

INDIANA-KENTUCKY ELECTRIC CORPORATION

3932 U. S. Route 23 P. O. Box 468 Piketon, Ohio 45661 740-289-7200

WRITER'S DIRECT DIAL NO: 740-897-7768

March 21, 2022

Delivered Electronically

Mr. Brian Rockensuess Commissioner Indiana Department of Environmental Management 100 N. Senate Avenue Mail Code 50-01 Indianapolis, IN 46204-2251

Re: Indiana-Kentucky Electric Corporation Clifty Creek Station Notification of Revised CCR Rule Information Posting 2018- 2021 Annual CCR Surface Impoundment Inspection Report

Dear Mr. Rockensuess:

As required by 40 CFR 257.106(g), the Indiana-Kentucky Electric Corporation (IKEC) previously provided notification to the Commissioner (State Director) of the Indiana Department of Environmental Management that a qualified professional engineer had completed the Annual CCR Surface Impoundment Inspections for operating years 2018- 2021, in accordance with 40 CFR 257.83(b) for IKEC's Clifty Creek Station. It was discovered that a transcription error was made during preparation of the 2018 report, and that error was carried through reports prepared for 2019 through 2021. Updated revisions to the reports for operating years 2018 through 2021 have been placed in the facility's Operating Record, as well as on the company's publicly accessible internet site, and have been marked as "Revision 1" in order to maintain the integrity of the original CCR Rule information postings.

This information can be viewed on IKEC's publicly accessible internet site at: <u>http://www.ovec.com/CCRCompliance.php</u>

If you have any questions, or require any additional information, please call me at (740) 897-7768.

Sincerely,

Tim Full

Tim Fulk Energy and RTO Supervisor

TLF:klr

2018 ANNUAL DAM AND DIKE INSPECTION REPORT

West Boiler Slag Pond & Landfill Runoff Collection Pond

CLIFTY CREEK PLANT Indiana-Kentucky Electric Corporation MADISON, INDIANA

October 22, 2018

Revised: March 2022

Prepared for: Indiana-Kentucky Electric Corporation 3932 U.S. Route 23 P.O. Box 468 Piketon, Ohio 45661

Prepared by: American Electric Power Service Corporation 1 Riverside Plaza Columbus, OH 43215



GERS-22-004

Dam & Dike Inspection Report West Boiler Slag Pond & Landfill Runoff Collection Pond **GERS-22-004 REVISION 1 (March 2022)**

CLIFTY CREEK PLANT

MADISON, INDIANA

INSPECTION DATE October 9, 2018

PREPARED BY Brett A. Dreger DATE Brett A. Dreger, P.E.

REVIEWED BY

DATE 3/10/2022 Mohammad A. Ajlouni, Ph.D., P.E.

APPROVED BY

DATE 3/11/2022 Garv F. Zych, Pd

Manager - Geotechnical Engineering



3/10/2022

PROFESSIONAL ENGINEER SEAL & SIGNATURE

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	1
2.0 DESCRIPTIONS OF IMPOUNDMENTS	1
2.1 WEST BOILER SLAG POND	1
2.2 LANDFILL RUNOFF COLLECTION POND	1
3.0 REVIEW OF AVAILABLE INFORMATION (257.83(b)(1)(i))	2
4.0 INSPECTION (257.83(b)(1)(ii))	2
4.1 General	2
4.2 BOILER SLAG POND	3
4.2.1 Changes in geometry since last inspection (257.83(b)(2)(i))	3
4.2.2 Instrumentation (257.83(b)(2)(ii))	3
4.2.3 Impoundment CHARACTERISTICS (257.83(b)(2)(iii, iv, v))	4
4.2.4 Visual inspection (257.83(b)(2)(i))	4
4.2.5 Changes that effect stability or operation (257.83(b)(2)(vii))	5
4.3 LANDFILL RUNOFF COLLECTION POND	5
4.3.1 Changes in geometry since last inspection (257.83(b)(2)(i))	5
4.3.2 Instrumentation (257.83(b)(2)(ii))	6
4.3.3 Impoundment CHARACTERISTICS (257.83(b)(2)(iii, iv, v))	6
4.3.4 Visual inspection (257.83(b)(2)(i))	7
4.3.5 Changes that effect stability or operation (257.83(b)(2)(vii))	8
5.0 SUMMARY OF FINDINGS	8
5.1 MAINTENANCE ITEMS	8
5.2 ITEMS TO MONITOR	9
5.3 DEFICIENCIES (257.83(b)(2)(vi))	9

LIST OF TABLES

Table 1 WBSP Maximum recorded instruments reading of since the previous annual inspection
Table 2 Summary of Relevant Storage Information WBAP
Table 3 LRCP Maximum recorded instruments reading since the previous annual inspection
Table 4 Summary of Relevant Storage Information WBAP

LIST OF FIGURES

FIGURE 1 West Boiler Slag Pond Instrumentation Location Plan

FIGURE 2 West Boiler Slag Pond Groundwater Level Measurements

FIGURE 3 Landfill Runoff Collection Pond Instrumentation Location Plan

FIGURE 4 Landfill Runoff Collection Pond Groundwater Level Measurements

LIST OF APPENDICIES

APPENDIX A West Boiler slag Pond Inspection Photographs APPENDIX B Landfill Runoff collection Pond Inspection Photographs

Revised March 2022: Table 2 has been corrected to provide the elevation of the top of ash surface. The previous report listed the bottom elevation of the pond.

1.0 INTRODUCTION

This report was prepared by AEP- Geotechnical Engineering Services (GES) section, in part, to fulfill requirements of 40 CFR 257.83 and the Indiana Department of Natural Resource (IDNR), Division of Water and to provide Indiana-Kentucky Electric Corporation (IKEC) and Clifty Creek Station with an evaluation of the facility.

American Electric Power Service Corporation's Civil Engineering Division administers the Clifty Creek Station Dam Inspection and Maintenance Program (DIMP). As part of the DIMP, staff from the GES annually conducts dam and dike inspections. This report contains the inspection findings, observations, photographic descriptions, conclusions, and maintenance recommendations. This inspection report addresses the West Boiler Slag Pond WBSP (Previously known as West Bottom Ash Pond), and Landfill Runoff Collection Pond LRCP (Previously known as Fly Ash Pond) at the Clifty Creek Station. The East Bottom Ash Pond (EBAP) is no longer active for ash storage and waste water treatment. The EBAP was drained, backfilled and closed converted to a surface water collection pond in the 2014.

Mr. Danny Hunt, Plant Engineer, Clifty Creek Station provided onsite coordination for inspection activities. The inspection was performed on October 9, 2018 by Brett Dreger of AEP Geotechnical Engineering. Weather conditions were mostly sunny with temperatures ranging from the 70's F in the morning to the upper 80's F in the afternoon, with good visibility.

2.0 DESCRIPTIONS OF IMPOUNDMENTS

2.1 WEST BOILER SLAG POND

The WBSP (Figure 1) is located southwest of the station. It is formed by natural grade to the north, east, and west and a dam on the south that runs along the bank of the Ohio River. The WBSP serves as a settling basin for sluiced bottom ash produced at the station and receives stormwater runoff from approximately 510 acres (Stantec, 2010a). The WBSP is used for the storage of bottom ash generated from all six generating Units. It consists of a single dike that is approximately 2,000 feet long and is approximately 35 feet high. The crest is at elevation 470.0 feet. The pond contains two primary areas: the eastern portion near the sluice pipes that is actively dredged and a western portion with minimal deposition or dredging activities. A vegetation delta separates the two as a natural filtering zone. The pond discharges to the Ohio River through a principal spillway at the southern edge of the impoundment.

2.2 LANDFILL RUNOFF COLLECTION POND

The LRCP is located at the southern edge of the station. It is bordered by the station's coal combustion residuals (CCR) landfill to the north, natural grade to the east and west, and by a dam to the south that runs along the bank of the Ohio River.

The LRCP dam is a cross valley dam located on a no-name tributary to the Ohio River. The dam is approximately 1,025 feet long and has a maximum height of 75 feet. The crest is at elevation 505.0 feet. Currently, the facility functions as the stormwater and leachate collection pond for the CCR landfill, and discharges to the Ohio River through a NPDES-permitted outfall.

Approximately 508 acres of both landfill contact water and stormwater runoff drain to the FAP/LRCP. Upon the completion of the CCR landfill, the area draining to the LRCP will be reduced to approximately 443 acres.

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

A review of available information regarding the status and condition of the West Boiler Slag Pond and the Landfill Runoff Collection Pond, which include files available in the operating record, such as design and construction information, previous periodic structural stability assessments, previous 7 day inspection reports, and previous annual inspections has been conducted. Based on the review of the data there were no signs of actual or potential structural weakness or adverse conditions.

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

4.1 General

The summary of the visual observations uses terms to describe the general appearance or condition of an observed item, activity or structure. Their meaning is understood as follows:

- Good: A condition or activity that is generally better or slightly better than what is minimally expected or anticipated from a design or maintenance point of view.
- Fair or Satisfactory: A condition or activity that generally meets what is minimally expected or anticipated from a design or maintenance point of view.
- Poor: A condition or activity that is generally below what is minimally expected or anticipated from a design or maintenance point of view.
- Minor: A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is below what is normal or desired, but which is not currently causing concern from a structure safety or stability point of view.
- Significant: A reference to an observed item (e.g. erosion, seepage, vegetation, etc.) where the current maintenance program has neglected to improve the condition. Usually, conditions that have been previously identified in the previous inspections, but have not yet been corrected.
- Excessive: A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is below or worse than what is normal or desired, and which may have affected the ability of the observer to properly evaluate the structure or particular area being observed or which may be a concern from a structure safety or stability point of view.

In addition, a "deficiency" is some evidence that a dam or dike has developed a problem that could impact the structural integrity of the impoundment. 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 picked up and safely carried off by a drain. Seepage that is collected by a drain can still be uncontrolled if it is not safely collected and transported, such as seepage that is not clear. Seepage that is unable to be measured and/or observe it is considered uncontrolled seepage. [Wet or soft areas are not considered as uncontrolled seepage, but can lead to this type of deficiency. These areas should be monitored frequently.]

2. Displacement:

Displacement is a large scale movement of the Coal Combustion By Products, structural fill or other earthen material associated with the landfill. 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 storm water ditches/channels, leachate collection 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.

Results of the visual inspection performed on October 9, 2018, are summarized below, with inspection photographs included in Appendices A and B.

4.2 BOILER SLAG POND

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

No modifications have been made to the geometry of the Boiler Slag Pond since the 2017 annual inspection. The geometry of the impoundment has remained essentially unchanged.

4.2.2 INSTRUMENTATION (257.83(b)(2)(ii))

The location and type of instrumentation is shown on Figure 1. The results of the measurements of various piezometers since November 2015 are shown in Figure 2. The maximum recorded readings of each instrument since the previous annual inspection is shown in Table 1.

INSTRUMENTATION DATA West Boiler Slag Pond			
Instrument	Туре	Maximum Reading since last annual inspection	Date of Reading
PZ-1 (B-1)	Piezometer	Dry	4/19/2018
PZ-3 (B-3)	Piezometer	443.3	3/16/2018
PZ-4 (B-4)	Piezometer	434.7	3/16/2018
PZ-5 (B-5)	Piezometer	447.3	3/16/2018

A review of the data contained on the WBSP static water elevation plot showed that all piezometers exhibit consistent water elevations. PZ-1 is a piezometer located at the crest of the constructed dike (shown as B-1 on location plan) which was dry for readings in 2018. PZ-2 is a piezometer located along a bench near the downstream toe of the constructed dike (shown as B-2 on location plan) which was damaged and abandoned. PZ-3 is a piezometer located at the crest of the constructed dike (shown as B-3 on location plan). PZ-4 is a piezometer located along a bench near the downstream toe of the constructed along a bench near the downstream toe of the constructed along a bench near the downstream toe of the constructed dike (shown as B-3 on location plan). PZ-4 is a piezometer located along a bench near the downstream toe of the constructed dike (shown as B-4 on location plan). PZ-5 is a piezometer located at the crest of the crest of the constructed dike (B-5 on location plan) and was dry for a few of the past 12 months readings, but there were several readings with water levels recorded. Review of the static water elevation plot indicates that

the static water levels for the piezometers and monitoring wells generally fluctuate as a result of the fluctuations in the pool and the river elevations.

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

Below is a summary of the minimum, maximum, and present depth and elevation of the impounded water & CCR since the previous annual inspection; the storage capacity of the impounding structure at the time of the inspection; and the approximate volume of the impounded water and CCR at the time of the inspection.

The elevations of the ash surface in Table 2 of the previous version of the inspection report were incorrectly recorded as the bottom elevation of the west bottom ash pond. The elevations have been corrected in the table below based on the approximate depth of ash added to the elevation of the bottom of the pond which is elevation 433.

Table 2 Summary of Relevant Storage Information WBSP

IMPOUNDMENT CHARACTERISTICS	
West Boiler Slag Pond	
Approximate Minimum depth (Elevation) of impounded	11 ft.
water since last annual inspection	(444) ft.
Approximate Maximum depth (Elevation) of impounded	16 ft.
water since last annual inspection	(449) ft.
Approximate Present depth (Elevation) of impounded water	11.8 ft.
since last annual inspection	(444.8) ft.
Approximate Minimum depth (Elevation) of CCR since last	7.0 ft.
annual inspection	(440) ft.
Approximate Maximum depth (Elevation) of CCR since last	7.0 ft.
annual inspection (ft.)	(440) ft.
Approximate Present depth (Elevation) of CCR since last	7.0 ft.
annual inspection	(440) ft.
Storage Capacity of impounding structure at the time of the	1 050 000 a v
inspection	1,930,000 C.y.
Approximate volume of impounded water at the time of the	837 000 c v
inspection	657,000 C.y.
Approximate volume of CCR at the time of the inspection	782,000 c.y.

The depth of ash in the western portion of the pond was estimated to be 7 ft. The value is assumed to be constant over the year since the western portion is separated from the eastern portion with a wide area of vegetated filtration section.

4.2.4 VISUAL INSPECTION (257.83(b)(2)(i))

A visual inspection of the West Boiler Slag Pond was conducted to identify any signs of distress or malfunction of the impoundment and appurtenant structures. Specific items inspected included all structural elements of the dam such as inboard and outboard slopes, crest, and toe; as well as appurtenances such as the outlet structure at the West Boiler Slag Pond, and pipe discharge structure.

– See Appendix A for Photographs and photographs location plan

In general, the crest, interior and exterior slopes of the dike appear to be in satisfactory and stable condition. No significant change to the exterior slope was noted from the previous inspection. No significant settlement or misalignment was observed. Seeps were not observed during the inspection. No animal burrows were observed during the inspection.

- 1. Photographs No. 1 and 2 illustrate a typical overview of the dike crest. The crest appears to be in good and stable condition. Signs of settlement, misalignment and cracking were not observed.
- 2. Photographs No. 3, and 4 illustrate the condition of the interior slopes at the settling end of the pond and the present extent of boiler slag buildup. The interior slope of the dike at this end of the pond appeared to be in satisfactory and stable condition.
- 3. There a few locations where the use of the remotely controlled mower, appear to have caused disturbance to the inboard slopes at areas where the soil is more granular (bottom ash). No Photo was taken.
- 4. Photograph No. 5 shows the Principal Spillway and Decant Structure along with some localized overgrown vegetation near the access stairs and water line. The overflow structure appeared to be in satisfactory condition.
- 5. The overflow discharge structure walkway, railings, metal decking, and visible concrete were found to be in satisfactory, functional condition. However, there was some overgrown vegetation adjacent to the access stairs. Photographs No. 5 and 6 illustrate the access stairs, metal walkway, metal deck, and concrete structure of the overflow discharge structure.
- 6. Photographs No. 7, 8 and 9 shows the general condition of the exterior slope and toe area of the south dike. The slope appeared in satisfactory and stable condition. There were no signs of settlement, misalignment, sloughing or erosion. No wet areas were noted during this inspection except along the toe area where it appears there was standing water in tire ruts caused from mowing activities.
- 7. Photograph No. 10 shows the typical condition of the discharge pipe and outlet channel. Erosion at the confluence of the channel and the river was consistent with the conditions observed in the past years. The channel and outlet pipe were observed to be in good condition and were unobstructed and flowing steadily.

Overall the facility is in satisfactory 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. Additional pictures taken during the inspection can be made available upon request.

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

Based on interviews with plant personnel and field observations there were no changes to the West Boiler Slag Pond since the last annual inspection that would affect the stability or operation of the impounding structure.

4.3 LANDFILL RUNOFF COLLECTION POND 4.3.1 CHANGES IN GEOMETRY SINCE LAST INSPECTION (257.83(b)(2)(i))

No modifications have been made to the geometry of the Landfill Runoff Collection Pond since the 2017 annual inspection. The geometry of the impoundment has remained essential unchanged. However, In June of 2017 a repair to the northern section of the downstream slope was performed to stabilize previous

sloughing activity. A section of the downstream slope approximately 100 feet wide and extending from the toe to the crest was stabilized by excavating the loose material from the sloughing activity and placing a geotextile fabric and approximately 18-24" of stone rip rap. A seepage collection pipe was installed along the toe area of the rip rap.

4.3.2 INSTRUMENTATION (257.83(b)(2)(ii))

The location and type of instrumentation is shown on Figure 3. The results of the measurements of various piezometers since November 2015 are shown in Figure 4. The maximum recorded readings of each instrument since the previous annual inspection is shown in Table 3 below.

INSTRUMENTATION DATA Landfill Runoff Collection Pond			
Instrument	Туре	Maximum Reading since last annual inspection	Date of reading
CF-9405	Piezometer	446.09	4/09/2018
CF-9406	Piezometer	446.65	4/09/2018
CF-9407	Piezometer	454.90	2/20/2018
SP-84-1	Piezometer	472.50	3/16/2018
SP-84-2	Piezometer	448.28	5/02/2018
SP-84-4	Piezometer	443.75	5/02/2018
SP-84-5	Piezometer	444.56	4/09/2018
SP-84-6	Piezometer	415.66	5/02/2018
SP-84-7	Piezometer	452.89	2/20/2018
SP-84-8A	Piezometer	453.36	2/20/2018

 Table 3 LRCP Maximum recorded instruments reading since the previous annual inspection

There are piezometers and monitoring wells installed in and around the LRCP dam. Plan views showing the location of those piezometers and monitoring wells can be found in Appendix C along with plots of the historical static water levels for each location.

A review of the LRCP static water elevation plot indicates that two of the piezometers (SP-84-1 and SP-84-6) located along the crest of the dam historically exhibit consistent water elevations. Review of the static water elevation plot indicates that the static water levels for the piezometers and monitoring wells generally fluctuate as a result of the fluctuations in the pool and the river elevations.

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

Below is a summary of the minimum, maximum, and present depth and elevation of the impounded water & CCR since the previous annual inspection; the storage capacity of the impounding structure at the time of the inspection; and the approximate volume of the impounded water and CCR at the time of the inspection.

 Table 4 Summary of Relevant Storage Information LRCP

IMPOUNDMENT CHARACTERISTICS Landfill Runoff Collection Pond			
Approximate Minimum depth (Elevation) of 10.8 ft.			
impounded water since last annual inspection (485.8) ft.			

Approximate Maximum depth (Elevation) of	13 ft.
impounded water since last annual inspection	(488) ft.
Approximate Present depth (Elevation) of	10.8 ft.
impounded water since last annual inspection	(485.8) ft.
Approximate Minimum depth (Elevation) of CCR	45 ft.
since last annual inspection	(475) ft.
Approximate Maximum depth (Elevation) of CCR since last annual inspection (ft.)	45 ft. (475) ft.
Approximate Present depth (Elevation) of CCR	45 ft.
since last annual inspection	(475) ft.
Storage Capacity of impounding structure at the time of the inspection	930,000 c.y.
Approximate volume of impounded water at the time of the inspection	553,000 c.y.
Approximate volume of CCR at the time of the inspection	3,150,000 c.y.

4.3.4 VISUAL INSPECTION (257.83(B)(2)(i))

A visual inspection of the Landfill Runoff Collection Pond was conducted to identify any signs of distress or malfunction of the impoundment and appurtenant structures. Specific items inspected included all structural elements of the dam such as inboard and outboard slopes, crest, and toe; as well as appurtenances such as the outlet structure at the Landfill Runoff Collection Pond, and pipe discharge structure.

– See Appendix B for Photographs and photographs location plan

Overall, the crest, interior slope and exterior slope is well vegetated and in stable condition. There were no signs of new sloughing, depressions or areas of wetness and no seeps were apparent. Control of surface vegetation was considered satisfactory. The spillway outlet and discharge channel appear to have no obstructions or increased vegetation growth, however, flow was minimal at the time of the inspection.

- 1. Photographs Nos. 1, and 2 show the generally condition of the crest of the dam. Signs of misalignment and settlement were not observed. Minor surface cracks in the pavement were observed. Those cracks are attributed to the age of the pavement and the effects from weathering.
- 2. Photographs Nos. 3 and 4 provide overviews of the interior slope of the dam above the operating pool. Vegetation control near the water line and the upper slope areas is lacking, however, erosion due to wave action was not observed. Overall the slope was found to be in satisfactory and stable condition.
- 3. Photographs No. 5 and 6 are an overview of the principal spillway decant structure. Vegetation control was observed to be satisfactory. The decant structure and the access stairway appeared to be functioning properly and was free of obstructions. Photograph No.6 shows the recently added pipe to allow for treatment of discharged water.

- 4. Photograph Nos. 7 and 8 is an overview of the principal spillway outlet channel. The channel is unobstructed with minimal flow at the time of the inspection.
- 5. Photographs No's. 9 through 14 are all overviews of various areas of the exterior face of the dam as further described with each photograph. Throughout, vegetation control was adequate and there were no signs of sloughing, erosion or instability, except for the area adjacent to the previously repaired slope. No visible change was observed from previous inspections. In general, the exterior slope appeared to be in satisfactory and stable condition
- 6. The one area of concern is the slope adjacent to the previously repaired area in 2017. This area is experiencing sloughing/slip activity which were difficult to observe during inspection because of the overgrown vegetation on the slope. A repair detail has been submitted to the state for approval.
- 7. Photograph No.11 and No. 12 shows the previously repaired slope area that experienced sloughing/slip near the left abutment. The repair also included installing a seepage collection pipe at the toe of rip rap placement. The pipe showed minimal flow at the time of inspection.

Overall the facility was in satisfactory 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.

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

Based on interviews with plant personnel and field observations there were no changes to the Landfill Runoff Collection Pond since the last annual inspection that would affect the stability or operation of the impounding structure.

5.0 SUMMARY OF FINDINGS

5.1 MAINTENANCE ITEMS

The following maintenance items were identified during the visual inspection:

West Boiler Slag Pond

- An evaluation of the use of the remotely controlled mower, purchased by the plant indicates that the anchors in the tracks are apparently disturbing the inboard slopes at areas where soil is more granular (bottom ash). Weed waking or other mowing techniques is recommended for these areas.
- Vegetation height was moderate at local areas on the inboard slopes of the WBSP (Photographs Nos. 4 and 6). These areas should be weed waked to prevent damage to the existing riprap in these areas.

Landfill Runoff Collection Pond

- Vegetation height was moderate to high on the inboard slopes of the LCRP near the top of the slope and at the water line. These areas should be maintained on a regular basis.
- The soughing/slip area of the outside slope needs to be repaired and stabilized in order to prevent more significant damage to the slope area.

5.2 ITEMS TO MONITOR

West Boiler Slag Pond

• There are no items to monitor.

Landfill Runoff Collection Pond

• There are no items to monitor.

5.3 DEFICIENCIES (257.83(b)(2)(vi))

There were no deficiencies or 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 any of the periodic 7-day or 30-day inspections. If any of these conditions occur before the next annual inspection contact AEP Geotechnical Engineering immediately.

If you have any questions with regard to this report, please contact Brett Dreger at 614-716-2258 (Audinet: 200-2258) or Gary Zych at 614-716-2917 (Audinet: 200-2917).

FIGURES



FIGURE 1. WEST BOILER SLAG POND INSTRUMENTS LOCATION PLAN



FIGURE 2. WEST BOILER SLAG POND GROUNDWATER LEVEL MEASUREMENTS



FIGURE 3. LANDFILL RUNOFF COLLECTION POND INSTRUMENTS LOCATION PLAN



FIGURE 4. LANDFILL RUNOFF COLLECTION POND GROUNDWATER LEVEL MEASUREMENTS

APPENDICIES

APPENDIX A

WEST BOILER SLAG POND DIKE INSPECTION PHOTOGRAPHS



BOUNDLESS ENERGY"	AEP GES Dam Inspection	
Plant Name: Clifty Creek Unit: West Boiler Slag	Inspector: Brett Dreger Date: October 9, 2018	
Photo #: 1	Description: Crest	
	Notes: Overview of cres	st area.
	Location: Looking west. N38 43.890 W85	25.893
Photo #: 2	Description: Crest	
	Notes: Overview of cres	st area.
	Location: Looking east.	
	N38 43.830 W85	26.064

Page:

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY [™]

Plant Name:	Clifty Creek	Inspector:	Brett Dreger
Unit:	West Boiler Slag	Date:	October 9, 2018
Photo #: 3		Description:	Slope
-24-		Notes:	Overview of inside slope
		Location:	Looking west.
			N38 43.896 W85 25.895
Photo #: 4		Description:	Slope
		Notes:	Overview of inside slope area.
		Location:	Looking east.
Alfant Alles.			N38 43.816 W85 26.150

ſ	AMERICAN ELECTRIC POWER
	BOUNDLESS ENERGY™

Plant Name: Clifty Cree	k Inspector:	Brett Dreger
Unit: West Boi	iler Slag Date:	October 9, 2018
Photo #: 5	Description:	Other
	Notes:	Overview of principal spillway and decant structure.
	Location:	Looking down access stairway.
		N38 43.812 W85 26.105
Photo #: 6] Description:	Other
	Notes:	Overview of principal spillway and decant structure.
	Location:	Looking from crest area.
		N38 43.811 W85 26.108

BOUNDLESS ENERGY"	A Dan	AEP GES n Inspection
Plant Name: Clifty Creek Unit: West Boiler Slag	Inspector: B Date:	rett Dreger October 9, 2018
Photo #: 7	L Description:	Slope
	Notes:	Overview of downstream slope area.
	Location:	Looking east.
		N38 43.797 W85 26.094
Photo #: 8	Description:	Slope
	Notes:	Overview of downstream slope area.
	Location:	Looking west.

Page:

4

N38 43.868 W85 25.899

AMERICAN ELECTRIC POWER BOUNDLESS ENERGY	A Dar	AEP GES n Inspection
Plant Name: Clifty Creek Unit: West Boiler Slag	Inspector: B	rett Dreger October 9, 2018
Photo #: 9	Description:	Exterior
	Notes:	Overview of downslope toe area.
	Location:	Looking east.
		N38 43.804 W85 26.084
Photo #: 10	Description:	Other
	Notes:	Overview if principal spillway outfall pipe.
	Location:	Looking from river bank.

N38 43.784 W85 26.077

Page:

APPENDIX B

LANDFILL RUNOFF COLLECTION POND INSPECTION PHOTOGRAPHS



AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY"

Plant Name:	Clifty Creek	Inspector:	Brett Dreger
Unit:	Landfill Runoff	Date:	October 9, 2018
Photo #: 1		Description:	Crest
		Notes:	Overview of the crest area.
		Location:	Looking east.
			N38 43.048 W85 26.954
Photo #: 2		Description:	Crest
	ANDERTON	Notes:	Overview of the crest area.
		Location:	Looking west.
			N38 43.114 W85 26.771

Page:

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

Plant Name:	Clifty Creek	Inspector:	Brett Dreger
Unit:	Landfill Runoff	Date:	October 9, 2018
Photo #: 3		Description:	Slope
and the second		Notes:	Overview of inside slope area.
and the second sec		Location:	Looking east.
			N38 43 071 W85 26 963
Photo #: 4		Description:	Slope
		Notes:	Overview of inside slope area.
	A TOTAL A MILLA	Location:	Looking west.
Sec 172 - 40			N38 43.102 W85 26.802

Page:

AMERICAN ELECTRIC POWER	
BOUNDLESS ENERGY™	

Plant Name:	Clifty Creek	Inspector:	Brett Dreger
Unit:	Landfill Runoff	Date:	October 9, 2018
Photo #: 5		Description:	Other
		Notes:	Overview of principal spillway decant structure.
		Location:	Looking at access stairs.
			N38 43.077 W85 26.976
Photo #: 6		Description:	Other
		Notes:	Closeup view of overflow principal spillway structure.
		Location:	Looking at drop inlet for treatment pipe.
35			N38 43.079 W85 26.967

BOUNDLESS ENERGY"	AEP GES Dam Inspection	
Plant Name: Clifty Creek Unit: Landfill Runoff	Inspector: Brett Dreger Date: October 9, 2018]
Photo #: 7	Description: Other	
	Notes: Overview of principal spillway outfall pipe.	
	Location: Looking at pipe from riverbank.	
	N38 43.011 W85 26.919	
Photo #: 8	Description: Other	
	Notes: Overview of principal spillway outfall channel.	
	Location: Looking down from river bank towards river.	
	N38 43.015 W85 26.919	

	AMERICAN ELECTRIC POWER	Da	AEP GES m Inspection
Plant Name:	Clifty Creek	Inspector:	Brett Dreger
Unit:	Landfill Runoff	Date:	October 9, 2018
Photo #: 9		Description:	Slope
		Notes:	Overview of downstream slope along access road.
		Location:	Looking east.
			N38 43.023 W85 26.827
Photo #: 10		Description:	Slope
		Notes:	Overview of downstream slope adjacent to rip rap repair area.
		Location:	Looking east.

AMERICAN ELECTRIC POWER BOUNDLESS ENERG	GY" Dat	AEP GES m Inspection
Plant Name: Clifty Cree	ek Inspector: E	Brett Dreger
Unit: Landfill I	Runoff Date:	October 9, 2018
Photo #: 11	Description:	Slope
	Notes:	Overview of downstream slope rip rap repair area.
	Location:	Looking west.
		N38 43.153 W85 26.670
Photo #: 12	Description:	Culvert
	Notes:	Overview of rip rap toe drain outlet pipe.
		There was minor flow at time of inspection.
	Location:	East end of downstream toe area.
		N38 43.126 W85 26.692

AMERICAN ELECTRIC POWER	AEP GES Dam Inspection
Plant Name: Clifty Creek Unit: Landfill Runoff	Inspector: Brett Dreger Date: October 9, 2018
Photo #: 13	Description: Slope
	Notes: Overview of downstream slope area.
	Location: Looking west.
	N38 43.032 W85 26.842
Photo #: 14	Description: Slope
	Notes: Overview of downstream
	Location: Looking east. N38 43.023 W85 26.963

Page: