

**ATTACHMENT 48  
Post Closure Plan  
Special Waste Landfill Permit  
Big Sandy Plant – Ash Pond Closure  
Lawrence County, Kentucky**

The post closure plan is written in accordance with **401 KAR 45:110, Section 5, Paragraph 3** and is included as part of this attachment.

**KENTUCKY POWER**  
**BIG SANDY PLANT**  
**LAWRENCE COUNTY, KENTUCKY**

**COAL ASH POND CLOSURE**  
**POST-CLOSURE PLAN**

Prepared for

American Electric Power  
1 Riverside Plaza  
Columbus, Ohio 43215

**May 08, 2013**

Prepared by



1375 Euclid Ave., Suite 600  
Cleveland, OH 44115  
216-622-2400

Project No. 13815151

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## 1.0 INTRODUCTION

This Post-Closure Plan (PC Plan) has been developed in support of the coal ash pond closure at Kentucky Power’s Big Sandy Plant in Lawrence County, Kentucky.

This Post-Closure Plan has been prepared in accordance with the Kentucky Administrative Regulations (KAR), Energy and Environment Cabinet Department for Environmental Protection (Title 401), Technical and Operating Requirements for special waste landfills (401 KAR 45:110).

The purpose of this document is to: describe the monitoring and maintenance activities for the facility during the post-closure period. Information presented in this document is organized to be consistent with 401 KAR 45:110. Sections within this application have been titled and enumerated corresponding to the regulations to aid in the review process.

## 2.0 NARRATIVE DESCRIPTION OF THE FACILITY AND OPERATION

### 2.1 SITE LOCATION AND DESCRIPTION

Kentucky Power owns and operates the 1,097 Mega Watt (MW) Big Sandy Plant on the west bank of the Big Sandy River, near Louisa in Lawrence County, Kentucky. Currently, coal combustion fly ash from the plant is disposed of in the Big Sandy Fly Ash reservoir, which is impounded by the Horseford Creek Dam located approximately 0.75 miles northwest of the plant. The Project involves closure design of the Plant’s existing 140-acre wet fly ash impoundment, which will no longer be needed for wet sluice disposal beginning in 2016.

### 2.2 EXPECTED YEAR OF CLOSURE

The closure of the Big Sandy Fly Ash Pond is anticipated to be constructed in phases over a number of construction seasons. The anticipated closure construction period is anticipated to be from 2016 through 201, but will be adjusted as necessary based on considerations for safety, weather, and available resources.

### 2.3 FACILITY CONTACT INFORMATION

The following is a list of responsible parties involved in the permitting, design, operation, maintenance, quality control and quality assurance of the CCP disposal facility at AEP’s Big Sandy Plant.

1. Owner: Kentucky Power  
Contact: Plant Manager  
Kentucky Power  
Big Sandy Plant  
23000 Highway 23 North,  
Louisa, KY 41230  
Phone: 614-716-1000  
As of the date of this Plan, the plant manager is Aaron Sink.

Solid waste correspondence should be directed to:

Marvin Leedy, MBA  
Principal Environmental Specialist  
American Electric Power  
Land Remediation & Environmental Services  
1 Riverside Plaza - 22nd Floor  
Columbus, OH 43215  
Phone: 614-716-1219

2. State: Division of Waste Management  
Kentucky Department of Environmental Protection  
200 Fair Oaks Ln., 2<sup>nd</sup> Floor  
Frankfort, KY 40601  
Phone: 502-564-6716  
Fax: 502-564-4049  
Contact as of the date of this manual is Mr. Anthony R. Hatton, Director for the Division of Waste Management.

## 2.4 DOCUMENT FORMAT

Information presented in this document has been organized and presented consistent with the requirements presented in 401 KAR 45:110. Sections within this document have been titled and enumerated consistent with the regulations to facilitate the review process. The following *italicized text* is copied verbatim from the aforementioned regulations. For clarity of discussion, each response is provided in **bold text**.

## 3.0 POST-CLOSURE PLAN

### 3.1 POST-CLOSURE CARE PERIOD

**401 KAR 45:110; Section 5 (3)** - *A post-closure plan shall be submitted by the owner or operator of the special waste landfill that includes a monitoring and maintenance schedule for the landfill and a post-closure cost estimate in accordance with Section 3 of 401 KAR 45:080.*

**This Post Closure (PC) plan represents AEP's compliance with 401 KAR 45:110, Section 5 (3). The anticipated frequency of visual site inspections will be conducted in accordance with the following table:**

<b>Visual Inspection Frequencies</b>	
First Year (Starting after vegetative establishment)	Monthly and after major storm events
Years 2 – 5	Quarterly

**In addition, a post-closure cost estimate has been included as Appendix A to this PC Plan**

**401 KAR 45:110; Section 5 (5)** - *Upon completion of the implementation of an approved closure plan, a special waste landfill shall be maintained under its postclosure plan for a minimum of five (5) years in a manner that complies with 401 KAR 30:031.*

**Upon completion of the closure cap system construction, the closed areas will be inspected and maintained for a minimum of five (5) years in a manner that complies with 401 KAR 30:031.**

### **3.2 POST-CLOSURE CARE ACTIVITIES**

#### **3.2.1 VEGETATIVE COVER**

**401 KAR 45:110. Section 5(6)** *The cabinet may release a portion of the financial assurance executed in accordance with 401 KAR 45:080 in an amount that exceeds the funds necessary to maintain the final cover to correct vegetative growth and erosion, and the cost of postclosure environmental monitoring two (2) years into the five (5) year period established in subsection (5) of this section. These funds shall be released upon inspection of the permit records and the site to determine that it is in compliance with all regulatory requirements, the terms of its closure plan and it has at least a ninety (90) percent permanent vegetative cover or other cover as approved by the cabinet. The excess funds shall be released within 180 days of the cabinet's determination of the existence of excess financial assurance.*

**The final cover will be maintained by inspection and corrective measures, vegetated areas will be mowed once annually, or as needed. Site inspections will include evaluating the site for evidence of erosion, cracking, sloughing, animal burrows, stressed vegetation, etc. A site inspection checklist has been provided as Appendix B to this plan.**

#### **3.2.2 SURFACE WATER MONITORING AND CORRECTIVE ACTION**

**401 KAR 45:160. Section 9** *Special waste sites or facilities required to monitor surface water shall do so in accordance with a plan provided in the permit application. The plan shall be sufficient to characterize the quality of surface water unaffected by the site or facility and to determine if water leaving the site or facility has been contaminated. Baseline sampling shall include a minimum of two (2) samples collected at no less than thirty (30) day intervals and shall be sufficient to characterize baseline conditions.*

Surface water will be sampled and analyzed for any contamination in accordance with the existing individual KPDES permit for the facility. Corrective action will be taken according to the permit application.

### 3.2.3 GROUNDWATER MONITORING PLAN

**401 KAR 45:160.** *This administrative regulation sets forth the standards for groundwater and surface water monitoring and corrective action at special waste sites or facilities. Analyses of data required by this section shall be submitted to the cabinet on a form provided by the cabinet within sixty (60) days of sampling or fifteen (15) days after completion of analyses, whichever is sooner, unless the cabinet approves another time period in the permit. If analysis of the sample results indicates contamination, the owner or operator shall notify the cabinet within forty-eight (48) hours of receiving the analysis results and shall arrange for the cabinet to split a sample no later than ten (10) days from the receipt of the results.*

Groundwater monitoring during the post-closure care period will be performed in conformance with the Groundwater Monitoring Plan presented in the permit application. Monitoring data will be reported in writing to the cabinet within 15 days after the completion of the analyses.

### 3.2.4 POST-CLOSURE CERTIFICATION

**401 KAR 45:110. Section 5(8)** *At the conclusion of the five (5) year postclosure monitoring period, the owner or operator of the special waste landfill shall submit a certification that closure and postclosure of the site is complete in accordance with the approved closure and postclosure plans, and that the site is in conformance with the terms of this chapter and 401 KAR 30:031. The cabinet shall review the certification, conduct a site visit and review the permit records to determine if the site is closed in accordance with this chapter, 401 KAR 30:031, and KRS Chapter 224. If the certification of closure is accurate and there is no outstanding environmental violations at the site, the cabinet shall accept the certification of closure and, within 180 days of accepting the certification, release any remaining financial assurance executed under 401 KAR 45:080.*

Following completion of the post-closure care period for the closed ash pond, AEP will file with the cabinet verifying that post-closure has been completed in accordance with the PC plan.

## 4.0 NOTICE IN DEED TO PROPERTY

**401 KAR 45:110. Section 5(7)** *The owner or operator of a special waste landfill shall record a notice that shall in perpetuity notify any potential purchaser of the property of the location and time of the operation of the facility, the nature of the waste placed in the site and a caution against future disturbance of the area. This notice shall be recorded in accordance with KRS Chapter 382 and proof of recording shall be submitted to the cabinet prior to acceptance of certification of closure of the landfill.*

**Prior to acceptance of certification of closure, AEP will ensure to record a notice that shall in perpetuity notify any potential purchaser of the property of the location and time of the operation of the facility, the nature of the waste placed in the site and a caution against future disturbance of the area.**



## APPENDIX A

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### COST ESTIMATE FOR POST-CLOSURE

CALCULATION SHEET  <b>DRAFT</b>	PROJECT	SHEET		REV. NO.
	<b>AEP Big Sandy</b>	1		
	SUBJECT	CLIENT PROJECT #		URS JOB NO.
	Post Closure Plan Cost Estimates			13815151
ACTIVITY	LAST UPDATED BY:	DATE LAST MODIFIED	REVIEWED BY:	
<b>Post Closure Plan Cost Estimates</b>	SSK	2/18/2013	NSG	

BASIS OF THE ESTIMATE	
YEAR COST BASIS	2013
TOTAL AREA OF DISTURBANCE (FACILITY AREA)	319 Acres
OVERALL POND SIZE	148 Acres

TASK	ITEM	UNIT	ESTIMATED ANNUAL QUANTITY	ESTIMATED UNIT COST	ESTIMATED ENTIRE COST	NOTES
<b>GROUND WATER MONITORING</b>						
1	COLLECTION AND TRANSPORTATION OF SAMPLES	PERSON-HOURS	32	\$ 60	\$ 9,600	Assume 4 sampling events per year at 8 hours each - Calculated for 5 years
2	GROUND WATER SAMPLE TESTING	EA	4	\$ 2,000	\$ 40,000	Assume 4 sample sets at \$2000 each per year for testing - Calculated for 5 years
<b>SURFACE WATER MONITORING</b>						
3	COLLECTION AND TRANSPORTATION OF SAMPLES	PERSON-HOURS	32	\$ 60	\$ 9,600	Assume 4 sampling events per year at 8 hours each - Calculated for 5 years
4	SURFACE WATER SAMPLE TESTING	EA	4	\$ 2,000	\$ 40,000	Assume 4 sample sets at \$500 each per year for testing - Calculated for 5 years
<b>OPERATION AND MAINTENANCE</b>						
5	SITE INSPECTION	PERSON-HOURS	304	\$ 60.00	\$ 91,200	Assume 12 inspections in the first year and 4 inspections per year for the next four years (total of 28 inspections). Assuming an additional 10 inspections after storm events, for 5 years. We have 38 inspections for 5 years at 8 hours each.
6	MOWING	ACRES	296	\$ 73	\$ 108,040	Assume moving the area twice every year. Price from RS Means.
7	ADDITIONAL SEEDING	ACRES	7	\$ 2,000	\$ 74,000	Assume seeding 5% of the pond area each year.
8	FINAL COVER SOIL REPLACEMENT	CYD	5,969	\$ 3	\$ 74,617	Assume 6" of soil over 5% of the entire pond area replaced each year.
9	GENERAL SITE MAINTENANCE	PERSON-HOURS	416	\$ 40	\$ 83,200	Assume 1 laborer working an average of 8 hours per week each year for general maintenance like (Berm, Ditch, Access road)
<b>TOTAL</b>					<b>\$ 530,257</b>	

## **APPENDIX B**

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### **POST CLOSURE CARE CHECKLIST**

**Post-Closure Inspection and Maintenance Report Form**

Location/Feature Inspected	Date of Inspection	Time of Inspection	Inspection after significant rainfall	Observed Maintenance Deficiency (see list below)	Condition (see below)	Corrective Action Required / Other Remarks	Date Repair Completed
Example: Top of Cover, west side	1/1/2013	9:00 AM	Yes	4 (Ponding)	M	Add fill to depression; Restore grade; Plant new vegetation; Monitor for future subsidence	1/4/2013

**Condition Code:** G = Good M = Marginal, needs maintenance within 7-days P = Poor, needs immediate maintenance C = Needs to be cleaned O = Other (Explain in Corrective Action Section)

INSPECTION CHECKLIST		
GROUND SUBSIDENCE	SLOPE STABILITY	MONITORING WELLS
1. Evidence of cracking	9. Rotational/block failure	15. Well identification not visible
2. Evidence of depression	10. Maintenance sloughing	16. Well cap unlocked or insecure
3. Evidence of sinkhole	11. Evidence of seeps	17. Ponded water in well vicinity
4. Evidence of ponding	<b>CHANNELS/LININGS</b>	18. Subsidence in well vicinity
<b>FINAL COVER</b>	12. Erosion observed	19. Erosion in well vicinity
5. Animal burrows observed	13. Sedimentation observed	20. Collision damage
6. Stressed vegetation observed	14. Lining deterioration/displacement	21. Well casing degradation
7. Undesired vegetation present		22. Erosion observed
8. Excavation in final cover		23. Sedimentation observed
		24. Inlet/outlet obstruction
		<b>GENERAL/OTHER SITE FEATURES</b>
		25. Evidence of unauthorized entry
		26. Damage/missing facility signage
		27. Other deficiency observed

PRECIPITATION DATA		
Date	Rain Data	
	Ins.	Amount

**Inspector Information:** \_\_\_\_\_ Name \_\_\_\_\_ Title \_\_\_\_\_ Signature \_\_\_\_\_