2023 Annual Landfill Inspection Report

CCR Landfill

Flint Creek Plant

Southwestern Electric Power Company

Gentry, AR

August 2023

Prepared for: Southwestern Electric Power Company – Flint Creek Plant

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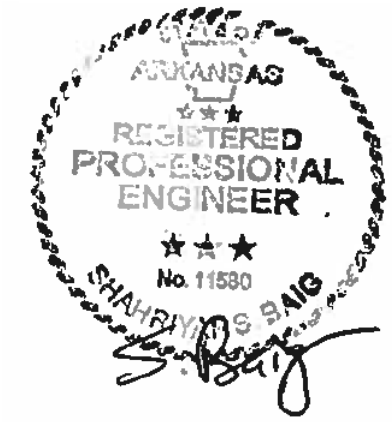

I certify to the best of my knowledge, information, and belief that the information contained in this report meets the requirements of 40 CFR § 257.84(b).

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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 Flint Creek Plant an evaluation of the facility.

Landfill facility is located northeast of the Flint Creek Power Plant. Figure 1, Site Location Map illustrates the location of the Landfill facility. Shah Baig, P.E. of the AEP-Geotechnical Engineering performed the 2023 inspection of the Landfill at the Flint Creek Plant. Greg Carter of the AEP-Plant Engineering coordinated the Landfill inspection and Scott Carney of the Flint Creek Plant facilitated the inspection of the Landfill facility. This report is a summary of the inspection and an assessment of the general condition of the facility. The inspection was performed on August 15, 2023. Weather conditions were sunny, light breeze, visibility was good, and the temperature ranged mid to high 60 degrees Fahrenheit. In the last 7 days prior to the inspection, 3.17 inches of rain was recorded. Inspection findings were briefly discussed with Scott Carney (Plant Environmental Coordinator).

2.0 DESCRIPTION OF LANDFILL

Figure 2, Landfill Facility Map illustrates major components of the Landfill facility that includes waste placement active areas (Areas 1, 2, and 4) and inactive Area 3, leachate collection pond, contact water pond, and stormwater pond. Area 3 of the landfill was recently certified and is the last area remaining for placement of CCR materials.

At the time of the Landfill inspection, operational activities were performed in the active Landfill areas. It appeared that protective cover was recently placed or graded at the south and west slopes of the Landfill. The waste placement and operational activities were performed in accordance with the approved permit. Landfill areas outside slopes of the current active fill area or below the intermediate geomembrane liner were covered with the permanent soil cap.

The overall features of the Landfill were categorized into the following components as a means of organizing the inspection and reporting:

- Active Landfill Disposal Areas
- Inactive Landfill Areas
- Leachate Collection/Contact Water Pond
- Storm Water Drainage Ditches
- Closed Areas

All areas of the landfill are constructed and certified. CCR waste is being placed in active areas and inactive area is ready to receive waste.

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 design geometry of the landfill since the last annual inspection. The geometry of the landfill has remained essentially unchanged, except for the change in topography of the active and inactive disposal areas.

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

The total volume of CCR disposed at the Landfill as of the inspection date of was estimated to be 2,355,471 (1,734,820 last inspection + 620,651 to date) cubic yards.

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, scarps, 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, final and intermediate cover, drainage features, leachate/contact water ponds, and the open cell.

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 description are illustrated in Figure 3, Inspection Photograph Location Map and inspection photographs. Additional pictures taken during the inspection are available upon request.

1. The lower west section of the south slope and the drainage ditch (Photograph Nos. 1 and 2) appeared in good and stable condition with controlled vegetation. The toe ditch appeared to have positive drainage without any signs of standing water. A significant size animal hole (Photograph No. 3) was encountered at the lower section and mid-way of the south slope.
2. Minor erosion gullies and surface erosion of the intermediate soil cover was noticed in the middle upper section of the south slope of the landfill (Photograph Nos. 4 and 5). Temporary runoff control measure was implemented midway in the southeast area of the

slope. The Southeast slope intermediate cover was finalized and ready for seeding and mulching (Photograph No. 6) and the south area of the landfill had reached its maximum CCR placement limits and ready for final grading (Photograph No. 7 and 8).

3. The southeast exterior slopes of the landfill and toe ditch area are illustrated in Photograph Nos. 9 and 10. Also, fabriform letdown was installed for the construction of the Landfill Areas 3 and 4. Overall, the condition of the slope was in good and stable condition. Minor erosion (Photograph No. 11) was noticed to the east of the fabriform letdown.
4. Photograph Nos. 12-15 illustrate overall condition of the east slope of the landfill and access road. The lower section of the slope downstream of the access road is steeper than the upper slope section. The slope appeared to be in good and stable condition. Slightly excessive vegetation was observed along the lower section of the slope (Photograph No. 13). Minor erosion was noticed at the south end of the access road (Photograph No. 14). Area 4 of the landfill is reaching its maximum CCR limits and was prep for final grades (Photograph No. 15).
5. At present Area 3 is the only area inactive and protected by rainflap in order to avoid and contact water generation (Photograph No. 16). Area 1 and 2 are close to it disposal capacities except final grading. Area 4 is also getting close to it final capacity with limit space for disposal of CCR waste. There was no ponding of water in the active areas. The active areas (1 and 2) are separated from the inactive area (3) by a low splitter berm all within the waste limits. There was no erosion of the CCR material in the active area and the interim slopes were safe for the operational activities. Intermediate (temporary) soil cover is placed at the south and west slopes. Stormwater runoff from this area is directed into the contact water pond via the concrete lined ditches.
6. Typical condition of the north landfill slope that has final cover and certified is illustrated in Photograph No. 17. The condition of this slope was good. There were no observed erosion gullies, sloughs, or other signs of movement of these areas. All areas had adequate and good vegetative cover. The northeast corner of the landfill slopes is illustrated in Photograph Nos. 18 and 19. A fabriform drainage ditch and a pipe culvert is located at the northeast corner of the Landfill (Photograph No. 18). The fabriform was in good and stable condition. Pipe culvert was free of obstruction and no standing water

was noticed. Scattered excessive grown vegetation was present in the northeast area east of the pipe culvert (Photograph No. 19).

7. Typical condition of the north Landfill slope that has final cover and certified is illustrated in Photograph Nos. 20 and 21. The north slope of the landfill is also where Area 3 of the landfill is constructed over the intermediate liner. The condition of this slope was good. There were no observed erosion gullies, sloughs, or other signs of movement of these areas. All areas had adequate and good vegetative cover.
8. Typical condition of the west landfill slope adjacent to Area 2 that consists of CCR material without an intermediate cover (Photograph No. 22). The west perimeter berm adjacent to Area 2 and a separation berm between Areas 2 and 3 is illustrated in Photograph Nos. 22 and 23. In this area the CCR waste appeared to be stacked slightly higher than the CCR grades. The separation berm appeared to be in good condition.
9. A significant erosion gully was encountered along the toe of the west slope, adjacent to Areas 1 and 2 (Photograph Nos. 24 and 25). It appeared that this area may be where runoff may be ponding creating a low spot.
10. The north perimeter contact water channel outlet and inlet ends are illustrated in Photograph Nos. 26 and 27. The channel appeared in good and stable condition. Water was flowing through the pipe culvert to the contact water pond (Photograph No. 26). It appears that solids were caried from the upstream end of the channel to the contact water pond. Minor accumulation of solids were accumulated at both ends of the pipe. Overall view of the contact water pond is illustrated in Photograph No. 28. The contact water pond dikes appeared in good and stable condition with good concrete cover. The pond appeared functioning as designed.
11. Overall view of the leachate pond is shown in Photograph No. 29. Repairs were performed at the leachate pond in 2021 to remove trapped water under the bottom liner. Leachate pond is functioning as designed after repairs were performed and no unusual condition in the pond components were observed.
12. The south perimeter contact water concrete lined channel and outlet end of the pipe culvert are illustrated in Photograph Nos. 30-32. The channel was clear of debris and in

good condition. The channel appeared in good and stable condition, no standing water was noticed and no obstruction to flow.

13. Overall condition of the stormwater pond, riprap conveyance channel, and overflow pipe appeared in good functional condition (Photograph No. 33). Excessive bushes and small trees around the pond slopes and within the riprap channel were noticed.

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 operation 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 overall is functioning as intended design. All areas of the facility are in good condition.
2) The Plant is performing inspections as required.
3) The intermediate soil cover should be placed in the areas where the CCR waste has reached final grades.
4) The placement of CCR waste in Area 2 adjacent to the west perimeter berm was sloped towards the berm. The CCR waste should be graded to the required final grades and the contact water should be contained and routed to the contact water pond without any spillage over the berm.
5) A significant erosion gully was encountered to the west side along the toe of the slope in Area 2.
6) Excessive vegetation, trees, bushes, and minor erosion as noted in the report should be addressed as part of regular maintenance item.
7) Solids were found at the north contact water channel.
8) The leachate collection pond liner repair completed in 2021 appeared in good condition per the original design.

5.2 MAINTENANCE ITEMS

The following specific maintenance items were identified during this inspection.

1) Excessive grass/vegetation should be mowed on a regular basis at least 2-3 times during the year to facilitate inspections and keep woody vegetation to minimum. Any trees at or around the slopes should be removed.

2) Minor erosion gullies at the south slope of the landfill should be repaired by backfilling and/or regrading. The erosion gully at the south side of the landfill should be backfilled and regraded.

3) CCR waste placement should be properly contained within the landfill areas and contact water should be conveyed via interior temporary ditches and/or piping system as designed.

4) The waste grades should be completed per the design drawings and intermediate cover should be placed thereafter. Areas those are not properly vegetated, additional seeding and mulching with tackifier should be applied.

5) The accumulation of ash at the north contact water channel pipe culvert should be removed and control to minimize solid accumulation in the contact water pond.

5.3 ITEMS TO MONITOR

1. Continue to monitor the exposed waste surfaces and slopes (interim and permanent) of the active landfill to avoid severe erosion/failure and spillages outside the landfill waste limits.
2. Monitoring and inspection of construction activities in conjunction with operational activities is required until all construction activities are completed.

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.

(Note: Deficiency related to water below leachate pond liner; this item was incorrectly entered for an asset not subject to the CCR rule and that the issue has been addressed in accordance with separate State specific requirements)

A deficiency is defined as either:

1. Uncontrolled seepage (leachate breakout),
2. Displacement of the embankment,
3. Blockage of control feature, or
4. Erosion, more than minor maintenance.

LIST OF FIGURES

Figure 1 – Site Location Map
Flint Creek Landfill, Gentry, AR

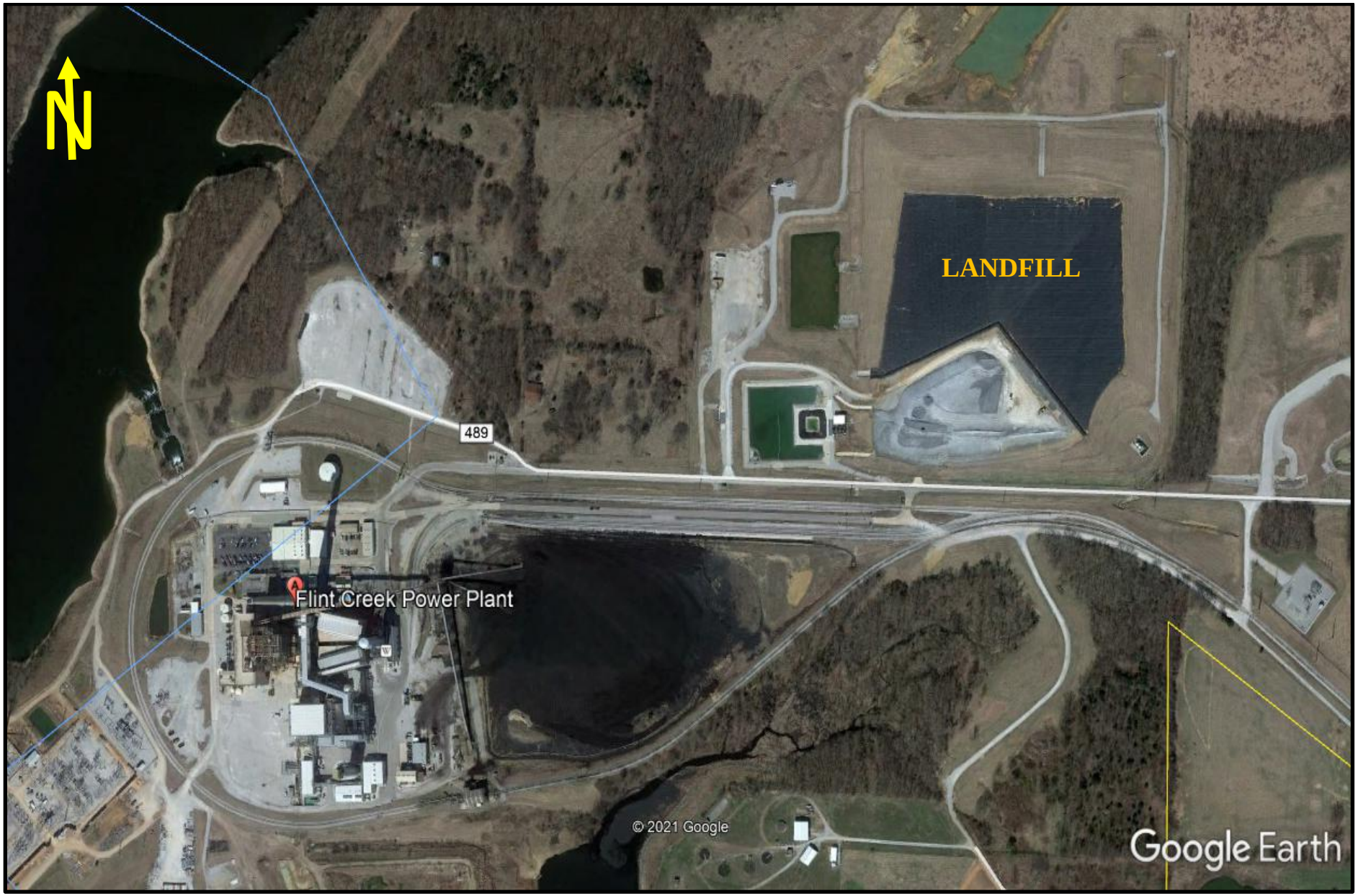
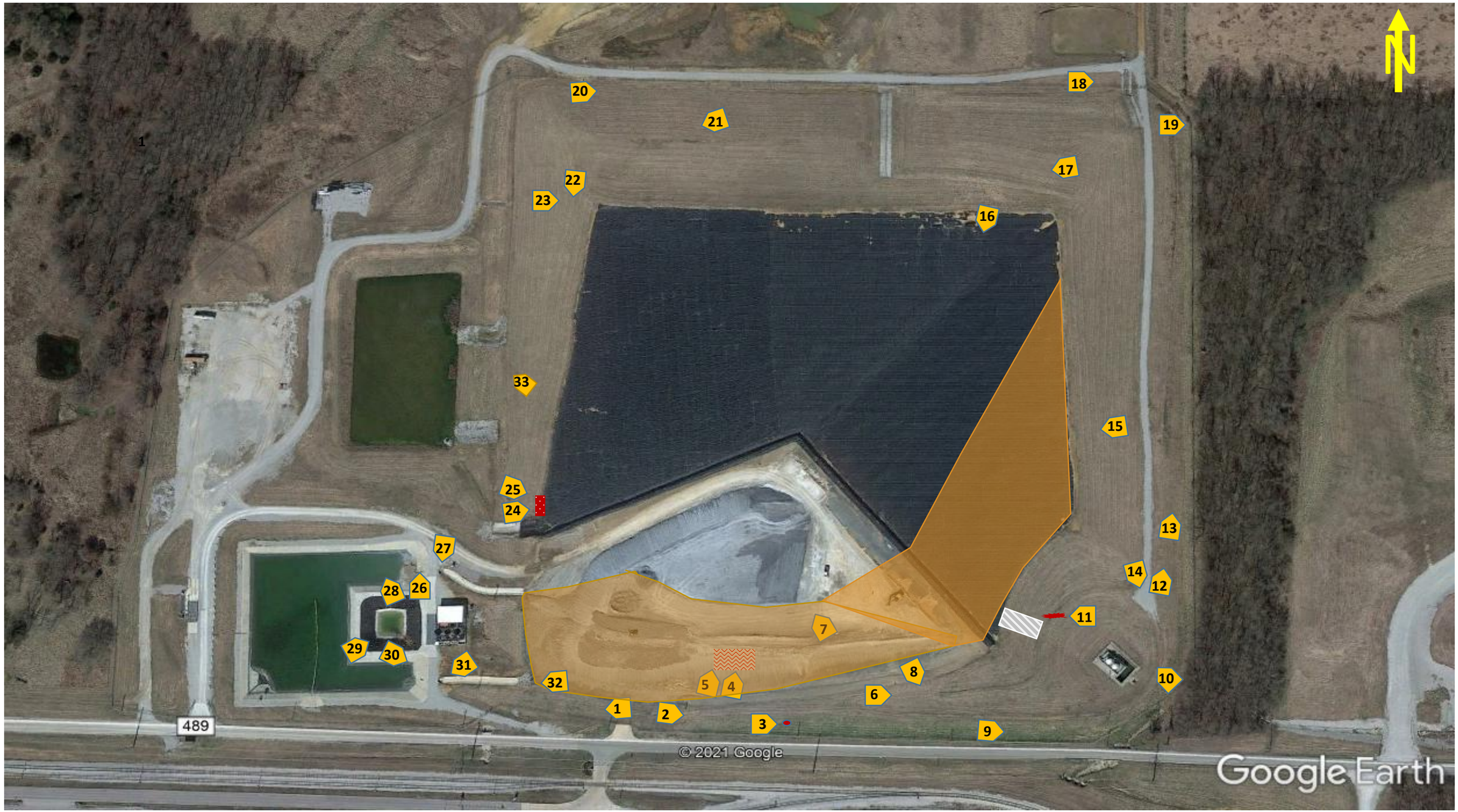


Figure 2 – Landfill Facility Map
Flint Creek Landfill, Gentry, AR

Figure 3 – Inspection Photograph Location Map
Flint Creek Landfill, Gentry, AR



ATTACHMENT

- **Inspection Photographs**

Photograph No. 1 The south slope and the toe ditch (looking west).	
Photograph No. 2 Overall view of the south slope (looking east).	
Photograph No. 3 Animal hole at the lower section of the south slope.	

Photograph No. 4 South slope erosion due to lack of vegetation.	
Photograph No. 5 Erosion gully.	
Photograph No. 6 Southeast area of the upper slope.	

Photograph No. 7 Area 1 and Area 4 to the final waste grades.	
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Photograph No. 9 The toe ditch area along the southeast corner.	

Photograph No. 10 Southeast slope of the landfill and the fabriform channel.	
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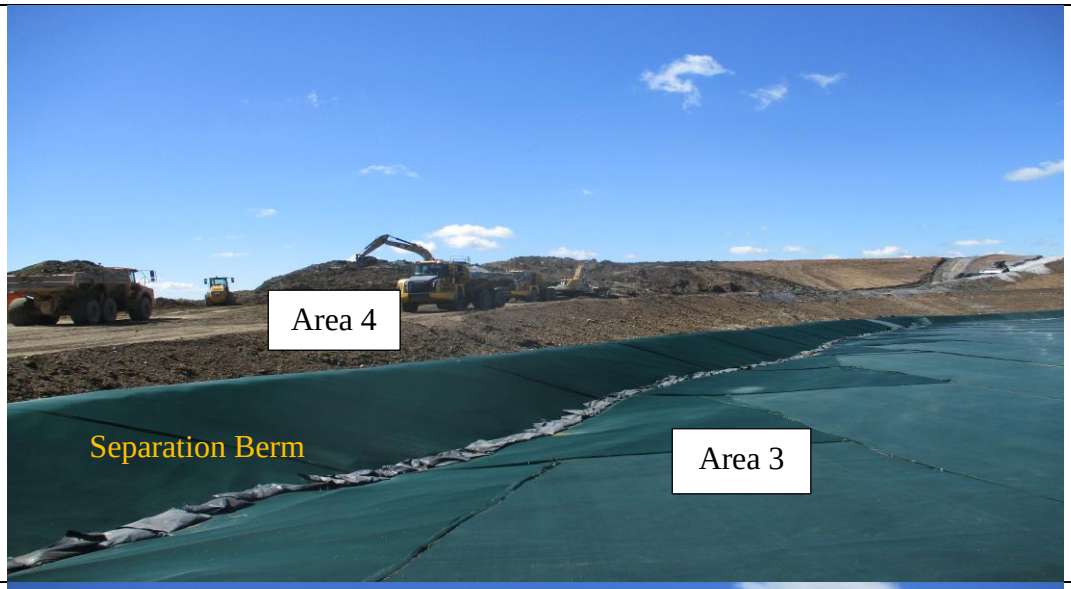
Photograph No. 12 East slope of the landfill (looking north).	

Photograph No. 13 Slightly excessive vegetation.	
Photograph No. 14 Minor erosion at the stone access road.	
Photograph No. 15 East Slope looking at the top of the landfill.	

Photograph No. 16 Area 3 and 4.	
Photograph No. 17 Overall view of the north slope with soil cover.	
Photograph No. 18 Drainage channel and pipe culvert located in the northeast corner.	

Photograph No. 19 Slightly excessive vegetation at the northeast corner.	
Photograph No. 20 Typical view of the north slope toe area (looking east).	
Photograph No. 21 Overall view of the north slope (looking west).	

Photograph No. 22 Area 2 west side.	
Photograph No. 23 Area 2 north side.	
Photograph No. 24 Erosion gully (looking north).	

Photograph No. 25 Significant erosion gully.	
Photograph No. 26 North contact water channel pipe at the contact water pond.	
Photograph No. 27 Inlet end of the north contact water channel.	

Photograph No. 28 Overall view of the contact water pipe.	
Photograph No. 29 Overall view of the leachate pond.	
Photograph No. 30 Discharge pipe of the south contact water channel.	

Photograph No. 31 South contact water channel inlet end.	
Photograph No. 32 South contact water channel.	
Photograph No. 33 Overall view of the stormwater pond.