

# **2022 ANNUAL CCR LANDFILL INSPECTION REPORT**

**Ash Landfill**

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

**December 2022**

Prepared for: SWEPCO.

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



GERS-22-044

# 2022 Annual CCR Landfill Inspection Report

**Welsh Power Plant, Cason, Texas  
Ash Landfill**

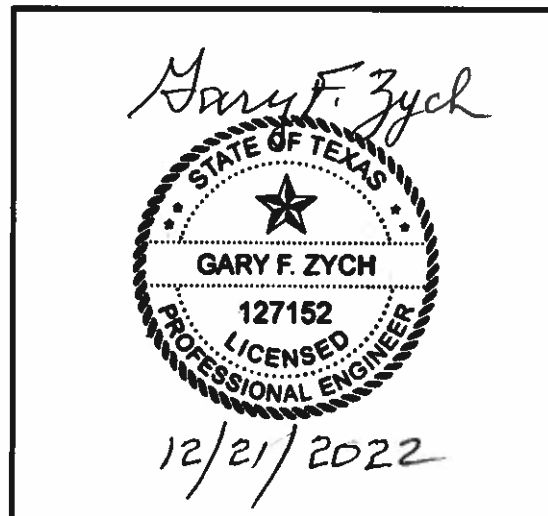
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**PREPARED BY** *Brett A Dreger*                      **DATE** 12/20/2022  
Brett A. Dreger, P.E.

**REVIEWED BY** *Shah S. Baig*                      **DATE** 12-20-2022  
Shah S. Baig, P.E.

**APPROVED BY** *Gary F. Zych*                      **DATE** 12/21/2022  
Gary F. Zych, P.E.  
Manager – AEPSC Geotechnical Engineering  
AEPSC Registered Firm No. F-3341



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).

## **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. Brett Dreger, P.E., performed the 2022 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 the facility contact. The inspection was performed on November 3, 2022. Weather conditions were mostly cloudy, light wind, and the temperature was in the mid 60's° Fahrenheit. There was 3.05 inches of rainfall over the seven days prior to the inspection and 0.00 inches of rain on the day of 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 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 150,000 cubic yards of fly ash and 37,000 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.

### **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 and ash processing areas.

#### **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 October 2021 and November 2022 was estimated by AEP as follows. The CCR Tracking Spreadsheet provided by Landfill staff indicates that approximately 95,207 cubic yards (yd<sup>3</sup>) of ash by product was added to the landfill while approximately 19,699 cubic yards (yd<sup>3</sup>) of ash by product (fly ash and flex base) were removed from the landfill. This estimate results in a net additional volume of approximately 75,508 yd<sup>3</sup> of CCR material in the Landfill.

From the 2021 CCR inspection report, the estimated volume was given as 665,856 cubic yards of the CCR material. Applying estimated net addition of 75,508 cubic-yards, the total volume of CCR in the Welsh Landfill is estimated to be 741,364 cubic-yards.

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|--|
| $665,856 + 75,508 = 741,364$ 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. 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 south slope of the landfill and the toe ditch is illustrated in Photograph No. 1. The slope appeared in satisfactory condition with no signs of seepage, erosion, or sloughing. The toe ditch at the time of inspection appeared mostly dry.
2. Photograph No. 2 illustrates the southeast corner of the landfill where the riprap lined letdown channel is located. The channel appeared in satisfactory and functional condition. There was some overgrown brush and woody vegetation protruding through the rock lined channel.
3. The east slope of the landfill and the toe ditch is illustrated in Photographs No. 3 - 6. The slope appeared in satisfactory condition with no signs of seepage, erosion, or sloughing. The upper terrace and the toe ditch at the time of inspection appeared mostly dry. The perimeter ditch below the access walkway on the northern end was bare from vegetation indicating that there had been standing water (Photograph No. 5) in this section of the ditch. The perimeter ditch on the north end showed signs of head cutting activity from erosion (Photograph No. 6).
4. Photograph No. 7 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. There is sediment buildup in the bottom of the ditch near the inlets to the 30-inch and 36-inch pipes (Photograph No. 8).
5. Photographs No. 9 – 15 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, erosion, or sloughing. Vegetation cover is satisfactory except for some overgrown areas adjacent to the northern let down channel (Photograph No. 11). The perimeter ditch on the north side was mostly dry at the time of inspection except for some standing water in the mid-section (Photograph No. 12). The west end of the northern berm is in poor condition with overgrown vegetation (Photograph No. 13). Photograph No. 14 shows the view of culvert #2 located in the northwest corner of the landfill. The culvert basin area is in satisfactory condition with some minor overgrown vegetation on the slopes. The outlet pipe to the primary ash pond from the culvert basin area is shown in Photograph No. 15. The pipe was in satisfactory condition with overgrown vegetation in the discharge area.

6. 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. Photographs No. 16 illustrates the condition of the exterior slope and toe ditch. The outer slopes appeared to be in poor, but functioning condition with no signs of seepage, erosion, or sloughing. However, excessive vegetation and tree growth was noticed on the slope and in the toe ditch.
7. During the inspection the active disposal area (eastern 2/3 area) was being used for waste placement. The inside perimeter ditches and leachate collection sump drains were functioning as designed and there was no ponding of water in the disposal areas (Photographs No. 17 through 19). All the storm water inside the landfill (active areas) is directed to a diversion ditch which leads to a detention basin before it exits the landfill through Pipe Culvert #2 located in the ash processing area (Photographs No. 20 – 23). There is some overgrown vegetation near Pipe Culvert #2 that needs maintenance and clearing.
8. 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. The areas are bound on the north and west sides by berms constructed



out of soil and ash and have a temporary cover system. The area is bound on the south by a series of perimeter ditches, driveways, and culverts to collect the storm water runoff and direct it towards the low water crossing to exit the landfill (Photographs No. 24 – 27).

9. The low water crossing is constructed of reinforced concrete pavement and was in good and functional condition at the time of inspection (Photograph No. 28). Typically, storm water runoff from the active disposal areas used to be directed towards the western end of the disposal area where it is channeled into a low water crossing on the south side that flows into the Bottom Ash Storage Pond. However, since the notice of intent to close the Bottom Ash Storage Pond (April 6, 2021), a clay soil berm has been placed inside the landfill to prevent contact storm water from entering the low water crossing structure. In addition, the south side access road ditch has been plugged with a clay soil berm to prevent non-contact storm water from the access road, low water crossing and the access road ditch from entering the Bottom Ash Storage Pond (Photograph No. 29).

#### **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 Leachate collection under drains were installed at the base of the landfill in the middle section as part of the leachate management 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 sumps are in good condition. 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 Positive drainage shall be maintained over the landfill and in the perimeter ditches. The low spots in the east side and north side perimeter ditches should be graded and fill in to maintain positive drainage.
- 2 The sediment builds up in the northeast corner perimeter ditch near the 30- and 36-inch pipes needs to be cleared to prevent any pipe flow blockage from additional sediment build up.
- 3 Vegetation growth on the newly capped and covered slopes (South, East and North) is satisfactory, but some areas had either sparse vegetation that needs to be re-seeded or overgrown vegetation that needs to be maintained. There were a few areas of vegetation growth on the inside of the landfill needs to maintain as well (culvert #2).
- 4 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.

## **5.3 Items To Monitor**

- None identified as part of this inspection.

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

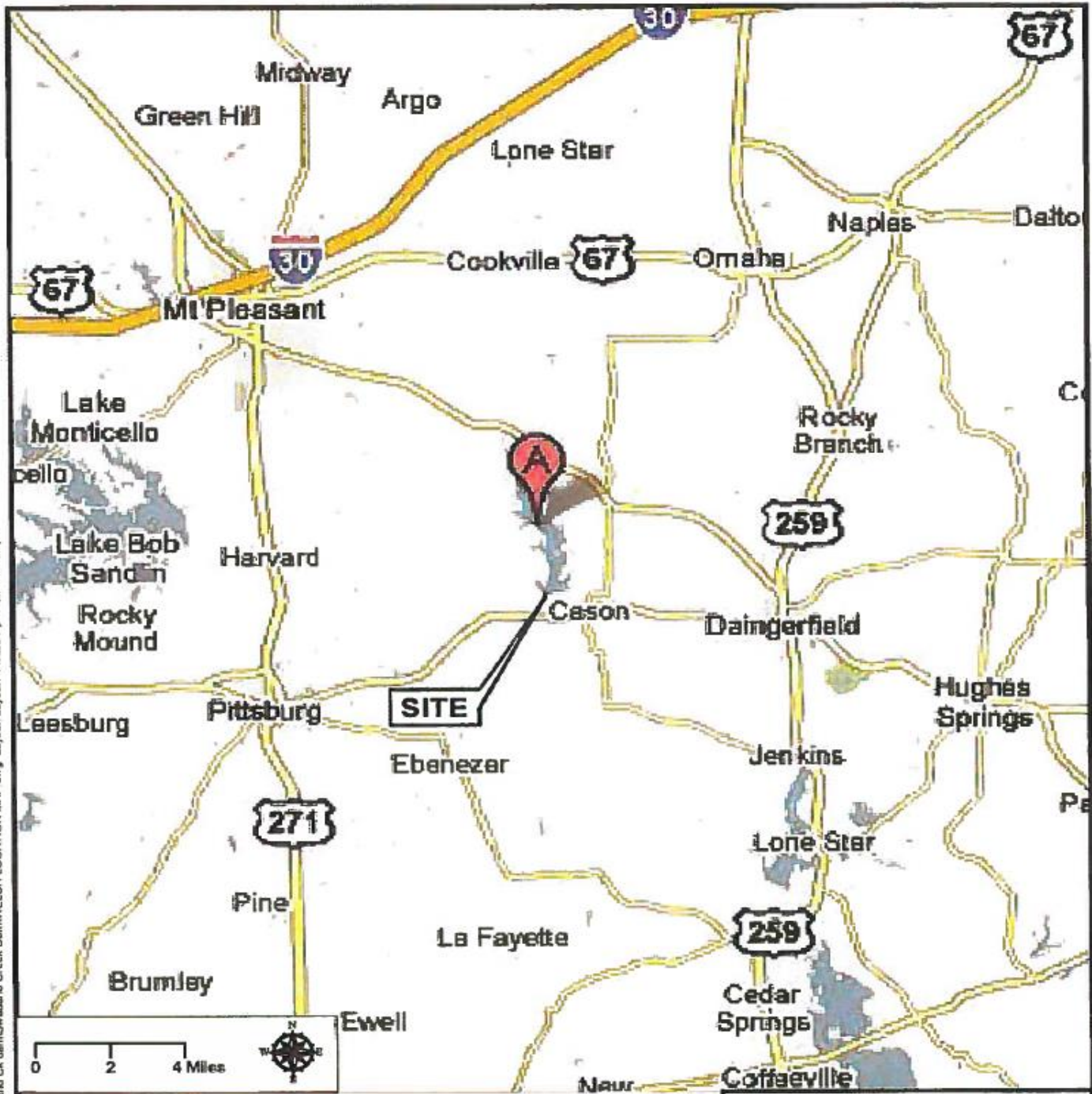
There were no signs of structural weakness or disruptive conditions that were observed at the time of the inspection that would require additional investigation or remedial action. There were no deficiencies noted during this inspection or during any of the periodic 7-day inspections. A deficiency is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



Source: Google Maps

AEP WELSH POWER PLANT  
SWAUANO CREEK DAM  
TITUS COUNTY, TX

**URS** URS Corporation  
9400 Amberglen Blvd.  
Austin, Texas 78729

DAM & DIKE INSPECTION  
VICINITY MAP

|                 |           |           |              |
|-----------------|-----------|-----------|--------------|
| DATE:           | 4/14/2009 | SCALE:    | 1" = 4 MILES |
| URS JOB NUMBER: | 41009103  | 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





Photo # 1

View of the Southern Berm Outside Slope Looking East.



Photo # 2

View of the Southeast Berm Let Down Channel. Notice Some Overgrown Vegetation in Rocks.



Photo # 3

View of the East Berm Outside Slope Looking North. Notice Overgrown Vegetation.








|                  |   |
|------------------|---|
| <p>Photo # 4</p> |  A wide-angle photograph showing a grassy slope leading up to a flat area. In the background, a tall, thin industrial chimney stands against a cloudy sky. To the right, there are some trees and a paved area. |
| <p>Photo # 5</p> |  A photograph of a concrete-lined ditch with a metal railing on top. The ditch is filled with water, and the surrounding area is covered in tall grass. A hillside is visible in the background.               |
| <p>Photo # 6</p> |  A close-up photograph of a ditch with a head cutting in the center. A white arrow points to the head cutting. The ditch is surrounded by grass and some small plants.  |



Photo # 7  
View of the Northeast Corner Berm Let Down Ditch.



Photo # 8  
View of the 30- and 36-inch Storm Water Pipes Located in Northeast Corner of Landfill Perimeter Ditch. Notice Sediment Buildup in Ditch and In Front of Pipe Inlets.



Photo # 9  
View of the North Berm Outside Slope Upper Terrace Looking West.





Photo # 10

View of the Northern Berm  
Outside Slope Conditions  
Looking West.



Photo # 11

View of the Northern Berm  
Central Let Down Channel.



Photo # 12

Typical View of the Northern  
Berm and Perimeter Ditch Slope  
Conditions Looking East. Notice  
Some Standing Water from  
Recent Rains Event.





Photo # 13

View of the West End of the Northern Berm. Notice Vegetation is Overgrown, and Berm is in Poor Condition.



Photo # 14

Typical View of the West End Northern Berm Outside Slope Conditions Looking East. Notice Culvert No. 2 Discharge Basin Area.



Photo # 15

View of Outlet Pipe from Culvert No. 2 Basin Area to the Primary Ash Pond.





Photo # 16

View of the Western Berm Outside Slope Conditions. Notice the Overgrown and Weedy Vegetation on the Slope Areas.



Photo # 17

View of the East Interior Perimeter Ditch for the Active Disposal Area Located on the East Side of Landfill.



Photo # 18

View of the South Interior Perimeter Ditch for the Active Disposal Area Located on the East Side of Landfill.



Photo # 19

View of the North Interior Perimeter Ditch for the Active Disposal Area Located on the East Side of Landfill.



Photo # 20

View of the Active Disposal Area East Section of the Landfill.



Photo # 21

View of the Active Disposal Area Middle Section of the Landfill.





Photo # 22

View of Culvert #2 Pipe from Inside the Landfill Ash Processing Area.



Photo # 23

View of Culvert #2 Pipe from Inside the Landfill Ash Processing Area.



Photo # 24

View of the Interior Western Berm of the Ash Processing Area. Looking South.





Photo # 25

View of the Ash Processing Area  
Typical Conditions. Looking  
East.



Photo # 26

View of the South Interior  
Perimeter Ditch Located Along  
the Ash Processing Area.



Photo # 27

View of the South Interior  
Perimeter Ditch Along the Mid-  
Section of the Landfill.



Photo # 28

View of the Low Water Crossing Located on South Side of Landfill Active Disposal Area. A Soil Berm Has Been Placed Along the Interior of the Landfill to Divert Contact Storm Water Away from the Low Water Crossing.



Photo # 29

View of the South Side Low Water Crossing and Access Road Ditch Looking East. The Access Road Ditch Been Plugged with Soil to Prevent Non-Contact Storm Water from the Low Water Crossing and Access Road Ditch from Entering the Bottom Ash Storage Pond.

