

# 2019 ANNUAL CCR LANDFILL INSPECTION REPORT

**Ash Landfill**

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

**November 4, 2019**

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BOUNDLESS ENERGY™

GERS-19-034

# 2019 Annual CCR Landfill Inspection Report

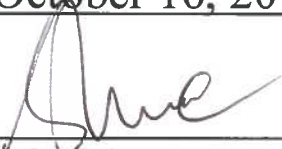
Welsh Power Plant, Cason, Texas

Ash Landfill

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DATE 11-4-2019

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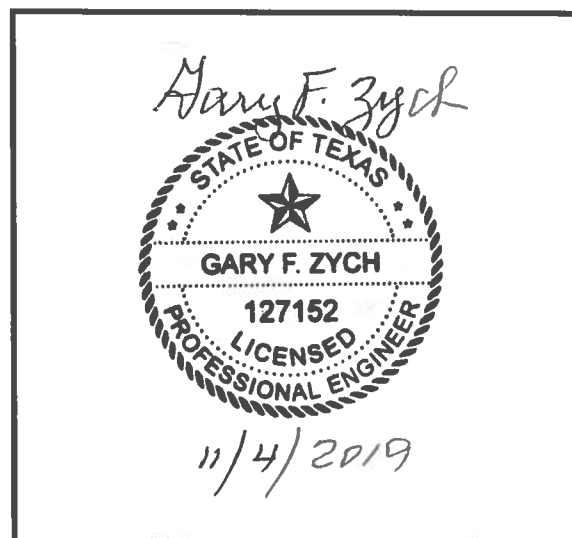
  
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DATE 11/4/2019



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).

# 2019 Annual CCR Landfill Inspection Report Welsh Power Plant Cason, Texas

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Figure 1 – Vicinity Map

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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 40 CFR 257.84 and to provide the Welsh Power Plant an evaluation of the facility.

Mr. Shah Baig, P.E., performed the 2019 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. Keith Johnson, Sr. Planner, Welsh Plant, was the facility contact during the inspection. The inspection was performed on October 16, 2019. Weather conditions were moderate, cloudy, light wind, and the temperature was in the mid 50° Fahrenheit.

## **2.0 DESCRIPTION OF LANDFILL**

The AEP J. Robert Welsh Plant is located 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. Figure 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 and/or Phase1) 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 in order 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 2018 annual inspection. In 2016-17 the Eastern and Southern perimeter containment berms were re-constructed to address seepage and sloughing issues and to improve stability for long-term disposal operations and also clay cap and cover placement was completed. In 2018-19 the north side clay cap and cover work was completed. The overall geometry of the landfill has remained essentially unchanged.

#### **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 2018 and September 2019 was estimated by AEP as follows; Based on the CCR Tracking Spreadsheet, approximately 6,212 cubic-yard of net volume of the CCR material was placed in the landfill.

From the 2018 CCR inspection report, the estimated volume was given as 691,981 cubic-yard of the CCR material. Applying estimated net addition of 6,212 cubic-yards, the total volume of CCR in the Welsh Landfill is estimated to be 698,193 cubic-yards.

$$691,981 + 6,212 = 698,193 \text{ cubic-yards}$$

### 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 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. 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 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. An inspection location map and inspection photographs are included in Attachment B. Additional pictures were taken during the inspection could be made available upon request.

1. Photograph No. 1 illustrates the southeast corner of the landfill where the riprap lined letdown channel is located. The channel appeared in good functional condition. Some overgrown bushes and erosion of the surface cover (Photograph No. 1) were noticed.
2. The east slope of the landfill and the toe ditch is illustrated in Photographs No. 3 and 4. The slope appeared in good condition with no signs of seepage, erosion, or sloughing. The toe ditch at the time of inspection appeared mostly dry. An area of the toe ditch below the access walkway on the northern end had standing water (Photograph No. 4). Minor surface erosion was noticed in the clay cap at the northern end (Photograph No. 5). Significant erosion was noticed at the area adjacent to the letdown channel in the northeast corner (Photograph No. 6). Eroded soil from the slope appeared to have washed out and accumulated in the toe ditch. The bottom section of the letdown channel is lined with concrete with energy dissipater blocks.
3. Photographs No. 7-9 illustrate the outer slopes at the north side of the landfill. The cover soil over the clay cap at the outer slopes shows some erosion gullies, soft areas, and uneven surface.
4. Photographs No. 10-12 illustrate the overall view of the top of the landfill. The eastern one-third of the area (Photograph No. 10) used for waste placement and rest of the western two-third of the area is used for processing waste materials (Photographs No. 11 and 12). The landfill waste placement and material processing appeared to have been performed properly and did not show any impact to the components of the landfill. An area to the northwest appeared to have standing water.
5. The outer slopes of the western berm of the landfill was partially constructed of temporary soil cover and CCR material and have sparse vegetation cover. Photographs No. 13 and 14 illustrate the condition of the exterior slope and toe ditch. The outer



slopes appeared to be in satisfactory and functioning condition with no signs of seepage, erosion or sloughing. Excessive vegetation was noticed on the slope and in the toe ditch. The pipe culvert installed in the toe ditch was found covered with vegetation and standing water.

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

Based on interview with plant personnel and field observations there were no changes to the landfill since the last annual inspection that would affect the stability or the operation 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 The erosion of the cover soil over the clay cap at the southeast corner, east slope, and northeast corner should be repaired.
- 2 Positive drainage shall be maintained over the landfill and in the ditches and any water ponding issue should be fixed by regrading or backfilling the areas.
- 3 Vegetation growth on the newly capped and covered slopes is good, but several areas had excessive vegetation that needs to be cut down or mowed and managed properly

thereupon. Any bare areas shall be re-seeded.

### **5.3 *Items To Monitor***

The following items were identified during the visual inspection as items to be monitored, see inspection map for locations:

- The cover soil over the clay cap at the north slope of the landfill indicated minor erosion gullies and soft surface. This slope should be monitor on a regular basis and its condition should be recorded in the monthly inspection report. Contact AEP-Geotechnical Engineering immediately if the clay cap condition deteriorate any further potentially exposing waste material underneath.

### **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: O:\AEP Dam Inspection\Welsh\Crawings Swauano Cr. dam\Swauano Creek Dam\WELSH LOCATION MAP.dwg Layout: 1 Printed: Apr 14 2009 2:45pm

Source: Google Maps

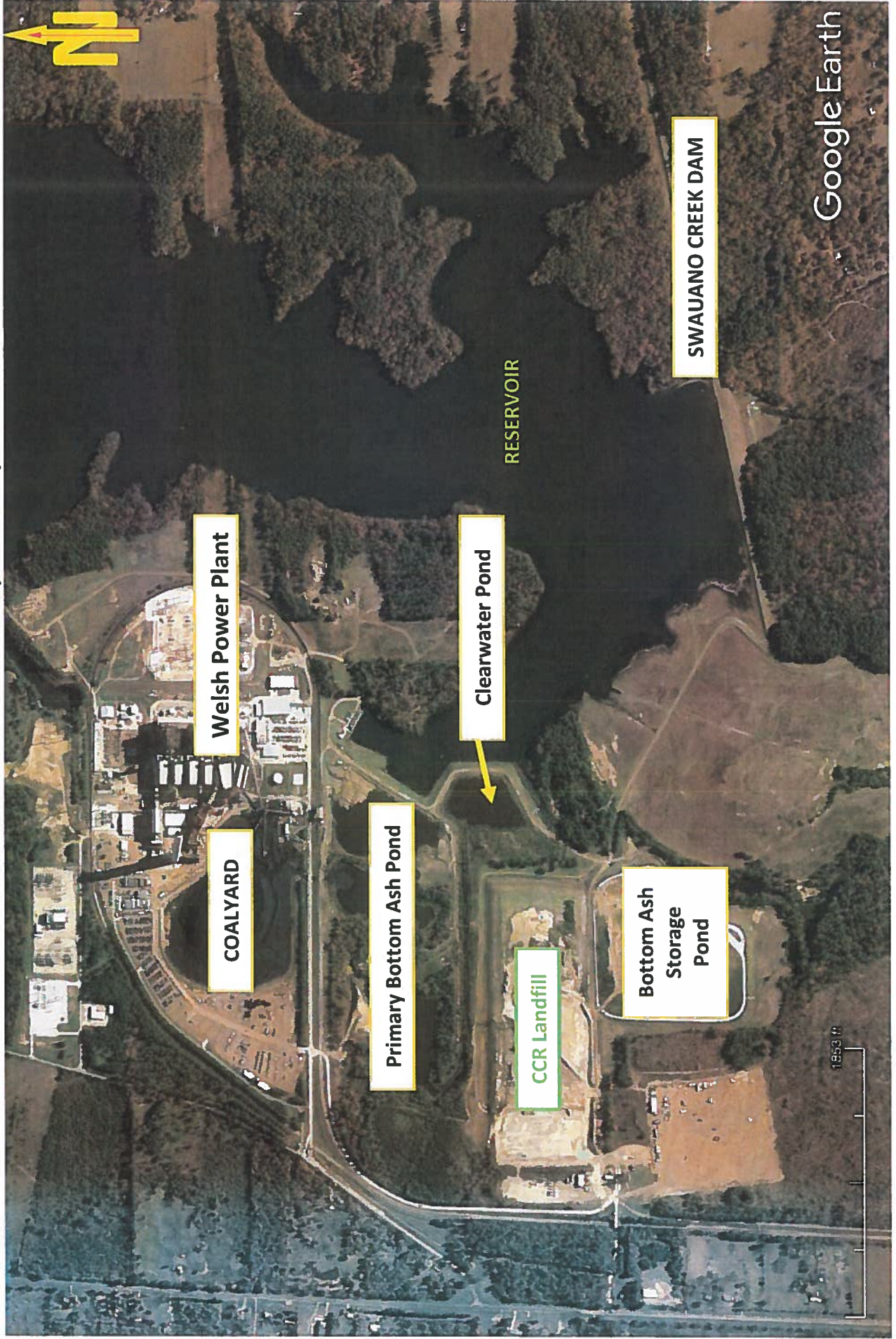


<b>AEP WELSH POWER PLANT SWAUANO CREEK DAM TITUS COUNTY, TX</b>	
	URS Corporation 9400 Ambergen Blvd Austin, Texas 78729
<b>DAM &amp; DIKE INSPECTION VICINITY MAP</b>	
DATE	4/14/2009
SCALE	1" = 4 MILES
DALS JOB NO.	41009103
DRAWN BY	SLC



# FIGURE 2 – LANDFILL SITE LOCATION MAP

WELSH POWER PLANT, CASON, TX



**ATTACHMENT B**

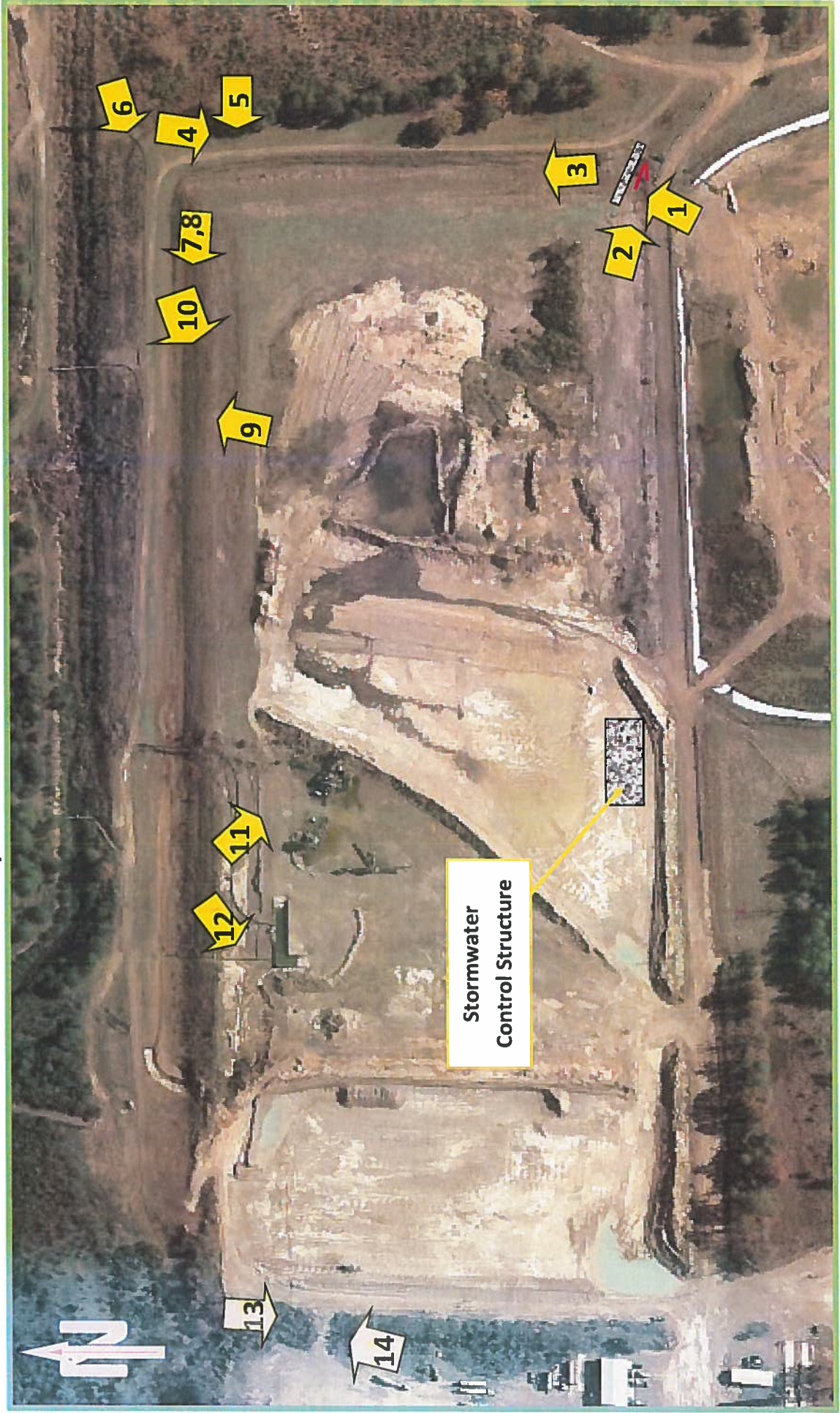
- **INSPECTION PHOTOGRAPH LOCATION MAP**

- **PHOTOGRAPHS**






# FIGURE 3 – INSPECTION PHOTOGRAPH LOCATION MAP

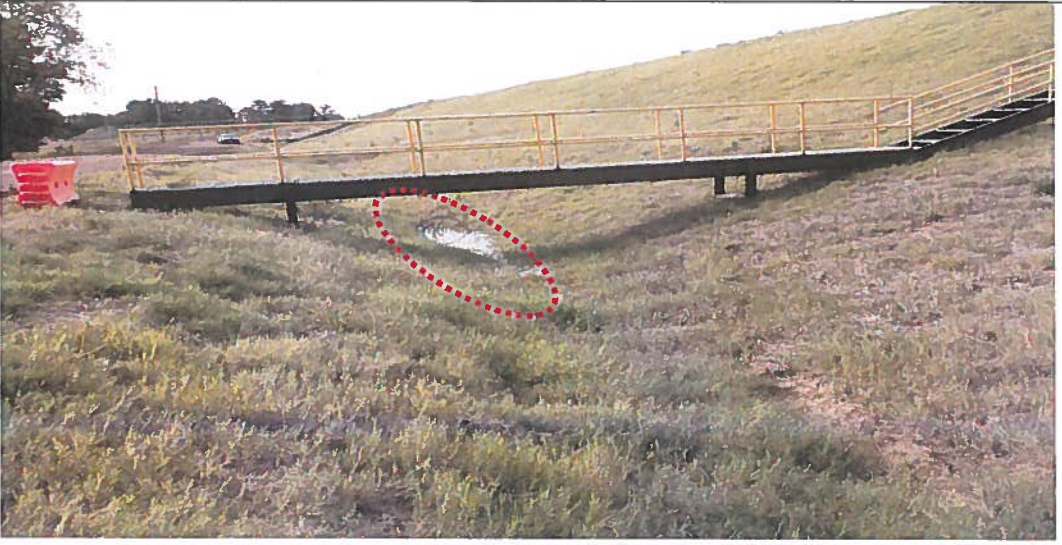


CCR LANDFILL, WELSH POWER PLANT, CASON, TX





<p><u>Photo #1</u></p>	
<p><u>Photo #2</u></p>	
<p><u>Photo #3</u></p>	



<p><u>Photo #4</u></p> <p>Typical condition of the east slope of the landfill (looking south).</p>	 A photograph showing a grassy slope of a landfill. A metal walkway with railings runs across the slope. A small, shallow pond is visible in the grass, circled with a red dotted line. A red plastic barrier is on the left.
<p><u>Photo #5</u></p> <p>Typical condition of the northern section of the east slope of the landfill.</p>	 A wide-angle photograph of a grassy slope. The grass is a mix of green and brown. The sky is blue with some light clouds.
<p><u>Photo #6</u></p> <p><i>The channel in the northeast corner.</i></p>	 A photograph of a channel or drainage area. A metal grate is visible in the foreground. A pipe or culvert is partially visible. The background shows a grassy slope and some trees.






<p><u>Photo #7</u></p>	
<p>Typical condition of the north slope (looking west).</p>	
<p><u>Photo #8</u></p>	
<p>Close up view of the soft surface.</p>	
<p><u>Photo #9</u></p>	
<p>Surface erosion of the cover soil over the clay cap.</p>	



Photo #10

General view of the top of the landfill (looking southwest).



Photo #11

Another view of the top of the landfill (looking northeast).



Photo #12

Ponding water noticed in the northwest area.





Photo #13

Typical condition of the west slope.



Photo #14

Close up view of the toe ditch.

