AECOM

FIELD OBSERVATIONS TO LOCATE RELICS PHOTOGRAPHIC LOG

Client Name: Tennessee Valley Authority	**Site Location:** Kingston Fossil Plant – Harriman, Tennessee	**Project No.** 60095742

Photo No. 1	**Date:** 1-21-2009

Direction Photo Taken:

Looking vertical.

Description:

TVA Survey monument CHT-2.

The relic block of Dike C containing the monument traveled approximately 700 feet north-northwest across the Tail Water.

Photo No. 2	**Date:** 2-25-2009

Direction Photo Taken:

Looking vertical/west.

Description:

Scraper formerly parked on Center Dike.

The scraper traveled approximately 1,200 feet and rotated from a parked position facing north-northeast to a final position facing east-southeast.

AECOM

FIELD OBSERVATIONS TO LOCATE RELICS PHOTOGRAPHIC LOG

Client Name: Tennessee Valley Authority	**Site Location:** Kingston Fossil Plant – Harriman, Tennessee	**Project No.** 60095742

Photo No. 3

Date: 1-21-2009

Direction Photo Taken:

Looking east.

Description:

Relic Location 038.
Cell telephone repeater tower originally located on the northwest corner of the Starter Dike/Dike C in Slough 2.

The cell tower was transported approximately 1,500 feet north-northwest from its original position.

Photo No. 1.3.2_4

Date: 1-21-2009

Direction Photo Taken:

Looking east.

Description:

Relic Location 038_A.
Same cell repeater tower shown in 038. Numbers visible on the base of the tower "12, 15, 06" (red circle).

AECOM

FIELD OBSERVATIONS TO LOCATE RELICS PHOTOGRAPHIC LOG

Client Name: Tennessee Valley Authority	**Site Location:** Kingston Fossil Plant – Harriman, Tennessee	**Project No.** 60095742

Photo No. 5 **Date:** 1-26-2009

Direction Photo Taken:

Looking southeast.

Description:

Relic Location 097. Handrail formerly located on top of concrete wall around Dike C spillway outfall pipe. Confirmed by interview with TVA personnel.

The railing was transported approximately 700 feet north-northeast from its original position.

Photo No. 6 **Date:** 1-26-2009

Direction Photo Taken:

Looking north.

Description:

Relic Location 098_2. Corrugated, 8 to 10-foot diameter metal pipe. Identified as a skimmer top by TVA personnel. Formerly located on the bank next to the Dike C spillway outfall pipe.

The skimmer top was transported approximately 700 feet north-northeast from its original position.

AECOM

FIELD OBSERVATIONS TO LOCATE RELICS PHOTOGRAPHIC LOG

Client Name: Tennessee Valley Authority	**Site Location:** Kingston Fossil Plant – Harriman, Tennessee	**Project No.** 60095742

Photo No. 7 | **Date:** 1-21-2009

Direction Photo Taken:

Looking east.

Description:

Relic Location 024. Cattails formerly at the northwest corner of setback area, now in Slough 2 over-washed by ash. Relic dike material in the background was also over-washed.

The cattails were transported approximately 3,300 feet.

Photo No. 8 | **Date:** 2-4-2009

Direction Photo Taken:

Looking west-southwest.

Description:

Relic Location 130. 5/8-inch steel cable (looped or two cables) encased in woven geotextile. Nearby is a piece of corrugated PE (8-inch). Geotextile and #57 stone are most likely associated with the corrugated pipe.

The cable was transported approximately 1,600 feet.

AECOM

FIELD OBSERVATIONS TO LOCATE RELICS PHOTOGRAPHIC LOG

Client Name: Tennessee Valley Authority	**Site Location:** Kingston Fossil Plant – Harriman, Tennessee	**Project No.** 60095742

Photo No. 9 | **Date:** 1-26-2009

Direction Photo Taken:

Looking northeast.

Description:

Relic Location 100. Remnant of Dike C with bottom ash layer and clay cover material over native silty clay on north shore of Tail Water.

The Dike C relic was transported approximately 700 feet northward from its original position.

Photo No. 10 | **Date:** 1-23-2009

Direction Photo Taken:

Looking west.

Description:

Relic Location 075. 24-inch corrugated PE piping. Thought to have originated from one of two stockpiles: one at the northern end of the east dike of Dredge Cell 2, or a second at the northeastern edge of Dike D. Location is in the Emory River channel.

The pipe was transported between approximately 2,600 and 3,300 feet.

AECOM

FIELD OBSERVATIONS TO LOCATE RELICS PHOTOGRAPHIC LOG

Client Name: Tennessee Valley Authority	**Site Location:** Kingston Fossil Plant – Harriman, Tennessee	**Project No.** 60095742

Photo No. 11 | **Date:** 1-22-2009

Direction Photo Taken:

Looking north-northeast.

Description:

Relic Locations 043 and 044.
South end of 10-inch HDPE pipe (dredge pipeline?) located in Slough 2.

The HDPE pipe was transported approximately 1,400 feet north-northwest from its original position.

Photo No. 12 | **Date:** 1-21-2009

Direction Photo Taken:

Looking east.

Description:

Relic Location 030.
Pine trees formerly located on downstream north slope of Dike C (red arrows).

The trees were transported approximately 2,100 feet north-northwest from their original position.

AECOM

FIELD OBSERVATIONS TO LOCATE RELICS PHOTOGRAPHIC LOG

Client Name: Tennessee Valley Authority	**Site Location:** Kingston Fossil Plant – Harriman, Tennessee	**Project No.** 60095742

Photo No. 13 | **Date:** 12-23-09

Direction Photo Taken:

Looking east-northeast.

Description:

Relic Dike C (dashed line) on north shore of Tail Water.

Dike C was transported approximately 700 feet northward from its original position.

Photo No. 14 | **Date:** Uncertain

Direction Photo Taken:

Looking south-southeast.

Description:

Schean home pushed by Dike C and water surge.

The Schean home was moved approximately 65 feet northward from its original location.

(Photo by TVA)

AECOM

FIELD OBSERVATIONS TO LOCATE RELICS PHOTOGRAPHIC LOG

Client Name: Tennessee Valley Authority	**Site Location:** Kingston Fossil Plant – Harriman, Tennessee	**Project No.** 60095742

Photo No.	**Date:**
15	12-23-09

Direction Photo Taken:

Looking southeast.

Description:

The James home damaged during event. Areas over-washed by water but not ash (blue area).

(Photo by TVA)

Photo No.	**Date:**
16	12-23-09

Direction Photo Taken:

Looking southwest.

Description:

The Hanover home damaged during event. Located on the peninsula between Slough 3 and the reservoir. Area between blue lines was over-washed with water but not ash.

(Photo by TVA)

Photo 17: Outcrop of Conasauga Shale at the intersection of State Highway 70 and Pine Ridge Road. View looking north-northeast.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 1

Date: 1-25-09

Direction Photo Taken:

Looking east.

Description:

Screen capture 1 from a 14.25 minute QuickTime video of excavation attempt at Trench No. 1. Wide view looking toward the east. Arrow points to surveyor's stake location which is just off-screen to the left (north).

Photo No. 2

Date: 1-25-2009

Direction Photo Taken:

Looking east.

Description:

Screen capture 2 from a 14.25 minute QuickTime video of excavation attempt at Trench No. 1.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 3

Date: 1-25-2009

Direction Photo Taken:

Looking east.

Description:

Screen capture 2 from a 14.25 minute QuickTime video of excavation attempt at Trench No. 1.

Photo No. 4

Date: 1-30-2009

Direction Photo Taken:

Looking east.

Description:

Wide view of Trench No. 1 during second attempt to locate outfall piping. Two trackhoes working in tandem to probe for concrete outlet pipe or dike remnants. White arrow illustrates surveyor stake. Trackhoe has moved east along drainage. Initial excavation took place near stake.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 5

Date: 1-30-2009

Direction Photo Taken:

Looking east.

Description:

Long-stick amphibious trackhoe probing to a depth of approximately 10 feet at Trench No.1. Note: Consistency is that of a milkshake, thus any dike remnant, clay, or concrete pipe would be easily identifiable.

Photo No. 6

Date: 1-30-2009

Direction Photo Taken:

Looking east.

Description:

Long-stick trackhoe removing some ash from the base of the excavation at Location Trench No. 1. Note: Consistency is that of a milkshake, thus any dike remnant, clay, or concrete pipe would be easily identifiable. White arrow highlights surveyor's stake.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 7

Date: 1-30-2009

Direction Photo Taken:

Looking southeast.

Description:

Initial excavation activity at Trench No. 2.

Photo No. 8

Date: 1-30-2009

Direction Photo Taken:

Looking vertical.

Description:

Trench No. 2 encountered dike material at a depth of approximately 9 feet below ground (ash) surface near Test Boring Location 09-206.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 9

Date: 2-1-2009

Direction Photo Taken:

Looking northeast.

Description:

Amphibious trackhoe moving ash to prevent sloughing into Trench No. 2 during excavation of the outfall pipe. Immediately behind the hoe is a large surface water drainage that prevented exposure of the northeast end of the pipe.

Photo No. 10

Date: 2-1-2009

Direction Photo Taken:

Looking south-southwest.

Description:

Trackhoe moving ash during excavation of the outfall pipe at Trench No. 2. Kingston Fossil Plant smokestacks in the background. AECOM drill rig visible in near background drilling at Location 09-105.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 11

Date: 2-1-2009

Direction Photo Taken:

Nearly vertical.

Description:

Excavating through the dike material in search of the outfall pipe.

Photo No. 12

Date: 2-1-2009

Direction Photo Taken:

Nearly vertical.

Description:

Excavation approaching outfall pipe. Note the red clay cap on top of the brown silt/silty clay natural soil material.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 13

Date: 2-1-2009

Direction Photo Taken:

Nearly vertical.

Description:

Outfall pipe located. Arrow highlights a trackhoe bucket scratch on the concrete.

Photo No. 14

Date: 2-1-2009

Direction Photo Taken:

Looking east-southeast.

Description:

Unearthing the outfall pipe. Pool of water at the lower left was created by the clay "dam" to keep soft ash from sloughing into the trench.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 15

Date: 2-6-2009

Direction Photo Taken:

Looking east.

Description:

Trackhoes continue excavation of outfall pipe. Pump at right continues to keep water level low in adjacent sump which was originally dug to keep water out of excavation.

Photo No. 16

Date: 2-6-2009

Direction Photo Taken:

Looking east.

Description:

Excavation nearly complete. East end of outfall pipe was not exposed because it extends underneath a large drainage immediately behind the trackhoe in this photo. The elevation of the water in the drainage would likely flood the excavation.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 17

Date: 2-6-2009

Direction Photo Taken:

Looking east.

Description:

Deepening the sump to protect excavation from flooding.

Photo No. 18

Date: 2-8-2009

Direction Photo Taken:

Looking southwest.

Description:

Outfall pipe intake structure observed after water was drained from the upper pool into the lower sump and pumped out. Note that the intake pipe is intact and full of ash. Survey rod is approximately 4.5 feet long.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 19

Date: 2-8-2009

Direction Photo Taken:

Looking east.

Description:

One four-foot section of the outfall pipe was removed to observe condition of the pipe. Note the small amount of ash inside the lateral portion of the pipe.

Photo No. 20

Date: 2-8-2009

Direction Photo Taken:

Looking northeast.

Description:

Pipe inside diameter is 30 inches. Approximately 3 inches of ash present in the pipe. Note the waterline on the sides of the pipe indicating it flowed approximately half-full.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. **21**

Date: 2-8-2009

Direction Photo Taken:

Looking northeast.

Description:

Arrows highlight the fibrous okum used to seal the pipe joints.

Photo No. **22**

Date: 2-10-2009

Direction Photo Taken:

Looking northeast.

Description:

AECOM lead project engineer inspects the outfall pipe and condition of the dike walls exposed in the excavation.

AECOM

SPILLWAY TEST TRENCHES NO. 1 AND NO. 2 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 23

Date: 2-6-2009

Direction Photo Taken:

Looking southeast.

Description:

White dashed line approximates the starter dike material. White circle highlights the area where Photo 24 was taken.

Photo No. 24

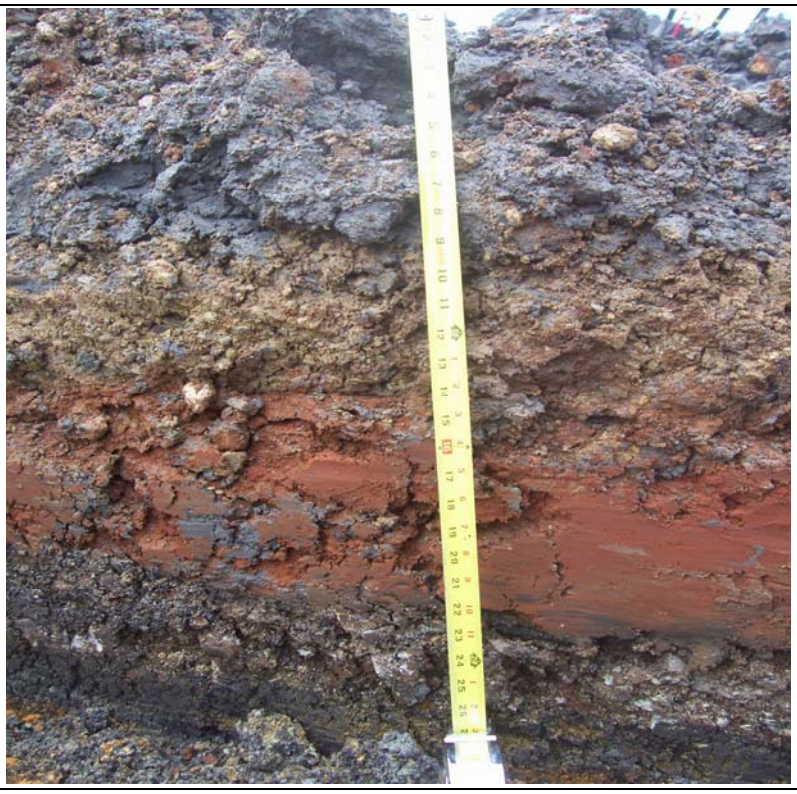
Date: 2-8-2009

Direction Photo Taken:

Looking southwest.

Description:

Clay cap material on top of Starter Dike. Note that it is likely that this thickness is not representative of the original thickness due to disturbance during excavation.



AECOM

CELL 1 TEST TRENCH NO. 3
PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No.	**Date:**
1	3-7-2009

Direction Photo Taken:

Looking north.

Description:

Typical "daylight" for the sideslope drains.

Photo No.	**Date:**
2	3-7-2009

Direction Photo Taken:

Looking north.

Description:

One example of a plugged sideslope drain. The plug appeared to be at the surface.

AECOM

CELL 1 TEST TRENCH NO. 3 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 3

Date: 1-29-09

Direction Photo Taken:

Looking east.

Description:

Preparing to feed video equipment into one of the sideslope drains.

Photo No. 4

Date: 1-29-2009

Direction Photo Taken:

Looking east.

Description:

Video equipment inside one of the sideslope drains.

AECOM

CELL 1 TEST TRENCH NO. 3
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 5

Date: 1-29-2009

Direction Photo Taken:

Looking north.

Description:

Still photo captured from video of sideslope drain at elevation 780' – 23.4 feet from daylight. Note the water mark on the side of the pipe demonstrating that it carried water (red arrows).

Photo No. 6

Date: 1-29-2009

Direction Photo Taken:

Looking north.

Description:

Still photo captured from video of sideslope drain at elevation 780' – 29.9 feet from daylight. Note the camera is underwater at this point. The red arrow points to the waterline. This is a low spot in the pipe that collected water.

AECOM

CELL 1 TEST TRENCH NO. 3
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 7

Date: 1-29-2009

Direction Photo Taken:

Looking north.

Description:

Still photo captured from video of sideslope "EEE" drain at elevation 780' – 49.6 feet from daylight. Pipe at this location shows no water mark, but is clean and debris-free. Again, the standing water due to a low spot in the non-perforated pipe.

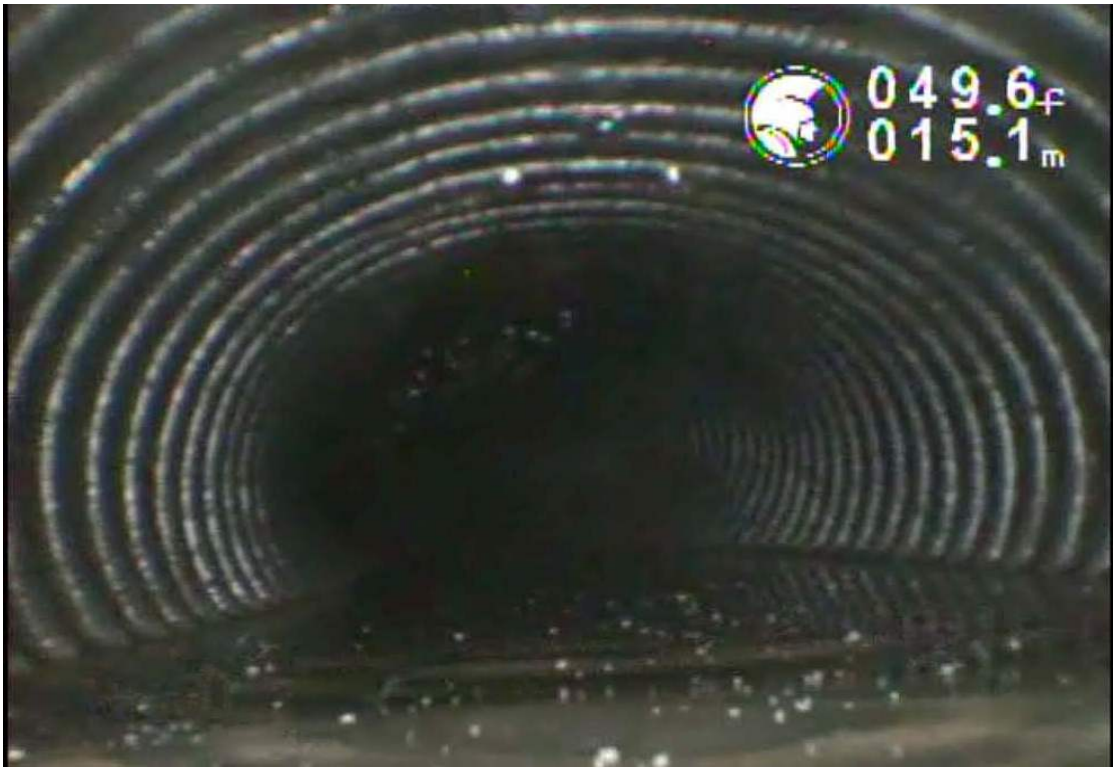


Photo No. 8

Date: 1-29-2009

Direction Photo Taken:

Looking north.

Description:

West pipe run on the south berm, 60.7 feet from daylight. No water mark is visible, but the pipe is clean and free of debris.

AECOM

CELL 1 TEST TRENCH NO. 3
PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. **9**

Date: 3-6-2009

Direction Photo Taken:

Looking southeast.

Description:

Staging equipment immediately before beginning excavation.

Photo No. **10**

Date: 3-6-2009

Direction Photo Taken:

Looking west.

Description:

Dozer beginning removal of Stage D3 Dike material.

AECOM

CELL 1 TEST TRENCH NO. 3 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 11

Date: 3-7-2009

Direction Photo Taken:

Looking West

Description:

Dozer removing the Stage D3 dike material at the beginning of excavation activities.

Photo No. 12

Date: 3-7-2009

Direction Photo Taken:

Looking west

Description:

Long-stick trackhoe loading ash into articulated dump truck for transport to test trench ash disposal area.

AECOM

CELL 1 TEST TRENCH NO. 3
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 13

Date: 3-7-2009

Direction Photo Taken:

Looking east.

Description:

Performs a sand cone test. Plastic bag contains ash being removed from sand cone hole for weighing and water content analysis. (Bill Butler, P.E. – AECOM

Photo No. 14

Date: 3-8-2009

Direction Photo Taken:

Looking southwest.

Description:

Removing ash from sand cone hole as weather turns. Note plastic bag covering sand cone to keep out moisture. (Dan Braatz – AECOM Environment)

AECOM

CELL 1 TEST TRENCH NO. 3
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 15

Date: 3-11-2009

Direction Photo Taken:

Looking north.

Description:

Beginning sand cone hole in bottom ash. Lighter brown color indicative of bottom ash found in compacted dike. (Randy Sederstrom – AECOM Environment)

Photo No. 16

Date: 3-13-2009

Direction Photo Taken:

Looking north.

Description:

Sand cone testing conducted beneath portable tarp during rain events to prevent materials from getting wet.

AECOM

CELL 1 TEST TRENCH NO. 3
PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. **17**

Date: 3-9-2009

Direction Photo Taken:

Looking northeast.

Description:

Pushing a vertical Shelby Tube with trackhoe bucket.

Photo No. **18**

Date: 3-7-2009

Direction Photo Taken:

Looking southwest.

Description:

Pushing a horizontal Shelby Tube with trackhoe bucket.

AECOM

CELL 1 TEST TRENCH NO. 3
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 19

Date: 3-7-2009

Direction Photo Taken:

Looking southwest.

Description:

First of isolated wet zones encountered during excavation activities.

Photo No. 20

Date: 3-8-2009

Direction Photo Taken:

Vertical

Description:

Second isolated wet zone encountered during excavation activities.

AECOM

CELL 1 TEST TRENCH NO. 3
PHOTOGRAPHIC LOG

Client Name:	**Site Location:**	**Project No.**
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. **21**

Date: 3-10-2009

Direction Photo Taken:

Looking west.

Description:

Excavation progress prior to encountering uppermost drain pipe.

Photo No. **22**

Date: 3-10-2009

Direction Photo Taken:

Looking north.

Description:

Red arrow points to surface expression of one of the drain pipes placed into the ash during construction of the dike.

AECOM

CELL 1 TEST TRENCH NO. 3 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 23

Date: 3-10-2009

Direction Photo Taken:

Uncertain.

Description:

Uncovering polyethylene drainage pipe. White arrow highlights drainage fabric encountered during excavation.

Photo No. 24

Date: 3-9-2009

Direction Photo Taken:

Looking east.

Description:

Polyethylene pipe exposed for sample collection. Work is being conducted on a lateral, perforated section of pipe. The non-perforated pipe that daylights on the slope of the berm exits the right side of the photo.

AECOM

CELL 1 TEST TRENCH NO. 3
PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 25

Date: 3-9-2009

Direction Photo Taken:

Looking northeast.

Description:

Sample of drainage fabric. White arrow points to metal staple used to secure the fabric. Surface rust on staple indicates presence of water.

Photo No. 26

Date: 3-10-2009

Direction Photo Taken:

Vertical.

Description:

Perforated polyethylene pipe with evidence of water movement through the gravel pack and into the pipe (white surface coating on pipe).

AECOM

CELL 1 TEST TRENCH NO. 3 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 27

Date:

Direction Photo Taken:

Looking west.

Description:

Collecting a sample of lateral perforated polyethylene pipe.

Photo No. 28

Date: 3-18-2009

Direction Photo Taken:

Looking west.

Description:

Surveyor with GPS preparing to locate sand cone and Shelby Tube locations in preparation for trackhoe excavation.

AECOM

CELL 1 TEST TRENCH NO. 3 PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Tennessee Valley Authority	Kingston Fossil Plant – Harriman, Tennessee	60095742

Photo No. 29

Date: 3-22-2009

Direction Photo Taken:

Looking northeast.

Description:

Arrow points to completed excavation of south berm recently coated with Flexterra® dust control material (green) as seen from Swan Pond Road approximately 200 yards south of plant entrance/guard shack.

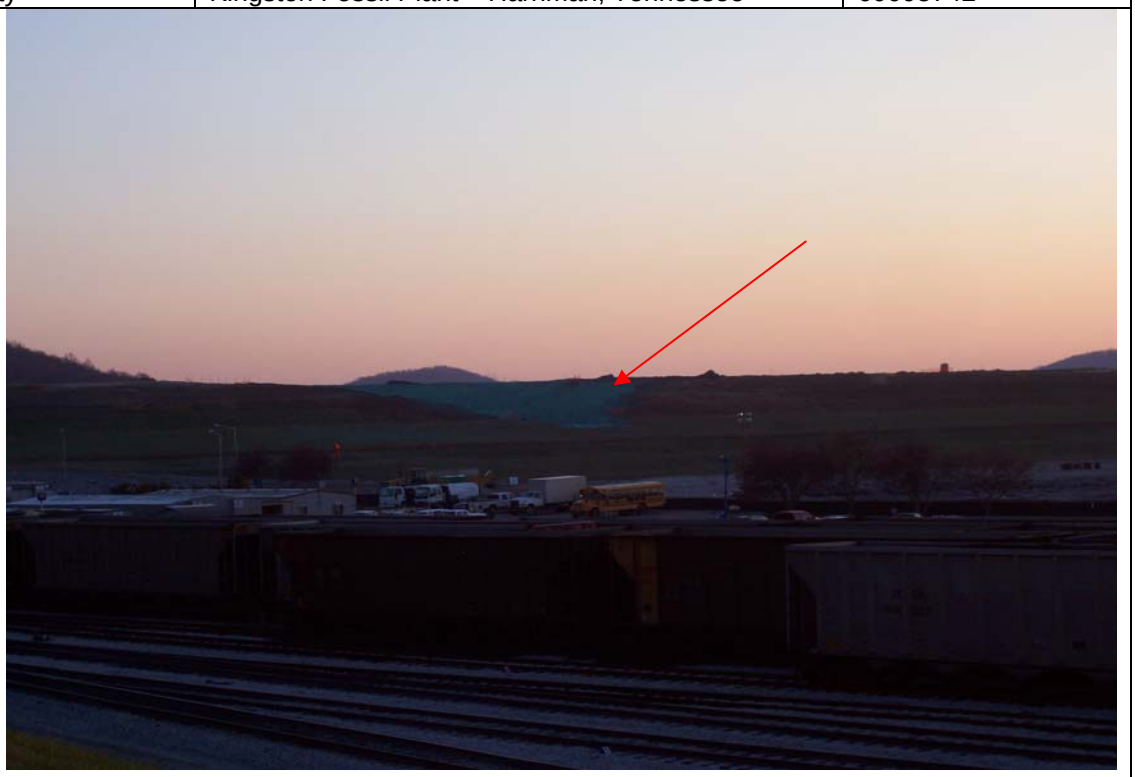


Photo No. 30

Date: 4-9-2009

Direction Photo Taken:

Vertical.

Description:

TVA air photograph taken April 9, 2009. The red circle outlines the completed excavation. The green Flexterra® dust control material has dried to tan.