

2020 Annual CCR Landfill Inspection Report

Ash Landfill

Welsh Power Plant

American Electric Power Service Company

(SWEPCO)

Cason, Texas

December 30, 2020

Prepared for:



Prepared by:



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Ash Landfill**

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Date of Inspection: November 2, 2020

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Lane Roberts, P.E.

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APPROVED BY *Lane Roberts* DATE 12-30-2020
Lane Roberts, P.E.



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 Akron Consulting, LLC for the 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 landfill facility.

Mr. Lane Roberts, P.E., performed the 2020 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 landfill facility. Mr. W. Greg Carter, P.E., Welsh Plant, was the facility contact during the inspection. The inspection was performed on November 2, 2020. Weather conditions were mild, sunny, light wind, and the average temperature was in the upper 50° Fahrenheit.

2.0 DESCRIPTION OF LANDFILL

The AEP J. Robert Welsh Power 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. 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 and/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 in order to extend the life of the landfill. They utilize the remaining western two-thirds of the landfill as a 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 includes 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 2019 annual inspection. According to previous annual inspections, 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 in 2016-2017. Clay cap and cover sections were also installed in these areas during this time. In 2018-2019, the north side clay cap and cover work was completed. However, there were no major construction activities in 2020 since the last report, and 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 October 2019 and October 2020 was estimated by AEP as follows: Based on the CCR Tracking Spreadsheet, approximately 32,951 cubic yards of CCR material was removed from the landfill providing a net gain of air space.

From the 2019 CCR inspection report, the estimated volume was given as approximately 698,193 cubic-yards of the CCR material. Applying the net removal of approximately 32,951 cubic-yards this year, the total volume of CCR in the Welsh Landfill is estimated to be 665,242 cubic-yards.

$$698,193 - 32,951 = 665,242 \text{ cubic-yards}$$

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, these are 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. 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 signs 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 disruptive to the safe operation of the landfill. An inspection location map and pertinent inspection photographs are included in Attachment B, but additional inspection pictures can be made available upon request.

Brief descriptions of the pertinent inspection photos have been included below:

1. Photographs No. 1 and 2 illustrate the general condition of the *south side* berm and outer slopes of the landfill. The landfill cover appeared to be in overall good condition with just a few small areas with hog rutting damage (Photograph No. 3).
2. Photograph No. 4 illustrates the southeast corner of the landfill where the rip-rap lined letdown channel is located, which appeared to be in good, functional condition. There was some minor erosion and overgrown vegetation present.
3. Photograph No. 5 illustrates the general condition of the *east side* berm and outer slopes of the landfill. The landfill cover appeared to be in overall good condition. An area of the toe ditch downstream of the northern access walkway had standing water, as shown in Photograph No. 6. There also was some minor erosion downstream of this area just upstream of the outlet in the northeast corner of the landfill. It appears that the ditch from the ponded water to the outlet could be re-graded to maintain a positive slope for the ditch, which would also mitigate the erosion.
4. Photograph No. 7 illustrates the HDPE-lined letdown in the northeast corner of the landfill. This system is functioning as designed. There was a very small tear in the liner, as shown in Photograph No. 8, which should be repaired before it expands. However, this liner is for storm water purposes only, so this is simply a maintenance item and not considered a deficiency.
5. Photograph No. 9 illustrates the general condition of the *north side* berm and outer slopes of the landfill. The landfill cover appeared to be in overall good condition. Only minor rills were observed along the toe of the slope in the perimeter ditch. Photograph No. 10 illustrates the HDPE-lined letdown in the middle of the north slope, which was recently repaired. There was some silt located in the bottom of the letdown from

previous erosion that is causing water to pond in the perimeter ditch, as shown in Photograph No. 11. This silt should be removed to maintain positive drainage.

6. Photograph No. 12 illustrates the main outlet of the processing area. The outlet seems to be free flowing, and the contractor should ensure that the processing area maintains positive drainage to this outlet.
7. According to previous annual inspections, the *western side* berm and outer slopes of the landfill are partially constructed of temporary soil cover and CCR material and sparse vegetation cover. Photographs No. 13 and 14 illustrate the condition of this exterior berm and slope. The outer slopes appeared to be very steep but in satisfactory and functioning condition with no signs of seepage, erosion or sloughing. Woody vegetation was noticed on the outer slopes and in the toe ditch. However, this berm is several feet above the processing area, so it is not confining any CCR material as a traditional landfill at this time. According to plant personnel, it is anticipated that this area will continue to operate as a processing area and will only store CCR material while being processed. Therefore, the CCR material should be marginal in height and not be stacked against or above the berm. If this area ever transitions from a processing area to a traditional active landfill, this berm would need to be re-evaluated by a professional engineer at that time.
8. Photograph No. 15 illustrates the overall landfill from a vantage point of the southwest corner looking northeast. As noted previously, the eastern one-third of the area is used for waste placement, and the western two-thirds of the area is used for processing waste materials. The landfill waste placement and material processing appeared to be performed properly and did not show any impact to the components of the landfill. A storm water management concrete structure is installed to collect and direct the runoff from the southern portion to the bottom ash storage pond to the southeast. This structure appeared to be in good, functional condition.

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 major changes to the landfill since the last annual inspections 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 repairs:

- 1 The small tear in the HDPE lined letdown in the northeast corner of the landfill should be repaired before it expands.
- 2 The hog rutting damage, minor erosion, and small rills discussed in detail in Section 4.4 should be repaired. Any bare areas should be re-seeded.
- 3 Ponding water was observed in two locations in the perimeter ditches due to minor sediment deposits. The sediment in the ditch needs to be cleaned out in these two areas and positive drainage needs to be established to prevent future significant ponding of water.
- 4 The ash contractor should maintain positive drainage over the processing area of the landfill.

- 5 Vegetation growth on the newly capped and covered slopes is generally good, but there were some areas that had excessive vegetation that needs to be cut down, especially around letdowns and intermediate slope benches. Any bare areas should 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, if applicable):

- 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 the Geotechnical Engineering Services (GES) section immediately.

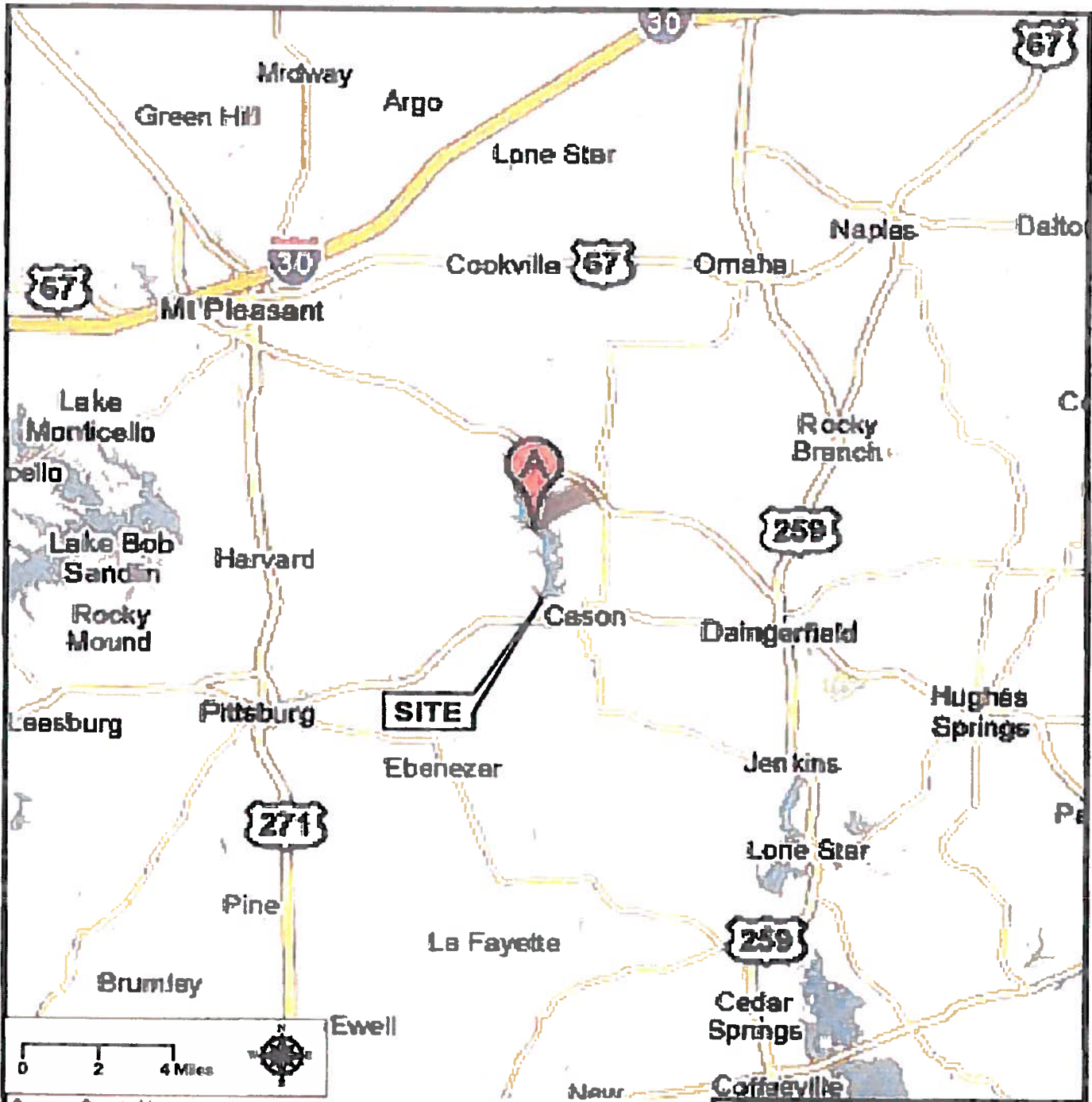
ATTACHMENT A

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

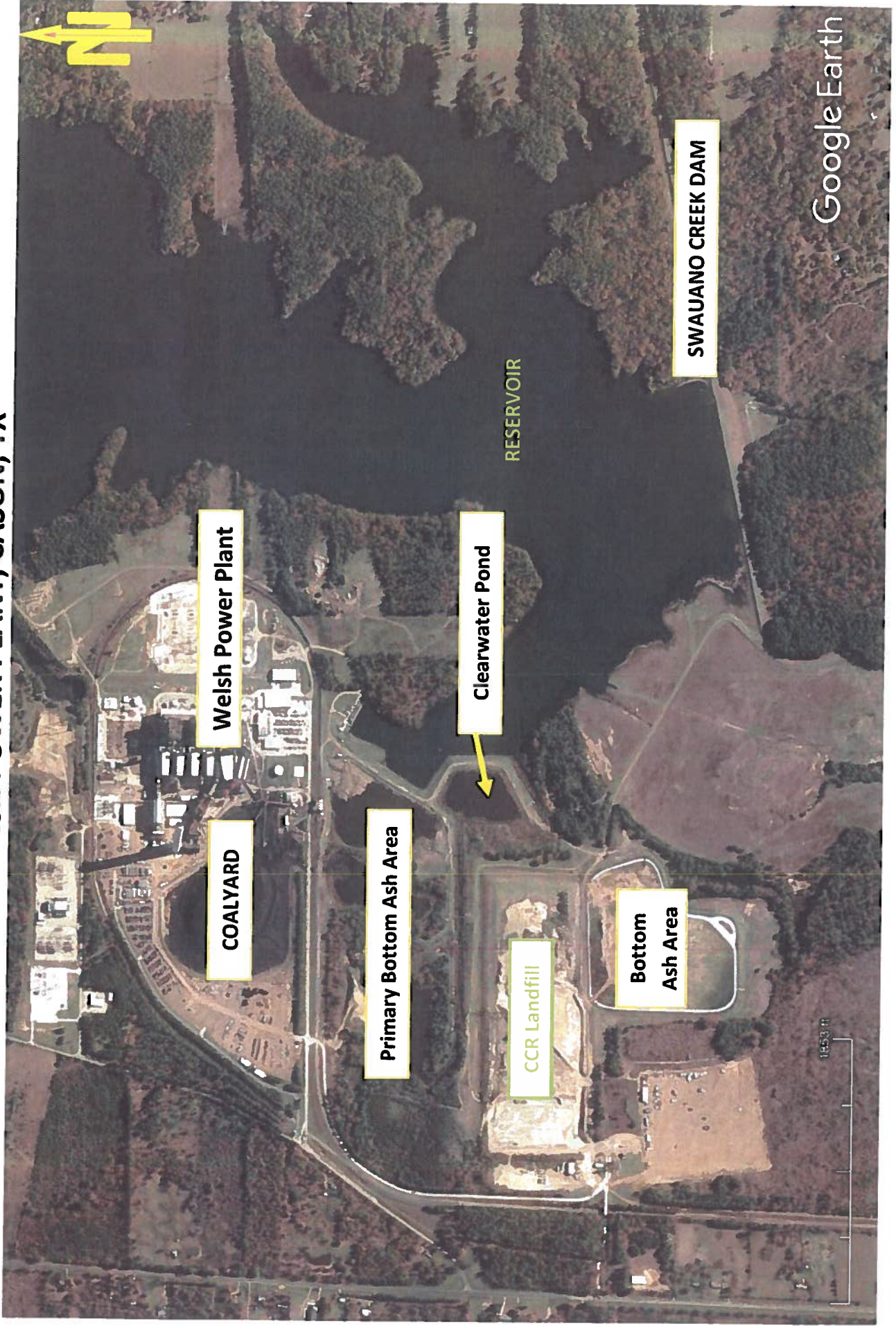
**DAM & DIKE INSPECTION
VICINITY MAP**

| | |
|---|--------------------------------------|
| <small>DATE</small> 4/14/2009 | <small>SCALE</small> 1" = 4 MILES |
| <small>URS JOB NUMBER</small> 41009103 | <small>DRAWN BY</small> SLC |

File: O:\AEP Dam Inspections\Welsh\Drawings\Swauano Ck Dam\Welsh Location Map.dwg Layout: Layout1 Printed: Apr 14 2009 2:45pm

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

South berm, looking west



PHOTO #2

South capped and covered berm and slopes, looking east



PHOTO #3

Isolated minor hog rutting damage



PHOTO #4

Rip-rap lined letdown in southeast corner, overgrown vegetation



PHOTO #5

East capped and covered berm, looking north



PHOTO #6

Ponding in eastern toe ditch



PHOTO #7
HDPE-lined letdown in northeast corner



PHOTO #8
Small tear in letdown



PHOTO #9
North capped and covered berm, looking east



PHOTO #10

HDPE-lined letdown in center of north slope



PHOTO #11

Silt in bottom of letdown causing minor ponding in upstream toe ditch



PHOTO #12

Outlet for process area through north slope



PHOTO #13

West berm, looking south



PHOTO #14

West berm, looking north



PHOTO #15

Overall landfill from southwest corner,
looking northeast

