

# 2023 Annual Landfill Inspection Report

**Landfill**

**H.W. Pirkey Plant  
Southwestern Electric Power Company  
Hallsville, Texas**

**November 2023**

Prepared for: Southwestern Electric Power Company – H.W. Pirkey Plant

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**Document ID: GERS-23-038**

**2023 Annual Landfill Inspection Report  
(CCR Landfill)**

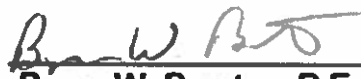
**H.W. Pirkey Plant**

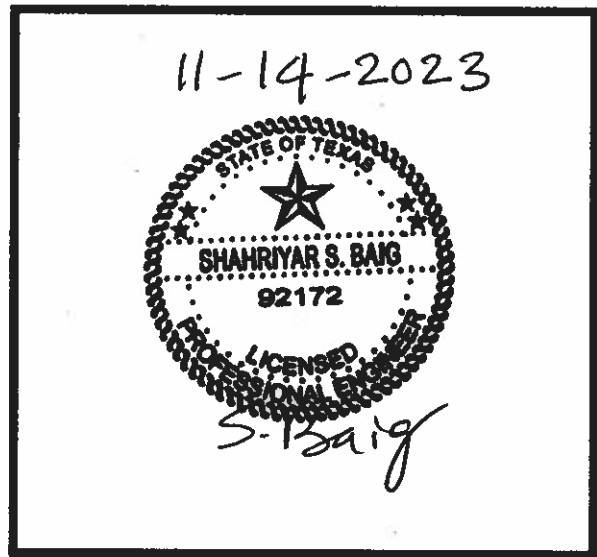
**Document Number: GERS-23-038**

**Date of Inspection: October 11, 2023**

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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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## **1.0 INTRODUCTION**

This report was prepared by AEP- Geotechnical Engineering Services (GES) section, in part, to fulfill requirements of 30 TAC 352.841 (40 CFR 257.84) and to provide the H.W. Pirkey Plant an evaluation of the facility.

Mr. Shah Baig, P.E. and Bijoy Halder, P.E. performed the 2023 inspection of the Landfill at the H.W. Pirkey Plant. This report is a summary of the inspection and an assessment of the general condition of the facility. Mr. Greg Carter, AEP-SWEPCO Generation was the facility contact. The inspection was performed on October 11, 2023. Weather conditions were mostly sunny, and the temperatures were in the upper 60's to low 70's (°F). There was 1.55 inches of recorded rainfall over the seven days prior to the inspection and 0.00 inches of rain on the day of inspection. Almost all areas of the landfill had been recently mowed.

## **2.0 DESCRIPTION OF LANDFILL**

The H.W. Pirkey Power Plant is located in southern Harrison County, approximately 6 miles southeast of Hallsville, Texas, as shown in Figure 1 – Vicinity Map in Attachment A. The CCR Landfill is located Southwest of the main plant, between the Sabine Mine coal pile to the north and the Landfill Run-off Pond

to the South. The overall features of the landfill were categorized into the following components as a means of organizing the inspection and reporting:

- Closed Landfill Areas (1984, 1987, 1993, 1995, 1997, 1999, and 2005 Cells)
- Inactive Landfill Disposal Areas (2012, 1985 Pond Cell and 1993 Cell)
- Inactive Landfill Disposal Area (2015 Cell)
- Active Landfill Disposal Area (2018 Cell)
- Storm Water Drainage Ditches

These features, including the approximate limits of each area, are shown on Figure 2 – Site Map in Attachment A. Selected photographs taken during the inspection and used to illustrate the visual observations presented in the report are presented in Attachment B. Additional inspection photos not included in the report can be made available to the Plant upon request.

All of the landfill areas are either considered closed and covered with a vegetative cap, closure turf, or inactive with a temporary soil cover or only one active area (2018 cell). The landfill was constructed around an existing oil/gas well known as the Mohan well, which is situated near the landfill's eastern edge. Perimeter ditches divert non-contact water to the surrounding natural drainage courses, while multiple catch basins collect and channel non-contact water through "let-down" piping systems. All contact water and leachate are directed towards the Landfill Run-off Pond. The four leachate collection discharge pipes outlet on the southern end of the landfill have been tied into one 24-inch drain line which is conveyed directly to the Landfill Runoff Pond. There are two parallel ditches on the western boundary of the landfill area, both to convey non-contact water off the landfill side slope and surrounding areas.

Part of the Cell 2018 area will be used before completely closing the landfill and remaining area will be removed from the existing footprint of the landfill.



### **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 have 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 occurred to the geometry of the landfill since the 2021 annual inspection. The only construction that has occurred since the 2022 annual inspection is the installation of closure turf cover system over the inactive areas of the landfill, but this does not affect the overall geometry of the landfill.

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

The total volume of ash disposed at the landfill as of October 2023 has not significantly changed since last year. The volume placed in the landfill estimated by Lane Roberts with Akron Consulting LLC as 17.06 million 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 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. 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 performed to detect any indications of distress or malfunction in the landfill and its associated structures. Specific items examined included all structural components of the landfill perimeter berms, temporary and final covers, drainage features, open cells, and appurtenances such as chimney drains, among others.

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 photos are included in Attachment B. Additional pictures taken during the inspection can be made available upon request.

#### **Closed Landfill Areas (1984, 1987, 1993, 1995, 1997, 1999, and 2005 Cells)**

1. In general, surface water runoff from the cap was draining as designed. There were no signs of erosion, undermining, scarps, or sloughs in the surface vegetation covering the top and side slope areas except cells 1987 and 1993.
2. The closed landfill areas were observed to have a thick stand of grass cover over most of the capped area. The landfill cover of cells 1984, 1987, 1993, 1995, 1999 and 2005 were well vegetative.
3. There were no signs of settlement, signs of movement or distress of the landfill area. Access roads on top and adjacent to the landfill area were in good condition.
4. Most of the perimeter ditches indicated positive flowing water without obstruction.
5. There were several areas along the exterior slopes of the 1987, 1993, 1995, and 2005 cells that had damage from hog activity.

#### **Inactive Landfill Disposal Areas (2012, 1985 Pond Cell and 1993 Cell)**

6. All the leachate outlet pipes from the 1985 pond cell, 1993 cell and the 2012 cell have been extended along the south perimeter ditch to one point and tied into a 24-inch diameter leachate pipe that discharges directly into the landfill pond. These pipe extensions were buried, and the perimeter ditch areas covered with soil, closure turf and rain flap material to protect non-contact water runoff from exposure to ash materials.
7. A temporary soil cover consisting of a red clay material has been placed for an erosion protection measure on a portion of the side slopes of the 2012 cell. The soil cover has been seeded but most of the area still has no vegetative cover and there is some sediment buildup in the ditches. In addition to the soils cover, other adjacent areas of the 2012 cell, and 1985 pond cell have been covered with a temporary soil cover or interim soil cover in preparation for the installation of closure turf material. For areas that are not covered with closure turf material, the temporary soil cover will be seeded and mulched for erosion protection. In 1985 pond cell, erosion rills have developed in the bare soils cover due to lack of vegetation.
8. The final Cap and Cover system of the remaining top portions of the 2012 cell consists of closure turf material, the slopes of this cell is planned covered with closure turf in 2023.
9. On the southern side of the landfill area, the check valve drain line leading from the manhole had been extended and was open allowing water to discharge directly into the landfill pond.
10. Cell 1993 was covered with closure turf material.

#### **Inactive Landfill Disposal Area (2015 Cell)**

11. During the inspection, it was observed that all the inactive disposal areas (2015 Cell) had been covered with closure turf material.
12. The lower slopes of the 2015 active cell have been covered with a final Cap and Cover system consisting of Closure Turf material with rock lined benches and perimeter ditches.

#### **Landfill Disposal Area (2018 Cell)**

13. The landfill disposal area (2018 cell) is partially used for CCR disposal and the remaining area of this cell will not be used and will not be part of the landfill footprint. This remaining area receives storm water runoff from the liner area and perimeter ditches is considered non-contact water and is diverted around the landfill runoff pond.

#### **Storm Water Drainage Ditches**

14. The concrete slope protection and the two 36-inch-diameter culverts, which discharged leachate and contact water from the south side perimeter ditches into the Landfill Runoff Pond was removed previously. All the leachate outlet pipes from the 1985 pond cell, 1993 cell, 2012 cell and the 2015 cell have been extended along the south perimeter ditch to one point and tied into a 24-inch diameter leachate pipe that discharges directly into the landfill pond. These pipe extensions were buried, and the south perimeter ditch areas covered with a combination of soil, closure turf and rain flap materials to protect non-contact water runoff from exposure to ash materials.
15. A non-contact water ditch runs along the eastern edge of the landfill area. The vegetation along this ditch was good with some areas being slightly overgrown. There was no evidence of

erosion, obstructions, or poor drainage conditions. There was flowing water without obstruction in the ditches at the time of inspection due to recent rain event.

16. A non-contact water ditch runs along the toe of the western edge of the landfill area and is lined with final Cap and Cover Closure Turf material. Runoff from the lower outside slope of the 2015 cell Closure Turf is collected into this ditch and then flows through a culvert located in the southwest corner of the landfill perimeter ditch and discharges onto the geomembrane lined non-contact water ditch that goes around the landfill pond. The non-contact water ditch geomembrane has been undermined from excessive flowing water from rain event.
17. Runoff from the 2005 Cell cap and cover is collected into a 36-inch-diameter conduit and this conduit discharges into the non-contact water ditch on the northern end of the west perimeter ditch area. Previously, the geomembrane liner was damaged from an extension of another non-contact water pipe into the ditch. An earthen berm armored with riprap material had been placed at the end of the non-contact water ditch to divert flow away from the toe area of the Landfill Runoff Storm Water Pond. Several small holes about 2 inches in diameter had been cut into the geomembrane to allow any trapped groundwater under the geomembrane to drain and prevent floating of the geomembrane liner.
18. Few sections of the non-contact water ditch have vegetation growing in it from sediment buildup on top of the liner. Floating geomembrane was noticed in the southeastern ditch of cell 2018. The liner needs repaired in this area.
19. Construction of a brine pond was completed in June 2023 inside the footprint of the landfill runoff pond. Side slopes are covered with geomembrane to prevent the migration of brine. Surface erosion was observed at the side slopes of the landfill storm water runoff pond.

#### **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 and the active cell, inactive cells, closed areas, and storm water ditches are in good condition. The Plant is performing regular maintenance and inspections as required.

### **5.2 MAINTENANCE ITEMS**

The following maintenance items were identified during the visual inspection, see site map for locations. Contact GES for specific recommendations regarding repairs:

- 1) Repair the damaged slope areas from hog activity (cell 1987, 1993, 19955, and 2005).
- 2) Repair the erosion rills, re-seed and mulch the temporary soil cover on the lower portion of the 2012 cell near the 1985 pond area on the south side.

- 3) Repair the geomembrane liner in the non-contact water ditches on the west side of the landfill where culvert pipes have undermined the liner from excessive flows and pipe extensions have penetrated through the liner to enter the ditch.
- 4) Operate the check valve drain in the ground water interceptor manhole periodically to maintain its function.
- 5) Remove the soil accumulation in front of the outlet of the 18-inch-diameter leachate collection discharge pipe on the south side of the 1985 Pond Cell., 24-inch-diameter storm sewer pipe of 1993 Cell. Install proper erosion and sediment controls to minimize the amount of sediment build up in the storm water runoff ditches.
- 6) Repair the erosion on the side slope of the south face of the 1987 cell and 1993 cell.
- 7) Repair the broken and misaligned drain outlet at cell 2018.
- 8) Fill the animal holes encountered 1984 and 1987 cell areas. Also repair erosion at the toe areas of these cells.

### **5.3 ITEMS TO MONITOR**

The following items were identified during the visual inspection as items to be monitored:

- None identified as part of this inspection.

### **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 inspections.

A deficiency is defined as either:

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

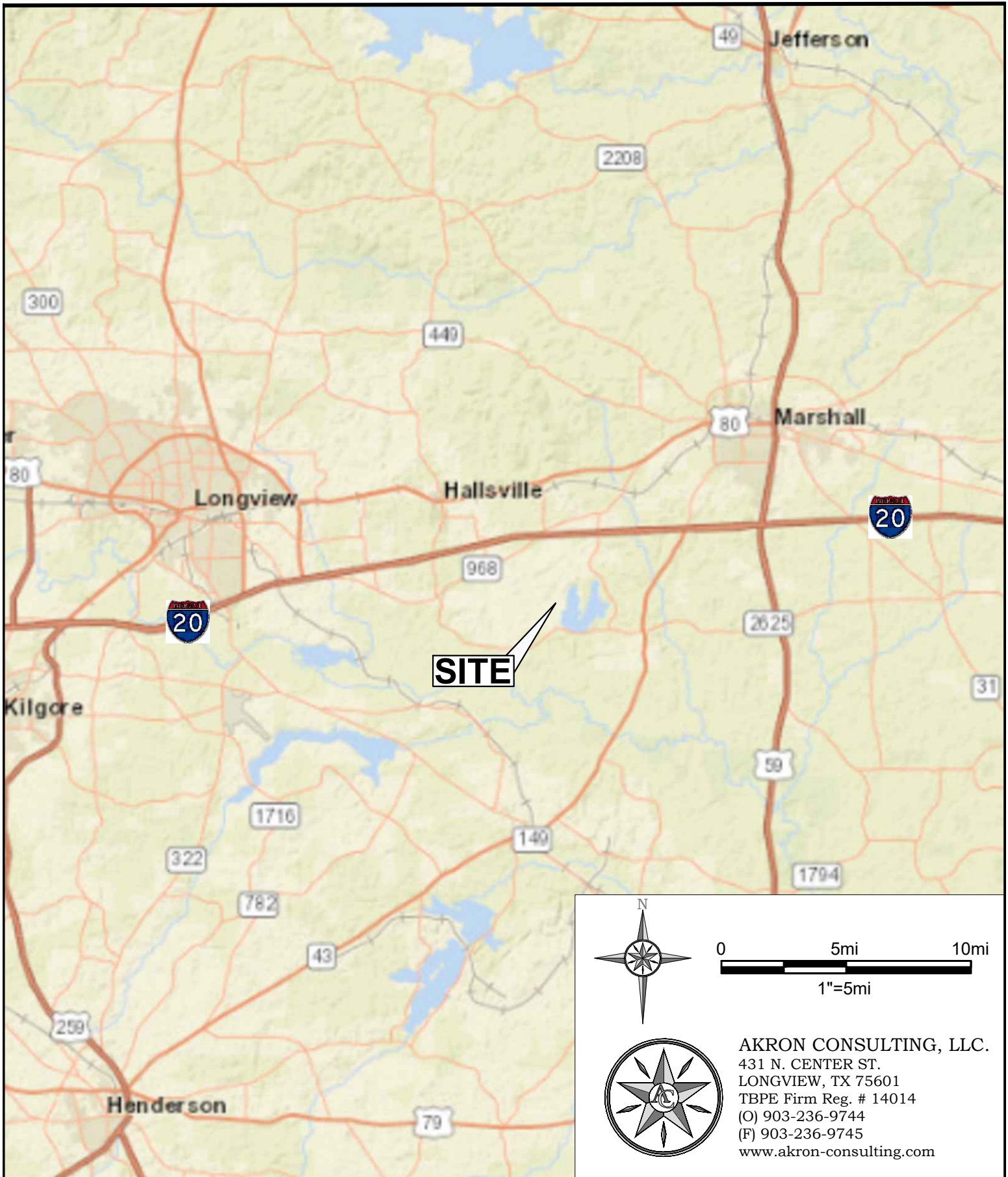
If any of these conditions occur before the next annual inspection contact AEP Geotechnical Engineering Shah Baig (Phone: 614.716.2241, email: sbaig@aep.com) or Bryan Brunton (Phone 614-716-3090, email: bwbrunton@aep.com) immediately.

**ATTACHMENT A**

Figure 1 – Vicinity Map  
Figure 2 – Landfill Site Map

# FIGURE 1 - VICINITY MAP

CCR LANDFILL, H.W. PIRKEY POWER PLANT, HALLSVILLE, TX







**FIGURE 2  
PIRKEY LANDFILL  
SITE MAP**



**ATTACHMENT B**

Figure 3 – Inspection Photograph Location Map  
Inspection Photographs

# FIGURE 3 - INSPECTION PHOTOGRAPH LOCATION MAP

## CCR LANDFILL, H.W. PIRKEY POWER PLANT, HALLSVILLE, TX





**Photograph No. 1**  
View of the storm water let-down pipe on the east side of the landfill area. (looking southeast)






**Photograph No. 2**  
View of the Cell 1984 let-down catch basin at bench location (looking southwest)



**Photograph No. 3**  
Typical condition of the vegetative cover over the northwestern areas of the landfill cap. View of the Cell 1984 let-down catch basin (looking northwest)








<p><b>Photograph No. 4</b> View of the non-contact-water perimeter ditch and side slope conditions around the Mohan Well site on the south side of the landfill area. (looking northeast)</p>	
<p><b>Photograph No. 5</b> View of the non-contact-water perimeter ditch condition around the Mohan Well site on the south side of the landfill area. (looking southeast)</p>	
<p><b>Photograph No. 6</b> View of the non-contact-water perimeter ditch condition around the Mohan Well site on the north side of the landfill area. (looking west)</p>	



<p><b>Photograph No. 7</b>                  Notice damage from hog activity at exterior slope of Cell 1987</p>	
<p><b>Photograph No. 8</b>                  Erosion was observed at exterior slope of Cell 1987 (looking northwest).</p>	
<p><b>Photograph No. 9</b>                  View of the non-contact-water perimeter ditch condition around the Mohan Well site on the south side of the landfill area. (looking southeast)</p>	



<p>Photograph No. 10</p> <p>Typical condition of southeast slope intermediate bench- Cell 1987 (looking northwest)</p>	
<p>Photograph No. 11</p> <p>Notice damage from hog activity at exterior slope of Cell 1993</p>	
<p>Photograph No. 12</p> <p>Erosion was observed at exterior slope of Cell 1993 (looking northwest). Need to establish vegetation to control erosion.</p>	



Photograph No. 13  
Landfill Cover – view of one of the let-down catch basins inlet on top of Cell 1987.



Photograph No. 14  
View of the 36” diameter culverts from the 1993 cell.



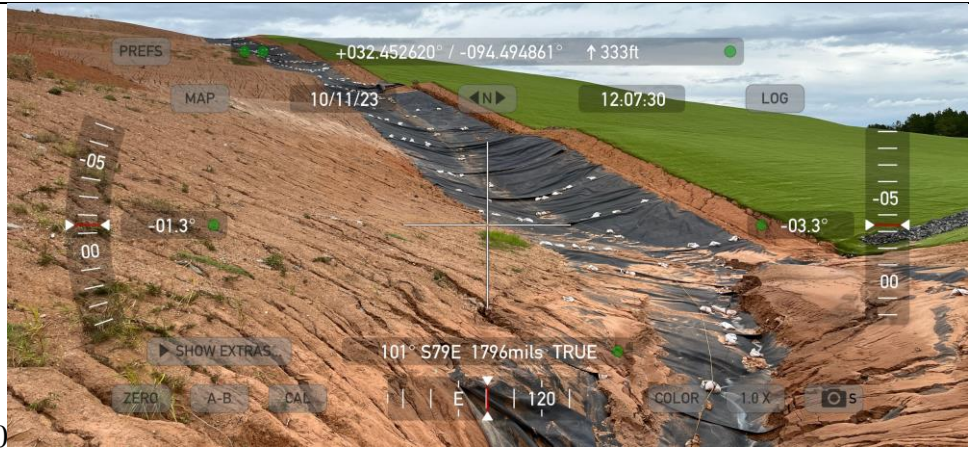
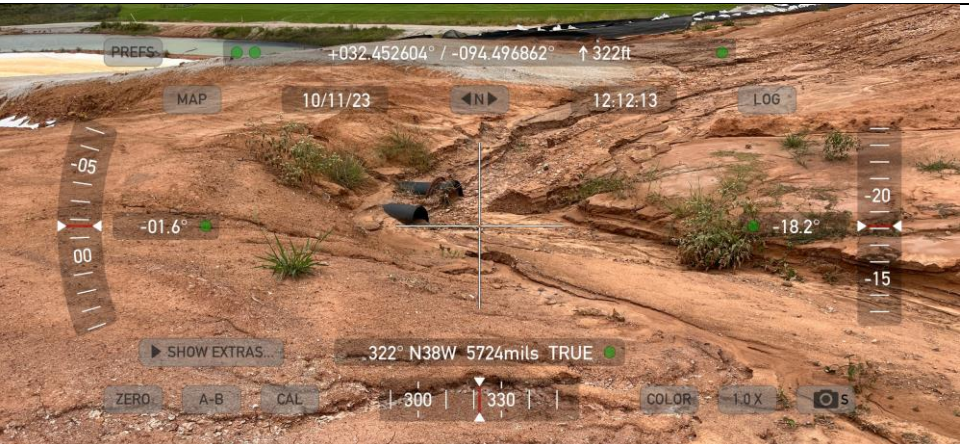

Photograph No. 15  
Typical condition of the Cell 1993 slopes with closure turf material. (looking northwest)





<p><b>Photograph No. 16</b> View of the 36” diameter culverts from the 1993 cell. Vegetation is growing over liner material covered with silt.</p>	
<p><b>Photograph No. 17</b> View of 2018 cell area. Minor siltation is noticed.</p>	
<p><b>Photograph No. 18</b> Significant erosion rills and sediment buildup were noted near 24-in diameter storm sewer pipe culvert (adjacent areas of the 2012 cell, 1985 pond cell and 1993 cell).</p>	



<p>Photograph No. 19</p> <p>Sediment was observed over 20-mil geo-membrane rain flap material. (looking southeast)</p>	
<p>Photograph No. 20</p> <p>Sediment buildup partially covered the culvert drain. (looking northwest)</p>	
<p>Photograph No. 21</p> <p>24" diameter culvert was noticed misaligned at 2018 cell.</p>	



**Photograph No. 22**  
 View of new Brine Pond. Construction was completed in June 2023.



**Photograph No. 23**  
 Excessive surface erosion was observed on the side slope of Landfill Storm Water Runoff Pond.



**Photograph No. 24**  
 A gap was noticed between geosynthetic and soil. Fixation of the geosynthetic will reduce erosion of soil from underneath of the geosynthetic.



**Photograph No. 25**  
 Surface erosion was observed at the let down ditch on the southern end of 2018 cell.





**Photograph No. 26**  
 View of the non-contact water perimeter ditch on the west side of landfill. Note iron stain in geosynthetic.



**Photograph No. 27**  
 Vegetation and sedimentation build up was observed at western side of let down ditch near cell 2015.



**Photograph No. 28**  
 View of cell 2015 showing final cap and cover with a rock lined bench on the closure turf material. (looking northeast)



**Photograph No. 29**  
 View of cell 2015 showing final cap and cover. (looking northeast)





Photograph No. 30  
 View of cell 2005 showing vegetative final cover. (looking southwest)



Photograph No. 31  
 View of one of the let-down catch basins inlets on top of 2005 area.



Photograph No. 32  
 Landfill Cover – view of one of the let-down catch basins inlets on top of 1999 area.



Photograph No. 33  
 Damage from hog activity was observed at exterior slope of Cell 1995. (looking northwest)





Photograph No. 34  
Ditch geomembrane was undermined from excessive flowing water of Cell 2015. (looking southwest)

