

2025 Annual Dam and Dike Inspection Report

Auxiliary Ash Pond Complex

**Appalachian Power Company
Glen Lyn, Virginia**

August 2025

Prepared for: Appalachian Power Company- Glen Lyn Plant

Prepared by: American Electric Power Service Corporation

1 Riverside Plaza
Columbus, OH 43215



2025 Annual Dam and Dike Inspection Report

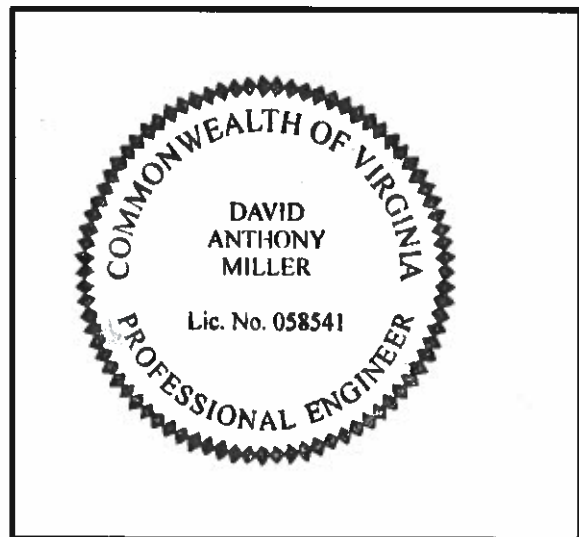
Glen Lyn Plant

Auxiliary Ash Pond Complex

PREPARED BY Daniel S Murphy DATE Aug. 21, 2025
Dan Murphy, P.E.

REVIEWED BY M. A. L. DATE Aug. 21, 2025
Mohammad Ajlouni, Ph.D., P.E.

APPROVED BY David Anthony Miller DATE 08.29.2025
David A. Miller, P.E.
Director- Ash Management Services



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).

Table of Contents

1.0	INTRODUCTION	4
2.0	DESCRIPTION OF IMPOUNDMENTS	4
3.0	REVIEW OF AVAILABLE INFORMATION (257.83(b)(1)(i))	4
4.0	INSPECTION (257.83(b)(1)(ii))	5
4.1	CHANGES IN GEOMETRY SINCE LAST INSPECTION (257.83(b)(2)(i))	5
4.2	INSTRUMENTATION (257.83(b)(2)(ii))	5
4.3	IMPOUNDMENT CHARACTERISTICS (257.83(b)(2)(iii, iv, v))	5
4.4	DEFINITIONS OF VISUAL OBSERVATIONS AND DEFICIENCIES.....	5
4.5	VISUAL INSPECTION (257.83(b)(2)(i)).....	7
	West Pond	7
	Auxiliary Pond	7
	Landfill	7
4.6	CHANGES THAT EFFECT STABILITY OR OPERATION (257.83(b)(2)(vii)).....	8
5.0	SUMMARY OF FINDINGS.....	8
5.1	GENERAL OBSERVATIONS	8
5.2	MAINTENANCE ITEMS.....	8
5.3	ITEMS TO MONITOR/INVESTIGATE.....	8
5.4	DEFICIENCIES (257.83(b)(2)(vi))	9

Attachments

Attachment A –Inspection Map

Attachment B – Inspection Photographs

1.0 INTRODUCTION

This report was prepared by AEP- Ash Management Services, in part, to fulfill requirements of 40 CFR 257.83 for the legacy CCR surface impoundments inspections and to provide Appalachian Power Company an evaluation of the Auxiliary Ash Pond Complex at the Glen Lyn Plant.

The inspection was performed on July 31, 2025. The inspection party consisted of Mr. Dan Murphy, P.E., Mr. Blake Arthur, P.E., Dr. Mohammad Ajlouni, P.E. and Mr. Austin Salmon. The facility contacts were Mr. William Cummings, and Mr. Josh Coulter and both of these individuals were also present during parts of the inspection. Weather conditions during the inspection were partly cloudy, and the temperature was near 90°F. There was about 1.5 inches of rainfall recorded over the seven days prior to the inspection, with roughly 0.6 inches of rain in the evening prior to the inspection.

2.0 DESCRIPTION OF IMPOUNDMENTS

The Auxiliary Ash Pond Complex is surrounded by an earthen dam that ranges in elevation between approximately 1540 and approximately 1550 feet above mean sea level. The earthen dam is generally about 50 feet tall and separates the facility from the adjacent New River. The area of the Auxiliary Ash Pond Complex is approximately 63 acres in total.

The naming convention for the Auxiliary Ash Pond Complex is such that the pond complex includes two embankment dams actively regulated by the Virginia Department of Conservation and Recreation and a closed Ash Landfill. These two dams are known as Auxiliary Fly Ash Pond (VADCR Inventory No: 071001) and the West Pond (VADCR Inventory No: 071008). The Ash Landfill has been assigned Solid Waste Permit #222. Portions of the West Pond were converted into a Landfill area founded on sluiced fly ash. The top of the landfill is about 100 feet higher than the top of the earthen dam.

The West Pond includes approximately 2.5 acres of open water at the far northwestern edge of the site. The primary spillway for the West Pond consists of the original discharge outfall structure, 36" diameter corrugated metal pipe/riser. In the summer of 2019, a 90-foot-wide emergency spillway channel was installed at the western end of the West pond. There is also a 2-acre, geomembrane lined leachate pond associated with Ash Landfill overlying the West Pond.

The Auxiliary Fly Ash Pond is located just east and adjacent to the West Pond. The Auxiliary Fly Ash Pond is separated from the New River by an extension of same earthen dam as the West Pond. The Auxiliary Fly Ash Pond was capped and closed during 2014. The closure involved grading the surface to improve site drainage and capping with a 30-mil PVC geomembrane, a geocomposite drainage material, and a vegetated soil cover layer.

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

In addition to the current visual inspection, a review of available information regarding the status and condition of the Auxiliary Ash Pond Complex, including files available in the operating record, was conducted. Available information consists of design and construction information, previous structural stability assessments, previous 7-day inspection reports, and previous annual inspection reports. Based on the findings of the current visual inspection and the review of the available data, it is concluded that there were no signs of actual or potential structural weakness or adverse conditions and that the facility is performing as intended in the design documents.

4.0 INSPECTION (257.83(b)(1)(ii))

4.1 CHANGES IN GEOMETRY SINCE LAST INSPECTION (257.83(b)(2)(i))

No modifications have been made to the geometry of the impounding structure of the Auxiliary Ash Pond Complex since the previous engineering inspection.

4.2 INSTRUMENTATION (257.83(b)(2)(ii))

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

AUXILLARY ASH POND COMPLEX IMPOUNDMENT CHARACTERISTICS	
Water Surface Depth/Elevation at the time of the inspection	Depth: 41 ft Elevation: 1531 ft-msl
CCR Depth/Elevation at the time of the inspection	Depth: 150 ft Elevation: 1640 ft-msl
Approximate Minimum, Maximum, and Present depth/elevation of impounded water since last annual inspection	Maximum WSEL: 1532 ft-msl Minimum WSEL: 1531 ft-msl
Approximate Minimum, Maximum and Present depth/elevation of CCR since last annual inspection	Approximately 6,600,000 CY is present. The CCR unit no longer receives CCR.
Storage Capacity of impounding structure at the time of the inspection	3,500,000 CY
Approximate volume of impounded water at the time of the inspection	200,000 CY
Approximate volume of CCR at the time of the inspection	6,600,000 CY

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, 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 identified in the previous inspections, but have not been corrected.
Excessive:	A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is above or worse than what it is normal or desired, or which may have affected the ability of the observer to properly evaluate the structure or particular area of interest or which may be a concern from a structure's safety or stability point of view.

This document also uses the definition of a "deficiency" as referenced in the CCR rule section §257.83(b)(5) Inspection Requirements for CCR Surface Impoundments. 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 identified as a deficiency are considered routine maintenance activities or items to be monitored.

A "deficiency" is some evidence that a dam has developed a condition that could impact the structural integrity of the dam. 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 collected and safely carried off by a drain. Seepage that is collected by a drain can still be uncontrolled if it is not safely transported. Seepage that is not clear and is turbid would also be considered as uncontrolled. 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 more frequently.]

2. Displacement of the Embankment

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

3. Blockage of Water Control Appurtenances

Blockage of water Control Appurtenances 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 Auxiliary Pond Complex was conducted to identify any signs of distress or malfunction of the impoundment and appurtenant structures. This includes the West Pond, the Auxiliary Pond and the Ash Landfill. Specific items inspected included all structural elements of the dam such as inboard and outboard slopes, crest, and toe; as well as all appurtenances.

Overall, the facility is in fair condition. The impoundment is functioning as intended with no signs of potential structural weakness or conditions, which are disrupting to the safe operation of the impoundment. Inspection photos are included in Attachment B. Additional pictures taken during the inspection can be made available upon request. A map presenting the locations of the inspection observations is included in Attachment A.

West Pond

1. The drainage channel located to the south/west perimeter of the West Pond has experienced some minor erosion. A contractor was actively repairing the erosion during the inspection by installing hard armored overflow areas along the interior access road.
2. The fabric formed concrete emergency spillway of the West Pond was observed to be in good condition and functioning properly.
3. The western most underdrain was observed to be flowing under pressure in the emergency spillway. Several of the weep holes drilled into the cap were observed to be slightly blocked. All other underdrain outlets were observed to be dry and unobstructed.
4. There were numerous loose anchor rods/plate washers on the emergency spillway. The loose nut on the end of the anchor rods meets the design intent of providing shear/sliding resistance without being tightened.
5. The crest of the West Pond was in good condition with no rutting, cracking or misalignment observed.
6. The slopes of the West Pond were in fair condition. The vegetation on the downstream slope was exceeding 12 inches in height. There were no signs of erosion, seepage or instability.

Auxiliary Pond

1. The slopes and cap of the Auxiliary Pond was observed to be in fair condition. The vegetation on the downstream slope was exceeding 12 inches in height in some areas. The vegetation on the cap was in good condition. There were no signs of erosion, seepage or instability.
2. The previously repaired areas/riprap revetment on the downstream slope appeared to be stable and functioning properly.
3. There was minor standing water observed in the perimeter ditch on the southeastern corner of the Auxiliary Pond.

Landfill

1. The slopes of the landfill were observed to be in good condition. The vegetation was well-maintained. There was no signs of instability.

2. The landfill drainage features were in good condition with no signs of erosion, sediment accumulation or significant blockages.
3. The leachate collection pipes were observed to be flowing about 1 gallon per minute. The leachate collection pipes appeared to be unobstructed.
4. The leachate pond slopes were observed to be in good condition. The vegetation was well-maintained. The riprap on the upstream slope appeared to be stable.

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

Based on interviews with plant personnel, a review of 7-day inspections and field observations made during this inspection, there were no changes to the Auxiliary Ash Pond Complex since the last annual inspection that would affect the stability of the impounding structure.

5.0 SUMMARY OF FINDINGS

5.1 GENERAL OBSERVATIONS

The following general observations were identified during the visual inspection:

- 1) The erosion in the perimeter channel to the south/west of West Pond apparently occurred when the outlet of the drainage channel at the western end of the West Pond became obstructed by woody debris and sediments. Water began backing up in the drainage channel and eventually overtopped the access road. The water which overtopped and eroded the access road entered another location in the West Pond and discharge through the appropriate outfall. The erosion was limited to the interior areas of the Auxiliary Ash Pond Complex access roads and did not impact the integrity of the impounding structure/dam

5.2 MAINTENANCE ITEMS

The following maintenance items were identified during the visual inspection, see inspection map for locations.

- 1) Continue with the vegetation maintenance & mowing efforts at the facility.
- 2) Ensure the weep holes for the underdrain outlet cap of the emergency spillway remain unobstructed to prevent hydrostatic loading under the emergency spillway slab. Consider enlarging the holes to ½ inch diameter to avoid frequently plugging.
- 3) Continue with the hard armoring of dedicated overflow areas along the perimeter drainage channel to the west/south of the West Pond.

5.3 ITEMS TO MONITOR/INVESTIGATE

The following items were identified during the visual inspection as items to be monitored, see inspection map for locations:

- 1) Monitor the loose anchor plates at the emergency spillway channel.
- 2) Monitor the standing water in the ditch on the southeast perimeter of the Auxiliary Pond.

5.4 DEFICIENCIES (257.83(b)(2)(vi))

At the Auxiliary Ash Pond Complex 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 7-day inspections. A deficiency is defined as:

- 1) uncontrolled seepage
- 2) displacement of the embankment
- 3) blockage of control features
- 4) erosion, more than that requiring minor maintenance.

If any of these conditions occur before the next annual inspection contact, or if you have any questions with regard to this report, please contact Dan Murphy at dsmurphy1@aep.com or David Miller at damiller@aep.com

ATTACHMENT A

Inspection Map



Inspection Map: Glen Lyn Auxilliary Ash Pond Complex
Drawn by: Dan Murphy
Date: 8/15/2025



0 400 800 Feet

Note: Contours as shown were determined by 2016 LiDAR Data collected by FEMA



ATTACHMENT B

Inspection Photos



Photograph 1:

View of the outlet of the ditch on the cap of the Auxiliary pond, facing west.



Photograph 2:

View of minor standing water in the perimeter ditch near the southeast corner of the Auxiliary pond.



Photograph 3:

View of the southwest corner of the Auxiliary pond.



Photograph 4:

View of the downstream slope/riprap revetment on the Auxiliary Pond, facing west.



Photograph 5:

View of the downstream slope of the Auxiliary Pond, facing east.



Photograph 6:

View of the West Pond emergency spillway channel.



Photograph 7:

Another view of the West Pond emergency spillway channel.



Photograph 8:

View showing the underdrain flowing under pressure



Photograph 9:

View of the inlet of the primary spillway of the West Pond.



Photograph 10:

View of the outlet of the primary spillway of the West Pond.



Photograph 11:

Typical view of the downstream slope of the West Pond.



Photograph 12:

View of erosion repair on the interior access road.



Photograph 13:

Another view of erosion repair on the interior access road.