



Submitted to
Southern Indiana
Gas & Electric Company
(SIGECO)
dba CenterPoint Energy
Indiana South
211 Northwest Riverside
Drive, Evansville, IN 47708

Submitted by
AECOM
9400 Amberglen Boulevard
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October 13, 2021

CCR Certification:
Structural Stability Assessment
§257.73 (d)
for the
East Ash Pond
at the
F. B. Culley Generating Station
Revision 0

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Executive Summary

This Coal Combustion Residuals (CCR) Structural Stability Assessment for the East Ash Pond at the Southern Indiana Gas & Electric Company (SIGECO) dba CenterPoint Energy Indiana South, F.B. Culley Generating Station has been prepared in accordance with the requirements specified in the USEPA CCR Rule under 40 Code of Federal Regulations §257.73 (d)(1). These regulations required that the specified documentation, assessments and plans for an existing CCR surface impoundment be prepared by October 17, 2016. Pursuant to that requirement, the Initial Structural Stability Assessment was completed and placed in the facility operating record on October 13, 2016. These regulations also require that the specified documentation and assessments for an existing CCR surface impoundment be prepared within five years of the placement of the previous assessment in the facility's operating record. Since the Initial Structural Stability Assessment was placed in the facility's operating record on October 13, 2016, the deadline for completing this 5-year update is October 13, 2021.

This Structural Stability Assessment for the East Ash Pond meets the regulatory requirements as summarized in **Table ES-1**.

Table ES-1 – Certification Summary				
Report Section	CCR Rule Reference	Requirement Summary	Requirement Met?	Comments
2.1	§257.73 (d)(1)(i)	<i>Foundations and Abutments</i>	Yes	The CCR Unit has stable foundations
2.2	§257.73 (d)(1)(ii)	<i>Slope Protections</i>	Yes	The CCR Unit has sufficient slope protection
2.3	§257.73 (d)(1)(iii)	<i>Dike Compaction</i>	Yes	The CCR Unit has appropriate dike Compaction
2.4	§257.73 (d)(1)(iv)	<i>Vegetated Slopes</i>	Yes	The CCR Unit has vegetated slopes or other forms of protection
2.5	§257.73 (d)(1)(v)	<i>Spillways</i>	Yes	The CCR Unit spillways are sufficient for the 1000 year event
2.6	§257.73 (d)(1)(vi)	<i>Stability and Structural Integrity of Hydraulic Structures</i>	Yes	Hydraulic structures passing through the base of the unit are free from noticeable defects which may negatively affect the operation of the unit
2.7	§257.73 (d)(1)(vii)	<i>Downstream Slope Inundation / Stability</i>	Yes	The CCR Unit maintains structural stability during low pool or sudden

				drawdown of adjacent water body
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The Culley East Ash Pond is currently an active surface impoundment. All structural stability assessment requirements were evaluated, and the surface impoundment was found to meet all requirements as required within each individual structural stability assessment in §257.73 (d)(1).

1 Introduction

1.1 Purpose of this Report

The purpose of the Structural Stability Assessment presented in this report is to document that the requirements specified in 40 Code of Federal Regulations (CFR) §257.73 (d) have been met to support the certification required under each of the applicable regulatory provisions for the F. B. Culley Generating Station (Culley) East Ash Pond. The East Ash Pond is an existing coal combustion residual (CCR) surface impoundment as defined by 40 CFR §257.53. The CCR Rule requires that the specified documentation and assessments for an existing CCR surface impoundment be prepared within five years of the placement of the previous assessment in the facility's operating record. Since the Initial Structural Stability Assessment was placed in the facility's operating record on October 13, 2016, the deadline for completing this 5-year update is October 13, 2021.

The following table summarizes the documentation required within the CCR Rule and the sections that specifically respond to those requirements of this assessment.

Table 1-1 – CCR Rule Cross Reference Table		
Report Section	Title	CCR Rule Reference
2.1	Foundations and Abutments	§257.73 (d)(1)(i)
2.2	Slope Protection	§257.73 (d)(1)(ii)
2.3	Dike Compaction	§257.73 (d)(1)(iii)
2.4	Vegetated Slopes	§257.73 (d)(1)(iv)
2.5	Spillways	§257.73 (d)(1)(v)
2.6	Stability and Structural Integrity of Hydraulic Structures	§257.73 (d)(1)(vi)
2.7	Downstream Slope Inundation / Stability	§257.73 (d)(1)(vii)

1.2 Brief Description of Impoundment

The Culley station is located in Warrick County, Indiana, southeast of Newburgh, Indiana, and is owned and operated by Southern Indiana Gas and Electric Company (SIGECO), dba CenterPoint Energy Indiana South. The Culley station is located along the north bank of the Ohio River and the west bank of the Little Pigeon Creek along the southeast portion of the site. Culley has two CCR surface impoundments, identified as the West Ash Pond and the East Ash Pond. Only the East Ash Pond is actively receiving CCR materials. The East Ash Pond is located directly east of the station and is approximately 10 acres in size.

The East Ash Pond was commissioned in or around 1971. Earthen embankments were constructed along the south and east sides of the impoundment. Structural fill used for the original construction of the Culley station in the

1950's borders the impoundment to the west side, and west end of the north side. The east embankment intersects a natural hillside on the east end of the north side of the impoundment. The embankment is approximately 1,200 feet long, 30 feet high, and has 2.4 to 1 (horizontal to vertical) exterior side slopes covered with grassy vegetation. Interior side slopes varied from 2.5 to 1 (horizontal to vertical) to 2 to 1 (horizontal to vertical) for the upper and lower portion of the embankment, respectively. The embankment crest elevation varies from 392.67 feet¹ to 396.42 feet and has a crest width of approximately 15 feet. The surface area of the impoundment is approximately 9.8 acres. Within the pond, there are three small pools that are being utilized for treatment and separation of CCR material within the pond as part of an ongoing construction project. The East Ash Pond has normal operating level of 386.5 feet.

A site Location Map showing the area surrounding the station is included as **Figure 1** of **Appendix A**. **Figure 2** in **Appendix A** presents the Culley Site Map.

¹ Unless otherwise noted, all elevations in this report are in the NAVD88 datum.

2 Structural Stability Assessment Description

Regulatory Citation: 40 CFR §257.73 (d)(1);

- *The owner or operator of the CCR unit must conduct initial and periodic structural stability assessments and document whether the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering practices for the maximum volume of CCR and CCR wastewater which can be impounded therein. The assessment must, at a minimum, document whether the CCR unit has been designed, constructed, operated, and maintained with [the standards in (d)(1)(i)-(vii)]:*

The Structural Stability Analysis for the East Ash Pond is described in this section. Information about operational and maintenance procedures was provided by Culley plant personnel. The Culley station follows an established maintenance program that quickly identifies and resolves issues of concern.

2.1 Foundations and Abutments

Regulatory Citation: 40 CFR §257.73 (d)(1);

- *(i) Stable foundations and abutments;*

Background and Assessment

The stability of the foundations was evaluated using soil data from field investigations and reviewing design drawings, operational and maintenance procedures, and conditions observed in the field by AECOM. Additionally, slope stability analyses were performed to evaluate slip surfaces passing through the foundations.

The foundation soils consist of medium stiff to very stiff clay and loose to medium sandy soils. Medium stiff to stiff clay soils indicate stable foundations. While the sands may be susceptible to liquefaction as a result of strong earthquake shaking, liquefaction analysis concluded that a liquefaction of a continuous layer is not anticipated. Furthermore, the slope stability analyses exceed the criteria listed in §257.73 (e)(1) for slip surfaces passing through the foundation (including the post-liquefaction loading condition). Therefore, the foundation soils are considered to be stable under all loading conditions. The slope stability analyses are discussed in the *CCR Certification Report: Safety Factor Assessment for the East Ash Pond at the F.B. Culley Generating Station* (October 2021). A review of operational and maintenance procedures as well as current and past performance of the dikes has determined appropriate processes are in place for continued operational performance.

Conclusion and Recommendation

Based on the conditions observed by AECOM, the East Ash Pond was designed and constructed with stable foundations. Operational and maintenance procedures are in place to address any issues related to the stability of foundations.

Therefore, the East Ash Pond meets the requirements in §257.73 (d)(1)(i).

2.2 Slope Protection

Regulatory Citation: 40 CFR §257.73 (d)(1);

- *(ii) Adequate slope protection to protect against surface erosion, wave action and adverse effects of sudden drawdown;*

Background and Assessment

The adequacy of slope protection was evaluated by reviewing design drawings, operational and maintenance procedures, and conditions observed in the field by AECOM.

The exterior slopes of the embankment are covered with a combination of grass vegetation, concrete rubble, some rip-rap, and scrub brush. The toe of the embankment includes sparse trees that help to stabilize the embankment against erosion. The interior slopes of the embankment are covered with rip-rap which has an approximate median diameter of 15-inches. No evidence of significant areas of erosion or wave action was observed during AECOM's site visit on October 11, 2021. See **Appendix B** for further details from AECOM's site visit.

Conclusion and Recommendation

Based on this evaluation, adequate slope protection was designed and constructed at the East Ash Pond. The slopes show no evidence of significant areas of erosion or wave action. Operational and maintenance procedures to repair the vegetation and rip-rap (exterior slopes) and rip-rap (interior slopes) as needed are appropriate to protect against surface erosion or wave action. See **Section 2.7** of this report for further information on sudden drawdown.

Therefore, the East Ash Pond meets the requirements in §257.73 (d)(1)(ii).

2.3 Dike Compaction

Regulatory Citation: 40 CFR §257.73 (d)(1)

- *(iii) Dikes mechanically compacted to a density sufficient to withstand the range of loading conditions in the CCR unit;*

Background and Assessment

The density of the dike materials was evaluated using soil data from field investigations and reviewing design drawings, operational and maintenance procedures, and conditions observed in the field by AECOM. Additionally, slope stability analyses were performed to evaluate slip surfaces passing through the dike over the range of expected loading conditions as defined within §257.73 (e)(1).

Based on the evaluation, the dike consists of medium to very stiff material, which is indicative of mechanically compacted dikes. Slope stability analyses exceed the criteria listed in §257.73 (e)(1) for slip surfaces passing through the dike. The slope stability analyses and results are discussed in the *CCR Certification: Safety Factor Assessment Report for the East Ash Pond at the F. B. Culley Generating Station* (October 2021).

Conclusion and Recommendation

Based on the conditions observed by AECOM, the East Ash Pond was designed and constructed with sufficient dike compaction.

Therefore, the East Ash Pond meets the requirements in §257.73 (d)(1)(iii).

2.4 Vegetated Slopes

Regulatory Citation: 40 CFR §257.73 (d)(1)

- *(iv) Vegetated slopes of dikes and surrounding areas, except for slopes which have an alternate form or forms of slope protection;²*

Background and Assessment

The adequacy of slope vegetation and protection was evaluated by reviewing design drawings, operational and maintenance procedures, and conditions observed in the field by AECOM.

The exterior slopes of the embankments are covered with grass vegetation, concrete rubble, rip-rap, and scrub brush. The toe of the embankment includes sparse trees that stabilize the embankment against erosion. No evidence of significant areas of erosion was observed during AECOM's site visit on October 11, 2021. See **Appendix B** for further details from AECOM's site visit.

Conclusion and Recommendation

Based on this evaluation, the vegetation and/or slope protection on the exterior slopes of the embankments is adequate as no substantial erosion areas were observed. Therefore, the original design and construction of the East Ash Pond included adequate vegetation or slope protection of the dikes and surrounding areas. Adequate operational and maintenance procedures are in place to regularly manage vegetation growth, including mowing and seeding any bare areas, and to address erosional issues as they occur, as evidenced by the conditions observed by AECOM.

Therefore, the East Ash Pond meets the requirements in §257.73 (d)(1)(iv).

2.5 Spillways

Regulatory Citation: 40 CFR §257.73 (d)(1)

- *(v) single spillway or a combination of spillways configured as specified in [paragraph (A) and (B)]:*
 - *(A) All spillways must be either:*
 - *(1) of non-erodible construction and designed to carry sustained flows; or*
 - *(2) earth- or grass-lined and designed to carry short-term, infrequent flows at non-erosive velocities where sustained flows are not expected.*

² As modified by court order issued June 14, 2016, Utility Solid Waste Activities Group v. EPA, D.C. Cir. No. 15-1219 (order granting remand and vacatur of specific regulatory provisions).

- (B) *The combined capacity of all spillways must adequately manage flow during and following the peak discharge from a:*
 - (1) *Probable maximum flood (PMF) for a high hazard potential CCR surface impoundment; or*
 - (2) *1000-year flood for a significant hazard potential CCR surface impoundment; or*
 - (3) *100-year flood for a low hazard potential CCR surface impoundment.*

Background and Assessment

The current primary discharge method at the Culley station consists of two portable, diesel-powered pumps located in the main pool in the west side of the East Ash Pond. This was evaluated using operational and maintenance procedures, and conditions observed in the field by AECOM. The permanent discharge method, although not currently in use, consists of a pump station and was evaluated using design drawings, operational and maintenance procedures, and conditions observed in the field by AECOM.

The two portable, diesel-powered pumps are currently the only method to discharge from the East Ash Pond. A riser spillway was present in the southeast portion of the East Ash Pond which had discharged to the Little Pigeon Creek but was previously plugged with concrete and abandoned. The two portable, diesel-powered pumps have a capacity of 2,000 gpm and connect to the existing 10-inch high density polyethylene (HDPE) pipe from the East Ash Pond Pump Station that connects to an 84-inch reinforced concrete pipe which ultimately empties into an underground 12-foot wide by 11-foot high pre-cast concrete discharge tunnel.

The East Pump Station, which is currently not in use, consists of a 12 foot concrete weir that collects runoff and two, 5,400 gpm submersible pumps, which operate at 2,180 gpm each, connected to the existing 10 inch HDPE pipe that connects to the 84-inch reinforced concrete pipe as described above. The condition of the pump station was observed in the field by AECOM on October 11, 2021. See Site Visit Report in **Appendix B** for additional details. The concrete weir and the discharge piping of the pump station are non-erodible material, while the cast-in-place reinforced concrete tunnel is designed to prevent erosion.

Additionally, hydrologic and hydraulic analyses were completed to evaluate the capacity of the discharge method relative to inflow estimated for the 1,000-year flood event for the significant hazard potential of the East Ash Pond. The ability of the design to carry sustained flows, as well as the capacity, was evaluated using hydrologic and hydraulic analysis performed per §257.82(a). The hydrologic and hydraulic analyses are discussed in the *CCR Certification: Inflow Design Flood Control System Plan for the East Ash Pond at the F.B. Culley Generating Station* (October 13, 2021).

Conclusion and Recommendation

The current and permanent primary discharge method, the pump station structure, weir structure, discharge piping of the pump station, and cast-in-place reinforced concrete discharge tunnel are constructed of non-erodible materials.

The analysis found that the discharge method can adequately manage flow during peak discharge resulting from the 1,000-year storm event without overtopping of the embankments. The peak water surcharge elevation is 388.50 feet during the IDF, and the minimum crest elevation of the East Ash Pond dike is 392.67 feet, resulting in 4.17 feet of freeboard. This also indicates that the design is adequate to carry sustained flows. Operational and maintenance procedures are in place to remove debris or other obstructions, if observed after normal inspections. As a result, these procedures are appropriate for maintaining sufficient discharge rate.

Therefore, the East Ash Pond meets the requirements in §257.73 (d)(1)(v).

2.6 Stability and Structural Integrity of Hydraulic Structures

Regulatory Citation: 40 CFR §257.73 (d)(1)

- *(vi) Hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit that maintain structural integrity and are free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris which may negatively affect the operation of the hydraulic structure*

Background and Assessment

Based on an evaluation of design drawings, operational and maintenance procedures, and conditions observed in the field by AECOM on October 11, 2021, no active hydraulic structures are present that underlie the base or pass through the dike of the East Ash Pond. A riser spillway was present in the southeast portion of the East Ash Pond which had discharged to the Little Pigeon Creek but was previously plugged with concrete and abandoned. There was no seepage observed on the outer slope of the embankment in the area opposite the previous spillway. See the Site Visit report in **Appendix B** for additional information from AECOM's site visit.

Conclusion and Recommendation

The only penetration through the East Ash Pond embankment has previously been plugged and abandoned and is no longer active. There is no evidence of seepage from this structure or along the exterior of the structure. Therefore, the East Ash Pond meets the requirements in §257.73 (d)(1)(vi).

2.7 Downstream Slope Inundation / Stability

Regulatory Citation: 40 CFR §257.73 (d)(1)

- *(vii) For CCR units with downstream slopes which can be inundated by the pool of an adjacent water body, such as a river, stream or lake, downstream slopes that maintain structural stability during low pool of the adjacent water body or sudden drawdown of the adjacent water body.*

Background and Assessment

The structural stability of the downstream slopes of the East Ash Pond was evaluated by comparing the location of the East Ash Pond relative to adjacent water bodies using published United States Geological Survey (USGS) topographic maps, aerial imagery, and conditions observed in the field by AECOM.

Based on this evaluation, the Ohio River can inundate the downstream slopes of the East Ash Pond. The 100 year flood of the Ohio River has an elevation of approximately 384 feet, while the toe of the East Ash Pond embankment has an elevation of approximately 364 feet. Therefore the Ohio River can inundate the embankment by roughly 20 feet. A sudden drawdown slope stability analysis was performed at the worst case cross-section adjacent to the downstream water body, and considered a drawdown of the flood pool in the downstream water body from a flood elevation to normal pool condition. The resulting factor of safety was found to satisfy the criteria listed in United States Army Corps of Engineers Engineer Manual 1110-2-1902 for drawdown. See AECOM's *CCR Certification: Slope Stability Analysis for the East Ash Pond at the F.B. Culley Generating Station* (October 13, 2021) for the full analysis.

Conclusion and Recommendation

The East Ash Pond embankment is stable in the event of sudden drawdown from the adjacent Ohio River. Therefore, the East Ash Pond meets the requirements in §257.73 (d)(1)(vii).

3 Certification

This Certification Statement documents that the East Ash Pond at the F. B. Culley Generating Station meets the Initial Structural Stability Assessment requirements specified in 40 CFR §257.73 (d). The East Ash Pond is an existing CCR surface impoundment as defined by 40 CFR §257.53. The CCR Rule requires that the specified documentation and assessments for an existing CCR surface impoundment be prepared within five years of the placement of the previous assessment in the facility’s operating record. Since the Initial Structural Stability Assessment was placed in the facility’s operating record on October 13, 2016, the deadline for completing this 5-year update is October 13, 2021.

CCR Unit: Southern Indiana Gas & Electric Company; F. B. Culley Generating Station; East Ash Pond

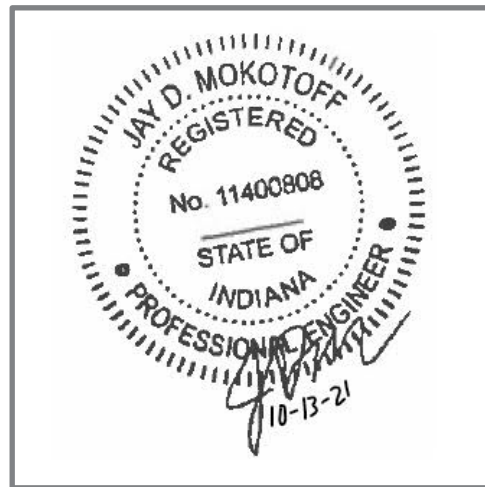
I, Jay Mokotoff, being a Registered Professional Engineer in good standing in the State of Indiana, do hereby certify, to the best of my knowledge, information, and belief that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above referenced CCR Unit, that the Structural Stability Assessment dated October 13, 2021 meets the requirements of 40 CFR § 257.73 (d).

Jay Mokotoff

Printed Name

10-13-2021

Date



4 Limitations

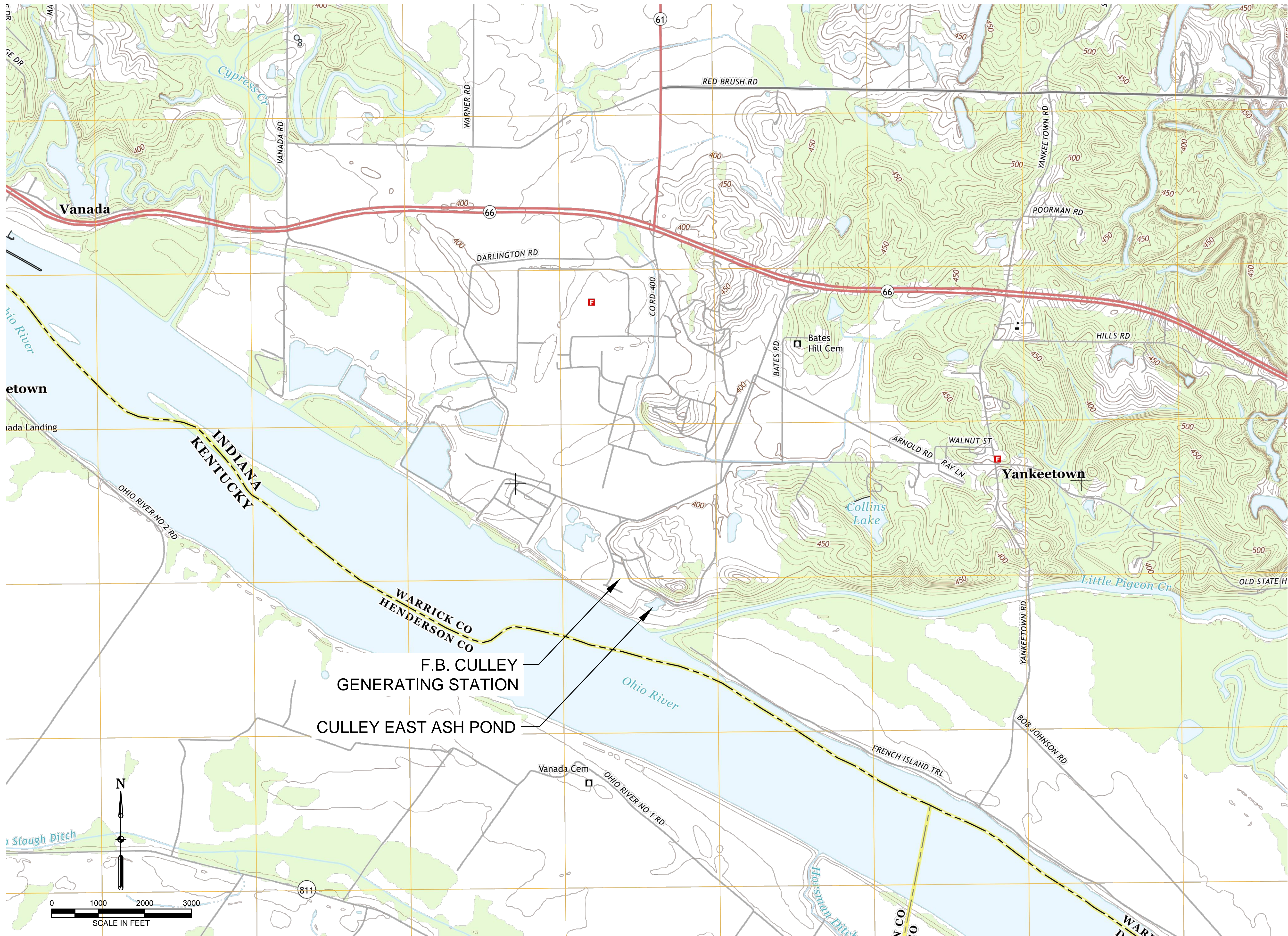
Background information, design basis, and other data which AECOM has used in preparation of this report have been furnished to AECOM by SIGECO. AECOM has relied on this information as furnished, and is not responsible for the accuracy of this information. Our recommendations are based on available information from previous and current investigations. These recommendations may be updated as future investigations are performed.

The conclusions presented in this report are intended only for the purpose, site location, and project indicated. The recommendations presented in this report should not be used for other projects or purposes. Conclusions or recommendations made from these data by others are their responsibility. The conclusions and recommendations are based on AECOM's understanding of current plant operations, maintenance, stormwater handling, and ash handling procedures at the station, as provided by SIGECO. Changes in any of these operations or procedures may invalidate the findings in this report until AECOM has had the opportunity to review the findings, and revise the report if necessary.

This development of the Initial Structural Stability Assessment was performed in accordance with the standard of care commonly used as state-of-practice in our profession. Specifically, our services have been performed in accordance with accepted principles and practices of the engineering profession. The conclusions presented in this report are professional opinions based on the indicated project criteria and data available at the time this report was prepared. Our services were provided in a manner consistent with the level of care and skill ordinarily exercised by other professional consultants under similar circumstances. No other representation is intended.

Appendix A Figures

Figure 1 – Location Map
Figure 2 – Site Map



9400 Amberglen Boulevard
 Austin, TX 78729-1100
 512-454-4797 (phone)
 512-454-8807 (fax)

**SOUTHERN INDIANA
 GAS AND ELECTRIC
 COMPANY**

211 Northwest Riverside Drive
 Evansville, IN 47708
 1-800-227-1376 (phone)

**F.B. CULLEY
 GENERATING STATION
 NEWBURGH, IN**

**CCR CERTIFICATION
 EAST ASH POND**

**ISSUED FOR
 CERTIFICATION**

ISSUED FOR BIDDING _____ DATE BY _____

ISSUED FOR CONSTRUCTION _____ DATE BY _____

REVISIONS

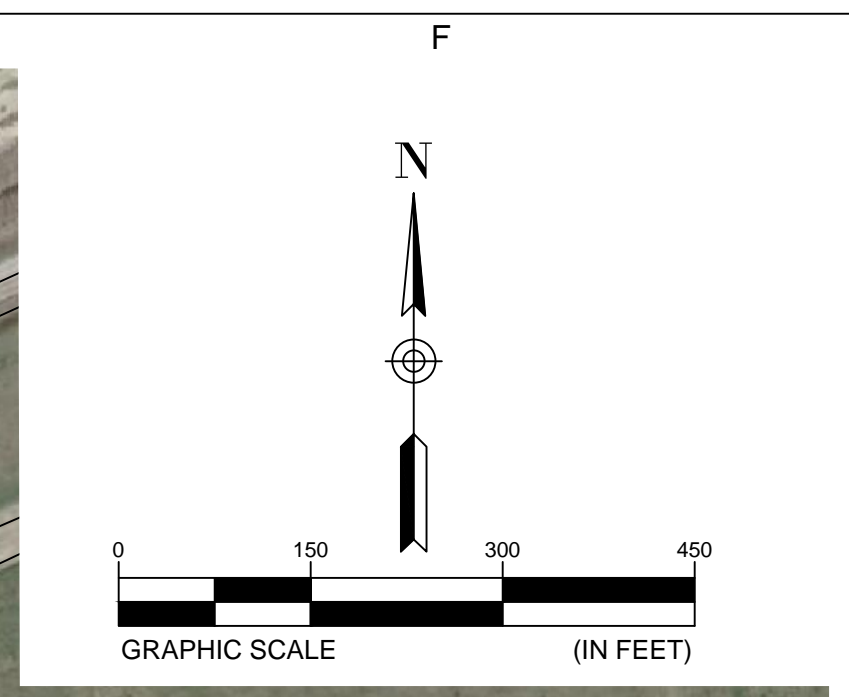
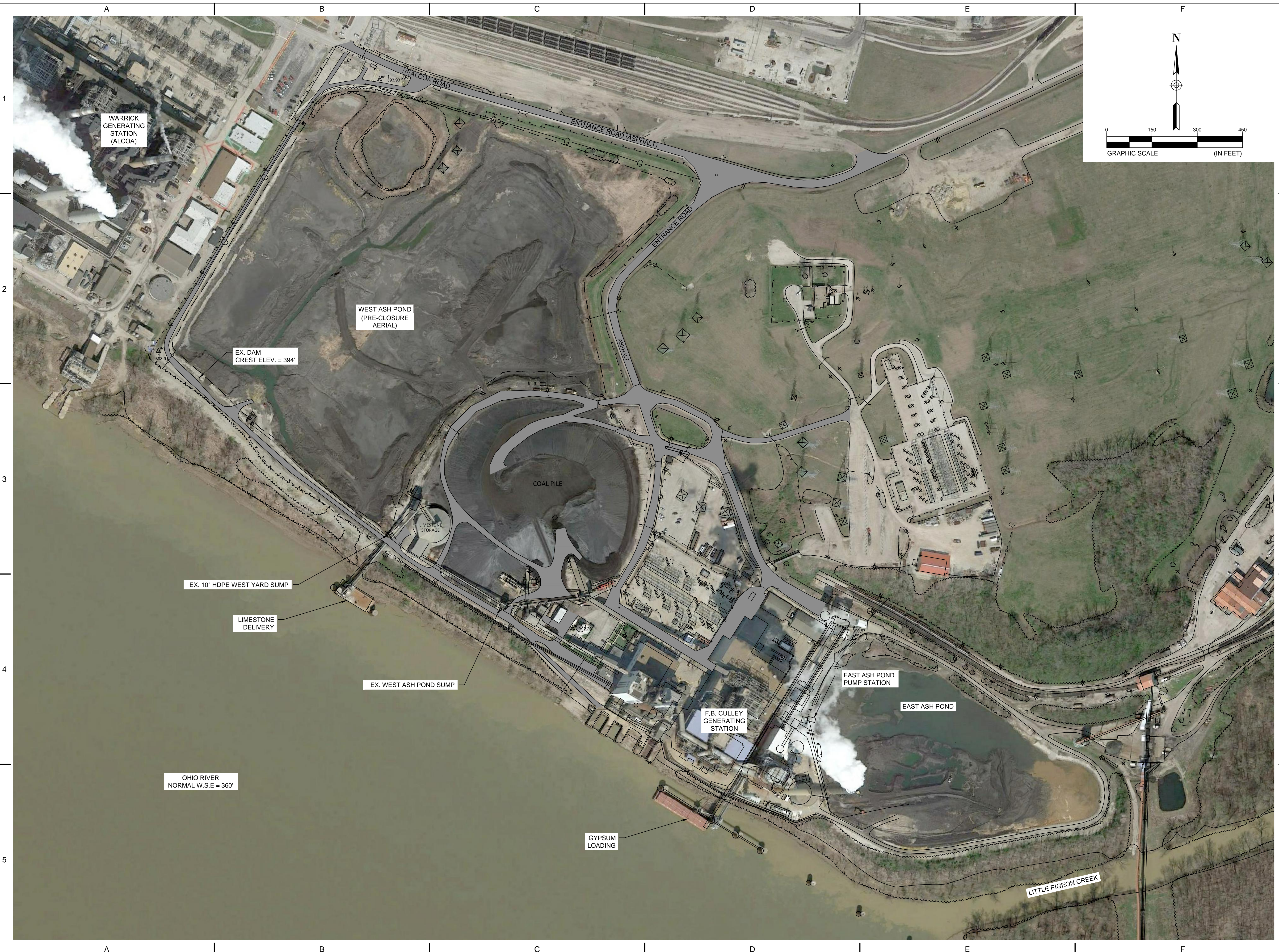
NO.	DESCRIPTION	DATE
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AECOM PROJECT NO:	60442676
DRAWN BY:	AG
DESIGNED BY:	AG
CHECKED BY:	JDM
DATE CREATED:	12/08/2017
PLOT DATE:	12/08/2017
SCALE:	1" = 1000'
ACAD VER:	2014

SHEET TITLE

LOCATION MAP

FIGURE 1



9400 Amberglen Boulevard
 Austin, TX 78729-1100
 512-454-4797 (phone)
 512-454-8807 (fax)

**SOUTHERN INDIANA
 GAS AND ELECTRIC
 COMPANY**

211 Northwest Riverside Drive
 Evansville, IN 47708
 1-800-227-1376 (phone)

**F.B. CULLEY
 GENERATING STATION
 NEWBURGH, IN**

**CCR CERTIFICATION
 EAST ASH POND**

**ISSUED FOR
 CERTIFICATION**

ISSUED FOR BIDDING _____ DATE BY _____

ISSUED FOR CONSTRUCTION _____ DATE BY _____

REVISIONS		
NO.	DESCRIPTION	DATE
△		
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△		
△		
△		

AECOM PROJECT NO:	60442676
DRAWN BY:	AG
DESIGNED BY:	AG
CHECKED BY:	MJC
DATE CREATED:	12/08/2017
PLOT DATE:	12/08/2017
SCALE:	1" = 150'
ACAD VER:	2014

SHEET TITLE

SITE MAP

FIGURE 2

Appendix B

AECOM Site Visit Report

Station: F.B. Culley Generating Station
Station Location: Warrick County, Indiana
Site Visit Date: 10/11/2021

Description of Impoundment Relevant to Site Inspection:

The East Ash Pond was commissioned in or around 1971 and operates as an unlined CCR impoundment. Earthen embankments were constructed along the south and east sides of the impoundment. Structural fill used for the original construction of the Culley station in the 1950's borders the impoundment to the west side, and west end of the north side. The east embankment intersects a natural hillside on the east end of the north side of the impoundment. The embankment is approximately 1,200 feet long, 30 feet high, and has 2.4 to 1 (horizontal to vertical) exterior side slopes covered with grassy vegetation. Interior side slopes varied from 2.5 to 1 (horizontal to vertical) to 2 to 1 (horizontal to vertical) for the upper and lower portion of the embankment, respectively. The embankment crest elevation varies from 392.67 feet to 396.42 feet and has a crest width of approximately 15 feet. The surface area of the impoundment is approximately 9.8 acres. Within the pond, there are three small pools that are being utilized for treatment and separation of CCR material within the pond as part of an ongoing construction project. The East Ash Pond has normal operating level of 387 feet.

The water was discharged from the impoundment via pumping station through a permitted National Pollutant Discharge Elimination System (NPDES) outfall, identified as Internal Outfall 201. Bottom ash and flue gas desulfurization (FGD) blowdown material is currently pumped from the plant into the East Ash Pond at rate of 0.35 cubic feet per second (cfs) or 0.233 million gallons per day (MGD). In addition to rain that falls directly into the impoundment, there is an upstream area immediately north of the East Ash Pond that contributes runoff to the impoundment. The rest of the site areas, including the plant area, coal pile, and grassy areas to the northwest of the site that previously discharged to the East Ash Pond have been re-routed to the Contact Stormwater Pond in the former West Ash Pond footprint and eventually discharged to the Ohio River through a NPDES permitted outfall

Summary of Observation/Comments on Site Visit:

AECOM (Ben Arnett), a qualified professional, visited the F.B. Culley Generating Station (Culley) on October 11, 2021 to conduct a site inspection of the East Ash Pond. He performed this work under the supervision of and in coordination with AECOM's qualified professional engineer (Jay Mokotoff, PE). AECOM inspected the site features of the East Ash Pond to assess the unit with respect to the CCR Rule (40 CFR §257.83) and to better understand the operating methods of the surface impoundment in accordance with the Operating Criteria requirements of the CCR Rule.



AECOM's inspection included a visual inspection of the East Ash Pond and the areas surrounding the East Ash Pond. Inspections were conducted from the top of the impoundment along an access road on top of the dike and along the southern toe of the exterior slope of the impoundment. The surface impoundment is a partially incised unit that includes an access road surrounding the entire unit. The north side is cut into a hill and the south and east sides were created by the construction of the southern and eastern dikes. The surface impoundment is bounded on the west by the generating station.



Bottom ash and flue gas desulfurization (FGD) blowdown material is currently pumped from the plant into the East Ash Pond at rate of 0.35 cubic feet per second (cfs) or 0.233 million gallons per day (MGD). In addition, rainfall falling directly onto the surface impoundment and from runoff from an area immediately north of the access road is also received by the East Ash Pond. Discharge from the unit is via an active pumping station that pumps to a stormwater system under the generating station prior to discharge via a permitted NPDES

outfall to the Ohio River. No seepage was observed on the exterior of the dike.

The surface impoundment is north of the Ohio River which is located south of the toe of the unit's southern embankment. Slope protection included crushed gravel, scrub grass and established trees along the most southern portion of the embankment at the toe. Slope protection across the entire perimeter of the impoundment was observed to be in good condition.

No evidence of significant areas of erosion on the dam, earthen buttress or associated areas was observed during AECOM's site visit.

<p>Photo No. 1</p>	<p>Date: 10/11/2021</p>	
<p>Location: F.B. Culley Generating Station</p>		
<p>Description: Standing at the west end of southern dike, looking east. Picture shows slope protection of southern dike. Photographer: Ben Arnett</p>		
<p>Photo No. 2</p>	<p>Date: 10/11/2021</p>	
<p>Location: F.B. Culley Generating Station</p>		
<p>Description: Standing midway along southern dike, looking downslope. Photographer: Ben Arnett</p>		

<p>Photo No. 3</p>	<p>Date: 10/11/2021</p>	
<p>Location: F.B. Culley Generating Station</p>		
<p>Description: Standing midway along southern dike, looking east. Picture shows slope protection. Photographer: Ben Arnett</p>		
<p>Photo No. 4</p>	<p>Date: 10/11/2021</p>	
<p>Location: F.B. Culley Generating Station</p>		
<p>Description: Standing midway along southern dike, looking back over surface impoundment. Picture shows stability of northern dike into surface impoundment. Photographer: Ben Arnett</p>		



<p>Photo No. 5</p>	<p>Date: 10/11/2021</p>	
<p>Location: F.B. Culley Generating Station</p>		
<p>Description: Standing along the toe of the east side of the impoundment, looking south. Picture shows adequate slope protection and no evidence of seepage. Photographer: Ben Arnett</p>		
<p>Photo No. 6</p>	<p>Date: 10/11/2021</p>	
<p>Location: F.B. Culley Generating Station</p>		
<p>Description: Standing on the exterior toe of the south side of the impoundment, adjacent to Little Pigeon Creek. Picture shows adequate slope protection and no evidence of seepage or sloughing on the exterior slope of the dike. Photographer: Ben Arnett</p>		

Photo No. 7	Date: 10/11/2021	
Location: F.B. Culley Generating Station		
<p>Description: Standing on the southeast corner of the dike looking at the interior of the impoundment.</p> <p>Picture shows riprap slope protection on the interior slope of the impoundment.</p> <p>Photographer: Ben Arnett</p>		

About AECOM

AECOM (NYSE: ACM) is a global provider of professional technical and management support services to a broad range of markets, including transportation, facilities, environmental, energy, water, and government. With approximately 45,000 employees around the world, AECOM is a leader in all the key markets that it serves. AECOM provides a blend of global reach, local knowledge, innovation, and collaborative technical excellence in delivering solutions that enhance and sustain the world's built, natural, and social environments. A Fortune 500 company, AECOM serves clients in more than 100 countries and has annual revenue more than \$6 billion.

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