

2023 ANNUAL CCR LANDFILL INSPECTION REPORT

Ash Landfill

**Welsh Plant
American Electric Power Service Corporation
(SWEPCO)
Cason, Texas**

September 2023

Prepared for: SWEPCO.

Prepared by: American Electric Power Service Corporation
One Riverside Plaza
Columbus, OH 43215




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2023 Annual CCR Landfill Inspection Report

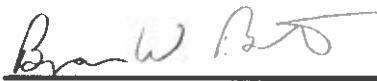
Welsh Power Plant, Cason, Texas
Ash Landfill

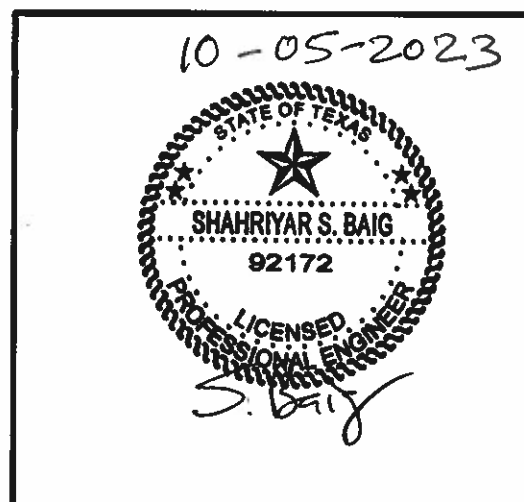
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PREPARED BY:  **DATE:** 10-03-2023
Shah S. Baig, P.E.

REVIEWED BY:  **DATE:** 10/04/2023
W. Greg Carter, P.E.

APPROVED BY:  **DATE:** 10/04/2023
Bryan W. Brunton, P.E.
Manager – AEP Geotechnical Engineering



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 CCR Landfill Inspection Report Welsh Power Plant Cason, Texas

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Inspection Photographs

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 Welsh Power Plant an evaluation of the facility.

Mr. Shah Baig, P.E., performed the 2023 inspection of the Landfill at the Welsh Power Plant. This report is a summary of the inspection and an assessment of the general condition of the facility. Mr. Greg Carter, P.E., Regional Engineering for the Plant, was present and coordinated the inspection and also the facility contact. The inspection was performed on September 13, 2023. Weather conditions were mostly cloudy, light wind, visibility was good, and the temperature was 69° Fahrenheit. There was 0.38 inch of rain on the day of inspection and 0.61 inch of rainfall over the seven days prior to the inspection.

2.0 DESCRIPTION OF LANDFILL

The AEP J. Robert Welsh Plant is in southern Titus County, approximately 8 miles northeast of Pittsburg, Texas, and approximately two miles northwest of Cason, Texas (Figure 1, Vicinity Map). The CCR (coal combustion residuals) landfill is located south of the main plant. The CCR landfill is also located between the bottom ash storage pond to the south and primary bottom ash pond to the north. Figure 2 shows the exact location of the landfill. Figures 1 and 2 are included in Attachment A.

The AEP-SWEPCO Welsh Power Plant has a deed recorded Ash Landfill (also previously known as Fly Ash Storage Area or Phase 1) located in Titus County, Texas. The Welsh Ash Landfill is on record with the Texas Commission on Environmental Quality (TCEQ) as Industrial Solid Waste Facility (Registration Number 31086).

The Welsh Ash Landfill receives bottom ash, economizer ash, and fly ash from two (2) 528 MW coal fired boilers. Typically, the Welsh Power Plant annually produces approximately 100,000 cubic yards of fly ash and 30,000 cubic yards of bottom and economizer ash.

The Welsh Ash Landfill is generally operated in two sections. The eastern one-third of the landfill is primarily composed of dredged bottom ash, economizer ash, and fly ash material sluiced to the ash landfill between approximately 1986 and 2000. Since 2000, this area has been the primary disposal area for the landfill and is currently active. An ash marketer is contracted to sell all marketable ash material for beneficial reuse to extend the life of the landfill. The ash marketer utilizes the remaining western two-thirds of the landfill as temporary storage and process area.

At present, the CCR materials from the existing bottom ash storage pond is excavated and placed in the eastern two-third area and processed in the western one-third area of the Landfill. This process will continue until all the CCR materials from the bottom ash storage pond (as part of the closure-by-removal project) is removed and disposed of at 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 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 Landfill since the last annual inspection. The overall geometry of the landfill has remained essentially unchanged, except for the change in topography of the active disposal, ash processing areas, construction activities per the Landfill design.

4.2 Volume (257.84(b)(2)(ii))

In accordance with 257.84(b) the approximate volume of CCR added to or removed from the landfill for beneficial use between November 2022 through September 2023 was estimated by AEP as follows. The CCR Tracking Spreadsheet provided by Landfill staff indicates that approximately 113,068 cubic yards (yd³) of ash by product was added to the landfill while approximately 9,639 cubic yards (yd³) of ash by product (fly ash and flex base) were removed from the landfill. This estimate results in a net additional volume of approximately 103,429 yd³ of CCR material in the Landfill.

From the 2022 CCR inspection report, the estimated volume was given as 741,364 cubic yards of the CCR material. Applying estimated net addition of 103,429 cubic-yards, the total volume of CCR in the Welsh Landfill is estimated to be 844,793 cubic-yards.

$741,364 + 103,429 = 844,793$ 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 below 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 conducted to identify any sign 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, disposal cells and appurtenances such as leachate collection systems.

Overall, the facility is in satisfactory 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. Since the last inspection, construction of several Landfill components was completed prior to the placement of additional waste in the eastern area of the Landfill. An inspection photo location map and inspection photographs are included in Attachment B. Additional pictures were taken during the inspection could be made available upon request.

1. The east slope of the landfill and the toe ditch is illustrated in Photograph Nos. 1 and 2. The slope appeared in satisfactory condition with no signs of seepage, significant erosion, or sloughing. Photograph No. 3 illustrates the HDPE lined letdown channel in the northeast corner of the landfill. The channel appeared to be in satisfactory and functional condition. The bottom section of the letdown channel is lined with concrete with energy dissipater blocks to slow water down before it enters the perimeter ditch. The letdown, toe ditch, and the pipe culverts are functioning as designed. The perimeter soil berm (Photograph No. 4) was recently constructed to control the contact water of the Landfill appeared in good and stable condition. Overall view of the placed CCR material at the Landfill is illustrated in Photograph No. 5 appeared to be stable without any standing water or significant erosion.
2. Photograph No. 6 illustrate the perimeter soil berm at the north slope of the Landfill. The berm appeared in good and stable condition. Photographs No. 7-9 illustrates the outer slopes, northern let down channel and perimeter ditch on the north side of the landfill. Most of the slopes appeared in satisfactory condition with no signs of seepage,

significant erosion, or sloughing. Vegetation cover is satisfactory except for some sparse overgrown areas adjacent to the west toe area at the pipe culverts (Photograph No. 10). The perimeter ditch on the north side was mostly dry at the time of inspection and appeared to have positive flow.

3. The west side berm is illustrated in Photographs No. 11-13. The outer slopes of the western berm of the landfill are partially constructed of temporary soil cover and CCR material and have overgrown vegetation on the cover. Photograph No. 13 illustrates the condition of the exterior slope and toe ditch. The outer slopes appeared to be in poor, but functioning condition. The toe ditch is covered with overgrown vegetation. The western 1/3 of the landfill area is primarily utilized for the processing for beneficial use and sales of CCR materials. At the time of inspection, the area was being used for ash processing (Photograph No. 14). This area is maintained and CCR materials are contained within the boundary of the Landfill and the drainage control was good.
4. The low water crossing previously constructed of reinforced concrete was filled in temporarily to protect it during construction of the stability soil berm on the south side (Photograph No. 15). The stability berm and perimeter berm at the south side of the Landfill were under construction at the time of inspection. The existing section of the south slope and the toe ditch were functioning as designed and in good, stable condition (Photographs No. 16 and 17).

4.5 Changes That Effect Stability or Operation (257.84(b)(2)(iv))

Based on interviews with plant personnel and field observations there were changes to the Landfill since the last annual inspection that would affect the stability or the operation of the landfill. In 2022-2023 Leachate collection under drains were installed at the base of the landfill in the middle section as part of the leachate management design and stability berm installed on the south side per the Landfill design. This installation does not have any negative affect on the stability of the landfill.

5.0 SUMMARY OF FINDINGS

5.1 *General Observations*

In general, the landfill is functioning as intended and the active area, interim cover, final cover, material processing area, runoff control system, and leachate collection system piping network appeared to be functioning. The sump pump readings appeared to show unusual than normal readings that needs to be checked and corrected. The Plant is performing regular maintenance and inspections as required. Some maintenance items have been noted and are described in Section 5.2.

5.2 *Maintenance Items*

The following maintenance items were identified during the visual inspection. Contact GES for specific recommendations regarding specific repair:

- 1 Vegetation growth on the newly capped and covered slopes (South, East and North) is satisfactory, but some northwest areas had either sparse vegetation that needs to be re-seeded or overgrown vegetation that needs to be mowed.
- 2 The inner and outer slopes of the western berm are in poor, but functioning condition. Since this area is primarily an ash processing area, little ash is stacked up against the berm. The west berm will have to be re-built and the slope vegetation cleared and maintained before any active disposal operations can occur in the western end of the Landfill.
- 3 The sump pumps should be reset after all the pumps resume normal function as before to make sure that the no excessive standing water is accumulated at the base of the Landfill.

5.3 Items To Monitor

Sump pumps should be monitored until the pumps resumes to show normal readings related to the water level at the base of the Landfill. Alternately, operate the sump pumps manually to keep the water level to a minimum possible, preferably less than a foot.

5.4 Deficiencies (257.84(b)(2)(iii))

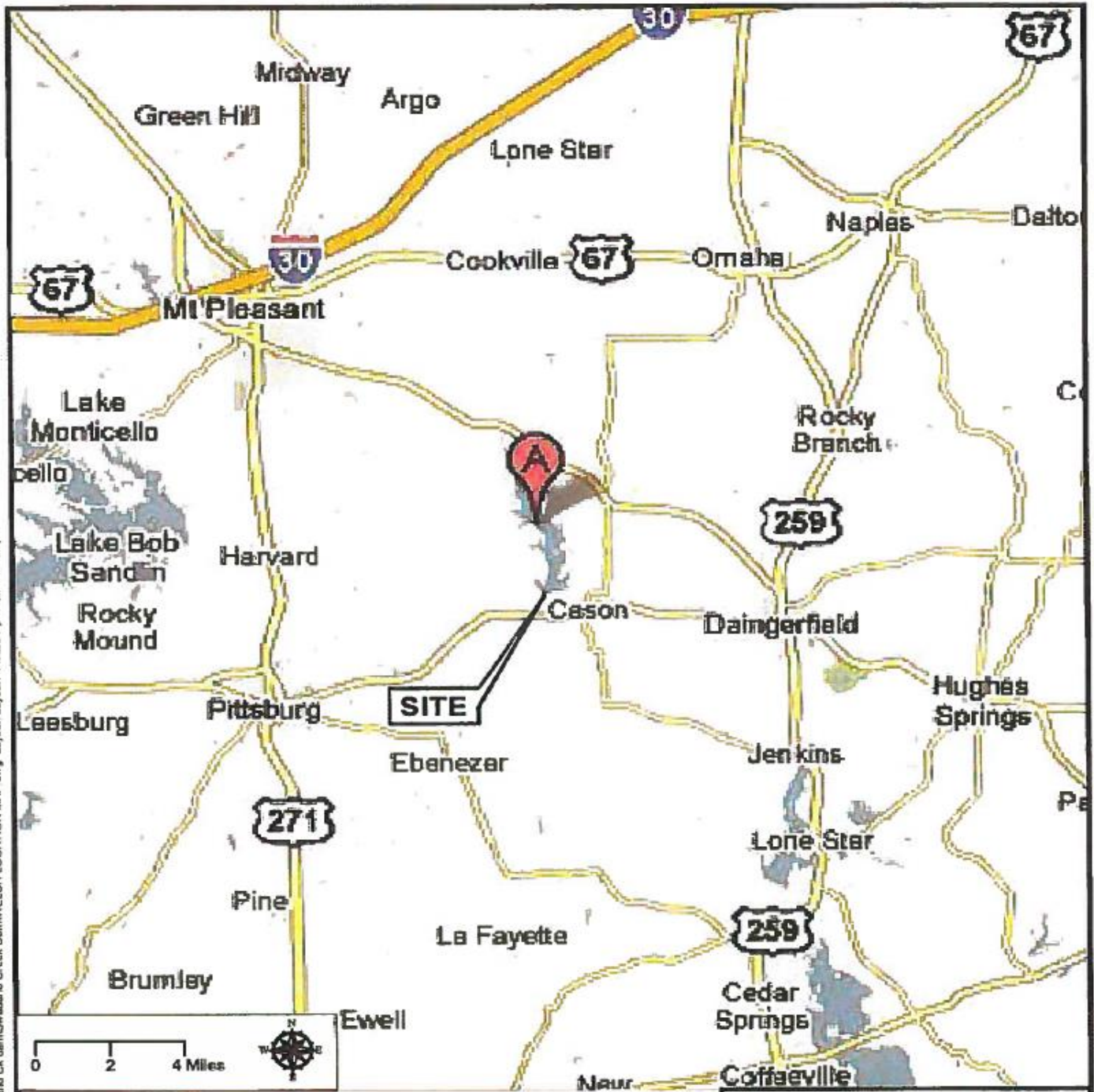
There were no signs of structural weakness or disruptive conditions that were observed at the time of the inspection that would require additional investigation or remedial action. There were no deficiencies noted during this inspection or during any of the periodic 7-day inspections. A deficiency is defined as 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 immediately.

ATTACHMENT A

- **FIGURE 1: VICINITY MAP**
- **FIGURE 2: LANDFILL SITE LOCATION MAP**

FIGURE 1 – VICINITY MAP

CCR LANDFILL, WELSH POWER PLANT, CASON, TX



File: Q:\WEP Dam Inspections\WishDrawings\Swauano Ck.dam\Swauano Creek Dam\WELSH LOCATION MAP.dwg Layout: Layout1 Plotted Apr 14, 2009 - 2:45pm

Source: Google Maps

AEP WELSH POWER PLANT SWAUANO CREEK DAM TITUS COUNTY, TX	
 URS Corporation 9400 Amberglen Blvd. Austin, Texas 78729	
DAM & DIKE INSPECTION VICINITY MAP	
DATE: 4/14/2009	SCALE: 1" = 4 MILES
URS JOB NUMBER: 41002103	DRAWN BY: SLC

FIGURE 2 – LANDFILL SITE LOCATION MAP

WELSH POWER PLANT, CASON, TX



ATTACHMENT B

- **FIGURE 3: INSPECTION PHOTOGRAPH LOCATION MAP**
 - **INSPECTION PHOTOGRAPHS**

FIGURE 3 – INSPECTION PHOTOGRAPH LOCATION MAP

CCR LANDFILL, WELSH POWER PLANT, CASON, TX



Photograph No. 1
View of the eastern
slope (looking south).



Photograph No. 2
View of the eastern
slope (looking north).



Photograph No. 3
View of the northeast
corner let down to the
ditch.



<p>Photograph No. 4 The perimeter soil berm (looking south).</p>	
<p>Photograph No. 5 View of the CCR waste placement (looking west).</p>	
<p>Photograph No. 6 Typical view of the northern soil berm (looking west).</p>	

Photograph No. 7
View of the northern slope central let down channel.



Photograph No. 8
Overall view of the north slope and the toe ditch (looking east).



Photograph No. 9
North slope looking west.



Photograph No. 10
Landfill runoff pipe
culvert in the
northwest area of the
landfill.






Photograph No. 11
View of the west dike
interior southern
section (looking
north).



Photograph No. 12
Typical view of the
west dike exterior slope
(looking north).



<p>Photograph No. 13 West dike northern section (looking north).</p>	
<p>Photograph No. 14 Overall view of the west interior area of the landfill.</p>	
<p>Photograph No. 15 South perimeter berm (looking east).</p>	

Photograph No. 16
South slope of the landfill (looking west).



Photograph No. 17
South slope of the landfill (looking east).

