS, INC.**			

PHOTOGRAPH NO: 8	**DATE:** October 16, 2024 7:34 AM	**LATITUDE:** 39.86229372	**LONGITUDE:** -81.90183086
DIRECTION: 110°	**SITE LOCATION:** PHILO, OHIO		
DESCRIPTION: Downstream Slope. General Photo, Typical Conditions.			
PHOTO BY: **GEI CONSULTANTS, INC.**			

Photographic Log

Project: Philo Bottom Ash Pond Complex Inspection Report
Client: American Electric Power **GEI Project:** 2407654

PHOTOGRAPH NO: 9	DATE: October 16, 2024 7:39 AM	LATITUDE: 39.86191376	LONGITUDE: -81.90191315
DIRECTION: 89°	SITE LOCATION: PHILO, OHIO		
DESCRIPTION: Downstream Slope. General Photo, Monitor Conditions. Note trees leaning upslope.			
PHOTO BY: GEI CONSULTANTS, INC.			

PHOTOGRAPH NO: 10	DATE: October 16, 2024 7:44 AM	LATITUDE: 39.86168915	LONGITUDE: -81.90192397
DIRECTION: 104°	SITE LOCATION: PHILO, OHIO		
DESCRIPTION: Downstream Slope. Slide, Slough, Scarp, Monitor Conditions. Note trees leaning upslope.			
PHOTO BY: GEI CONSULTANTS, INC.			

Photographic Log

Project: Philo Bottom Ash Pond Complex Inspection Report
Client: American Electric Power **GEI Project:** 2407654

PHOTOGRAPH NO: 11	DATE: October 16, 2024 8:01 AM	LATITUDE: 39.86175849	LONGITUDE: -81.90223272
DIRECTION: 113°	SITE LOCATION: PHILO, OHIO		
DESCRIPTION: Decant Structure. General Photo, Monitor Conditions. Pond C.			
PHOTO BY: GEI CONSULTANTS, INC.			

PHOTOGRAPH NO: 12	DATE: October 16, 2024 8:02 AM	LATITUDE: 39.86175172	LONGITUDE: -81.90242982
DIRECTION: 63°	SITE LOCATION: PHILO, OHIO		
DESCRIPTION: Decant Structure. General Photo, Monitor Conditions. Pond C.			
PHOTO BY: GEI CONSULTANTS, INC.			

Photographic Log

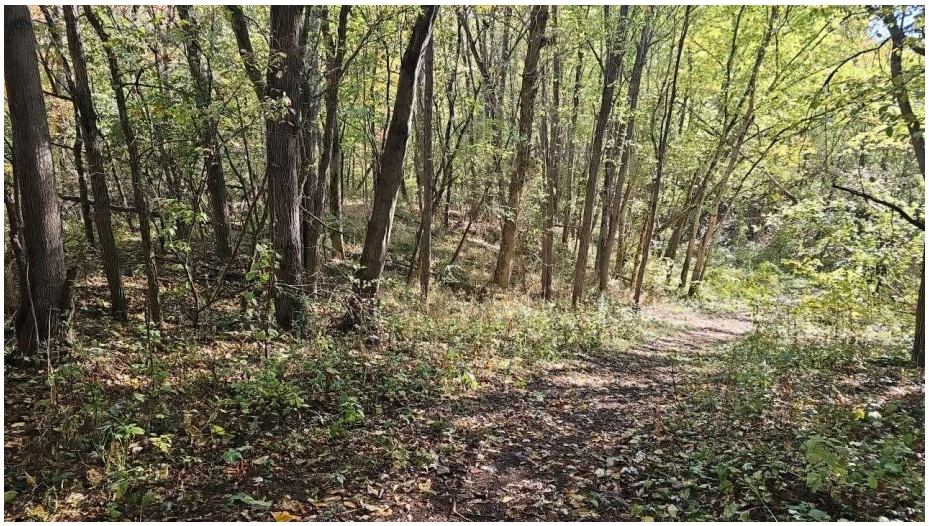
Project: Philo Bottom Ash Pond Complex Inspection Report
Client: American Electric Power **GEI Project:** 2407654

PHOTOGRAPH NO: 13	DATE: October 16, 2024 8:03 AM	LATITUDE: 39.86177367	LONGITUDE: -81.90241861
DIRECTION: 45°	SITE LOCATION: PHILO, OHIO		
DESCRIPTION: Decant Structure. General Photo, Monitor Conditions.			
PHOTO BY: GEI CONSULTANTS, INC.			

PHOTOGRAPH NO: 14	DATE: October 16, 2024 8:07 AM	LATITUDE: 39.86152364	LONGITUDE: -81.90245294
DIRECTION: 132°	SITE LOCATION: PHILO, OHIO		
DESCRIPTION: Upstream Slope. General Photo, Typical Conditions.			
PHOTO BY: GEI CONSULTANTS, INC.			

Photographic Log

Project: Philo Ash Pond Complex Inspection Report
Client: American Electric Power **GEI Project:** 2407654

PHOTOGRAPH NO: 15	DATE: October 16, 2024 10:01 AM	LATITUDE: 39.86229998	LONGITUDE: -81.90295718
DIRECTION: 45°	SITE LOCATION: PHILO, OHIO		
DESCRIPTION: Upstream Slope. Ground Cover, Typical Conditions.			
PHOTO BY: GEI CONSULTANTS, INC.			

PHOTOGRAPH NO: 16	DATE: October 16, 2024 10:03 AM	LATITUDE: 39.86266713	LONGITUDE: -81.90316449
DIRECTION: 73°	SITE LOCATION: PHILO, OHIO		
DESCRIPTION: Upstream Slope. Possible.overflow - pond B			
PHOTO BY: GEI CONSULTANTS, INC.			

Photographic Log

Project: Philo Ash Pond Complex Inspection Report
Client: American Electric Power **GEI Project:** 2407654

PHOTOGRAPH NO: 17	**DATE:** October 16, 2024 10:05 AM	**LATITUDE:** 39.86273868	**LONGITUDE:** -81.90344657
DIRECTION: 67°	**SITE LOCATION:** PHILO, OHIO		
DESCRIPTION: Inlet Works. Sink Hole, Monitor Conditions. Inlet to pond B - yard drainage.			
PHOTO BY: **GEI CONSULTANTS, INC.**			