2020 Annual Landfill CCR Inspection Report

Class 3N Landfill

Turk Power Plant

Southwestern Electric Power Company

Fulton, AR

December 2020

Project No. 35207221

Prepared for:

Southwestern Electric Power Company – Turk Power Plant
Fulton, AR facility

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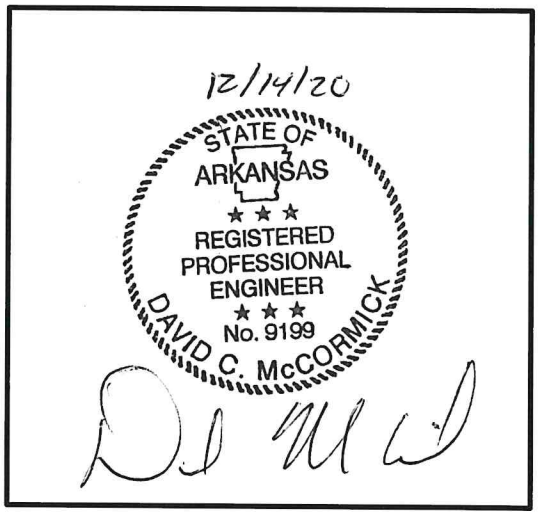
Document Number: GEVR – 20 – 022

Inspection Date: November 10, 2020

PREPARED BY _____ DATE 12/14/20
David McCormick, P.E.

REVIEWED BY _____ DATE 12/14/20
Tony Bardella.

APPROVED BY _____ DATE 12/14/20
David McCormick, P.E.
Solid Waste Department Manager



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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Attachments

1.0 INTRODUCTION

This report was prepared by Terracon Consultants Inc (Terracon), in part, to fulfill requirements of 40 CFR 257.84 and to provide the Turk Power Plant an evaluation of the facility.

David McCormick, P.E. performed the 2020 inspection of the Landfill at the Turk Plant. This report is a summary of the inspection and an assessment of the general condition of the facility. Greg Carter, P.E. (TX), and Brent Ogden of AEP Regional Engineering also participated in the inspection. The inspection was performed on November 10, 2020. Weather conditions were sunny, and the temperature was in the mid 40's (°F). There was 0.0 inches of recorded rainfall 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 **Attachment A** (Vicinity Map). The Power Plant has a 600 MW facility utilizing western subbituminous coal as a fuel for generating electricity. The landfill facility located to the south of the main plant is design, approved, and used for disposal of flyash, bottom ash, scrubber waste, and other byproducts from the coal-fired Power Plant. **FIGURE 2** (Site Location Map) in **Attachment A** illustrates the CCR landfill facility location with respect to the power plant. The overall features of the landfill were categorized into the following components as a means of organizing the inspection and reporting; Leachate Collection Pond, Active Landfill Disposal Areas (Cells 1 and 2), Perimeter Berms and Haul Road, and Storm Water Pond and Drainage Ditches

The Active Landfill Disposal Area (Cell 1) has reached its maximum waste fill capacity and currently in final stages of finishing the final grades. Construction of Cell 2 (approximately 13.9 acres) was previously completed and currently accepting waste material. The total active area of Cells 1 & 2 is approximately 27.9 acres. There is a total of 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 systems. 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 roads.

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 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 (257.84(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 active Cells (1 & 2) since the last annual inspection. The total active area of Cells 1 & 2 is approximately 27.9 acres. The geometry of the landfill has remained essentially unchanged, except for the change in topography of the active disposal area and the continued utilization of the cells for disposal.

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

The total estimated disposal capacity of the landfill (Cells 1-5) is 6,884,235 cubic yards. The total volume of CCR disposed in the landfill from the period 11/2012 through 10/2020 is estimated to be 1,003,493 tons (732,476 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 is large scale movement of part of the landfill or perimeter berm. Common signs of displacement are cracks, scraps, bulges, depressions, sinkholes and slides.

3. Blockage of Control Features
   Blockage of Control Features is the restriction of flow at spillways, culverts, or leachate pipes 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 at **Attachment B**. Additional pictures taken during the inspection could be available to the Owner upon request.

Leachate Collection Pond

1. The overall layout of the leachate pond is shown in **Photograph 1**. The grassed slopes (the north, south, and east slopes) appeared in good and stable condition. Overall, the slopes were vegetated with Intermittent bare spots. Some of the bare spots on the sideslope are where hogs were rooting. There are three leachate drainpipes (southeast, center, and southwest) on the south slope of the leachate pond.

2. Leachate enters the pond from the Cell 1 leachate collection system through a pipe at the southeast corner of the pond. Sloughing in the protective cover on the southeast corner of the leachate collection pond was being repaired (**Photograph 2**). The sloughing on the southeastern slope is shown in **Photograph 3**.

3. As part of the leachate pond improvements, three riprap lined letdown channels were previously installed at the interior slope to manage runoff. The letdown channels area located at the northwest corner, southwest corner, and south slope of the pond. **Photograph 1** illustrates typical letdown channel. All the letdown channels appeared to function as designed and appeared in good and stable condition.

4. The west slope was previously repaired by replacing the vegetated soil cover with a HDPE liner. The slope and the liner appeared in good and stable condition and functioning as design (**Photograph 4**).

5. The leachate pond has an underdrain pumping system. The pumping system controls can be seen in **Photograph 5**.

6. The leachate pond inlet structure is shown in **Photograph 6**.

7. The east slope of the leachate pond is shown in **Photograph 7**.

Active Landfill Disposal Area, Perimeter Berm and Haul Road

8. **Photograph 8** shows the road and berm on the east side of Cell 1. Intermediate cover was placed on the east side of Cell 1. The berms and sloped appeared in good condition.

9. The south side of Cell 1 has the closure turf test pad on the south slope and has an artificial turf on the southern perimeter ditch's north slope (**Photograph 9**). The slopes looked in good condition.
10. **Photograph 10** shows the artificial turf on the stormwater ditch sideslope to the south of Cells 1 & 2. The east side of the closure turf test pad ties into the intermediate cover placed on the east side of Cell 1. The vegetation is sparse on the east side intermediate cover.
11. **Photograph 11** shows the north side of Cells 1 & 2.
12. Typical condition of the perimeter haul roads is exhibited in **Photographs 12 &13**. The haul roads around the landfill appeared in good condition with no sign of noticeable settlement, misalignment, and cracks/erosion.
13. **Photograph 14** shows the south side of Cells 1 & 2.

Storm Water Pond and Drainage Ditches

14. **Photographs 15, 16, and 17** shows an overall view of the stormwater pond, the inlet of the overflow discharge structure, and the overflow discharge structure. The stormwater pond and the structures were in good condition.

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

The following general observations were identified during the visual inspection:

1. In general, the Landfill is functioning as intended. All areas of the facility are in good condition.

2. The Plant is performing inspections as required.

5.2 MAINTENANCE ITEMS

The following specific maintenance items were identified during this inspection.

1. Overall, the landfill and berms are in good condition. The protective cover in the southeast corner of the leachate collection pond is sloughing and is currently being repaired.

2. The Cell 1 east side intermediate cover had sparse vegetation.

5.3 ITEMS TO MONITOR

1. Erosion of the intermediate cover on the east side of Cell 1.

2. Sloughing in the leachate collection pond.

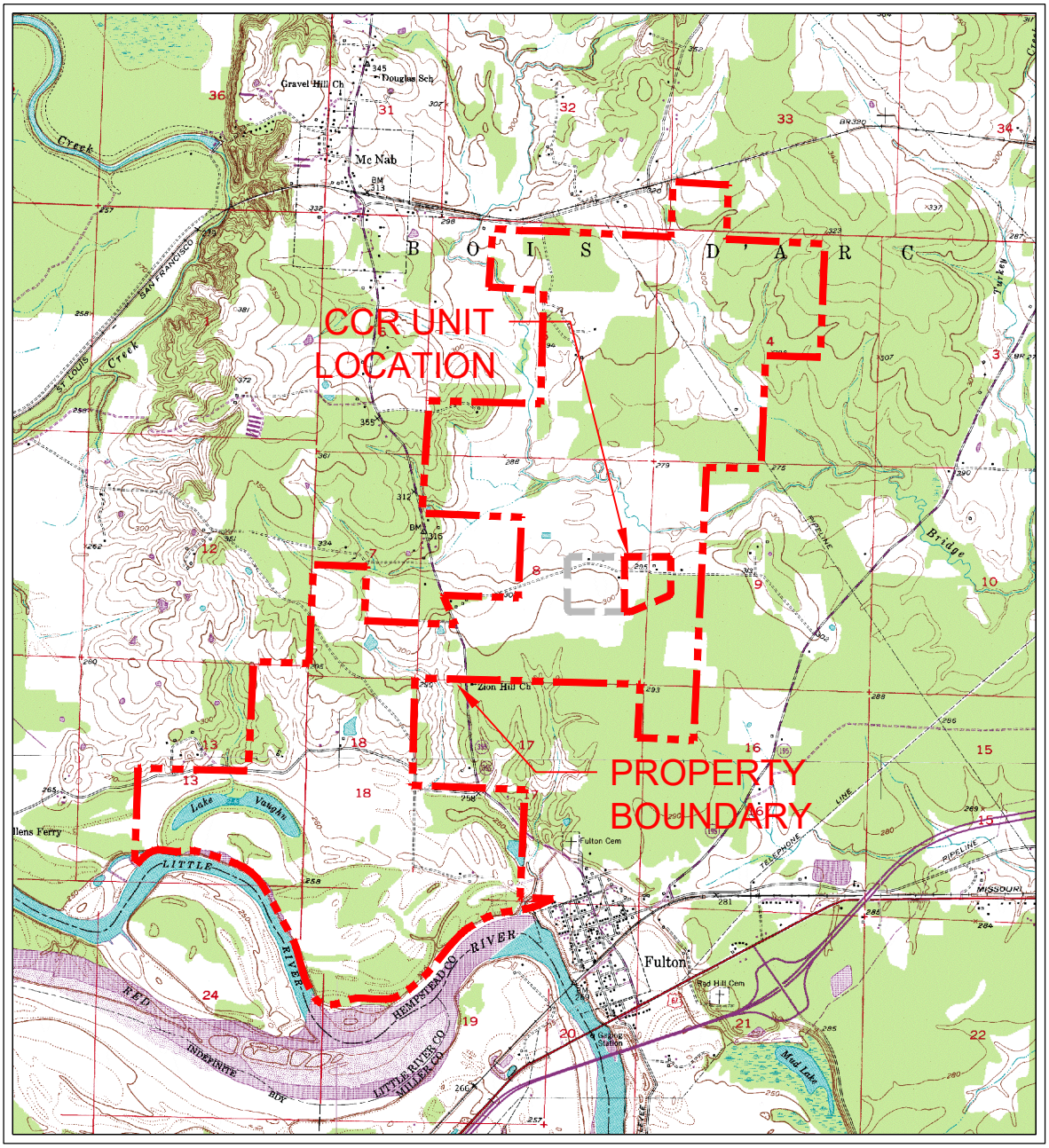
5.4 DEFICIENCIES (257.84(b)(2)(iii))

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.

ATTACHMENT A

FIGURE 1 – VICINITY MAP
FIGURE 2 – LANDFILL SITE LOCATION MAP

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1:24 000

1 .5 0 KILOMETERS 1 2

1000 0 METERS 1000 2000

1 .5 0 1

MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

N

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

Project Mngr:	DCM
Drawn By:	TLB
Checked By:	DCM
Approved By:	DCM
Project No.	216-002-35207221
Scale:	AS SHOWN
File No.	001
Date:	12/08/2020

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VICINITY MAP

2020 ANNUAL CCR INSPECTION

AMERICAN ELECTRIC POWER

JOHN W. TURK, JR. POWER PLANT

FULTON ARKANSAS

FIG. No. 1

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

REV.	DATE	BY	DESCRIPTION

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SITE LAYOUT MAP

2020 ANNUAL CCR INSPECTION

AMERICAN ELECTRIC POWER

JOHN W. TURK, JR. POWER PLANT

FULTON ARKANSAS

FIGURE 2

DESIGNED BY:	DCM
DRAWN BY:	TLB
APPVD. BY:	DCM
SCALE:	SEE BARSCALE
DATE:	12/8/2020
JOB NO.	216-002-35207221
ACAD NO.	002
SHEET NO.:	OF

ATTACHMENT B

FIGURE 3 – PHOTO LOCATION MAP
PHOTOGRAPHS

PHOTO 1
PHOTO 7
PHOTO 6
PHOTOS 2 & 11
PHOTO 5
PHOTO 8
PHOTOS 15, 16, & 17
PHOTO 3
PHOTO 4
PHOTO 13
FUTURE CELLS
CELL 2
CELL 1
PHOTO 10
PHOTO 12
PHOTO 9
PHOTO 14
CCR UNIT LOCATION

N

400 0 200 400

SCALE IN FEET

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

FIGURE 3

DESIGNED BY:	DCM
DRAWN BY:	TLB
APPVD. BY:	DCM
SCALE:	SEE BARSCALE
DATE:	12/8/2020
JOB NO.	216-002-3520722
ACAD NO.	003
SHEET NO.:	OF

PHOTO LAYOUT MAP

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

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REV.	DATE	BY	DESCRIPTION

1. Leachate Collection Pond looking from the north side.

2. The southeast corner of the leachate collection pond that is being repaired.

3. Sloughing on the southeast corner of the leachate collection pond looking towards the east.

4. The west side of the leachate collection pond that has the geomembrane rub sheet.

5. Underdrain pumping controls on the west side of the leachate collection pond.

6. Leachate pond inlet structure on the northwest corner of the pond.

7. East slope of the leachate collection pond facing south.

8. The east side berm that is between Cell 1 and the stormwater pond.

9. South side berm that is covered with artificial turf below the closure turf test pad.

10. The closure turf test pad located on the south side of Cell 1.

11. The north side of Cells 1 & 2 looking to the south.

12. Road and berm on the west side of Cell 2.

13. Road, berm and stormwater ditch between Cell 2 and the leachate collection pond.

14. The south side of Cells 1 & 2 looking to the north.

15. An overall view of the stormwater pond.

16. The inlet of the overflow discharge structure for the stormwater pond.

17. The overflow pipe discharge structure for the stormwater pond.