

# Dam & Dike Inspection Report

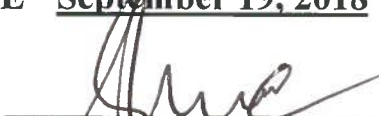
## CCR Ash Ponds

GERS-19-027  
Revision 0

### WELSH POWER PLANT CASON, TEXAS

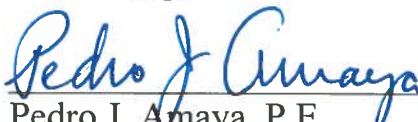
INSPECTION DATE September 19, 2018

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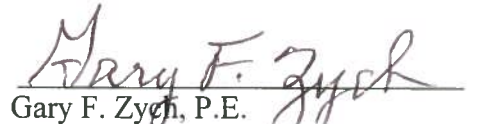
DATE: 10-17-2019

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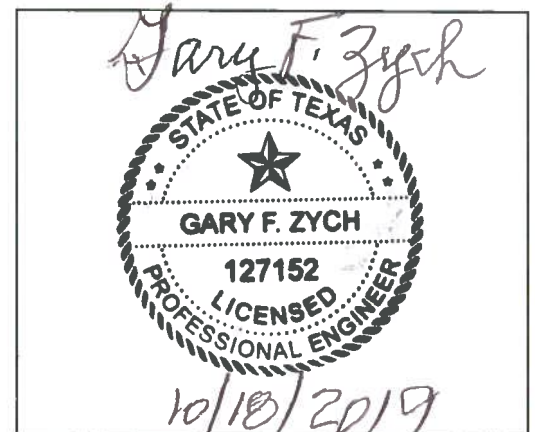
  
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DATE: 10-17-2019

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Manager - Geotechnical Engineering

DATE: 10/18/2019



**PROFESSIONAL ENGINEER  
SEAL & SIGNATURE**

I certify to the best of my knowledge, information and belief the information contained in this report meets the requirements of 40 CFR § 257.83(b).

# 2019 ANNUAL DAM AND DIKE INSPECTION REPORT

CCR ASH PONDS

WELSH POWER PLANT  
CASON, TEXAS

October 10, 2019

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



BOUNDLESS ENERGY™

GERS-19-027

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## **1.0 INTRODUCTION**

This report was prepared by AEP- Geotechnical Engineering Services (GES) section, in part, to fulfill requirements of 40 CFR 257.83 and to provide South Western Electric Power Company (SWEPCO) and Welsh Power Plant with an evaluation of the facility.

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 shows the plant inspection vicinity map. The Ash ponds at the Welsh Plant include the Primary Ash Pond and the Bottom Ash Storage Pond. The primary ash pond CCR unit is located southwest of the Plant and directly west of the Welsh Reservoir. The Bottom Ash Storage Pond CCR unit is located at the south end of the Plant and approximately 1,000 feet west of the Welsh Reservoir. Figure 2 shows the two Ash Ponds general layout. Figure 1 and 2 are included in Appendix A.

American Electric Power Service Corporation's Civil Engineering Division administers the Welsh Power Plant's Dam Inspection and Maintenance Program (DIMP). As part of the DIMP, staff from the Geotechnical Engineering Services Section annually conducts dam and dike inspections. This report contains the inspection findings, observations, photographic descriptions, conclusions, and maintenance recommendations. This inspection report addresses the Ash Ponds at the Welsh Power plant. A separate inspection report has been prepared for the Clearwater pond and the Swauano Dam (Non-CCR facilities).

Mr. Shah Baig, P.E., a staff from the Geotechnical Engineering Services Section, conducted the Ash Ponds Inspection. Mr. Keith Johnson, Sr. Planner, Welsh Plant was the facility contact for the inspection and accompanied during the inspection. Mr. Greg Carter of the AEP-Regional Engineering also participated in the inspection. The inspection was performed on September 19, 2019. Weather conditions were mostly sunny, with temperatures ranging from 73° F in the morning to low 90° F in the afternoon.

This report has been prepared by Mr. Shah Baig, P.E., and reviewed by Pedro Amaya, P.E., under the direct supervision of Mr. Gary Zych, P.E., AEP's Geotechnical section manager. The report contains: (i) Description of the impoundments, (i) Summary of Visual Observations; (ii) Conclusions; and (iii) Recommendations. Photographs identifying typical conditions, problem areas, items that need correction or requiring additional monitoring, have been selected from the inspection field photographic file and provided in the Appendix B and C of the report.

## **2.0 DESCRIPTION OF IMPOUNDMENTS**

### **2.1 PRIMARY ASH POND**

The primary ash pond was placed into operation in 1977, and is located in a topographically low area that had been an unnamed intermittent tributary of Swauano Creek prior to development of the Site. The primary ash pond is bounded by natural ground surface (topographically higher areas) to the north and west, and embankment dikes to the south and east. The elevation at the top of embankment along the crest area is approximately 340.0 feet above msl and the toe elevation of the embankment is approximately 300.0 feet above msl. The downstream slope of the primary ash pond embankment is inundated by the cooling lake reservoir (Normal Lake Level is 320.0 feet above msl). These dikes are predominantly constructed of compacted sandy clay and clayey sand materials. The embankment dike south of the primary ash pond includes a drainage canal that receives overflow (clear) water from the primary ash pond. The water level in the primary ash pond is controlled by a weir box which discharges into the drainage canal. The clear water in the drainage canal flows east and discharges into the clear water pond. The primary ash pond embankment is approximately 40 feet in height.

### **2.2 BOTTOM ASH STORAGE POND**

The Bottom Ash Storage Pond (Winston Pond) was placed into operation in 2000, and is located in a topographically high area of the Plant. The Bottom Ash Storage Pond embankments are approximately 20 feet in height and are constructed of compacted clay on a 3:1 slope (3 feet horizontal, 1 foot vertical). The elevation at the base of the embankment is approximately 340

feet above msl, and the elevation at the top of the embankment around the perimeter of the Bottom Ash Storage Pond is approximately 360 feet above msl.

The Bottom Ash Storage Pond is approximately 22 acres in size. The principal spillway for the Bottom Ash Storage Pond is located near the southeast corner of the pond and consists primarily of an 18 inch drain at elevation 350.5 feet above msl and also of a 40-foot-long broad-crested weir with a crest elevation of 355 feet above msl. The emergency spillway is an 8-foot-wide weir with a rock rip-rap discharge chute located along the southern embankment at an elevation of 358 feet above msl. The storage capacity of the Bottom Ash Storage Pond at elevation 358 feet above msl is approximately 86.5 acre-ft.

### **3.0 REVIEW OF AVAILABLE INFORMATION (257.83(b)(1)(i))**

A review of available information regarding the status and condition of the CCR Ponds, which include files available in the CCR operating record, such as design and construction information, periodic structural stability assessments, previous 7 day inspection reports, 30-day instrumentation data, and previous annual inspections was conducted. Based on the review of the data it is concluded that there were no signs of actual or potential structural weakness or adverse conditions at the facilities.

### **4.0 CHANGES IN GEOMETRY SINCE LAST INSPECTION (257.83(b)(2)(i))**

No modifications have been made to the geometry of the Primary Ash Pond and the Bottom Ash Storage Pond since the 2018 annual inspection. The geometry of the impoundment has remained essentially unchanged.

### **5.0 CHANGES THAT AFFECT STABILITY OR OPERATION (257.83(b)(2)(vii))**

Based on interviews with plant personnel and field observations there were no changes to the Primary Ash Pond and the Bottom Ash Storage Pond since the last annual inspection that would affect the stability or operation of the impounding structure.

**6.0 IMPOUNDMENT CHARACTERISTICS (257.83(b)(2)(iii, iv, v))**

**6.1 PRIMARY ASH POND**

Table 1 is a summary of the minimum, maximum, and present depth and elevation of the impounded water since the previous annual inspection; the storage capacity of the impounding structure at the time of the inspection; and the approximate volume of the impounded water at the time of the inspection.

**Table 1 - Summary of Relevant Storage Information for Primary Ash Pond**

	<b>Primary Ash Pond</b>
Approximate <b>Minimum</b> depth of impounded water since last annual inspection	29.25 ft (329.25)
Approximate <b>Maximum</b> depth of impounded water since last annual inspection	32.8 ft (332.80)
Approximate <b>Present</b> depth of impounded water at the time of the inspection	32.1 ft (332.10)
Approximate <b>Minimum</b> depth of CCR since last annual inspection	10.0 ft (310.0)
Approximate <b>Maximum</b> depth of CCR since last annual inspection	32.5 ft (332.5)
Approximate <b>Present</b> depth of CCR at the time of the inspection	32.5 ft (332.5)
Storage Capacity of impounding structure at the time of the inspection	319.22 acre-ft
Approximate volume of impounded water at the time of the inspection	140.22 acre-ft
Approximate volume of CCR at the time of the inspection	179 acre-ft

Crest elevation of the dike = 340 ft, Bottom elevation of the pond = 300 ft



## 6.2 BOTTOM ASH STORAGE POND

Table 2 is a summary of the minimum, maximum, and present depth and elevation of the impounded water since the previous annual inspection; the storage capacity of the impounding structure at the time of the inspection; and the approximate volume of the impounded water at the time of the inspection.

**Table 2 - Summary of Relevant Storage Information for Bottom Ash Storage Pond**

	<b>Bottom Ash Storage Pond</b>
Approximate <b>Minimum</b> depth of impounded water since last annual inspection	7.5 ft (347.5)
Approximate <b>Maximum</b> depth of impounded water since last annual inspection	10.7 ft (350.7)
Approximate <b>Present</b> depth of impounded water at the time of the inspection	10.7 ft (350.7)
Approximate <b>Minimum</b> depth of CCR since last annual inspection	10.5ft (350.5)
Approximate <b>Maximum</b> depth of CCR since last annual inspection	18.0ft (358.0)
Approximate <b>Present</b> depth of CCR at the time of the inspection	18.0ft (358.0)
Storage Capacity of impounding structure at the time of the inspection	331 acre-ft
Approximate volume of impounded water at the time of the inspection	39 acre-ft
Approximate volume of CCR at the time of the inspection	292 acre-ft

Crest elevation of the dike = 360 ft, Bottom elevation of the pond = 340 ft



## **7.0 INSPECTION (257.83(b)(1)(ii))**

### **7.1 GENERAL**

The summary of the visual observations uses terms to describe the general appearance or condition of an observed item, activity or structure. Their meaning is understood as follows:

**Good:** A condition or activity that is generally better than what is minimally expected or anticipated from a design or maintenance point of view.

**Fair or 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 previously identified in the inspections, but have not yet been corrected.

**Excessive:** A reference to an observed item (e.g., erosion, seepage, vegetation, cracks, concrete surface, etc.) where the current maintenance condition is worse than what is normal or desired and which may have affected the ability of the observer to properly evaluate the structures, or particular area being observed, or which may be a concern from a structure safety or stability point of view.

In addition, a “deficiency” is some evidence that a dam/dike has developed a problem that could impact the structural integrity of the dam/dike. There are four general categories of deficiencies. These four categories are described below:

1. Uncontrolled Seepage

Uncontrolled seepage is seepage that is not behaving as the design engineer has intended. An example of uncontrolled seepage is seepage that comes through or around the embankment and is not picked up and safely carried off by a drain. Seepage that is collected by a drain can still be uncontrolled if it is not safely collected and transported, such as seepage that is not clear. Seepage that is unable to be measured and/or observe it is considered uncontrolled seepage.

[Wet or soft areas are not considered as uncontrolled seepage, but can lead to this type of deficiency. These areas should be monitored frequently]

2. Displacement:

Displacement of the embankment is large-scale movement of part of the dam/dike. Common signs of displacement are cracks, scraps, bulges, depressions, sinkholes and slides.

3. Blockage of Water Control Appurtenances:

Blockage of Water Control Appurtenances is the restriction of the flow section 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.

## **7.2 VISUAL INSPECTION (257.83(b)(2)(i))**

A visual inspection of the CCR Ponds was conducted to identify any signs of distress or malfunction of the impoundment and appurtenant structures. Specific items inspected included all structural elements of the dam such as upstream and downstream slopes, crest, and toe.

### **7.2.1 PRIMAY ASH POND**

- (i) Typical condition of the crest and upstream slope is depicted in Photographs No. 1-3. The cooling reservoir is located adjacent to the downstream slope (Photograph No. 1). The dike appeared in good and stable condition. Slightly overgrown vegetation was noticed along the upstream slope. A Significant erosion gully was noticed (Photograph No. 2). The erosion appeared to be in the additional CCR material stockpiled at the edge of the pond and not in the containment dike.
- (ii) The two ash sluice pipes are located at the northeast corner of the pond (Photograph No. 4). Other effluent from the plant is discharge near the north dike. All the pipes and support structure revealed no sign of misalignment, settlement, or deterioration. Overall, the discharge pipes appeared in good functional condition. Minor vegetation and erosion noticed around the pipes, but the slope appeared in stable condition.
- (iii) Coal pile is present north of the north dike of the primary pond. A box culvert is present between the coal pile and the north dike of the pond (Photograph No. 5). Residual amount of coal fines travels through the box culvert and accumulates at the toe of the north dike (Photograph No. 6). The plan is to reclaim the coal.
- (iv) Photographs No. 7 and 8 shows the crest and upstream slope of the north dike. The main plant and coalyard are located to the north of the north dike. The dike appeared in good and stable condition. Excessive vegetation was noticed covering along the upstream slope of the dike.

- (v) The downstream slope of the east dike is presented in Photograph No. 9. The riprap along the lower section of the exterior slope is good. Vegetation growth was noticed along the riprapped section of the slope and bare areas were prominent within this slope. Several deep animal burrows (Photographs No. 10-12) were present along this slope just above the riprap.
- (vi) Photographs No. 13 and 14 depict the emergency spillway located towards the southeast section of the south dike. The emergency spillway appeared to be functioning as designed and no obstructions noticed that will impair water.
- (vii) An overflow discharge structure is located at the canal (Photograph No. 15). The canal is located at the south end of the pond. A typical view of the canal and overflow structure shown in Photograph No. 15. The discharge structure was functioning as designed and the canal appeared to have positive flow. The canal conveys water from southwest corner of the ash pond to the clearwater pond located at the southeast end. Excessive vegetation was noticed along the banks of the canal.

Figure 3A (Photograph Location Map) and photographs of the primary ash pond are included at Appendix B.

### **7.2.2 BOTTOM ASH STORAGE POND**

- (i) Two pipe culverts are located at the northwest corner of the pond (Photograph No. 1). The pipe culverts are part of the landfill storm water control system and discharge its contact water into this pond. The pipe culverts appeared clear of obstructions and in good and functional condition.
- (ii) Photograph No. 2 depicts the upstream slope and crest of the west dike. The upstream slope appeared to be in good and stable condition and mostly buttressed with ash. The geosynthetic liner appeared intact and in good condition. The crest appeared in good and stable condition. Slightly overgrown vegetation was noticed within the upstream slope. Photograph No. 3 shows overall condition of the interior of the pond. Ash management

within the pond is good.

- (iii) A small area within the pond is used as a clearwater pool that is centrally located at the south dike (Photograph No. 4). Excessive vegetation was noticed within the clearwater pool area. The access to the staff gauge via sloped liner was unsafe, specifically during wet condition.
- (iv) The stormwater and sediment control structure (Photographs No. 5 and 6) appeared in good and functional condition and no standing water was noticed.
- (v) The northwest section of the west dike downstream slope is shown in Photograph No. 7. An area adjacent to the downstream slope exhibited tire ruts due to previously soft and wet ground. Typical condition of the downstream slope is shown in Photographs No. 7-9. The slope appeared in good and stable condition.
- (vi) An animal burrow 54-inch deep was encountered at the downstream slope of the east dike (Photograph No. 10).
- (vii) Typical condition of the downstream slope and toe area of the east dike (north section) is depicted in Photograph No. 11. The slope appeared in good and stable condition. The toe area consists overgrown vegetation that could have potential for accumulation of standing water.
- (viii) Photograph No. 12 depicts the crest of the dike, which is also used as an access road. CCR landfill is located north of the dike's crest. The crest appeared in good condition without any settlement and misalignment.

Figure 3B (Photograph Location Map) and photographs of the bottom ash storage pond are included at Appendix C.

### **7.3 INSTRUMENTATION (257.83(b)(2)(ii))**

The monitoring instrumentation for the Primary Ash Pond consists of the one (1) active piezometer (B-2) located through the main embankment area. There is no monitoring instrumentation for the Bottom Ash Storage Pond (Winston Pond). The location of the instrumentation is shown on Figure 4A. The results of the measurements of the piezometer is shown in Figure 4B. The water levels of the primary ash pond and ash storage pond are reasonably consistent from month to month with no significant variations. The piezometer data is not consistent and needs further investigation as to the reasons of variability. Instrument location map and data are included at Appendix D.

### **8.0 SUMMARY OF FINDINGS**

Based on the visual observations during the inspection, the dam and appurtenances are generally in good condition. Specific conclusions related to this inspection are as follows.

#### Primary Ash Pond:

- There is no evidence of distress that would indicate the possibility of immediate sliding, slope instability, settlement, misalignment or cracking of the ash pond embankments. As such, it is concluded that the dam and dikes are performing as designed.
- An erosion gully was present at the crest of the east dike (Photograph No. 2) that needs correction.
- Excessive vegetation was noticed on the north dike upstream slope. It shall be mowed to manageable height. The residual coal debris present along this dike should be reclaimed or removed on a regular basis.
- All the animal burrows encountered should be eliminated by filling them with suitable materials and compacted as necessary.

Bottom Ash Storage (Winston) Pond:

- There is no evidence of distress that would indicate the possibility of sliding, slope instability, settlement, misalignment or cracking of the bottom ash pond embankments. As such, it is concluded that the dikes are performing as designed.
- Overall, vegetation management for the facilities is satisfactory. Excessive vegetation was noticed at the Clearwater pond and should be cleared.
- A significant animal burrow (Photograph No. 10) was noticed at the east dike.
- The staff gauge at the clear water pool was not easily and safely accessible.

## **9.0 RECOMMENDATIONS**

A summary of our recommendations for general maintenance and continued monitoring, as well as any recommendations for remedial activities, is provided below:

- As noted, all the excessive vegetation should be cut down and maintained consistently in order to control and properly manage it.
- All the animal burrows should be eliminated and filled them with suitable materials and compacted as necessary.
- Installed a safe access (e.g. stair step, platform) to the staff gauge of the Clearwater pond.
- AEP-Geotechnical Engineering will investigate root cause of the piezometer showing anomalous readings.



## **9.1 MAINTENANCE ITEMS**

The following maintenance items were identified during the visual inspection:

- Vegetation management for the facilities is considered satisfactory. Some areas are overgrown and should be managed by controlling vegetation growth. On the other hand, there are a few areas that have sparse vegetation and should be re-seeded, mulched, and fertilized to encourage proper vegetation.
- Animal burrow when encountered should be eliminated by filling them with suitable materials and compacted as necessary.

## **9.2 ITEMS TO MONITOR**

- No Items to monitor

## **9.3 DEFICIENCIES (257.83(b)(2)(vi))**

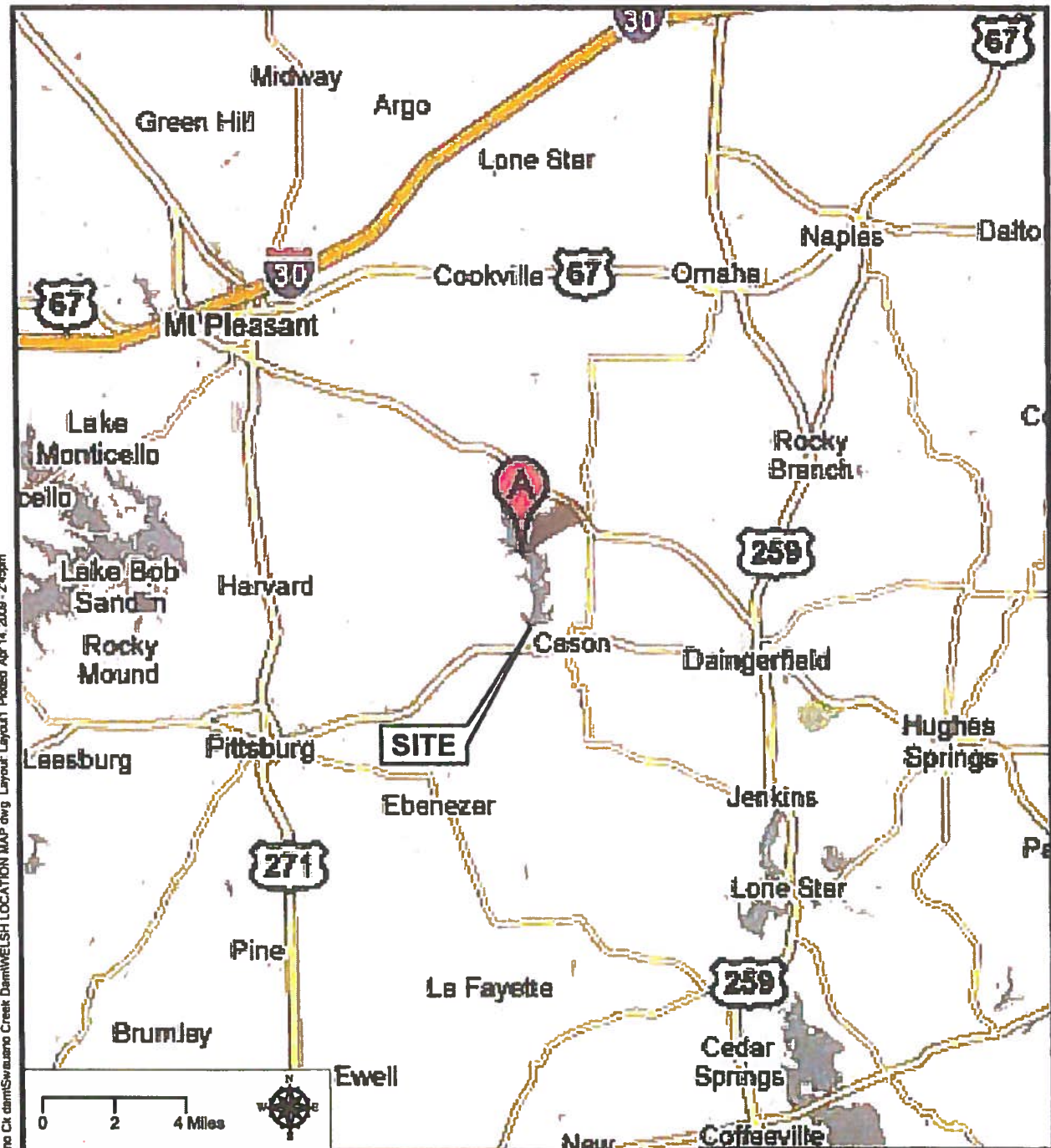
There were no deficiencies or signs of structural weakness or disruptive conditions observed at the time of the inspection that would require additional investigation or remedial action. There were no deficiencies noted during any of the quarterly inspections. If any of these conditions develop before the next annual inspection, please contact AEP Geotechnical Engineering immediately.

If you have any questions with regard to this report, please contact Shah Baig at Audinet: 200-2241 (email: [sbaig@aep.com](mailto:sbaig@aep.com)) or Gary Zych (email: [gfzych@aep.com](mailto:gfzych@aep.com)) at Audinet: 200-2917.

## **APPENDICES**

**Appendix A**

- Figure 1 Vicinity Map
- Figure 2 CCR Pond Complex General Layout



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



Source: Google Maps

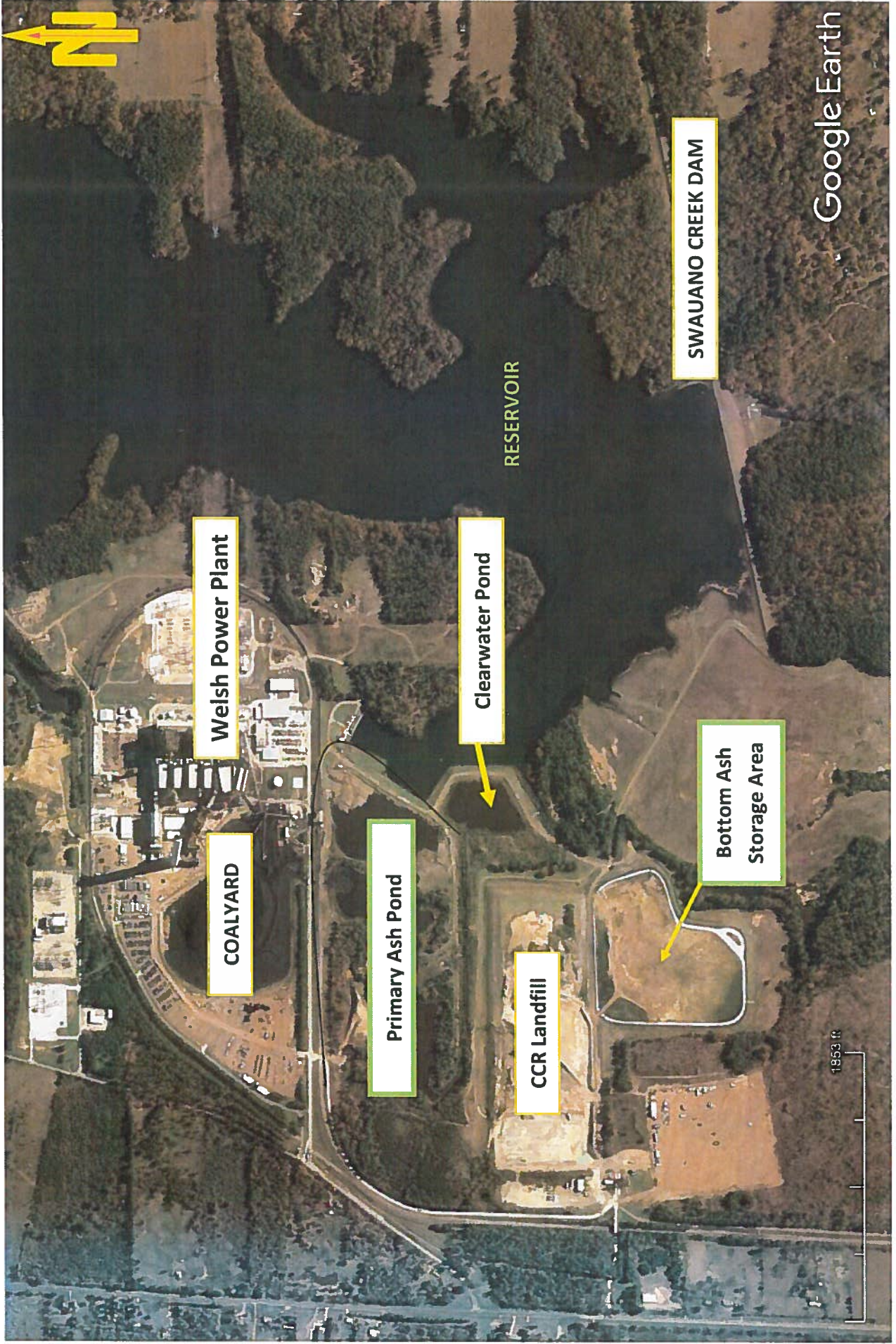
<b>AEP WELSH POWER PLANT SWAUANO CREEK DAM TITUS COUNTY, TX</b>	
<b>URS</b> URS Corporation 9400 Amberglen Blvd. Austin, Texas 78729	
<b>DAM &amp; DIKE INSPECTION VICINITY MAP</b>	
DATE: 4/14/2009	SCALE: 1" = 4 MILES
URS JOB NUMBER: 41009103	DRAWN BY: SLC

Figure 1 Plant Inspection Vicinity Map



# FIGURE 2 - SITE LOCATION MAP

WELSH POWER PLANT, CASON, TX

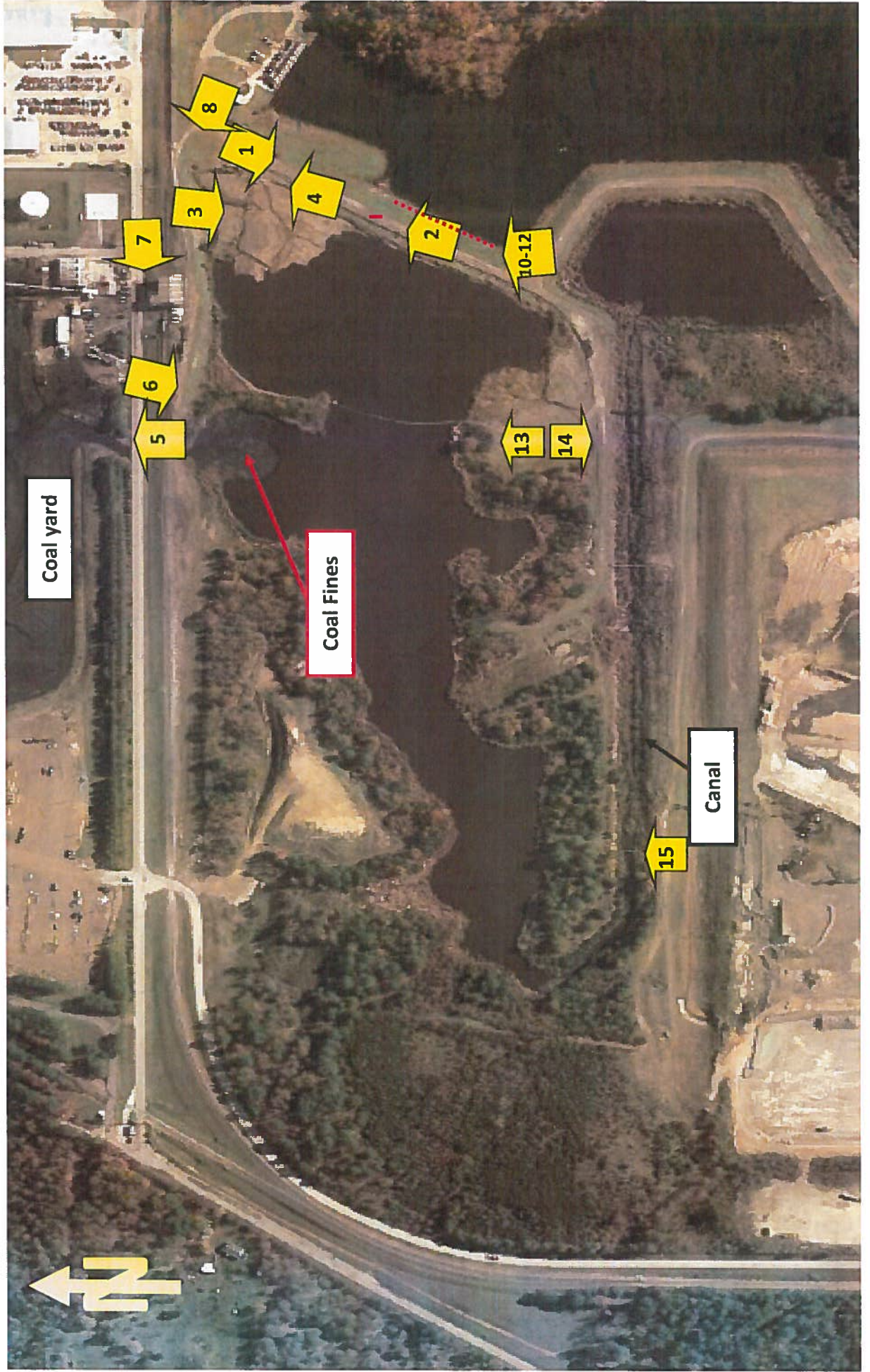


**Appendix B**






- Figure 3A – Photograph Location Map, Primary Ash Pond
  - Photographs of the Primary Ash Pond



**FIGURE 3A - PHOTOGRAPH LOCATION MAP**  
**PRIMARY ASH POND, WELSH POWER PLANT, CASON, TX**





<p><u>Photo #1</u></p>	
<p>Typical crest of the east dike.</p>	
<p><u>Photo #2</u></p>	
<p>A significant erosion at the upstream slope.</p>	
<p><u>Photo #3</u></p>	
<p>The upstream slope of the east dike shown in this photograph.</p>	






<p><u>Photo #4</u></p>	
<p><u>Photo #5</u></p>	
<p><u>Photo #6</u></p>	



Photo #7

Typical crest at the north dike.

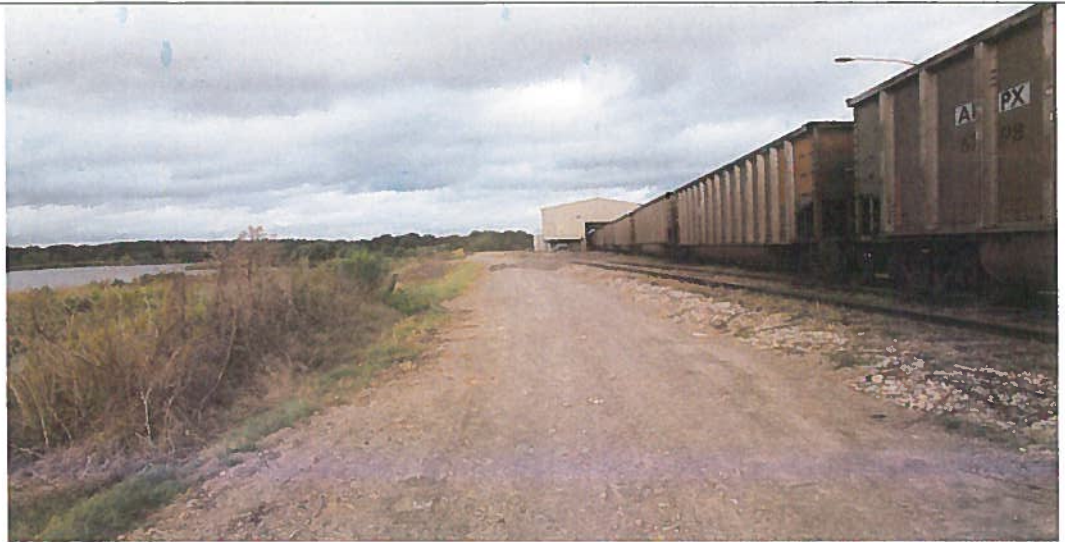


Photo #8

Upstream slope of the north dike (looking west).



Photo #9

Downstream slope of the east dike.








<p><u>Photo #10</u></p>	
<p>Animal hole 20” deep.</p>	
<p><u>Photo #11</u></p>	
<p>Animal hole 40” deep.</p>	
<p><u>Photo #12</u></p>	
<p>Animal hole 20” deep.</p>	



Photo #13

Emergency spillway  
of the primary ash  
pond (looking south).



Photo #14

Emergency spillway  
of the primary ash  
pond (looking north).



Photo #15

Overflow discharge  
structure.



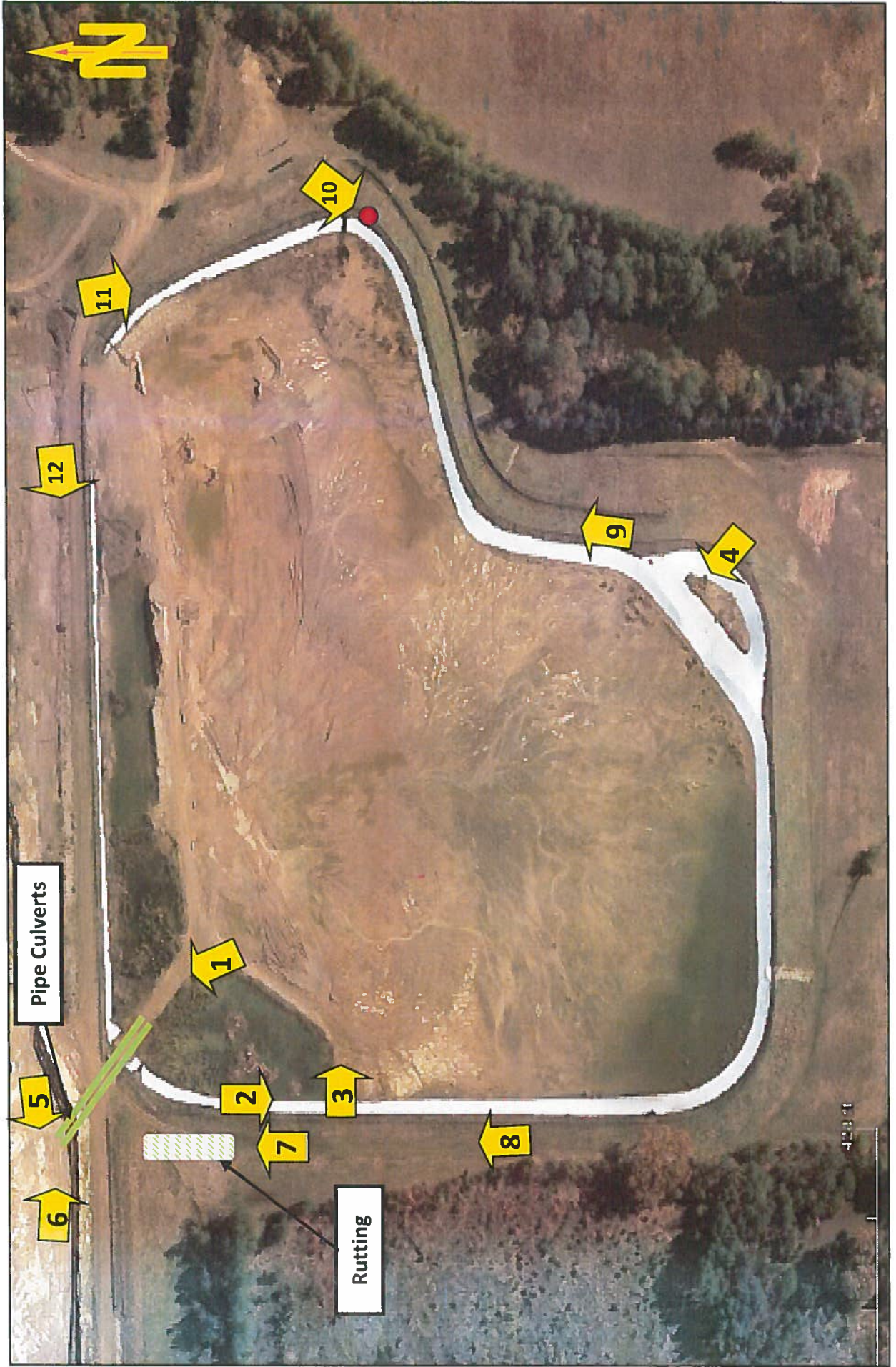
**Appendix C**

- Figure 3B – Photograph Location Map, Bottom Ash Storage Pond
  - Photographs of the Bottom Ash Storage Pond






# FIGURE 3B - PHOTOGRAPH LOCATION MAP






ASH STORAGE POND, WELSH POWER PLANT, CASON, TX








<p><u>Photo #1</u></p> <p>The outlet of the runoff control pipes from the landfill appeared clear and functional.</p>	 A photograph showing two large, white, circular pipes protruding from a concrete or gravel surface. Dark, muddy water is flowing out of the pipes onto the ground. In the background, two workers in hard hats and work clothes are standing on a dirt path. A chain-link fence is visible in the distance under an overcast sky.
<p><u>Photo #2</u></p> <p>Typical upstream slope of the west dike. Also seen geosynthetic liner.</p>	 A photograph of a long, narrow concrete channel filled with water, running through a grassy field. The channel is bordered by a grassy slope on the right side. In the background, there is a line of trees and a cloudy sky.
<p><u>Photo #3</u></p> <p>Overall condition of the pond interior.</p>	 A wide-angle photograph showing a large, flat, grassy field. In the foreground, there is a concrete channel filled with water. The background shows a line of trees and a cloudy sky.








<p><u>Photo #4</u></p>	
<p>Clearwater pond.</p>	
<p><u>Photo #5</u></p>	
<p>Storm-water control structure appeared functional.</p>	
<p><u>Photo #6</u></p>	
<p>The inlet of the runoff pipe culverts were clear and indicated positive flow.</p>	



<p><u>Photo #7</u></p>	
<p>Minor rutting at the toe of the downstream slope of the west dike.</p>	
<p><u>Photo #8</u></p>	
<p>Typical condition of the downstream slope of the west dike (looking north)</p>	
<p><u>Photo #9</u></p>	
<p>Typical condition of the downstream slope of the southeast dike (looking north)</p>	



<p><u>Photo #10</u></p>	 A close-up photograph showing a hole in the ground. The hole is filled with reddish-brown soil and some roots. A white measuring stick is placed vertically in the hole for scale. The surrounding area is covered with dry, brown grass and some green weeds.
<p>Significant animal hole.</p>	 A wide-angle photograph showing the downstream slope of the east dike. The slope is covered with dry, brown grass and some green weeds. A yellow marker is visible in the foreground. In the background, there are trees and a fence line under a cloudy sky.
<p><u>Photo #11</u></p>	 A wide-angle photograph showing the crest and access road of the north dike. The road is a dirt/gravel path that runs along the crest of the dike. The dike is covered with dry, brown grass. In the background, there are trees and a fence line under a cloudy sky.
<p>Typical condition of the downstream slope of the east dike (looking south).</p>	 A wide-angle photograph showing the crest and access road of the north dike. The road is a dirt/gravel path that runs along the crest of the dike. The dike is covered with dry, brown grass. In the background, there are trees and a fence line under a cloudy sky.
<p><u>Photo #12</u></p>	 A wide-angle photograph showing the crest and access road of the north dike. The road is a dirt/gravel path that runs along the crest of the dike. The dike is covered with dry, brown grass. In the background, there are trees and a fence line under a cloudy sky.
<p>Crest and access road of the north dike.</p>	

**Appendix D**

- Figure 4A – Piezometer Location Map
- Figure 4B – Primary Ash Pond Piezometer Data





**Figure 4B - Primary Ash Pond And Piezometer Data.**

