



Duke Energy  
WP994 | 1000 East Main Street  
Plainfield, IN 46168

October 27, 2016

United States Fish and Wildlife Service  
Kentucky Ecological Services Field Office  
330 West Broadway, Suite 265  
Frankfort, Kentucky 40601

Attention: Mr. Lee Andrews

Reference: **Indiana Bat Conservation Memorandum of Agreement – Modification No. 2 and Federally-Listed Species Coordination Duke Energy – East Bend Station Ash Basin**  
Boone County, Kentucky  
S&ME Project No. 4117-16-017  
FWS Project No. 2014-B-0122

Dear Mr. Andrews:

Duke Energy (Duke) is submitting this letter to the United States Fish and Wildlife Service (USFWS) to request a modification to the existing Indiana Bat Conservation Memorandum of Agreement (MOA), FWS 2014-B-0122, signed by the USFWS on December 15, 2014 and Duke Energy on January 12, 2015. In addition, a MOA Modification No. 1 was approved by the USFWS on February 26, 2015. Copies of the MOAs are included in the attached "Threatened and Endangered Species Habitat Survey" (dated October 18, 2016) completed by S&ME, Inc. (S&ME). Duke is providing the following project information for USFWS's inclusion into the modified MOA. Duke also respectfully requests concurrence of the survey completed by S&ME.

### **Project Information**

Duke is planning improvements to the north embankment of the ash storage basin located to east of the East Bend Station (EBS) power generating facility located in Boone County, Kentucky. Latitude and longitude coordinates for an area near the center of the project are 38.90282° N and -84.84119° W. The project site/study area is approximately 12.8 acres and consists of old field, scrub-shrub, and forested habitat along and adjacent to the north embankment of the ash basin.

### **Indiana Bat Habitat Information**

Suitable potential summer roosting habitat was observed on portions of the project site. No caves or other underground cavities that may be used for winter hibernation were observed within the project site.

The ash basin embankment and adjacent areas are comprised primarily of old field, scrub-shrub, and forest habitat. Common species in this area consist of ash-leaf elder (*Acer negundo*), tree-of-heaven (*Ailanthus altissima*), common hackberry (*Celtis occidentalis*), green ash (*Fraxinus pennsylvanica*), eastern red cedar (*Juniperus virginiana*), white mulberry (*Morus alba*), and black locust (*Robinia pseudoacacia*). Potential summer roosting habitat for the Indiana bat and northern long-eared bat (NLEB) in this area consists of trees with dead branches and/or exposed cavities, unidentifiable snags with loose/sheeting bark and/or open cavities.



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An estimated 8.15 acres of on-site forested habitat is capable of providing summer roosting habitat for the Indiana bat and/or NLEB.

### MOA Modification No. 2

The original MOA and MOA Modification No. 1 permitted Duke to clear 38.53 acres of forest within the winter months (October 15 through March 31). Duke respectfully requests that the existing MOA be modified to include additional clearing limits for the ash basin embankment improvements.

The total acreage to be added to the existing MOA is 8.15 acres. This will result in a direct loss of 46.68 acres (38.53 acres in the original CMOA and Modification No. 1, plus 8.15 additional acres for Modification No. 2) of potential summer forested habitat for the Indiana bat and NLEB at EBS. A map depicting the revised clearing limits of potential summer habitat is included in the attached S&ME habitat survey report.

No other listed threatened and/or endangered species should be impacted by the proposed project.

### *Applicant Information*

Applicant:	Duke Energy
Address:	6293 Beaver Road, Union, Kentucky 41091
Duke Signatory:	Stephen Beard
Duke Signatory Email:	Stephen.Beard@duke-energy.com
Consultant Contact:	Scott Ross (S&ME, Inc.)
Consultant Email:	sross@smeinc.com

Please contact Stephen Beard at 317-519-7803 or Stephen.Beard@duke-energy.com if you have any questions or need any further information.

Sincerely,

A handwritten signature in black ink that reads 'Stephen Beard'.

Stephen Beard, AWB  
Duke Energy – Environmental Services

Attachment: S&ME Threatened and Endangered Species Habitat Survey (dated October 18, 2016)



October 18, 2016

Duke Energy  
1000 East Main Street  
Plainfield, Indiana 46168

Attention: Mr. Stephen Beard

Reference: **Threatened and Endangered Species Habitat Survey**  
**East Bend Station Ash Basin**  
Boone County, Kentucky  
S&ME Project No. 4117-16-017

Dear Mr. Beard:

S&ME, Inc. (S&ME) is submitting this letter to present the results of the threatened and endangered (T&E) species habitat survey performed by S&ME on September 29, 2016. The work was performed in general accordance with S&ME Proposal No. 7217-14-004P-34, dated September 22, 2016.

S&ME is currently performing environmental services to assist Duke Energy (Duke) with the proposed ash storage basin improvements at the East Bend Station (EBS) power generating facility located in Boone County, Kentucky. S&ME previously requested, in a letter dated December 2, 2013, that the United States Fish and Wildlife Service (USFWS) evaluate the EBS project site regarding the possible presence of listed T&E species on or in the vicinity of the proposed project, which at that time included four haul road alternatives, a landfill, and a sediment pond pipeline. On December 13, 2013, the USFWS issued a letter to Duke stating that potential habitat for the Indiana bat (*Myotis sodalis*), northern long-eared bat (NLEB) (*Myotis septentrionalis*), bald eagle, freshwater mussels, and running buffalo clover (RBC) (*Trifolium stoloniferum*) may be present in the vicinity of the EBS Landfill.

In 2014, Duke finalized site plans for the landfill haul road, sediment pond pipeline, and access drive. Subsequently, S&ME completed a field review of the proposed construction areas on August 20, 2014 to identify potential habitat for the Indiana bat, NLEB, bald eagle, freshwater mussels, and RBC. S&ME submitted the results to USFWS, and USFWS responded in a letter dated October 15, 2014. According to the USFWS, the proposed project was not likely to adversely affect federally-listed mussel species, the bald eagle, or RBC. However, since proposed habitat for Indiana bat was observed at the site, the project proponent had the option to enter into a Conservation Memorandum of Agreement (CMOA) with the USFWS to mitigate for the incidental take of Indiana bats and NLEB. Duke entered into a CMOA, dated December 15, 2014, and a CMOA Modification No. 1, dated February 26, 2015, to account for the loss of 38.53 acres of potential summer habitat for the Indiana bat and NLEB at the EBS.

S&ME understands that Duke plans to modify the north embankment of the ash storage basin located on the southeast portion of the EBS property. S&ME completed a Natural and Cultural Resources Assessment for the EBS in June 2016. No jurisdictional waters of the U.S. were identified during the assessment, however, forested habitat and potential RBC habitat were noted along the ash storage basin embankment. Therefore, on September 29, 2016, S&ME performed a bat habitat and RBC habitat assessment. This report has been



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prepared for Duke for their submittal to the USFWS, in order to request USFWS's review of the project and concurrence or comments regarding the proposed ash basin improvements.

## ❖ Project Description

The proposed project involves the improvements to the north embankment of the ash storage basin located to east of the EBS power generating facility. Latitude and longitude coordinates for an area near the center of the project are 38.90282° N and -84.84119° W. The proposed construction area is illustrated on a portion of the U.S. Geological Survey (USGS) quadrangle map for Rising Sun, Indiana (Figure 1) and a 2014 Aerial Photograph (Figure 2). The project site/study area is approximately 12.8 acres and consists of old field, scrub-shrub, and forested habitat along and adjacent to the north embankment of the ash basin.

In October 2016, S&ME reviewed the updated USFWS online database (i.e., the Information for Planning and Conservation (IPaC) decision support system) to determine if newly listed T&E species, designated critical habitat, or other natural resources of concern may be affected by the project. The USFWS IPaC list (attached) identified eleven federally-listed species that may occur within the project area: seven mussels, one plant, and three bats. In addition, the bald eagle has a potential to occur in the project vicinity. Prior site visits by S&ME determined that habitat for the mussel species and the gray bat does not exist at the site; therefore, these eight species should not be effected by the proposed project. According to the S&ME site visits, prior USFWS consultation, and updated IPaC database search, three federally-listed species (Indiana bat, NLEB, and RBC) and the bald eagle may be impacted by the project. Potential impacts to these species and proposed mitigation are discussed in detail below.

## ❖ Field Habitat Survey

S&ME completed a field review of the proposed project limits on September 29, 2016 to evaluate the possible project effects to any of the species identified by the USFWS. The findings of the field habitat survey are detailed below.

### **Indiana and Northern Long-Eared Bat**

The Indiana bat has been on the U.S. Endangered Species list since 1967. Their range extends west to the western Ozark region in eastern Oklahoma and Iowa, north and east to New England, and south to northern Alabama and Arkansas. The Indiana bat hibernates underground in caves or other cave-like locations during winter (usually between the months of October and March). They require cool, humid caves with stable temperatures below 50°F but above freezing. After hibernation, the bats migrate to summer habitat in wooded areas where they roost under loose tree bark on dead or dying trees. Males usually roost alone or in small groups, while females roost in maternity colonies of larger groups of up to 100 bats or more.

The NLEB is currently listed as federally-threatened under the Endangered Species Act (ESA). These bats are similar to the Indiana bat in that during the summer they typically roost individually or in colonies in a wide-variety of forested habitats under bark or in cavities and crevices of both live trees and snags. Appropriate roosting and foraging habitat is comprised of trees with greater than three-inch diameter at breast height (DBH), cracks, crevices, and exfoliating bark. They predominately winter in hibernaculum that includes caves, tunnels, and underground mine passages.



**Threatened and Endangered Species Habitat Survey**  
**East Bend Station Ash Basin**  
Boone County, Kentucky  
S&ME Project No. 4117-16-017

An S&ME biologist, Mr. Scott Ross, performed a pedestrian review of the site on September 29, 2016 to assess the project site for potential roosting and/or foraging habitat for the Indiana and NLEB. Suitable and potential summer roosting habitat was observed in the study area. No caves or other underground cavities that may be used for winter hibernation were observed within the project site.

The ash basin embankment and adjacent areas are comprised primarily of old field, scrub-shrub, and forest habitat. Common species in this area consist of ash-leaf elder (*Acer negundo*), tree-of-heaven (*Ailanthus altissima*), common hackberry (*Celtis occidentalis*), white ash (*Fraxinus americana*), green ash (*Fraxinus pennsylvanica*), eastern red cedar (*Juniperus virginiana*), white mulberry (*Morus alba*), and black locust (*Robinia pseudoacacia*). Since the project site contains numerous trees greater than three-inches DBH with bat habitat characteristics, S&ME estimated the forested habitat acreage capable of providing summer roosting habitat for the Indiana and/or NLEB. Approximately 8.15 acres were observed within the study area that may provide summer roosting habitat for Indiana bat and NLEB. This included white ash, green ash, black locust, and common hackberry with dead branches and/or exposed cavities, unidentifiable snags (mostly small to medium in size, four to twelve inches DBH) with loose/sheeting bark and/or open cavities. The remainder of the woody vegetation within the forested areas consists of primarily healthy tight-barked species with no exposed cavities or available roosting sites.

Water features near the study area include portions of the adjacent ash basin and the Ohio River to the south of the project area. No streams are located within the proposed project area. A T&E Species Habitat Exhibit (Figure 3) that depicts potential summer forested bat habitat and representative photographs of the general site conditions are attached.

To mitigate for incidental take of Indiana bats and NLEB, Duke may request a second modification to the existing Indiana Bat CMOA, FWS 2014-B-0122, signed by USFWS on December 15, 2014 and Duke Energy on January 12, 2015. The original CMOA and CMOA Modification No. 1 permitted Duke to clear 38.53 acres of potential summer forested habitat. Copies of the original CMOA and CMOA Modification No. 1 are attached. Duke may modify the existing CMOA to include additional clearing limits for the ash basin embankment improvements. The total acreage to be added to the existing CMOA is 8.15 acres. This will result in a direct loss of 46.68 acres (38.53 acres in the original CMOA and Modification No. 1, plus 8.15 additional acres for Modification No. 2). Clearing should occur during the timeframe when the Indiana bat and NLEB are not anticipated to be present, between the October 15 and March 31. A map depicting the revised clearing limits of potential summer habitat is attached.

*Applicant information to be included in the modified CMOA:*

Applicant: Duke Energy  
Address: 6293 Beaver Road, Union, Kentucky 41091  
Duke Signatory: Stephen Beard  
Contact: Scott Ross (S&ME, Inc.)  
Email Address: sross@smeinc.com

### **Running Buffalo Clover**

According to the USFWS December 13, 2013 letter to Duke Energy regarding the construction of an adjacent West Landfill, haul road, and pipeline, if the proposed project requires alteration of potential RBC habitat, then an onsite inspection or survey of the area must be conducted to determine if the listed species is present or occurs seasonally. Prior to construction activities, including tree clearing, a survey should be done by



**Threatened and Endangered Species Habitat Survey**  
**East Bend Station Ash Basin**  
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qualified personnel and be conducted during the appropriate time of day and/or year to ensure confidence in survey results. The USFWS requested that the results of any surveys and an analysis of the "effects of the action" on any listed species, including consideration of direct, indirect, and cumulative effects be submitted to their office. Since potential habitat for RBC exists at the ash basin project site, S&ME completed an RBC survey of the site on September 29, 2016; no RBC was identified. The following details the RBC survey methods, findings, and an analysis of the "effects of the action" for the proposed project.

### *RBC Description*

RBC is a perennial forb that grows from four to 20 inches tall and has leaves divided into three leaflets. It sends out long creeping runners from its base which grow along the ground and take root. The species' decline is not entirely known; however, it is believed that the species is dependent upon woodland disturbance by large animals, primarily the bison, or human activities (e.g., mowing). With the loss of bison throughout its range, as well as an increase in competition from introduced species and habitat loss, the species has become rare and endangered.

RBC is usually found in mesic habitats with partial to filtered sunlight and a prolonged pattern of moderate and periodic disturbance, such as grazing, mowing, trampling, or flood-scouring. It prefers areas with limestone or other calcareous bedrock underlying the site and occurs in a variety of habitat types, including mesic woodlands, streambanks, grazed woodlots, mowed paths, old logging roads, trails, mowed wildlife openings within mature forests, savannahs, sandbars, and steep ravines.

### *RBC Reference Population*

Mr. Scott Ross, an S&ME biologist and Ohio USFWS-approved RBC surveyor, conducted a RBC survey at the site on September 29, 2016. The USFWS has recommended during prior RBC coordination that a known population of RBC be visited prior to the survey in order to evaluate the current condition of the plants (e.g., presence/absence of blooms and/or seed heads).

Mr. Ross visited the Shawnee Lookout Park of Hamilton County, located at 2008 Lawrenceburg Road in North Bend, Ohio on September 29, 2016 and identified multiple populations of RBC. Habitat in this park was ideal, consisting of partially-filtered sunlight in disturbed areas adjacent to trails and openings in the forest canopy. The presence of invasive species was minimal and thousands of RBC plants have become well-established at the site. At the time of the site visit, no RBC flowers or mature seed heads were visible. However, the RBC was still visible against the surrounding vegetation, especially with the presence of an opposite pair of leaves on the unbranched flowering stems, and leaves with the three large, round leaflets lacking chevrons. The RBC plants still exhibited the large, fleshy stipule located at the base of the stems along the stolon. The similar-looking white clover (*Trifolium repens*) was observed adjacent to the RBC population, and was easily distinguishable by the chevrons on the leaves, and the lack of a fleshy, green stipule on the stolon.

### *RBC Field Survey*

S&ME performed a pedestrian survey the project site on September 29, 2016. The forested portions (8.15 acres) of the site possessed low to moderate quality potential habitat for RBC. This area is comprised of immature successional forest with a relatively dense woody understory. Conditions in these areas could be conducive to RBC, since there are taller canopy trees that provide partial shade to the understory; however, significant portions of the understory are dominated by invasive species that reduce the potential for RBC. The canopy trees consist of ash-leaf maple, white ash, green ash, common hackberry, white mulberry, black locust, and tree-of-heaven. The woody understory is dominated by amur



**Threatened and Endangered Species Habitat Survey**  
**East Bend Station Ash Basin**  
Boone County, Kentucky  
S&ME Project No. 4117-16-017

honeysuckle (*Lonicera maackii*) with scattered young saplings of the canopy species. The herbaceous species observed in the understory include white snakeroot (*Ageratina altissima*), Chinese bush-clover (*Lespedeza cuneata*), Japanese stilt-grass (*Microstegium vimineum*), Johnson grass (*Sorghum halepense*), and wingstem (*Verbesina alternifolia*). S&ME intensively searched for RBC and any *Trifolium* species within the potential forested habitat areas. No *Trifolium* species were observed during the survey. No populations or individuals of RBC were identified on-site; therefore, we anticipate that the proposed project is not likely to impact the federally-endangered RBC. An exhibit depicting the reference site and project site locations (Figure 4), a T&E Species Habitat Exhibit (Figure 3) illustrating forested survey areas, and representative site photographs are attached.

### *Bald Eagle*

The nesting habitat for bald eagles is generally located near coastlines, rivers, and large lakes where there is adequate food sources. They typically nest in mature or old-growth trees, snags, or cliffs near large water sources. A limited number of mature black locust trees were observed at the project site. These trees are generally confined to the over-story and do not protrude above the canopy as preferred by bald eagles.

No bald eagles or nests were observed at the project site during the September 29, 2016 site visit. Prior to construction, contractors for Duke Energy will be notified of the potential for bald eagle habitat and will be instructed to notify the USFWS if a nest has been recently built in the project area. Therefore, bald eagles are not expected to be affected by the proposed ash basin embankment improvements.

### ❖ **Conclusion**

S&ME performed a pedestrian review of the site on September 29, 2016 to evaluate the potential for impacts to T&E species due to the proposed ash basin embankment improvements. Potential Indiana bat and NLEB roosting and foraging habitat was observed within the proposed project area. Therefore, Duke may request to modify the existing CMOA with USFWS for an additional 8.15 acres of potential summer habitat clearing. S&ME also performed a survey for RBC. Although areas of marginal RBC habitat were observed on the site, no RBC populations or individuals were identified; therefore, no impacts to RBC are anticipated as a result of the proposed project. Additionally, a limited number of mature trees are located at the project site and no bald eagles or nests were observed during the site visit; therefore, no impacts to bald eagles are anticipated.



**Threatened and Endangered Species Habitat Survey**  
**East Bend Station Ash Basin**  
Boone County, Kentucky  
S&ME Project No. 4117-16-017

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S&ME is providing this report for Duke's submittal to the USFWS requesting their concurrence and/or comments regarding the proposed project. If you have any questions regarding this letter please feel free to contact us.

Sincerely,  
S&ME, Inc.

A handwritten signature in cursive script that reads "Scott Ross".

Scott Ross, PWS  
Natural Resources Project Scientist II

Senior Reviewed by: Elizabeth Porter, Vice-President

Attachments: Figure 1: USGS Topographic Site Vicinity Map  
Figure 2: 2014 Aerial Photograph  
Figure 3: T & E Species Review Exhibit  
Figure 4: RBC Reference Site Exhibit  
Figure 5: Limits of Clearing Exhibit  
Site Photographs  
USFWS IPaC, October 17, 2016  
USFWS Indiana Bat CMOA, December 15, 2014  
USFWS Indiana Bat CMOA (Modification No. 1), February 27, 2015



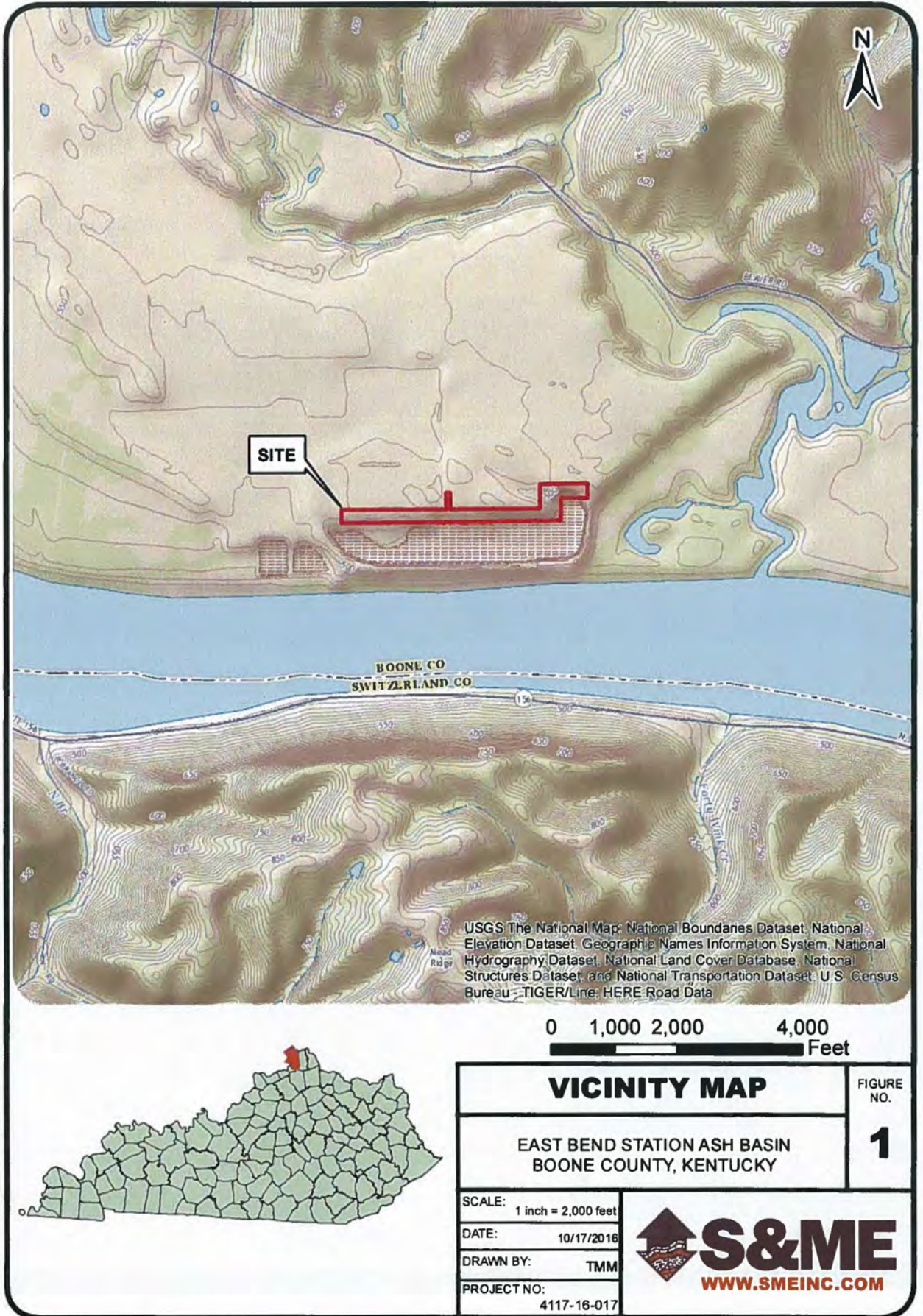


**Threatened and Endangered Species Habitat Survey**  
**East Bend Station Ash Basin**  
Boone County, Kentucky  
S&ME Project No. 4117-16-017

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
## **Attachments**

Document Path: R:\Projects\2016\ENW4117-16-017 East Bend Ash Basin IV\_Map.mxd





 <a href="http://WWW.S&amp;MEINC.COM">WWW.S&amp;MEINC.COM</a>	DATE: 10-14-16 DRAWN BY: TMM CHECKED BY: SCR
	SCALE: 1 inch = 300 feet PROJECT NO: 4117-16-017
<b>2014 AERIAL PHOTOGRAPH</b> EAST BEND STATION ASH BASIN BOONE COUNTY, KENTUCKY	
FIGURE NO <b>2</b>	

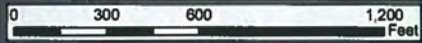
Legend  
 Study Area

**REFERENCE**  
 This map was prepared by S&ME Inc. based on aerial photography and other data provided by the client. S&ME Inc. is not responsible for the accuracy of the information provided by the client. This map is for informational purposes only and should not be used for any other purpose without the express written consent of S&ME Inc.

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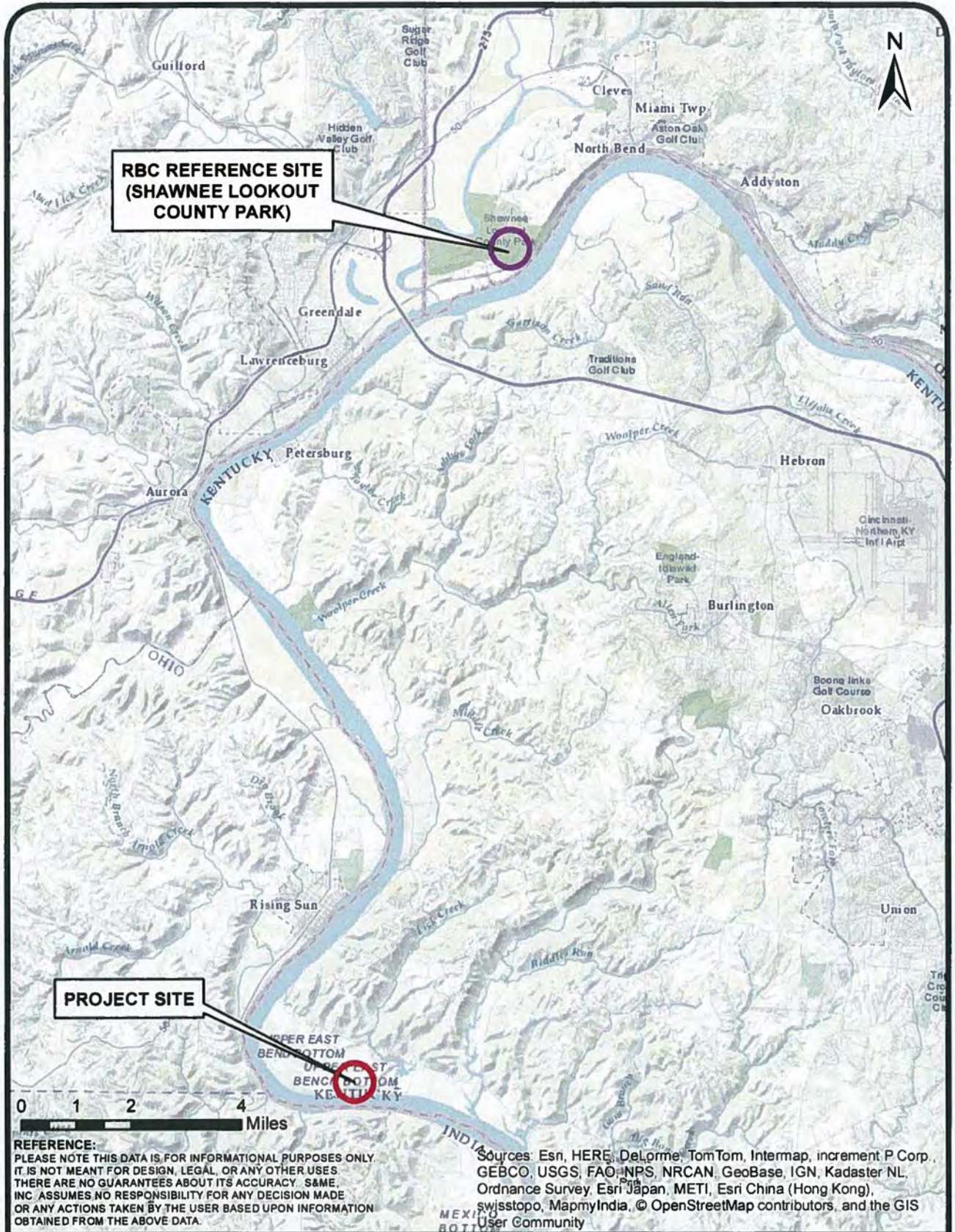
**Legend**  
▭ Study Area  
▨ Potential Summer Forested Bat Habitat (8.15 Acres)  
1 Photograph ID



<b>S&amp;ME</b> www.smeinc.com	DATE: 10-18-16
	DRAWN BY: TMM
PROJECT NO: 4117-16-017	CHECKED BY: SCR
<b>T &amp; E SPECIES HABITAT EXHIBIT</b>	
EAST BEND STATION ASH BASIN BOONE COUNTY, KENTUCKY	
FIGURE NO:	<b>3</b>

**REFERENCE**  
 All data were collected using a Trimble R2 GNSS receiver with a real-time kinematic (RTK) correction service. The data were collected on 10/18/16. The data were processed using the Trimble Business Center software. The data were then imported into ArcGIS Pro and the map was created. The map was printed on 11/18/16.

Project No. 4117-16-017, Exhibit 3, T & E Species Habitat Exhibit, East Bend Station Ash Basin, Boone County, Kentucky. Date: 10/18/16. Scale: 1 inch = 300 feet.



Document Path: R:\Projects\2016\ENV\4117-16-017 East Bend Ash Basin\RBC\_ Exhibit.mxd

**REFERENCE:**  
PLEASE NOTE THIS DATA IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT MEANT FOR DESIGN, LEGAL, OR ANY OTHER USES. THERE ARE NO GUARANTEES ABOUT ITS ACCURACY. S&ME, INC. ASSUMES NO RESPONSIBILITY FOR ANY DECISION MADE OR ANY ACTIONS TAKEN BY THE USER BASED UPON INFORMATION OBTAINED FROM THE ABOVE DATA.

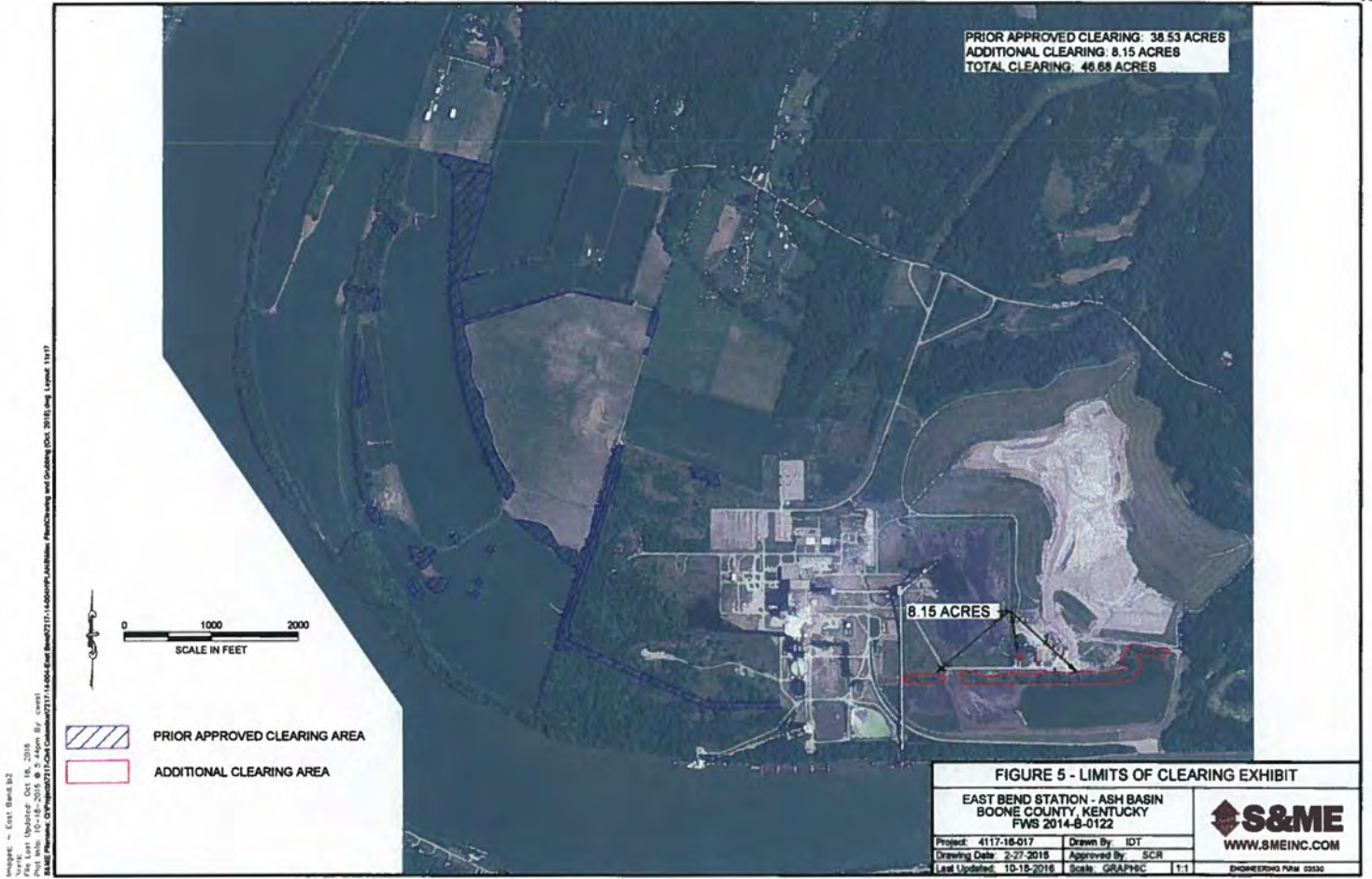
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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**RBC REFERENCE  
SITE EXHIBIT**  
EAST BEND STATION ASH BASIN  
BOONE COUNTY, KENTUCKY

FIGURE NO.  
**4**





1 View of the northeast portion of the site



2 View of the northeast portion of the site



3 Potential summer roosting bat habitat tree



4 View of the central portion of the site



East Bend Station Ash Basin  
Boone County, Kentucky

S&ME Project No. 4117-16-017

Taken by: SR

Date Taken: 29 SEP 2016



5

Typical forested habitat



6

Typical old-field/scrub-shrub habitat



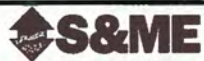
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View of the northwest portion of the site



8

Typical forested habitat



East Bend Station Ash Basin  
Boone County, Kentucky

S&ME Project No. 4117-16-017

Taken by: SR

Date Taken: 29 SEP 2016



**IPaC** Information for Planning and Conservation **U.S. Fish & Wildlife Service**  
**My project** Boone County, Kentucky

This project potentially impacts **33 resources** managed or regulated by the U.S. Fish & Wildlife Service.

## Endangered species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

The list of species below are those that may occur or could potentially be affected by activities in this location:

### Clams

**Clubshell** Pleurobema clava

Endangered (A species in danger of extinction throughout all or a significant portion of its range)

**Fanshell** Cyprogenia stegaria

Endangered (A species in danger of extinction throughout all or a significant portion of its range)

**Orangefoot Pimpleback (pearlymussel)** Plethobasus cooperianus

Endangered (A species in danger of extinction throughout all or a significant portion of its range)

**Pink Mucket (pearlymussel)** Lampsilis abrupta

Endangered (A species in danger of extinction throughout all or a significant portion of its range)

**Ring Pink (mussel)** Obovaria retusa

Endangered (A species in danger of extinction throughout all or a significant portion of its range)

**Rough Pigtoe** Pleurobema plenum

Endangered (A species in danger of extinction throughout all or a significant portion of its range)

**Sheepnose Mussel** Plethobasus cyphus

Endangered (A species in danger of extinction throughout all or a significant portion of its range)

## Flowering Plants

**Running Buffalo Clover** Trifolium stoloniferum

Endangered (A species in danger of extinction throughout all or a significant portion of its range)

## Mammals

**Gray Bat** Myotis grisescens

Endangered (A species in danger of extinction throughout all or a significant portion of its range)

**Indiana Bat** Myotis sodalis

Endangered (A species in danger of extinction throughout all or a significant portion of its range)

**Northern Long-eared Bat** Myotis septentrionalis

CONDITIONAL

Threatened (A species likely to become endangered within the foreseeable future throughout all or a significant portion of its range)

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered

species themselves.

THERE ARE NO CRITICAL HABITATS IN THIS LOCATION

## Migratory birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.<sup>[1]</sup> There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The following species of migratory birds could potentially be affected by activities in this location:

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**Bald Eagle** *Haliaeetus leucocephalus*

Season: Year-round

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**Black-billed Cuckoo** *Coccyzus erythrophthalmus*

Season: Breeding

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**Blue-winged Warbler** *Vermivora pinus*

Season: Breeding

**Cerulean Warbler** *Dendroica cerulea*  
Season: Breeding

**Chuck-will's-widow** *Caprimulgus carolinensis*  
Season: Breeding

**Dickcissel** *Spiza americana*  
Season: Breeding

**Fox Sparrow** *Passerella iliaca*  
Season: Wintering

**Henslow's Sparrow** *Ammodramus henslowii*  
Season: Breeding

**Kentucky Warbler** *Oporornis formosus*  
Season: Breeding

**Least Bittern** *Ixobrychus exilis*  
Season: Breeding

**Loggerhead Shrike** *Lanius ludovicianus*  
Season: Year-round

**Peregrine Falcon** *Falco peregrinus*  
Season: Breeding

**Prairie Warbler** *Dendroica discolor*  
Season: Breeding

**Prothonotary Warbler** *Protonotaria citrea*  
Season: Breeding

**Red-headed Woodpecker** *Melanerpes erythrocephalus*  
Season: Year-round

**Rusty Blackbird** *Euphagus carolinus*  
Season: **Wintering**

**Sedge Wren** *Cistothorus platensis*  
Season: **Migrating**

**Short-eared Owl** *Asio flammeus*  
Season: **Wintering**

**Willow Flycatcher** *Empidonax traillii*  
Season: **Breeding**

**Wood Thrush** *Hylocichla mustelina*  
Season: **Breeding**

**Worm Eating Warbler** *Helminthos vermivorum*  
Season: **Breeding**

## Wildlife refuges and fish hatcheries

THERE ARE NO REFUGES OR FISH HATCHERIES IN THIS LOCATION

# Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location overlaps all or part of the following wetlands:

## Lake

L1UBHx



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Kentucky Ecological Services Field Office  
330 West Broadway, Suite 265  
Frankfort, Kentucky 40601  
(502) 695-0468

December 15, 2014

Mr. Tom Wiest, P. E.  
Duke Energy, East Bend Station  
6293 Beaver Road  
Rabbit Hash, KY 41091

Re: FWS 2014-B-0122; Indiana Bat Conservation MOA Duke Energy in association with the East Bend Station West Landfill project in Boone County, Kentucky

Dear Mr. Wiest:

Please find the attached Indiana Bat Conservation Memorandum of Agreement (MOA) between the Service and Duke Energy accounting for adverse effects to the Indiana bat in association with the subject project. Please review for any questions or changes. If you do not have any, please have the responsible party sign, date, and return to our office via fax, email, or mail.

Execution of the attached MOA and the Indiana Bat Conservation Fund (IBCF) contribution that it requires will allow Duke Energy to be in compliance with the Endangered Species Act relative to the Indiana bat for the proposed project. If necessary to fulfill requirements of the U.S. Army Corps of Engineers and/or other federal nexus agencies obligations per section 7 of the ESA, please provide them with a copy of this letter, fully executed Conservation MOA, and proof of payment for their records.

In order to complete payment per the Conservation MOA (Section 6.4 of the MOA) please:

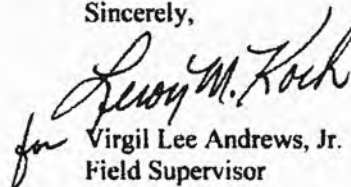
- 1) Make check or money order payable to **Kentucky Natural Lands Trust**,
- 2) Reference **Duke Energy; 2014-B-0122 IBCF** in the memo line,
- 3) Remit payment to: **Kentucky Natural Lands Trust  
c/o Hugh Archer, Executive Director  
433 Chestnut Street  
Berea, Kentucky 40403**
- 4) Provide proof of payment (copy of the check or receipt) to our office via fax, email, or mail.

The potential for affects to other federally listed species as addressed in an October 15, 2014 letter from the Service to S&ME, Inc.

In view of these findings, upon execution of the attached Conservation MOA, we believe that your obligations under the Endangered Species Act will be fulfilled for this project. These obligations may change, however, if: (1) new information reveals that the proposed action may affect listed species in a manner or to an extent not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated.

If you have any questions regarding the information that we have provided, please contact Jessi Miller of my office at (502) 695-0468 extension 104.

Sincerely,

for Virgil Lee Andrews, Jr.  
Field Supervisor



**INDIANA BAT CONSERVATION  
MEMORANDUM OF AGREEMENT  
BETWEEN THE  
U.S. FISH AND WILDLIFE SERVICE  
AND  
DUKE ENERGY**

This Memorandum of Agreement (MOA) is entered into by the United States Department of the Interior, U.S. Fish and Wildlife Service (Service) and Duke Energy to promote the survival and recovery of the Indiana bat (*Myotis sodalis*), a federally listed endangered species. Together, the Service and Duke Energy are referred to as "Cooperators."

**Section 1: PURPOSE AND OBJECTIVES**

The Indiana bat is a federally listed endangered species native to a large portion of the eastern United States and the Commonwealth of Kentucky. This MOA will implement recovery-focused conservation measures that will be undertaken by the Cooperators and afford a measurable conservation benefit for the Indiana bat as set forth in the Service's Indiana Bat Mitigation Guidance as modified January 3, 2011 and hereby incorporated by reference. These measures will be implemented in association with the proposed project as detailed in section 4 of this MOA. All measures will be implemented according to the terms of this MOA. The Cooperators understand and intend that the benefits resulting from this MOA may also provide conservation benefits for other federal protected species and native fish and wildlife.

**Section 2: AUTHORITY**

This MOA is hereby entered into under the authorities of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) (ESA), Fish and Wildlife Act of 1956 (16 U.S.C. 742a. *et seq.*), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*). Section 5 of the ESA provides that, "The Secretary...shall establish and implement a program to conserve fish, wildlife, and plants, including those which are listed as endangered species or threatened species..." and "shall utilize land acquisition and other authority under the Fish and Wildlife Act, as amended, and the Migratory Bird Conservation Act, as appropriate". Section 7(a) (1) of the ESA further directs Federal agencies to "utilize their authorities in furtherance of the purposes of this Act [ESA] by carrying out programs for the conservation of endangered species and threatened species." The Fish and Wildlife Act of 1956 provides that the Secretary shall "...take such steps as may be required for the development, advancement, management, conservation, and protection of fish and wildlife resources..." Finally, the Fish and Wildlife Coordination Act states that the Secretary is authorized "to provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat..."

The authorization for any incidental take of the Indiana bat, as defined in section 9 of the ESA, and resulting from impacts that may be associated with the qualified project(s),

as defined in section 4 of this MOA, is provided through the Service's incidental take statement and January 3, 2011 intra-Service biological opinion, which is incorporated herein by this reference. This biological opinion covers the Service's development of conservation agreements for the Indiana bat, which includes this MOA, that are based on implementation of the Indiana Bat Mitigation Guidance and provides incidental take of Indiana bats in the form of up to 2,500 acres of forested Indiana bat habitat per year through 2016.

### Section 3: STATEMENT OF MUTUAL INTEREST

The mission of the Service is to work with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. The Service's major responsibilities are for endangered species, threatened species, migratory birds, marine mammals, and freshwater and anadromous fish. The Service recognizes the ability and interest of Duke Energy to contribute to the conservation and recovery of the Indiana bat, and recognizes Duke Energy as a partner in the recovery and habitat conservation of the species. Duke Energy recognizes the Service's mission and its interest in developing partnerships to protect, restore, and manage important habitats on private and public lands for federal listed species. The Cooperators understand the collaboration for this MOA is voluntary.

### Section 4: PROJECT DESCRIPTION

The proposed project consists of constructing a new landfill, haul road, and sediment pond pipeline with associated service road at the East Bend Station facility in Boone County, Kentucky. The following information was derived and calculated from the project proponent's agent, S&ME, Inc.'s, December 10 and 12, 2014 correspondence and attachments.

The proposed project would result in the direct loss of 33.35 acres of forested habitat from one (1) Indiana bat habitat type as depicted in Table 1 below.

**Table 1**

<b>Habitat Type</b>	<b>Forested Acreage Removed</b>
Potential Summer Habitat	33.35 acres

These Indiana bat habitat impacts are the impacts that are covered by this agreement and that were analyzed by the Service to assess the direct, indirect, and cumulative effects of the proposed project on Indiana bats.

### Section 5: EFFECTIVE DATE AND TERMS OF AGREEMENT

This MOA is valid for Duke Energy's consideration for 90 days from the date of the Service's signature below, shall be deemed effective on the last date signed below, and shall remain in effect until all terms of the agreement have been fulfilled, except as modified in Section 8 hereof.

Duke Energy has determined that the removal of all Indiana bat habitat will occur during the timeframe when the Indiana bat is not anticipated to be present (i.e., unoccupied),

which is between the dates of **October 15 – March 31**. This specific minimization measure avoids direct effects on summer roosting Indiana bats and is intended to further minimize the effect of take on Indiana bats. The Indiana Bat Conservation Fund contribution amount (identified in section 6.4 of the MOA) is based on the assumption that all tree removal associated with the project will be conducted during the unoccupied timeframe. If tree clearing must occur during the occupied timeframe (April 1 – October 14), then Duke Energy must notify the Service in advance of tree clearing during the occupied timeframe and the MOA must be amended to appropriately account for the types of adverse effects to Indiana bats that would occur as a result of tree clearing during the occupied timeframe. In addition, if additional forested areas not considered in Section 4 of this agreement are to be removed, then Duke Energy must coordinate with the Service to determine if additional modification of this agreement is necessary, and, if found necessary, Duke Energy will seek such modification.

#### **Section 6: SPECIFIC OBLIGATIONS OF THE COOPERATORS**

Duke Energy and the Service agree to fulfill the following conditions to minimize the potential level of take of the Indiana bat, compensate for adverse effects on the Indiana bat that may result from construction of the project, and promote future conservation and recovery of the Indiana bat:

6.1 The Service will take the necessary steps to ensure that the project covered under this MOA meets federal requirements for compliance with the National Environmental Policy Act (NEPA) and ESA. If Duke Energy has NEPA requirements beyond the scope of this MOA, Duke Energy or other Federal action agency are responsible for those additional requirements.

With regard to the ESA, the Biological Opinion authorizes incidental take of Indiana bats associated with forested habitat removal. As such, paragraphs 6.3 and 6.4 are incorporated to ensure compliance with the Reasonable and Prudent Measures and Terms and Conditions of the biological opinion. Duke Energy acknowledges that any divergence from these measures and conditions may result in a violation of Section 9 of the ESA.

6.2 Duke Energy will take the necessary steps to ensure that the project covered under this MOA meets federal requirements for compliance with the National Historic Preservation Act (NHPA).

6.3 The project proposed by Duke Energy, as described in Section 4, will result in the incidental take of Indiana bats in the form of habitat loss totaling not more than 33.35 acres of potential Indiana bat summer habitat. Duke Energy may remove this habitat during the unoccupied time from (October 15 - March 31). As stated in Section 5, if tree clearing is necessary during the occupied timeframe, Duke Energy must notify the Service so that the MOA and Indiana Bat Conservation Fund contribution amount can be amended accordingly. Forested habitat associated with the proposed project, but not considered in this MOA, shall not be removed without further coordination.

6.4 Duke Energy shall contribute \$52,526.25 to the Indiana Bat Conservation Fund (IBCF) administered by the Kentucky Natural Lands Trust (KNLT). This

contribution is based on 33.35 acres of potential Indiana bat summer habitat using the process identified in the Indiana Bat Mitigation Guidance. Funds shall be provided to KNLT within thirty (30) days of the last signature to this MOA. Duke Energy shall provide the Service with a copy of the check or transaction receipt within seven (7) business days of payment that shows the date and amount of the deposit.

In summary, this MOA provides recovery based conservation benefits for the Indiana bat in form of contributions to the IBCF which, in turn, will fund Indiana bat habitat protection, conservation, restoration and/or priority monitoring and research projects for the Indiana bat.

#### Section 7: COOPERATION

Both the Service and Duke Energy acknowledge that it is their desire to facilitate the processes set forth in this MOA by open communication and cooperation. Both parties agree to exercise their rights and obligations under this MOA in good faith. If at any time Duke Energy has questions regarding this MOA or the Guidance, the Service agrees to make itself available for consultation in a timely fashion.

#### Section 8: MODIFICATION OR TERMINATION

Modifications to this MOA may be proposed by either party in writing and will become effective upon being reduced to a written instrument and being signed by duly authorized representatives of the Cooperators.

Duke Energy or the Service may terminate this MOA at any time within or prior to thirty (30) days of the last signature to this MOA upon written notification from the other signatory party. Failure to fulfill the provisions, as specified, within paragraph 6.4 will result in automatic termination of this MOA.

#### Section 9: OTHER PROVISIONS

9.1 The Cooperators hereto agree that they shall be liable for the negligent or wrongful acts or omissions of their employees, agents, and assigns only to the extent liable under applicable law. Nothing in this MOA shall be interpreted or construed as constituting a waiver by any party of sovereign immunity or statutory limitation on liability.

9.2 Each provision of this MOA shall be interpreted in such a manner as to be effective and valid under applicable law, but if any provision of the MOA shall be prohibited or invalid under application law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this MOA.

9.3 No provision of this MOA shall be interpreted as or constitute a commitment or requirement that either party take actions in contravention of applicable laws, either substantive or procedural.

9.4 Nothing in the MOA shall be interpreted as or constitute a commitment or requirement that the Service obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. §1341, or any other law or regulation.

9.5 Third Parties Not to Benefit: This MOA does not grant rights or benefits of any nature to any party not named or identified in this MOA.

9.6 Merger: This MOA contains the sole and entire MOA of the parties. No oral representations of any nature form the basis of or may amend this MOA. This MOA may be extended, renewed, or amended only when agreed to in writing by the parties.

9.7 Waiver: Failure to enforce any provision of this agreement by either party shall not constitute waiver of that provision, nor a waiver of a claim for subsequent breach of the same type, nor a waiver of any other term of this agreement. The waiver of any provision must be express and evidenced in writing.

9.8 Assignment: No part of this agreement shall be assigned to any other party.

**Section 10: NOTICES AND AUTHORIZED REPRESENTATIVES**

Notices shall be made in writing to the persons at the addresses listed below and may be given by personal delivery, mail or by telecopy (FAX) to the duly authorized representatives listed below. If there are changes in a party's representative, each party shall notify the other party, in writing, within thirty (30) days of the change in their representative.

U.S. Fish and Wildlife Service  
Virgil Lee Andrews, Jr.  
Field Office Supervisor  
330 West Broadway, Room 265  
Frankfort, Kentucky 40601  
502/695-0468 (telephone)  
502/695-1024 (fax)

Duke Energy, East Bend Station  
Attn: Mr. **GARY COOK**  
6293 Beaver Road  
Rabbit Hash, Kentucky  
contact: Sarah Rowe  
S&ME, Inc.  
srowe@smeinc.com

Each party hereby indicates its acceptance of the terms of the MOA as outlined herein by its signature below. The parties hereto have executed this MOA as of the last written date below:

U.S. DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE

BY: *Virgil Lee Andrews, Jr.*  
for  
TITLE: Field Supervisor

DATE: Dec 15, 2014

DUKE ENERGY

BY: *Gary Cook*  
TITLE: STATION MANAGER

DATE: JAN 12, 2015



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Kentucky Ecological Services Field Office  
330 West Broadway, Suite 265  
Frankfort, Kentucky 40601  
(502) 695-0468

February 27, 2015

Mr. Gary Cook  
Duke Energy, East Bend Station  
6293 Beaver Road  
Rabbit Hash, KY 41091

Re: FWS 2014-B-0122; Indiana Bat Conservation MOA; Duke Energy; East Bend Station  
West Landfill project, project modification; Boone County, Kentucky

Dear Mr. Cook:

Please find the attached Indiana Bat Conservation Memorandum of Agreement (MOA) between the Service and Duke Energy accounting for adverse effects to the Indiana bat in association with the subject project. Please review for any questions or changes. If you do not have any, please have the responsible party sign, date, and return to our office via fax, email, or mail.

Execution of the attached MOA and the Indiana Bat Conservation Fund (IBCF) contribution that it requires will allow Duke Energy to be in compliance with the Endangered Species Act relative to the Indiana bat for the proposed project. If necessary to fulfill requirements of the U.S. Army Corps of Engineers and/or other federal nexus agencies obligations per section 7 of the ESA, please provide them with a copy of this letter, fully executed Conservation MOA, and proof of payment for their records.

In order to complete payment per the Conservation MOA (Section 6.4 of the MOA) please:

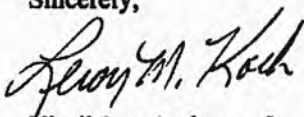
- 1) Make check or money order payable to **Kentucky Natural Lands Trust**,
- 2) Reference **Duke Energy; 2014-B-0122 IBCF** in the memo line,
- 3) Remit payment to:  
**Kentucky Natural Lands Trust**  
**c/o Hugh Archer, Executive Director**  
**433 Chestnut Street**  
**Berea, Kentucky 40403**
- 4) Provide proof of payment (copy of the check or receipt) to our office via fax, email, or mail.

The potential for affects to other federally listed species as addressed in an October 15, 2014 letter from the Service to S&ME, Inc.

In view of these findings, upon execution of the attached Conservation MOA, we believe that your obligations under the Endangered Species Act will be fulfilled for this project. These obligations may change, however, if: (1) new information reveals that the proposed action may affect listed species in a manner or to an extent not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated.

If you have any questions regarding the information that we have provided, please contact Jessi Miller of my office at (502) 695-0468 extension 104.

Sincerely,

  
for Virgil Lee Andrews, Jr.  
Field Supervisor

**INDIANA BAT CONSERVATION  
MEMORANDUM OF AGREEMENT  
BETWEEN THE  
U.S. FISH AND WILDLIFE SERVICE  
AND  
DUKE ENERGY**

This Memorandum of Agreement (MOA) is entered into by the United States Department of the Interior, U.S. Fish and Wildlife Service (Service) and Duke Energy to promote the survival and recovery of the Indiana bat (*Myotis sodalis*), a federally listed endangered species. Together, the Service and Duke Energy are referred to as "Cooperators."

**Section 1: PURPOSE AND OBJECTIVES**

The Indiana bat is a federally listed endangered species native to a large portion of the eastern United States and the Commonwealth of Kentucky. This MOA will implement recovery-focused conservation measures that will be undertaken by the Cooperators and afford a measurable conservation benefit for the Indiana bat as set forth in the Service's Indiana Bat Mitigation Guidance as modified January 3, 2011 and hereby incorporated by reference. These measures will be implemented in association with the proposed project as detailed in section 4 of this MOA. All measures will be implemented according to the terms of this MOA. The Cooperators understand and intend that the benefits resulting from this MOA may also provide conservation benefits for other federal protected species and native fish and wildlife.

**Section 2: AUTHORITY**

This MOA is hereby entered into under the authorities of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) (ESA), Fish and Wildlife Act of 1956 (16 U.S.C. 742a. *et seq.*), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*). Section 5 of the ESA provides that, "The Secretary...shall establish and implement a program to conserve fish, wildlife, and plants, including those which are listed as endangered species or threatened species..." and "shall utilize land acquisition and other authority under the Fish and Wildlife Act, as amended, and the Migratory Bird Conservation Act, as appropriate". Section 7(a) (1) of the ESA further directs Federal agencies to "utilize their authorities in furtherance of the purposes of this Act [ESA] by carrying out programs for the conservation of endangered species and threatened species." The Fish and Wildlife Act of 1956 provides that the Secretary shall "...take such steps as may be required for the development, advancement, management, conservation, and protection of fish and wildlife resources...." Finally, the Fish and Wildlife Coordination Act states that the Secretary is authorized "to provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat..."

The authorization for any incidental take of the Indiana bat, as defined in section 9 of the ESA, and resulting from impacts that may be associated with the qualified project(s),



as defined in section 4 of this MOA, is provided through the Service's incidental take statement and January 3, 2011 intra-Service biological opinion, which is incorporated herein by this reference. This biological opinion covers the Service's development of conservation agreements for the Indiana bat, which includes this MOA, that are based on implementation of the Indiana Bat Mitigation Guidance and provides incidental take of Indiana bats in the form of up to 2,500 acres of forested Indiana bat habitat per year through 2016.

### Section 3: STATEMENT OF MUTUAL INTEREST

The mission of the Service is to work with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. The Service's major responsibilities are for endangered species, threatened species, migratory birds, marine mammals, and freshwater and anadromous fish. The Service recognizes the ability and interest of Duke Energy to contribute to the conservation and recovery of the Indiana bat, and recognizes Duke Energy as a partner in the recovery and habitat conservation of the species. Duke Energy recognizes the Service's mission and its interest in developing partnerships to protect, restore, and manage important habitats on private and public lands for federal listed species. The Cooperators understand the collaboration for this MOA is voluntary.

### Section 4: PROJECT DESCRIPTION

The proposed project consists of constructing a new landfill, haul road, and sediment pond pipeline with associated service road at the East Bend Station facility in Boone County, Kentucky. On January 22, 2015, Duke Energy completed an MOA to remove 33.35 acres for this project. This MOA document is for a project modification resulting in additional acreage not covered in the previous MOA. The following information was derived and calculated from the project proponent's agent, S&ME, Inc.'s, February 27, 2015 email and attachments.

The proposed project would result in the direct loss of 5.18 acres of forested habitat from one (1) Indiana bat habitat type as depicted in Table 1 below.

**Table 1**

<b>Habitat Type</b>	<b>Forested Acreage Removed</b>
Potential Summer Habitat	5.18 acres

These Indiana bat habitat impacts are the impacts that are covered by this agreement and that were analyzed by the Service to assess the direct, indirect, and cumulative effects of the proposed project on Indiana bats.

### Section 5: EFFECTIVE DATE AND TERMS OF AGREEMENT

This MOA is valid for Duke Energy's consideration for 90 days from the date of the Service's signature below, shall be deemed effective on the last date signed below, and shall remain in effect until all terms of the agreement have been fulfilled, except as modified in Section 8 hereof.

Duke Energy has determined that the removal of all Indiana bat habitat will occur during the timeframe when the Indiana bat is not anticipated to be present (i.e., unoccupied), which is between the dates of **October 15 – March 31**. This specific minimization measure avoids direct effects on summer roosting Indiana bats and is intended to further minimize the effect of take on Indiana bats. The Indiana Bat Conservation Fund contribution amount (identified in section 6.4 of the MOA) is based on the assumption that all tree removal associated with the project will be conducted during the unoccupied timeframe. If tree clearing must occur during the occupied timeframe (April 1 – October 14), then Duke Energy must notify the Service in advance of tree clearing during the occupied timeframe and the MOA must be amended to appropriately account for the types of adverse effects to Indiana bats that would occur as a result of tree clearing during the occupied timeframe. In addition, if additional forested areas not considered in Section 4 of this agreement are to be removed, then Duke Energy must coordinate with the Service to determine if additional modification of this agreement is necessary, and, if found necessary, Duke Energy will seek such modification.

#### **Section 6: SPECIFIC OBLIGATIONS OF THE COOPERATORS**

Duke Energy and the Service agree to fulfill the following conditions to minimize the potential level of take of the Indiana bat, compensate for adverse effects on the Indiana bat that may result from construction of the project, and promote future conservation and recovery of the Indiana bat:

6.1 The Service will take the necessary steps to ensure that the project covered under this MOA meets federal requirements for compliance with the National Environmental Policy Act (NEPA) and ESA. If Duke Energy has NEPA requirements beyond the scope of this MOA, Duke Energy or other Federal action agency are responsible for those additional requirements.

With regard to the ESA, the Biological Opinion authorizes incidental take of Indiana bats associated with forested habitat removal. As such, paragraphs 6.3 and 6.4 are incorporated to ensure compliance with the Reasonable and Prudent Measures and Terms and Conditions of the biological opinion. Duke Energy acknowledges that any divergence from these measures and conditions may result in a violation of Section 9 of the ESA.

6.2 Duke Energy will take the necessary steps to ensure that the project covered under this MOA meets federal requirements for compliance with the National Historic Preservation Act (NHPA).

6.3 The project proposed by Duke Energy, as described in Section 4, will result in the incidental take of Indiana bats in the form of habitat loss totaling not more than 5.18 acres of potential Indiana bat summer habitat. Duke Energy may remove this habitat during the unoccupied time from (October 15 - March 31). As stated in Section 5, if tree clearing is necessary during the occupied timeframe, Duke Energy must notify the Service so that the MOA and Indiana Bat Conservation Fund contribution amount can be amended accordingly. Forested habitat associated with the proposed project, but not considered in this MOA, shall not be removed without further coordination.

6.4 Duke Energy shall contribute \$8,158.50 to the Indiana Bat Conservation Fund (IBCF) administered by the Kentucky Natural Lands Trust (KNLT). This contribution is based on 5.18 acres of potential Indiana bat summer habitat using the process identified in the Indiana Bat Mitigation Guidance. Funds shall be provided to KNLT within thirty (30) days of the last signature to this MOA. Duke Energy shall provide the Service with a copy of the check or transaction receipt within seven (7) business days of payment that shows the date and amount of the deposit.

In summary, this MOA provides recovery based conservation benefits for the Indiana bat in form of contributions to the IBCF which, in turn, will fund Indiana bat habitat protection, conservation, restoration and/or priority monitoring and research projects for the Indiana bat.

#### **Section 7: COOPERATION**

Both the Service and Duke Energy acknowledge that it is their desire to facilitate the processes set forth in this MOA by open communication and cooperation. Both parties agree to exercise their rights and obligations under this MOA in good faith. If at any time Duke Energy has questions regarding this MOA or the Guidance, the Service agrees to make itself available for consultation in a timely fashion.

#### **Section 8: MODIFICATION OR TERMINATION**

Modifications to this MOA may be proposed by either party in writing and will become effective upon being reduced to a written instrument and being signed by duly authorized representatives of the Cooperators.

Duke Energy or the Service may terminate this MOA at any time within or prior to thirty (30) days of the last signature to this MOA upon written notification from the other signatory party. Failure to fulfill the provisions, as specified, within paragraph 6.4 will result in automatic termination of this MOA.

#### **Section 9: OTHER PROVISIONS**

9.1 The Cooperators hereto agree that they shall be liable for the negligent or wrongful acts or omissions of their employees, agents, and assigns only to the extent liable under applicable law. Nothing in this MOA shall be interpreted or construed as constituting a waiver by any party of sovereign immunity or statutory limitation on liability.

9.2 Each provision of this MOA shall be interpreted in such a manner as to be effective and valid under applicable law, but if any provision of the MOA shall be prohibited or invalid under application law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this MOA.

9.3 No provision of this MOA shall be interpreted as or constitute a commitment or requirement that either party take actions in contravention of applicable laws, either substantive or procedural.

9.4 Nothing in the MOA shall be interpreted as or constitute a commitment or requirement that the Service obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. §1341, or any other law or regulation.

9.5 Third Parties Not to Benefit: This MOA does not grant rights or benefits of any nature to any party not named or identified in this MOA.

9.6 Merger: This MOA contains the sole and entire MOA of the parties. No oral representations of any nature form the basis of or may amend this MOA. This MOA may be extended, renewed, or amended only when agreed to in writing by the parties.

9.7 Waiver: Failure to enforce any provision of this agreement by either party shall not constitute waiver of that provision, nor a waiver of a claim for subsequent breach of the same type, nor a waiver of any other term of this agreement. The waiver of any provision must be express and evidenced in writing.

9.8 Assignment: No part of this agreement shall be assigned to any other party.

**Section 10: NOTICES AND AUTHORIZED REPRESENTATIVES**

Notices shall be made in writing to the persons at the addresses listed below and may be given by personal delivery, mail or by telecopy (FAX) to the duly authorized representatives listed below. If there are changes in a party's representative, each party shall notify the other party, in writing, within thirty (30) days of the change in their representative.

U.S. Fish and Wildlife Service  
Virgil Lee Andrews, Jr.  
Field Office Supervisor  
330 West Broadway, Room 265  
Frankfort, Kentucky 40601  
502/695-0468 (telephone)  
502/695-1024 (fax)

Duke Energy, East Bend Station  
Attn: Mr. Gary Cook  
6293 Beaver Road  
Rabbit Hash, Kentucky  
contact: Sarah Rowe  
S&ME, Inc.  
srowe@smeinc.com

Each party hereby indicates its acceptance of the terms of the MOA as outlined herein by its signature below. The parties hereto have executed this MOA as of the last written date below:

U.S. DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE

DUKE ENERGY

BY: *Virgil Lee Andrews, Jr.*

BY: *Gary Cook*

TITLE: Field Supervisor

TITLE: STATION MANAGER

DATE: Feb 27, 2015

DATE: 3/4/15



MATTHEW G. BEVIN  
GOVERNOR

CHARLES G. SNAVELY  
SECRETARY

**ENERGY AND ENVIRONMENT CABINET  
DEPARTMENT FOR ENVIRONMENTAL PROTECTION**

300 SOWER BOULEVARD  
FRANKFORT, KENTUCKY 40601  
TELEPHONE: 502-564-2150  
TELEFAX: 502-564-4245

October 17, 2016

Gary Cook  
Duke Energy  
139 E Fourth St  
Cincinnati, OH 45202

Re: Ash Removal, Lining and  
Repurposing of Ash Settling Pond  
East Bend Station  
KPDES No.: KY0040444  
AI No.: 176  
Boone County, Kentucky

Dear Mr. Cook,

The Division of Water reviewed Duke Energy's request for concurrence that temporary redirection of water that flows to the existing ash settling pond can occur and remain consistent with the site's current KPDES permit. The request stated that redirection of the water is necessary so that Duke Energy can remove ash, line, and repurpose the pond in phases. Duke Energy plans to dewater the ash settling pond at East Bend through existing Outfall 001 while the cleaning, lining and repurposing activities occur. The current KPDES permit for East Bend does not expire until October 31, 2019. Until the current KPDES individual permit can be modified, The Division of Water believes these activities are best addressed using a combination of the facility's BMP plan and the conditions listed below.

The Division of Water acknowledges the September 6, 2016 request letter, and approves the ash pond dewatering activities provided that the dewatering activities meet the limitations listed for Outfall 001 in the current KPDES permit and the following additional conditions:

1. Duke Energy shall follow the additional effluent testing outlined in the following table. Samples for Whole Effluent Toxicity must be representative of the effluent during the dewatering period and reported in the facility's DMRs. Laboratory Sheets for the additional testing outlined below shall be submitted in NetDMR.

EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
Effluent Characteristic	Units	Concentrations		Frequency	Sample Type
		Monthly Average	Daily Maximum		
Antimony, Total Recoverable	mg/l	15.16	Report	2/Month	Grab
Arsenic, Total Recoverable	mg/l	0.340	0.340	2/Month	Grab
Beryllium, Total Recoverable	mg/l	10.83	Report	2/Month	Grab

EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
Effluent Characteristic	Units	Concentrations		Frequency	Sample Type
		Monthly Average	Daily Maximum		
Cadmium, Total Recoverable	mg/l	0.00873	0.00873	2/Month	Grab
Chromium, Total Recoverable	mg/l	270.76	Report	2/Month	Grab
Copper, Total Recoverable	mg/l	0.05168	0.05168	2/Month	Grab
Lead, Total Recoverable	mg/l	0.47682	0.47682	2/Month	Grab
Mercury, Total Recoverable	µg/l	0.051	1.4	2/Month	Grab
Nickel, Total Recoverable	mg/l	1.5159	1.5159	2/Month	Grab
Selenium, Total Recoverable	mg/l	0.020	0.020	2/Month	Grab
Silver, Total Recoverable	mg/l	Report	0.04107	2/Month	Grab
Thallium, Total Recoverable	mg/l	0.6498	Report	2/Month	Grab
Zinc, Total Recoverable	mg/l	0.38783	0.38783	2/Month	Grab
Acute WET	TU <sub>A</sub>	N/A	1.00	1/Month	( <sup>1</sup> )
Nitrite/Nitrate	mg/l	Report	Report	1/Month	Grab
Total Kjeldahl Nitrogen	mg/l	Report	Report	1/Month	Grab
Total Dissolved Solids	mg/l	Report	Report	1/Month	Grab
Chloride	mg/l	Report	Report	1/Month	Grab
Bromide	mg/l	Report	Report	1/Month	Grab
Fluoride	mg/l	Report	Report	1/Month	Grab
Sulfate	mg/l	Report	Report	1/Month	Grab

<sup>1</sup>Two (2) discreet grab samples shall be collected 12 hours apart.

2. All activities related to repurposing the ash pond shall be addressed in the facility's Best Management Practices (BMP) Plan, in accordance with Section 3 of the KPDES permit.
3. All samples shall continue to be reported in accordance with the facility's current KPDES permit. Also, the permittee shall keep documentation onsite of all exceedances of the concentrations listed in the table above. Documentation of these exceedances shall be kept onsite until the effective date of the modified KPDES permit. Once an exceedance is known to the permittee, the permittee shall reevaluate their practices and controls and update the BMP plan accordingly.
4. Duke Energy shall notify the Division of Water's Florence Regional Office at (859) 525-4923 once dewatering of the ash pond commences.
5. In case of emergency, Duke Energy shall notify the Department for Environmental Protection via the cabinet's twenty-four (24) hour environmental response line at (800) 928-2380.
6. This temporary discharge permit shall expire 90 days from the date of this letter, unless the permittee requests an extension and the extension is approved by the Division of Water.
7. This temporary discharge permit will be terminated upon issuance of the modified KPDES permit for Duke Energy East Bend Station.

It may be necessary to use polymers for additional treatment during the flow redirection and pond construction at East Bend. At this time, Duke Energy did not provide the specific polymer or anticipated

AI No.: 176

KPDES No.: KY0040444

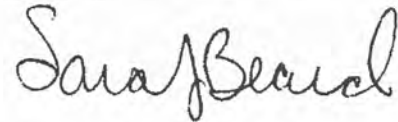
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dosage rates to the Division of Water. The Division of Water concurs that Duke Energy shall seek approval for the use of polymers prior to their use.

Flow from the future on-site landfill, West Landfill, is briefly discussed in the request letter. The Division of Water concurs that the addition of the West Landfill Sedimentation Pond discharge to Outfall 001 is not approved by this letter and will need to be addressed by a modification of KPDES permit KY0040444.

If you have any questions regarding this letter, please contact Cassie Campbell by phone at (502) 782-6909 or by e-mail at [Cassie.Campbell@ky.gov](mailto:Cassie.Campbell@ky.gov).

Sincerely,

A handwritten signature in cursive script, appearing to read "Sara Beuch".

cc: Tempo  
Rhonda Herzog, Duke Energy



**Kentucky Energy and Environment Cabinet  
Department for Environmental Protection  
Division of Waste Management**

**PERMIT**

**Facility: Duke Energy East Bend Station Special Waste Disposal Facility  
6293 Beaver Rd  
Union, KY 41091**

**Permittee: Duke Energy  
139 E 4th St  
Cincinnati, OH 45202**

**Agency Interest: Duke Energy KY East Bend  
6293 Beaver Rd  
Union, KY 41091**

The Division has issued the permit under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. This permitted activity or activities are subject to all conditions and operating limitations contained herein. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses or approvals required by this Division or other state and local agencies.

No deviation from the plans and specifications submitted with your application or any condition specified herein is allowed, unless authorized in writing from the Division. Violation of the terms and conditions specified herein may render this permit null and void. All rights of inspection by representatives of the Division are reserved. Conformance with all applicable Waste Management Regulations is the responsibility of the permittee.

**Agency Interest ID #: 176**

**Solid Waste Permit #: SW00800006**

**County: Boone**

**Permitted Activities:**

Subject Item	Activity	Type	Status
ACTV004	Special Waste Landfill-Coal/00800006	Construction/Operation	Active
ACTV006	Special Waste Landfill-Coal/00800006	Construction	Under construction
ACTV008	Coal Combustion Residuals Surface Impoundment/00800006	Registered Permit-by-Rule	Active



Permit Number: SW00800006

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Acreage Summary:

Waste Disposal Area (in Acres):

Activity	Disposal Area
Coal Combustion Residuals Surface Impoundment	53.40
Special Waste Landfill-Coal	162.00
Special Waste Landfill-Coal	203.70
<b>Total Disposal Area</b>	<b>419.10</b>
<b>Total Permitted Area</b>	<b>470.40</b>

Cost Estimate Summary:

Coverage Type	Cost Estimate	Effective	Comments
Closure	\$2,088,311.00	08/18/2016	Additional information can be found under Facility Information and/or Conditions
Post-Closure	\$579,317.00	08/18/2016	Additional information can be found under Facility Information and/or Conditions

Financial Assurance Summary:

The owner or operator shall maintain the following financial assurance approved by the Division in compliance with KRS Chapter 224.40-650, KRS Chapter 224.50-862, 401 KAR 45:080, and 401 KAR 48:310:

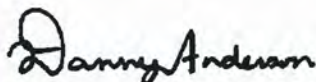
Instrument Type	Instrument Number	Amount	Date Received	Comments
Surety Bond	B8087915	\$10,000.00	05/17/1984	
Corporate Financial Test	0	\$2,674,150.00	12/18/2015	

First Operational Permit Effective Date: 07/16/1982 -- ACTV0004, Inert Landfill Activity

Permit Effective Date: 07/16/1992

Permit Expiration Date: Life of Facility

Permit issued: 10/27/2016



Danny Anderson, P.E.  
Manager, Solid Waste Branch

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**Permit Conditions:**

**Facility Information and/or Conditions**

The closure cost estimate for ACTV0004 (East Landfill) is \$2,088,311.00 and the post-closure estimate is \$579,317.00. This estimate was approved on August 18, 2016 under APE20160004.

The closure cost estimate for ACTV0006 (West Landfill) is \$3,808,379.00 and the post-closure estimate is \$575,516.00. This estimate was approved under APE20070004 and updated under APE20160004. Financial Assurance shall be provided to and accepted by the Division prior to issuance of an operating permit

**Subject Items**

**ACTV0004 - Special Waste Landfill-Coal**

**Standard Requirements:**

1. General: The owner or operator of a special waste facility shall comply with KRS Chapter 224 and 401 KAR Chapters 30, 40 and 45 for the construction and operation of special waste facilities. [KRS 224.50-760]
2. General: For construction and operation of the special waste landfill, the owner or operator shall comply with KRS Chapter 224.50-760, 401 KAR 45:030, 45:110 and the approved permit application(s). [401 KAR 45:110]
3. General: The owner or operator may only accept waste at the special waste landfill from the sources which are approved per 401 KAR 45:020, Section 2(1)(a), 45:030, Section 8(1)(a), and 45:110. [401 KAR 45:110]

**Variances, Alternate Specifications and Special Conditions:**

1. Wastestreams: The permittee may accept fly ash from the Beckford Facility, Clermont Co., New Richmond, Ohio. [401 KAR 45:110 Section 3(7)]
2. Wastestreams: The permittee may accept fly ash from the Zimmer Station Facility, Clermont Co., Moscow, Ohio. [401 KAR 45:110 Section 3(7)]
3. Wastestreams: The permittee may accept fly ash from the Miller Brewery Facility, Butler Co., Trenton, Ohio. [401 KAR 45:110 Section 3(7)]
4. Wastestreams: The permittee may accept special waste streams as described in the approved plans and applications from the East Bend Facility, Boone Co., Rabbit Hash, Kentucky. [401 KAR 45:110 Section 3(7)]
5. Wastestreams: The permittee may accept fly ash and dry FGD Waste from the City of Hamilton, Butler Co., Hamilton, Ohio. [401 KAR 45:110 Section 3(7)]
6. Wastestreams: The permittee may accept fly ash, bottom ash, and plastic for truck lining from the Miami Fort facility in Hamilton Co., North Bend, Ohio. [401 KAR 45:110 Section 3(7)]

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7. Wastestreams: The permittee may accept gypsum from the Killen Station, Adams Co., Wrightsville, Ohio. [401 KAR 45:110 Section 3(7)]

8. Wastestreams: The Permittee may accept fly ash from the Jefferson Smurfit Facility, Butler Co., Middletown, Ohio. [401 KAR 45:110 Section 3(7)]

9. Wastestreams: The permittee may accept fly ash from Duke Energy Generation Services of St. Bernard, LLC, Butler Co., Cincinnati, Ohio. [401 KAR 45:110 Section 3(7)]

10. Wastestreams: The permittee may accept fly ash from the Spurlock Station, Mason Co., Maysville, Kentucky. The permittee may accept up to 60,000 tons annually, and additional information may be found in the approved application, APE20120005. [401 KAR 45:110 Section 3(7)]

11. Wastestreams: The permittee may accept fly ash from the Ghent Generating Station, Carroll Co., Ghent, Kentucky. The permittee may accept up to 100,000 tons annually and additional information may be found in the approved application, APE20140004. [401 KAR 45:110 Section 3(7)]

12. General: This Special Waste Landfill, known as the East Special Waste Landfill (ACTV0004), consists of 162 acres of disposal area and 185 acres of total permitted area. [401 KAR 45:110 Section 3(7)]

13. Wastestreams: The permittee may accept fly ash from Gallagher Generating Station, New Albany, Indiana and from the Clifty Creek Generating Station, Madison, Indiana. The permittee may accept up to 450 tons per day from both stations in accordance with the approved application, APE20160004. [401 KAR 45:110 Section 3(7)]

14. Financial Assurance: The maximum extent of operation includes the area of the landfill identified by an operating permit and for which the final cover Construction Progress Report has not yet been approved by the cabinet. The current maximum extent of operation for this East Special Waste Landfill (ACTV0004) is less than or equal to 115 acres. [401 KAR 45:080]

**Approved Applications - The owner or operator shall comply with applicable statutes and regulations and the following approved applications:**

1. 06-07-82 - First Operational Permit for Inert Landfill (effective on 7-16-82)
2. 04-05-84 - Modification for Inert Landfill
3. 07-15-87 - Renewal for Inert Landfill
4. 03-01-96 - Permit Renewal - conversion to Special Waste (effective date 7-16-92)
5. 07-24-96 - Groundwater Monitoring Plan - LI1MOGW1
6. 01-16-97 - Modification Add/Delete Waste Sources - MOAD1
7. 11-12-97 - Modification Add/Delete Waste Sources - MOAD2
8. 11-27-00 - Modification Add/Delete Waste Sources - MOAD3
9. 11-22-04 - APE20040001 - Minor Modification - Add/Delete Modification
10. 04-05-05 - APE20040005 - Minor Modification - Add/Delete Modification
11. 06-07-05 - AIN20010001 - Groundwater Assessment Plan
12. 07-13-05 - APE20050001 - Minor Modification - Leachate Collection System
13. 12-12-05 - AIN20050001 - Groundwater Assessment Plan - East Landfill
14. 10-04-06 - APE20060001 - Permit Transfer (to Union Light, Heat, and Power Coop)

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15. 10-04-06 - APE20060006 - Minor Modification - Change the Active Area from 40 Acres to 55 Acres
16. 12-06-06 - AIN20060001 - Groundwater Assessment Report - East Landfill
17. 02-16-07 - APE20070001 - Construction Progress Report - Cells P-15 & P16
18. 03-20-07 - APE20060007 - Permit Transfer (to Duke Energy Kentucky, Inc.)
19. 08-15-07 - APE20070003 - Minor Modification - Add Source (bottom ash and plastic for truck lining from Miami Fort)
20. 08-15-07 - APE20070007 - Minor Modification previously labeled as APE20070005 - Add Source (Gypsum from Killen Station)
21. 04-14-11 - CMN20100015 - Acceptance Letter Issued, Groundwater Assessment Report Update - Ash Pond and East Landfill
22. 07-06-12 - APE20120005 - Minor Modification - Add Source (Fly Ash from Spurlock Station)
23. 08-15-12 - AIN20110002 - Groundwater Assessment Report Update - East Landfill
24. 09-22-14 - APE20140004 - Minor Modification - Add Source (Fly Ash from Ghent Generating Station)
25. 05-06-15 - AIN20140003 - Revised Groundwater Assessment Plan - Site-Wide
26. 06-08-15 - AIN20150002 - Groundwater Assessment Report Update - East Landfill
27. 08-18-16 - APE20160004 - Minor Modification - Add Source (Fly Ash from Gallagher Generating Station & Clifty Creek Generating Station)
28. 08-18-16 - APE20150007 - Minor Modification - Chimney Drain, Waste Boundary, and Waste Placement Lift Thickness

**ACTV0006 - Special Waste Landfill-Coal**

**Standard Requirements:**

1. General: The owner or operator of a special waste facility shall comply with KRS Chapter 224 and 401 KAR Chapters 30, 40 and 45 for the construction and operation of special waste facilities. [KRS 224.50-760]
2. General: For construction and operation of the special waste landfill, the owner or operator shall comply with KRS Chapter 224.50-760, 401 KAR 45:030, 45:110 and the approved permit application(s). [401 KAR 45:110]
3. General: The owner or operator may only accept waste at the special waste landfill from the sources which are approved per 401 KAR 45:020, Section 2(1)(a), 45:030, Section 8(1)(a), and 45:110. [401 KAR 45:110]

**Variances, Alternate Specifications and Special Conditions:**

1. Construction: The Special Waste Landfill - West is authorized for construction activities only. No waste shall be accepted for disposal until after a Construction Progress Report is submitted to and accepted by the Solid Waste Branch. [401 KAR 45:030 Section 9]
2. Construction Requirements: The owner or operator shall proof-roll all sub-subgrade and subgrade areas in accordance with approved applications and permit. All proof-rolls shall be completed using a minimum 100,000 pound loaded four (4) tire scraper with a minimum capacity of 20 cubic yards or approved equivalency. The Solid Waste Branch must be notified at least 48 hours prior to proof-rolling of the final subgrade surface. [401 KAR 45:110 Section 2, 401 KAR 45:140]
3. General: This Special Waste Landfill, known as the West Special Waste Landfill (ACTV0006), consists of 203.7 acres of disposal area and 232 acres of total permitted area. [401 KAR 45:110 Section 3(7)]

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**Approved Applications - The owner or operator shall comply with applicable statutes and regulations and the following approved applications:**

1. 12-08-2008 - APE20070004 - New Special Waste Activity - West Special Waste Landfill
2. 03-09-2011 - APE20100002 - Groundwater Monitoring Plan Modification - West Special Waste Landfill
3. 02-28-2012 - APE20110004 - Construction Progress Report - Floodplain Area Filling (2.1 acres)
4. 07-06-2012 - APE20120005 - Minor Modification - Add Source (Fly Ash from Spurlock Station)
5. 09-22-2014 - APE20140004 - Minor Modification - Add Source (Fly Ash from Ghent Generating Station)
6. 11-18-2015 - APE20150007 - Minor Modification - Updated Attachment 41 Construction Quality Control Plan
7. 06-13-2016 - APE20150008 - Minor Modification - Sediment Pond and Surface Water Controls
8. 08-18-2016 - APE20160004 - Minor Modification - Add Source (Fly Ash from Gallagher Generating Station & Clifty Creek Generating Station)
9. 10-27-2016 - APE20160007 - Minor Modification - Chimney Drain System

**ACTV0008 - Coal Combustion Residuals Surface Impoundment**

**Variations, Alternate Specifications and Special Conditions:**

1. **General:** The Coal Combustion Residuals Surface Impoundment has been upgraded from a Permit-by-Rule to a Registered Permit-by-Rule in accordance with the requirements of 401 KAR 45:060. [401 KAR 30:031, 401 KAR 45:060 Section 2]
2. **General:** The owner or operator of a special waste facility shall comply with KRS Chapter 224 and 401 KAR Chapters 30, 40 and 45 for the construction, operation, maintenance, and closure of special waste facilities. [KRS 224.50-760]

**Approved Applications - The owner or operator shall comply with applicable statutes and regulations and the following approved applications:**

1. 10-04-06 - APE20060001 - Permit Transfer (to Union Light, Heat, and Power Coop)
2. 03-20-07 - APE20060007 - Permit Transfer (to Duke Energy Kentucky, Inc.)
3. 08-15-07 - AIN20070001 - Groundwater Assessment Plan - Ash Pond
4. 07-16-10 - AIN20080001 - Groundwater Assessment Report - Ash Pond
5. 04-14-11 - CMN20100015 - Acceptance Letter Issued, Groundwater Assessment Report Update - Ash Pond and East Landfill
6. 08-15-12 - AIN20110001 - Groundwater Assessment Report Update - Ash Pond
7. 05-06-15 - AIN20140003 - Revised Groundwater Assessment Plan - Site-Wide
8. 06-08-15 - AIN20150001 - Groundwater Assessment Report Update - Ash Pond

**Financial Assurance**

**ACTV0001 - Financial Assurance**

**The following is a history of the financial assurance for this facility:**

1. 07-10-1987 - SB# B80-201654, \$83,000.00

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2. 07-06-1992 - SB# B80-201654, \$539,900.00
3. 09-05-2001 - SB# B80-201654, \$564,102.00
4. 09-16-2002 - SB# B80-201654, \$577,534.00
5. 10-23-2003 - Financial Test, \$2,120,500.00
6. 10-31-2003 - SB# B80-201654 released
7. 05-15-2006 - Financial Test, \$2,259,062.00
8. 05-31-2007 - Financial Test, \$2,324,575.00
9. 07-30-2007 - Financial Test, \$2,324,575.00
10. 09-26-2011 - Financial Test, \$2,522,049.00
11. 12-16-2013 - Financial Test, \$2,598,255.00
12. 12-18-2015 - Financial Test, \$2,674,150.00
13. 05-17-1984 - SB# B-80-87915 - \$10,000.00

**Monitoring Conditions**

**GSTR0001 - Groundwater Monitoring - SW: Groundwater Monitoring Group - East Special Waste Landfill**

**Group Members:** STRC0001 - Well MW-1; STRC0002 - Well MW-3; STRC0003 - Well MW-4; STRC0004 - Well MW-5; STRC0005 - Well MW-6; STRC0006 - Well MW-6D

**Standard Requirements:**

1. The owner or operator shall satisfy the requirements of 401 KAR 45:160 for all wastes and waste constituents contained in the site or facility. [401 KAR 45:160 Section 1]
2. The permittee shall monitor for other parameters as required by the cabinet. [401 KAR 45:160 Section 8(2)(c)]
3. The owner or operator shall monitor groundwater on the approved schedule at each approved groundwater monitoring location in accordance with 401 KAR 45:160, the permit, and the approved plans. A table summarizing the parameters to be monitored, their respective limits and monitoring frequency is included herein. [401 KAR 45:160, 401 KAR 45:140 Section 1(1)]
4. The owner or operator shall conduct statistical analysis of the groundwater data in accordance with 401 KAR 45:160 Section 6 and the approved applications. The statistical test chosen shall be conducted separately for each parameter in each well for each monitoring event. The results shall be maintained as part of the facility record throughout the operating and post-closure life of the facility. [401 KAR 45:160 Section 6, 401 KAR 45:140 Section 1(1)]
5. The groundwater analytical data and statistical analysis shall be submitted on forms provided by the cabinet, within sixty (60) days after sampling or 15 days of the completion of statistical analysis, whichever is sooner. [401 KAR 45:160 Section 4]
6. Groundwater monitoring wells shall be constructed and maintained in accordance with 401 KAR 45:160 Section 3, the permit, and the approved plans. [401 KAR 45:160 Section 3, 401 KAR 45:140 Section 1(1)]

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7. No monitoring well construction, maintenance, or abandonment may be conducted without prior approval by the Division of Waste Management. [401 KAR 45:140 Section 1(1)]
8. Only a Kentucky Certified Monitoring Well Driller may construct or abandon monitoring wells. [401 KAR 6:320]
9. If the analysis of groundwater sample results indicates contamination (i.e., a statistical or MCL exceedence) as specified in 401 KAR 45:160 Section 5, the owner or operator shall notify the cabinet within (forty-eight) 48 hours of receiving the results and shall arrange to split samples no later than ten (10) days from the receipt of the results. [401 KAR 45:160 Section 5]
10. The owner or operator shall be required to prepare and submit a groundwater contamination assessment plan if laboratory analyses of one (1) or more public or private water supplies or monitoring wells at the site shows the presence of one (1) or more parameters above the maximum contaminant level (MCL) as specified in 401 KAR 30:031 or a statistically significant increase over background levels for parameters that have no MCL. [401 KAR 45:160 Section 5]
11. The owner or operator shall provide alternate water supplies to all affected parties within twenty-four (24) hours of notification of the cabinet that sample results indicate contamination of a drinking water supply if it has been determined that the special waste site or facility is the probable source of the contamination. [401 KAR 45:160 Section 3]
12. If required by the cabinet, groundwater contamination assessment and corrective action shall be performed in full compliance with all provisions of 401 KAR 45:160 Section 5. [401 KAR 45:160 Section 5]
13. The owner or operator shall provide the division a minimum of five (5) working days advance notice for all groundwater monitoring well construction and abandonment activities. [401 KAR 40:020 Section 2(4)]

**Variances, Alternate Specifications and Special Conditions:**

1. Groundwater Monitoring: The permittee shall determine the groundwater flow rate and direction in each monitored aquifer zone each time groundwater is sampled, and include one or more potentiometric surface maps in each semiannual monitoring report. [401 KAR 45:140 Section 1(8), 401 KAR 45:140 Section 2]

**GSTR0003 - Groundwater Monitoring - SW: Assessment Well Group**

**Group Members:** STRC0003 - Well MW-4; STRC0023 - Well P-4; STRC0024 - Well P-5; STRC0025 - Well P-6; STRC0026 - Well P-7; STRC0027 - Well P-8; STRC0028 - Well P-9; STRC0030 - Well MW-5D (Assessment); STRC0031 - Well MW-8D (Assessment); STRC0032 - Well MW-7 (Assessment); STRC0039 - Well MW-04D; STRC0040 - Well MW-09; STRC0041 - Well MW-10

**Standard Requirements:**

1. Groundwater monitoring wells shall be constructed and maintained in accordance with 401 KAR 45:160 Section 3, the permit, and the approved plans. [401 KAR 45:160 Section 3, 401 KAR 45:140 Section 1(1)]
2. No monitoring well construction, maintenance, or abandonment may be conducted without prior approval by the Division of Waste Management. [401 KAR 45:140 Section 1(1)]

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3. Only a Kentucky Certified Monitoring Well Driller may construct or abandon monitoring wells. [401 KAR 6:320]

4. The owner or operator shall provide the division a minimum of five (5) working days advance notice for all groundwater monitoring well construction and abandonment activities. [401 KAR 40:020 Section 2(4)]

**Variances, Alternate Specifications and Special Conditions:**

1. The permittee shall monitor these wells for assessment purposes in accordance with the approved groundwater assessment plan. [401 KAR 45:140 Section 1(1)]

**GSTR0005 - Groundwater Monitoring - SW: Groundwater Observation Well Group - West Special Waste Landfill**

**Group Members:** STRC0033 - Well OW-105; STRC0034 - Well OW-106; STRC0035 - Well OW-104; STRC0036 - Well OW-103; STRC0037 - Well OW-102; STRC0038 - Well OW-101

**Standard Requirements:**

1. Groundwater monitoring wells shall be constructed and maintained in accordance with 401 KAR 45:160 Section 3, the permit, and the approved plans. [401 KAR 45:160 Section 3, 401 KAR 45:140 Section 1(1)]

2. No monitoring well construction, maintenance, or abandonment may be conducted without prior approval by the Division of Waste Management. [401 KAR 45:140 Section 1(1)]

3. Only a Kentucky Certified Monitoring Well Driller may construct or abandon monitoring wells. [401 KAR 6:320]

4. The owner or operator shall provide the division a minimum of five (5) working days advance notice for all groundwater monitoring well construction and abandonment activities. [401 KAR 40:020 Section 2(4)]

**Variances, Alternate Specifications and Special Conditions:**

1. The permittee shall monitor these wells for assessment purposes in accordance with the approved groundwater assessment plan. [401 KAR 45:140 Section 1(1)]

**GSTR0006 - Groundwater Monitoring - SW: Groundwater Monitoring Group - West Special Waste Landfill - Wells Proposed for Construction**

**Group Members:** STRC0046 - Well MW-205 (Proposed); STRC0047 - Well MW-206 (Proposed); STRC0048 - Well MW-207 (Proposed)

**Standard Requirements:**

1. Groundwater monitoring wells shall be constructed and maintained in accordance with 401 KAR 45:160 Section 3, the permit, and the approved plans. [401 KAR 45:160 Section 3, 401 KAR 45:140 Section 1(1)]



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2. No monitoring well construction, maintenance, or abandonment may be conducted without prior approval by the Division of Waste Management: [401 KAR 45:140 Section 1(1)]
3. Only a Kentucky Certified Monitoring Well Driller may construct or abandon monitoring wells. [401 KAR 6:320]
4. The owner or operator shall provide the division a minimum of five (5) working days advance notice for all groundwater monitoring well construction and abandonment activities. [401 KAR 40:020 Section 2(4)]

**Variances, Alternate Specifications and Special Conditions:**

1. The permittee shall construct these wells in accordance with the approved plan. Upon completion of well construction, the permittee shall submit a monitoring well construction progress report to the Division of Waste Management for review. [401 KAR 45:140 Section 1(1)]

**GSTR0008 - Groundwater Monitoring - SW: Groundwater Monitoring Group - West Special Waste Landfill**

**Group Members:** STRC0051 - Well MW-201; STRC0052 - Well MW-202; STRC0053 - Well MW-204; STRC0054 - Well MW-208; STRC0055 - Well MW-203

**Standard Requirements:**

1. The owner or operator shall satisfy the requirements of 401 KAR 45:160 for all wastes and waste constituents contained in the site or facility. [401 KAR 45:160 Section 1]
2. The permittee shall monitor for other parameters as required by the cabinet. [401 KAR 45:160 Section 8(2)(c)]
3. The owner or operator shall monitor groundwater on the approved schedule at each approved groundwater monitoring location in accordance with 401 KAR 45:160, the permit, and the approved plans. A table summarizing the parameters to be monitored, their respective limits and monitoring frequency is included herein. [401 KAR 45:160, 401 KAR 45:140 Section 1(1)]
4. The owner or operator shall conduct statistical analysis of the groundwater data in accordance with 401 KAR 45:160 Section 6 and the approved applications. The statistical test chosen shall be conducted separately for each parameter in each well for each monitoring event. The results shall be maintained as part of the facility record throughout the operating and post-closure life of the facility. [401 KAR 45:160 Section 6, 401 KAR 45:140 Section 1(1)]
5. The groundwater analytical data and statistical analysis shall be submitted on forms provided by the cabinet, within sixty (60) days after sampling or 15 days of the completion of statistical analysis, whichever is sooner. [401 KAR 45:160 Section 4]
6. Groundwater monitoring wells shall be constructed and maintained in accordance with 401 KAR 45:160 Section 3, the permit, and the approved plans. [401 KAR 45:160 Section 3, 401 KAR 45:140 Section 1(1)]

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7. No monitoring well construction, maintenance, or abandonment may be conducted without prior approval by the Division of Waste Management. [401 KAR 45:140 Section 1(1)]
8. Only a Kentucky Certified Monitoring Well Driller may construct or abandon monitoring wells. [401 KAR 6:320]
9. If the analysis of groundwater sample results indicates contamination (i.e., a statistical or MCL exceedence) as specified in 401 KAR 45:160 Section 5, the owner or operator shall notify the cabinet within (forty-eight) 48 hours of receiving the results and shall arrange to split samples no later than ten (10) days from the receipt of the results. [401 KAR 45:160 Section 5]
10. The owner or operator shall be required to prepare and submit a groundwater contamination assessment plan if laboratory analyses of one (1) or more public or private water supplies or monitoring wells at the site shows the presence of one (1) or more parameters above the maximum contaminant level (MCL) as specified in 401 KAR 30:031 or a statistically significant increase over background levels for parameters that have no MCL. [401 KAR 45:160 Section 5]
11. The owner or operator shall provide alternate water supplies to all affected parties within twenty-four (24) hours of notification of the cabinet that sample results indicate contamination of a drinking water supply if it has been determined that the special waste site or facility is the probable source of the contamination. [401 KAR 45:160 Section 3]
12. If required by the cabinet, groundwater contamination assessment and corrective action shall be performed in full compliance with all provisions of 401 KAR 45:160 Section 5. [401 KAR 45:160 Section 5]
13. The owner or operator shall provide the division a minimum of five (5) working days advance notice for all groundwater monitoring well construction and abandonment activities. [401 KAR 40:020 Section 2(4)]

**Variations, Alternate Specifications and Special Conditions:**

1. Groundwater Monitoring: The permittee shall determine the groundwater flow rate and direction in each monitored aquifer zone each time groundwater is sampled, and include one or more potentiometric surface maps in each semiannual monitoring report. [401 KAR 45:140 Section 1(8), 401 KAR 45:140 Section 2]

**GSTR0009 - Groundwater Monitoring - SW: Groundwater Assessment Well Group - Site-Wide**

Group Members: AIOO0176 -

**Variations, Alternate Specifications and Special Conditions:**

1. Groundwater Characterization: The groundwater assessment characterization list for the facility shall include the following parameters in accordance with 401 KAR 45:160 Section 7(2) and 40 CFR 257 Appendix III and Appendix IV: Antimony, Arsenic, Barium, Beryllium, Bicarbonate, Boron, Cadmium, Calcium, Carbonate, Chemical Oxygen Demand, Chloride, Chromium, Cobalt, Copper, Fluoride, Iron, Lead, Lithium, Magnesium, Mercury, Molybdenum, Nickel, pH, Potassium, Radium 226 and 228 Combined, Selenium,

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Sodium, Specific Conductance, Sulfate, Thallium, Total Dissolved Solids, Total Organic Carbon, and Zinc.  
[401 KAR 45:140 Section 2]

**GMNP0001 - Surface Water Monitoring - SW: Surface Water Monitoring Group - East Special Waste Landfill**

**Group Members:** MNPT0001 - Downstream Point SW-017

**Standard Requirements:**

1. The owner or operator shall monitor surface water in accordance with 401 KAR 45:160 Section 9 and the approved surface water monitoring plan. A table summarizing the parameters to be monitored, their respective limits and the monitoring frequency is included herein. [401 KAR 45:160 Section 9]
2. Surface water corrective action shall be completed by the owner or operator as necessary to comply with 401 KAR 30:031. [401 KAR 45:160 Section 9, 401 KAR 30:031 Section 4]
3. Surface water analytical data shall be submitted in the compliance monitoring reports with all other permit-required environmental monitoring results. [401 KAR 45:160 Section 9]

**Variances, Alternate Specifications and Special Conditions:**

1. The owner or operator shall monitor surface water in accordance with 401 KAR 45:160 Section 9 and the approved surface water monitoring plan. A table summarizing the parameters to be monitored and the monitoring frequency is included herein. [401 KAR 45:160 Section 9]

**GMNP0002 - Surface Water Monitoring - SW: Surface Water Monitoring Group - West Special Waste Landfill**

**Group Members:** MNPT0002 - Mon. Pt. SWMP-1; MNPT0003 - Mon. Pt. SWMP-2; MNPT0004 - Mon. Pt. SWMP-3

**Variances, Alternate Specifications and Special Conditions:**

1. The permittee shall characterize these surface water monitoring points prior to the emplacement of waste in the West Special Waste Landfill, and monitor them in accordance with the approved plan upon issuance of the operating permit for the West Special Waste Landfill. [401 KAR 45:160 Section 9]

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Groundwater Monitoring Limits:

Subject Item	CAS Number	Parameter	Frequency	Lower Limit	Upper Limit	Units	Statistical Limit	Report Only
GSTR0001	07440-39-3	Barium, Total (as Ba)	semiannually		2.0	mg/L		
GSTR0001		Boron, Total Recoverable	semiannually			mg/L	Yes	
GSTR0001	07440-70-2	Calcium	semiannually			mg/L	Yes	
GSTR0001		Carbon, Total Organic	semiannually			mg/L	Yes	
GSTR0001		Chemical Oxygen Demand (COD)	semiannually			mg/L	Yes	
GSTR0001	16887-00-6	Chloride	semiannually			mg/L	Yes	
GSTR0001	07440-47-3	Chromium	semiannually		0.1	mg/L		
GSTR0001		Copper, Dissolved (as Cu)	semiannually		1.3	mg/L		
GSTR0001	16984-48-8	Fluoride	semiannually		4.0	mg/L		
GSTR0001		Groundwater Elevation	semiannually			feet above mean sea level based on a USGS datum		Yes
GSTR0001	00000-19-8	Manganese, Total (as Mn)	semiannually			mg/L	Yes	
GSTR0001		Solids, Total Dissolved	semiannually			mg/L	Yes	
GSTR0001		Solids, Total Suspended (TSS)	semiannually			mg/L	Yes	
GSTR0001		Specific Conductance	semiannually			umho/cm	Yes	
GSTR0001	14808-79-8	Sulfate	semiannually			mg/L	Yes	
GSTR0001		Temperature, Water Deg. Fahrenheit	semiannually			degrees Fahrenheit		Yes
GSTR0001		pH	semiannually			standard units	Yes	
GSTR0008	07440-39-3	Barium, Total (as Ba)	semiannually		2.0	mg/L		
GSTR0008		Boron, Total Recoverable	semiannually			mg/L	Yes	
GSTR0008	07440-70-2	Calcium	semiannually			mg/L	Yes	
GSTR0008		Carbon, Total Organic	semiannually			mg/L	Yes	
GSTR0008		Chemical Oxygen Demand (COD)	semiannually			mg/L	Yes	
GSTR0008	16887-00-6	Chloride	semiannually			mg/L	Yes	
GSTR0008	07440-47-3	Chromium	semiannually		0.1	mg/L		

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Subject Item	CAS Number	Parameter	Frequency	Lower Limit	Upper Limit	Units	Statistical Limit	Report Only
GSTR0008		Copper, Dissolved (as Cu)	semiannually		1.3	mg/L		
GSTR0008	16984-48-8	Fluoride	semiannually		4.0	mg/L		
GSTR0008		Groundwater Elevation	semiannually			feet above mean sea level based on a USGS datum		Yes
GSTR0008	00000-19-8	Manganese, Total (as Mn)	semiannually			mg/L	Yes	
GSTR0008		Solids, Total Dissolved	semiannually			mg/L	Yes	
GSTR0008		Solids, Total Suspended (TSS)	semiannually			mg/L	Yes	
GSTR0008		Specific Conductance	semiannually			umho/cm	Yes	
GSTR0008	14808-79-8	Sulfate	semiannually			mg/L	Yes	
GSTR0008		Temperature, Water Deg. Fahrenheit	semiannually			degrees Fahrenheit		Yes
GSTR0008		pH	semiannually			standard units	Yes	

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Surface Water Monitoring Limits:

Subject Item	CAS Number	Parameter	Frequency	Lower Limit	Upper Limit	Units	Statistical Limit	Report Only
GMNP0001		Carbon, Total Organic	once every six months			mg/L		Yes
GMNP0001		Chemical Oxygen Demand (COD)	once every six months			mg/L		Yes
GMNP0001	16887-00-6	Chloride	once every six months			mg/L		Yes
GMNP0001	07439-89-6	Iron, Total (as Fe)	once every six months			mg/L		Yes
GMNP0001	07440-23-5	Sodium	once every six months			mg/L		Yes
GMNP0001		Solids, Total Dissolved	once every six months			mg/L		Yes
GMNP0001		Solids, Total Suspended (TSS)	once every six months			mg/L		Yes
GMNP0001		Specific Conductance	once every six months			umho/cm		Yes
GMNP0001	14808-79-8	Sulfate	once every six months			mg/L		Yes
GMNP0001		Total Solids	once every six months			mg/L		Yes
GMNP0001		pH	once every six months			standard units		Yes



MATTHEW G. BEVIN  
GOVERNOR

CHARLES G. SNAVELY  
SECRETARY

**ENERGY AND ENVIRONMENT CABINET  
DEPARTMENT FOR ENVIRONMENTAL PROTECTION**

AARON B. KEATLEY  
COMMISSIONER

300 SOWER BOULEVARD  
FRANKFORT, KENTUCKY 40601

August 10, 2016

Mr. Gary Cook, Station Manager  
Duke Energy Corporation  
139 E. 4th Street, Room EM740  
Cincinnati, Ohio 45202

**Certified Mail No. 7015 0640 0005 6317 4913**

RE: Closure Notification and Concurrence Request for Coal Combustion Residuals  
Surface Impoundment - East Bend Station  
Agency Interest No. 176  
Activity I.D. No. APE20160010  
Boone County

Dear Mr. Cook:

The Kentucky Division of Waste Management (DWM), Solid Waste Branch has reviewed your correspondence on August 3, 2016 regarding the clean closure of the East Bend Station CCR surface impoundment, referenced as ACTV008. DWM concurs with the procedures specified in your letter.

DWM has the following comments:

1. A permit modification (in this case, a revised registration) is not required from DWM to remove coal combustion residuals from the surface impoundment.
2. Duke Energy should notify DWM of the progress in order to allow DWM to perform visual inspections during and after the process.
3. After complete removal of the CCR material and incidental comingled material from the ash pond, Duke Energy shall submit a Construction Progress Report (CPR) certified by a Professional Engineer for all removal activities to DWM for review.
4. The facility shall comply with their KPDES permit to control surface water impacts during construction activities.

Mr. Gary Cook  
August 10, 2016  
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5. Upon acceptance of the CPR, DWM will terminate the ACTV008 permitted activity associated with Solid Waste Permit Number 008-00006.
6. Following termination, Duke Energy may line the basin and repurpose it as a water retention basin without regulation by DWM.
7. DWM considers clean closure of the surface impoundment to be a potentially effective corrective action for groundwater impacts related to special waste (CCR) management and disposal at East Bend Station. However, groundwater monitoring, assessment, and if necessary, additional corrective action may be required to comply with the requirements of 401 KAR 45:160 and 401 KAR 30:031.

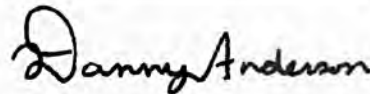
Additionally, please be advised that on June 21, 2016, the Solid Waste Branch was relocated to the following address:

Division of Waste Management  
Solid Waste Branch  
**300 Sower Blvd., Second Floor**  
Frankfort, Kentucky 40601

Please send all future correspondence, applications, reports, etc. to the new address. The general phone number (502) 564-6716 will remain the same, but each individual staff member has a unique phone number.

Should you have any questions please contact me at (502) 782-6305.

Sincerely, \_\_\_\_\_



Danny Anderson, P.E.  
Manager, Solid Waste Branch

DA/LTB/rth