

# **2022 Annual Landfill Inspection Report**

**CCR Landfill**

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

**October 2022**

Prepared for: Southwestern Electric Power Company – Turk Power Plant

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**Document ID: GERS-22-031**

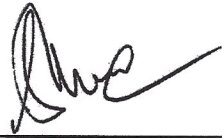
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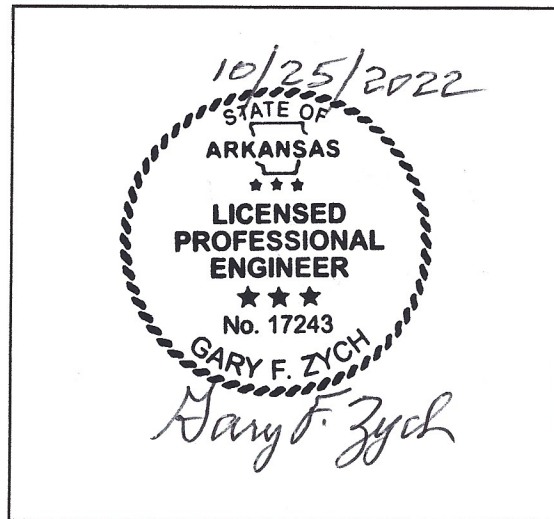
**Document Number:** GERS-22-031

**Inspection Date:** October 4, 2022

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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).

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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 2022 inspection of the Landfill located at the Turk Power Plant, Fulton, AR. This report is a summary of the inspection and an assessment of the general condition of the facility. Richard Hudler of Turk Plant facilitated and was present during the inspection. Michael Knobloch of Turk Plant coordinated the access and inspection of the landfill facility. The inspection was performed on October 4, 2022. Weather conditions were clear skies, visibility was good, light wind, sunny, and the temperature ranged 60's (°F). Mowing was performed prior to the inspection. There was no 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 subbituminous 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; Active Landfill Disposal Areas (Cell 1 and 2), Perimeter Berms and Haul Road, Leachate Collection Pond, Storm Water Pond, and Drainage Ditches

The Active Landfill Disposal Area (Cell 1) had reached its maximum waste fill capacity and is currently in final stages of final grading for temporary soil cover. At present, both cells (1 and 2) are active. 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 1,278,041 tons (932,877 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.

#### **Active Landfill Disposal Area, Perimeter Berm and Haul Road**

1. Photographs No. 1 and 2 illustrate south 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 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. It appears that some of the sand that was placed as ballast over the artificial turf may have washed down into the toe ditch. The ditch appeared in good condition with positive flow and free from overgrown vegetation.

2. 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. 3 and 4). Test pad is currently under testing and monitoring phase. The closure turf cover system is designed to be in compliance with the CCR rules. Photograph No. 4 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.
3. Overall condition of the landfill Cell 1 is illustrated in Photograph Nos. 5 and 6. Photograph No. 5 was taken from top of Cell 1 looking down towards Cell 2. Existing landfill Cell 1 was in good and stable condition with no sign of instability, water ponding or significant erosion of the interim slopes. The east, north, and south side slopes are covered with temporary cover. Cell 2 is illustrated in Photograph No. 6. Cell 2 fill has reached close to the elevation of the perimeter road. Cell 2 fill area appeared in good condition and no signification erosion or water pond was observed.
4. Typical condition of the landfill slope of Cell 1 is illustrated in Photograph No. 7. The east and south slope are covered with temporary soil cover. The north slope is partially covered with temporary cover and work is in progress to cover the remaining north slope. The north slope appeared in good and stable condition without any significant erosion or instability. The east and north slope indicated intermittent bare areas (Photograph No. 8).



5. The perimeter access road appeared in good condition without any signs of settlement, instability, misalignment, or significant erosion. Typical condition of the perimeter access road is illustrated in Photograph No. 9.

#### **Leachate Collection Pond**

6. Overall, typical interior view of the leachate pond is illustrated in Photographs No. 10 and 11. The vegetative cover on the interior slopes (north, south, and east) appeared in good and controlled condition.
7. 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 leachate collection system through a pipe at the southeast corner of the pond (Photograph No.12). Leachate was draining from the pipe at the time of the inspection, but the drain pipe cover appeared to be covered with obstruction by debris and vegetation (Photograph Nos. 12 and 13).
8. Photograph No. 14 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.

#### **Storm Water Pond**

9. The storm water pond is located to the east of the landfill and receives non-contact storm water run-off from areas outside the active Cells of the landfill. The pond appeared dry and the bottom was visible (Photograph No. 15). Overall, the pond appeared in good and functional condition.
10. The outlet of the overflow pipe structure of the storm-water pond is illustrated in Photograph No. 16. The overflow pipe structure appeared in good condition. No 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.

#### **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 added toe ditch at the south side is functioning as designed.
- (iii) Previously observed excessive vegetation in the south ditch at the toe of the support berm was cleared.
- (iv) Sparse vegetation observed at the temporary cover of Cell 1.
- (v) 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. The outlet ends of the leachate pipe had debris built up and excessive vegetation at the riprap letdown.
- (vi) Excessive vegetation at the leachate and storm water ponds should be maintained on a regular basis.

#### **5.2 MAINTENANCE ITEMS**

- (i) General vegetation control should be maintained at the leachate pond and storm-water pond, particularly around the outlet pipes. Debris around the pipes should be removed for leachate pipes to operate properly. Temporary cover at the landfill should be re-seeded and/or maintained.

### **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 Gary Zych at Audinet: 200-2917, or 614-716-2917 (email: [gfzych@aep.com](mailto:gfzych@aep.com)).

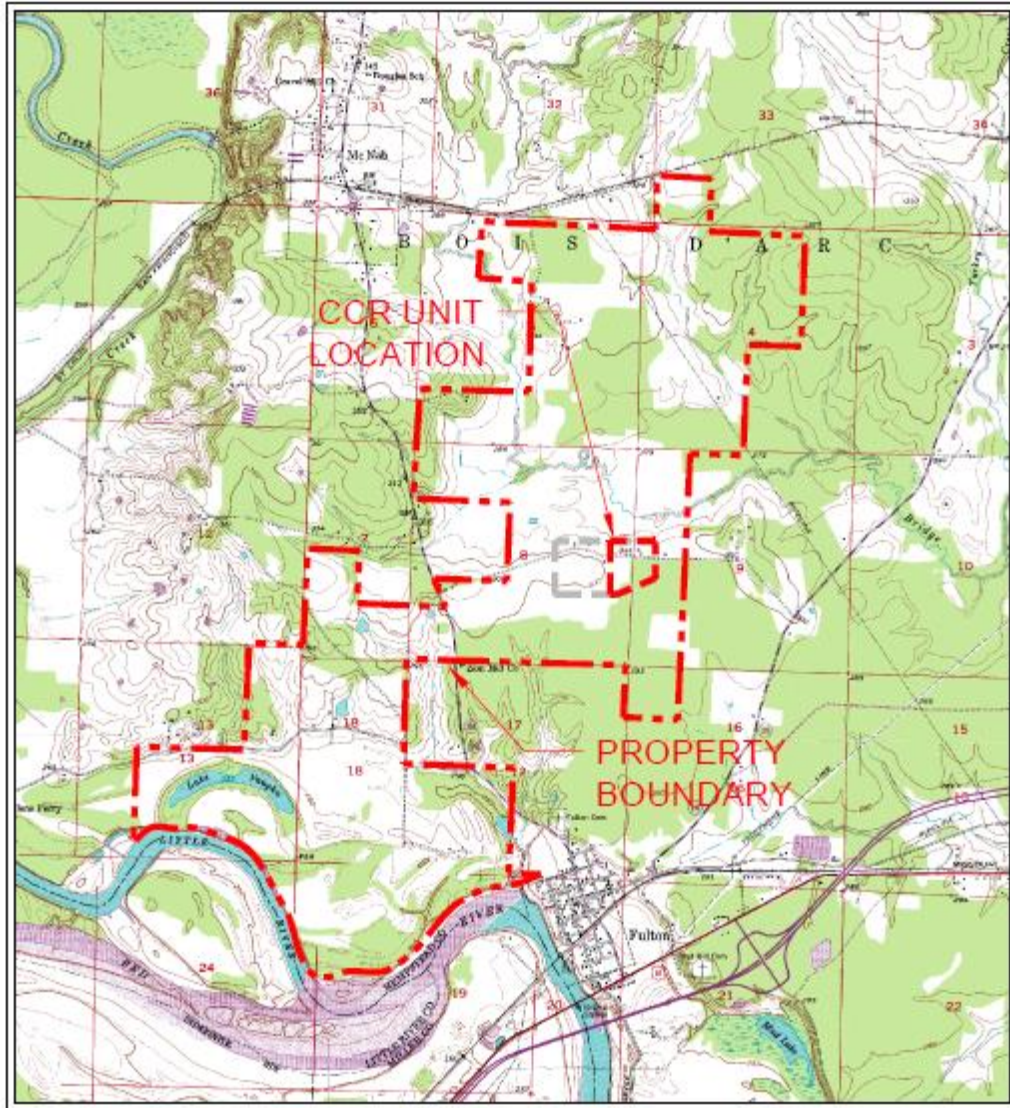
## **APPENDICES**

**APPENDIX A**

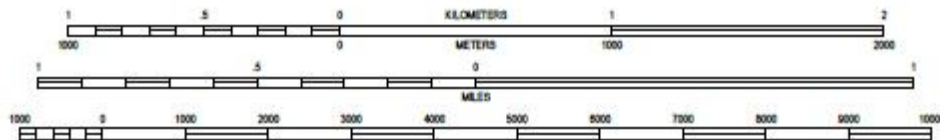
▪**FIGURE 1 - VICINITY MAP**

▪**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	ARKANSAS



NOTE:  
FUTURE CELLS ARE NOT PART  
OF THE CURRENT CCR UNIT.

REV	DATE	BY	DESCRIPTION

**Terracon**  
Consulting Engineers and Scientists  
2885-30-3507111    BRANT, AR 72022  
PH: (501) 847-5262    FAX: (501) 847-5210

**SITE LAYOUT MAP**  
2020 ANNUAL CCR INSPECTION  
**AMERICAN ELECTRIC POWER**  
JOHN W. TURK, JR. POWER PLANT  
FULTON ARKANSAS

**FIGURE 2**

DESIGNED BY:	TCM
DRAWN BY:	TLE
APPROVED BY:	TCM
SCALE:	AS SHOWN
DATE:	09/08/20
ASB NO.:	216402-26/07/21
ASB NO.:	032
SHEET NO.:	032
OF	

**APPENDIX B**


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

**▪PHOTOGRAPHS**









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



<p><b>Photograph No. 1</b> South side of the landfill, support berm, and storm water ditch (looking west).</p>	 A wide-angle photograph showing a gravel support berm in the foreground, transitioning into a grassy area with a storm water ditch on the left. The background features a line of trees under a clear blue sky.
<p><b>Photograph No. 2</b> South side of the landfill, support berm, perimeter road, and storm water ditch (looking east).</p>	 A photograph showing a gravel support berm on the left, a grassy area in the center, and a storm water ditch on the right. A perimeter road is visible in the distance. The background shows a dense line of trees.
<p><b>Photograph No. 3</b> Cell1 southside illustrating closure turf test pad and toe ditch.</p>	 A photograph showing a wide view of a landfill cell with a grassy area in the foreground, a gravel support berm in the middle ground, and a storm water ditch on the right. The background features a dense line of trees.

<p><b>Photograph No. 4</b> Closure turf test pad intermediate bench.</p>	
<p><b>Photograph No. 5</b> Cell 1 area topped out.</p>	
<p><b>Photograph No. 6</b> Cell 1 and Cell 2 areas.</p>	

<p><b>Photograph No. 7</b> Typical slope of the landfill.</p>	 A wide-angle photograph showing a large, grassy slope of a landfill. The slope is covered in dry, yellowish-brown grass and some green patches. In the background, there is a line of trees and a clear blue sky.
<p><b>Photograph No. 8</b> Closeup of the temporary soil cover.</p>	 A close-up photograph of the temporary soil cover on the landfill slope. The ground is a mix of dark brown soil and sparse, dry grass. Two small figures of people are visible on the slope in the distance, providing a sense of scale.
<p><b>Photograph No. 9</b> Typical condition of the perimeter road.</p>	 A photograph showing a gravel perimeter road on the landfill. The road is a light-colored gravel path that runs along the edge of the landfill. The surrounding area is grassy and shows some signs of erosion or uneven ground.

<p><b>Photograph No. 10</b> The south interior slope of the leachate pond.</p>	
<p><b>Photograph No. 11</b> Overall view of the leachate collection pond interior slope.</p>	
<p><b>Photograph No. 12</b> Southeast corner leachate pipe.</p>	

<p><b>Photograph No. 13</b> Southeast corner leachate pipe letdown.</p>	
<p><b>Photograph No. 14</b> West interior slope.</p>	
<p><b>Photograph No. 15</b> Interior of the stormwater runoff pond.</p>	

**Photograph No. 16**

Overflow discharge structure.



**Photograph No. 17**

Excessive vegetation.

