AEP Internal - Low Risk - Archived - ESH0000061367 - 01/10/2023 - mtp_cmp_insp_esh0000061367.pdf

2022 Annual Dam and Dike Inspection Report

Bottom Ash Pond Complex

Mountaineer Plant
Appalachian Power Co.
Mason County, West Virginia

October 2022

Prepared for: Appalachian Power Co. – Mountaineer Plant
1347 Graham Station Road
Letart, West Virginia 25253

Prepared by: American Electric Power Service Corporation

1 Riverside Plaza

Columbus, OH 43215



Document ID: GERS-22-023

ENGINEER'S INSPECTION VERIFICATION STATEMENT

For Compliance with Dam Safety Rules §47-34-15.4.c

I hereby verify that I supervised the visual inspection of the Mountaineer Bottom

Ash Complex (ID# 05307) and its appurtenances on September 13, 2022. The attached signed and sealed inspection report documents:

- 1) the current conditions as observed;
- 2) any maintenance items necessary to prolong safe functioning of the dam;
- 3) any conditions observed during the inspection which indicate that the dam has a serious problem⁽¹⁾;
- 4) any conditions that will not allow proper functioning of the dam during normal or maximum reservoir water level conditions.

Signature

Gary F. Zych, P.E.

Manager

Geotechnical Engineering Services

American Electric Power Service Corporation

Date 10/13/2022

21201
STATE OF
WIRGINIA

SEAL

(1) As defined in Section 2.47 of the Dam Safety Rules

DAM & DIKE INSPECTION REPORT Mountaineer Bottom Ash Complex (Facility ID #05307)

GERS-22-023 - Revision 0

MOUNTAINEER PLANT

NEW HAVEN, WV

INSPECTION DATE: September 13, 2022

PREPARED BY

Br D Volner

DATE 10/12/2022

Brian G Palmer, P.E.

REVIEWED BY

MA; Li

DATE 10/13/2022

Mohammad Ajlouni, Ph.D., P.E.

APPROVED BY

Gary F. Zyc.

DATE

10/13/2022

Manager - Geotechnical Engineering Services

PROPERTY OF VIRGINIA PROPERTY OF ONAL ENGINEERS OF 10/13/2022

PROFESSIONAL ENGINEER SEAL AND SIGNATURE

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

TABLE OF CONTENT

1.0	INTRODUCTION:	. 1
2.0	DESCRIPTION OF THE BOTTOM ASH COMPLEX (CCR UNIT):	. 1
3.0	REVIEW OF AVAILABLE INFORMATION	
4.0	INSPECTION [257.83(b)(1)(II)]	. 2
4.1	CHANGES IN GEOMETRY SINCE LAST INSPECTION [257.83(b)(2)(i)]	2
4.2	ASSESSMENT OF RECENT INSTRUMENTATION DATA [257.83(b)(2)(ii)]	. 3
4.3	IMPOUNDMENT CHARACTERISTICS (257.83(b)(2)(iii, iv, v))	4
4.4	DEFINITIONS PF VISIUAL OBSERVATIONS AND DEFICIENCES:	. 5
4.5	BOTTOM ASH POND COMPLEX VISUAL INSPECTION [257.83(b)(i)]	6
4.	5.1 Clearwater Pond (CWP) and Reclaim Water Pond (RWP):	6
4.	5.2 East Wastewater Pond (EWP) & West Wastewater Pond (WWP)	
4.	5.3 East Bottom Ash Pond (EBAP) & West Bottom Ash Pond (WBAP)	8
4.	5.4 Metal Cleaning Tank, FGD Maintenance, and leachate collection Ponds	9
4.	5.5 Outfall Manhole	10
4.6	CHANGES THAT EFFECT STABILITY OR OPERATIONS [257.83(b)(2)(vii)]	10
5.0	SUMMARY OF FINDINGS	
5.1	GENERAL OBSERVATIONS	10
5.2	MAINTENANCE ITEMS	
5.3	ITEMS TO MONITOR/INVESTIGATE	12
5.4	DEFICIENCIES (257.83(b)(2)(vi))	13
	<u>List of Figures</u>	
0	e 1 – Site Location Map	
_	e 2 – Bottom Ash Pond Complex	
	e 3 – Piezometer Location Map	
Figure	e 4 – Mountaineer Bottom Ash Complex Water Levels	

APPENDICES

APPENDIX A: Photographs

1.0 INTRODUCTION:

AEPSC Civil Engineering administers the company's Dam Inspection and Maintenance Program (DIMP). As part of DIMP, staff from the Geotechnical Engineering Section conducts dam and dike inspection annually. This report was prepared, in part, to fulfill the USEPA requirements of 40 CFR 257.83 and the West Virginia Department of Environmental Protection, Division of Water Dam Inspection Section and to provide Appalachian Power Company (APCO) and Mountaineer Plant with an evaluation of the facility. Mr. Brian Palmer, P.E. performed the 2022 inspection of the Mountaineer Bottom Ash Complex. This report has been reviewed by Mr. Mohammad Ajlouni, Ph.D., P.E. and prepared under the direction of Gary F. Zych P.E. and is a summary of the inspection and assessment of the condition of the Bottom Ash Complex.

Mr. Chris Purdum and Mr. Randy Brown of the Mountaineer Plant was the facility contact for the inspection and assisted with the inspection. WV DEP Dam Safety Inspector Tracy Winders and Engineer David Dove also were on site and participated in the inspection. The inspection was performed on September 13, 2022. The weather condition was generally good with temperatures ranging from mid-60s° in the morning to the upper-60s° F in the afternoon; visibility was good and sunny throughout the day. There was no precipitation in the previous seven days. Figure 1 illustrates the location of the Bottom Ash Pond Complex.

2.0 DESCRIPTION OF THE BOTTOM ASH COMPLEX (CCR UNIT):

The Bottom Ash Complex (CCR unit) consists of East Bottom Ash Pond (EBAP) and West Bottom Ash Pond (WBAP), East Wastewater Pond (EWP) and West Wastewater Pond (WWP), a Leachate Collection Surge Pond (LCP), a FGD Maintenance Pond, a Reclaim Water Pond (RWP), a Clearwater Pond (CWP) and a small Metal Cleaning Waste Tank Secondary Containment Basin. The EBAP and WBAP are considered a CCR impoundment per 40 CFR 257 and items have been included in this report to fulfill these requirements. The EWP, WWP, RWP, CWP, LCP, FGD Maintenance Pond, and Metal Cleaning Waste Tank Secondary Containment Basin are not CCR

impoundments but are included in this report as part of the overall inspection of the facility.

The pond embankments are generally small in height (< 50 ft.) and have design slopes of 3 Horizontal to 1 Vertical (3H to 1V) for both the interior and exterior slopes. The Bottom Ash Ponds normal pool elevation are at 612 feet, the WasteWater Ponds normal pool elevations are at 609 feet, and the Reclaim and Clear Water Ponds normal pool elevations are at 603 feet. The East Bottom Ash and the East Wastewater Ponds were out of service at the time of this inspection as the East Bottom Ash Pond is in the process of having CCR material removed and repurposed to a settling pond for wastewater treatment. CCR sluicing to the Bottom Ash Complex has ceased as the Plant has converted to a dry handling system for bottom ash. The West Bottom Ash and the West Wastewater Ponds continue to receive plant process water until the repurposing of the East Bottom Ash Pond into a lined settling pond is complete. Figure 2 included in illustrate various ponds arrangement at the Bottom Ash Complex.

3.0 REVIEW OF AVAILABLE INFORMATION

In addition to the visual inspection, a review of available information regarding the status and condition of the Bottom Ash Pond Complex was completed. This review included files available in the operating record, such as design and construction information, previous periodic structural stability assessments, previous 7-day inspection reports, previous 30-day instrumentation data, and previous annual inspections reports. Based on the findings of the current inspection and review of the available data, it is concluded, there were no signs of actual or potential structural weakness or adverse conditions and that the facility is functioning as intended in the design.

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

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

The closure by removal and repurposing of the East Bottom Ash Pond has started and has made significant progress since the last (2021) inspection. While noting the work in the East BAP the general geometry of the impoundment has remained essentially unchanged.

4.2 ASSESSMENT OF RECENT INSTRUMENTATION DATA [257.83(b)(2)(ii)]

Three piezometers were installed in February 2009. PZ-09-03 was installed at the crest of the EBAP. PZ-09-04 was installed at the toe, directly down the slope from PZ-09-03. PZ-09-05 was installed at the crest of the CWP. The location of all three piezometer is illustrated in Figure 3 (Piezometer Location Map). The following Table 1a illustrates the maximum reading recorded of the piezometers since the last annual inspection (July 2021). A summary of the pond levels measured during the 2022 inspection and the pool level data from previous three years are summarized below in Table 1b. The historical static water level data (2020-2022) of the Bottom Ash Complex is compiled and presented in Figure 4.

<u>Table 1a – CCR Ponds Maximum Recorded Reading.</u>

Piezometer	Maximum Reading Since Last	Date of Reading
	Annual Inspection (July 2021)	
PZ-09-03	602.1	8-17-2022
PZ-09-04	572.5	12-29-2021
PZ-09-05	561.8	All readings

Table 1b – Static Water Levels of the Bottom Ash Pond Complex.

	Table 10 State Water Levels of the Bottom Asia Folia Complex.							
Pond Name	Normal Pool Elevation	Pond Elevation (feet)						
	(feet)	8-14-2019	10-13-2020	7-21-2021	9-13-2022			
EBAP	612.0	608.6	602.6	603.0	Dry			
WBAP	612.0	612.2	609.0	612.5	610.0			
EWP	609.0	607.1	606.8	598.3	600.3			
WWP	609.0	609.0	609.1	609.1	609.0			
RWP	603.0	603.3	603.4	603.4	603.1			
CWP	603.0	603.2	603.2	603.2	603.1			

Piezometers PZ-09-04 and PZ-09-05 indicate minimal changes in the static water levels since installation in 2009 to present. This is due to the piezometers being installed at the toe of the embankment in the foundation material to evaluate stability. Based on well installation logs, piezometers PZ-09-04 and PZ-09-05 were installed, developed and remain dry. Piezometer PZ-09-03, which is located at the crest of EBAP has indicated fluctuations in the water level over the years. This fluctuation have historically been consistent with the water level changes in the EBAP and a reflection of the phreatic surface in the embankment materials. However, as the EBAP has been

essentially dry since April 2022 and PZ-09-03 levels have remained elevated the source of the saturation is unknown. There may be a correlation with the wetness in the toe area north of PZ-09-03 (and PZ-09-04) that appears to be related to inadequate drainage.

4.3 IMPOUNDMENT CHARACTERISTICS (257.83(b)(2)(iii, iv, v))

Table 2 is a summary of the minimum, maximum, and present depth and elevation of the impounded water and Coal Combustion Residuals (CCR) since the previous annual inspection; the approximate volume of the impounded water and CCR at the time of the inspection.

Table 2 – Impoundment Data.

Parameter	EBAP	WBAP	
i ai ainetei	Depth	(Elevation)	
Approximate Minimum depth of impounded water since last annual inspection	0-ft (water removed)	11.0 ft (609.0)	
Approximate Maximum depth of impounded water since last annual inspection	6.7 ft (604.7')	14.5 ft (612.5')	
Approximate Minimum depth of CCR since last annual inspection	0 (Visual CCR removed)	2.0 ft (600.0')	
Approximate Maximum depth of CCR since last annual inspection	Minimal (Out of Service)	~27.0 ft (625.0')	
Approximate Present depth of CCR at the time of the inspection	0 (Visual CCR removed)	Varies Max: ~23.0 ft (621') Min. ~4 ft (602')	
Approximate Present depth of impounded water at the time of the inspection	0-ft (water removed)	~12 ft (610.0 ft)	
Storage Capacity of impounding structure at the time of the inspection	165 acre-ft	137 acre-ft	
Approximate volume of impounded water at the time of the inspection	0 acre-ft (pond dry)	~100 acre-ft	
Approximate volume of CCR at the time of the inspection	0 (Visual CCR removed)	~35 acre-ft	

Dike: crest = 620 ft, bottom = 598 ft.

4.4 **DEFINITIONS PF VISIUAL OBSERVATIONS AND DEFICIENCES:**

The 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 are described 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, 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 affect the ability of the observer to properly evaluate the structure or particular area, or which may be a concern from the structure safety or stability point of view.

In addition, a "deficiency" is some evidence that a CCR unit has developed a problem that could impact the structural integrity of the CCR unit. 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 (dike/dam) 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, such as seepage that is not clear. Seepage that is unable to be measured and/or observed is considered uncontrolled seepage.

[Note: 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 is a large-scale movement of the CCR unit, structural fill or other earthen material associated with the embankment (dike/dam). Common signs of displacement are cracks, scarps, bulges, depressions, sinkholes and slides.

3. Blockage of Water Control Appurtenances:

Blockage of Water Control Appurtenances is the restriction of water flow at spillways, storm water ditches/channels, leachate collection systems and ground water interceptor 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 BOTTOM ASH POND COMPLEX VISUAL INSPECTION [257.83(b)(i)]

The Bottom Ash Pond Complex is comprised of diked embankments to the north, east, and west sides of the complex. The south side of the complex is incised and also consists of a haul road providing access to this area. There are six main ponds (EBAP, WBAP, EWP, WWP, RWP, and CWP) within the complex. The Bottom Ash Ponds and Wastewater Ponds were designed in tandem, but one pond each is in service at a given time. At present, the WBAP and WWP are used most of the time without a need to switch to the other ponds. In addition, a metal cleaning tank pond, a FGD pond, and a leachate pond were added to the east of the EWWP. Photograph Location Map and photographs are included in Appendix A.

The Bottom Ash Pond Complex extends in a general northwest to southeasterly direction.

4.5.1 Clearwater Pond (CWP) and Reclaim Water Pond (RWP):

In general, the crest and exterior slope of the CWP (East Dike) and RWP (West Dike) were in satisfactory condition. The crest of the south dike is used as haul road. The

gravel base on the crest and vegetation cover on the slope appeared satisfactory. The out of service sulfuric acid tanks have been removed from the crest of the East Dike at the outfall of the CWP. The access walkway to the overflow structures appeared safe and in fair condition. Several inactive animal burrow on the exterior of the East Dike were noted for repair. Additionally, damage from mowing was noted in several areas of the East Dike.

The effluent structure was functioning as designed. The lower sections of the interior slope are protected by stone and the upper sections are covered by vegetation. Beaching or wave erosion was noted along the interior slope of the RWP at the SW corner at the stone vegetation interface and should be monitored and repaired. Otherwise, the interior slopes appeared in satisfactory and stable conditions.

The stone material around the discharge culvert was in satisfactory condition. Overall, the interior dikes, crest and slopes of the CWP and RWP appeared to be in satisfactory condition with no signs of rutting, misalignment, or cracking.

4.5.2 East Wastewater Pond (EWP) & West Wastewater Pond (WWP)

The exterior slope and crest of the WWP (West dike) appeared to be in satisfactory condition. The interior slope, the effluent flume, and concrete weir appeared in satisfactory condition.

The EWP interior slope condition and effluent flume and concrete weir appeared to be in satisfactory and working condition.

In general, the main junction box was in satisfactory condition and appeared to be in functioning condition.

Overall, the exterior dike (west dike) and the interior dikes appeared in satisfactory and stable condition and the crest areas appeared in satisfactory and stable condition without any sign of settlement, misalignment, and significant rutting.

4.5.3 East Bottom Ash Pond (EBAP) & West Bottom Ash Pond (WBAP)

The overall condition of the exterior slope of the EBAP (East Dike) was fair. An extended area of excessive wetness approximately 500 feet long was observed adjacent to the toe of the East Dike as noted in previous inspections was still present even though the EBAP contains no water with active construction work in the interior. Based on site conditions the wetness is most likely the result of inadequate drainage and not seepage through the dike. The slope above the toe area appeared satisfactory. An inactive animal burrow was observed.

The crest area of the EBAP appeared to be in satisfactory condition with no signs of rutting, cracks, or misalignment. There is minor erosion occurring under the pipe cribbing support on the eastern edge of the EBAP crest area.

The EBAP interior slopes have been cleared with material removed as part of the closure by removal of the CCR pond. At the time of the inspection, work was concentrated on the north end of the pond to prepare for final liner work. The overflow discharge structure, access platform, and side rail appeared to be in satisfactory condition.

The north exterior slope of the EBAP and WBAP (North Dike) was in satisfactory and stable condition. Two wet/soft areas along the toe of the both the EBAP and WBAP northern downstream slope were observed. The areas extended from the toe of the slope to the existing chain-link fence. It appears that this condition is due to poor drainage on the other side of the fence as water was standing on the along the fence at a depth greater than at the toe of the dike. The area beyond the fence is overgrown with electric transmission lines overhead.

The interior of the EBAP was in active construction as the CCR has been removed and work is ongoing to reconfigure the area as a new settling pond. The interior slope and discharge header pipe structure for WBAP on the interior of the North Dike appeared to

be in satisfactory condition. There continues to be some soil erosion at the supports for the access walkway at the WBAP.

The WBAP western exterior slopes (West Dike) appeared to be in satisfactory condition. The lower portions are protected by riprap and the upper portions are properly vegetated. In general, the crest conditions are in satisfactory condition with no signs of rutting, cracks or misalignment.

The general condition of the WBAP interior slopes, overflow discharge structure, access platform, and side rail appeared to be in satisfactory working condition.

The temporary stockpile of bottom ash historically maintained as part of pond operations in the north section of the WBAP has been removed. Bottom ash is no longer sluiced to the Bottom Ash Complex, however, wastewater continues to be discharged into the WBAP for treatment. There is a forebay berm constructed of bottom ash in the north end of the pond, the berm is currently being used for construction traffic around the site. This area appeared to be well maintained and properly controlled for the handling of the wastewater and maintaining the bottom ash that is currently in the WBAP.

4.5.4 Metal Cleaning Tank, FGD Maintenance, and leachate collection Ponds

The exterior of the East Dike along the FGD Maintenance Pond and the metal cleaning tank containment area generally appeared in satisfactory condition. An inactive animal burrow was noted in the embankment below the FGD Maintenance Pond.

Overall, the FGD Maintenance Pond and leachate pond were in satisfactory condition. The overflow discharge structures appeared to be functioning as designed. The interior slope lined with a HDPE liner appeared in satisfactory and stable condition.

The metal cleaning tank containment dikes appeared in satisfactory and stable condition.

4.5.5 Outfall Manhole

The outfall 001 and the transfer basin connected to the outfall pipe at the riverbank. The transfer basin is located just before the outfall pipe to the river. A sinkhole has developed above the outfall pipe at the transfer basin. The area has stabilized around the sinkhole based on the vegetation around the transfer basin. The water flow appeared to be uninterrupted at the time of inspection.

4.6 CHANGES THAT EFFECT STABILITY OR OPERATIONS [257.83(b)(2)(vii)]

No modifications have been made to the geometry of the WBAP since the last (2021) annual engineering inspection.

As part of the closure and repurposing of the EBAP, water and CCR material have been removed from the EBAP. As part of the repurposing the north end of the EBAP will have a pyrite forebay for managing pyrites. Additionally, a portion of the north end of the EBAP has been backfilled for construction of a wastewater mix tank. The remainder of the EBAP will be repurposed as a lined settling pond as part of the wastewater treatment system. At the time of inspection, the EBAP bottom elevations were lower than designed for CCR handling. As part of the CCR removal and repurposing new bottom grades were developed for the future settling pond.

5.0 SUMMARY OF FINDINGS

5.1 GENERAL OBSERVATIONS

Based on the visual inspection, the overall condition of the Bottom Ash Complex is satisfactory. Specific conclusions related to this inspection are as follows.

- (i) The Bottom Ash Complex appears to be operating as designed and shows no signs of distress, slope instability, dike misalignment or significant settlement.
- (ii) While the overall vegetation control and management for the facility is considered satisfactory, more frequent moving to minimize the need to moving when wet would be recommended.

- (iii) The animal activity appears to be the same as in previous years and it is manageable as routine maintenance items. Excessive animal activities were not noticed during this inspection. Few animal holes were observed as noted in this report.
- (iv) Some beaching (wave erosion) was noted at the vegetation-stone interface in the interior slope of the RWP.
- (v) Some minor erosion has occurred under the pipe cribbing on the EBAP crest area. There are some pipes that lie directly on the crest surface (next to the pipe cribbing) that may have caused concentrated water flow from rain events. The erosion does not appear to have any effect on the driving surface of the crest area, but should be repaired in a timely fashion.
- (vi) There were two areas at the toe of the downstream slopes of the EBAP and WBAP that exhibited wetness. One area is along the north dike that was wet and soft and appears to be related to potential drainage issue. Another area is along the east dike that has soft ground, ponding water, and exhibit significant rutting. These areas have been surveyed in the past and show that the areas are relatively flat and do not drain well. As the EBAP contains no water it is likely that seepage is not the source of the various wet areas. Since it now appears that seepage is not the source of these wet areas and the bottom ash pond modifications does not impact the exterior of the dikes a plan will need to be developed to address proper drainage on the exterior of the east and north dikes.
- (vii) A sinkhole was noted at the outfall transfer structure near the Ohio River outfall. While it appeared to have stabilized and does not appear to be an immediate concern.

5.2 MAINTENANCE ITEMS

Following are general maintenance items that are recommended as a result of the inspection. Assistance or guidance with the implementation of these items can be provided by AEPSC Civil Engineering & Geotechnical Services:

- (i) The animal holes encountered during the inspection shall be mitigated actively removal (trapping) of the animals and filling the holes in with compactible backfill and compact the final lift to finish at the existing grades.
- (ii) Water level measuring staff gauges should be installed at the overflow discharge structure or pipe locations. The staff gauges should have elevation marked and labelled in the mean sea level (msl). The length of the staff gauges shall be such that will provide full depth measurements in case of high pool level during significant flood events.
- (iii) The erosion around the pipe cribbing on the EBAP crest area should be filled in and graded to prevent concentrated flows of runoff developing during rain events.

5.3 ITEMS TO MONITOR/INVESTIGATE

Following are items identified for monitoring or investigate that are recommended as a result of the inspection. Assistance or guidance with the implementation of these items can be provided by AEPSC Civil Engineering & Geotechnical Services:

- (i) Based on current site conditions it is apparent that the wet areas at the exterior toe of the EBAP are not from seepage but likely from poor drainage. The closure and repurposing of the EBAP to a settling pond does not impact the exterior of dikes, as such, AEP Geotechnical Engineering will work with the plant to develop a plan to address the wet areas.
- (ii) Similarly, wet areas along the north dike downstream slope of the EBAP and WBAP are most likely attributed to poor drainage to the north of the pond complex. The closure and repurposing of the EBAP and WBAP to settling ponds does not impact the exterior of dikes, as such, AEP Geotechnical Engineering will work with the plant to develop a plan to address the wet areas.
- (iii) Piezometer PZ-09-03 shall be flushed and continue to be used in monitoring and the data be reviewed for further corrective action.
- (iv) The beaching observed in the RWP should be monitored and repair as needed.
- (v) The sinkhole at the outfall transfer structure should be investigated and repaired.

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

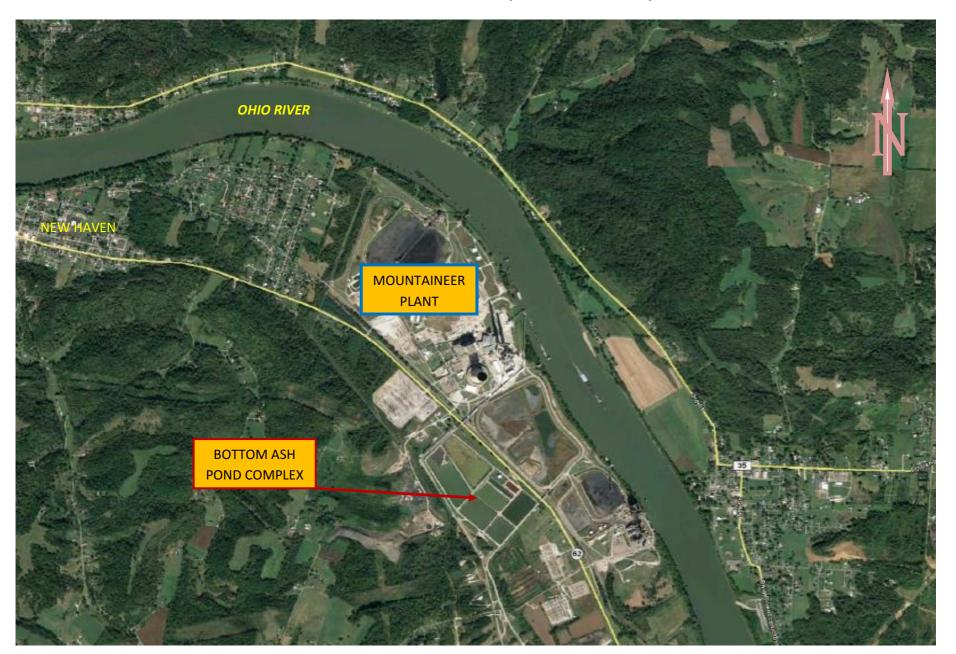
There were no deficiencies or signs of structural weakness or disruptive conditions. There were no deficiencies noted during any of the quarterly inspections. If any of these conditions occur before the next annual inspection contact AEP-Geotechnical Engineering immediately.

Based on the inspection and review of relevant documents, AEPSC – Civil Engineering believes that the Bottom Ash Complex has a generally satisfactory appearance and is in satisfactory functional condition. Inspections, monitoring and general maintenance by plant personnel should continue. If you have any questions with regard to this report, please do not hesitate to contact Brian Palmer at 614-716-3218 (Audinet 200-3218) or Gary Zych at 614-716-2917 (Audinet 200-2917).

FIGURES:

AEP Internal - Low Risk - Archived - ESH0000061367 - 01/10/2023 - mtp_cmp_insp_esh0000061367.pdf

FIGURE 1 – SITE LOCATION MAP MOUNTAINEER PLANT, NEW HAVEN, WV



AEP Internal - Low Risk - Archived - ESH0000061367 - 01/10/2023 - mtp_cmp_insp_esh0000061367.pdf

FIGURE 2 – BOTTOM ASH POND COMPLEX MOUNTAINEER PLANT, NEW HAVEN, WV



AEP Internal - Low Risk - Archived - ESH0000061367 - 01/10/2023 - mtp_cmp_insp_esh0000061367.pdf

Figure 3
Mountaineer Plant Bottom Ash Pond Complex

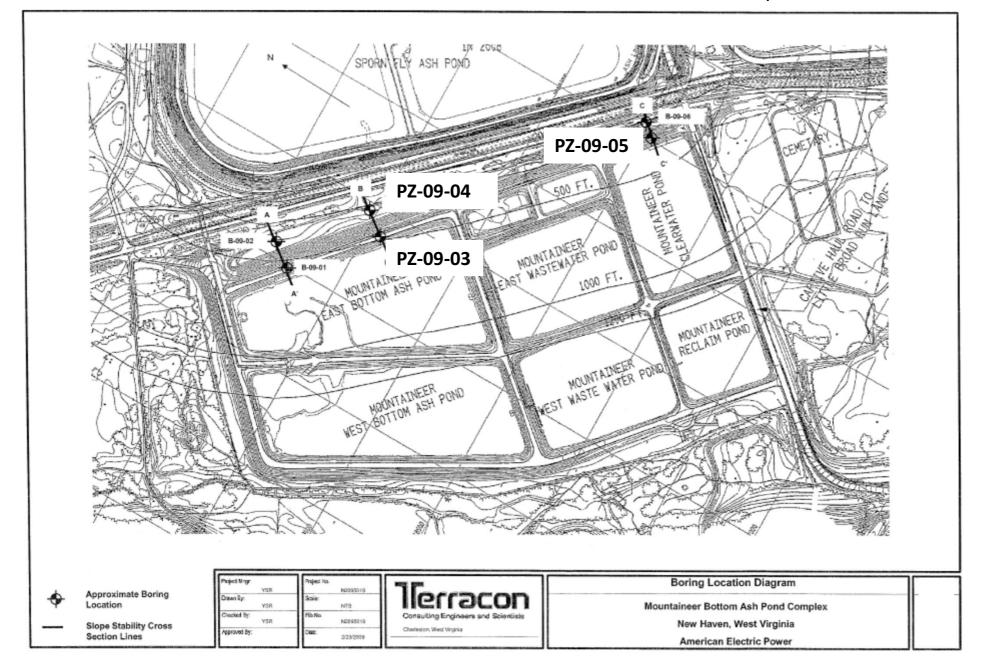
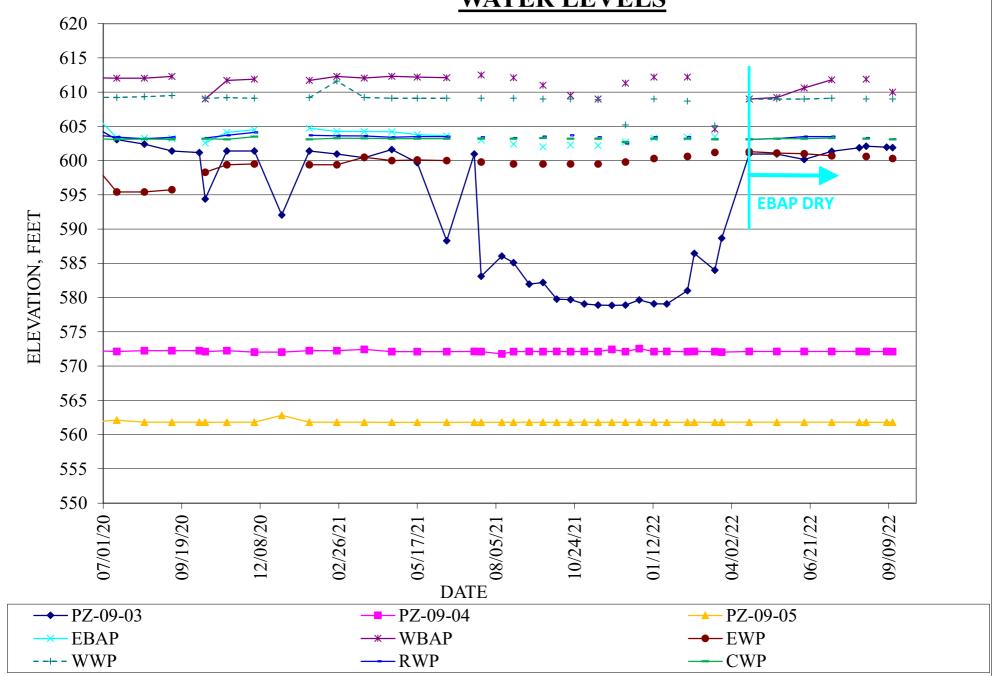
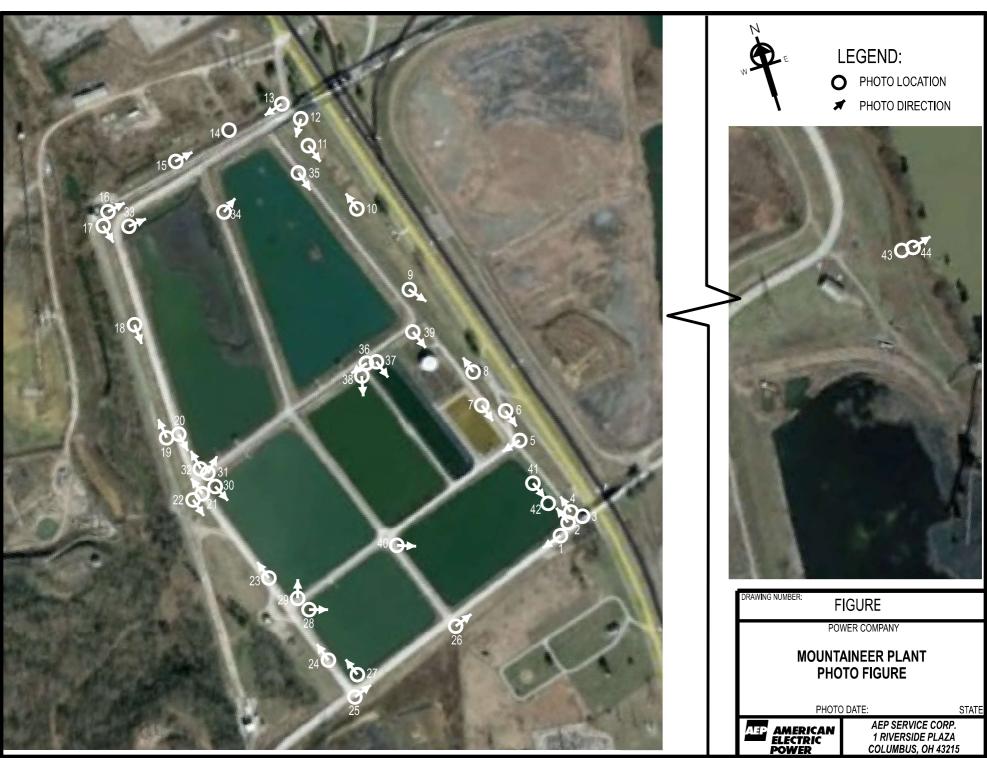


FIGURE 4 - MOUNTAINEER BOTTOM ASH COMPLEX STATIC WATER LEVELS



APPENDIX A:

Photograph Pages



Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

1

Notes:

General condition of crest and interior slope of Clearwater Pond looking west



N38 58.133 W81 55.886

Photo #:

2

Notes:

General condition of crest and interior slopesClearwater Pond looking north from southeast corner



N38 58.145 W81 55.881

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

3



Typical animal borrow on Clearwater Pond exterior slope. Three (3) found in same area



N38 58.152 W81 55.871

Photo #:

4

Notes:

General condition of exterior slope at FGD Maintenance Pond looking north.



N38 58.150 W81 55.875

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

5

Notes:

Mower damage on exterior slope



N38 58.205 W81 55.952

Photo #:

6

Notes:

E exterior looking s. Fgd pond



N38 58.226 W81 55.974

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

7



General condition of exterior slope and crest looking south from FGD Maintenance Pond



N38 58.227 W81 55.999

Photo #:

8

Notes:

General condition of toe and exterior slope below MCWT area looking north



N38 58.253 W81 56.017

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

9



General condition of exterior slope below East Bottom Ash Pond looking south



N38 58.309 W81 56.105

Photo #:

10

Notes:

Wet area in toe area below East BAP exterior. Appears tobe drainage issue as East BAP is generally dry since April 2022 for



N38 58.367 W81 56.181

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

11

Notes:

General condition of East Bottom Ash Pond exterior looking south



N38 58.408 W81 56.246

Photo #:

12

Notes:

General condition of East BAP exterior slope looking south west



N38 58.433 W81 56.262

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

13

Notes:

General condition of exterior of north dike of East BAP looking west



N38 58.441 W81 56.285

Photo #:

14

Notes:

Wet area at toe of north dike near split with east/west ponds. Water appears to be from area north of toe.



N38 58.411 W81 56.336

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

15

Notes:

General condition of north dike of BAP complex looking east



N38 58.374 W81 56.385

Photo #:

16

Notes:

General condition of north dike of BAP complex looking east from platform conveyor transfer tower



N38 58.315 W81 56.445

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

17



General condition of exterior slope of West Bottom Ash Pond from conveyor transfer towertransfer



N38 58.315 W81 56.447

Photo #:

18



General condition of exterior slope of West Bottom Ash Pond from walkway over conveyor



N38 58.231 W81 56.391

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

19

Notes:



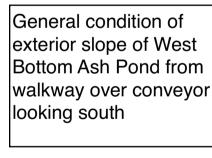
General condition of exterior slope of West Bottom Ash Pond from walkway over conveyor looking north

N38 58.145 W81 56.325

Photo #:

20

Notes:





N38 58.146 W81 56.322

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

21



General condition of exterior slope of West Bottom Ash Pond looking north



N38 58.098 W81 56.284

Photo #:

22

Notes:

General condition of exterior slope of West Bottom Ash Pond looking south



N38 58.099 W81 56.278

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

23

Notes:

General condition of exterior slope of West Bottom Ash Pond looking north



N38 58.045 W81 56.187

Photo #:

24

Notes:

General condition of exterior slope of West Bottom Ash Pond looking north



N38 57.987 W81 56.103

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

25

Notes:

General condition of south exterior slope of West Bottom Ash Pond looking east



N38 57.962 W81 56.067

Photo #:

26

Notes:

General condition of south exterior slope of West Bottom Ash Pond looking east



N38 58.039 W81 55.977

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

27

Notes:

Beaching along interior slope in Reclaim Pond



N38 57.983 W81 56.069

Photo #:

28

Notes:

Genneral condition of Reclaim Pond looking southeast



N38 58.026 W81 56.137

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

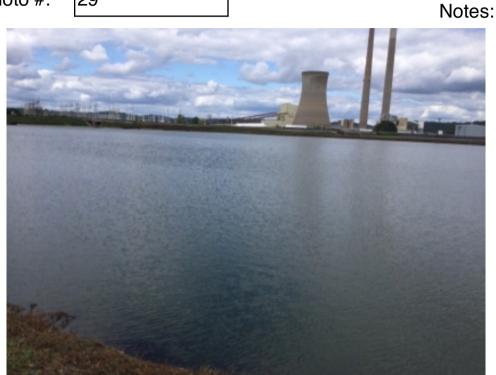
September 13, 2022

Photo #:

29

30

Photo #:



General condition of West Wastewater Pond looking northeast

1100 30.004 11



N38 58.034 W81 56.151

General condition of West Wastewater Pond interior slope looking south

N38 58.113 W81 56.266

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

31



General condition of West BAP interior slope looking north



N38 58.122 W81 56.275

Photo #:

32

Notes:

General condition of platforms at West BAP outfall



N38 58.128 W81 56.261

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

33



General condition of West BAP north interior slope and forebay area looking east



N38 58.307 W81 56.417

Photo #:

34

Notes:

General condition of East Settling Pond (BAP) north interior with repurposing construction activities



N38 58.342 W81 56.321

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

35

Notes:

General condition of East Settling Pond (BAP) east interior slope after closure by removal



N38 58.387 W81 56.251

Photo #:

36

Notes:

General condition of platforms at East Settling Pond (BAP) outfall after CCR removal



N38 58.241 W81 56.133

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

37



General condition of Leachate Surge Pond looking south



N38 58.244 W81 56.123

Photo #:

38

Notes:

General condition of East Wastewater Pond looking southwest



N38 58.232 W81 56.137

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

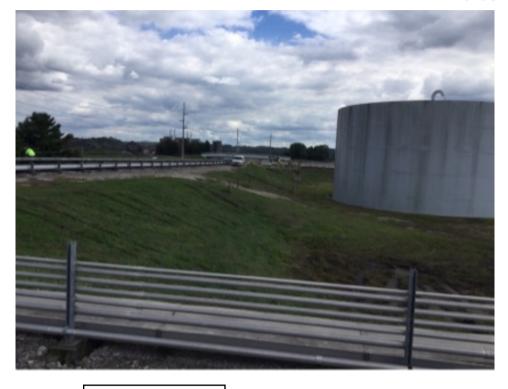
September 13, 2022

Photo #:

39

Notes:

General condition of interior slope at MCWT area



N38 58.275 W81 56.091

Photo #:

40

Notes:

General condition of Clearwater Pond looking east



N38 58.095 W81 56.059

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

41

Notes:

General condition of Clearwater Pond overflow structure



N38 58.166 W81 55.919

Photo #:

42

Notes:

Discharge outlet from overflow structure at Clearwater Pond



N38 58.157 W81 55.906

Page:

Plant Name:

Mountaineer

Inspector:

B Palmer

Unit:

Bottom Ash Pond

Date:

September 13, 2022

Photo #:

43



Outfall



N38 58.327 W81 55.599

Photo #:

44

Notes:

Bottom Ash Complex discharge outlet at the river



N38 58.332 W81 55.587

Page: