

BIG SANDY FLY ASH POND CLOSURE PROJECT

APPLICATION TO THE U.S. ARMY CORPS OF ENGINEERS FOR A SECTION 404 PERMIT

*Prepared for:
Kentucky Power dba AEP
23000 US Highway 23
Louisa, Kentucky 41230*



Prepared by: **URS**

525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Project #: 13817481

February 2015

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LIST OF ACRONYMS

AEP	American Electric Power
APE	Area of Potential Effect
BMPs	Best Management Practices
CWA	Clean Water Act
CCP	Coal combustion product
EIP	Ecosystem Investment Partners
FEMA	Federal Emergency Management Agency
HEC-RAS	Hydrologic Engineering Center River Analysis System
KDFWR	Kentucky Department of Fish and Wildlife Resources
KDOW	Kentucky Division of Water
KHC	Kentucky Heritage Council
KPDES	Kentucky Pollutant Discharge Elimination System
KSNPC	Kentucky State Nature Preserves Commission
KYDEP	Kentucky Department for Environmental Protection
msl	Mean sea level
MW	Megawatt
NEPA	National Environmental Policy Act
PEM	Palustrine emergent wetland
PFO	Palustrine forested wetland
PSS	Palustrine scrub/shrub wetland
SDC	Seismic design category
SWP3	Stormwater Pollution Prevention Plan
URS	URS Corporation
U.S.	United States
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service

Engineering Form 4345

**U.S. ARMY CORPS OF ENGINEERS
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT**
33 CFR 325. The proponent agency is CECW-CO-R.

*Form Approved -
OMB No. 0710-0003
Expires: 31-AUGUST-2013*

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Alan Middle - R Last - Wood Company - Kentucky Power dba AEP - Big Sandy Plant E-mail Address - arwood@aep.com			8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Benjamin Middle - A Last - Otto Company - AECOM E-mail Address - benjamin.otto@aecom.com		
6. APPLICANT'S ADDRESS: Address- 1 Riverside Plaza City - Columbus State - OH Zip - 43215 Country - USA			9. AGENT'S ADDRESS: Address- 525 Vine Street, Suite 1800 City - Cincinnati State - OH Zip - 45202 Country - USA		
7. APPLICANT'S PHONE NOs. w/AREA CODE a. Residence b. Business c. Fax NA 614-716-1233			10. AGENT'S PHONE NOs. w/AREA CODE a. Residence b. Business c. Fax NA 513-651-3440 877-660-7727		

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Benjamin Otto to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.


2/24/2015

 SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see Instructions) Big Sandy Fly Ash Pond Closure Project			
13. NAME OF WATERBODY, IF KNOWN (if applicable) Jurisdictional wetlands and streams - see attached		14. PROJECT STREET ADDRESS (if applicable) Address 23000 US Highway 23	
15. LOCATION OF PROJECT Latitude: +N 38.179695 Longitude: +W -82.637005		City - Louisa	State- KY Zip- 41230
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see Instructions) State Tax Parcel ID Municipality Lawrence County, Kentucky Section - Township - Range -			

17. DIRECTIONS TO THE SITE
(See Attachment Directions to Site from USACE Louisville District)

18. Nature of Activity (Description of project, include all features)
(See supplemental response, Block 18. Nature of Activity)

19. Project Purpose (Describe the reason or purpose of the project, see instructions)
(See supplemental response, Block 19. Project Purpose)

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge
(See supplemental response, Block 20/21. Reason for Discharge)

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
see supplemental response	see supplemental response	see supplemental response

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres See supplemental response, Block 22. Surface Area in Acres of Wetlands or Other Waters Filled.
or
Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)
(See supplemental response, Block 23. Description of Avoidance, Minimization and Compensation)

24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

No work associated with this project has been completed at this time

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list)

a. Address- (See supplemental response, Block 25. Addresses of Adjoining Property Owners, Lessees, Etc.)

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
(see attached)					

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.


SIGNATURE OF APPLICANT


2/24/2015
DATE


SIGNATURE OF AGENT


2/24/2015
DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.


18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

 600 Dr Martin Luther King Jr Pl, Louisville, KY 40202

1. Head **west** on **Dr Martin Luther King Jr Pl** toward **S 7th St** go 213 ft
total 213 ft
Restricted usage road

 2. Turn right onto **S 7th St** go 0.4 mi
total 0.4 mi
About 1 min


 3. Turn left onto **W Jefferson St** go 0.2 mi
total 0.6 mi


 4. Turn right onto **S 9th St/Roy Wilkins Ave** go 0.1 mi
total 0.7 mi

 5. Take the ramp onto **I-64 E** go 77.2 mi
total 77.9 mi
About 1 hour 8 mins

 6. Keep left to stay on **I-64 E**, follow signs for **Winchester/Ashland** go 109 mi
total 187 mi
About 1 hour 31 mins

 7. Take exit **191** for **US-23** toward **Ashland/Louisa** go 0.3 mi
total 187 mi

 8. Turn right onto **US-23 S/Louisa Rd** go 17.5 mi
total 205 mi
Continue to follow US-23 S
About 18 mins

 US-23 S

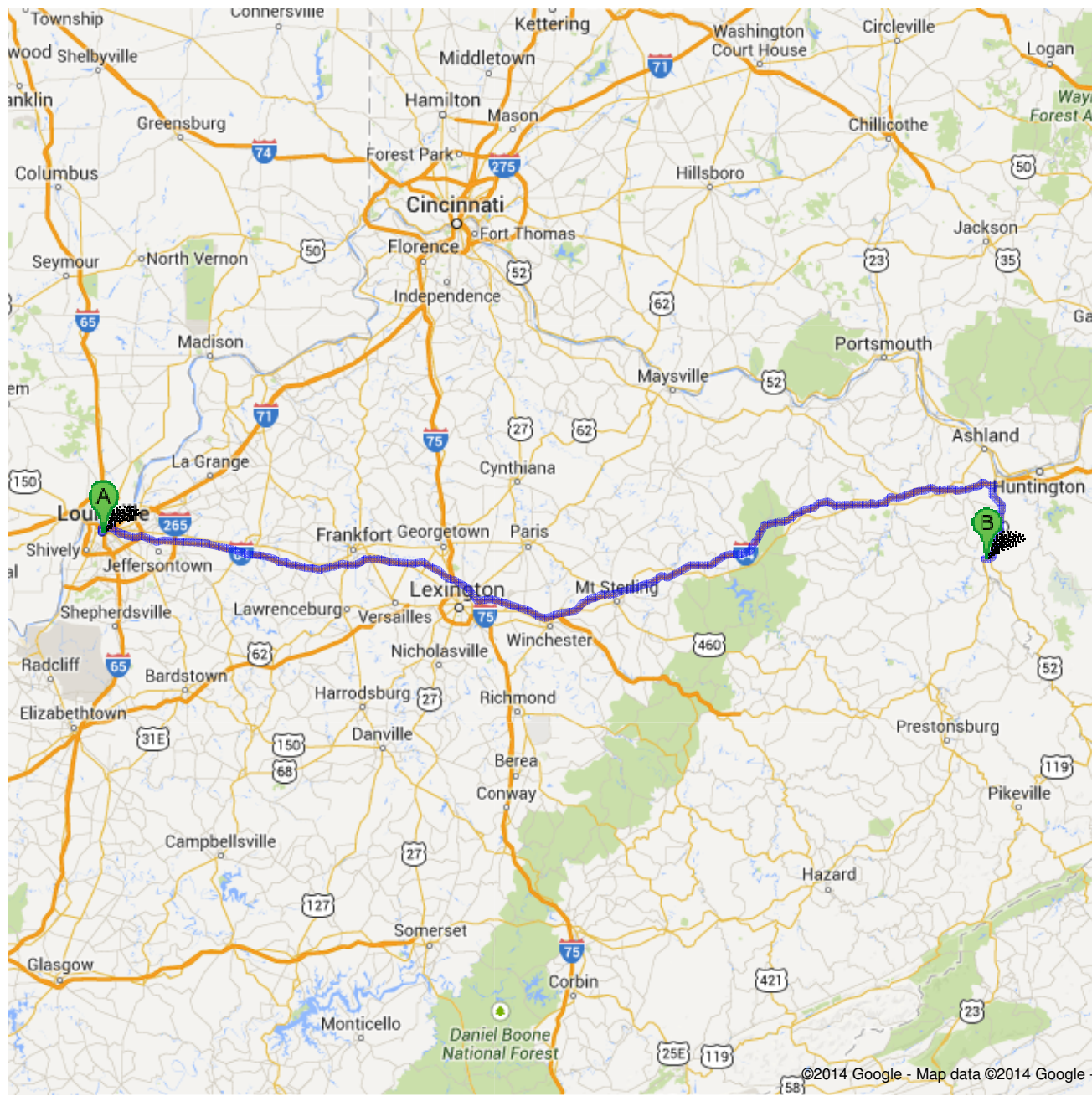
These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

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Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.



Directions to US-23 S
205 mi – about 2 hours 59 mins



Supplemental Engineering Form 4345 Responses

BLOCK 18. NATURE OF ACTIVITY

Kentucky Power Company dba American Electric Power (AEP) is proposing to permanently close the Big Sandy Fly Ash Pond located in Lawrence County, Kentucky in mid-2015. Kentucky Power owns and operates the 1,097 megawatt (MW) coal combustion Big Sandy Plant on the west bank of the Big Sandy River near Louisa, Kentucky. Currently, coal combustion fly ash and other wastewaters from the power generation facility are wet-sluiced to the Big Sandy Fly Ash pond for treatment and disposal. The pond is impounded by the Horseford Creek Dam located approximately 0.75-miles northwest of the plant.

Kentucky Power is currently in the process of permitting closure of the Plant's 130-acre fly ash pond with the Kentucky Department for Environmental Protection (KYDEP); which is referred to as the Big Sandy Fly Ash Pond Closure Project ("Project"). The lead federal agency for the Project is the United States Army Corps of Engineers, Louisville District (USACE). An overall site boundary (Figure 1) is provided in Appendix A.

The pond will be closed by draining free water, followed by site grading and capping existing ash within the footprint in place. Based on the extent of work required for this Project, the proposed construction of the Project is divided into four phases, which spans multiple years. The four construction phase areas are designated on the Site Development Phasing Plan, Figure 2A provided in Appendix A.

In Phase 1, the closure construction activities include grading/excavation of fly ash, installation of pore water drain pipes and installation of the closure cap in the western portion of the pond. Fly ash will be excavated in the areas designed for the pore water drain pipes throughout the fly ash pond. In the western portion of the fly ash pond, the drain pipes will be installed and the excavated ash will be used to create the cap system subgrades and closure cap. Bottom ash from the Plant along with soil from borrow areas will be used as needed in the western portion of the fly ash pond.

In Phase 2, the closure construction activities include continuing installation of pore water drain pipes and installation of the closure cap in the central portion of the pond. Fly ash within the existing footprint of the pond will continue to be regraded to the cap system subgrades and the cap system will be installed for the central portion of the fly ash pond. Additional soil material from the borrow areas will be used for contouring as needed.

In Phase 3, the closure construction activities include continuing installation of pore water drain pipes and installation of the closure cap in the eastern portion of the pond. Fly ash within the existing footprint of the pond will continue to be regraded to the cap system subgrades and the cap system will be installed for the eastern portion of the fly ash pond. Additional soil material from the borrow areas will be used for contouring as needed.

Phase 4 will consist of lowering the Horseford Creek Dam (i.e., main dam) and existing emergency saddle dam, constructing the cap system berm, regrading ash/placement of borrow material for cap system subgrades in the northern portion of the pond, dewatering remaining water within the footprint, construction of spillways, installation of a forcemain, if necessary, and installation of the remainder of the cap system. Contouring material for the northern portion of the fly ash pond will primarily consist of regraded fly ash and bottom ash obtained from the lowered dams and Plant stock pile.

In order to complete closure, Kentucky Power will need to conduct certain construction activities that require discharge of fill materials into streams and wetlands determined to be jurisdictional waters of the United States (U.S.). As such, Kentucky Power is requesting that the USACE issue Kentucky Power a permit to undertake such activities.

As part of the Project, Kentucky Power proposes to perform the following activities that affect jurisdictional waters of the U.S.

1. Installation of Fly Ash Pond Cap System:

In order to complete the closure of the Big Sandy Fly Ash Pond, the existing fly ash pond will be required to be graded and filled as part of construction of the fly ash pond cap system.

2. Excavation of Borrow Area:

Additional fill material may be needed for the completion of the fly ash pond cap system. A borrow study was performed by URS to identify a borrow site suitable for the potential needs of the Project. It was concluded that the hillsides to the north and south of the fly ash pond would provide adequate soil materials.

3. Reconstruction of the Main Dam and Saddle Dam Spillways:

The main dam will be lowered to final elevation of 656 feet above mean sea level (msl) and a new spillway to manage post-construction stormwater will be constructed. The saddle dam will be completely removed and replaced with a combination rock-cut and concrete-lined spillway. Lowering the main and saddle dams along with constructing new spillways will require various surrounding areas to be filled and graded.

BLOCK 19. PROJECT PURPOSE

The Big Sandy Plant currently plans to decommission Unit 2 and convert Unit 1 to natural gas in 2016. As a result, the Plant will discontinue wet-sludging to the Big Sandy Fly Ash Pond and, the pond will no longer be needed for wastewater or fly ash management. In an effort to effectively close the fly ash pond in accordance with Federal Regulations for wet coal combustion product (CCP) impoundments, Kentucky Power will permanently close the Big Sandy Fly Ash Pond by draining free water and capping ash in place.

An anticipated Project schedule for the Big Sandy Fly Ash Pond closure is provided below.

		AEP Big Sandy Pond Closure Project Schedule																																																Created: BAO											
		Schedule																																																Reviewed: MDT											
Action Item	Timeline	2015												2016												2017												2018												2019											
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Permit	Start	[Green bars]												Finish																																															
Feb-2015	Jan-2016																																																												
Design	Start	[Blue bars]																								Finish																																			
Mar-2012	Apr -2017																																																												
Construction	Start	[Orange bars]																																																Finish											
Oct-2015	Nov -2019																																																												
Construction Phases		Clearing												Phase 1												Phase 2												Phase 3												Phase 4											

BLOCKS 20/21. REASON FOR DISCHARGE/TYPE OF MATERIALS DISCHARGED

In order to complete the closure of the Big Sandy Fly Ash Pond, Kentucky Power will need to undertake certain construction activities that require discharge of fill materials into waters determined to be jurisdictional streams and wetlands. Specifically, the following activities will occur:

1. Installation of Fly Ash Pond Cap System:

The existing fly ash pond will be required to be graded and filled as part of construction of the fly ash pond cap system. Based on the design of the fly ash pond cap system, no jurisdictional wetlands will be filled as a result of the construction activities associated with the closure cap. A total of 38 jurisdictional streams outside the permitted pool level for the fly ash pond, totaling approximately 2,349 feet in length, need to be filled as a result of the closure cap construction. Contouring fill for the streams will primarily consist of regraded fly ash and bottom ash from the existing fly ash pond, excavated materials from the lowered dams, and the Big Sandy Plant fly ash stock pile. Additional soil material from the borrow areas will be used as contouring fill, as needed. An estimated 70.4 cubic yards of fill will be needed within the streams for the streams within the cap system.

2. Excavation of Borrow Area:

Fill material beyond what is available within the existing fly ash pond footprint, lowered dams, or bottom ash stock pile at the Plant will be needed for the completion of the fly ash pond cap system. Available soil material from the hillside borrow areas to the north and south of the Project site is estimated to total approximately 604,000 cubic yards. No wetlands or streams will be impacted as a result of borrow area excavation. A portion of a jurisdictional pond, totaling 0.1 acres, is located within the borrow area and will be impacted as a result of excavation of soil.

3. Reconstruction of the Main Dam and Saddle Dam Spillways:

Lowering the main and saddle dams along with constructing new spillways will require the surrounding areas to be filled and graded. The main dam spillway will require an overcut of two feet be made, and the entire top surface will be covered with 18 inches of compacted clay followed by 6 inches of vegetative cover soil. The main dam spillway will be completed with a combination of rip-rap and concrete. The saddle dam will be completely removed and replaced with a combination rock-cut and concrete-lined spillway. A total of seven jurisdictional wetlands, totaling 0.41 acres, will be filled due to construction of the Project's new spillways. A total of five jurisdictional streams, totaling approximately 1,722 feet in length, will be filled at the new main dam and saddle dam construction areas. The wetlands and streams in this area will be filled with a combination of excavated materials from the lowering of the dams, rip-rap, and concrete. An estimated 227.7 cubic yards of fill will be needed within the streams for the grading and spillway construction.

BLOCK 22. SURFACE AREAS IN ACRES OF WETLANDS/OTHER WATERS FILLED

Within the limits of disturbance of the Project site, seven wetlands will be impacted by the Project. A cumulative total of approximately **0.41 acres** of wetland will be impacted; the individual impact to each wetland is documented in Table 1 below. Wetland 8 is within the limits of disturbance; however, it is also located within the permitted limits of the maximum operating pool elevation for the Fly Ash Pond (i.e., non-jurisdictional water). Detailed descriptions of the wetlands delineated onsite, including Wetland 8, are included in Section 4.0 of the Project Summary and the attached Wetland Delineation Report provided in Appendix B of this application.

**TABLE 1
IMPACTED JURISDICTIONAL WETLANDS WITHIN THE PROJECT LIMITS OF DISTURBANCE**

Wetland Name	Cowardin Wetland Type ^a	ORAM Score ^b	ORAM Category	Impacted Acreage within Limits of Disturbance
Wetland 10	PEM	23	1	0.02
Wetland 11	PEM	23	1	0.05
Wetland 12	PEM	22	1	0.02
Wetland 13	PEM	29	1	0.03
Wetland 14	PEM/PSS	47	2	0.21
Wetland 15	PEM	21.5	1	0.06
Wetland 16	PEM/PSS	32.5	2	0.02
Total: 7 Wetlands	5 PEM; 2 PEM/PSS			0.41

^a: PEM = palustrine emergent, PSS = palustrine scrub/shrub

^b: ORAM= Ohio Rapid Assessment Method

Within the limits of disturbance, a portion of a jurisdictional pond, totaling 0.1 acres, is located within the borrow area and will be impacted as a result of excavation of soil. A description of the pond is included in and the attached Wetland Delineation Report provided in Appendix B of this application.

Within the limits of disturbance, 43 streams will be impacted by the Project. A cumulative total of approximately **4,071 linear feet** of stream will be impacted. The 43 streams are comprised of 29 ephemeral stream (totaling approximately 1,848 feet), 12 intermittent streams (totaling 1,536 feet), and two perennial streams (totaling 687 feet).

Impacted streams are summarized in Table 2 below. Detailed descriptions of the streams delineated onsite are included in Section 4.0 of the Project Summary of this application and the attached Wetland Delineation Report provided in Appendix B.

TABLE 2
IMPACTED JURISDICTIONAL STREAMS WITHIN THE PROJECT LIMITS OF DISTURBANCE

Stream Name	Flow Regime	RBP Score ^a	Stream Quality or Description	Linear Feet of Stream Impact within Limits of Disturbance
Stream 01	Ephemeral	NA	High Gradient Stream	43
Stream 02	Ephemeral	NA	High Gradient Stream	45
Stream 03	Ephemeral	NA	High Gradient Stream	43
Stream 04	Intermittent	103	Marginal	436
Stream 05	Ephemeral	NA	High Gradient Stream	70
Stream 06	Ephemeral	NA	High Gradient Stream	27
Stream 07	Ephemeral	NA	High Gradient Stream	23
Stream 08	Ephemeral	NA	High Gradient Stream	48
Stream 09	Ephemeral	NA	High Gradient Stream	57
Stream 10	Ephemeral	NA	High Gradient Stream	28
Stream 11	Intermittent	NA	High Gradient Stream	201
Stream 11a	Ephemeral	NA	High Gradient Stream	61
Stream 11c	Ephemeral	NA	High Gradient Stream	72
Stream 11e	Ephemeral	NA	High Gradient Stream	55
Stream 12	Ephemeral	NA	High Gradient Stream	49
Stream 13	Intermittent	96	Marginal	142
Stream 17	Intermittent	NA	High Gradient Stream	1
Stream 18	Intermittent	112	Sub-Optimal	191
Stream 18a	Ephemeral	NA	High Gradient Stream	59
Stream 18b	Ephemeral	NA	High Gradient Stream	56
Stream 19	Ephemeral	NA	High Gradient Stream	36
Stream 20	Ephemeral	NA	High Gradient Stream	273
Stream 20a	Ephemeral	NA	High Gradient Stream	40
Stream 22	Intermittent	NA	High Gradient Stream	38
Stream 23	Ephemeral	NA	High Gradient Stream	84
Stream 23a	Ephemeral	NA	High Gradient Stream	61
Stream 30	Perennial	89	Marginal	540
Stream 31	Intermittent	62	Marginal	364
Stream 32	Intermittent	80	Marginal	312
Stream 33	Ephemeral	NA	High Gradient Stream	1
Stream 34	Ephemeral	NA	High Gradient Stream	90
Stream 34a	Ephemeral	NA	High Gradient Stream	30
Stream 35	Intermittent	NA	High Gradient Stream	7
Stream 35b	Ephemeral	NA	High Gradient Stream	1

**TABLE 2
IMPACTED JURISDICTIONAL STREAMS WITHIN THE PROJECT LIMITS OF DISTURBANCE**

Stream Name	Flow Regime	RBP Score ^a	Stream Quality or Description	Linear Feet of Stream Impact within Limits of Disturbance
Stream 39	Intermittent	NA	High Gradient Stream	36
Stream 40	Ephemeral	NA	High Gradient Stream	16
Stream 41	Intermittent	NA	High Gradient Stream	103
Stream 43	Ephemeral	NA	High Gradient Stream	84
Stream 44	Perennial	142	Sub-Optimal	147
Stream 46	Intermittent	NA	High Gradient Stream	71
Stream 48	Ephemeral	NA	High Gradient Stream	9
Stream 55	Ephemeral	NA	High Gradient Stream	20
Stream 64	Ephemeral	NA	High Gradient Stream	<1
Total: 43 Streams	29 Ephemeral; 12 Intermittent; 2 Perennial			4,071

^a: RBP = Rapid Bioassessment Protocol, NA = Not Applicable

BLOCK 23. DESCRIPTION OF AVOIDANCE, MINIMIZATION, AND COMPENSATION

Since the beginning of the Project, Kentucky Power has sought to avoid and minimize impacts to the onsite wetland and waterbody resources. Due to the nature of the Project and proximity of delineated ecological features, impacts to some of the wetlands and streams onsite are unavoidable. Where impacts were avoidable, Kentucky Power considered design alternatives that reduced the impacts to the extent possible. For example, Kentucky Power worked with contractors to minimize the extent of the overall closure cap size and amount of fill needed from borrow areas. The downsizing or relocation of borrow areas and closure cap size has allowed for avoidance or significant minimization of the overall impacts to wetlands and streams throughout the Project boundary. Particularly, no jurisdictional wetlands will be filled as a result of grading/filling activities associated with the cap, and no wetlands or streams will be impacted as a result of the borrow area excavation. This avoidance and minimization is further depicted with the successively smaller boundaries of planned limits of disturbance that were conceptually designed in April 2013, July 2014, and December 2014, respectively, shown in Figure 3 in Attachment A.

Ecological surveys identified 17 wetlands totaling approximately 1.64 acres, 154 streams totaling 42,421 linear feet, and a 0.24-acre pond within the Project survey boundary. Following avoidance and minimization, approximately 0.41 acres of wetland, approximately 4,071 linear feet of stream, and 0.01 acres of pond will be unavoidably impacted for construction of the Project. The tables in Section 4.1.1 provide a summary of jurisdictional waters within the Project survey boundary and a comparison of areas that were avoided or where impacts were minimized.

Wetland, pond, and stream impacts will be mitigated through a wetland and stream mitigation program determined to be acceptable by the Agency. Kentucky Power is currently evaluating several options in collaboration with Ecosystem Investment Partners (EIP), owner of the USACE approved Eastern Kentucky Stream Mitigation Bank, for stream and wetland mitigation within the Big Sandy Watershed. At this time, credits are not available from the Eastern Kentucky Stream Mitigation Bank, but are planned to become available for use for mitigation associated with this Project in 2016. Therefore, Kentucky Power requests the 404 permit is conditionally approved pending this conceptual mitigation plan for the approximately 0.41 acres of unavoidable wetland, 4,071 linear feet of jurisdictional stream, and 0.1 acres of pond impacts from the Project.

A stormwater pollution prevention plan (SWP3) will be developed for the Project prior to start of construction activities. The plan will include provisions for placement of sediment and erosion controls at all locations where soil disturbance activities will be conducted in and adjacent to waters of the U.S. These erosion controls will be designed to prevent sediment laden water from flowing offsite into adjacent waterways. Kentucky Power is committed to the use of appropriate Best Management Practices (BMPs) to minimize stormwater pollution and any erosion/sedimentation-related impacts at the site. As a

result, there should be little to no adverse impact to the environment related to development and operation of the proposed Project.

BLOCK 25. ADJOINING PROPERTY OWNERS/LESSEES

**TABLE 3
ADJACENT PROPERTY OWNERS**

Property Index	Name	Address	City, State, Zip	Telephone Number	Source
089-00-00-001.00	Crabtree, Bill R. & Phyllis L.	1564 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-002.00	Ross, Bill & Kathy	1746 Blaine Creek Rd.	Louisa, KY 41231	-	PVA
089-00-00-002.01	Pelfrey, Paula G.	7415 S. Dayton Brandt Rd.	Tipp City, OH 45371	-	PVA
089-00-00-003.00	Gilliam, Deborah Sue (Rice)	2045 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-004.00	Smith, John W. & Patricia M.	PO Box 887	Louisa, KY 41230	-	PVA
089-00-00-004.01	Smith, John Michael	10 Fort Bishop Rd.	Louisa, KY 41230	-	PVA
089-00-00-005.00	Rice, Jack A.	2014 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-006.00	Caudill, Sandra & Michael Anthony	2363 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-007.00	Caudill, Michael Anthony & Sandra L.	2363 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-008.00	Longstreth, Robert F. & Cindy	2481 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-009.00	West, North & Sarah Estate c/o Noah West	109 S Boone St.	Louisa, KY 41230	-	PVA
089-00-00-009.01	West, Freddie & Ruth Ann	2484 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-009.02	Hylton, Gary	186 Rhubens Branch Rd.	Louisa, KY 41230	-	PVA
089-00-00-009.03	Longstreth, Ryan D. & Rebecca	2539 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-009.05	Longstreth, Ryan D.	2539 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-009.05 L001					
089-00-00-010.00	Caudill, Katherine	2575 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-011.00	West, Freddie & Ruth Ann	2741 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-012.00	West, Larry & Kathy	2805 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-012.00 L002	West, Bobby or Shawna	2831 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-013.00	West, Sandy & et al.	2889 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-014.00	Marshall, Michael B. & Diannia L.	2955 Blaine Creek Rd.	Louisa, KY 41230	-	
089-00-00-015.00	Compton, Ted R.	3339 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-016.00	Compton, Cemetery	2nd Rad Road	Athens, OH 45701	-	PVA

**TABLE 3
ADJACENT PROPERTY OWNERS**

Property Index	Name	Address	City, State, Zip	Telephone Number	Source
	c/o Ted Compton				
089-00-00-020.00	Brooks, August SR & Norma F.	4144 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
089-00-00-025.00	Holbrook, Allen S. & Melissa	1071 Mill Branch Rd.	Catlettsburg, KY 41129	-	PVA
089-00-00-028.00	Courtney, Nellie	54 Buchanan Chapel Rd.	Catlettsburg, KY 41129	-	PVA
089-00-00-029.00	Arnett, Samuel J. Tilden	3200 Louisa Heights	Catlettsburg, KY 41129	-	PVA
090-00-00-000.00	Walker, Jeff	20754 Highway 23	Louisa, KY 41230	606-686-3310	KPCo/PVA
090-00-00-001.00	Sunrise Development Inc.	PO Box 889	Louisa, KY 41230	-	PVA
090-00-00-001.01	Herbert Wells Trust "A" DBA Wells Building	PO Box 28	West Liberty, KY 41472	-	PVA
090-00-00-001.02	WasteQuip Manufacturing Co.	1901 Roxborough Rd Ste 300	Charlotte, NC 28211	-	PVA
090-00-00-001.03	Wells Building	PO Box 28	West Liberty, KY 41472	-	PVA
090-00-00-001.04	Page, Ashley T. & Jasmine J.	PO Box 317	Lucasville, OH 45648	-	PVA
090-00-00-001.05	Big Sandy Resouces, Inc	31 Emerald Lane	Louisa, KY 41230	-	PVA
090-00-00-001.06	Horn, Brian A & Melissa L	7844 Tucker Rd	Ashland, KY 41102	-	PVA
090-00-00-001.07	McElfresh, Donald & Jackie	365 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-002.00	Kanawha River Terminals	PO Box 308	Ceredo, WV 25704	-	PVA
090-00-00-002.01					
090-00-00-006.00	Meek, Phillip K. II & Tasina Sparks	623 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-006.00 L001	Holbrook, Shawn	595 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-006.01	Mollette, Eric	2294 Rockhouse Rd.	Tomahawk, KY 41262	-	PVA
090-00-00-007.02	Brown, Sharon	7820 N Hwy 201	Webbville, KY 41180	-	PVA
090-00-00-007.02 L001	Howard, Sonya R	26 Horseford Rd.	Louisa, KY 41230	-	PVA
090-00-00-007.03	Hall, Clina & Vada & Delsie Paulson	PO Box 1217	Louisa, KY 41230	-	PVA
090-00-00-007.03 L002	Hall, Clina & Vada	PO Box 1217	Louisa, KY 41230	-	PVA
090-00-00-007.04	Spillman, Crystal	1038 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-007.05	Kazee David & Crystal S.	1038 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-007.50	Waller, William Jeff	20754 Hwy 23	Louisa, KY 41230	-	PVA
090-00-00-008.00	Hogston, Vickie G.	202 Bishop Knob Rd.	Webbville, KY 41180	-	PVA
090-00-00-012.00	Fry, Anne Thompson & Mary Beth	5156 Salem Hills Lane	Cincinnati, OH 45230	-	PVA
090-00-00-012.02	Hall, Earnest	#7 Twin Oaks Ln.	Louisa, KY 41230	-	PVA
090-00-00-012.03	Bowen, William H. & Judith	201 Twin Oaks Ln.	Louisa, KY 41230	-	PVA
090-00-00-012.04	Howell, Kevin & Pamela	22 Twin Oak Ln.	Louisa, KY 41230	-	PVA
090-00-00-012.05	Howell, Kevin	22 Twin Oak Ln.	Louisa, KY 41230	-	PVA
090-00-00-013.00	Maynard Cemetery c/o Melinda Christian	2634 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-013.01	Guy, Troy & Tanya Copley	2134 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-013.02	Maynard, Ellen	1584 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-013.03	Fissler, Steve & Ruth	1612 Fallsburg Rd.	Louisa, KY 41230	-	PVA

**TABLE 3
ADJACENT PROPERTY OWNERS**

Property Index	Name	Address	City, State, Zip	Telephone Number	Source
090-00-00-013.04	Maynard, Donnie	4211 Boxwood Ln.	Independence, KY 41051	-	PVA
090-00-00-013.05	Elliot, Fannie	14947 Brown Rd.	Verona, KY 41092	-	PVA
090-00-00-013.06	Elliott, Allen Wayne	14947 Brown Rd.	Verona, KY 41092	-	PVA
090-00-00-013.07	Christian, Melinda	2637 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-013.08	Moore, Teresa	266 Sundown Ln.	Louisa, KY 41230	-	PVA
090-00-00-013.11	Ward, Ryan	256 Twin Oak Ln.	Louisa, KY 41230	-	PVA
090-00-00-015.00	Saul, Danny & Frances	4347 Left Fork Little Blaine Rd.	Louisa, KY 41230	-	PVA
090-00-00-015.01	Messer, Homer C. & Amanda Lou	3597 Fullers Ridge Rd.	Louisa, KY 41230	-	PVA
090-00-00-015.02	Kidd, George B. & Angela	PO Box 71	Louisa, KY 41230	-	PVA
090-00-00-015.03	Blankenship, Larry & Naomi	1655 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-015.05	Spiert, Jeffery & Lisa	1597 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-015.06	Burton, Charley J. & Misty M.	703 Horseford Rd.	Louisa, KY 41230	-	PVA
090-00-00-015.07	Fallsburg Fire Department	116 Horseshoe Rd.	Louisa, KY 41230	-	PVA
090-00-00-015.08	Kidd, George B.	PO Box 71	Louisa, KY 41230	-	PVA
090-00-00-015.11	Holt, Joe E. & Debbie K.	1147 Fallsburg Rd.	Louisa, KY 41230	-	PVA
090-00-00-015.20	Belcher, Jerry & Irene	751 Old Horseford Rd.	Louisa, KY 41230	-	PVA
090-00-00-017.00	Kanawha River Terminals, Inc.	PO Box 308	Ceredo, WV 25507	-	PVA
090-00-00-023.00	Michael, Eddie W. & Susan	206 Perry St.	Louisa, KY 41230	-	PVA
090-00-00-028.00	Branham Construction Co	7724 Johnson Fork	Catlettsburg, KY 41129	-	PVA
090-00-00-029.00	Cox, Jason & Julia	P.O. Box 135	Catlettsburg, KY 41129	-	PVA
090-00-00-030.00	Kirk, Robert W & Bonnie L. Estate c/o Sandy Riddle	401 Four Mile Rd.	Rush, KY 41168	-	PVA
090-00-00-031.00	Darby, James A. & Helen V.	959 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-032.00	Brooks, Byrd & Barbara	1059 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-033.00	Maynard, Charles & Linda Sue	1115 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-034.00	Lowe, George A. & Dianne Lynne	1148 Blaine Creek	Louisa, KY 41230	-	PVA
090-00-00-035.00	Robinson, Thomas & Barbara	1117 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-036.00	Smith, Richard M.	1300 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-037.00	Workman, Keith Allen & Aimee J.	1165 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-037.01	Workman, Keith Allen & Aimee J.	1165 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-037.01 L001	Workman, Richard	1191 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-039.00	Kitts, Brandon C. & Brittany	1382 Blaine Creek	Louisa, KY 41230	-	PVA

**TABLE 3
ADJACENT PROPERTY OWNERS**

Property Index	Name	Address	City, State, Zip	Telephone Number	Source
	R.	Rd.			
090-00-00-039.01	Smith, Richard M.	1300 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-039.02	Smith, Richard Mark	1300 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-040.00	Skaggs, Buell E. & Bobby c/o Ronald Skaggs	101 Chippiwa Trail	Crestview, FL 32536	-	PVA
090-00-00-040.01	Johnson, Donald E. & Sharon K.	1407 Moss Court	Mt. Sterling, KY 40353	-	PVA
090-00-00-041.00	Mabry, James II & Summer	1410 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-042.00	Layne Cemetery		Louisa, KY 41230	-	PVA
090-00-00-043.00	Butcher, Belinda	PO Box 413	Louisa, KY 41230	-	PVA
090-00-00-044.00	Ward, Lester	1500 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-044.01	West, Freddie & Ruth Ann	2741 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-045.00	Hamilton, Carol Sue	1487 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
090-00-00-049.00	Fry, Anne Thompson & Mary Beth	5156 Salem Hills Lane	Cincinnati, OH 45230	-	PVA
090-00-00-049.01	Bevins, James Robert & Cheryl Louise	PO Box 1205	Louisa, KY 41230	-	PVA
090-00-00-049.02	Crum, Brian K & Stephanie L.	815 Old Horseford Rd.	Louisa, KY 41230	-	PVA
090-00-00-049.03	Caudill, Minard Bruce	PO Box 161	Louisa, KY 41230	-	PVA
090-00-00-049.03 L001	Caudill, John M. & Trinkia	251 Persimmon Ln.	Louisa, KY 41230	-	PVA
090-00-00-049.04	Moore, Timothy & Laura	PO Box 513	Louisa, KY 41230	-	PVA
090-00-00-049.05	Caudill, M. Bruce & Dru Ann	PO Box 161	Louisa, KY 41230	-	PVA
090-00-00-049.06	Caudill, Brad & Jessica	11 Persimmon Ln.	Louisa, KY 41230	-	PVA
090-00-00-049.07	Caudill, Minard Bruce & Dru Ann	PO Box 161	Louisa, KY 41230	-	PVA
104-00-00-002.00	Darby, James A. & Helen	637 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
104-00-00-002.00 L001	Cordle, Dianne	593 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
104-00-00-002.00 L005	Gauze, Don S.	3139 Fullers Ridge Rd.	Louisa, KY 41230	-	PVA
104-00-00-002.00 L006	Cordle, Camra & Brandon West	637 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
104-00-00-002.00 L007	Deyo, Julie	533 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
104-00-00-002.00 L008	Feltner, Kimberly Joann	557 Blaine Creek	Louisa, KY 41230	-	PVA
104-00-00-002.00 L009	Darby, James A. & Helen	659 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
104-00-00-003.00	Marcum, Joseph E. & Darlene	715 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
104-00-00-003.01	King, Johnnie Dale Jr.	PO Box 1526	Louisa, KY 41230	-	PVA
104-00-00-004.00	Kinner, Sharon Hinkle	756 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
104-00-00-005.05	Newsome, Gene & Paulette	819 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
104-00-00-005.06	Newsome, Gene & Paulette	819 Blaine Creek Rd.	Louisa, KY 41230	-	PVA
104-00-00-005.10	Smith, Gregory A.	184 Woodbine Dr.	Mansfield, OH 44906	-	PVA
104-00-00-005.15	Jenkins, Earl J. & Bobbie L.	7011 Durbin Rd.	Catlettsburg, KY 41129	-	PVA

**TABLE 3
ADJACENT PROPERTY OWNERS**

Property Index	Name	Address	City, State, Zip	Telephone Number	Source
104-00-00-005.18	Unknown			-	PVA
104-00-00-005.20	Hatten, Elizabeth L.	1438 Louise Dr.	Ashland, KY 41102	-	PVA
104-00-00-006.00	Carter, Joseph E. Revocable Trust & Teresa M. Carter	15927 Ivywood Dr.	Catlettsburg, KY 41129	-	PVA
104-00-00-007.00	R&J Development Co.	PO Box 301	Warfield, KY 41267	-	PVA
104-00-00-007.00 L001	R&J Development Co.	PO Box 301	Warfield, KY 41267	-	PVA
104-00-00-008.00	Caltapa Church c/o Larry G. Maynard	195 Heron Dr.	Louisa, KY 41230	-	PVA
104-00-00-009.00	Caltapa Church (Cemetery) c/o Larry G. Maynard	195 Heron Dr.	Louisa, KY 41230	-	PVA
104-00-00-010.00	Unknown			-	PVA
104-00-00-014.00	Hart, Joe A.	24555 Highway 23	Catlettsburg, KY 41129	-	PVA
104-00-00-014.01	Riverside Generating Company LLC	1000 Louisiana St. Ste. 5800	Houston, TX 77002	-	PVA
104-00-00-015.00	Hart, Joe & Patton R.	24555 Highway 23	Catlettsburg, KY 41129	-	PVA
130-00-00-001.00	Hart, Joe A.	24555 Highway 23	Catlettsburg, KY 41129	-	PVA
	Commonwealth of Kentucky	120 Limestone St.	Frankfort, KY 40620	502-564-8338	KPCo
		Main Street and River		-	
	Kanawha River Terminals	PO Box 309	Ceredo, WV 25704	304-526-0700	KPCo

BLOCK 26. OTHER AGENCIES APPROVALS/PERMITS NEEDED

Kentucky Power has not started any portion of closure activities to date. The closure activities are currently in the final design stage. As such, Kentucky Power is currently pursuing permits and regulatory approvals needed for construction and closure. Listed below are the environmental permit applications that Kentucky Power is in the process of obtaining:

**TABLE 4
LIST OF OTHER CERTIFICATES AND APPROVALS**

AGENCY/PERMIT	TYPE APPROVAL	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
KYDEP Special Waste Landfill Permit	Permit	APE20130002	7/9/2013	Ongoing	
KYDEP Permit to Construct Across or Along a Stream and/or Water Quality Certification- Dam Modification	Permit	20872	2/24/2014	5/8/2014	
KYDEP Permit to Construct Across or Along a Stream and/or Water Quality Certification- Floodplain, Wetlands, and Stream Impacts	Permit		2/2015 Concurrently with 404 Application	Ongoing	
KYDEP Kentucky Pollutant Discharge Elimination System (KPDES) Permit KY0000221 Modification	Permit	KY0000221	by 12/31/2015		
US Fish and Wildlife Service (USFWS) Section 7 of Endangered Species Act Consultation	Concurrence	FWS 2012-B-0544	2/11/2015	Ongoing	
Kentucky Heritage Council (KHC) Section 106 of the National Historic Preservation Act Consultation	Concurrence	KHC # 42219-3	7/23/2014	8/14/2014	

A Permit to Construct Across or Along a Stream and/or Water Quality Certification was submitted to the KYDEP on February 24, 2014 for work strictly related to lowering the main dam as part of this Project. A separate Permit to Construct Across or Along a Stream and/or Water Quality Certification will be submitted concurrently with this application for the remainder of the work related to impacts to wetlands, streams, and work within the floodplain.

A renewal application for the KPDES permit was submitted in 2005. A draft permit has yet to be issued. Therefore, the facility is currently operating under the permit that became effective in 2003. As part of

this Project, a modification will be submitted to the agency to account for changes to process operations and outfalls at the facility. Particularly, the modification will include information relating to this Project, as well as the conversion of the facility from coal burning to gas burning. Because major planning and engineering is still ongoing with the gas conversion project, the KPDES permit modification is anticipated to be submitted to the Agency no later than December 31, 2015.

Project Summary

1.0 INTRODUCTION

On behalf of Kentucky Power Company, an operating company for AEP, URS is submitting an Individual Permit Application Packet in compliance with Section 404 of the Clean Water Act (CWA) for construction activities associated with the permanent closure of the Big Sandy Fly Ash Pond located in Lawrence County, Kentucky. Kentucky Power owns and operates the 1,097 MW coal combustion Big Sandy Plant on the west bank of the Big Sandy River. Currently, coal combustion fly ash and other wastewaters from the power generation facility are wet-sluciced to the Big Sandy Fly Ash pond for treatment and disposal. The pond is impounded by the Horseford Creek Dam located approximately 0.75-miles northwest of the plant. In accordance to Federal Regulations for wet CCP impoundments, Kentucky Power will permanently close the Plant’s 130-acre wet fly ash pond; which is referred to as the Big Sandy Fly Ash Pond Closure Project (Project). A Site Vicinity Map (Figure 1) is provided in Appendix A.

The Big Sandy Plant currently plans to decommission Unit 2 and convert Unit 1 to natural gas in 2016. As a result, the Plant will discontinue wet-slucicing to the Big Sandy Fly Ash Pond and, the pond will no longer be needed for wastewater or fly ash management. Kentucky Power will permanently close the Big Sandy Fly Ash Pond by draining free water and capping ash in place.

1.1 SITE SUMMARY

The Big Sandy Fly Ash Pond is a reservoir that was created by damming the valley of Horseford Creek prior to 1970. The fly ash pond is impounded by the Horseford Creek Dam (main dam) and a saddle dam on the right upstream abutment. The main dam is identified as Kentucky Dam ID 0367 (National Inventory of Dams ID KY00367). According to Kentucky Revised Statute Chapter 151, KYDEP Engineering Memo No. 5 (adopted 02-01-1975), Section B and KAR 401:030 – Design Criteria for Dams Associated Structures, the KYDEP has classified the main dam as a high hazard. The saddle dam has not been classified by the KYDEP as a separate structure. The saddle dam contains the existing emergency spillway to the main dam.

The Horseford Creek valley is relatively steeply incised and has three distinct segments trending in different directions. The pond is a U-shape configuration starting in the upstream portion, the valley trend is first to the southeast, then east, and finally north as it contributes to the larger Blaine Creek valley. The central, east-trending portion of the valley/pond receives sluiced coal combustion products (CCPs) and wastewater from the Plant, leaving open water in the main upstream and the downstream segments as well as in a small contributory branch to the east-southeast (saddle dam).

CCPs generated by the plant are transported by wet sluicing methods to the 130-acre pond, which is retained by the main dam (crest elevation approximately 711 feet msl). The pond began receiving CCPs and wastewater in 1970, and has been regulated under the CWA through the KPDES program.

The current length of the pond centerline from the crest of the earthen embankment to the upstream end of the upper pool is approximately 7,800 feet. The pond, as currently configured, covers a total of approximately 140 acres consisting of approximately 40 acres of open water and 100 acres of exposed or vegetated ash (please note, only 130 acres is jurisdictional).

The upstream surface water pool elevation is roughly 685 feet msl, whereas the downstream pool elevation is roughly 670 feet msl. The depth of the water within the open water portions of the pond is reported up to 42 feet, with the thickness of the ash deposits documented up to approximately 130 feet. Vegetated ash in the central portion ranges in elevation from approximately 670 to 685 feet msl.

The final elevation of CCP material at closure is highly dependent on the amount of coal burned between now and the time of closure. This is directly related to electricity demand, balancing of loads with other regional power plants, and the ash content of the coal burned. All of these factors will vary as the Big Sandy Plant continues to burn coal. CCP elevations for the closure design are conservative and based on the most recent surveys conducted to date.

2.0 PROPOSED SITE ACTIVITIES

2.1 CONSTRUCTION SUMMARY

The proposed construction of the Project is divided into four phases, which spans multiple years. Refer to Block 18 for detailed information on each construction phase.

For descriptive purposes, the Project can be divided into five discrete construction activities:

Installation of Fly Ash Pond Cap System:

Groundwater generally follows existing surface topography towards the Horseford Dam (down valley), roughly mimicking the current process water flow. The dam restricts and retains water (surface and subsurface) from the facility. A clay cut-off wall was incorporated into the dam during its original construction and subsequent raisings, which impedes water from leaving the impoundment.

The installation of the closure cap system is intended to restrict water from percolating into the CCP mass by providing an engineered barrier to stormwater. A geosynthetic cap system was selected for use to minimize concerns due to settlement and compaction.

The Geosynthetic cap system consists of:

- Flexible membrane liner
- Geocomposite drainage layer
- 24 inches of protective cover soil, with the top 6 inches capable of supporting vegetative cover

The closure cap system detail drawing is provided in Figure 2B within Appendix A.

Mass Grading and Excavation of Borrow Areas:

Fly ash excavated from deep cut areas will be placed in the western end of the pond to create the cap system berm. Existing fly ash will be regraded to create the cap system subgrades. Excavated material from the main dam and saddle dam will be separated; clay material will be used in the cap system and bottom ash from the dams and Plant stockpile will be used to meet cap system subgrades. Additional material may be needed for completion of the fly ash pond cap system. A borrow study was performed by URS to identify a borrow site(s) suitable for the potential needs of the Project. It was concluded that the hillsides to the north and south of the fly ash pond would provide adequate soil materials for the Project. Available soil material from the borrow areas site is estimated to total approximately 604,000 cubic yards. The borrow area location is provided in Figures 2A and 2B within Appendix A.

Installation of Ash Pond Pore Water Management System:

The Project design incorporates a piping system to manage surges in pore water pressure caused by water levels rising below the cap system. This passive system will assist in mitigating soft areas from developing in the area of the pipes, thereby aiding in the construction of the cap system.

Six-inch pore water drain pipes, located in the middle of a two-foot bottom ash layer in the proposed stormwater channels, will direct water to a sump and pump station near the saddle dam. Water collected in the sump will be pumped to the main dam pool using a forcemain. The water level at the main dam will subsequently be lowered by removing stop logs at the existing Outfall 001 inlet structure or by the use of pumps and siphons.

Following construction, pore water drain pipes will continue to collect seepage beneath the cap system. The current design conveys collected pore water to the sump located near the existing saddle dam. Pore water will then be pumped via forcemain and stored in an area conceptually located adjacent to the main dam. Future engineering evaluations will determine the final capacity, location, and necessary treatment, if any, for pore water. The location of the pore water drainage pipe system is provided in Figure 2A within Appendix A.

Modification to Main and Saddle Dams:

The main dam will be lowered to final elevation of 656 feet msl and a new spillway to manage post-construction stormwater will be constructed. The main dam spillway will require that an overcut of two feet be made, and the entire top surface will be covered with 18 inches of compacted clay, followed by 6 inches of vegetative cover soil. The main dam spillway will be completed with a combination of rip-rap and concrete. The saddle dam will be completely removed and replaced with a combination rock-cut and concrete-lined spillway to also manage post-construction stormwater. The main dam spillway and saddle dam spillway plan and profiles are provided in Figures 2D-2E within Appendix A.

Interim Stormwater Management:

Stormwater will continue to be directed to the main dam for discharge via Outfall 001 under the current KPDES permit until the main spillway and the saddle dam spillway are constructed. Specifically, during construction, stormwater collected in the sump near the saddle dam will be pumped to the main dam pool for discharge.

3.0 GEOLOGY AND HYDROGEOLOGY

3.1 PHYSIOGRAPHY AND TOPOLOGY

The Project area is located in the Cumberland Plateau Region of Eastern Kentucky. The Cumberland Plateau is characterized by relatively steep mountain ravines eroded by water through flat-lying sequences of Pennsylvanian age sedimentary rocks (USGS, 2001). The Project site is comprised of valley and ridges along the flanks of Horseford Creek, a tributary of Blaine Creek. According to the Fallsburg, Kentucky 7.5-minute series topographic map, site elevations range from approximately 900 feet msl near the southwest corner of the site to approximately 540 feet msl along the floodplain of Blaine Creek.

3.1.1 Site Geology

According to the geologic maps of the Fallsburg Quadrangle, Kentucky-West Virginia and the Pritchard Quadrangle in Kentucky, the area below the fly ash pond consists of Quaternary age alluvial deposits of sand and silt. The flanks of the impoundment are mapped as siltstone, limestone, and sandstone of the Middle Pennsylvanian age Breathitt Formation, which is overlain by similar material of the Upper Pennsylvanian Conemaugh and Monongahela Formations. The Princess Number 7 coal bed (approximately 2 feet thick) is mapped within the Breathitt Formation, with outcrops occurring at an elevation of approximately 600 feet msl (USGS, 1967).

3.1.2 Soils

At the lowest elevations of the property, along Blaine Creek, soils are mapped as Grigsby fine sandy loam. Grigsby soils are described as very deep and well-drained with moderately rapid permeability. Grigsby soils are formed from alluvium and occur on floodplains.

Along the flanks of the ridges, above the floodplain and valley floors, soils are mapped as Vandalia-Beech complex 20 to 60 percent slopes. Vandalia-Beech soils are described as very deep, well-drained, with slow permeability. These soils form along mountainsides from colluvium of shale, siltstone, and sandstone.

Soils higher up along the flanks of the hills are mapped as Upshur-Reardon complex. These soils are described as deep, well-drained with slow permeability. These soils form along mountainsides from residuum of shale and siltstone.

Soils along a small area of the Project site near the southwest corner of the property are mapped as Shelocta-Hazleton-Fredscreek complex. These soils are described as deep, well-drained with moderate permeability. Shelocta soils form from mixed colluvium and residuum of acid shale, siltstone, and sandstone (USDA, 2005).

According to the Natural Resources Conservation Service, Grigsby soils (mapped along Blaine Creek), are the only soils in the study area listed as hydric. Distribution and locations of mapped soils across the property are illustrated in Figure 2 of the Wetland Delineation Report within Appendix B.

3.1.3 Hydrology

The Project area is located in the Big Sandy River watershed area. As previously discussed, the Project site is centered around Horseford Creek, which empties into Blaine Creek located downstream of the dam of the ash pond. Blaine Creek, in turn, meanders approximately two miles to the east, where it empties into the Big Sandy River.

The primary source of groundwater in the region is identified as the Appalachian Plateaus aquifer system (Lloyd and Lyke, 1995). The lithology of this aquifer is described as primarily shale associated with the Conemaugh Formation grading with increasing occurrences of sandstone, siltstone, and some coal measures associated with the Breathitt Formation. Groundwater occurrence within the Pennsylvanian aquifer is primarily in fractures recharged by precipitation. Coal seam underclays and other low permeability lithologic units may serve as barriers to downward migration of groundwater. As a result, groundwater in the area will travel laterally on top of these units until commonly expressed as groundwater fed streams, springs, and seeps at locations where these lower permeability lithologic units are expressed at or near the ground surface. In

contrast, the uppermost groundwater in the region generally occurs relatively near the ground surface (generally within the upper 15 to 50 feet) in the porosity of the residual soil, the weathered bedrock, and/or the somewhat deeper fractured bedrock, depending on the local dynamics of groundwater recharge and discharge. Groundwater in this environment generally flows in a direction parallel to the topographic slope toward the valley bottoms, and may be observed at ground surface as surface seeps or small springs where resistant beds push it laterally to the surface.

The local hydrogeology closely matches regional expectations, with uppermost groundwater encountered at the unconsolidated soil/bedrock interface or within the fractured bedrock below this interface. Movement of uppermost groundwater at the Project site is generally toward the lower topographic elevations, where the pond is located. The rate and volume of uppermost groundwater flow moving through a given location is primarily governed by the orientation and connectivity of fractures present. Surface expressions of groundwater flow within fractured bedrock were not observed with the exception of some small ephemeral seeps that flow for a period of time after rain events.

Within the valley bottom environment, groundwater may be found in the weathered/fractured bedrock, but it may also occur in the alluvial deposits, if they are porous and thick enough. Groundwater in the valley bottom environment is anticipated to generally flow in the downstream direction.

3.1.4 Seismicity

There are no major surface fault systems mapped in the Project area. The Kentucky River fault system is located east of Lawrence County and the Irvine-Paint Creek fault system is located southwest of Lawrence County (USGS, 2001).

The Federal Emergency Management Agency (FEMA), in cooperation with the U.S. Geological Survey, has created an earthquake hazard map of the United States. Hazards are measured as the likelihood of experiencing earthquake shaking of various magnitudes. The study area is located in a seismic design category (SDC) zone B and near the border of Zone A. SDC B designates is an area that may experience shaking of a moderate degree. An SDC A is an area with a very small probability of experiencing earthquake damage.

Deep-seated seismic stability was evaluated for the most critical slope of the cap system, estimated as the 2H:1V slope assigned to the separator berm proposed to be installed north of the saddle dam, separating the upper pond from the lower pond. The seismic stability was performed to model an earthquake event with a 2% probability of exceedance in 50 years with a value of 0.12g acceleration used as the seismic coefficient in the pseudostatic analysis. Results of the seismic stability analyses indicate a factor of safety

of 1.94 for the separator berm. The factor of safety (1.94) exceeds the typical guidance value of 1.1, as provided in the U.S. Corps of Engineers' EM-1110-2-1902 "Slope Stability" manuals.

4.0 WETLANDS AND WATERBODIES

URS conducted a wetland delineation and stream assessment of the proposed Project area in May, June, and October 2012. The ecological surveys identified a total of 17 wetlands, totaling approximately 1.64 acres, 154 streams, totaling 42,420 linear feet, and one 0.24-acre pond within the approximately 602-acre Project survey boundary. Detailed descriptions of these features are included in the attached Wetland Delineation Report provided in Appendix B. The locations are shown on Figure 3 in Appendix B.

URS also prepared an addendum report to the original Wetland Delineation Report in January 2014 for the inclusion of an approximately 16 acre area to the north of the fly ash pond. URS did not identify any wetlands, streams, or ponds within the addendum survey area. The approximately 16-acre addendum survey area was observed as an upland ridge that primarily consisted of steep slopes with an oak-hickory canopy and moderate to heavy undergrowth. Copies of the initial Wetland Delineation Report and Addendum Report are provided in Appendix B.

On September 18, 2014, the USACE Louisville District approved the jurisdictional determination for the Project survey boundary submitted by Kentucky Power. The USACE verified that all 154 streams possess a significant nexus and are considered jurisdictional "waters of the U.S.". In addition, 12 wetlands and one open water feature were identified as adjacent to these tributaries and are also considered jurisdictional "waters of the U.S.". The USACE also determined that four isolated wetlands (Wetland 3, Wetland 4, Wetland 5, and Wetland 7) are not jurisdictional. A copy of the USACE Jurisdictional Determination is provided in Appendix C.

Based on subsequent conversations with the USACE following issuance of the determination, Kentucky Power would like to request an amendment to the Jurisdictional Determination verified by the Louisville District on September 18, 2014. Portions of various streams and one wetland (Wetland 8) delineated within the Project survey boundary are located within the permitted limits of the maximum operating pool elevation of the Fly Ash Pond. Therefore, the submitted lengths of several streams and Wetland 8 as originally provided in the delineation were inaccurately reported. The area within the maximum operating pool elevation was determined to be non-jurisdictional, and therefore some stream segments and Wetland 8 within these limits should not be considered jurisdictional or require mitigation for impacts. As such, we are requesting the USACE amend the determination to account for these inaccuracies. Table 4.0.1 contains both the original approved stream length within the Jurisdictional Determination and the newly revised stream lengths for all 154 streams that were delineated within the Project survey boundary.

**TABLE 4.0.1
ADJUSTED JURISDICTIONAL DETERMINATION STREAM LENGTH WITHIN PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Latitude	Longitude	Original Approved Stream Length (linear feet) ^a	Revised Stream Length (linear feet) ^b
Stream 01	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.18278	-82.642085	402	365
Stream 01a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.18292	-82.642209	176	176
Stream 02	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182358	-82.641507	411	389
Stream 02a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182345	-82.641158	157	157
Stream 03	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182731	-82.642327	313	289
Stream 04	Intermittent	Unnamed Intermittent (RPW) Tributary to Blaine Creek	38.179875	-82.625015	3,343	3,343
Stream 05	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.179566	-82.625246	70	70
Stream 06	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.180497	-82.640554	170	156
Stream 07	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.18074	-82.64076	278	256
Stream 08	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182257	-82.642054	101	68
Stream 09	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182792	-82.64174	479	459
Stream 09a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182594	-82.641687	119	119
Stream 09b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182694	-82.64161	194	194
Stream 10	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183665	-82.644132	95	28
Stream 11	Intermittent	Tributary to fly ash pond	38.184825	-82.643639	491	462
Stream 11a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.18441	-82.643544	117	106
Stream 11b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184944	-82.643781	104	104
Stream 11c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184638	-82.64308	381	373
Stream 11d	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184545	-82.64252	129	129
Stream 11e	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184364	-82.644005	62	55
Stream 12	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184279	-82.644254	95	95
Stream 13	Intermittent	Tributary to fly ash pond	38.185593	-82.648905	816	747
Stream 13a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.185804	-82.648927	56	56
Stream 13b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.186405	-82.648953	306	306
Stream 13c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.186111	-82.649453	185	185

**TABLE 4.0.1
ADJUSTED JURISDICTIONAL DETERMINATION STREAM LENGTH WITHIN PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Latitude	Longitude	Original Approved Stream Length (linear feet) ^a	Revised Stream Length (linear feet) ^b
Stream 14	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.177507	-82.639347	183	183
Stream 15	Intermittent	Tributary to fly ash pond	38.17573	-82.642819	895	895
Stream 15a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.176481	-82.642261	47	47
Stream 15b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.176163	-82.642182	104	104
Stream 15c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.176046	-82.642318	173	173
Stream 15d	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.175778	-82.642329	245	245
Stream 15e	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.175752	-82.642651	61	61
Stream 15f	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.175687	-82.643729	646	646
Stream 15g	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.175682	-82.643372	275	275
Stream 16	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.17767	-82.642599	132	132
Stream 17	Intermittent	Tributary to fly ash pond	38.179089	-82.645326	797	797
Stream 17a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.179664	-82.644962	111	111
Stream 17b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.179373	-82.645296	112	112
Stream 17c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.178786	-82.646264	233	233
Stream 18	Intermittent	Tributary to fly ash pond	38.18225	-82.648104	1,120	1,051
Stream 18a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182426	-82.64647	93	79
Stream 18b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182388	-82.646877	100	100
Stream 18c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182425	-82.647548	113	113
Stream 18d	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182362	-82.647975	87	87
Stream 18e	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182258	-82.648736	43	43
Stream 18f	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182427	-82.64916	114	114
Stream 18g	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182275	-82.649426	69	69
Stream 19	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183625	-82.646425	182	165
Stream 20	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184248	-82.649346	740	725
Stream 20a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184416	-82.648381	81	81

**TABLE 4.0.1
ADJUSTED JURISDICTIONAL DETERMINATION STREAM LENGTH WITHIN PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Latitude	Longitude	Original Approved Stream Length (linear feet) ^a	Revised Stream Length (linear feet) ^b
Stream 20b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183988	-82.649448	138	138
Stream 20c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183736	-82.64961	294	294
Stream 21	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183258	-82.637508	84	45
Stream 22	Intermittent	Tributary to fly ash pond	38.183653	-82.63824	186	163
Stream 23	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183783	-82.638926	165	157
Stream 23a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183776	-82.63877	77	77
Stream 24	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.181997	-82.635548	177	75
Stream 25	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182203	-82.63839	415	386
Stream 26	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.179403	-82.624443	178	178
Stream 27	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.179562	-82.624478	154	154
Stream 28	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.18034	-82.624501	185	185
Stream 29	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.180985	-82.624289	138	138
Stream 30	Perennial	Unnamed tributary to Blaine Creek	38.188125	-82.633499	558	558
Stream 31	Intermittent	Unnamed Intermittent (RPW) Tributary to Blaine Creek	38.188061	-82.630791	371	371
Stream 32	Intermittent	Unnamed Intermittent (RPW) Tributary to Blaine Creek	38.188102	-82.631772	315	315
Stream 33	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183828	-82.6441	64	1
Stream 34	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184202	-82.643787	141	111
Stream 34a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184134	-82.643645	100	100
Stream 35	Intermittent	Tributary to fly ash pond	38.185591	-82.646285	561	471
Stream 35a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.185921	-82.645834	211	211
Stream 35b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.185204	-82.6465	78	78
Stream 36	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.177545	-82.638531	280	280
Stream 37	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.176969	-82.642526	171	171
Stream 38	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.17922	-82.644498	279	279
Stream 39	Intermittent	Tributary to fly ash pond	38.181365	-82.645372	169	169

**TABLE 4.0.1
ADJUSTED JURISDICTIONAL DETERMINATION STREAM LENGTH WITHIN PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Latitude	Longitude	Original Approved Stream Length (linear feet) ^a	Revised Stream Length (linear feet) ^b
Stream 40	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.1813	-82.645778	157	157
Stream 41	Intermittent	Tributary to fly ash pond	38.181378	-82.645992	652	514
Stream 41a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.18117	-82.646067	56	56
Stream 42	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182146	-82.648394	114	114
Stream 43	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184011	-82.647594	368	329
Stream 44	Perennial	Horseford Creek	38.1842	-82.649991	2,379	2,266
Stream 44a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.18488	-82.650217	554	554
Stream 44b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182484	-82.653843	633	633
Stream 44c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.181227	-82.653997	232	232
Stream 45	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183078	-82.637348	93	37
Stream 46	Intermittent	Tributary to fly ash pond	38.18363	-82.638883	432	245
Stream 47	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182258	-82.635048	48	48
Stream 48	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183095	-82.638419	73	46
Stream 49	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.181963	-82.637701	109	67
Stream 50	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.185788	-82.635826	116	116
Stream 51	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.185756	-82.635877	75	75
Stream 52	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.181211	-82.628042	47	47
Stream 53	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182467	-82.627866	64	64
Stream 54	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182315	-82.627723	39	39
Stream 55	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184567	-82.629622	88	68
Stream 56	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.178126	-82.633154	36	36
Stream 57	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.178022	-82.630229	43	43
Stream 58	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.174032	-82.647949	604	604
Stream 59	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.174786	-82.646863	881	881
Stream 59a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.174412	-82.646894	304	304

**TABLE 4.0.1
ADJUSTED JURISDICTIONAL DETERMINATION STREAM LENGTH WITHIN PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Latitude	Longitude	Original Approved Stream Length (linear feet) ^a	Revised Stream Length (linear feet) ^b
Stream 60	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.176137	-82.646625	692	692
Stream 60a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.175762	-82.647063	149	149
Stream 61	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.180213	-82.627552	31	31
Stream 62	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182122	-82.627641	70	66
Stream 63	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.182254	-82.627658	77	77
Stream 64	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.184825	-82.629898	77	51
Stream 65	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.185999	-82.630599	19	19
Stream 66	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.186103	-82.630655	30	30
Stream 67	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.178037	-82.63036	51	51
Stream 68	Perennial	Unnamed Perennial Tributary of Fuller's Branch	38.175615	-82.647681	1,381	1,381
Stream 68a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.174678	-82.648721	92	92
Stream 68b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.17473	-82.648255	62	62
Stream 68c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.17447	-82.648223	224	224
Stream 68d	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.175023	-82.647836	158	158
Stream 68e	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.174797	-82.648466	69	69
Stream 68f	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.175329	-82.647784	68	68
Stream 68g	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.174959	-82.648427	130	130
Stream 68h	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.17541	-82.647479	200	200
Stream 68i	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.17517	-82.648242	104	104
Stream 68j	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.175685	-82.647456	102	102
Stream 68k	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.175554	-82.647476	139	139
Stream 68l	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.177244	-82.647641	65	65
Stream 68m	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.177145	-82.647626	85	85
Stream 68n	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.177322	-82.647374	204	204

**TABLE 4.0.1
ADJUSTED JURISDICTIONAL DETERMINATION STREAM LENGTH WITHIN PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Latitude	Longitude	Original Approved Stream Length (linear feet) ^a	Revised Stream Length (linear feet) ^b
Stream 68o	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.176957	-82.647088	256	256
Stream 68p	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.1764	-82.647351	58	58
Stream 68q	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.176428	-82.646887	251	251
Stream 68r	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.176653	-82.647099	266	266
Stream 69	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	38.176948	-82.648002	412	412
Stream 70	Intermittent	Tributary to fly ash pond	38.183888	-82.650984	442	442
Stream 70a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183487	-82.651216	75	75
Stream 70b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.183499	-82.650664	310	310
Stream 71	Intermittent	Tributary to fly ash pond	38.185572	-82.653279	1,816	1,816
Stream 71a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.185856	-82.652998	262	262
Stream 71b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.18583	-82.653492	131	131
Stream 71c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.186375	-82.654015	548	548
Stream 71d	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.1858	-82.654716	440	440
Stream 71e	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.185899	-82.655866	81	81
Stream 71f	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	38.185596	-82.655933	222	222
Stream 72	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.181433	-82.624959	175	175
Stream 73	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.182305	-82.625104	210	210
Stream 74	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.184755	-82.626268	336	336
Stream 75	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.185768	-82.626399	108	108
Stream 76	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.186226	-82.626544	385	385
Stream 77	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.185364	-82.625733	36	36
Stream 78	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.183861	-82.624616	354	354
Stream 78a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.183771	-82.624265	120	120
Stream 78b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.183921	-82.62445	61	61
Stream 78c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.184067	-82.624865	96	96

**TABLE 4.0.1
ADJUSTED JURISDICTIONAL DETERMINATION STREAM LENGTH WITHIN PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Latitude	Longitude	Original Approved Stream Length (linear feet) ^a	Revised Stream Length (linear feet) ^b
Stream 79	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.182304	-82.623863	542	542
Stream 79a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.182473	-82.623487	391	391
Stream 79aa	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.182373	-82.622941	53	53
Stream 80	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.186308	-82.626727	132	132
Stream 80a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	38.18624	-82.62678	80	80
Total: 154 Streams					42,421	40,907

^a: Length approved by USACE Jurisdictional Determination in September 2014

^b: Based on linear feet of jurisdictional stream outside the permitted maximum operating pool limits of the Fly Ash Pond.

Of the 17 delineated wetlands, only seven wetlands, totaling **0.41 acres**, will be impacted as a result the Project. A cumulative total of approximately **4,071 linear feet** of jurisdictional stream will be impacted by the Project. Within the limits of disturbance of the Project site, approximately **0.01-acres** of pond will be impacted. Refer to the discussion under Block 22 for detailed information on Project impacts. An overview of the limits of disturbance for the Project and locations of delineated features within this area is illustrated on Figures 4 and 5 in Appendix A.

4.1 MITIGATION

4.1.1 Avoidance and Minimization

Refer to the discussion under Block 23 for detailed information on Project avoidance and minimization. Table 4.1.1.1 provides a list of the wetlands identified within the Project survey boundary. Information regarding Cowardin class, delineated acreage, and the acreage either avoided or minimized is provided. Similar tables are also provided for delineated streams and pond avoidance and minimization.

**TABLE 4.1.1.1
DELINEATED WETLANDS WITHIN THE PROJECT SURVEY AREA**

Wetland Name	Cowardin Wetland Type ^a	Acreage within Project Survey Area	Impacted Acreage within Limits of Disturbance ^b
Wetland 01	PEM/PSS	0.06	NI
Wetland 02	PEM	0.03	NI

**TABLE 4.1.1.1
DELINEATED WETLANDS WITHIN THE PROJECT SURVEY AREA**

Wetland Name	Cowardin Wetland Type ^a	Acreage within Project Survey Area	Impacted Acreage within Limits of Disturbance ^b
Wetland 03	PEM	0.08	Not Jurisdictional
Wetland 04	PEM	0.14	Not Jurisdictional
Wetland 05	PEM	0.11	Not Jurisdictional
Wetland 06	PEM/PSS	0.03	NI
Wetland 07	PEM	0.07	Not Jurisdictional
Wetland 08	PEM	0.04	Not Jurisdictional
Wetland 09	PEM/PSS	0.06	NI
Wetland 10	PEM	0.02	0.02
Wetland 11	PEM	0.05	0.05
Wetland 12	PEM	0.02	0.02
Wetland 13	PEM	0.03	0.03
Wetland 14	PEM/PSS	0.21	0.21
Wetland 15	PEM	0.06	0.06
Wetland 16	PEM/PSS	0.08	0.01
Wetland 17	PFO	0.55	NI
Total: 17 Wetlands		1.64	0.41

^a: PEM = palustrine emergent, PSS = palustrine scrub/shrub, PFO = palustrine forested

^b: NI = No Impact

**TABLE 4.1.1.2
DELINEATED STREAM LENGTH WITHIN THE PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Revised Stream Length (linear feet) ^b Within Project Survey Area	Impacted Linear Feet within Limits of Disturbance ^c
Stream 01	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	365	43
Stream 01a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	176	NI
Stream 02	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	389	45
Stream 02a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	157	NI
Stream 03	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	289	43
Stream 04	Intermittent	Unnamed Intermittent (RPW) Tributary to Blaine Creek	3,343	436
Stream 05	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	70	70
Stream 06	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	156	27
Stream 07	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	256	23

**TABLE 4.1.1.2
DELINEATED STREAM LENGTH WITHIN THE PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Revised Stream Length (linear feet) ^b Within Project Survey Area	Impacted Linear Feet within Limits of Disturbance ^c
Stream 08	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	68	48
Stream 09	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	459	57
Stream 09a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	119	NI
Stream 09b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	194	NI
Stream 10	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	28	28
Stream 11	Intermittent	Tributary to fly ash pond	462	201
Stream 11a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	106	61
Stream 11b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	104	NI
Stream 11c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	373	72
Stream 11d	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	129	NI
Stream 11e	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	55	55
Stream 12	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	95	49
Stream 13	Intermittent	Tributary to fly ash pond	747	142
Stream 13a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	56	NI
Stream 13b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	306	NI
Stream 13c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	185	NI
Stream 14	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	183	NI
Stream 15	Intermittent	Tributary to fly ash pond	895	NI
Stream 15a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	47	NI
Stream 15b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	104	NI
Stream 15c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	173	NI
Stream 15d	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	245	NI
Stream 15e	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	61	NI
Stream 15f	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	646	NI
Stream 15g	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	275	NI

**TABLE 4.1.1.2
DELINEATED STREAM LENGTH WITHIN THE PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Revised Stream Length (linear feet) ^b Within Project Survey Area	Impacted Linear Feet within Limits of Disturbance ^c
Stream 16	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	132	NI
Stream 17	Intermittent	Tributary to fly ash pond	797	1
Stream 17a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	111	NI
Stream 17b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	112	NI
Stream 17c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	233	NI
Stream 18	Intermittent	Tributary to fly ash pond	1,051	191
Stream 18a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	79	59
Stream 18b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	100	56
Stream 18c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	113	NI
Stream 18d	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	87	NI
Stream 18e	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	43	NI
Stream 18f	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	114	NI
Stream 18g	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	69	NI
Stream 19	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	165	36
Stream 20	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	725	273
Stream 20a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	81	40
Stream 20b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	138	NI
Stream 20c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	294	NI
Stream 21	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	45	NI
Stream 22	Intermittent	Tributary to fly ash pond	163	38
Stream 23	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	157	84
Stream 23a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	77	61
Stream 24	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	75	NI
Stream 25	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	386	NI
Stream 26	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	178	NI

**TABLE 4.1.1.2
DELINEATED STREAM LENGTH WITHIN THE PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Revised Stream Length (linear feet) ^b Within Project Survey Area	Impacted Linear Feet within Limits of Disturbance ^c
Stream 27	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	154	NI
Stream 28	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	185	NI
Stream 29	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	138	NI
Stream 30	Perennial	Unnamed tributary to Blaine Creek	558	540
Stream 31	Intermittent	Unnamed Intermittent (RPW) Tributary to Blaine Creek	371	364
Stream 32	Intermittent	Unnamed Intermittent (RPW) Tributary to Blaine Creek	315	312
Stream 33	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	1	1
Stream 34	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	111	90
Stream 34a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	100	30
Stream 35	Intermittent	Tributary to fly ash pond	471	7
Stream 35a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	211	NI
Stream 35b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	78	1
Stream 36	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	280	NI
Stream 37	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	171	NI
Stream 38	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	279	NI
Stream 39	Intermittent	Tributary to fly ash pond	169	36
Stream 40	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	157	16
Stream 41	Intermittent	Tributary to fly ash pond	514	103
Stream 41a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	56	NI
Stream 42	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	114	NI
Stream 43	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	329	84
Stream 44	Perennial	Horseford Creek	2,266	147
Stream 44a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	554	NI
Stream 44b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	633	NI
Stream 44c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	232	NI

**TABLE 4.1.1.2
DELINEATED STREAM LENGTH WITHIN THE PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Revised Stream Length (linear feet) ^b Within Project Survey Area	Impacted Linear Feet within Limits of Disturbance ^c
Stream 45	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	37	NI
Stream 46	Intermittent	Tributary to fly ash pond	245	71
Stream 47	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	48	NI
Stream 48	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	46	9
Stream 49	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	67	NI
Stream 50	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	116	NI
Stream 51	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	75	NI
Stream 52	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	47	NI
Stream 53	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	64	NI
Stream 54	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	39	NI
Stream 55	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	68	20
Stream 56	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	36	NI
Stream 57	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	43	NI
Stream 58	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	604	NI
Stream 59	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	881	NI
Stream 59a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	304	NI
Stream 60	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	692	NI
Stream 60a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	149	NI
Stream 61	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	31	NI
Stream 62	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	66	NI
Stream 63	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	77	NI
Stream 64	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	51	1
Stream 65	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	19	NI
Stream 66	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	30	NI

**TABLE 4.1.1.2
DELINEATED STREAM LENGTH WITHIN THE PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Revised Stream Length (linear feet) ^b Within Project Survey Area	Impacted Linear Feet within Limits of Disturbance ^c
Stream 67	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	51	NI
Stream 68	Perennial	Unnamed Perennial Tributary of Fuller's Branch	1,381	NI
Stream 68a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	92	NI
Stream 68b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	62	NI
Stream 68c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	224	NI
Stream 68d	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	158	NI
Stream 68e	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	69	NI
Stream 68f	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	68	NI
Stream 68g	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	130	NI
Stream 68h	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	200	NI
Stream 68i	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	104	NI
Stream 68j	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	102	NI
Stream 68k	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	139	NI
Stream 68l	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	65	NI
Stream 68m	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	85	NI
Stream 68n	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	204	NI
Stream 68o	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	256	NI
Stream 68p	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	58	NI
Stream 68q	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	251	NI
Stream 68r	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	266	NI
Stream 69	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Fuller's Branch	412	NI
Stream 70	Intermittent	Tributary to fly ash pond	442	NI
Stream 70a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	75	NI
Stream 70b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	310	NI

**TABLE 4.1.1.2
DELINEATED STREAM LENGTH WITHIN THE PROJECT SURVEY AREA**

Report Name	Flow Regime	Description/Tributary Name	Revised Stream Length (linear feet) ^b Within Project Survey Area	Impacted Linear Feet within Limits of Disturbance ^c
Stream 71	Intermittent	Tributary to fly ash pond	1,816	NI
Stream 71a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	262	NI
Stream 71b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	131	NI
Stream 71c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	548	NI
Stream 71d	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	440	NI
Stream 71e	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	81	NI
Stream 71f	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary to fly ash pond	222	NI
Stream 72	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	175	NI
Stream 73	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	210	NI
Stream 74	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	336	NI
Stream 75	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	108	NI
Stream 76	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	385	NI
Stream 77	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	36	NI
Stream 78	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	354	NI
Stream 78a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	120	NI
Stream 78b	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	61	NI
Stream 78c	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	96	NI
Stream 79	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	542	NI
Stream 79a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	391	NI
Stream 79aa	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	53	NI
Stream 80	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	132	NI
Stream 80a	Ephemeral	Unnamed Ephemeral (Non-RPW) Tributary of Blaine Creek	80	NI
Total: 154 Streams			40,907	4,071

^a: Based on linear feet of jurisdictional stream outside the permitted maximum operating pool limits of the Fly Ash Pond.

^b: NI = No Impact

**TABLE 4.1.1.3
DELINEATED PONDS WITHIN THE PROJECT SURVEY AREA**

Pond Name	Acreage within Survey Corridor	Impacted Acreage within Limits of Disturbance ^b
Pond 01	0.24	0.01
Total: 1 Pond	0.24	0.01

4.1.2 Compensatory Mitigation

Wetland, pond, and stream impacts will be mitigated through a wetland and stream mitigation program determined to be acceptable by the Agency. Kentucky Power is currently evaluating several options in collaboration with EIP for stream and wetland mitigation within the Big Sandy Watershed. Refer to the discussion under Block 23 for additional information on compensatory mitigation.

5.0 THREATENED AND ENDANGERED SPECIES HABITAT SURVEY

URS conducted a literature review for federally-threatened and endangered species that are known or potentially occur in Lawrence County, Kentucky. The literature review identified one federally-protected species: Indiana bat (*Myotis sodalis*).

Summer habitat use of roost trees by the Indiana bat is dynamic and can change over time due to a variety of environmental and human-caused factors. Summer distribution in Kentucky is concentrated in western counties bordering the Ohio River, and in east-central Kentucky within the Appalachian Mountains and their foothills. Maternity records exist for 20 counties with an additional 20 counties that contain summer records (non-maternity records) in Kentucky (USFWS, 2007). The nearest summer maternity record is west of the Project in Rowan County, Kentucky. Lawrence County does not have a documented Indiana bat summer record.

As part of initial project planning, a letter was submitted to USFWS Ecological Services Field Office on April 27, 2012, regarding potential for occurrence of threatened and endangered species near the Project site. The initial letter requested the agency consider the entire plant property boundary as the project area.

A response letter was received from the USFWS, dated May 16, 2012, stating that the Indiana bat (*Myotis sodalis*) was the only listed species that has the potential to occur within the vicinity of the Project. USFWS recommended that the project proponent only remove trees within the project area between October 15 and March 31 in order to avoid impacting summer roosting Indiana bats.

An additional letter was submitted to USFWS on November 14, 2014, regarding updates to the Project scope. In the letter, Kentucky Power agreed to perform tree clearing as proposed by the USFWS.

A response letter was received from the USFWS, dated December 12, 2014, stating that the federally-listed Indiana bat and the proposed-listed northern long-eared bat (*Myotis septentrionalis*) are the only species that have the potential to occur within the vicinity of the Project. USFWS agreed that conducting tree clearing within the dates of October 15th and March 31st will likely avoid direct effects to the Indiana bat. However, the USFWS stated the Project may have significant indirect and cumulative effects to the bat and provided four potential options that may be implemented to ensure compliance. The four options included eliminating/reducing potential habitat impacts, conducting presence/absence surveys, assuming presence and mitigate for impacts, or conducting a site-specific habitat survey with an effects analysis. USFWS also indicated that the Project site was potentially within the summer roosting/foraging range of the proposed endangered northern long-eared bat. The USFWS indicated that a decision on the status of the proposed species would be finalized in April 2015.

An email was submitted to Kentucky State Nature Preserves Commission (KSNPC) on May 16, 2012, regarding potential for occurrence of threatened and endangered species near the Project site. KSNPC replied on May 23, 2012, that several monitored and federally-listed aquatic species have been previously reported from Blaine Creek and the Big Sandy River in the area of the Project. Because no in-water work is proposed in either Blaine Creek or the Big Sandy River, the Project will not impact these species. Furthermore, Kentucky Power is committed to the use of appropriate BMPs to minimize stormwater pollution and any erosion/sedimentation-related impacts from the site. As a result, there should be no adverse impact to Blaine Creek or the Big Sandy River related to the proposed Project. There were no records identified in the Natural History Program Database within 0.5-miles of the Project area.

Copies of the agency correspondence are provided in Appendix D.

5.1 INDIANA BAT HABITAT PLAN

Since the beginning of the Project, Kentucky Power has sought to avoid and minimize impacts to forested habitat. Due to the nature of the Project, clearing impacts to all woodlots onsite could not be avoided. USFWS has agreed that Kentucky Power's proposal of conducting tree clearing within the seasonal timeframe of October 15th through March 31st will likely avoid direct effects to the Indiana bat. Because the nature of the Project requires unavoidable clearing of forested habitat, to address the concerns regarding indirect and cumulative effects to the Indiana bat, Kentucky Power will assume presence within the Project area and mitigate potential impacts of habitat removal by entering into a Conservation Memorandum of Agreement (CMOA) with the USFWS. This approach is also expected to satisfy any necessary indirect or cumulative effects to the northern long-eared bat, should it be listed in the future. A

copy of the CMOA application letter is provided in Appendix D. Concurrence regarding Kentucky Power's bat habitat plan and CMOA has not been received to date from the USFWS; however, any additional information pertaining to the CMOA will be submitted to the USACE once it is available.

6.0 CULTURAL RESOURCES

6.1 CULTURAL RESOURCE SURVEYS

URS conducted a Phase I archaeological survey for the Project from May 12-16, 2014. The Area of Potential Effect (APE) for the Phase I archaeological survey included all land that would be impacted by ground disturbance associated with the Project. As a result, the APE encompassed approximately 278 acres. The Phase I archaeological field survey only focused on the area outside of the fly ash pond footprint.

The background research conducted documented only eight archaeological sites within a two-kilometer (1.2-mile) radius of the Project, none of which occurred within the APE. In addition, no aboveground historic resources or National Register of Historic Places-listed properties were previously recorded within a two-kilometer radius of the Project.

Most of the APE was subjected to pedestrian survey with shovel probing conducted in level areas near the main dam, and along benches and ridge tops. Approximately seven acres were shovel probed. In general, the APE contains a large degree of existing ground disturbance specifically associated with dam construction in the northern portion of the APE and around the perimeter of the pond; and highly sloped land within the southern portion of the APE. As a result of the Phase I archaeological survey, no archaeological sites were identified. In addition, no structures that appeared over 50 years in age were documented within or adjacent to the APE. Therefore, URS recommended no additional cultural resources work for the Project.

Kentucky Power submitted the Phase I archaeological report for review to the KHC on June 17, 2014. The KHC replied in a letter dated August 14, 2014, stating the KHC concurs with the findings and recommendations of the submitted Phase I report. KHC also stated that they have no further comments and Kentucky Power's responsibility to consult with the Kentucky State Historic Preservation Office under the Section 106 review process for this Project was fulfilled.

7.0 OTHER PUBLIC INTEREST REVIEW ISSUES

In order to evaluate the aspects associated with the proposed application for the Section 404 permit, various public interest review issues were considered, including the short term and cumulative impacts. Coupled with this analysis of environmental impacts was the need to evaluate the intended use of the

facility based on public interest and need. An integral part of the analysis was the consideration of the benefits that may reasonably be expected to occur from the Project, which must be balanced against any reasonably foreseeable detriments.

7.1 CONSERVATION

Since the beginning of the Project, Kentucky Power has sought to avoid and minimize impacts to the environment. Where impacts were unavoidable, Kentucky Power considered design alternatives that would reduce the impacts to the minimum necessary.

Kentucky Power has proposed a wetland and stream mitigation plan and habitat conservation plan to compensate for unavoidable impacts to wetlands and streams and indirect impacts to threatened and endangered species resulting from this Project.

Additionally, the Project will be conducted in a manner that will reduce stormwater pollution and any erosion/sedimentation related impacts from the site. Other considerations include working with natural resource agencies to develop future planting plants for the site post-construction.

7.2 ECONOMICS

The proposed Project will have a positive impact on the local economy, as local labor will have equal access to construction employment opportunities over several years. The Project represents an estimated construction cost of \$47.4 million dollars. Increased economic activity associated with the construction activities is anticipated to benefit throughout Lawrence County, Kentucky and the surrounding area.

7.3 AESTHETICS

Construction of the Project will result in minor visible changes to the landscape of the immediately surrounding area. The Project is located on private property and is entirely within the Horseford Creek valley. As such, visual access for the Project area is limited. The general surrounding area is already developed to the east with a relatively high concentration of major industrial facilities along the Big Sandy River, including the adjacent Big Sandy Plant. Aesthetically, the Project could improve the limited view shed from Blaine Creek with the reduction in elevation of the main dam. These view shed changes are not considered significant based on the existing neighboring industrial and commercial properties within the area.

7.4 GENERAL ENVIRONMENTAL CONCERNS

A SWP3 will be developed for the Project prior to start of construction activities. The plan will include provisions for placement of sediment and erosion controls at all locations where soil disturbance activities

will be conducted in and adjacent to waters of the U.S. These erosion controls will be designed to prevent sediment laden water from flowing offsite into adjacent waterways. Kentucky Power is committed to the use of appropriate BMPs to minimize stormwater pollution and any erosion/sedimentation-related impacts at the site. As a result, there should be little to no adverse impact to the environment related to development and operation of the proposed Project.

7.5 FLOOD HAZARDS

According to the FEMA Flood Insurance Rate Map for the Project area, a 10-acre portion of the Project site to the north of the main dam is located within the 100-year floodplain for Blaine Creek. The portion of the Project site within the 100-year flood zone accounts for less than ten percent of the total Project limits of disturbance. No major structures will be developed in this area; however, grading activities and spillway construction will be conducted. Activities in the floodplain will be permitted under a floodplain construction permit issued by the KYDEP and approval by the local Lawrence County Floodplain Coordinator.

7.6 FLOODPLAIN VALUES

As part of the floodplain construction permit for the Project, KYDEP will evaluate the need to utilize a model (HEC-RAS 4.0) developed by the USACE Hydraulic Engineering Center to assess the potential impacts within the Blaine Creek floodplain.

7.7 LANDUSE

The Project site is located approximately 4.2 miles northwest of the City of Louisa, Kentucky. The unincorporated area of Fallsburg is west of U.S. Route 23 and the Project site. Two other population centers are located within five miles of the proposed facility, including the city of Fort Gay, West Virginia, and Prichard, West Virginia.

Sensitive land uses, defined as major institutions, parks, and recreational areas, within the one-mile study area of the Project site includes six cemeteries, a strip mine, the Big Sandy Plant, and a gas well. Four of the identified sensitive land uses are located west of the Project area, three are located east of the Project across the Big Sandy River, and the gas well is located between the Project site and the Big Sandy River. No parks, recreational areas, or other sensitive land uses were identified within 1 mile of the proposed Project site.

7.8 NAVIGATION

The Project will not affect navigational traffic within the Big Sandy River.

7.9 DREDGING

No in-stream dredging activities will take place within Blaine Creek or the Big Sandy River.

7.10 SHORE EROSION AND ACCRETION

Shore erosion or accretion of sediment in Blaine Creek as a result of the Project will be negligible as appropriate erosion and sediment control features will be installed during construction activities.

7.11 RECREATION

The Project site is on private property and no recreational areas take place onsite. The Project will also not adversely impact known recreational activities in the vicinity of the Project or along the Big Sandy River.

7.12 WATER SUPPLY, WATER CONSERVATION, AND WATER QUALITY

The Project will not adversely impact water supply volume or quality in the area.

During construction, water will be pumped from a sump adjacent the saddle dam to the main dam pool for discharge via Outfall 001 under the current KPDES permit. URS designed floating baffles to be utilized between the discharge outlet of the construction pumping operation and Outfall 001.

Attempts to route stormwater and surface water away from the cap system proved impractical due to the configuration of the pond, surrounding terrain, and large watershed, and therefore the drainage area of 928 acres will create surface water run-on to the cap system. Following construction, runoff from the majority of the area, approximately 851 acres, will be directed into stormwater channels. The main stormwater channel is centrally located on the cap system and discharges through the saddle dam spillway. The saddle dam spillway will discharge surface water through a tributary stream to Blaine Creek. Water from the remaining 77 acres (the area located adjacent to the main dam) will be directed through the main dam spillway. The main dam spillway will discharge surface water directly into Blaine Creek. Erosion of the cap system will be minimized by the use of erosion and sediment control features around the perimeter. Stormwater flow in the channels will be controlled with check dams and reinforced matting to prevent erosion.

7.13 ENERGY NEEDS

The Project will not require a significant energy need for closure activities.

7.14 SAFETY

Public access will be restricted to the site through secure fencing and gate control. Onsite personnel will have to check-in at a guard station located at the Big Sandy Plant to enter the site. Construction and operation of the facility will comply with all applicable Occupational Safety and Health Act standards. Fire and safety response services will be coordinated with and utilize local agencies, where applicable.

7.15 FOOD AND FIBER PRODUCTION

The Project site has been used as a fly ash pond since 1970 and has not historically been utilized for agricultural purposes. The Project will not adversely impact local food production.

7.16 NEEDS AND WELFARE OF PEOPLE

The needs and welfare of the people will not be adversely impacted by the Project. Alternatively, economic benefits are likely to be realized by the surrounding communities as a result of the project in terms of increased sales tax revenue and construction employment opportunities.

8.0 DISCUSSION OF ALTERNATIVES

Section 404 of the CWA prohibits the discharge of dredged or fill material into waters of the U.S. unless the proposed discharge is the least environmentally damaging practicable alternative which meets the overall project purpose. The National Environmental Policy Act (NEPA) and implementing regulations require that a range of reasonable alternatives, including the no action alternative, be evaluated. Under NEPA, the no action alternative and action alternatives that meet the objectives or purpose and need of the preferred alternative are considered reasonable alternatives. 40 CFR 230.10(a)(2) states that, “An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.”

Thus, an alternative can be eliminated if it:

- Does not meet the project purpose and need
- Is not practicable because of cost
- Is not practicable because of existing technology
- Is not practicable because of logistics, or
- Is not the alternative least-damaging to the aquatic ecosystem, or the alternative has other significant adverse impacts to the natural environment.

8.1 NO-ACTION ALTERNATIVE

Under the No-Action alternative, there is no adverse impact effect to aquatic resources or changes to existing land use. The No-Action alternative provides the least amount of impact; however, the alternative does not meet the Project purpose and need for the design closure of the Big Sandy Plant fly ash pond in accordance with Federal Regulations for CCP impoundments, so it should be eliminated from further consideration. Maintaining an inoperable fly ash pond in place would actually result in an increased risk to the environment compared to proper closure.

8.2 OFF-SITE ALTERNATIVES

An off-site alternative is not applicable, as the Project deals with closure of the existing fly ash pond onsite. An off-site alternative does not meet the Project purpose and need, so it is also eliminated from further discussion.

9.0 SUMMARY

Kentucky Power is proposing to permanently close a fly ash pond on an approximately 620-acre property in Lawrence County, Kentucky. In order to complete the closure of the fly ash pond, Kentucky Power will need to undertake certain construction activities that will require discharging fill materials into 0.41 acres of wetland, 4,072 linear feet of stream, and 0.01 acres of pond, which were determined to be jurisdictional waters of the U.S. As such, Kentucky Power is requesting that the USACE issue Kentucky Power an Individual Section 404 permit to undertake such activities.

10.0 REFERENCES

- Federal Emergency Management Agency (FEMA), 2014. Earthquake Hazards Map, as viewed on the FEMA website on July 2, 2014. <http://www.fema.gov/earthquake/earthquake-hazard-maps#0>
- Lloyd, Orville B., Lyke, William L. 1995. Ground Water Atlas of the United States: Segment 10, Illinois, Indiana, Kentucky, Ohio, Tennessee. HA 730-K.
- United States Department of Agriculture, 2005. Natural Resource Conservation Service. Soil Survey of Lawrence and Martin Counties, Kentucky.
- United States Geological Survey, 1967. Geologic map of the Fallsburg and Prichard Quadrangles, Lawrence and Boyd Counties, Kentucky. Map GQ-584
- United States Geological Survey, 2001. Geology of Kentucky. USGS Professional Paper 1151-H.

U.S. Fish and Wildlife Service (USFWS). 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.

APPENDIX A
PROJECT FIGURES

APPENDIX B
WETLAND DELINEATION REPORT AND ADDENDUM

APPENDIX C
USACE JURISDICTIONAL DETERMINATION

APPENDIX D
AGENCY CORRESPONDENCE

APPENDIX E
CULTURAL RESOURCE REPORT