

# **2023 Annual Landfill Inspection Report**

**CCR Landfill**

**Turk Power Plant  
Southwestern Electric Power Company  
Fulton, Arkansas**

**October 2023**

Prepared for: Southwestern Electric Power Company – Turk Power Plant

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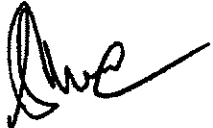
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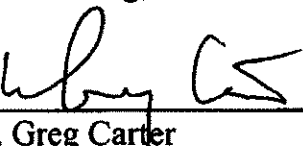
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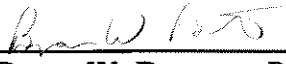
**Turk Power Plant  
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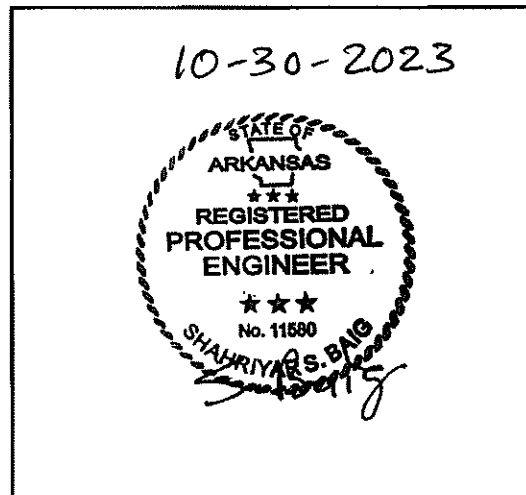
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I certify to the best of my knowledge, information and belief the information contained in this report meets the requirements of 40 CFR § 257.84(b).

**2023 Annual Landfill Inspection Report**  
**CCR Landfill**  
**Turk Power Plant, Fulton, AR**

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## 1.0 INTRODUCTION

This report was prepared by AEP- Geotechnical Engineering Services (GES) section, in part, to fulfill requirements of 40 CFR 257.84 and to provide the Turk Power Plant an evaluation of the facility.

Shah Baig, P.E. of AEP-Geotechnical Engineering and Greg Carter, AEP-SWEPCO Generation, Plant Engineering performed the 2023 inspection of the Landfill located at the Turk Power Plant, Fulton, AR. Also present during the inspection was Bijoy Halder, P.E. of AEP-Geotechnical Engineering. This report is a summary of the inspection and an assessment of the general condition of the facility. Michael Knobloch of Turk Plant coordinated the access and inspection of the landfill facility. The inspection was performed on October 10, 2023. Weather conditions were clear skies, visibility was good, light wind, sunny, and the temperature ranged 66 (°F). Mowing was performed prior to the inspection. There 1.54 inches of recorded precipitation over the seven days prior to the inspection.

## 2.0 DESCRIPTION OF LANDFILL

AEP-SWEPCO owns and operates the Turk Power plant and the CCR landfill facility. The site is located approximately 2.2 miles north of the Fulton (Hempstead County), Arkansas. The site location is exhibited on Figure 1 in Appendix A (Vicinity Map). The Power Plant has a 600 MW unit utilizing western sub-bituminous coal as a fuel for generating electricity. The landfill facility located to the south of the main plant is designed, approved, and used for disposal of flyash, bottom ash, scrubber waste, and other byproducts generated from the coal-fired power plant. Figure 2 (Site Layout Map) in Appendix A illustrates the CCR landfill facility location with respect to the power plant. The overall features of the landfill facility consist of the following main components; inactive and active landfill disposal areas (Inactive-Cell 1 and Active-Cell 2), Perimeter Berms and Haul Road, Leachate Collection Pond, Storm Water Pond, and Drainage Ditches

The inactive landfill disposal area (Cell 1) had reached its maximum waste fill capacity and is currently consists of temporary soil cover on the side slopes. The south slope of Cell 1 also consists of approximately 2 acres of closure turf test pad. There are total of 1-5 cells that makes

the total landfill footprint of 73 acres. The Leachate Collection Pond is located to the northwest of Cell 1 and collects leachate generated from the leachate collection system. The storm-water runoff pond is located to the northeast of Cell 1 and collects storm water from the perimeter storm water ditches around the landfill. The outer perimeter of the landfill consists of the perimeter berm and haul road.

### **3.0 REVIEW OF AVAILABLE INFORMATION (257.84(b)(1)(i))**

A review of available information regarding the status and condition of the Landfill, which include files available in the operating record such as; design and construction information, previous 7-day inspection reports, and previous annual inspection report that has been conducted. Based on the review of the data there were no signs of actual or potential structural weakness or adverse conditions of the Landfill.

### **4.0 INSPECTION (257.84(b)(1)(ii))**

#### **4.1 CHANGES IN GEOMETRY SINCE LAST INSPECTION (257.84(b)(2)(i))**

No modifications have been made to the geometry of the landfill since the last annual inspection. Overall, the geometry of the landfill has remained unchanged, except the change in topography of the active disposal area.

#### **4.2 VOLUME (257.84(b)(2)(ii))**

The total estimated disposal capacity of the landfill (Cells 1-5) is 6,884,235 cubic-yard. The total volume of CCR disposed in the landfill from the period 11/2012 through 09/2022 is estimated to be 1,442,235 tons (1,052,726 cubic-yard), using a unit conversation of 1.37 tons/cubic-yard.

### 4.3 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 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.

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 a landfill has developed a problem that could impact the structural integrity of the landfill. There are four general categories of deficiencies. These four categories are described below:

1. Uncontrolled Seepage (Leachate Outbreak)

Leachate outbreak is the uncontrolled release of leachate from the landfill.

2. Displacement of the Embankment

Displacement of the embankment (slopes) is large scale movement of Coal Combustion Byproducts, structural fill or other earthen materials 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 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.

#### **4.4 VISUAL INSPECTION (257.84(b)(1)(ii))**

A visual inspection of the Landfill was conducted to identify any signs of distress or malfunction of the landfill and appurtenant structures. Specific items inspected included all structural elements of the landfill perimeter berms, temporary and final covers, drainage features, leachate ponds, completed and open cells of the landfill, and appurtenances.

Overall, the facility is in good condition. The landfill is functioning as intended with no signs of potential structural weakness or conditions, which are disrupting to the safe operation of the landfill. Inspection Photograph Location Map and Photographs are in Appendix B. Additional pictures taken during the inspection could be available upon request.

1. Overall condition of the landfill Cell 1 and Cell 2 are illustrated in Photographs No. 1-5. Photograph No. 1 was taken from the access road illustrating Cell 1 in the background completed to the maximum fill grades and Cell 2 in the foreground. Cell 2 fill has reached close to the elevation of the perimeter road with the CCR material. Cell 2 fill area

appeared in good condition and no significant erosion or water pond was observed.

Inactive landfill Cell 1 (Photographs No. 3 and 4) was in good and stable condition with no sign of instability, water ponding or significant erosion. The temporary access road to the west (Photograph No. 2) and landfill perimeter road to the south appeared in good condition.

2. Photographs No. 6-10 illustrate south and east perimeter berm and toe ditch. The berm and ditch were constructed for the landfill to support the landfill and control runoff from the landfill. The south slope of the berm consists of artificial turf (alternate to the natural grass cover) and appeared in good and stable condition. Few isolated spots indicated weeds protruding through the artificial turf. Overall, the closure turf cover and toe ditch are functioning as designed. An area at the southeast corner (Photographs No. 7 and 8) appears to have some water ponding. Minor overgrown vegetation was noticed at the end of ditch to the stormwater pond (Photograph No. 10). Overall, the toe ditch and the berm is functioning as designed.
3. A test pad using closure turf for the permanent cover system installation was completed in October 2019 at the southeast slope of the landfill (Photographs No. 11 and 12). The test pad was under inspection and monitoring through 2023. Test pad is currently review by the ADEQ after completion of testing and monitoring phase. The closure turf cover system is designed to be in compliance with the CCR rules. Photograph No. 11 illustrate an intermediate bench and ditch for runoff control. The test pad, bench, and ditch of the cover system appeared in good, intact, and in stable condition.
4. Typical condition of the landfill slope of inactive Cell 1 is illustrated in Photographs No. 13-15. The north, south, and east slopes are covered with temporary soil cover. All the slopes are covered with temporary grass cover and appeared in good and stable condition without any significant erosion or instability. The north slope was completed last year and started to show grass growth (Photograph No. 15).



5. A new catch basin is added in the northeast corner of the landfill at the end of the perimeter ditch (Photograph No. 16). Two pipe culverts are extended from the catch basin to the stormwater pond under the perimeter road. The fill has settled (Photograph No. 17) at the road section above the pipe culverts.
6. The storm water pond is located to the east of the landfill and receives non-contact storm water run-off from the slopes of Cell 1 covered with temporary cover and areas outside the landfill. The pond appeared in good functional condition with some overgrown vegetation along the interior slopes (Photographs No. 18 and 19).
7. The outlet of the overflow pipe structure of the storm-water pond is illustrated in Photograph No. 20. The overflow pipe structure appeared in good condition. Water was flowing at the time of inspection from the outlet pipe. The outlet pipe area exhibited excessive vegetation that should be cleared as part of maintenance activities.
8. Overall, typical interior view of the leachate pond is illustrated in Photograph No. 21. The vegetative cover on the interior slopes (north, south, and east) appeared in good and controlled condition.
9. There are three leachate drainpipes (southeast, center, and southwest) on the south slope of the leachate pond. Leachate enters the pond from the Cell 1 and Cell 2 leachate collection system through a pipe at the southeast corner and center of the pond south slope (Photographs No.22 and 23). Leachate was draining from the pipe and in functional condition at the time of the inspection.
10. Photograph No. 24 illustrates the west slope of the pond. This slope was repaired a few years ago by replacing vegetative cover with a geosynthetic liner. The liner appeared in good condition without any damage or displacement. The slope appeared in good and stable condition without any sign of failure.

#### **4.5 CHANGES THAT EFFECT STABILITY OR OPERATION (257.84(b)(2)(iv))**

Based on interviews with plant personnel and field observations there were no changes to the Landfill since the last annual inspection that would affect the stability of the Landfill.

### **5.0 SUMMARY OF FINDINGS**

#### **5.1 GENERAL OBSERVATIONS**

- (i) In general, the landfill is functioning as intended. The landfill areas (Cell 1 and Cell 2) are in good and stable condition.
- (ii) The storm water ditches and the perimeter haul road are in good functional condition. The recently installed catch basin in the northeast corner is functioning as designed. The settlement along the pipe culverts should be backfilled until there is not settlement.
- (iii) Previously observed excessive vegetation in the south ditch at the toe of the support berm was cleared. An area in the southeast corner appeared to be soft and may need some additional repair.
- (iv) Overall, the leachate pond is in good and stable condition including the west slope repair. The storm-water pond is functioning as designed and adequately handling the runoff water. Excessive vegetation should be cleared from the interior slopes of the pond and outfall area.

#### **5.2 MAINTENANCE ITEMS**

- (i) General vegetation control should be maintained at the toe ditch, leachate pond and storm-water pond, particularly around the outlet pipes and interior slopes.
- (ii) The settlement at the catch basin pipe culverts should be backfilled until there is no noticeable settlement.

#### **5.3 ITEMS TO MONITOR**

None.

#### **5.4 DEFICIENCIES (257.84(b)(2)(iii))**

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 inspection. If any deficiency occurs until the next inspection contact AEP Geotechnical Engineering immediately.

If you have any questions with regard to this report, please contact Shah Baig at Audinet: 200-2241, or 614-716-2241 (email: [sbaig@aep.com](mailto:sbaig@aep.com)) or Bryan Brunton at Audinet: 200-3090, or 614-716-3090 (email: [bwbrunton@aep.com](mailto:bwbrunton@aep.com)).

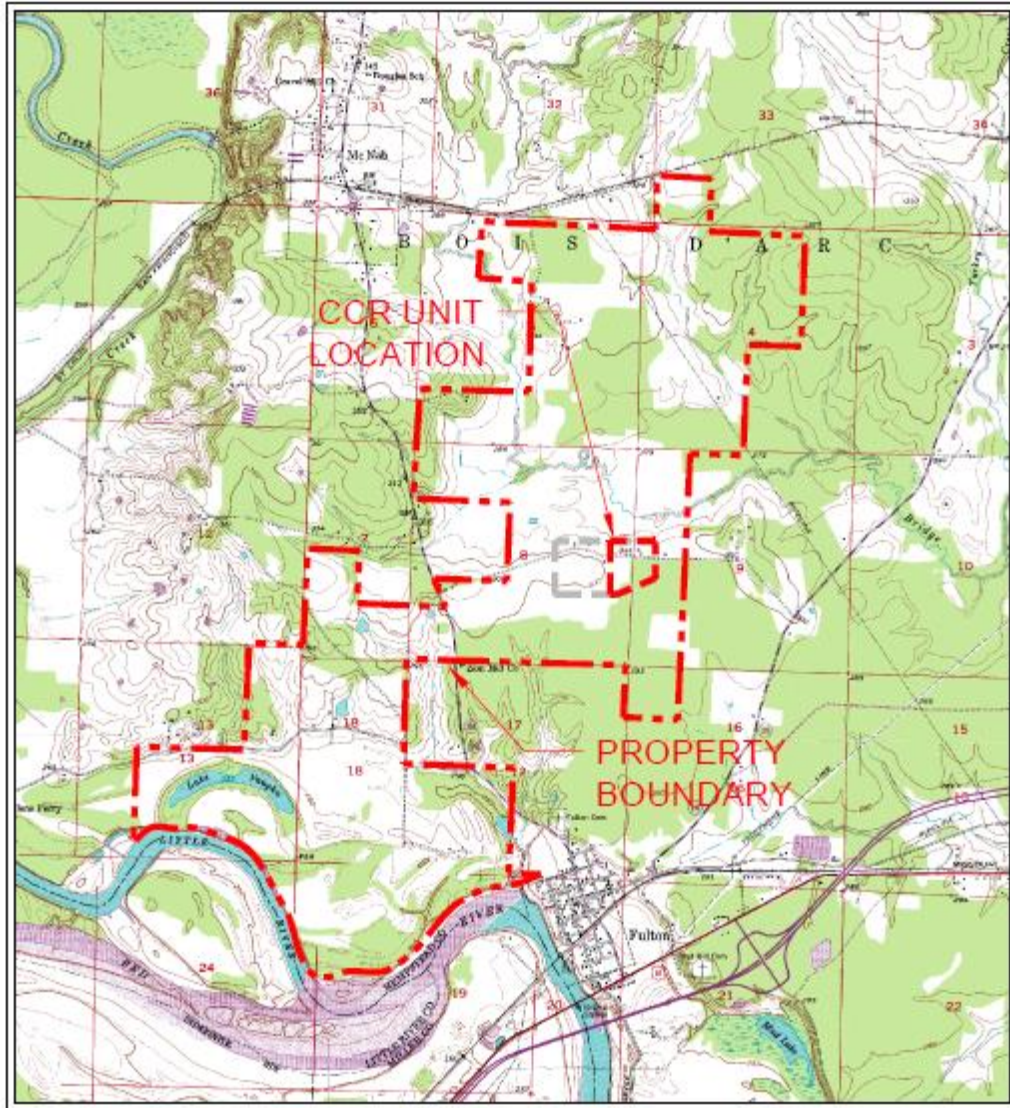
## **APPENDICES**

**APPENDIX A**

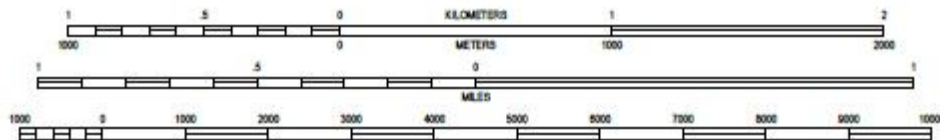
▪**FIGURE 1 - VICINITY MAP**

▪**FIGURE 2 - SITE LAYOUT MAP**

UNITED STATES — DEPARTMENT OF THE INTERIOR — GEOLOGICAL SURVEY



SCALE 1:24 000



CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

FULTON / MCNAB  
QUADRANGLES  
1951 - Revised 1970 & 1975  
7.5 MINUTE SERIES (TOPOGRAPHIC)



Project Mgr: DCM	Project No. 216-002-35207221	 Consulting Engineers and Scientists 2809 I-30 SOUTH BRYANT, AR 72022 PH. (501) 547-4292 FAX. (501) 547-4210	VICINITY MAP	FIG. No.
Drawn By: TLB	Scale: AS SHOWN		2020 ANNUAL CCR INSPECTION AMERICAN ELECTRIC POWER JOHN W. TURK, JR. POWER PLANT	1
Checked By: DCM	File No. 001			
Approved By: DCM	Date: 12/08/2020			
FULTON				





**APPENDIX B**

**▪FIGURE 3 - INSPECTION PHOTOGRAPH LOCATION MAP**




**▪PHOTOGRAPHS**



**FIGURE 3 – INSPECTION PHOTOGRAPH LOCATION MAP  
TURK LANDFILL**





<p>Photograph No. 1 Active Cell 2 (looking east).</p>	
<p>Photograph No. 2 Access road to the west of Cell 2.</p>	
<p>Photograph No. 3 Cell 1 along the slope.</p>	



Photograph No. 4  
Top of Cell 1.



Photograph No. 5  
Active Cell 2 (looking north).



Photograph No. 6  
Landfill support berm and storm water ditch (looking west).





Photograph No. 7  
Toe ditch (looking west).






Photograph No. 8  
Toe ditch southeast corner.






Photograph No. 9  
Toe ditch east side (looking north).





<p>Photograph No. 10</p> <p>Toe ditch letdown to the stormwater pond illustrating minor overgrown vegetation.</p>	
<p>Photograph No. 11</p> <p>Closure turf test pad intermediate bench (looking west).</p>	
<p>Photograph No. 12</p> <p>Closure turf test pad above the intermediate bench.</p>	



<p>Photograph No. 13 East slope (looking south).</p>	
<p>Photograph No. 14 East slope (looking north).</p>	
<p>Photograph No. 15 North slope of the landfill.</p>	



Photograph No. 16  
A new stormwater catch basin installed at the northeast corner.



Photograph No. 17  
Settlement notices of the catch basin pipe under the access road.



Photograph No. 18  
Interior of the stormwater pond.





Photograph No. 19  
Overflow discharge pipe.



Photograph No. 20  
Overflow discharge structure.



Photograph No. 21  
Typical condition of the leachate pond interior.





Photograph No. 22  
Cell 1 leachate pipe outlet.



Photograph No. 23  
Cell 2 leachate pipe outlet.



Photograph No. 24  
West interior slope.

