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September 8, 2014

Via Hand-Delivery

Mr. Jeffrey Derouen
Executive Director
Kentucky Public Service Commission
P.O. Box 615
211 Sower Boulevard
Frankfort, KY 40602

RECEIVED

SEP 08 2014

PUBLIC SERVICE
COMMISSION

Re: In the Matter of: An Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity for Construction of an Ash Landfill at J. K. Smith Station to Receive Impounded Ash from William C. Dale Station, and for Approval of a Compliance Plan Amendment for Environmental Surcharge Recovery
PSC Case No. 2014-00252

Dear Mr. Derouen:

Enclosed please find for filing with the Commission in the above-referenced case an original and ten (10) copies each of East Kentucky Power Cooperative, Inc.'s Application and Motion for Confidential Treatment regarding the above-styled matter. Please return file-stamped copies to me.

Do not hesitate to contact me if you have any questions.

Very truly yours,

Mark David Goss

Enclosures

M:\Clients\4000 - East Kentucky Power\1450 - Dale Ash Landfill
CPCN\Correspondence\Ltr. to Jeff Derouen - 140908.docx

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

SEP 08 2014

PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

AN APPLICATION OF EAST KENTUCKY)
POWER COOPERATIVE, INC. FOR A)
CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR CONSTRUCTION OF AN)
ASH LANDFILL AT J. K. SMITH STATION, THE)
REMOVAL OF IMPOUNDED ASH FROM)
WILLIAM C. DALE STATION FOR TRANSPORT)
TO J. K. SMITH, AND APPROVAL OF A)
COMPLIANCE PLAN AMENDMENT FOR)
ENVIRONMENTAL SURCHARGE RECOVERY)

CASE NO.
2014-00252

MOTION FOR CONFIDENTIAL TREATMENT

Comes now East Kentucky Power Cooperative, Inc. (“EKPC”), by and through counsel, pursuant to KRS 61.878, 807 KAR 5:001, Section 13 and other applicable law, and for its Motion requesting that the Kentucky Public Service Commission (“Commission”) afford confidential treatment to certain portions of EKPC’s Application and related direct testimony and exhibits filed in the above-captioned proceeding, respectfully states as follows:

1. EKPC’s Application requests that the Commission issue a Certificate of Public Convenience and Necessity (“CPCN”) for the construction of a coal ash landfill at EKPC’s J. K. Smith Station (“Smith” or “Smith Station”) to receive coal ash removed and transported from its William C. Dale Station (“Dale” or “Dale Station”) (collectively, the “Project”), and for approval of an Environmental Compliance Plan amendment for purposes of recovering the costs of the Project through EKPC’s Environmental Surcharge.

2. As discussed in Section III, Subsection J, of EKPC's Application, EKPC presently has a 138/69 kV transmission substation at Dale Station where three (3) 138 kV transmission lines and four (4) 69 kV transmission lines terminate. Because of the limited size of Dale Station, these transmission lines and their supporting structures are located between and among certain of Dale Station's coal ash ponds. In order for EKPC to safely and properly remove coal ash from the Dale Station ponds, the aforementioned transmission lines will first need to be rerouted and relocated.¹

3. In its Application, EKPC describes the transmission lines which it intends to reroute and relocate as an essential part of the Project. EKPC also describes in detail the role of these transmission lines within its transmission system and to the Central Kentucky region (collectively, the "Confidential Information").

4. In support of the Project, EKPC filed as Exhibit 9 to its Application the Direct Testimony of Matt Clark. Mr. Clark serves as Senior Engineer in Production at EKPC. In his Direct Testimony, Mr. Clark discusses, *inter alia*, the various engineering aspects of the Project, as well as the Project's scope, schedule, and costs. Mr. Clark's Direct Testimony includes discussion of the Confidential Information.

5. The Confidential Information relates to critical energy infrastructure and includes highly sensitive information pertaining to the transmission and distribution of electricity both within EKPC's transmission system and within the Central Kentucky region. Disclosure of the Confidential Information could result in the disruption of critical transmission systems which relate to the safe and reliable provision of electricity to EKPC's Members, their customers and others within the region.

¹ An aerial photograph of the Dale Station site containing a superimposed representation of the proposed relocation of these transmission lines is attached as Exhibit MC-1 to the Direct Testimony of Matt Clark submitted in this matter. Along with certain of Mr. Clark's testimony, confidential treatment is being requested for this photograph.

6. The Kentucky Open Records Act exempts from disclosure certain information relating to critical infrastructure. *See* KRS 61.878(1)(m). For instance, KRS 61.878(1)(m)(1) protects “[p]ublic records the disclosure of which would have a reasonable likelihood of threatening public safety by exposing a vulnerability in preventing protecting against, mitigating, or responding to a terrorist act....,” and specifically exempts from public disclosure certain records pertaining to public utility critical systems. *See* KRS 61.878(1)(m)(1)(f). If disclosed, the Confidential Information could be utilized to commit or further a criminal or terrorist act, disrupt critical public utility systems, and/or intimidate or coerce the civilian population. Maintaining the confidentiality of the Confidential Information is necessary to protect the interests of EKPC, its Members, and the region at large.

7. The Confidential Information is proprietary information that is retained by EKPC on a “need-to-know” basis and that is not publicly available. The Confidential Information is distributed within EKPC only to those employees who must have access for business reasons, and is generally recognized as confidential and proprietary in the energy industry.

8. EKPC does not object to limited disclosure of the Confidential Information described herein, pursuant to an acceptable confidentiality and nondisclosure agreement, to intervenors with a legitimate interest in reviewing the same for the sole purpose of participating in this case.

9. In accordance with the provisions of 807 KAR 5:001 Section 13(2), EKPC is filing one (1) copy of the unredacted Application and one (1) copy of the unredacted Direct Testimony of Mr. Clark separately under seal with the Confidential Information highlighted. Redacted copies of the Application and the Direct Testimony of Mr. Clark have been tendered to the Commission.

10. Also in accordance with the provisions of 807 KAR 5:001 Section 13(2), EKPC respectfully requests that the Confidential Information be withheld from public disclosure indefinitely. Unless and until the Confidential Information no longer accurately describes the state and role of specific transmission lines within EKPC's regional transmission system, the disclosure of the Confidential Information poses a real and identifiable threat to public safety.

11. If and to the extent the Confidential Information becomes publically available or otherwise no longer warrants confidential treatment., EKPC will notify the Commission and request that its confidential status be removed, pursuant to 807 KAR 5:001 Section 13(10).

WHEREFORE, on the basis of the foregoing, EKPC respectfully requests that the Commission classify and protect as confidential the specific information described herein indefinitely.

This 8th day of September, 2014.

Respectfully submitted,



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Counsel for East Kentucky Power Cooperative, Inc.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

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SEP 08 2014
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AN APPLICATION OF EAST KENTUCKY)
POWER COOPERATIVE, INC. FOR A)
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ASH LANDFILL AT J. K. SMITH STATION TO)
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C. DALE STATION, AND FOR APPROVAL OF A)
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ENVIRONMENTAL SURCHARGE RECOVERY)

CASE NO.
2014-00252

APPLICATION

Comes now East Kentucky Power Cooperative, Inc. (“Applicant” or “EKPC”), by and through counsel, pursuant to KRS 278.020(1), KRS 278.183, 807 KAR 5:001, Sections 14 and 15, and other applicable law, and for its Application requesting that the Kentucky Public Service Commission (“Commission”) enter an Order granting to Applicant a Certificate of Public Convenience and Necessity (“CPCN”) for the construction of an ash landfill at its J. K. Smith Station (“Smith” or “Smith Station”) to receive coal ash removed and transported from its William C. Dale Station (“Dale” or “Dale Station”) (collectively, the “Project”), and for approval of a Compliance Plan amendment for purposes of recovering the costs for this essential Project through EKPC’s environmental surcharge, respectfully pleads as follows:

I. INTRODUCTION

1. EKPC’s Dale Station is located on the Kentucky River at Ford, Clark County, Kentucky, approximately 10 miles southwest of Winchester, Kentucky. Dale is home to four

electric baseload generating units comprised of pulverized coal-fired boilers with steam turbine generators. Units 1 and 2, each rated at 25 Megawatts (“MW”), were commissioned in 1954. Units 3 and 4, each rated at 75 MW, were commissioned in 1957 and 1960, respectively. The total rated generating capacity at Dale is 200 MW. EKPC’s Smith Station is located near Trapp, Clark County, Kentucky, approximately 12 miles east of Winchester, Kentucky, and encompasses 3,272 acres. The Smith Station site is currently used as an electric generating station with nine gas-fired combustion turbines having a net generating capacity of 784 MW in the summer and 1,032 MW in the winter.

2. Dale was the first power plant facility constructed by EKPC and for many years served as the backbone for EKPC’s power generating fleet and has served EKPC’s members admirably providing six decades of reliable, low-cost electricity. However, as a result of very stringent federal environmental regulations for coal-fired generation, EKPC finds itself saddled with the unenviable task of decommissioning Dale as an active generating station. This will require EKPC to address three very important issues: (1) what to do with Dale’s Power Block since there might be certain key components which could be marketable to both domestic and foreign buyers; (2) after all salvageable components are removed from the Power Block, whether the remaining brick and mortar facilities should be secured in place or demolished; and, (3) what to do with approximately 560,000 cubic yards¹ of coal ash² resulting from the operation of the

¹ Estimates have been made for the volume of ash in Ponds 2, 3, and 4 from site records and core drillings. Actual amounts may vary and removal depths will be finally determined in the field during actual removal. Additionally, there are two structural fills using coal ash on the Dale site that are included in the approximated 560,000 cubic yards which are not currently planned for removal as part of the Project.

² Coal ash, also referred to as Coal Combustion Residuals (“CCRs”) or Coal Combustion By-Products (“CCBs”), is the material left over from the combustion of coal in a power plant. Dale’s coal ash includes fly ash, bottom ash, and boiler slag. The vast majority of coal ash produced at Dale and placed in its ash ponds is bottom ash and fly ash. It is estimated that approximately 20 percent is bottom ash and 80 percent is fly ash. Boiler slag and other constituents make up less than one percent of the volume of coal ash in the Dale ponds. For purposes of this

plant which is currently stored on the property, primarily in impoundments adjacent to the Kentucky River. It is this last issue which necessitates the Project and the filing of this Application.

3. For the reasons set out below, EKPC has determined that the most prudent action to take concerning the coal ash stored at Dale is to remove, haul and dispose of it in a newly permitted Special Waste Landfill³ at EKPC's Smith Station. In furtherance of this decision, EKPC respectfully requests that the Commission: (1) issue a CPCN, pursuant to KRS 278.020(1), for the Project; and (2) permit EKPC to amend its Environmental Surcharge Compliance Plan pursuant to KRS 278.183 and allow recovery of the costs associated with the amended Environmental Compliance Plan through its existing environmental surcharge mechanism.

4. Pursuant to 807 KAR 5:001, Section 14(1), EKPC's mailing address is P. O. Box 707, Winchester, Kentucky 40392-0707 and its electronic mail address is psc@ekpc.coop.

5. Pursuant to 807 KAR 5:001, Section 14(2), EKPC states that it incorporated in the Commonwealth of Kentucky on July 9, 1941, and attests that it is currently in good standing.

II. BACKGROUND

A. History of Dale Station Coal Ash Disposal

6. Besides the four coal-fired electric units, Dale's approximately 80-acre site currently contains two coal ash impoundments, one dry storage area for coal ash,⁴ coal piles, and

Application and elsewhere in this case, the terms "CCRs", "CCBs" and "coal ash" have the same meaning and will be used interchangeably.

³ "Special Waste Landfill" means a landfill designed in accordance with the technical requirements of 401 KAR 45:110.

⁴ Over time EKPC has actually constructed and operated four surface impoundments for the storage of ash at Dale. The surface impoundments are designated as Ash Pond 1, Ash Pond 2, Ash Pond 3, and Ash Pond 4. For purposes of this Application, the terms "impoundment" and "pond" have the same meaning and will hereafter be used

other associated infrastructure that occupy virtually all of the useable property at the facility.⁵ When Dale Units 1-4 were in full operation, there was typically produced approximately 40,000-60,000 tons (while heavily dependent on moisture content, EKPC conventionally assumes that 1 cubic yard of ash weighs approximately 1 ton) of coal ash annually. At Dale this coal ash was combined with water and piped into two on-site ash impoundments (Ash Ponds 2 and 4). Historically, these ponds were operated on a rotation system whereby the coal ash was deposited in one pond while the coal ash in the other pond was dewatered, removed and transferred to an appropriate off-site disposal facility.

7. In the mid-1980's, it became necessary for EKPC to find an off-site location to deposit coal ash from Dale due to capacity constraints in the on-site impoundments and insufficient space available at Dale for the construction of a new impoundment. Accordingly, in 1985, EKPC obtained a permit from the Kentucky Division of Waste Management to construct and operate an off-site landfill known as the Hancock Creek Inert Landfill ("Hancock Creek"). Hancock Creek was located on acreage adjacent to EKPC's main headquarters complex on U.S. 60 near Winchester, Clark County, Kentucky. Coal ash at Dale was dewatered and transported by truck to Hancock Creek for permanent disposal. EKPC used Hancock Creek as well as beneficial reuse projects to permanently dispose of coal ash produced at Dale from 1985 to

interchangeably. Ash Pond 1 was constructed when Dale commenced operation in 1954. Ash Pond 2 was constructed in the late 1950s, and was separated from Ash Pond 1 by an earthen dike. The dike was removed in the late 1990s, and the combined Ash Pond 1 and Ash Pond 2 are now referred to as Ash Pond 2. Ash Pond 2 contains approximately 248,000 cubic yards of coal ash and has a corresponding surface area of approximately 9.5 acres. Ash Pond 3 was constructed in the 1960s as an overflow pond for Ash Pond 1. Ash Pond 3 was converted to dry storage in the 1970's and has since been used for the dewatering of ash removed from Ash Pond 2 and Ash Pond 4 prior to off-site disposal. Ash Pond 3 contains approximately 58,000 cubic yards of coal ash. Ash Pond 4 was constructed in 1977. It currently contains approximately 67,000 cubic yards of coal ash and has a surface area of approximately 10.6 acres. Currently, Ash Ponds 2 and 4 are considered impoundments and Ash Pond 3 is considered a dry storage area.

⁵ An aerial photograph of the Dale site containing references to various important facilities and infrastructure is attached to this Application as Exhibit 1 and incorporated herein by reference.

present. Hancock Creek reached maximum capacity and was closed in 2010. At that time, EKPC began an evaluation to identify a new disposal site for coal ash produced at Dale. That evaluation has ultimately led to the filing of this case.

B. History of Regulation of Utility Waste as a Special Waste in Kentucky

8. In 1980, the Kentucky legislature enacted KRS 224.50-760 to designate “utility waste (fly ash, bottom ash, scrubber sludge)” as a special waste. A special waste is a waste that has a large volume but low hazard. The predecessor to the Kentucky Energy and Environment Cabinet (“Cabinet”) was authorized to promulgate regulations affecting special wastes, including requirements for proper disposal. In 1982, the Cabinet promulgated regulations addressing the disposal of waste, including special wastes.⁶ These regulations authorized the disposal of special waste in designated categories of landfills, including inert landfills, with specific approval from the Cabinet. *See* 401 KAR 30:010 Section 1(138)(a) (1983) (since repealed). Moreover, 401 KAR 47:040 (1983) (since repealed) established requirements for permit applications and general design requirements for inert landfills.

9. In 1992, the Cabinet promulgated 401 KAR Chapter 45 to establish regulations specifically applicable to special wastes, including utility waste. For instance, 401 KAR 45:020 Section 2(1) requires a permit for a landfill. 401 KAR 45:030 Section 5 prohibits unpermitted facilities and Section 6 requires a permit for disposal. 401 KAR 45:060 Section 1(4) establishes a permit by rule for surface impoundments for coal ash that are in compliance with a Kentucky Pollutant Discharge Elimination System (“KPDES”) Permit. 401 KAR 45:110 establishes technical design requirements for the construction and operation of a special waste landfill. 401 KAR 45:130 establishes buffer zone requirements for a special waste landfill. 401 KAR 45:130

⁶ The regulations were originally promulgated in 401 KAR Chapter 2, but were re-codified in 1983 in 401 KAR Chapter 47.

Section 1(1) prohibits a special waste landfill within 250 feet of a perennial stream unless the Cabinet issues a water quality certification and Section 1(4) prohibits a landfill within 100 feet of a property line. 401 KAR 45:130 Section 2 effectively prohibits the siting of a special waste landfill within the 100-year floodplain.⁷

10. When the coal ash impoundments at the Dale Station cease to be used as impoundments, they will lose the permit by rule status provided by 401 KAR 45:060 Section 1(4). If the coal ash is allowed to remain in a former impoundment, the coal ash becomes a “waste” and is deemed to be disposed of, and the impoundment becomes a waste site or facility. A “waste site or facility” is defined by KRS 224.1-010(27) to be any site or facility where waste is disposed of by any means. Kentucky law prohibits the disposal of waste except in a permitted facility, KRS 224.40-100, and prohibits the maintenance of a waste disposal facility without a permit, KRS 224.40-305. Consequently, when a coal ash impoundment ceases to be used as an impoundment, the former impoundment must be permitted under the special waste regulations as a disposal facility to leave the special waste in place. In the alternative, the special waste must be removed from the former impoundment and disposed of in a permitted facility.

III. THE PROJECT

A. Options Considered for Permanent Disposal of Dale Coal Ash

11. Because Dale will not be able to economically meet the federally-mandated Mercury and Air Toxics Standards (“MATS”) scheduled to be effective on April 16, 2015, EKPC’s Board of Directors has determined that the only prudent course of action available is to cease all generation activities at the facility by that deadline. In the meantime, regarding Dale’s Power Block, the current plan is for Units 1 and 2, the smaller generators, to be decommissioned

⁷ The preceding regulation, 401 KAR 47:040 Section 2(1), allowed construction of a special waste landfill in the 100-year floodplain if the landfill was designed and operated to prevent waste washout.

and possibly be partially disassembled in order to recover any marketable parts for sale to prospective purchasers. Units 3 and 4, the larger generators, will be maintained and available for operation in case those units are needed for grid reliability or become economically attractive for PJM dispatch between now and April 16, 2015. However, it is certain that after April 16, 2015, Dale Station's four coal-fired units will be decommissioned, requiring that EKPC immediately pursue a solution for the permanent disposal of Dale's coal ash.

12. EKPC, in conjunction with outside consultants, has worked diligently for the past four years to solve this problem and identified eight alternatives to address a solution for the permanent disposal of Dale's coal ash.⁸ Five of these alternatives (designated in this Application as Alternatives 1, 2, 3, 4 and 5) were considered, analyzed and rejected by EKPC either because they were unreasonably expensive or impracticable to execute. The reasons for their rejection are more fully discussed below. The Smith Special Waste Landfill alternative (Alternative 8 below) was selected assuming continued operations at Dale, and a Special Waste Landfill Permit was acquired. EKPC later engaged Burns & McDonnell Engineering Co., Inc. ("Burns & McDonnell") to provide assistance in assessing alternatives, including on-site disposal, for the permanent disposal of Dale's coal ash after decommissioning. Burns & McDonnell's work culminated in its *Report on the Dale Station-Ash Impoundment Closure and Site Restoration Project, April 2014* providing alternatives for EKPC's consideration (designated in this Application as Alternatives 6, 7 and 8).⁹ Brief summaries of all eight alternatives are provided

⁸ In Case No. 2013-00259, the Commission stated that it would expect EKPC to conduct a sensitivity analysis of various alternatives to any proposed environmental compliance plan amendment. Due to the "all or nothing" nature of the environmental rules driving this environmental compliance plan amendment, it is not feasible to perform a sensitivity analysis on the compliance options considered by EKPC in this instance.

⁹ A copy of the Burns & McDonnell Report is attached as Exhibit ET-1 to the Direct Testimony of Ed Tohill.

below, followed by a more detailed description and the reasons for rejection of the first seven and EKPC's selection of the eighth:

- Alternative 1: Construct a new Special Waste Landfill at the Dale Station site.
- Alternative 2: Construct a new Special Waste Landfill in close proximity to Dale Station.
- Alternative 3: Truck Dale's coal ash to an existing Special Waste Landfill at EKPC's H. L. Spurlock ("Spurlock") Power Station in Mason County, Kentucky.
- Alternative 4: Rail Dale's coal ash to the same Special Waste Landfill at Spurlock.
- Alternative 5: Truck Dale's coal ash to an existing private solid waste landfill in Montgomery County, Kentucky, operated by Rumpke of Kentucky.
- Alternative 6: Close the existing impoundments in place on the Dale Station site as a Special Waste Landfill by consolidating the coal ash in Ash Pond 2 and installing a cover system consisting of a geomembrane cap, 18 inches of protective soil cover, followed by six inches of topsoil for seeding.
- Alternative 7: Close the existing impoundments in place on the Dale Station site as a Special Waste Landfill by dewatering all of the wet coal ash in Ash Pond 2, then placing an intermediate soil and geomembrane liner on top of Ash Pond 2, consolidating the remaining coal ash on the property over the intermediate liner system and installing a final cap over all the coal ash. Like Alternative 6, 18 inches of protective soil cover and six inches of topsoil cover, with seeding, would be placed over the cap.

- Alternative 8: Truck Dale’s coal ash to a newly-constructed Special Waste Landfill at Smith Station in Clark County, Kentucky.

B. Alternative 1 – Construct New Special Waste Landfill at Dale Station

13. Alternative 1 was quickly determined to be impracticable due to the physical constraints of the property itself. The Dale Station property includes only two areas that have not been previously developed for other on-site uses. One area, approximately six acres in size, is located on the western portion of the property adjacent to the Kentucky River and within the 100-year floodplain, which does not satisfy Special Waste Landfill siting requirements. An approximately eight-acre, wooded, undeveloped area is located on the east side of Ford Road. This area is unsuitable for development of a landfill due to its location on a severe side slope above a public road, its limited size, and its proximity to neighboring homes (approximately 100 feet). It was determined that development of these two areas would not provide sufficient capacity for a long-term disposal option for coal ash stored at Dale Station and that these areas are not of sufficient size to accommodate the associated infrastructure (water control structures, access roads, and property buffers). The remainder of the Dale Station property located outside of the floodplain is occupied by existing infrastructure; therefore, construction of an appropriate disposal facility at Dale Station is not a practicable alternative.

C. Alternative 2 – Construct New Special Waste Landfill in Close Proximity to Dale Station

14. Due to the proximity to Dale Station, and reduced hauling cost, this alternative was initially considered by EKPC to be its preferred off-site alternative. EKPC, in conjunction with a retained engineering firm, conducted an analysis of the area surrounding Dale Station to locate a potential site for a new Special Waste Landfill. Several factors were used to evaluate the suitability of a potential site, including available land area, topography, access from Dale Station,

and impacts to traffic and transportation routes. The assessment resulted in the identification of a potentially suitable property located approximately 2.5 miles to the northeast of Dale Station and a potential Special Waste Landfill site on the property.

The identified property was reasonably accessible from Dale Station, contained sufficient area for the landfill, and appeared likely to result in limited environmental impacts based on a review of available material (USGS maps and aerial photography). EKPC then entered into negotiations with the property owners to allow further study and permitting.

After EKPC and the property owners had made significant progress toward the negotiation of a purchase option for the property, residents of the surrounding community, aided by the Sierra Club, expressed significant opposition to developing a new Special Waste Landfill in the area. A community action group was formed by several residents, and a public meeting was held at a local elementary school to discuss the issue. After the meeting, public opposition of the possible landfill continued to increase. Several weeks later, EKPC was informed by the landowners of the property that they had decided not to sell the property. Thus, the property became unavailable for purchase and consequently is not a practicable alternative. EKPC then focused its analysis on potential disposal alternatives at a greater distance from Dale Station.

D. Alternatives 3, 4, and 5 – Remove Coal Ash from Dale and Either Truck or Rail to Off-Site Locations

15. These alternatives would require that the coal ash be dewatered, loaded and transported from Dale Station for disposal at a new or existing permitted landfill. Additional requirements vary with the methods of transport used to each off-site alternative and the distance and routing for the transport. In addition, these alternatives would reduce the landfill disposal capacity at the other disposal sites (EKPC's Spurlock Station Special Waste Landfill or a private landfill) by the amount of the coal ash to be disposed of from Dale Station, thereby requiring the

expansion or replacement of those landfill facilities more quickly. EKPC and its consultants developed a cost analysis for each of these alternatives which is provided below:

Off-Site Alternative Cost Analysis¹⁰

<i>Alternative</i>	<i>Excavation, Site Controls, & Closure</i>	<i>Loading, Hauling, & Placing</i>	<i>Rail</i>	<i>Private Landfill Fee</i>	<i>Property Acquisition</i>	<i>Landfill Development</i>	<i>Loss to Landfill Capacity</i>	<i>Total Cost</i>
Alt. 8- Truck CCB to New Landfill at Smith Station	\$13,095,807 ¹¹	\$9,866,193	N/A	N/A	N/A	\$4,000,000	N/A	\$26,962,000
Alt. 3 - Truck CCB to Spurlock Station	\$11,834,508	\$23,260,413	N/A	N/A	N/A	N/A	\$545,175	\$35,640,096
Alt. 4 - Rail CCB to Spurlock Station	\$11,834,508	\$4,714,336	\$13,624,763	N/A	N/A	N/A	\$545,175	\$30,718,782
Alt. 5 - Truck CCB to private landfill	\$11,834,508	\$10,193,893	N/A	\$10,916,528	N/A	N/A	N/A	\$32,944,929

¹⁰ This cost analysis updates the alternatives analysis from the Environmental Assessment to USDA Rural Utilities Service dated October, 2012. That cost analysis was based on a volume of 1,000,000 cubic yards and excavation and site closure cost were not considered since at that time EKPC had no plans to close Dale Station. This analysis includes the volumes and construction methods per the Burns & McDonnell Report along with updated quotes for trucking and private landfill tipping fee.

¹¹ The mitigation fees for the Smith Special Waste Landfill are in the site controls column which is the reason for the cost difference between the Smith Landfill Alternative and the other three alternatives.

It is obvious from this analysis that Alternatives 3, 4 and 5 are more expensive than Alternative 8 which is discussed below.

E. Alternatives 6 and 7 – Pond Closure in Place and Landfill Closure in Place

16. As previously described, Alternatives 6 and 7 present two different options for on-site closure of Ash Ponds 2, 3 and 4. Both alternatives provide for the dewatering of wet ash and placement of all on-site coal ash in Ash Pond 2. The principal difference in the two alternatives is whether all the coal ash is placed together with only a cap covering the structure (Alternative 6), or whether an intermediate liner is placed on top of the coal ash in Ash Pond 2 before placement of the coal ash from Ash Ponds 3 and 4 (Alternative 7). EKPC has rejected both of these alternatives for the following reasons: (1) both alternatives keep Dale’s coal ash permanently located immediately adjacent to the Kentucky River; (2) it is highly improbable that either closure in place option could be successfully permitted as a Special Waste Landfill by the Kentucky Division of Waste Management because the location cannot reasonably meet the Special Waste Landfill siting requirements; and, (3) both alternatives are more costly than Alternative 8, Construction of a new Special Waste Landfill at Smith Station. Burns & McDonnell estimates that Alternative 6’s cost would be \$34.8 million, and Alternative 7’s cost would be \$36.6 million, compared to Alternative 8’s cost of \$27.0 million.¹² Neither Alternatives 6 nor 7 are practicable and have been rejected by EKPC.

F. Alternative 8 – Construct a New Special Waste Landfill at Smith Station

17. EKPC’s Smith Station is located approximately 27.3 miles east of Dale Station, by road. Although the site currently consists of approximately 1,000 MW of gas-fired generation, it was originally purchased and developed in the early 1980s with the intent of

¹² Burns & McDonnell Report, Exhibit ET-1 to the Direct Testimony of Ed Tohill, at pp. 8-6, 9-5 and 7-1.

constructing two 600-MW (net) coal-fired units. However, the need for the project did not materialize as anticipated and the project was delayed in 1984 and cancelled in 1993. In 2011, EKPC also cancelled a project to construct a 278 MW (net) Circulating Fluidized Bed Unit, commonly referred to as “Smith 1-CFB”. As a result of those intended projects, albeit cancelled, the Smith site includes existing access roads and other improvements that could now accommodate the delivery of coal ash from Dale Station.

Vehicular access between Dale Station and Smith Station is available by county, state and interstate roadways, and the proposed haul route has been vetted with the public and regulators as part of the Kentucky Division of Waste Management permitting process. Costs to develop a Special Waste Landfill at the Smith Station and transfer Dale’s coal ash are significantly less expensive than for Alternatives 3, 4, 5, 6 and 7, and the Smith Station Alternative provides a significantly larger area for the Special Waste Landfill and would substantially reduce adverse impacts to the public and environmental resources.

The 3,272 acres of Smith Station would allow for the construction of a Special Waste Landfill of sufficient size to provide for the required disposal of coal ash from Dale Station, along with associated infrastructure and necessary buffers to adjoining property owners. Its size also provides multiple borrow soil areas essential to construction of a Special Waste Landfill and backfill at Dale Station. Significant infrastructure, including roads and water control features, already exists on the property, providing an opportunity for EKPC to minimize environmental impacts associated with the development of infrastructure for the proposed landfill.

Based on the foregoing, EKPC has determined that Alternative 8 represents the most prudent, economical, and environmentally sound alternative to dispose of coal ash generated at

Dale Station.¹³ This is based on the availability of sufficient land area for the proposed landfill and associated infrastructure, the ability to provide significant buffers to adjacent properties, and the minimization of environmental impacts. In addition, this option would provide additional landfill space that would allow for limited disposal of coal ash from EKPC's Cooper and Spurlock stations, if disposal capacity at those facilities becomes unavailable. Burns & McDonnell has estimated that the cost to implement this Alternative will be \$27.0 million.¹⁴

18. On July 29, 2013, EKPC obtained a Permit from the Kentucky Division of Waste Management to construct a Special Waste Landfill at Smith Station.¹⁵ The permitted Special Waste Landfill area is 36.91 acres, with the Total Permitted Area being 642.03 acres, and having a total permitted landfill capacity of 3,834,579 cubic yards. The Permit allows for the disposal of "coal and biomass combustion by-products" generated by EKPC's Dale, Spurlock and Cooper Stations.¹⁶ The permitted Special Waste Landfill will contain both a bottom liner and a cap with two options for bottom liner construction. Option 1 is comprised of a six inch compacted soil liner and an engineered geosynthetic clay liner with a geomembrane liner and a leachate drainage layer. Option 2 would be comprised of a twenty-four inch compacted clay liner with a geomembrane liner and a leachate drainage layer. The options exist to provide the flexibility to meet the Environmental Protection Agency's proposed CCR Rule. The Permit also requires

¹³ EKPC's Board of Directors approved this strategy at its May, 2014, Board meeting. Attached hereto as Exhibit 2 is the Board Resolution granting this approval, and same is incorporated herein by reference.

¹⁴ Burns & McDonnell Report, Exhibit ET-1 to the Direct Testimony of Ed Tohill, at p. 7-1. The precise cost contained in the Report is \$26.962 million.

¹⁵ A copy of this Permit is attached as Exhibit JBP-1 to the Direct Testimony of Jerry B. Purvis. Other regulatory permits must still be obtained. These permits are discussed in greater detail in the Direct Testimony of Jerry B. Purvis.

¹⁶ The John Sherman Cooper Power Station is located near Burnside, Pulaski County, Kentucky, and has a total net plant generation capacity of 341 MW. The H. L. Spurlock Power Station is located near Maysville, Mason County, Kentucky, and has a total net equivalent plant generation capacity of 1376 MW (which includes the steam supply to an adjacent industrial customer).

EKPC to engage in routine groundwater and surface water monitoring. Finally, when the Smith Special Waste Landfill is at capacity, an engineered cap will be installed.

19. Even though the Permit for the Special Waste Landfill allows a total site volume of 3,834,579 cubic yards of coal ash, EKPC's request in this case is for the Commission to approve a CPCN for the construction of only a 750,000 cubic yard landfill cell. When EKPC made application to permit the Smith Special Waste Landfill, it did so requesting a geographical area (acres) and a volume (cubic yards) sufficient to receive coal ash from all of its coal-fired plants producing coal ash as a by-product of the combustion process – Spurlock, Cooper and Dale. Although it is not currently EKPC's plan to dispose of coal ash from Spurlock or Cooper at the proposed Smith landfill on a regular basis, an emergency could arise rendering disposal of coal ash at the existing Special Waste Landfills at either Spurlock or Cooper, or both, impracticable or impossible. In such event, EKPC needs the operational flexibility to temporarily divert coal ash disposal from these other locations. Therefore, while it is estimated that approximately 560,000 cubic yards of Dale coal ash will be disposed of at the new Smith Special Waste Landfill, EKPC requests approval to increase the capacity of the proposed landfill to 750,000 cubic yards, to allow for the possibility of disposing of Spurlock and Cooper coal ash there if necessary. The extra 200,000 cubic yards of capacity approximates the total 30-day coal ash production at Spurlock assuming a high capacity factor, which would surpass a similar emergency capacity for Cooper operations for the same period. Should EKPC ever need to increase the size of the cells at Smith Special Waste Landfill in excess of 750,000 cubic yards, it would make application to the Commission for a new CPCN consistent with such need. The cost of upsizing the landfill from 560,000 cubic yards to 750,000 cubic yards is *de minimis*.

Regardless, the small extra cost associated with the upsizing is also recoverable through the Environmental Surcharge Mechanism.

G. Project Justification

20. The justifications for the Project are as follows:

- Because Dale Station will be decommissioned, the current on-site coal ash impoundments will cease to be used as impoundments and they will lose the permit by rule status provided by 401 KAR 45:060 Section 1(4). Any coal ash remaining in the former impoundments becomes a “waste”, and the former impoundments must be permitted as a Special Waste Landfill under Kentucky regulations. Those regulations effectively prohibit the permitting of a Special Waste Landfill within 250 feet of a perennial stream, within 100 feet of a property line and within the 100-year floodplain. Although some of the impoundments predate the present regulatory scheme, because of these restrictions, it is almost certain that a Special Waste Landfill permit could not be obtained for the former impoundments at Dale Station.
- There are no suitable locations on the approximately 80-acre Dale Station site located outside of the 100-year floodplain to construct a new Special Waste Landfill.
- EKPC identified and attempted to purchase sufficient acreage within close proximity to Dale Station to construct a Special Waste Landfill to accept Dale’s coal ash but was ultimately unsuccessful because of the adamant objections of a community action group and unwillingness of the identified property owner to sell the property.

- EKPC already has a permitted Special Waste Landfill at Smith Station which allows for the disposal of all of Dale’s coal ash from its impoundments. Unlike the impoundments at Dale, the new Special Waste Landfill at Smith: (1) is engineered to comply with current special waste regulations; (2) will contain both cap and bottom liner systems; (3) will include periodic groundwater and surface water monitoring to ensure adequate water quality and the maintenance of the overall ecological integrity at the site; (4) will, because of the vast size of Smith Station, provide many acres of land capable of supplying borrow soil for landfill construction and Dale site reclamation, as well as a substantial buffer for the public from noise, work activity and aesthetic concerns; (5) will eliminate the risk of a natural occurrence (flood, seismic event, etc.) causing a catastrophic release of coal ash into the Kentucky River; and (6) considering all attendant risks, is the most reasonable least cost alternative for the environmentally prudent and permanent disposal of Dale’s coal ash.

H. Smith Station Special Waste Landfill Construction Plan and Timeline

21. The Smith Special Waste Landfill has been designed and will be constructed in accordance with all Kentucky legal requirements relating to Special Waste Landfills. Construction activities will generally include installation of a groundwater monitoring network, construction of sedimentation controls, clearing and grubbing, stripping of vegetative cover, excavation to subgrade, installation of an underdrain system, placement of the bottom liner system, installation of a leachate collection system, and placement of a protective cover. The current Project schedule assumes that landfill construction activities will be far enough along to allow the new landfill to begin accepting dewatered coal ash from Dale for use as a protective

cover by late summer/early fall of 2015. Construction and handling for dewatering, excavating and moving coal ash from Dale during the wet months (November to April) can be challenging, so the excavation of ash may be temporarily halted during those months. The construction plan contemplates an estimated Project completion in the 4th Quarter of 2017.

I. Dale Station Coal Ash Removal and Transport Plan

22. The purpose of the Burns & McDonnell Report was to develop the best on-site disposal alternatives and provide a high level scope and cost of the Project to use in an “on par” comparison with the ash disposal alternatives that had already been developed. The original sequence proposed in the Burns & McDonnell Report for ash pond removal began with Ash Pond 3, followed by removal of coal ash from Ash Pond 4, then Ash Pond 2 and other remaining areas. Collaboration between EKPC and Burns & McDonnell on the early phases of detailed design has commenced, and it is likely that the ash removal sequencing will change. Many factors will be considered before the final sequencing determination is made, including excavation equipment placement, shoreline protection, dewatering strategies, transmission line relocation constraints, seasonal removal volume management, etc. Regardless of the ultimate sequence of removal, attention will be given to employ measures meant to assure the safety of workers on the site and the public along the haul route, and reduce the risk of an environmental release during the removal and hauling process.

23. EKPC has consulted with the Kentucky Division of Waste Management regarding the proposed closure of the Ash Ponds at Dale Station and has presented to the Division its proposed plan. By letter dated July 14, 2014, the Division communicated its “agreement with

[EKPC's] approach for conducting closure" of the Ash Ponds and summarized its expectations with respect to EKPC's proposed plan.¹⁷

24. The proposed truck haul route from Dale Station to Smith Station is approximately 27.3 miles each way. The route is comprised of county and state highways and interstates with the exception of the plant drives.¹⁸ All haul trucks will be covered when full. The Burns & McDonnell Report assumes an eight-hour workday and one load out point, and that 132 truck loads of coal ash can be hauled from Dale to Smith each work day. A fleet of 33 trucks would be required for such a plan. It is important to note, however, that these estimates are preliminary and subject to change; the site loading and truck haul plan will be developed with the detailed design to balance ash volume with the appropriate construction windows, while protecting the safety of the project work force and the public.

J. Transmission Line Relocation Plan

25. EKPC presently has a 138/69 kV transmission substation at its Dale Station site. Three (3) 138 kV transmission lines and four (4) 69 kV transmission lines terminate at this substation. This substation presently serves two purposes. One of these is to provide the point of connection for the four generating units at Dale Station. The lines terminated at this substation provide the outlet capability needed when these generating units operate, in order to deliver the generated power where needed within the EKPC system. The second important purpose of this substation is to support a reliable, adequate transmission grid in the area for transmission of power between key EKPC facilities, and to deliver energy to local EKPC

¹⁷ A copy of the Division's letter dated July 14, 2014, is attached as Exhibit JBP-2 to the Direct Testimony of Jerry B. Purvis.

¹⁸ See Exhibit ET-1 to the Direct Testimony of Ed Tohill, Appendix B, Drawing C001, for the anticipated haul route.

delivery points. This is an important function of this substation even when the Dale generating units are not operating, and will continue to be after the units are retired. Because of the limited size of the Dale Station site, four of these transmission lines and supporting structures are located between and along Ash Ponds 2 and 3, with the other three lines located across the southern end of the site. In order for EKPC to safely and properly remove coal ash from the Ash Ponds, the route of these transmission lines will first need to be relocated on the property.¹⁹ EKPC intends to design and accomplish the relocation in such a manner as to avoid any additional relocation activities should the Dale site be redeveloped in the future.

26. The subject lines that need to be re-located for the Project are the following:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹⁹ An aerial photograph of the Dale Station site containing a superimposed representation of the proposed relocation of these transmission lines is attached as Exhibit MC-1 to the Direct Testimony of Matt Clark. The estimated length of this relocation is 3,000 feet and the relocation involves the replacement or upgrading of existing electric transmission lines on a common structure. Therefore, EKPC believes that a CPCN for this portion of the Project is not required pursuant to KRS 278.020(2). However, if the Commission disagrees with EKPC on this point, EKPC respectfully asks that the Commission also treat this Application as a request for approval of a CPCN for the transmission relocation.

²⁰

[REDACTED]

- The Dale-Headquarters 69 kV circuit (includes 69 kV connection points for the EKPC Hunt, Miller-Hunt, Sideview, Reid Village, Mt. Sterling, Cane Ridge, and Millersburg distribution substations)
- The Dale-Powell County 69 kV circuit (includes 69 kV connection points for the EKPC JK Smith, Trapp, Hargett, Clay City, Hardwicks Creek, and Stanton distribution substations)²¹

Minimizing the duration that these lines are out of service is critical to reliable operation of the EKPC transmission system.

K. Project Schedule

27. Below is a replication of the Preliminary Project Schedule Summary contained in Exhibit ET-1 to the Direct Testimony of Ed Tohill, Table 6-1:

Activity/Milestone	Date
Engineering Design for Permitting Support Complete	10/1/2014
General Construction Season 1 Starts	4/13/2015
Demobilize for Winter, Stabilize Site	11/23/2015
General Construction Season 2 Starts	4/4/2016
Relocate Transmission Lines	9/19/2016
Demobilize for Winter, Stabilize Site	11/14/2016
General Construction Season 3 Starts	4/4/2017
Project Completion	10/27/2017
Project Closeout Completion	11/24/2017

²¹ While the two subject 69 kV lines to be re-located do not provide the same regional transmission benefits as the 138 kV lines, these lines do provide a path for transmission of power to a large number of end-use consumers of EKPC's Member-Owner cooperatives. The two lines provide service to a total of thirteen (13) distribution substations, serving approximately 16,000 consumers in six (6) counties. While service can normally be maintained to these distribution substations from the remote substations (the Headquarters and Powell County substations), a subsequent outage of either of these remote ends would result in extended outages for the distribution substations served from these circuits, since the Dale Station source would not be available to deliver power to these substations. Therefore, it is necessary to minimize the duration of the outages of the Dale-Headquarters and the Dale-Powell County 69 kV circuits to maintain the dual-feed capability to these distribution substations to avoid the possibility of extended outages for end-use consumers in the area.

So that EKPC may begin work in the Spring of 2015, and to keep the Project on schedule for a 4th Quarter 2017 completion, and assuming that the Commission approves the requests made in this Application, the Commission is requested to issue a final Order in the case on or before March 2, 2015.

L. Project Cost Estimate

28. Below is a replication of the Estimated Capital Cost Summary for the Project contained in Exhibit ET-1 to the Direct Testimony of Ed Tohill, Table 7-1:

Dale Ash Restoration	Price Breakdown
Project Costs	
Engineering	\$750,000
Mobilization	\$400,000
Removing Rock and Riprap and Replacing	\$1,365,000
Demolition	\$452,000
Grading and Drainage	\$1,447,000
Ash Removal and Hauling	\$9,857,000
Grading and Capping Ash at J.K. Smith	\$1,140,000
Erosion Control	\$399,000
Overhead Transmission Relocation	\$1,980,000
Total Direct Costs	\$17,790,000
Construction/Project Indirects	
Construction Management & Indirects	Incl in Owner's Cost
Insurance	Incl in Owner's Cost
Performance Bond	Incl in Owner's Cost
Permits	Incl in Owner's Cost
Escalation (3%)	\$512,000
Contingency (20%)	\$3,408,000
Total Indirect Costs	\$3,920,000
Owner's Costs	\$1,252,000
J. K. Smith Landfill Construction Costs	\$4,000,000
Total Project Cost	\$26,962,000

IV. REQUEST FOR APPROVAL OF A CPCN

29. Pursuant to 807 KAR 5:001 Section 15(2)(a), the facts relied upon to show that the Project is required for the public's convenience and necessity are as follows: (1) once EKPC finally decommissions Dale Station the on-site coal ash impoundments (Ash Ponds 2, 3 and 4) and the coal ash remaining in the former impoundments becomes a "waste", and the former impoundments must be permitted as a Special Waste Landfill under Kentucky regulations. Because those regulations effectively prohibit the permitting of a Special Waste Landfill within 250 feet of a perennial stream, within 100 feet of a property line or within the 100-year floodplain, it is highly improbable that a Special Waste Landfill Permit can be obtained for the former impoundments at Dale Station; (2) if allowed to remain in such close proximity to the Kentucky River, the impoundments at Dale Station pose an unacceptable long-term risk of future failure due to some natural occurrence such as flood or seismic event; (3) EKPC already has a Special Waste Landfill permitted at Smith Station which is capable of, and provides the most reasonable alternative for, receiving coal ash from Dale Station for the enumerated reasons set forth in Paragraph 20 above; and, (4) after the attendant risks of all the alternatives are considered and weighed, the Project presents the safest and most reasonable, least cost option for the removal of Dale's coal ash and its permanent disposal. EKPC has considerable experience in excavating, transporting, and disposing of ash by this method.

30. Pursuant to 807 KAR 5:001 Section 15(2)(b), EKPC states that it has submitted various federal and state permit applications which are outlined in detail in the Direct Testimony of Jerry B. Purvis. EKPC is working toward receipt of all necessary permits and expects approvals in 2014-15.

31. Pursuant to 807 KAR 5:001 Section 15(2)(c), a full description of the proposed location of the new construction, including a description of the manner in which same will be constructed, is included in the Direct Testimony of Matt Clark. There are no public utilities, corporations, or persons with whom the proposed new construction is likely to compete.

32. Pursuant to 807 KAR 5:001 Section 15(2)(d)(1), one (1) copy of maps in electronic format and two (2) copies of maps in paper format to suitable scale showing the location of the proposed new construction are provided as Exhibit 3 to this Application and incorporated herein by reference. There are no facilities owned by others located anywhere within the map area.

33. Pursuant to 807 KAR 5:001 Section 15(2)(d)(2), one (1) copy of the plans and specifications and drawings of the proposed facility in electronic format and two (2) copies of the plans and specifications and drawings of the proposed facility in paper format are attached hereto and incorporated herein as Exhibit 4.

34. Pursuant to 807 KAR 5:001 Section 15(2)(e), EKPC plans to finance the Project by using the remaining proceeds of its 2014A Private Placement.²² EKPC has pre-funded this Project, and as expenditures are incurred, EKPC will utilize balances in its short-term investments for Project payments.

²² The Commission approved the Private Placement financing in Case No. 2013-00306, *East Kentucky Power Cooperative, Inc. Application for Approval of the Issuance of up to \$200,000,000 of Secured Private Placement Debt, for the Amendment and Extension of an Unsecured Revolving Credit Agreement in an Amount up to \$500,000,000, and for the Use of Interest-Rate Management Instruments* (Ky. PSC September 27, 2013). On December 11, 2013, EKPC entered into a Bond Purchase Agreement for \$200,000,000 4.61% First Mortgage Bonds, Series 2014A due February 2044. The transaction closed and funded on February 6, 2014.

35. Pursuant to 807 KAR 5:001 Section 15(2)(f), the estimated total capital cost of construction for the Project is \$26.962 million. Operations and Maintenance (“O&M”) costs associated with the Project are estimated at \$26,132 annually.²³

36. The Project is necessary and will not result in wasteful duplication of facilities. The Commission is therefore respectfully requested to issue a CPCN to EKPC as set forth herein.

**V. REQUEST FOR APPROVAL OF ENVIRONMENTAL SURCHARGE
COMPLIANCE PLAN AMENDMENT AND ENVIRONMENTAL
SURCHARGE COST RECOVERY**

37. Pursuant to KRS 278.183, EKPC is entitled to the current recovery of its costs of complying with the Federal Clean Air Act as amended and those federal, state, or local environmental requirements which apply to coal combustion wastes and by-products from facilities utilized for production of energy from coal in accordance with the utility’s compliance plan. The applicability of KRS 278.183 is provided in the Direct Testimony of Isaac S. Scott.

38. Pursuant to KRS 278.183(2), EKPC has given thirty (30) days advanced notice of its intent to file this Application to Amend its Environmental Compliance Plan and Environmental Surcharge. On or about July 10, 2014, EKPC provided such notice to the Commission, a copy of which is attached hereto as Exhibit 5 and incorporated herein by reference. EKPC’s notice to its Member distribution cooperatives is attached hereto as Exhibit 6 and is also incorporated herein by reference.

39. The estimated total capital cost of the Project is \$26.962 million. The estimated total capital cost includes direct costs of \$17.790 million, indirect costs of \$3.920 million, owner’s costs of \$1.252 million, and J. K. Smith Landfill Construction costs of \$4.000 million.²⁴

²³ For further discussion and clarification of ongoing O&M costs associated with the Project, please refer to the Direct Testimony of Isaac S. Scott, Exhibit 11, at p.5.

²⁴ Please refer to Paragraph 28 of this Application for a more detailed breakdown of these costs.

40. EKPC is proposing that the return authorized for the other projects in its amended environmental compliance plan be applied to the Project. The return is composed of a Times Interest Earned Ratio (“TIER”) component and an average cost of debt component. EKPC proposes that the TIER component be based on a 1.50 TIER, which the Commission approved in Case No. 2011-00032. EKPC proposed that the average cost of debt component be 4.042%. This reflects the average cost of debt as of November 30, 2013 and is consistent with the average cost of debt proposed in EKPC’s most current six-month environmental surcharge review case, Case No. 2014-00051.

41. Once the Project becomes operational, EKPC estimates that the annual revenue requirement impact would be \$4.7 million. This estimated annual revenue requirement translates into an increase of approximately .53% in the environmental surcharge for all customer classes at wholesale and would be passed through as an approximate .38% retail increase. The estimated increase on an average residential customer’s monthly bill would be approximately \$0.34.

42. The inclusion of the Project in the approved Environmental Surcharge Compliance Plan will not require any revisions to EKPC’s Rate ES-Environmental Surcharge.

43. The Project qualifies for surcharge recovery under KRS 278.183. Accordingly, EKPC respectfully requests the Commission to allow it to amend its Environmental Surcharge Compliance Plan to include the Project and to recover the costs associated with the amended Environmental Surcharge Compliance Plan through EKPC’s existing environmental surcharge mechanism.

VI. OVERVIEW OF TESTIMONY

44. In support of this Application, EKPC is tendering the Direct Testimony of several witnesses, including:

- a. Mr. Don Mosier, Executive Vice President and Chief Operating Officer, will offer Direct Testimony describing current facilities, their locations and an overview of the Dale Station property. Mr. Mosier will also discuss issues surrounding the decommissioning of Dale Station, the need for the Project and that the Project will not result in wasteful duplication of facilities. His testimony is attached hereto as Exhibit 7 and incorporated herein by reference.
- b. Mr. Jerry B. Purvis, EKPC's Director of Environmental Affairs, will offer Direct Testimony describing the current status of Ash Ponds 2, 3 and 4 at Dale Station, the environmental rules involving coal ash storage and disposal under which EKPC must operate, their applicability to the coal ash currently stored at Dale Station, EKPC's current permitting activities relating to the Project and EKPC's current environmental compliance plan. His testimony is attached hereto as Exhibit 8 and incorporated herein by reference.
- c. Mr. Matt Clark, Senior Engineer in Production at EKPC, will offer Direct Testimony describing the various alternatives which EKPC considered, details concerning the chosen Project and its scope, plan schedule and costs, along with information on all engineering aspects of the Project. His testimony is attached hereto as Exhibit 9 and incorporated herein by reference.
- d. Mr. Ed Tohill, Department Manager for Civil Engineering with Burns & McDonnell, will offer Direct Testimony regarding his Firm's scoping study addressing the possible closure in place of Dale Ash Ponds 2, 3 and 4, and, alternatively, addressing a site restoration project to remove coal ash from Dale and transport it to a newly constructed Special Waste Landfill at Smith.

His testimony will also include discussion of estimated schedules and costs for the Project. His testimony is attached hereto as Exhibit 10 and incorporated herein by reference.

- e. Mr. Isaac S. Scott, EKPC's Manager of Pricing, will offer Direct Testimony describing the cost of the Project, EKPC's position with regard to the return that should be earned on the Project, the financing plan for the Project, how the proposed amendment to the environmental compliance plan will be implemented on a monthly basis and the rate impact at the wholesale and retail levels. Mr. Scott will also describe the proposed revisions to the monthly environmental surcharge reporting forms. His testimony is attached hereto as Exhibit 11 and incorporated herein by reference.

VII. CONCLUSION

WHEREFORE, on the basis of the foregoing, EKPC respectfully requests the Commission to:

- (1) Issue a Certificate of Public Convenience and Necessity, pursuant to KRS 278.020(1), for the Project, allowing EKPC to construct a new Special Waste Landfill at Smith Station, up to a capacity of 750,000 cubic yards, to accept for permanent disposal Dale Station's coal ash and coal ash from Spurlock Station and/or Cooper Station on a temporary basis in the event same becomes necessary;

- (2) Authorize EKPC to amend its Environmental Compliance Plan, pursuant to KRS 278.183, and allow EKPC to recover the costs associated with the amended Environmental Compliance Plan through its existing environmental surcharge mechanism; and,

(3) Enter its Final Order in this case on or before March 2, 2015, for the reasons requested herein.

Done at Winchester, Kentucky, this 8th day of September, 2014.

VERIFICATION

The undersigned, pursuant to KRS 278.020(1), KRS 278.183, 807 KAR 5:001, Sections 14 and 15, and other applicable law, hereby verifies that all of the information contained in the foregoing Application is true and correct to the best of my knowledge, opinion and belief.

East Kentucky Power Cooperative, Inc.

By: Anthony S Campbell

Its: Pres. / CEO

Respectfully submitted,

Mark David Goss

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Counsel for East Kentucky Power Cooperative, Inc.

APPENDIX

LIST OF EXHIBITS

Item	Exhibit
Aerial Photograph of Dale Station with Identified Facilities/Infrastructure	1
EKPC Board of Directors Resolution dated May 13, 2014	2
Maps [per 807 KAR 5:001, Section 15(2)(d)(1)]	3
Plans and Specifications and Drawings [per 807 KAR 5:001, Section 15(2)(d)(2)]	4
EKPC's Notice to Commission of Intent to File Application	5
EKPC's Notice to Member Cooperatives of Intent to File Application	6
Direct Testimony of Don Mosier	7
Direct Testimony of Jerry B. Purvis	8
Direct Testimony of Matt Clark	9
Direct Testimony of Ed Tohill	10
Direct Testimony of Isaac S. Scott	11

EXHIBIT 1

**"Aerial Photograph of Dale Station with
Identified Facilities/Infrastructure"**

Application
CONTAINS
LARGE OR OVERSIZED
MAP(S)

RECEIVED ON:
September 8, 2014

EXHIBIT 2

**"EKPC Board of Directors
Resolution dated May 13, 2014"**

**FROM THE MINUTE BOOK OF PROCEEDINGS
OF THE BOARD OF DIRECTORS OF
EAST KENTUCKY POWER COOPERATIVE, INC.**

At a regular meeting of the Board of Directors of East Kentucky Power Cooperative, Inc. held at the Headquarters Building, 4775 Lexington Road, located in Winchester, Kentucky, on Tuesday, May 13, 2014, at 9:30 a.m., EDT, the following business was transacted:

Approval to Submit an Application for a Certificate of Public Convenience and Necessity (“CPCN”) to the Public Service Commission (“PSC”) for the Construction of a Special Waste Landfill at J. K. Smith Generating Station, Approval of the Dale Ash Plan, and Authorization to Award an Engineering Contract for Detailed Design & Construction Management

After review of the applicable information, a motion to approve to Submit an Application for a Certificate of Convenience and Necessity (“CPCN”) to the Public Service Commission (“PSC”) for the Construction of a Special Waste Landfill at J. K. Smith Generating Station, Approval of the Dale Ash Plan, and Authorization to Award an Engineering Contract for Detailed Design and Construction Management, was made by Strategic Issues Committee Chairman Lonnie Vice and passed by the full Board to approve the following:

Whereas, East Kentucky Power Cooperative, Inc., (“EKPC”) presently has four coal fired steam turbine driven generators located at the William C. Dale Power Station, in Ford, Kentucky, and commercial operation began on site in December 1954;

Whereas, On April 8, 2014 the EKPC Board voted to cease coal generating operation at Dale by April 15, 2015;

Whereas, Construction of a special waste landfill that meets current design standards for ash disposal and reclamation of the Dale site is economically preferred and virtually eliminates the risk of an accidental ash release from the site;

Whereas, Studies have concluded that a special waste landfill at Smith is the best alternative for disposal of ash from Dale, and 404/401 permits have been secured for the Smith Landfill;

Whereas, The Dale – Avon 138kV, Dale – Smith 138kV, Dale – Powell 69kV, and Dale - Headquarters 69kV transmission lines must be relocated as part of the Dale ash plan;

Whereas, The Dale ash plan implementation can best be supported by issuing a Notice to Proceed for Engineering Design expediently; now, therefore, be it

Resolved, The EKPC Board hereby approves the submittal by the President and Chief Executive Officer, or his designee, of an application for a Certificate of Public Convenience and Necessity for the construction of a special waste landfill at Smith to accept the ash stored at Dale, and

Resolved, The EKPC Board hereby authorizes the President and Chief Executive Officer, or his designee, to take all necessary actions to timely implement a plan to remove ash from Dale and place it in the Smith Landfill when appropriately permitted, and

Resolved, The EKPC Board hereby authorizes the President and Chief Executive Officer, or his designee, to take all necessary actions to timely implement a plan to reclaim the Dale site, and

Resolved, The EKPC Board hereby authorizes the President and Chief Executive Officer, or his designee, to take all necessary actions to timely implement a plan to relocate the Dale – Avon 138kV, Dale – Smith 138kV, Dale – Powell 69kV, and Dale - Headquarters 69kV transmission lines, as part of the Dale ash plan, and

Resolved, The EKPC Board hereby authorizes the President and Chief Executive Officer, or his designee, to award an Engineering Contract for Detailed Design & Construction Management for the Dale ash plan, to amend its Environmental Compliance Plan and seek rate recovery for all costs related to these actions from the Kentucky Public Service Commission and to submit any other notices or requests for approvals and environmental compliance necessary to establish the Smith special waste landfill, and execute the Dale ash plan as specified.

The foregoing is a true and exact copy of a resolution passed at a meeting called pursuant to proper notice at which a quorum was present and which now appears in the Minute Book of Proceedings of the Board of Directors of the Cooperative, and said resolution has not been rescinded or modified.

Witness my hand and seal this 13th day of May 2014.

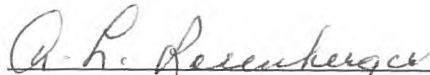

A. L. Rosenberger, Secretary

EXHIBIT 3

**"Maps [per 807 KAR 5:001,
Section 15(2)(d)(1)]"**

Application
CONTAINS
LARGE OR OVERSIZED
MAP(S)

RECEIVED ON:
September 8, 2014

EXHIBIT 4

**"Plans and Specifications and Drawings
[per 807 KAR 5:001, Section 15(2)(d)(2)]"**

Application
CONTAINS
LARGE OR OVERSIZED
MAP(S)

RECEIVED ON:
September 8, 2014

EXHIBIT 5

**"EKPC's Notice
to Commission of Intent
to File Application"**

Mark David Goss
mdgoss@gosssamfordlaw.com
(859) 368-7740

July 10, 2014

RECEIVED

JUL 11 2014

**PUBLIC SERVICE
COMMISSION**

Mr. Jeffrey Derouen
Executive Director
Kentucky Public Service Commission
P.O. Box 615
211 Sower Boulevard
Frankfort, KY 40602

Dear Mr. Derouen:

Enclosed please find for filing with the Commission an original and ten (10) copies of East Kentucky Power Cooperative, Inc.'s notice of intent to file Application on or after August 10, 2014. Please return a file-stamped copy to me.

Do not hesitate to contact me if you have any questions.

Very truly yours,



Mark David Goss

Enclosures

M: Clients\4000 - East Kentucky Power\1450 - Dale Ash Landfill CPCN
Correspondence\Ltr. to Jeff Derouen (2) - 140710.docx



Mark David Goss
mdgoss@gosssamfordlaw.com
(859) 368-7740

July 10, 2014

Mr. Jeffrey Derouen
Executive Director
Kentucky Public Service Commission
P.O. Box 615
211 Sower Boulevard
Frankfort, KY 40602

RECEIVED

JUL 11 2014

PUBLIC SERVICE
COMMISSION

Dear Mr. Derouen:

East Kentucky Power Cooperative, Inc. ("EKPC") hereby gives notice pursuant to KRS 278.183(2) of its intent to file an Application under KRS 278.183. This Application will request approval of:

1. An Amended Environmental Surcharge Compliance Plan;
2. A Revised Environmental Surcharge to Recover the Costs of this Amended Plan; and
3. A Certificate of Public Convenience and Necessity Pursuant to KRS 278.020(1) for the Construction of a Special Waste Landfill at EKPC's J. K. Smith Station and the Removal of Impounded Ash from its William C. Dale Station.

EKPC plans to file this Application on or after August 10, 2014.

We respectfully request that the following parties representing EKPC be included on the Commission's Service List in this proceeding:

Mark David Goss
David S. Samford
Goss Samford, PLLC
2365 Harrodsburg Road, Suite B-325
Lexington, KY 40504
mdgoss@gosssamfordlaw.com
david@gosssamfordlaw.com

Patrick Woods
East Kentucky Power Cooperative, Inc.
P. O. Box 707
Winchester, KY 40392-0707
patrick.woods@ekpc.coop
psc@ekpc.coop

If you have any questions or require additional information, please contact me.

Very truly yours,

Mark David Goss


cc: Hon. Jennifer B. Hans
Hon. Michael L. Kurtz

EXHIBIT 6

**"EKPC's Notice to
Member Cooperatives of
Intent to File Application"**

MEMORANDUM

TO: Member System CEO's

FROM: Anthony S. Campbell 

DATE: August 27, 2014

SUBJECT: Notice of Amendment to EKPC Environmental Compliance Plan and Environmental Surcharge Mechanism

On Friday, July 11, 2014, EKPC gave notice to the Kentucky Public Service Commission ("Commission") of its intent to file an Application for Approval of an Amendment to its Environmental Compliance Plan and Environmental Surcharge Mechanism. The notice also indicated EKPC would be seeking a Certificate of Public Convenience and Necessity ("CPCN"). EKPC plans to file this Application on or after Tuesday, September 2, 2014.

The amendment will enable EKPC to recover costs associated with the development and construction of a Special Waste Landfill at the J. K. Smith Station that will be utilized to store the coal ash currently stored at the William C. Dale Station. If approved, EKPC would begin recovering these costs around the time the landfill becomes operational.

As a result of the decision to decommission the Dale Station, EKPC had to address the issue of what to do with the coal ash from the Dale Station which is currently stored on the property in impoundments adjacent to the Kentucky River. With the decommissioning of the Dale Station, the coal ash in the on-site impoundments becomes a "waste". The impoundments would not qualify for a Special Waste Landfill permit and there is insufficient useable property at the Dale Station site to construct the needed Special Waste Landfill. EKPC already has a permitted Special Waste Landfill at the Smith Station and this Application requestes a CPCN to construct a 750,000 cubic yard landfill cell. This cell will be fully compliant with current special waste regulations and will utilize approximately 20 percent of the total permitted site volume. Upon completion of the landfill cell, EKPC will transport the coal ash from the Dale Station impoundments to the Smith Special Waste Landfill.

If approved, once the project becomes fully operational in 2017, the request is expected to amount to an increase of about 0.53 percent in the environmental surcharge for all customer classes at wholesale, and would be passed through as an approximate 0.38 percent retail increase. The estimated impact on the average monthly residential bill

would be \$0.34. The increase would be phased in as the project is built and begins operation. The Commission will have until early March 2015 to rule on EKPC's request.

Once it is filed, a person may examine this Application at the offices of EKPC located at 4775 Lexington Road, Winchester, Kentucky. This Application may also be examined at the offices of the Commission located at 211 Sower Boulevard, Frankfort, Kentucky, Monday through Friday, 8:00 a.m. to 4:30 p.m., or through the Commission's Web site at <http://psc.ky.gov> . Any comments regarding this Application may be submitted to the Commission through its Web site or by mail to Public Service Commission, P. O. Box 615, Frankfort, Kentucky 40602.

The estimated bill impact contained in this notice is based on the environmental compliance plan amendment as proposed by EKPC but the Commission may order an environmental compliance plan that differs from the proposed environmental compliance plan and resulting estimated bill impacts contained in this notice.

A person may submit a timely written request for intervention to the Public Service Commission, P. O. Box 615, Frankfort, Kentucky 40602, establishing the grounds for the request including the status and interest of the party. If the Commission does not receive a written request for intervention within thirty (30) days of the initial publication or mailing of the notice, the Commission may take final action on the Application.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

AN APPLICATION OF EAST KENTUCKY)	
POWER COOPERATIVE, INC. FOR A)	
CERTIFICATE OF PUBLIC CONVENIENCE)	
AND NECESSITY FOR CONSTRUCTION OF AN)	
ASH LANDFILL AT J. K. SMITH STATION TO	)	CASE NO.
RECEIVE IMPOUNDED ASH FROM WILLIAM	)	2014-00252
C. DALE STATION, AND FOR APPROVAL OF A)	
COMPLIANCE PLAN AMENDMENT FOR)	
ENVIRONMENTAL SURCHARGE RECOVERY)	

DIRECT TESTIMONY OF DON MOSIER
ON BEHALF OF EAST KENTUCKY POWER COOPERATIVE, INC.

Filed: September 8, 2014

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND**
2 **OCCUPATION.**

3 A. My name is Don Mosier and my business address is East Kentucky Power
4 Cooperative, Inc. ("EKPC"), 4775 Lexington Road, Winchester, Kentucky 40391.
5 I am Executive Vice President and Chief Operating Officer at EKPC.

6 **Q. PLEASE STATE YOUR EDUCATION AND PROFESSIONAL**
7 **EXPERIENCE.**

8 A. I obtained my Bachelor of Science degree in civil engineering from the University
9 of Virginia and my Master of Business Administration degree from the Kenan-
10 Flagler Business School at the University of North Carolina. My professional
11 experience includes work at Carolina Power & Light (now Progress Energy) in
12 Raleigh, North Carolina, developing merchant generation projects and marketing
13 activities, regulatory affairs, and nuclear power plant engineering and operations.
14 I also was an engineering manager of U.S. Operations for Canatom Corp., a
15 Toronto-based engineering firm that provides nuclear plant engineering and
16 construction services. Immediately prior to joining EKPC, I was Vice President of
17 St. Louis-based Ameren Energy Marketing ("AEM"), a subsidiary of Ameren
18 Corp. At AEM, I managed wholesale power trading, plant dispatch, NERC and
19 SERC compliance, transmission and congestion management activities, and
20 customer account management for Ameren Corporation's unregulated merchant
21 generation fleet located in the Midcontinent ISO and PJM Regional Transmission
22 Organization.

1 **Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF YOUR DUTIES AT**
2 **EKPC.**

3 A. I manage the day-to-day operations of power production and construction, power
4 delivery, power supply, and system operations. I report directly to EKPC's Chief
5 Executive Officer, Mr. Anthony Campbell.

6 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
7 **PROCEEDING?**

8 A. The purpose of my testimony is to describe the relevant facilities currently owned
9 and operated by EKPC, their locations, and an overview of EKPC's William C.
10 Dale Station ("Dale Station") property. I will also discuss issues surrounding the
11 decommissioning of Dale Station, the construction of a Special Waste Landfill¹ at
12 EKPC's J. K. Smith Station ("Smith Station"), and the removal of coal ash from
13 Dale Station for transport and disposal at Smith Station (collectively, the
14 "Project"). Finally, I will discuss the need for the Project and why the Project
15 will not result in wasteful duplication of facilities.

16 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

17 A. No.

18 **Q. WHERE IS EKPC'S DALE STATION LOCATED?**

19 A. EKPC's Dale Station is located on the Kentucky River at Ford, Clark County,
20 Kentucky, approximately ten miles southwest of Winchester, Kentucky.

21 **Q. PLEASE DESCRIBE THE GENERATING UNITS THAT ARE LOCATED**
22 **AT EKPC'S DALE STATION.**

¹ "Special Waste Landfill" means a landfill designed in accordance with the technical requirements of 401 KAR 45:110.

1 A. EKPC's Dale Station is home to four electric baseload generating units comprised
2 of pulverized coal-fired boilers with steam turbine generators. Units 1 and 2, each
3 rated at 25 Megawatts ("MW"), were commissioned in 1954 and comprised the
4 first power plant facility constructed by EKPC. Units 3 and 4, each rated at 75
5 MW, were commissioned in 1957 and 1960, respectively. The total rated
6 generating capacity at EKPC's Dale Station is 200 MW.

7 **Q. WHAT IS THE CURRENT OPERATING STATUS OF THE**
8 **GENERATING UNITS LOCATED AT EKPC'S DALE STATION?**

9 A. In April of 2014, EKPC made the decision to close Dale Station Units 1 and 2 and
10 begin exploring the marketing of the assets of those units. EKPC also decided at
11 that time to idle Dale Units 3 and 4 effective in April of 2015 as a result of the
12 Environmental Protection Agency's Mercury and Air Toxics Standards rule.
13 Until that time, Dale Units 3 and 4 are available for economic dispatch in PJM.

14 **Q. WHAT DOES EKPC PLAN TO DO WITH RESPECT TO DALE**
15 **STATION UNITS 3 AND 4?**

16 A. Beginning in April 2015, EKPC plans to condition Dale Units 3 and 4 for
17 indefinite storage. Should market, regulatory or other conditions change at some
18 point in the future to allow Dale Units 3 and 4 to operate economically again, the
19 units may be available for retrofit or conversion, subject to regulatory or other
20 approvals.

21 **Q. WHAT IS THE TOTAL APPROXIMATE ACREAGE OF EKPC'S DALE**
22 **STATION SITE, AND HOW IS THAT ACREAGE UTILIZED BY EKPC?**

1 A. The site upon which EKPC's Dale Station is located contains approximately 80
2 acres. In addition to the four coal-fired electric generating units, Dale Station
3 currently contains two coal ash impoundments, one dry storage area for coal ash,
4 coal piles, and other associated infrastructure. Virtually all of the usable property
5 at the Dale Station site is utilized and occupied.

6 **Q. WHAT IS COAL ASH?**

7 A. Coal ash, also referred to as Coal Combustion Residuals ("CCRs") or Coal
8 Combustion By-Products ("CCBs"), is the material left over from the combustion
9 of coal in a power plant. Dale Station's coal ash includes fly ash, bottom ash, and
10 boiler slag.

11 **Q. HAS THE COMBUSTION OF COAL AT EKPC'S DALE STATION
12 PRODUCED COAL ASH?**

13 A. Yes. When Dale Station Units 1-4 were in full operation, approximately 40,000-
14 60,000 tons of coal ash were typically produced annually. While heavily
15 dependent on moisture content, EKPC conventionally assumes that 1 cubic yard
16 of ash weighs 1 ton.

17 **Q. HAS COAL ASH PRODUCED AT DALE STATION BEEN STORED ON-
18 SITE?**

19 A. Yes. Over time, EKPC has constructed and operated four surface impoundments
20 (or ponds) for the storage of coal ash at Dale Station. The surface impoundments
21 have been designated at various times as Ash Pond 1, Ash Pond 2, Ash Pond 3,
22 and Ash Pond 4. Ash Pond 1 was constructed when Dale Station commenced
23 operation in 1954. Ash Pond 2 was constructed in the late 1950s, and was

1 separated from Ash Pond 1 by an earthen dike; the dike was removed in the late
2 1990s, and the combined Ash Pond 1 and Ash Pond 2 are now referred to as Ash
3 Pond 2. Ash Pond 3 was constructed in the 1960s as an overflow pond for Ash
4 Pond 1. Ash Pond 4 was constructed in 1977.

5 **Q. PLEASE DESCRIBE THE SIZE AND CONSTITUENCIES OF ASH POND**
6 **2, ASH POND 3, AND ASH POND 4 AT PRESENT.**

7 A. Ash Pond 2 currently contains approximately 248,000 cubic yards of coal ash and
8 has a corresponding surface area of approximately 9.5 acres. Ash Pond 3
9 currently contains approximately 58,000 cubic yards of coal ash. Ash Pond 4
10 currently contains approximately 67,000 cubic yards of coal ash and has a
11 corresponding surface area of approximately 10.6 acres. The vast majority of coal
12 ash produced at Dale Station and stored in its ash ponds is bottom ash
13 (approximately 20 percent) and fly ash (approximately 80 percent). Boiler slag
14 and other constituents are estimated to make up less than one percent of the
15 volume of coal ash in the Dale Station ponds.

16 **Q. PLEASE DESCRIBE GENERALLY THE PROCESS BY WHICH COAL**
17 **ASH HAS BEEN PLACED AND STORED IN THE VARIOUS ASH**
18 **PONDS.**

19 A. The coal ash produced as a result of coal combustion at Dale Station was
20 combined with water and piped into one or more of the on-site ash impoundments
21 (generally, Ash Ponds 2 and 4). Historically, these ponds were operated on a
22 rotation system in which coal ash was deposited in one pond while the coal ash in
23 the other pond was dewatered, removed and transferred to an appropriate off-site

1 disposal facility. In the 1970's, Ash Pond 3 was converted to dry storage and has
2 since been used for the dewatering of coal ash removed from Ash Pond 2.
3 Currently, Ash Ponds 2 and 4 are considered impoundments and Ash Pond 3 is
4 considered a dry storage area.

5 **Q. HAS COAL ASH PRODUCED AT DALE STATION BEEN DEPOSITED**
6 **OFF-SITE?**

7 A. Yes. In 1985, EKPC obtained a permit from the Kentucky Division of Waste
8 Management to construct and operate an off-site landfill known as the Hancock
9 Creek Inert Landfill ("Hancock Creek"). Hancock Creek is located on acreage
10 adjacent to EKPC's main headquarters complex on U.S. 60 near Winchester,
11 Clark County, Kentucky. Coal ash produced at Dale Station was dewatered and
12 transported by truck to Hancock Creek for permanent disposal. EKPC utilized
13 Hancock Creek, as well as beneficial reuse projects, to permanently dispose of
14 coal ash produced at Dale Station from and after 1985.

15 **Q. WHY WAS COAL ASH PRODUCED AT DALE STATION DEPOSITED**
16 **AT HANCOCK CREEK?**

17 A. Due to capacity constraints of the on-site impoundments at Dale Station, as well
18 as insufficient space available at the Dale Station site for the construction of a
19 new impoundment, it became necessary for EKPC to secure an off-site location to
20 deposit coal ash produced at Dale Station.

21 **Q. CAN EKPC CONTINUE TO DEPOSIT COAL ASH AT HANCOCK**
22 **CREEK?**

1 A. No. Hancock Creek reached maximum capacity and was closed in 2010. At that
2 time, EKPC began an evaluation to identify a new disposal site for the coal ash
3 produced at Dale Station.

4 **Q. DOES EKPC ANTICIPATE THAT ADDITIONAL COAL ASH WILL BE**
5 **PRODUCED AT DALE STATION PRIOR TO ITS DECOMMISSIONING?**

6 A. Yes. Dale Station Units 3 and 4 will remain subject to air permit testing
7 requirements and bid economically into the PJM market until April 2015.
8 However, current market conditions are not indicative of significant dispatch and
9 resulting production of coal ash prior to idling.

10 **Q. HOW DOES THE ANTICIPATED DECOMMISSIONING OF DALE**
11 **STATION RELATE TO THE PROJECT?**

12 A. As further described in the Direct Testimony of Jerry B. Purvis, EKPC's Director
13 of Environmental Affairs, certain environmental rules concerning the storage and
14 disposal of coal ash require EKPC to take action with respect to the coal ash
15 presently stored at Dale Station upon the station's decommissioning. As
16 described in other testimony, EKPC has considered various options as to the
17 permanent disposition of the coal ash at Dale Station and has determined that the
18 most prudent action is to remove the coal ash and haul and dispose of it at a
19 newly-permitted Special Waste Landfill at Smith Station.

20 **Q. PLEASE DESCRIBE GENERALLY EKPC'S SMITH STATION.**

21 A. EKPC's Smith Station is located near Trapp, Clark County, Kentucky,
22 approximately 12 miles east from Winchester, Kentucky, and encompasses 3,272
23 acres. The Smith Station site is currently used as an electric generating station

1 with nine gas-fired combustion turbines having a net generating capacity of 784
2 MW in the summer and 1,032 MW in the winter.

3 **Q. PLEASE DESCRIBE THE RELIEF SOUGHT BY EKPC IN THIS**
4 **PROCEEDING.**

5 A. EKPC seeks a Certificate of Public Convenience and Necessity (“CPCN”) for the
6 Project, thus allowing it to construct a new 750,000-cubic yard Special Waste
7 Landfill at Smith Station. EKPC intends to deposit up to approximately 560,000
8 cubic yards of coal ash from Dale Station at the proposed Smith Special Waste
9 Landfill. Additionally, and although it is not currently EKPC’s plan to dispose of
10 coal ash from its H. L. Spurlock Power Station (“Spurlock”) or John Sherman
11 Cooper Power Station (“Cooper”) at the proposed Smith Special Waste Landfill
12 on a regular basis, an emergency could arise rendering disposal of coal ash at the
13 existing Special Waste Landfills at either Spurlock or Cooper, or both,
14 impracticable or impossible. In such event, EKPC needs the operational
15 flexibility to temporarily divert coal ash disposal from these other locations, and
16 therefore requests a CPCN for the construction of a 750,000 cubic yard landfill
17 cell. EKPC also seeks in this proceeding authorization to amend its
18 Environmental Compliance Plan and permission to recover the costs associated
19 with the amended Environmental Compliance Plan through its existing
20 environmental surcharge mechanism.

21 **Q. UPON WHAT FACTS DOES EKPC RELY TO SHOW THAT THE**
22 **PROJECT IS REQUIRED FOR THE PUBLIC’S CONVENIENCE AND**
23 **NECESSITY?**

1 A. As stated in the Application to which this testimony is attached and as supported
2 by the testimony submitted therewith, (1) once EKPC finally decommissions Dale
3 Station, the on-site coal ash impoundments (Ash Ponds 2, 3 and 4) and the coal
4 ash remaining in the former impoundments become “waste”, and the former
5 impoundments must be permitted as a Special Waste Landfill under Kentucky
6 regulations. Because those regulations effectively prohibit the permitting of a
7 Special Waste Landfill within 250 feet of a perennial stream, within 100 feet of a
8 property line or within the 100-year floodplain, it is highly improbable that a
9 Special Waste Landfill Permit can be obtained for the former impoundments at
10 Dale Station; (2) if allowed to remain in such close proximity to the Kentucky
11 River, the impoundments at Dale Station pose an unacceptable long-term risk of
12 future failure due to some natural occurrence such as flood or seismic event; (3)
13 EKPC already has a Special Waste Landfill permitted at Smith Station which is
14 capable of, and provides the most reasonable alternative for, receiving coal ash
15 from Dale Station; and (4) after the attendant risks of all the alternatives are
16 considered and weighed, the Project presents the safest and most reasonable, least
17 cost option for the removal of Dale Station’s coal ash and its permanent disposal.

18 **Q. WILL THE PROJECT RESULT IN WASTEFUL DUPLICATION OF**
19 **FACILITIES?**

20 A. No. The Project will improve the Dale Station site and likely make it suitable for
21 other future uses. The Special Waste Landfill at Smith Station will not compete
22 with other utility facilities, nor will the Project in any way clutter the relevant
23 landscape. In sum, because the Project is the most reasonable, least cost, feasible

1 alternative available to EKPC, it does not represent excessive investment in
2 relation to efficiency and will not result in an unnecessary multiplicity of physical
3 properties.

4 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

5 A. Environmental compliance regulations have made it economically impracticable
6 in the foreseeable future to operate Dale Station. Consequent to the EKPC Board
7 decision to cease coal fired operations at Dale, site closure and the consideration
8 of disposal alternatives for the coal ash stored on site have been evaluated. The
9 most cost effective, least risky, and most environmentally prudent alternative is to
10 remove the coal ash at Dale and to transport it to a new Smith Special Waste
11 Landfill that meets all current regulatory requirements. Necessary permits for the
12 Smith Special Waste Landfill have been issued, or are in process, and the volume
13 of fill capacity sought in this Application can accommodate the coal ash disposal
14 from Dale and additionally serve as an emergency outlet for coal ash produced at
15 Cooper and Spurlock on a temporary basis. EKPC's proposed Project for the
16 construction of the Smith Special Waste Landfill as necessitated by the closure of
17 the Dale site, including removal of coal ash stored there, is the best plan for the
18 protection of EKPC's Members' interests and the natural resources of the
19 Commonwealth.

20 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

21 A. Yes.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In re the Matter of:

AN APPLICATION OF EAST KENTUCKY)	
POWER COOPERATIVE, INC. FOR A)	
CERTIFICATE OF PUBLIC CONVENIENCE)	
AND NECESSITY FOR CONSTRUCTION OF AN)	
ASH LANDFILL AT J. K. SMITH STATION TO	)	CASE NO.
RECEIVE IMPOUNDED ASH FROM WILLIAM	)	2014-00252
C. DALE STATION, AND FOR APPROVAL OF A)	
COMPLIANCE PLAN AMENDMENT FOR)	
ENVIRONMENTAL SURCHARGE RECOVERY)	

AFFIDAVIT

STATE OF KENTUCKY)
)
 COUNTY OF CLARK)

Don Mosier, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

Don Mosier

Subscribed and sworn before me on this 8th day of September, 2014.

Gwyn M. Willoughby #506144
Notary Public



COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

AN APPLICATION OF EAST KENTUCKY)	
POWER COOPERATIVE, INC. FOR A)	
CERTIFICATE OF PUBLIC CONVENIENCE)	
AND NECESSITY FOR CONSTRUCTION OF AN)	
ASH LANDFILL AT J. K. SMITH STATION, THE	)	CASE NO.
REMOVAL OF IMPOUNDED ASH FROM	)	2014-00252
WILLIAM C. DALE STATION FOR TRANSPORT)	
TO J. K. SMITH, AND APPROVAL OF A)	
COMPLIANCE PLAN AMENDMENT FOR)	
ENVIRONMENTAL SURCHARGE RECOVERY)	

DIRECT TESTIMONY OF JERRY B. PURVIS
ON BEHALF OF EAST KENTUCKY POWER COOPERATIVE, INC.

Filed: September 8, 2014

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND**
2 **OCCUPATION.**

3 A. My name is Jerry B. Purvis and my business address is East Kentucky Power
4 Cooperative, Inc. ("EKPC"), 4775 Lexington Road, Winchester, Kentucky 40391.
5 I am the Director of Environmental Affairs for EKPC.

6 **Q. PLEASE STATE YOUR EDUCATION AND PROFESSIONAL**
7 **EXPERIENCE.**

8 A. I received a B.S. degree in Chemistry from Morehead State University and a B.S.
9 degree in Chemical Engineering from the University of Kentucky. I also received
10 a Master of Business Administration from Morehead State University. I have
11 been employed by EKPC for 20 years serving in various positions. In 2011, I
12 became the Director of Environmental Affairs at EKPC.

13 **Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF YOUR DUTIES AT**
14 **EKPC.**

15 A. As Director of Environmental Affairs, I am responsible for compliance with
16 environmental laws, the preparation of applications for all environmental permits
17 required for the construction and operation of generation stations, transmission
18 facilities and landfills, and the preparation of supplemental environmental impact
19 statements and documentation necessary to demonstrate compliance with the
20 National Environmental Policy Act. I have also been responsible for the
21 development of compliance plans for the EKPC New Source Review program for
22 air emissions. I report directly to the Chief Operating Officer/Executive Vice
23 President, Mr. Don Mosier.

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
2 **PROCEEDING?**

3 A. The purpose of my testimony is to describe the current status of Ash Ponds 2, 3
4 and 4 at EKPC's William C. Dale Station ("Dale Station"), the environmental
5 rules applicable to the storage and disposal of coal ash under which EKPC must
6 operate, how those rules apply to the coal ash currently stored at Dale Station,
7 EKPC's current permitting activities relating to the overall closure of Dale
8 Station, and EKPC's current plan to remove the ash from the impoundments at
9 Dale Station and close the impoundments. The terms "coal ash", "Coal
10 Combustion Residuals" or "CCRs", "Coal Combustion By-Products" or "CCBs",
11 and "ash materials" are synonymous and used interchangeably.

12 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

13 A. Yes. I am sponsoring the following exhibits, which I ask to be incorporated into
14 my testimony by reference:

- 15 • JBP-1, a Permit from the Kentucky Division of Waste Management
16 ("KDWM") to construct a Special Waste Landfill¹ at EKPC's J.K. Smith
17 Station ("Smith" or "Smith Station"), dated July 29, 2013.
- 18 • JBP-2, a letter from KDWM agreeing with EKPC's plan for closure of the
19 Ash Ponds at Dale Station, dated July 14, 2014.
- 20 • JBP-3, a table describing the permits needed to construct and operate a
21 Special Waste Landfill at Smith Station, and the status of those permits.

¹ "Special Waste Landfill" means a landfill designed in accordance with the technical requirements of 401 KAR 45:110.

1 • JBP-4, a table describing the permits and approvals needed for the ash
2 removal project at Dale Station.

3 **Q. WHAT IS COAL ASH?**

4 A. Coal ash is the material left over from the combustion of coal in a power plant.
5 Dale Station's coal ash includes fly ash, bottom ash, and boiler slag.

6 **Q. HAS THE COMBUSTION OF COAL AT EKPC'S DALE STATION
7 PRODUCED COAL ASH?**

8 A. Yes. When Dale Station Units 1-4 were in full operation, approximately 40,000-
9 60,000 tons of coal ash were typically produced annually.

10 **Q. HAS COAL ASH PRODUCED AT DALE STATION BEEN STORED ON-
11 SITE?**

12 A. Yes. Over time, EKPC has constructed and operated four (4) surface
13 impoundments (or ponds) for the storage of coal ash at Dale Station. The piping
14 of ash to ash ponds for storage before final disposal is a practice common to the
15 electric utility industry. The ash ponds have been designated at various times as
16 Ash Pond 1, Ash Pond 2, Ash Pond 3, and Ash Pond 4. Ash Pond 1 and Ash
17 Pond 2 were merged in the late 1990s and are now referred to as Ash Pond 2.
18 Currently, Ash Ponds 2 and 4 are operated as impoundments, and Ash Pond 3 is
19 used as a dry storage area to dewater ash removed from Ash Pond 2 or Ash Pond
20 4 before off site disposal of the ash.

21 **Q. PLEASE DESCRIBE THE SIZE AND CONSTITUENCIES OF ASH POND
22 2, ASH POND 3, AND ASH POND 4 AT PRESENT.**

1 A. Ash Pond 2 currently contains approximately 248,000 cubic yards of coal ash and
2 has a surface area of about 9.5 acres. Ash Pond 3 currently contains
3 approximately 58,000 cubic yards of coal ash. Ash Pond 4 currently contains
4 approximately 67,000 cubic yards of coal ash and has a surface area of about 10.6
5 acres. The vast majority of coal ash produced at Dale Station and stored in its ash
6 ponds is bottom ash (approximately 20 percent) and fly ash (approximately 80
7 percent). Boiler slag and other constituents are estimated to make up less than
8 one percent of the volume of coal ash in the Dale Station ponds.

9 **Q. ARE YOU FAMILIAR WITH EXISTING AND/OR PROPOSED**
10 **FEDERAL LAWS AND REGULATIONS GOVERNING THE STORAGE**
11 **AND DISPOSAL OF COAL ASH WITH WHICH EKPC MUST COMPLY?**

12 A. Yes.

13 **Q. PLEASE BRIEFLY DESCRIBE ANY APPLICABLE EXISTING AND/OR**
14 **PROPOSED FEDERAL LAWS AND REGULATIONS GOVERNING THE**
15 **STORAGE AND DISPOSAL OF COAL ASH.**

16 A. At present, there are no federal laws or regulations governing the storage and
17 disposal of coal ash. The United States Environmental Protection Agency
18 (“EPA”) proposed draft regulations to govern storage and disposal of Coal
19 Combustion Residuals in 2010. It is my understanding that the EPA has entered
20 into a consent decree that requires it to issue final regulations governing the
21 storage and disposal of coal ash by December 19, 2014. It is not known how
22 those final regulations may differ from the draft regulations originally proposed in
23 2010.

1 **Q. ARE YOU FAMILIAR WITH STATE LAWS AND REGULATIONS**
2 **GOVERNING THE STORAGE AND DISPOSAL OF COAL ASH IN THE**
3 **COMMONWEALTH OF KENTUCKY WITH WHICH EKPC MUST**
4 **COMPLY?**

5 A. Yes.

6 **Q. IS COAL ASH CONSIDERED “SPECIAL WASTE” UNDER**
7 **APPLICABLE LAW?**

8 A. Yes. KRS 224.50-760(1)(a) designates utility waste (fly ash, bottom ash,
9 scrubber sludge) as special waste under Kentucky law. A special waste is a waste
10 with a large volume and a low hazard.

11 **Q. WHEN DID THE COMMONWEALTH OF KENTUCKY BEGIN TO**
12 **REGULATE COAL ASH AS A “SPECIAL WASTE”?**

13 A. KRS 224.50-760 was enacted in 1980. In 1982, the predecessor to the Kentucky
14 Energy and Environment Cabinet (“Cabinet”) promulgated regulations related to
15 the disposal of waste, including special wastes. The regulations authorized the
16 disposal of special waste in designated categories of landfills, including an inert
17 landfill, with specific approval from the Cabinet. *See* 401 KAR 30:010 Section
18 1(138)(a) (1983) (since repealed). Moreover, 401 KAR 47:040 (1983) (since
19 repealed) established requirements for permit applications and general design
20 requirements for inert landfills.

21 **Q. HAS THE REGULATION OF SPECIAL WASTE IN THE**
22 **COMMONWEALTH OF KENTUCKY EVOLVED OR CHANGED SINCE**
23 **THE EARLY 1980’S?**

1 A. Yes. In 1992, the Cabinet promulgated 401 KAR Chapter 45 to establish
2 regulations specifically applicable to special waste, including utility waste. These
3 regulations remain applicable at present.

4 **Q. WHAT ARE SOME OF THE PERMITTING REQUIREMENTS**
5 **CONTAINED IN 401 KAR CHAPTER 45 GOVERNING SPECIAL**
6 **WASTE?**

7 A. There are a number of permitting requirements contained in 401 KAR Chapter 45
8 governing the storage and disposal of special waste. For example, 401 KAR
9 45:020 Section 2(1) requires a permit for a Special Waste Landfill, 401 KAR
10 45:030 Section 5 prohibits unpermitted disposal facilities, and 401 KAR 45:030
11 Section 6 requires a permit for disposal of special waste. 401 KAR 45:110
12 establishes technical requirements for the design of Special Waste Landfills.

13 **Q. WHAT IS A “PERMIT BY RULE” AS DESCRIBED IN 401 KAR 45:060?**

14 A. 401 KAR 45:060 designates specific types of facilities used to manage special
15 wastes as having a permit by rule. A permit by rule does not require an
16 application to or approval from the Cabinet for construction or operation of those
17 designated facilities.

18 EKPC has two types of permit by rule at Dale Station. EKPC has a permit by rule
19 pursuant to 401 KAR 45:060 Section 1(5) for the Ash Ponds which are used as
20 impoundments for the storage of coal ash. The Ash Ponds are operated in
21 compliance with Kentucky Pollutant Discharge Elimination System (“KPDES”)
22 Permit No. KY0002194.

1 EKPC also has a permit by rule pursuant to 401 KAR 45:060 Section 1(7) for
2 structural fills that were built at Dale Station by beneficially reusing coal ash. For
3 example, a structural fill was built using coal ash to raise the coal storage area
4 above the 100-year floodplain. At this time, the structural fills are likely to be
5 retained on site to support future site uses.

6 **Q. UNDER WHAT CIRCUMSTANCES WILL EKPC BE NO LONGER ABLE**
7 **TO STORE COAL ASH IN THE ASH PONDS AT ITS DALE STATION**
8 **UNDER A “PERMIT BY RULE”?**

9 A. If and when the ash ponds at Dale Station cease to be used as impoundments, they
10 will lose the permit by rule status provided by 401 KAR 45:060 Section 1(4). As
11 a consequence, EKPC will be required to either permit a Special Waste Landfill at
12 Dale Station for the disposal of the ash stored in the ash ponds, or EKPC must
13 remove the ash from the ash ponds for disposal off site in a permitted Special
14 Waste Landfill.

15 **Q. IF EKPC IS NO LONGER ABLE TO OPERATE THE ASH PONDS AT**
16 **ITS DALE STATION UNDER A “PERMIT BY RULE,” MUST EKPC**
17 **OBTAIN A DIFFERENT TYPE OF PERMIT TO STORE OR DISPOSE**
18 **OF COAL ASH IN THE ASH PONDS AT DALE STATION?**

19 A. Yes. If coal ash is allowed to remain in a former ash pond, the coal ash becomes
20 a “waste” and which is deemed to be disposed of, and the former pond becomes a
21 waste site or a facility. A “waste site or facility” is defined by KRS 224.1-
22 010(27) to be any site or facility where waste is disposed of by any means. KRS
23 224.40-100 prohibits the disposal of waste except in a permitted facility, and KRS

1 224.40-305 prohibits the maintenance of a waste disposal facility without a
2 permit. Consequently, when an ash pond ceases to be used as an impoundment,
3 the former impoundment must be permitted under the special waste regulations as
4 a disposal facility in order to leave the special waste in place.

5 **Q. DO THE PROVISIONS OF 401 KAR CHAPTER 45 GOVERN WHERE A**
6 **SPECIAL WASTE LANDFILL MAY BE LOCATED?**

7 A. Yes. 401 KAR 45:130 establishes siting requirements for a Special Waste
8 Landfill. Specifically, 401 KAR 45:130 Section 1(1) prohibits a Special Waste
9 Landfill within 250 feet of a perennial stream unless the Cabinet issues a water
10 quality certification, Section 1(4) prohibits a Special Waste Landfill within 100
11 feet of a property line, and 401 KAR 45:130 Section 2 effectively prohibits the
12 siting of a Special Waste Landfill within the 100-year floodplain.

13 **Q. IS IT LIKELY THAT EKPC'S DALE STATION WOULD BE**
14 **PERMITTED AS A SPECIAL WASTE LANDFILL UNDER APPLICABLE**
15 **REGULATIONS?**

16 A. No. There is no location at Dale Station that could comply with the siting
17 requirements. To permit a Special Waste Landfill at Dale Station, the KDWM
18 would have to grant variances to all of the siting requirements as a part of the
19 permitting process.

20 Dale Station is adjacent to the Kentucky River, which is a perennial stream, and
21 most of Dale Station was constructed within the 100-year floodplain. Due to the
22 site configuration, any Special Waste Landfill at Dale Station would require a
23 variance to be within 250 feet of the river as well as within the 100-year

1 floodplain. To have sufficient disposal capacity for all of the ash stored at Dale
2 Station, a variance would also be needed for placement of waste within 100 feet
3 of the property line.

4 EKPC conducted a meeting at Dale Station with representatives of the KDWM to
5 discuss these issues and EKPC's plan for closure of the impoundments on June
6 27, 2014. KDWM representatives Ron Gruzesky, the Manager of the Solid Waste
7 Branch, and Tammi Hudson agreed that it is not appropriate to site a Special
8 Waste Landfill at Dale Station. They agreed with EKPC's plan to remove the
9 coal ash stored in the impoundments at Dale Station for disposal in the Smith
10 Special Waste Landfill and to close the impoundments. The meeting resulted in
11 the issuance of the KDWM's letter of July 14, 2014, which agrees with EKPC's
12 approach to remove the coal ash and close the impoundments. A copy of the said
13 letter is attached hereto as Exhibit JBP-2.

14 **Q. IS EKPC'S DALE STATION A PRUDENT LOCATION FOR A SPECIAL**
15 **WASTE LANDFILL?**

16 A. No. Most of Dale Station was constructed in the 100-year floodplain, which is
17 not a prudent location for a Special Waste Landfill.

18 **Q. IS EKPC'S SMITH STATION A PRUDENT LOCATION FOR A SPECIAL**
19 **WASTE LANDFILL?**

20 A. Yes. Smith Station meets all of the siting requirements for a Special Waste
21 Landfill because it is not on the banks of a major perennial stream and is located
22 away from residential areas. Smith Station provides sufficient area for the Special
23 Waste Landfill while also allowing for the minimization of impacts to

1 environmental resources. All off-site alternatives require that the coal ash be
2 loaded and transported from Dale Station. Smith Station is a closer haul distance
3 than the nearest solid waste landfill. The size of Smith Station (approx. 3,272
4 acres) provides multiple upland soil borrow areas to meet soil liner and capping
5 needs while avoiding impacts to wetlands that are deemed to be jurisdictional
6 waters. The proposed Smith Special Waste Landfill is sited in an area previously
7 impacted from development of the site as a coal-fired electric generation plant in
8 the 1980s. The prior site development at Smith means that infrastructure,
9 including roads and water control features, already exist, allowing EKPC to
10 minimize environmental impacts associated with the development of
11 infrastructure for the proposed Special Waste Landfill. The large property size
12 also allows EKPC to provide a substantial buffer between the proposed Special
13 Waste Landfill site and adjacent properties, minimizing the potential for adverse
14 impacts on adjacent landowners.

15 **Q. HAS EKPC OBTAINED A PERMIT TO CONSTRUCT A SPECIAL**
16 **WASTE LANDFILL AT SMITH STATION?**

17 A. Yes. On July 29, 2013, EKPC obtained a Permit from KDWM to construct a
18 Special Waste Landfill at Smith Station. A copy of the Permit is attached hereto
19 as Exhibit JBP-1.

20 **Q. PLEASE DESCRIBE THE SCOPE OF THE PERMIT OBTAINED BY**
21 **EKPC FOR A SPECIAL WASTE LANDFILL AT SMITH STATION.**

22 A. The permitted Special Waste Landfill area is 36.91 acres, with the Total Permitted
23 Area being 642.03 acres, and having a total permitted landfill capacity of

1 3,834,579 cubic yards. The Permit allows for the disposal at the proposed Smith
2 Station Special Waste Landfill of “coal and biomass combustion by-products”
3 generated by EKPC’s Dale Station, Spurlock Station, and Cooper Station.

4 **Q. WILL THE PROPOSED SPECIAL WASTE LANDFILL AT SMITH**
5 **STATION CONTAIN A BOTTOM LINER?**

6 A. Yes. The permitted Special Waste Landfill will contain a bottom liner with two
7 options for construction. Option 1 is comprised of a six inch compacted soil liner
8 and an engineered geosynthetic clay liner with a geomembrane liner and a
9 leachate drainage layer. Option 2 would be comprised of a twenty-four inch
10 compacted clay liner with a geomembrane liner and a leachate drainage layer.
11 The options exist to provide the flexibility to meet the EPA’s proposed CCR Rule.

12 **Q. DOES THE PERMIT OBTAINED BY EKPC TO CONSTRUCT A**
13 **SPECIAL WASTE LANDFILL AT SMITH STATION REQUIRE WATER**
14 **MONITORING?**

15 A. Yes. The Permit requires EKPC to engage in routine groundwater and surface
16 water monitoring to ensure adequate water quality and the maintenance of the
17 overall ecological integrity of the site. The Permit also requires EKPC to obtain a
18 KPDES discharge permit from the Kentucky Division of Water prior to operation
19 of the Special Waste Landfill.

20 **Q. WILL AN ENGINEERED CAP BE INSTALLED ON THE SPECIAL**
21 **WASTE LANDFILL AT SMITH STATION ONCE FULL?**

22 A. Yes. Capping of the Special Waste Landfill will be conducted in phases and will
23 commence upon waste material reaching final grade. The final cap design will

1 have a 40 mil flexible membrane layer, a synthetic drainage layer, and twenty-
2 four (24) inches of vegetative soil. Vegetation will be established on the
3 vegetative soil layer to prevent erosion. The final cover will be fertilized as
4 determined by testing of the soil and seeded with a mixture of grasses and
5 legumes as suggested by the KDWM. The establishment of permanent vegetative
6 cover will be evaluated by field inspections, when quantity and quality of stands
7 can be judged. Following the establishment of vegetative cover, periodic mowing
8 of the cover will inhibit the growth of shrubs and trees that could damage the
9 flexible membrane layer of the closure cap system.

10 **Q. MUST EKPC OBTAIN ADDITIONAL PERMITS TO CONSTRUCT AND**
11 **OPERATE THE PROPOSED SPECIAL WASTE LANDFILL AT SMITH**
12 **STATION?**

13 A. Yes. EKPC must obtain several permits and approvals beyond the KDWM
14 Special Waste Landfill Permit to construct and operate the Smith Special Waste
15 Landfill.

16 **Q. PLEASE DESCRIBE THE PERMITS AND APPROVALS NECESSARY**
17 **TO CONSTRUCT AND OPERATE THE PROPOSED SPECIAL WASTE**
18 **LANDFILL AT SMITH STATION AND PROVIDE A STATUS**
19 **REGARDING THE ACQUISITION BY EKPC OF EACH.**

20 A. Attached hereto as Exhibit JBP-3 is a table that shows the necessary permits and
21 approvals, as well as the status of each.

22 **Q. WHAT OTHER PERMITS MUST EKPC OBTAIN IN ORDER TO**
23 **COMPLETE THE REMOVAL OF COAL ASH FROM DALE?**

1 A. It is EKPC's understanding that no other permits or approvals other than those
2 listed in Exhibit JBP-3 are needed for construction and operation of the Smith
3 Special Waste Landfill. EKPC is evaluating what additional permits and
4 approvals will be necessary for removal of the ash at Dale Station for
5 transportation to Smith Station. Based upon the preliminary engineering design
6 and site conditions, EKPC believes it will need a floodplain construction permit
7 and Section 401 Clean Water Act ("CWA") water quality certification from the
8 Kentucky Division of Water. EKPC also anticipates a Section 404 CWA permit
9 and Section 10 Rivers and Harbors Act permit will be needed from the U.S. Army
10 Corps of Engineers.

11 **Q. PLEASE DESCRIBE THE PERMITS NECESSARY TO COMPLETE THE**
12 **REMOVAL OF COAL ASH FROM DALE AND PROVIDE A STATUS**
13 **REGARDING THE ACQUISITION BY EKPC OF EACH.**

14 A. Attached hereto as Exhibit JBP-4 is a table that outlines the permitting and
15 approvals needed for removal of the coal ash from Dale Station.

16 **Q. HAS EKPC CONSULTED WITH KDWM REGARDING CLOSING THE**
17 **ASH PONDS AT DALE STATION?**

18 A. Yes. EKPC representatives and representatives of KDWM met at Dale Station on
19 June 27, 2014, to discuss the proposed closing of the Dale Station ash ponds. At
20 this meeting, EKPC presented its proposed plan to remove the ash and close the
21 impoundments.

1 **Q. HAS EKPC RECEIVED A RESPONSE OR OTHER FEEDBACK FROM**
2 **KDWM WITH RESPECT TO THE PROPOSED CLOSING OF THE ASH**
3 **PONDS?**

4 A. Yes. By letter dated July 14, 2014, KDWM communicated its agreement with
5 EKPC's proposed plan to close the impoundments. A copy of this letter is
6 attached hereto as Exhibit JBP-2.

7 **Q. IN ITS LETTER DATED JULY 14, 2014, DID KDWM SUMMARIZE THE**
8 **DISCUSSIONS BETWEEN IT AND EKPC WITH RESPECT TO THE**
9 **CLOSING OF DALE STATION'S ASH PONDS?**

10 A. Yes. KDWM's letter dated July 14, 2014, states as follows: "To summarize our
11 discussions, the closure will consist of the following elements:

12 1. Remove all fly ash and bottom ash materials in the surface impoundments
13 to the level of underlying existing soils. A permit is not required from the DWM
14 to remove coal combustion residuals from the Dale Station Coal Combustion By-
15 Product Surface Impoundments.

16 2. For compliance with KRS 224.50-760, utility waste is considered to
17 include incidental soil, rock, or other materials excavated as part of coal
18 combustion residuals removal. Incidental material may remain comingled during
19 transportation and disposal.

20 3. Ash removal will be certified by a third party Professional Engineer, and
21 verified by visual inspection performed by DWM representatives. No sampling
22 will be required.

1 4. The removed utility waste will be transported to J.K. Smith Station
2 Landfill for disposal.

3 5. Groundwater monitoring will not be required if waste is verified as
4 removed from the Coal Combustion By-Products Surface Impoundments and
5 properly disposed off-site.

6 6. The facility will comply with their KPDES permit to control surface water
7 impacts during construction activities.

8 7. After ash materials have been removed, the impoundments will be re-
9 graded using onsite soils and soils transported from J.K. Smith Station Landfill
10 borrow areas.

11 8. Upon project completion, EKPC will submit a Construction Progress
12 Report (CPR) documenting the closure construction activities.

13 9. DWM will issue a termination letter to EKPC once the CPR is accepted
14 and approved.”

15 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

16 A. Under Kentucky law, the Ash Ponds at Dale Station will lose their permit by rule
17 status when Dale Station is closed. As a consequence, EKPC must either permit a
18 Special Waste Landfill at Dale Station to dispose of the coal ash stored in the Ash
19 Ponds, or remove the coal ash from the ponds for off-site disposal. After
20 evaluating the available options, EKPC determined that the best option is to
21 remove the coal ash from the impoundments for disposal in the Smith Special
22 Waste Landfill. EKPC prepared a plan to remove the coal ash from the

1 impoundments and to close the impoundments. The proposed plan was reviewed
2 with the KDWM, which has agreed with the plan.

3 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

4 A. Yes.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In re the Matter of:

AN APPLICATION OF EAST KENTUCKY)	
POWER COOPERATIVE, INC. FOR A)	
CERTIFICATE OF PUBLIC CONVENIENCE)	
AND NECESSITY FOR CONSTRUCTION OF AN)	
ASH LANDFILL AT J. K. SMITH STATION TO	)	CASE NO.
RECEIVE IMPOUNDED ASH FROM WILLIAM	)	2014-00252
C. DALE STATION, AND FOR APPROVAL OF A)	
COMPLIANCE PLAN AMENDMENT FOR)	
ENVIRONMENTAL SURCHARGE RECOVERY)	

AFFIDAVIT

STATE OF KENTUCKY)
)
 COUNTY OF CLARK)

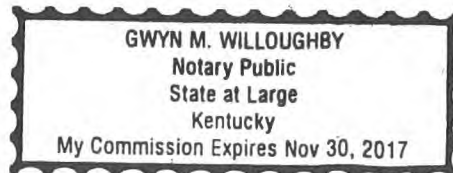
Jerry Purvis, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

Jerry Purvis

Subscribed and sworn before me on this 5th day of September, 2014.

Gwyn M. Willoughby #500149

Notary Public





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

Exhibit JBP-1

Page 1 of 6

PERMIT

**Facility: J.K. Smith Station Landfill
12145 Irvine Rd
Trapp, KY 40391**

**Permittee: East Kentucky Power Cooperative Inc
4775 Lexington Rd
PO Box 707
Winchester, KY 40392**

**Agency Interest: East KY Power - J K Smith Station
12145 Irvine Rd
Trapp, KY 40391**

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 #: 808
Solid Waste Permit #: sw02500022
County: Clark

Permitted Activities:

Subject Item	Activity	Type	Status
ACTV006	Special Waste Landfill-Coal/02500022	Construction	Active

PERMIT

Exhibit JBP-1

Page 2 of 6

Acreage Summary:**Waste Disposal Area (in Acres):**

Activity	Disposal Area
Special Waste Landfill-Coal	36.91
Total Disposal Area	36.91
Total Permitted Area	642.03

Cost Estimate Summary:

Coverage Type	Cost Estimate	Effective	Comments
Post-Closure	\$399,183.00	7/29/2013	Approved under APE20120001
Closure	\$2,481,147.30	7/29/2013	Approved under APE20120001

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
N/A*				

* Prior to the issuance of an operating permit, the Financial Assurance must equal or exceed the Cost Estimate amount listed above.

First Operational Permit Effective Date: N/A

Permit Effective Date: 07/29/2013

Permit Expiration Date: 07/28/2018

Permit issued: 07/29/2013



Ronald D. Gruzesky, P.E.
Manager, Solid Waste Branch

PERMIT

Exhibit JBP-1

Page 3 of 6

Permit Conditions:**Subject Items****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. Permit Renewal: The owner or operator of a special waste facility requiring a formal permit shall submit an application to renew a construction or construction/operation permit to the cabinet at least 180 days before the expiration date of the permit. Persons applying for the renewal of a permit shall use form DEP 7095 entitled "Application for Renewal of a Formal Permit" (March 1992). [401 KAR 45:030 Section 13(1)]

Variances, Alternate Specifications and Special Conditions:

1. Financial Assurance: Prior to the issuance of an operating permit, the permittee must post Financial Assurance equal to or in excess of the Cost Estimate amount listed on page 2 of this permit. [401 KAR 45:080]
2. Construction: No construction activities shall commence in the area approved in application APE20120001 unless: 1) the permittee obtains a permit from the Kentucky Division of Water regulating the KPDES discharge permit; and 2) the KPDES permit is submitted to, and accepted by, the Division of Waste Management. [401 KAR 30:031, 401 KAR 45:030 Section 3, 401 KAR 45:030 Section 4(3)]
3. Operation: This facility shall not result in a public nuisance because of blowing litter, debris, or other waste or material including but not limited to dust. The permittee may utilize non-contact storm water run-off throughout the facility to control dust. The permittee may also apply leachate in waste areas directly above the liner system on days without precipitation at a rate not to exceed 4,000 gallons per day to control dust. [401 KAR 30:031 Section 11, 401 KAR 45:140 Section 2]
4. Wastestreams: The permittee may dispose of coal and biomass combustion by-products generated by the H. L. Spurlock Power Station, Mason Co., Maysville, Kentucky. These by-products include bottom ash, FGD scrubber waste, bed ash, and fly ash. Any new waste stream or source shall be approved by the cabinet prior to accepting the waste. [401 KAR 45:110 Section 3(7), 401 KAR 45:040 Section 1(3)(o)]
5. Wastestreams: The permittee may dispose of coal and biomass combustion by-products generated by the William C. Dale Power Station, Clark Co., Winchester, Kentucky. These by-products include bottom ash and fly ash. Any new waste stream or source shall be approved by the cabinet prior to accepting the waste. [401 KAR 45:040 Section 1(3)(o), 401 KAR 45:110 Section 3(7)]

PERMIT

Exhibit JBP-1

Page 4 of 6

6. Wastestreams: The permittee may dispose of coal and biomass combustion by-products generated by the John Sherman Cooper Power Station, Pulaski Co., Somerset, Kentucky. These by-products include bottom ash, FGD scrubber waste, and fly ash. Any new waste stream or source shall be approved by the cabinet prior to accepting the waste. [401 KAR 45:110 Section 3(7), 401 KAR 45:040 Section 1(3)(o)]

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

1. 07-29-2013 - New Special Waste Landfill, Construction Permit - APE20120001

Financial Assurance**ACTV0007 - Financial Assurance**

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

1. 07-29-2013 - Financial Assurance to be posted prior to issuance of operating permit

Monitoring Conditions**GSTR0001 - Groundwater Monitoring - SWB: Groundwater Monitoring Group**

Group Members: STRC0006 - Well W-1 (formerly Well IW-1); STRC0007 - Well IW-2 (to be abandoned prior to cell constr); STRC0008 - Well IW-3 (to be abandoned prior to cell constr); STRC0009 - Well W-2 (to replace IW-2 prior to cell constr); STRC0010 - Well W-3 (to replace IW-3 prior to cell constr)

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. 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)]
3. 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)]
4. Only a Kentucky Certified Monitoring Well Driller may construct or abandon monitoring wells. [401 KAR 6:320]
5. 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)]

PERMIT

Exhibit JBP-1

Page 5 of 6

Variances, Alternate Specifications and Special Conditions:

1. The permittee shall perform baseline groundwater quality characterization monitoring quarterly for two years for monitoring wells W-1, W-2, and W-3 in accordance with the approved plan (Application APE 20120001). [401 KAR 47:140 Section 2, 401 KAR 45:160 Section 7]

GMNP0001 - Surface Water Monitoring - SWB: Surface Water Monitoring Group

Group Members: MNPT0003 - Upstream Point SW-1A; MNPT0004 - Downstream Point SW-1B; MNPT0005 - Downstream Point SW-2

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]

PERMIT

Surface Water Monitoring Limits:

Subject Item	CAS Number	Parameter	Frequency	Lower Limit	Upper Limit	Units	Statistical Limit	Report Only
GMNP0001	07440-38-2	Arsenic, Total (as As)	quarterly					Yes
GMNP0001	07440-42-8	Boron	quarterly					Yes
GMNP0001	07440-70-2	Calcium	quarterly					Yes
GMNP0001	16887-00-6	Chloride	quarterly					Yes
GMNP0001	07439-89-6	Iron, Total (as Fe)	quarterly					Yes
GMNP0001		Solids, Total Suspended (TSS)	quarterly					Yes
GMNP0001		Specific Conductance	quarterly					Yes
GMNP0001		Sulfate, Total (as SO4)	quarterly					Yes
GMNP0001		Total Solids	quarterly					Yes
GMNP0001		pH	quarterly					Yes

Exhibit JBP-1

Page 6 of 6



Steven L. Beshear
Governor

Leonard K. Peters
Secretary

ENERGY AND ENVIRONMENT CABINET

Division of Waste Management

200 Fair Oaks, 2nd Floor

FRANKFORT, KY 40601

TELEPHONE: 502-564-6716

FACSIMILE: 502-564-3492

waste.ky.gov

July 14, 2014

Mr. Jerry Purvis, Environmental Affairs Director
East Kentucky Power Co-operative, Inc.
P.O. Box 707
Winchester, Kentucky 40392-0707

Certified Mail No. 7013 1090 0000 6758 2443

RE: Closure Coal Combustion By-Product Surface Impoundments (Ash Ponds 1, 2, 3 and 4)
William C. Dale Station
Agency Interest No. 809
Clark County, Kentucky

Dear Mr. Purvis:

Based on our meeting at the facility on June 27, 2014, the Kentucky Division of Waste Management (DWM) is in agreement with East Kentucky Power Co-operative's (EKPC) approach for conducting closure of existing Coal Combustion By-Product Surface Impoundments 1, 2, 3 and 4 at Dale Station. Per discussion with Tammi Hudson, P.E. and myself, EKPC intends to pursue clean closure of the four surface impoundments by removing all waste for disposal at J.K. Smith Station Landfill. To summarize our discussions, the closure will consist of the following elements:

1. Remove all fly ash and bottom ash materials in the surface impoundments to the level of underlying existing soils. A permit is not required from the DWM to remove coal combustion residuals from the Dale Station Coal Combustion By-Product Surface Impoundments.
2. For compliance with KRS 224.50-760, utility waste is considered to include incidental soil, rock, or other materials excavated as part of coal combustion residuals removal. Incidental material may remain comingled during transportation and disposal.
3. Ash removal will be certified by a third party Professional Engineer, and verified by visual inspection performed by DWM representatives. No sampling will be required.
4. The removed utility waste will be transported to J.K. Smith Station Landfill for disposal.

Jerry Purvis
July 14, 2014
Page 2 of 2

A.I. 809
Activity ID No. AIN20130001

5. Groundwater monitoring will not be required if waste is verified as removed from the Coal Combustion By-Products Surface Impoundments and properly disposed off-site.
6. The facility will comply with their KPDES permit to control surface water impacts during construction activities.
7. After ash materials have been removed, the impoundments will be re-graded using on-site soils and soils transported from J.K. Smith Station Landfill borrow areas.
8. Upon project completion, EKPC will submit a Construction Progress Report (CPR) documenting the closure construction activities.
9. DWM will issue a termination letter to EKPC once the CPR is accepted and approved.

If you need clarification or additional information, please contact Tammi Hudson, P.E. at (502) 564-6716, extension 4660.

Sincerely,



Ronald D. Gruzesky, P.E.
Manager, Solid Waste Branch

RDG/tbh

**PERMITS AND APPROVALS NECESSARY TO CONSTRUCT AND OPERATE THE
PROPOSED SPECIAL WASTE LANDFILL AT SMITH STATION
(INCLUDING STATUS)**

Permit/Approval	Agency	Issuance Date	Expiration Date	Notes
Section 404 Individual Permit	U.S. Army Corps of Engineers	June 10, 2013	June 25, 2016	
Section 401 Individual Water Quality Certification	KY Division of Water	September 28, 2012	October 14, 2014	Renewal issued October 14, 2013. Additional renewal request submitted August 2014.
Special Waste Landfill Construction Permit	KY Division of Waste Management	July 29, 2013	July 28, 2018	
NEPA Finding of No Significant Impact (FONSI)	Rural Utilities Service	March 2, 2013	None	
Section 7 Endangered Species Act Clearance	U.S. Fish and Wildlife Service	September 7, 2012	2014 - Clearing within waste limits boundary. Beyond 2014, EKPC will only conduct tree clearing activities within the identified borrow areas between October 15th and March 31st.	Indiana bat surveys valid for 2 yrs. If tree clearing not conducted within waste limits boundary in 2014, then EKPC will need to resurvey for Indiana bats.
Section 106 National Historic Preservation Act Clearance	KY State Historic Preservation Officer	August 9, 2012	None	
KY Pollution Discharge Elimination System Permit	KY Division of Water	Not yet issued. Division actively reviewing permit	5 years from issuance	Division indicated no additional information needed from EKPC for review

**PERMITS AND APPROVALS NECESSARY FOR REMOVAL OF
THE COAL ASH AT DALE STATION**

Permit/Approval	Agency	Notes
Section 404 Individual or Nationwide Permit & Section 10 Permit	U.S. Army Corps of Engineers	Permitting needs will be developed based upon detailed engineering design currently underway
Section 401 Individual or General Water Quality Certification	KY Division of Water	Permitting needs will be developed based upon detailed engineering design currently underway
Section 7 Endangered Species Act Clearance	U.S. Fish and Wildlife Service	Consultation needs will be developed based upon detailed engineering design currently underway
Section 106 National Historic Preservation Act Clearance	KY State Historic Preservation Officer	Consultation needs will be developed based upon detailed engineering design currently underway
KY Pollution Discharge Elimination System Permit	KY Division of Water	Existing KPDES permit covers project activities at Dale

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

AN APPLICATION OF EAST KENTUCKY)	
POWER COOPERATIVE, INC. FOR A)	
CERTIFICATE OF PUBLIC CONVENIENCE)	
AND NECESSITY FOR CONSTRUCTION OF AN)	
ASH LANDFILL AT J. K. SMITH STATION TO	)	CASE NO.
RECEIVE IMPOUNDED ASH FROM WILLIAM	)	2014-00252
C. DALE STATION, AND FOR APPROVAL OF A)	
COMPLIANCE PLAN AMENDMENT FOR)	
ENVIRONMENTAL SURCHARGE RECOVERY)	

DIRECT TESTIMONY OF MATT CLARK
ON BEHALF OF EAST KENTUCKY POWER COOPERATIVE, INC.

Filed: September 8, 2014

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND**
2 **OCCUPATION.**

3 A. My name is Matt Clark and my business address is East Kentucky Power
4 Cooperative, Inc. ("EKPC"), 4775 Lexington Road, Winchester, Kentucky 40391.
5 I am a Senior Engineer in Production at EKPC.

6 **Q. PLEASE STATE YOUR EDUCATION AND PROFESSIONAL**
7 **EXPERIENCE.**

8 A. I obtained my Bachelor of Science degree in Civil Engineering from the
9 University of Kentucky in 2005. I obtained my Professional Engineers license
10 (#27,324) from the Commonwealth of Kentucky in June 2010. My professional
11 experience includes work at GRW Engineers as a project engineer providing
12 consulting services to clients. These services include permitting, funding
13 applications, preliminary engineering reports, design, and construction project
14 management. My project experience includes water treatment plants, water tanks,
15 water mains, gravity sewer, sanitary force main, small pumping station, large
16 pumping station, and water system modeling. My time at EKPC included work as
17 an engineer in environmental prior to my current position. In that position I was
18 responsible for assisting all facilities and functions to stay in compliance with all
19 non-air environmental regulations. These facilities include coal-fired power
20 generation, natural gas-fired power generation, landfill gas-fired power
21 generation, special waste landfills, construction/demolition/debris landfills,
22 substations, and transmission. The functions included construction, operations,
23 and maintenance. In my current position at EKPC I have provided engineering

1 support in permitting over 34,000,000 cubic yards (“CY”) of special waste
2 landfill capacity that represents over 234 acres. I have managed the planning,
3 design, and construction of over 2,000,000 square feet (“SF”) of liner system that
4 includes low permeable compacted clay, geosynthetic clay liner, geomembrane
5 liner, and geocomposite. I have also managed the planning, design, and
6 construction of over 550,000 SF of final cap system that includes geomembrane
7 liner and vegetative cover.

8 **Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF YOUR DUTIES AT**
9 **EKPC.**

10 A. My duties at EKPC as a Senior Production Engineer include providing technical
11 assistance to EKPC Production Facilities, providing Project Management for
12 EKPC Production Projects, and managing the Landfill Management Program
13 which includes planning, design, and construction of all EKPC landfills.
14 Managing the Landfill Management Program also requires providing engineering
15 support for operations, maintenance, and permitting of all EKPC landfills.

16 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
17 **PROCEEDING?**

18 A. The purpose of my testimony is to describe the various alternatives considered by
19 EKPC to provide a solution for the permanent disposal of the coal ash located at
20 EKPC’s William C. Dale Station (“Dale Station”). I will also discuss the details
21 and scope of the construction of a Special Waste Landfill at EKPC’s J. K. Smith
22 Station (“Smith Station”), and the removal of coal ash from Dale Station for
23 transport and disposal at Smith Station (collectively, the “Project”). Finally, I will

1 discuss the Project plan schedule and costs, along with information on all
2 engineering aspects of the Project.

3 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

4 A. Yes. I am sponsoring an aerial photograph of the Dale Station site that contains a
5 superimposed representation of the proposed relocation of certain transmission
6 lines at Dale Station. The photograph is attached hereto as Exhibit MC-1, and I
7 ask that same be incorporated by reference into my testimony.

8 **Q. ARE YOU FAMILIAR WITH THE VARIOUS ALTERNATIVES**
9 **CONSIDERED AND ANALYZED BY EKPC TO ADDRESS THE COAL**
10 **ASH PRESENTLY LOCATED AT DALE STATION?**

11 A. Yes.

12 **Q. DID EKPC ENGAGE A PRIVATE ENGINEERING COMPANY TO**
13 **PROVIDE ASSISTANCE IN DEVELOPING A SOLUTION FOR THE**
14 **PERMANENT DISPOSAL OF THE COAL ASH PRODUCED AT DALE**
15 **STATION?**

16 A. Yes. On or about August 7, 2013, EKPC retained Burns & McDonnell
17 Engineering Co., Inc. ("Burns & McDonnell") to assist EKPC in solving the
18 stated issue.

19 **Q. PRIOR TO ENGAGING BURNS & MCDONNELL, DID EKPC**
20 **CONSIDER AND ANALYZE ANY ALTERNATIVE SOLUTIONS FOR**
21 **THE PERMANENT DISPOSAL OF THE COAL ASH PRODUCED AT**
22 **DALE STATION?**

1 A. Yes. Starting in 2010, studies were conducted to determine the best alternative
2 for coal ash disposal, since the Hancock Creek Special Waste Landfill which had
3 been accepting coal ash from Dale had reached its capacity and was being closed.
4 Several alternatives which are identified in the Application were developed in this
5 context.

6 **Q. PLEASE IDENTIFY EACH OF THESE ALTERNATIVES.**

7 A. EKPC preliminarily considered and rejected the following alternatives:

- 8 • Alternative 1: Construct a new Special Waste Landfill¹ at the Dale Station
9 site.
- 10 • Alternative 2: Construct a new Special Waste Landfill in close proximity
11 to Dale Station.
- 12 • Alternative 3: Truck Dale Station's coal ash to an existing Special Waste
13 Landfill at EKPC's H. L. Spurlock ("Spurlock") Power Station in Mason
14 County, Kentucky.
- 15 • Alternative 4: Rail Dale Station's coal ash to the same Special Waste
16 Landfill at Spurlock.
- 17 • Alternative 5: Truck Dale Station's coal ash to an existing private solid
18 waste landfill in Montgomery County, Kentucky, operated by Rumpke of
19 Kentucky.

20 EKPC also identified the Smith Special Waste Landfill as an alternative and
21 selected it as the preferred plan, subsequently obtaining a Special Waste Landfill
22 Permit at Smith for Dale's coal ash, assuming continued operations at Dale. The

¹ "Special Waste Landfill" means a landfill designed in accordance with the technical requirements of 401 KAR 45:110.

1 Smith Special Waste Landfill was readdressed as Alternative 8 in the Burns &
2 McDonnell assessment as described herein.

3 **Q. PLEASE BRIEFLY DESCRIBE ALTERNATIVE 1.**

4 A. Alternative 1 proposed that EKPC utilize the acreage presently available at Dale
5 Station to construct a new Special Waste Landfill. The Dale Station property
6 includes two areas that have not been previously developed for other on-site uses
7 (“Area 1” and “Area 2,” respectively). Area 1, approximately six acres in size, is
8 located on the western portion of the property adjacent to the Kentucky River. It
9 was used in the distant past as a cooling spray field, and although remnants of that
10 system remain, it is currently unused. Area 2 is a wooded, undeveloped area
11 approximately eight acres in size located on the east side of Ford Road.

12 **Q. WHY WAS ALTERNATIVE 1 REJECTED BY EKPC?**

13 A. EKPC determined that Alternative 1 was impracticable due to the physical
14 constraints of the property itself. Due to Area 1’s location within the 100-year
15 floodplain of the Kentucky River, a Special Waste Landfill located in that area
16 would not satisfy applicable regulatory requirements. Area 2 is unsuitable for
17 development of a Special Waste Landfill due to its location on a severe side slope
18 above a public road and its proximity to neighboring homes (approximately 100
19 feet). EKPC further determined that neither Area 1 nor Area 2 would provide
20 sufficient capacity for a long-term disposal option for coal ash stored at Dale
21 Station and that the areas are not of sufficient size to accommodate the associated
22 infrastructure (water control structures, access roads, and property buffers).
23 Because the remainder of the Dale Station property located outside of the

1 floodplain is occupied by existing infrastructure, EKPC concluded that
2 construction of an appropriate disposal facility at Dale Station is not a practicable
3 alternative.

4 **Q. PLEASE BRIEFLY DESCRIBE ALTERNATIVE 2.**

5 A. Alternative 2 proposed that EKPC construct a new Special Waste Landfill on
6 property in close proximity to Dale Station. Because EKPC does not own any
7 such property, Alternative 2 required EKPC to identify and purchase a suitable
8 site for a Special Waste Landfill.

9 **Q. DID EKPC IDENTIFY A POTENTIAL SITE FOR A SPECIAL WASTE
10 LANDFILL IN CLOSE PROXIMITY TO DALE STATION?**

11 A. Yes. EKPC, in conjunction with a retained engineering firm, conducted an
12 analysis of the area surrounding Dale Station to locate a potential site for a new
13 Special Waste Landfill. Several factors were used to evaluate the suitability of a
14 potential site, including available land area, topography, access from Dale Station,
15 and impacts to traffic and transportation routes. The assessment resulted in the
16 identification of a potentially suitable property located approximately 2.5 miles to
17 the northeast of Dale Station and a potential Special Waste Landfill site on the
18 property. The identified property was reasonably accessible from Dale Station,
19 contained sufficient area for the landfill, and appeared likely to result in limited
20 environmental impacts based on a review of available material (USGS maps and
21 aerial photography).

22 **Q. WAS EKPC ABLE TO ACQUIRE A PURCHASE OPTION FOR THE
23 PROPERTY?**

1 A. No. Prior to EKPC acquiring a purchase option for the property, residents of the
2 surrounding community, aided by the Sierra Club, expressed significant
3 opposition to developing a new Special Waste Landfill in the area. A community
4 action group was formed by several residents, and a public meeting was held at a
5 local elementary school to discuss the issue. After the meeting, public opposition
6 of the possible landfill continued to increase. Several weeks later, EKPC was
7 informed by the landowners of the property that they had decided not to continue
8 discussions with EKPC about selling the property.

9 **Q. WAS ANY OTHER PROPERTY IN CLOSE PROXIMITY TO DALE**
10 **STATION IDENTIFIED BY EKPC AS A POTENTIAL SITE FOR A**
11 **SPECIAL WASTE LANDFILL?**

12 A. Yes. In total, four sites were initially identified by EKPC as potential locations
13 for a Special Waste Landfill. Upon further evaluations, two of these sites (3 and
14 4) were removed from consideration due to negative siting issues that included
15 access, local impact, and cost. Several rounds of discussions occurred in 2010
16 and 2011 with the owners of the other site (2) before they decided not to continue
17 discussions with EKPC about selling the property.

18 **Q. PLEASE BRIEFLY DESCRIBE ALTERNATIVE 3.**

19 A. Alternative 3 proposed that EKPC dewater the surface impoundments located at
20 Dale Station and subsequently transport the dewatered coal ash via truck to
21 EKPC's existing Special Waste Landfill at Spurlock.

22 **Q. PLEASE BRIEFLY DESCRIBE ALTERNATIVE 4.**

1 A. Alternative 4 proposed that EKPC dewater the surface impoundments located at
2 Dale Station and subsequently transport the dewatered coal ash via rail to EKPC's
3 existing Special Waste Landfill at Spurlock.

4 **Q. PLEASE BRIEFLY DESCRIBE ALTERNATIVE 5.**

5 A. Alternative 5 proposed that EKPC dewater the surface impoundments located at
6 Dale Station and subsequently transport the dewatered coal ash via truck to an
7 existing private solid waste landfill in Montgomery County, Kentucky, operated
8 by Rumpke of Kentucky.

9 **Q. DID EKPC AND ITS CONSULTANTS DEVELOP A COST ANALYSIS
10 FOR EACH ALTERNATIVE 3, 4, AND 5?**

11 A. Yes. EKPC used alternatives previously evaluated for ash disposal when Dale
12 was operating, and adjusted quantities to reconcile with the ash disposal project
13 parameters. Specifically, EKPC updated the alternatives analysis from the
14 Environmental Assessment to USDA Rural Utilities Service dated October, 2012.
15 That cost analysis was based on a volume of 1,000,000 cubic yards and
16 excavation and site closure cost were not considered since at that time EKPC had
17 no plans to close Dale Station. The cost analysis for the Project includes the
18 volumes and construction methods per the Burns & McDonnell assessment along
19 with updated quotes for trucking and private landfill tipping fee.

20 **Q. PLEASE DESCRIBE THE COST ANALYSIS DEVELOPED FOR
21 ALTERNATIVE 3.**

22 A. The total estimated cost to execute Alternative 3 was \$35,640,096. This figure
23 included \$11,834,508 for excavation, site grading/management, controls,

1 transmission relocation, etc.; \$23,260,413 for loading, hauling, and placing the
2 coal ash; and \$545,175 for reduced landfill capacity at Spurlock.

3 **Q. PLEASE DESCRIBE THE COST ANALYSIS DEVELOPED FOR**
4 **ALTERNATIVE 4.**

5 A. The total estimated cost to execute Alternative 4 was \$30,718,782. This figure
6 included \$11,834,508 for excavation, site grading/management, controls,
7 transmission relocation, etc.; \$4,714,336 for loading, hauling, and placing the coal
8 ash; \$13,624,763 for rail expenses; and \$545,175 for reduced landfill capacity at
9 Spurlock. For the purpose of this cost analysis, it was assumed that no further
10 infrastructure would be needed at Spurlock to perform this alternative. It is likely
11 that infrastructure would be required for unloading at Spurlock but a study to
12 develop this cost was not performed since the option was not the most economical
13 without those potential costs added.

14 **Q. PLEASE DESCRIBE THE COST ANALYSIS DEVELOPED FOR**
15 **ALTERNATIVE 5.**

16 A. The total estimated cost to execute Alternative 5 was \$32,944,929. This figure
17 included \$11,834,508 for excavation, site grading/management, controls,
18 transmission relocation, etc.; \$10,193,893 for loading, hauling, and placing the
19 coal ash; and \$10,916,528 for private landfill fees.

20 **Q. WHY WERE ALTERNATIVES 3, 4, AND 5 REJECTED BY EKPC?**

21 A. Alternative 3 was \$8,678,096, or 32%, more expensive than the least-cost
22 alternative. It also required more than double the haul distance required for the
23 preferred option which would result in the potential for more social,

1 transportation, and environmental impacts. Alternative 4 was \$3,756,782, or
2 14%, more expensive than the least-cost alternative and also required more than
3 double the haul distance (although less than Alternative 3) required for the
4 preferred option. Lastly, it was likely that Alternative 4 would require additional
5 infrastructure not considered in its cost estimate. Alternative 5 was \$5,982,929,
6 or 22%, more expensive than the least-cost alternative.

7 **Q. DID EKPC CONSIDER AND ANALYZE ANY ADDITIONAL**
8 **ALTERNATIVE SOLUTIONS FOR THE PERMANENT DISPOSAL OF**
9 **THE COAL ASH PRESENTLY LOCATED AT DALE STATION?**

10 A. Yes. In addition to the initially-selected option discussed above (Smith Special
11 Waste Landfill), EKPC considered and analyzed two other alternative solutions
12 for the stated issue.

13 **Q. WERE THESE THREE ALTERNATIVES EVALUATED BY BURNS &**
14 **MCDONNELL AND CONTAINED IN ITS *REPORT ON THE DALE***
15 ***STATION-ASH IMPOUNDMENT CLOSURE AND SITE RESTORATION***
16 ***PROJECT, APRIL 2014?***

17 A. Yes. EKPC retained Burns & McDonnell to develop the best on-site disposal
18 alternatives and to provide high level scope and cost of the Project and the on-site
19 alternatives to use in an “on par” comparison with the ash disposal alternatives
20 that had already been developed.

21 **Q. PLEASE IDENTIFY EACH OF THE THREE (3) ALTERNATIVE**
22 **SOLUTIONS EVALUATED BY BURNS & MCDONNELL.**

1 A. The three (3) alternatives assessed and proposed by Burns & McDonnell are as
2 follows:

- 3 • Alternative 6: Pond closure in place (cap only).
- 4 • Alternative 7: Pond closure in place (intermediate liner and cap).
- 5 • Alternative 8: Construct a new Special Waste Landfill at Smith Station in
6 Clark County, Kentucky.

7 **Q. PLEASE BRIEFLY DESCRIBE ALTERNATIVE 6.**

8 A. Alternative 6 proposed that EKPC close the existing impoundments in place on
9 the Dale Station site by consolidating the coal ash in Ash Pond 2 and installing a
10 cap consisting of a geomembrane, 18 inches of protective soil cover, followed by
11 six inches of topsoil for seeding.

12 **Q. PLEASE BRIEFLY DESCRIBE ALTERNATIVE 7.**

13 A. Alternative 7 proposed that EKPC close the existing impoundments in place on
14 the Dale Station site by dewatering the wet coal ash in Ash Pond 2, then placing
15 an intermediate soil and geomembrane liner on top of Ash Pond 2, consolidating
16 the remaining dewatered coal ash from Ash Pond 4 and Ash Pond 3 over the
17 intermediate liner system and installing a final cap over the coal ash. Like
18 Alternative 6, 18 inches of protective soil cover and six inches of topsoil cover,
19 with seeding, would be placed over the cap.

20 **Q. DID BURNS & MCDONNELL DEVELOP A COST ANALYSIS FOR**
21 **EACH ALTERNATIVE 6 AND 7?**

22 A. Yes. Burns & McDonnell estimates that the cost of Alternative 6 would be \$34.8
23 million, and the cost of Alternative 7 would be \$36.6 million.

1 **Q. WERE ALTERNATIVES 6 AND 7 REJECTED BY EKPC?**

2 A. Yes.

3 **Q. WHY WERE ALTERNATIVES 6 AND 7 REJECTED BY EKPC?**

4 A. EKPC has been compelled to reject both Alternative 6 and Alternative 7 for the
5 following reasons: (1) both alternatives keep Dale’s coal ash permanently located
6 adjacent to the Kentucky River; (2) it is highly improbable that either closure in
7 place option could be successfully permitted as a Special Waste Landfill by the
8 Kentucky Division of Waste Management (“KDWM”) because the Dale location
9 cannot reasonably meet the Special Waste Landfill siting requirements; and, (3)
10 both alternatives are more costly than Alternative 8, Construction of a new
11 Special Waste Landfill at Smith Station.

12 **Q. PLEASE BRIEFLY DESCRIBE ALTERNATIVE 8.**

13 A. Alternative 8 proposed that EKPC dewater the coal ash at Dale Station and
14 subsequently transport it via truck to a newly-constructed Special Waste Landfill
15 at EKPC’s Smith Station.

16 **Q. DID BURNS & MCDONNELL DEVELOP A COST ANALYSIS FOR
17 ALTERNATIVE 8?**

18 A. Yes. The total estimated cost to execute Alternative 8 is \$26,962,000. This figure
19 includes \$13,095,807² for excavation, site grading/management, controls,
20 transmission relocation, etc.; \$9,866,193 for loading, hauling, and placing the coal
21 ash; and \$4,000,000 for the development of a new Special Waste Landfill at
22 Smith Station. A detailed projected cost estimate, which is incorporated herein by

² The mitigation fees for the Smith Special Waste Landfill are included as part of this figure, which is the reason why “excavation, site grading/management, controls, transmission relocation, etc.” is estimated to cost \$1,261,299 more for Alternative 8 than Alternatives 3, 4, and 5.

1 reference, is contained in Exhibit ET-1 to the Direct Testimony of Ed Tohill,
2 Table 7-1.

3 **Q. IS ALTERNATIVE 8 THE LEAST COST ALTERNATIVE PROPOSED**
4 **BY BURNS & MCDONNELL?**

5 A. Yes.

6 **Q. IS SMITH STATION OF SUFFICIENT SIZE TO ACCOMMODATE A**
7 **NEW SPECIAL WASTE LANDFILL?**

8 A. Yes. The 3,272 acres of Smith Station would allow for the construction of a
9 Special Waste Landfill of sufficient size to provide for the required disposal of
10 coal ash from Dale Station, along with associated infrastructure and necessary
11 buffers to adjoining property owners. Its size also provides multiple borrow soil
12 areas essential to construction of a Special Waste Landfill and backfilling at Dale
13 Station.

14 **Q. IS SMITH STATION'S EXISTING INFRASTRUCTURE**
15 **ADVANTAGEOUS TO THE CONSTRUCTION AND UTILIZATION OF**
16 **A NEW SPECIAL WASTE LANDFILL?**

17 A. Yes. When Smith Station was originally purchased and developed in the early
18 1980s, EKPC intended to construct two 600-MW (net) coal-fired units on the
19 property. However, the need for the project did not materialize as anticipated and
20 the project was delayed in 1984 and cancelled in 1993. In 2011, EKPC also
21 cancelled a project to construct a 278 MW (net) Circulating Fluidized Bed Unit,
22 commonly referred to as "Smith 1-CFB". As a result, the site includes existing
23 access roads and other improvements that could accommodate the delivery of coal

1 ash from Dale Station. Additionally, significant infrastructure, including roads
2 and water control features, already exists on the property, providing an
3 opportunity for EKPC to minimize environmental impacts associated with the
4 development of infrastructure for the proposed landfill.

5 **Q. WILL COAL AND BIOMASS COMBUSTION BY-PRODUCTS FROM**
6 **SOURCES OTHER THAN DALE STATION BE DEPOSITED IN THE**
7 **PROPOSED SPECIAL WASTE LANDFILL AT SMITH STATION?**

8 A. Possibly. As further discussed in the Direct Testimony of Jerry B. Purvis,
9 EKPC's Director of Environmental Affairs, EKPC obtained a Permit from the
10 KDWM on July 29, 2013, to construct a Special Waste Landfill at Smith Station.
11 The Permit allows for the disposal at the proposed Smith Station Special Waste
12 Landfill of "coal and biomass combustion by-products" generated by EKPC's
13 Dale Station, Spurlock Station, and John Sherman Cooper Power Station
14 ("Cooper" or "Cooper Station").

15 **Q. WHAT IS THE TOTAL PERMITTED LANDFILL CAPACITY UNDER**
16 **THE KDWM PERMIT?**

17 A. The total permitted landfill capacity under the KDWM Permit is 3,834,579 cubic
18 yards.

19 **Q. HOW MANY CUBIC YARDS OF COAL ASH FROM DALE STATION**
20 **DOES EKPC INTEND TO DEPOSIT IN THE PROPOSED SPECIAL**
21 **WASTE LANDFILL AT SMITH STATION?**

22 A. EKPC intends to deposit up to approximately 560,000 cubic yards of coal ash
23 from Dale Station at the proposed Special Waste Landfill at Smith Station.

1 **Q. WHAT IS THE VOLUME OF THE SPECIAL WASTE LANDFILL FOR**
2 **WHICH EKPC SEEKS A CERTIFICATE OF PUBLIC CONVENIENCE**
3 **AND NECESSITY?**

4 A. EKPC's request in this case is for the Commission to approve a Certificate of
5 Public Convenience and Necessity for the construction of a 750,000 cubic yard
6 landfill cell.

7 **Q. WHY IS THE TOTAL PERMITTED LANDFILL CAPACITY UNDER**
8 **THE KDWM PERMIT LARGER THAN THE VOLUME OF THE**
9 **PROPOSED SPECIAL WASTE LANDFILL AT SMITH STATION?**

10 A. When EKPC made application with KDWM to permit the Special Waste Landfill
11 at Smith Station, it did so requesting a geographical area (acres) and a volume
12 (cubic yards) sufficient to receive coal ash from all of its coal-fired plants
13 producing coal ash as a by-product of the combustion process – Spurlock, Cooper
14 and Dale.

15 **Q. WHY IS THE PROPOSED VOLUME OF THE SPECIAL WASTE**
16 **LANDFILL AT SMITH STATION LARGER THAN THE ESTIMATED**
17 **AMOUNT OF COAL ASH FROM DALE STATION THAT EKPC**
18 **INTENDS TO DEPOSIT AT THE PROPOSED SPECIAL WASTE**
19 **LANDFILL AT SMITH STATION?**

20 A. Although it is not currently EKPC's plan to dispose of coal ash from Spurlock or
21 Cooper at the proposed Special Waste Landfill at Smith Station on a regular basis,
22 an emergency could arise rendering disposal of coal ash at the existing Special
23 Waste Landfills at either Spurlock or Cooper, or both, impracticable or

1 impossible. In such event, EKPC needs the operational flexibility to temporarily
2 divert coal ash disposal from these other locations. Therefore, while it is
3 estimated that as much as approximately 560,000 cubic yards of Dale Station coal
4 ash will be disposed of at the proposed Special Waste Landfill at Smith Station,
5 EKPC requests approval to increase the capacity of the proposed landfill to
6 750,000 cubic yards to allow for the possibility of disposing of Spurlock and
7 Cooper coal ash there if necessary. The extra 200,000 cubic yards of capacity
8 approximates the total 30-day coal ash production at Spurlock assuming a high
9 capacity factor, which would surpass a similar emergency capacity for Cooper
10 operations for the same period. Should EKPC ever need to increase the size of
11 the cells at the proposed Special Waste Landfill at Smith Station in excess of
12 750,000 cubic yards, it would make application to the Commission for a new
13 Certificate of Public Convenience and Necessity consistent with such need.

14 **Q. WHY IS THE ESTIMATED AMOUNT OF DALE ASH TO BE DISPOSED**
15 **GREATER THAN THE SUMS OF THE ESTIMATED VOLUMES FOR**
16 **ASH PONDS 2, 3, AND 4?**

17 A. Estimates have been made for the volume of ash in Ponds 2, 3, and 4 from site
18 records and core drillings. Actual amounts may vary and removal depths will be
19 finally determined in the field during actual removal. Additionally, there are two
20 structural fills on the Dale site that are included in the approximated 560,000
21 cubic yards. Ash in those areas does not warrant the same level of concern for
22 accidental release as the ash in Ponds 2, 3 & 4, and removal is not required as a
23 result of Dale closure since those areas are covered by a permit by rule per 401

1 KAR 45:060 Section 1(7), as structural fills. These areas are under evaluation
2 and will likely be retained on site to support future site uses.

3 **Q. IS THE DIFFERENCE IN COST OF CONSTRUCTING A 750,000 CUBIC**
4 **YARD SPECIAL WASTE LANDFILL AT SMITH STATION AS**
5 **COMPARED TO A 560,000 CUBIC YARD SPECIAL WASTE LANDFILL**
6 **AT SMITH STATION *DE MINIMIS*?**

7 A. Yes. The extra cost amounts to only approximately \$175,000, or an additional
8 4.6%. This equates to less than \$1.00 per CY or capacity and increases the
9 landfill area from 10.57 acres to 12.14 acres.

10 **Q. HAS EKPC DETERMINED THAT ALTERNATIVE 8, THE**
11 **CONSTRUCTION OF NEW SPECIAL WASTE LANDFILL AT SMITH**
12 **STATION, REPRESENTS THE MOST REASONABLE, LEAST COST**
13 **OPTION FOR THE ENVIRONMENTALLY PRUDENT AND**
14 **PERMANENT DISPOSAL OF THE COAL ASH PRESENTLY LOCATED**
15 **AT DALE STATION?**

16 A. Yes.

17 **Q. IS THE PROPOSED SPECIAL WASTE LANDFILL AT SMITH STATION**
18 **DESIGNED IN ACCORDANCE WITH APPLICABLE LAW AND**
19 **REGULATION?**

20 A. Yes.

21 **Q. PLEASE DESCRIBE GENERALLY THE CONSTRUCTION PLAN FOR**
22 **THE PROPOSED SPECIAL WASTE LANDFILL AT SMITH STATION.**

1 A. Construction activities will generally include installation of a groundwater
2 monitoring network, construction of sedimentation controls, clearing and
3 grubbing, stripping of vegetative cover, excavation to subgrade, installation of an
4 underdrain system, placement of the bottom liner system, installation of a leachate
5 collection system, and placement of a protective cover.

6 **Q. PLEASE DESCRIBE THE CURRENT PROPOSED SCHEDULE FOR THE**
7 **PROJECT.**

8 A. The current Project schedule assumes that landfill construction activities will be
9 far enough along to allow the new landfill to begin accepting dewatered coal ash
10 from Dale Station for use as a protective cover by late summer/early fall of 2015.
11 Construction and handling for dewatering, excavating and moving coal ash from
12 Dale during the wet months (November to April) can be challenging, so the
13 excavation of ash may be temporarily halted during those months. The
14 construction plan contemplates an estimated Project completion in the 4th Quarter
15 of 2017. A Preliminary Project Schedule Summary, which is incorporated herein
16 by reference, is contained in Exhibit ET-1 to the Direct Testimony of Ed Tohill,
17 Table 6-1.

18 **Q. WHAT IS THE CURRENT PROPOSED SEQUENCE FOR THE**
19 **REMOVAL OF COAL ASH FROM DALE STATION?**

20 A. The original sequence proposed in Burns & McDonnell's *Report on the Dale*
21 *Station-Ash Impoundment Closure and Site Restoration Project, April 2014* began
22 with Ash Pond 3, followed by removal of coal ash from Ash Pond 4, then Ash
23 Pond 2 and other remaining areas. Collaboration between EKPC and Burns &

1 McDonnell on the early phases of detailed design has commenced, and it is likely
2 that the ash removal sequencing will change. Many factors will be considered
3 before the final sequencing determination is made, including excavation
4 equipment placement, shoreline protection, dewatering strategies, transmission
5 line relocation constraints, seasonal removal volume management, etc.
6 Regardless of the ultimate sequence of removal, attention will be given to employ
7 measures meant to ensure the safety of workers on the site and the public along
8 the haul route, and reduce the risk of an environmental release during the removal
9 and hauling process.

10 **Q. WHAT IS THE DISTANCE TO BE TRAVELLED BY THE HAUL**
11 **TRUCKS BETWEEN DALE STATION AND SMITH STATION?**

12 A. The proposed truck haul route from Dale Station to Smith Station is
13 approximately 27.3 miles each way.

14 **Q. PLEASE DESCRIBE THE ANTICIPATED HAUL ROUTE FOR THE**
15 **TRANSPORTATION OF COAL ASH FROM DALE STATION TO SMITH**
16 **STATION.**

17 A. The haul route has been publicly vetted and was incorporated into the KDWM
18 Permit for the Smith Special Waste Landfill as follows: “From Dale Station the
19 proposed haul route will follow State Route 1924 (Ford Road) for approximately
20 2.0 miles to State Route 627 (Boonesborough Road). The route then follows
21 State Route 627 to the north for approximately 6.25 miles to State Route 1958
22 (Winchester Bypass). State Route 1958 is followed to the northwest for 2.75
23 miles before entering onto Interstate 64 east bound at Exit 94. Interstate 64 would

1 be traveled for 2.0 miles to Exit 96 where the route would again follow State
2 Route 627 to the south for approximately 0.25 mile to the Winchester Bypass on
3 the east side of Winchester. The bypass would be followed for 2.4 miles to State
4 Route 89 (Irvine Road), which would be traveled to the south for approximately
5 10.5 miles to Smith Power Plant Road. The private plant entrance drive would be
6 traversed through the Smith Station property for 1.3 miles to the proposed landfill
7 site.”

8 **Q. WILL THE COAL ASH BE COVERED WHILE TRANSPORTED FROM**
9 **DALE STATION TO SMITH STATION?**

10 A. Yes.

11 **Q. DURING WHAT DAYS PER WEEK AND WHAT TIMES PER DAY**
12 **DOES EKPC ANTICIPATE HAULING COAL ASH FROM DALE**
13 **STATION TO SMITH STATION?**

14 A. At this time the hauling plan is only in initial Project design/development and
15 these details are not yet established. The Project is very weather dependent and
16 even when the haul plan is finalized, it must be flexible during construction to
17 achieve the desired Project outcome.

18 **Q. HOW MANY TRUCK LOADS OF COAL ASH DOES EKPC ESTIMATE**
19 **CAN BE HAULED FROM DALE STATION TO SMITH STATION EACH**
20 **EIGHT-HOUR WORK DAY?**

21 A. In accordance with the Burns & McDonnell Report, assuming an eight-hour work
22 day and one load out point, EKPC estimates that 132 truck loads of coal ash can
23 be hauled from Dale Station to Smith Station each work day. This estimate is

1 preliminary. The site loading and truck haul plan will be developed with the
2 detailed design to balance ash volume with the appropriate construction windows,
3 while protecting the safety of the Project work force and the public.

4 **Q. HOW MANY TRUCKS DOES EKPC ANTICIPATE UTILIZING FOR**
5 **THE HAULING OF COAL ASH FROM DALE STATION TO SMITH**
6 **STATION?**

7 A. Based on the Burns & McDonnell report, EKPC estimates that a fleet of 33 trucks
8 would be required for the assumed plan.

9 **Q. DOES EKPC PRESENTLY HAVE A 138/69 KV TRANSMISSION**
10 **SUBSTATION AT DALE STATION?**

11 A. Yes.

12 **Q. WHAT IS THE PURPOSE OF THIS SUBSTATION?**

13 A. This substation presently serves two purposes. One of these is to provide the
14 point of connection for the four generating units at Dale Station. The lines
15 terminated at this substation provide the outlet capability needed when these
16 generating units operate, in order to deliver the generated power where needed
17 within the EKPC system. The second important purpose of this substation is to
18 support a reliable, adequate transmission grid in the area for transmission of
19 power between key EKPC facilities, and to deliver energy to local EKPC delivery
20 points. This is an important function of this substation even when the Dale
21 generating Units are not operating, and will continue to be after the Units are
22 retired.

1 **Q. HOW MANY TRANSMISSION LINES TERMINATE AT THIS**
2 **SUBSTATION?**

3 A. Three (3) 138 kV transmission lines and four (4) 69 kV transmission lines
4 terminate at this substation.

5 **Q. WHERE ARE THESE TRANSMISSION LINES LOCATED?**

6 A. Because of the limited size of the Dale Station site, four of these transmission
7 lines and supporting structures are located between and along Ash Ponds 2 and 3.
8 The other three lines are located across the southern end of the site.

9 **Q. IS THE LOCATION OF THE TRANSMISSION LINES PROBLEMATIC**
10 **WITH RESPECT TO THE REMOVAL OF COAL ASH FROM DALE**
11 **STATION?**

12 A. Yes. The transmission structures are currently in a filled area that will be
13 removed entirely as a result of this project. The relocation of two 69kV circuits
14 and two 138kV circuits will be incorporated into the final Project design so as not
15 to undermine the structures with excavation activities, to provide safe work
16 clearances and site stability, and to coordinate and manage the necessary
17 transmission outages in accordance with transmission service requirements.

18 **Q. HOW DOES EKPC PROPOSE TO ADDRESS THE PROBLEMS CAUSED**
19 **BY THE PRESENT LOCATION OF THE TRANSMISSION LINES?**

20 A. EKPC proposes to relocate these problematic transmission lines to other areas of
21 the Dale Station property. The estimated length of this relocation is 3,000 feet
22 and the relocation involves the replacement or upgrading of existing electric
23 transmission lines on a common structure. EKPC intends to design and

REDACTED

1 accomplish the relocation in such a manner as to avoid any additional relocation
2 activities should the Dale site be redeveloped in the future. An aerial photograph
3 of the Dale Station site that contains a superimposed representation of the
4 proposed relocation of these transmission lines is attached hereto as Exhibit MC-
5 1.

6 **Q. WHICH TRANSMISSION LINES DOES EKPC PROPOSE TO**
7 **RELOCATE?**

8 A. EKPC proposes to relocate the following lines:

9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]

- 13 • The Dale-Headquarters 69 kV circuit (includes 69 kV connection points
14 for the EKPC Hunt, Miller-Hunt, Sideview, Reid Village, Mt. Sterling,
15 Cane Ridge, and Millersburg distribution substations)
- 16 • The Dale-Powell County 69 kV circuit (includes 69 kV connection points
17 for the EKPC JK Smith, Trapp, Hargett, Clay City, Hardwicks Creek, and
18 Stanton distribution substations)

19 **Q. IS MINIMIZING THE DURATION THAT THE TRANSMISSION LINES**
20 **ARE OUT OF SERVICE CRITICAL TO THE RELIABLE OPERATION**
21 **OF THE EKPC TRANSMISSION SYSTEM?**

22 A. [REDACTED]
23 [REDACTED]

REDACTED

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]

17 While the two subject 69 kV lines to be re-located do not provide the same
18 regional transmission benefits, these lines do provide a path for transmission of
19 power to a large number of end-use consumers of EKPC's Member-Owner
20 cooperatives. The two lines provide service to a total of thirteen (13) distribution
21 substations, serving approximately 16,000 consumers in six (6) counties. While
22 service can normally be maintained to these distribution substations from the
23 remote substations (the Headquarters and Powell County substations), a

1 subsequent outage of either of these remote ends would result in extended outages
2 for the distribution substations served from these circuits, since the Dale Station
3 source would not be available to deliver power to these substations. Therefore, it
4 is necessary to minimize the duration of the outages of the Dale-Headquarters and
5 the Dale-Powell County 69 kV circuits to maintain the dual-feed capability to
6 these distribution substations to avoid the possibility of extended outages for end-
7 use consumers in the area.

8 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

9 A. A total of eight alternatives for disposal of Dale coal ash have been considered.
10 Five of the alternatives were developed and rejected when a new ash disposal site
11 was needed for continued operation of the Dale units, as a result of the closure of
12 EKPC's Hancock Creek Inert Landfill. One remaining alternative and two new
13 alternatives were developed which include the two best on-site disposal options
14 along with construction of a Special Waste Landfill on EKPC's Smith Station
15 property. The proposed Project is the least cost, most implementable, and most
16 environmentally prudent alternative for disposing of the ash at Dale.

17 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

18 A. Yes.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In re the Matter of:

AN APPLICATION OF EAST KENTUCKY)	
POWER COOPERATIVE, INC. FOR A)	
CERTIFICATE OF PUBLIC CONVENIENCE)	
AND NECESSITY FOR CONSTRUCTION OF AN)	
ASH LANDFILL AT J. K. SMITH STATION TO	)	CASE NO.
RECEIVE IMPOUNDED ASH FROM WILLIAM	)	2014-00252
C. DALE STATION, AND FOR APPROVAL OF A)	
COMPLIANCE PLAN AMENDMENT FOR)	
ENVIRONMENTAL SURCHARGE RECOVERY)	

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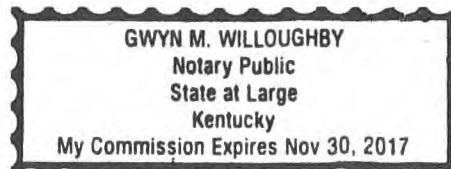
STATE OF KENTUCKY)
)
 COUNTY OF CLARK)

Matt Clark, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

Matt Clark

Subscribed and sworn before me on this 8th day of September, 2014.

Gwyn M. Willoughby #500144
 Notary Public



REDACTED

Exhibit MC-1

Page 1 of 2

REDACTED

Exhibit MC-1

Page 2 of 2

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

AN APPLICATION OF EAST KENTUCKY)	
POWER COOPERATIVE, INC. FOR A)	
CERTIFICATE OF PUBLIC CONVENIENCE)	
AND NECESSITY FOR CONSTRUCTION OF AN)	
ASH LANDFILL AT J. K. SMITH STATION, THE)	
REMOVAL OF IMPOUNDED ASH FROM	)	CASE NO.
WILLIAM C. DALE STATION FOR TRANSPORT	)	2014-00252
TO J. K. SMITH, AND APPROVAL OF A)	
COMPLIANCE PLAN AMENDMENT FOR)	
ENVIRONMENTAL SURCHARGE RECOVERY)	

DIRECT TESTIMONY OF ED TOHILL
ON BEHALF OF EAST KENTUCKY POWER COOPERATIVE, INC.

Filed: September 8, 2014

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND**
2 **OCCUPATION.**

3 A. My name is Ed Tohill. I work for Burns & McDonnell Engineering Co., Inc.
4 (“Burns & McDonnell”), 9400 Ward Parkway, Kansas City, Missouri 64114. I
5 am the Department Manager for the Civil Department in our Energy Global
6 Practice.

7 **Q. PLEASE STATE YOUR EDUCATION AND PROFESSIONAL**
8 **EXPERIENCE.**

9 A. I have a Bachelor of Science degree in Civil Engineering from the University of
10 Illinois Urbana/Champaign, 1990, and a Master of Civil Engineering degree from
11 the University of Kansas, 2001. I have worked for Burns & McDonnell for 24
12 years and am a Registered Professional Engineer in six states, including the
13 Commonwealth of Kentucky. My professional experience has primarily included
14 project engineering and project and construction management in the power
15 industry, with a primary area of focus being combustion waste (including coal
16 ash) disposal facilities. I also have site development design and construction
17 experience in other aspects of power generating facilities, including siting studies,
18 roadways, railroads, grading and drainage, plant ponds, and underground utilities.
19 Additionally, I spent approximately five years of my career at Burns &
20 McDonnell working in a non-power industry on design, project management and
21 construction in the area of site development for municipal and private clients.

22 **Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF YOUR DUTIES AT**
23 **BURNS & MCDONNELL.**

1 A. I am a civil engineer and LEED® Accredited Professional responsible for project
2 management, design, layout, contract administration, and construction monitoring
3 of site development projects in the power/energy sector in the areas of civil
4 engineering previously noted. My additional responsibilities include quality
5 control reviews, permit support, cost estimating, site layouts, and preparation of
6 specifications.

7 **Q. PLEASE GENERALLY DESCRIBE BURNS & MCDONNELL AND THE**
8 **TYPES OF ACTIVITIES IT ROUTINELY PERFORMS FOR UTILITIES**
9 **LIKE EAST KENTUCKY POWER COOPERATIVE, INC.**

10 A. Founded in 1898, Burns & McDonnell is an internationally recognized
11 architectural/engineering firm, incorporated in the United States, in the State of
12 Missouri, with headquarters in Kansas City, MO. Burns & McDonnell's Energy
13 Global Practice (Energy) has provided a full range of services to the electric
14 utility industry since our founding in 1898. Energy focuses on serving electric
15 utilities, commercial, institutional, industrial, and government clients, and
16 conducting various power-related economic, cost, and design studies. The global
17 practice provides facility design services for steam and electric generation
18 including assisting clients in the start-up and performance testing of new and
19 reconditioned plants, and performing plant performance and operations
20 assessments. Energy has over 450 employees with several specialists available to
21 our clients to address critical issues and aspects of electric system and power plant
22 planning, design, operations, upgrades, and decommissioning. The global practice
23 also has available in-house economic advisors that run pro-forma analyses,

1 economic justification studies, etc. Burns & McDonnell's domestic client base
2 includes municipalities, cooperatives, investor owned utilities, independent power
3 producers, etc. spanning all 50 states.

4
5 Recent awards and rankings include:

- 6 • 2013 PSMJ Premier Award for Client Satisfaction (4th year in a row and only
7 Engineering News Record (ENR) Top 100 Design firm to win the award)
- 8 • Burns & McDonnell is proud to rank among the nation's leading design and
9 construction firms. Our most recent rankings (2014) from ENR:

10 **Top Lists**

- 11 • #14 in Top 50 Program Management Firms
- 12 • #14 in Top 100 Design-Build Firms
- 13 • #18 in Top 500 Design Firms
- 14 • #50 in Top 400 Contractors

15 **Industry-Specific Lists**

- 16 • #1 in Transmission and Distribution
- 17 • #2 in Fossil Fuel
- 18 • #4 in Power

19
20 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
21 **PROCEEDING?**

1 A. The purpose of my testimony is to describe Burns & McDonnell’s engagement by
2 East Kentucky Power Cooperative, Inc. (“EKPC”), to provide assistance in
3 developing a solution for the permanent disposal of coal combustion residuals
4 (“CCRs” or “coal ash”) presently located at EKPC’s William C. Dale Station
5 (“Dale” or “Dale Station”) (the “Coal Ash Disposal”). I will discuss the scoping
6 study conducted by Burns & McDonnell which addressed the possible closure-in-
7 place of Ash Ponds 2, 3 and 4 at Dale Station, and which also addressed,
8 alternatively, a site restoration project to remove coal ash from Dale Station and
9 transport same to a proposed Special Waste Landfill¹ at EKPC’s J.K. Smith
10 Station (“Smith” or “Smith Station”) (collectively, the “Project”). My testimony
11 will also include discussion of estimated schedules and costs for the Project.

12 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

13 A. Yes. I am sponsoring the document prepared by Burns & McDonnell entitled
14 *Report on the Dale Station-Ash Impoundment Closure and Site Restoration*
15 *Project, April 2014* (the “Burns & McDonnell Report”). A copy of the Burns &
16 McDonnell Report is attached hereto as Exhibit ET-1, and I ask that same be
17 incorporated by reference into my testimony.

18 **Q. WAS THE BURNS & MCDONNELL REPORT PREPARED BY YOU OR**
19 **UNDER YOUR SUPERVISION?**

20 A. Yes.

¹ “Special Waste Landfill” means a landfill designed in accordance with the technical requirements of 401 KAR 45:110.

1 **Q. DID EKPC ENGAGE BURNS & MCDONNELL TO PROVIDE**
2 **ASSISTANCE IN DEVELOPING A SOLUTION FOR THE COAL ASH**
3 **DISPOSAL?**

4 A. Yes. On or about August 7, 2013, EKPC retained Burns & McDonnell to assist
5 EKPC in determining the best alternative for Dale Station Coal Ash Disposal.

6 **Q. DOES BURNS & MCDONNELL HAVE EXTENSIVE EXPERIENCE IN**
7 **ASSISTING UTILITIES WITH THE PERMITTING, DESIGN AND**
8 **CONSTRUCTION OF COAL ASH DISPOSAL FACILITIES?**

9 A. Yes.

10 **Q. PLEASE PROVIDE SOME RECENT EXAMPLES OF THAT**
11 **EXPERIENCE.**

12 A. Burns & McDonnell has permitted, designed, served as Owner's Engineer, and/or
13 supported construction on at least fifteen CCR/special waste disposal facility
14 projects (original landfill permitting and development, base landfill cells, landfill
15 expansions, or landfill closures) in the last seven years.

16 **Q. PLEASE BRIEFLY DESCRIBE WHETHER BURNS & MCDONNELL IS**
17 **FAMILIAR WITH EKPC'S FACILITIES AND OPERATIONS AND**
18 **PROVIDE A FEW EXAMPLES OF WORK PREVIOUSLY PERFORMED**
19 **FOR EKPC.**

20 A. Burns & McDonnell has performed a variety of engineering services for EKPC in
21 the past few years. As a result of these activities, Burns & McDonnell has
22 become familiar with EKPC's generating facilities and operations. Burns &
23 McDonnell has worked for EKPC since they designed the Dale Station in the late

1 1940's/early 1950's. Recent projects with EKPC have included design, and
2 construction management and construction support for air quality control retrofit
3 projects, and projects to assess new generation alternatives. These projects have
4 included the Cooper Station, Dale Station, Spurlock Station, and Smith Station,
5 and they have included both coal fired and natural gas fired units.

6 **Q. WHAT WAS THE SCOPE OF BURNS & MCDONNELL'S WORK FOR**
7 **EKPC FOR COAL ASH DISPOSAL AT DALE?**

8 A. EKPC retained Burns & McDonnell for a scoping study of a project to
9 permanently remove ash from EKPC Dale Station, transport it to a new landfill at
10 Smith Station, and restore the Dale site. Additionally, Burns & McDonnell
11 investigated on-site disposal options, which consisted of a feasibility analysis of
12 in-place disposal methods at the Dale site. This work included a construction
13 phasing plan, hauling plan, contracting plan, project schedule, and a cost estimate.

14 **Q. WHAT WERE BURNS & MCDONNELL'S OBJECTIVES WITH**
15 **RESPECT TO ITS STUDY OF THE COAL ASH DISPOSAL FOR EKPC?**

16 A. The purpose of the Burns & McDonnell Report was to develop the best on-site
17 disposal alternatives and provide a high level scope and cost of the Project to use
18 in an "on par" comparison with the ash disposal alternatives that had already been
19 developed. Burns & McDonnell's objectives were to evaluate the cost, schedule
20 and feasibility of the options identified in our scope. All the study options are
21 intended to achieve compliance with the Kentucky Department for Environmental
22 Protection ("KDEP") special waste regulations, where applicable, and are also

1 intended to achieve compliance with the Environmental Protection Agency's
2 ("EPA") proposed CCR Rules.

3 **Q. DID BURNS & MCDONNELL PREPARE A WRITTEN REPORT,**
4 **NAMELY THE BURNS & MCDONNELL REPORT, DETAILING THE**
5 **RESULTS OF ITS STUDY OF THE COAL ASH DISPOSAL FOR EKPC?**

6 A. Yes.

7 **Q. DID BURNS & MCDONNELL'S STUDY RESULT IN MULTIPLE**
8 **ALTERNATIVES FOR EKPC TO CONSIDER IN ORDER TO ADDRESS**
9 **THE COAL ASH DISPOSAL?**

10 A. Yes.

11 **Q. PLEASE DESCRIBE GENERALLY EACH OF THE ALTERNATIVES**
12 **FOR COAL ASH DISPOSAL PRESENTED BY BURNS & MCDONNELL**
13 **IN ITS WRITTEN REPORT TO EKPC.**

14 A. Three options were evaluated in our Report. The first option has been designated
15 Alternative 6 by EKPC. This alternative is closing the current Dale Station ash
16 ponds in place with only a cap. This option included excavating/moving ash from
17 its current location for dewatering purposes and consolidating in the existing Pond
18 2 area. The ash in Ponds 2 and 4 would be double handled for dewatering
19 purposes. The ash present in Ponds 3 and 4 would be loaded and directly hauled
20 to the Pond 2 area. Once the ash is consolidated, a cover system consisting of
21 geotextile, 60 mil high-density polyethylene ("HDPE") geomembrane, 18 inches
22 of protective cover material, and 6 inches of topsoil for seeding would be installed
23 over the Pond 2 area. The Pond 4 area would be re-graded to drain. The existing

1 riprap from Pond 2 and Pond 4 areas would be removed and reused on the new
2 slopes of the disposal area and the remaining slopes of the Pond 4 area.

3 The second option has been designated Alternative 7 by EKPC. This alternative
4 would be completed by installing an intermediate liner system over the dewatered
5 Pond 2 ash and consolidating the ash from Ponds 3 and 4 over the intermediate
6 liner. For this option, it was again assumed the ash would be disposed of on-site.
7 This option included dewatering and grading the existing Pond 2 ash, placing an
8 intermediate liner, consolidating the remaining ash on-site over the intermediate
9 liner, and installing a final cap over all of the ash. For this option, only the ash in
10 Pond 4 would be double handled. The intermediate liner system would consist of
11 a six (6) inch compacted soil liner, geosynthetic clay liner (“GCL”), 60 mil HDPE
12 geomembrane liner, leachate collecting geonet and associated piping system, and
13 a geotextile. The ash present in Pond 3 and the dewatered ash from Pond 4 would
14 then be hauled to the Pond 2 area. After the ash is consolidated, a final cap
15 consisting of geotextile, 40 mil linear low-density polyethylene (“LLDPE”)
16 geomembrane, 18 inches of protective soil cover, and 6 inches of topsoil and
17 seeding would be installed. The Pond 4 area would be re-graded to drain. The
18 existing riprap from the Pond 2 and Pond 4 areas would be removed and reused
19 on the new slopes of the Pond 2 disposal area and on the remaining slopes of the
20 Pond 4 area.

21 The third option has been identified as Alternative 8 by EKPC. This alternative is
22 to permanently remove ash from EKPC’s Dale Station, transport it to a new

1 Special Waste Landfill at Smith Station, and restore the Dale site. Included in this
2 plan are:

- 3 • Construction of the Smith Special Waste Landfill;
- 4 • Dewatering of wet ash;
- 5 • Discharge of treated water from the site;
- 6 • Relocation of interferences such as transmission lines at Dale Station;
- 7 • Removal of ash from the Dale site and hauling it to the Smith Special
8 Waste Landfill; and
- 9 • Restoration activities at Dale Station after the ash is removed.

10 **Q. PLEASE BRIEFLY DESCRIBE THE ADVANTAGES AND/OR**
11 **DISADVANTAGES (IF ANY) OF ALTERNATIVES 6, 7, AND 8**
12 **RELATIVE TO ONE ANOTHER.**

13 A. Of the three evaluated Alternatives 6, 7 and 8, the highest cost alternatives are
14 Alternatives 6 and 7. Additionally, Alternatives 6 and 7 utilized the existing Dale
15 Station site for ash pond closures and Alternative 8 involved hauling the ash off-
16 site to a location out of the floodplain in a permitted Special Waste Landfill. The
17 Kentucky regulations cited in Mr. Jerry Purvis' testimony indicate that the Dale
18 Station site will not meet all of the Special Waste Landfill siting requirements.
19 The location of the Smith Special Waste Landfill (Alternative 8) is not in a
20 floodplain while the location where the Dale Station ash ponds would be closed
21 (Alternatives 6 and 7) is in a floodplain. Additionally, subsurface conditions at
22 Dale (Alternatives 6 and 7) require improvements to subsurface soil shear
23 strength to reduce the potential for liquefaction during a design seismic event,

1 while subsurface conditions at Smith (Alternative 8) are much more favorable.
2 Seismic evaluation at Smith was performed by others as part of the Smith Special
3 Waste Landfill permitting and design.

4 **Q. PLEASE DESCRIBE THE ESTIMATED COST ANALYSIS DEVELOPED**
5 **BY BURNS & MCDONNELL WITH RESPECT TO ALTERNATIVE 6.**

6 A. The estimated cost analysis consists of construction costs and project indirects.
7 **Construction Costs:** Construction costs were estimated using recent pricing and
8 factored adjustments to quantities from other similar projects in which Burns &
9 McDonnell has been involved as well as RSMMeans 2013 Building Construction
10 Cost Data reference.

11 **Project Indirects:** Project indirects were estimated based on Burns &
12 McDonnell's experience as an Owner's Engineer and EKPC contractor.

13 **Q. PLEASE PROVIDE THE PRINCIPAL ASSUMPTIONS USED IN THE**
14 **DEVELOPMENT OF THE ESTIMATED COST ANALYSIS BY BURNS &**
15 **MCDONNELL WITH RESPECT TO ALTERNATIVE 6.**

16 A. The following major scope items are included in the estimated costs of
17 Alternative 6:

- 18 • Spray field pipe demolition, hauling off-site, and disposal fees, which do
19 not include any salvage value;
- 20 • Tree removal, hauling off-site, and disposal fees;
- 21 • Riprap removal and reuse;
- 22 • Ash dewatering, staging, loading, and placement in Pond 2 area;
- 23 • General grading and drainage;

- 1 • Capping system including geotextile, geomembrane, protective cover
- 2 material installation, topsoil, and seeding;
- 3 • Erosion control throughout construction;
- 4 • Subsurface stabilization of the river embankment;
- 5 • Groundwater monitoring well installation;
- 6 • Overhead transmission line relocation;
- 7 • Costs for two mobilizations and demobilizations for site preparation
- 8 contractor to coincide with the schedule described in the Burns &
- 9 McDonnell Report; and
- 10 • Hauling protective cover and topsoil from Smith to Dale.

11 The following items are excluded from the estimated costs included in Alternative
12 6:

- 13 • Removal of the existing membrane liner at Pond 4 as it should not be
- 14 impacted by the site restoration activities;
- 15 • Additional treatment for discharging of the ash pond water;
- 16 • Costs for environmental impacts;
- 17 • Costs for topographical survey;
- 18 • Future operations and maintenance (“O&M”) costs to have a professional
- 19 engineer inspect the capped facility; and
- 20 • Future O&M costs for groundwater monitoring.

21 Several major assumptions were used in developing the estimated cost of
22 Alternative 6. These assumptions include the following:

- 23 • Cost estimates were based on 2013 dollars; and

- 1 • Protective cover and topsoil will be available at the Smith site for use at
2 Dale (loading and hauling costs included).

3 **Q. PLEASE DESCRIBE THE ESTIMATED COST ANALYSIS DEVELOPED**
4 **BY BURNS & MCDONNELL WITH RESPECT TO ALTERNATIVE 7.**

5 A. The cost analysis methodology used for Alternative 7 was the same as for
6 Alternative 6.

7 **Q. PLEASE PROVIDE THE PRINCIPAL ASSUMPTIONS USED IN THE**
8 **DEVELOPMENT OF THE ESTIMATED COST ANALYSIS BY BURNS &**
9 **MCDONNELL WITH RESPECT TO ALTERNATIVE 7.**

10 A. The same principal assumptions were used as Alternative 6 with the addition of:

- 11 • An intermediate liner system including soil liner, GCL, 60 mil HDPE
12 geomembrane, drainage geonet and non-woven geotextile; and
13 • Leachate collection system in the intermediate liner system.

14 **Q. PLEASE DESCRIBE THE ESTIMATED COST ANALYSIS DEVELOPED**
15 **BY BURNS & MCDONNELL WITH RESPECT TO ALTERNATIVE 8.**

16 A. The cost analysis methodology for Alternative 8 was the same as for Alternatives
17 6 and 7.

18 **Q. PLEASE PROVIDE THE PRINCIPAL ASSUMPTIONS USED IN THE**
19 **DEVELOPMENT OF THE ESTIMATED COST ANALYSIS BY BURNS &**
20 **MCDONNELL WITH RESPECT TO ALTERNATIVE 8.**

21 A. The following major scope items are included in the estimated costs of
22 Alternative 8:

- 1 • Spray field pipe demolition, hauling off-site, and disposal fees, which do
- 2 not include any salvage value;
- 3 • Tree removal, hauling off-site, and disposal fees;
- 4 • Riprap removal and replacement on new slopes at Dale;
- 5 • Ash dewatering, staging, loading, and hauling to the Smith Special Waste
- 6 Landfill;
- 7 • General grading and drainage;
- 8 • Erosion control throughout construction;
- 9 • Overhead transmission line relocation;
- 10 • Costs for three mobilizations and demobilizations for site preparation
- 11 contractor to coincide with the schedule described in the Burns &
- 12 McDonnell Report;
- 13 • Smith Special Waste Landfill capital construction costs provided by
- 14 EKPC;
- 15 • Hauling topsoil and general fill material from Smith to Dale;
- 16 • Grading of the ash at Smith; and
- 17 • Temporary cover over ash at Smith, consisting of 6" topsoil and seeding.

18 The following items are excluded from the estimated costs included in Alternative
19 8:

- 20 • Removal of the existing membrane liner at Pond 4 as it should not be
- 21 impacted by the site restoration activities;
- 22 • Additional treatment for discharging of the ash pond water;
- 23 • Costs for environmental impacts;

- 1 • Costs for topographical survey;
- 2 • Future O&M costs for groundwater monitoring.

3 Several major assumptions were used in developing the estimated cost of
4 Alternative 8. These assumptions include the following:

- 5 • Cost estimates were based on 2013 dollars; and
- 6 • Topsoil and fill material will be available at the Smith site for use at Dale
7 (loading and hauling costs included).

8 **Q. WHAT ARE THE ESTIMATED COSTS FOR ALTERNATIVES 6, 7, AND**
9 **8?**

10 A. The estimated cost for Alternative 6 is \$34.8 million. The estimated cost for
11 Alternative 7 is \$36.6 million. The estimated cost for Alternative 8 is \$27.0
12 million

13 **Q. IS ALTERNATIVE 8 THE REASONABLE LEAST COST ALTERNATIVE**
14 **PROPOSED BY BURNS & MCDONNELL?**

15 A. Yes.

16 **Q. PLEASE PROVIDE A DESCRIPTION OF THE ASH REMOVAL**
17 **PHASING PLAN FOR ALTERNATIVE 8.**

18 A. The original sequence proposed in the Burns & McDonnell Report for ash pond
19 removal began with Ash Pond 3, followed by removal of coal ash from Ash Pond
20 4, then Ash Pond 2 and other remaining areas. Collaboration between EKPC and
21 Burns & McDonnell on the early phases of detailed design has commenced, and it
22 is likely that the coal ash removal sequencing will change. Many factors will be
23 considered before the final sequencing determination is made, including

1 excavation equipment placement, shoreline protection, dewatering strategies,
2 transmission line relocation constraints, seasonal removal volume management,
3 etc. Regardless of the ultimate sequence of removal, attention will be given to
4 employ measures meant to assure the safety of workers on the site and the public
5 along the haul route, and reduce the risk of an environmental release during the
6 removal process.

7 **Q. PLEASE PROVIDE A DESCRIPTION OF THE ASSUMED HAULING**
8 **PLAN DESCRIBED IN THE BURNS & MCDONNELL REPORT FOR**
9 **THE TRANSPORT OF COAL ASH FROM DALE STATION TO SMITH**
10 **STATION.**

11 A. The route from Dale to Smith is 27.3 miles each way, and is comprised of state
12 highways and interstates with the exception of the plant drives. A complete cycle
13 for a truck including loading and unloading time was estimated to be two hours at
14 an average moving speed of 35 miles per hour. Loading was assumed using a 4.5
15 cubic yard front end loader. The trucks are assumed to be covered and to have a
16 20 cubic yard capacity, with approximately 16 cubic yards being placed on each
17 truck. The daily output for one 4.5 cubic yard front end loader was assumed to be
18 2,100 cubic yards, which would result in approximately 132 truckloads each
19 eight-hour work day. Therefore, a fleet of 33 trucks would be required to
20 maintain the output of the front end loader. It is estimated that each truck would
21 be loaded in an average of approximately three and a half minutes. Sufficient
22 time is allowed for the truck to unload for placement in the Smith Special Waste
23 Landfill.

1 **Q. PLEASE PROVIDE A DESCRIPTION OF THE PROPOSED**
2 **CONTRACTING PLAN FOR THE PROJECT.**

3 A. The contracting plan Burns & McDonnell has recommended for the Project is a
4 multiple prime contract approach. This approach is based on one prime
5 contractor executing the earthwork and hauling. The prime contractor may
6 subcontract and coordinate specialty items of the scope such as, but not limited to,
7 trucking, clearing and grubbing, and erosion control. The transmission line work
8 will be a separate technical specification/contract. Burns & McDonnell
9 recommends the Project be contracted as a unit price agreement. An initial value
10 would be assigned to the contract, established with estimated design quantities
11 and associated unit prices. The basis for payment would be per actual removed or
12 in-place quantities, as determined by topographic surveys.

13 **Q. PLEASE DESCRIBE IN DETAIL THE SCHEDULE FOR THE PROJECT**
14 **AND THE IMPORTANT CONSTITUENTS NECESSARY TO MAINTAIN**
15 **THE SCHEDULE.**

16 A. The preliminary Project schedule is based on engineering design for permitting
17 support to be complete in October, 2014, to achieve Project completion in
18 October, 2017. A preliminary schedule summary is presented as Table 6-1 in the
19 Burns & McDonnell Report. The schedule reflects a 21-month construction plan
20 over three years for the construction period. The scheduled commencement date
21 is driven by the activities of the Smith Special Waste Landfill construction. These
22 activities will need to be coordinated to determine when the first trucks can haul
23 ash material to Smith from Dale for use as protective cover. A preliminary

1 Project schedule was assumed as part of the scoping study in order to create cost
2 estimates and develop a feasible potential Project plan. As previously noted,
3 detailed design will incorporate refinement of the schedule and Project plan to
4 consider excavation equipment placement, site management/shoreline protection,
5 dewatering strategies, transmission line relocation constraints, seasonal removal
6 volume management, etc. Although the preliminary schedule will be adjusted and
7 refined, the execution of the Project construction will commence Spring 2015 and
8 conclude in late 2017.

9 The ash hauling activity is the critical path in the schedule and is dependent on
10 when the proposed Smith Special Waste Landfill will be available to accept ash
11 from Dale. It is assumed that ash hauling for landfill protective cover will begin
12 in late summer/early fall of 2015. Remaining ash will be hauled starting in April
13 of 2016 or once an operating permit for the Smith Special Waste Landfill is
14 obtained by EKPC.

15 **Q. IN YOUR OPINION, DO THE OVERALL BENEFITS OF THE PROJECT**
16 **JUSTIFY THE ESTIMATED \$26,962,000 CAPITAL EXPENDITURE FOR**
17 **THE PROJECT?**

18 A. Yes, based on the options evaluated by Burns & McDonnell.

19 **Q. IN YOUR OPINION, DO THE OVERALL BENEFITS OF THE PROJECT**
20 **JUSTIFY THE AMENDMENT OF EKPC'S ENVIRONMENTAL**
21 **COMPLIANCE PLAN TO INCLUDE THE PROJECT?**

22 A. Yes, based on the options evaluated by Burns & McDonnell.

23 **Q. WOULD YOU LIKE TO SUMMARIZE YOUR TESTIMONY?**

1 A. Burns & McDonnell was retained by EKPC to develop a scoping study of a
2 project to permanently remove coal ash from EKPC's Dale Station, transport it to
3 a new Special Waste Landfill at Smith Station, and restore the Dale site.
4 Additionally, Burns & McDonnell investigated on-site disposal options, which
5 consisted of a feasibility analysis of in-place disposal methods at the Dale site.
6 For each of these alternatives, Burns & McDonnell developed a contracting plan,
7 preliminary schedule and cost estimate.

8 Based on the Alternatives evaluated in its study, Burns & McDonnell has
9 determined the reasonable least cost option is Alternative 8. Additionally,
10 Kentucky environmental regulations will require the ash at Dale Station to be
11 disposed of in a permitted Special Waste Landfill. Mr. Jerry Purvis' testimony
12 stated that permit requirements for Special Waste Landfills in Kentucky have
13 certain siting requirements. The Dale Station on-site Alternatives 6 and 7 will not
14 meet those siting requirements. Alternative 8 includes hauling Dale Station's ash
15 to the permitted Smith Special Waste Landfill.

16 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

17 A. Yes.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

AN APPLICATION OF EAST KENTUCKY)
POWER COOPERATIVE, INC. FOR A)
CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR CONSTRUCTION OF AN)
ASH LANDFILL AT J. K. SMITH STATION TO) CASE NO.
RECEIVE IMPOUNDED ASH FROM WILLIAM) 2014-00252
C. DALE STATION, AND FOR APPROVAL OF A)
COMPLIANCE PLAN AMENDMENT FOR)
ENVIRONMENTAL SURCHARGE RECOVERY)

AFFIDAVIT

STATE OF MISSOURI)
 Clay) *TRUF*
COUNTY OF ~~JACKSON~~)

Ed Tohill, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.



Subscribed and sworn before me on this 4th day of September, 2014.

MICHELE L. FRY
Notary Public - Notary Seal
STATE OF MISSOURI
Clay County
My Commission Expires Dec. 10, 2017
Commission # 13907019



Notary Public

EXHIBIT ET-1

"Burns & McDonnell Report"




Report on the

Dale Station – Ash Impoundment Closure & Site Restoration Project



**EAST KENTUCKY
POWER COOPERATIVE**

A Touchstone Energy Cooperative 

East Kentucky Power Cooperative

Project No. 75031

April 2014

Dale Station – Ash Impoundment Closure & Site Restoration Project

prepared for

**East Kentucky Power Cooperative
Winchester, Kentucky**

April 2014

Project No. 75031

prepared by

**Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri**

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INDEX AND CERTIFICATION

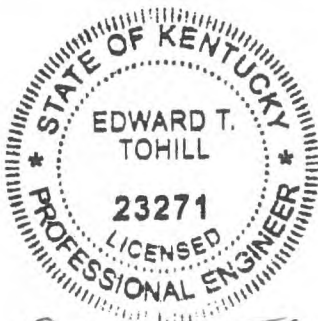
East Kentucky Power Cooperative Dale Station – Ash Impoundment Closure & Site Restoration Project Project No. 75031

Report Index

<u>Chapter Number</u>	<u>Chapter Title</u>	<u>Number of Pages</u>
1.0	Executive Summary	4
2.0	Permitting Requirements	1
3.0	Material Removal Phasing Plan	2
4.0	Hauling Plan	1
5.0	Contracting Plan	1
6.0	Preliminary Project Schedule	2
7.0	Cost Estimate	4
8.0	Pond Closure In-place – On-Site Closure Option 1	9
9.0	Landfill Closure In-place – On-Site Closure Option 2	8
Appendix A	Drawings	8
Appendix B	Project Schedule	2
Appendix C	Pond Closure In-Place – On-Site Closure Option 1 Reference Documents	5
Appendix D	Landfill Closure In-Place – On-Site Closure Option 2 Reference Documents	5

Certification

I hereby certify, as a Professional Engineer in the Commonwealth of Kentucky, that the information in this document was assembled under my direct personal charge. This report is not intended or represented to be suitable for reuse by East Kentucky Power Cooperative or others without specific verification or adaptation by the Engineer.



Edward T. Tohill, P.E. (Kentucky License No. 23271)

Date: _____

9/4/14

09/04/14

TABLE OF CONTENTS

		<u>Page No.</u>
1.0	EXECUTIVE SUMMARY	1-1
1.1	Permanent Removal Option- Material Removal Phasing Plan.....	1-2
1.2	Permanent Removal Option- Hauling Plan.....	1-2
1.3	Permanent Removal Option- Contracting Plan.....	1-3
1.4	Permanent Removal Option- Preliminary Schedule	1-3
1.5	Permanent Removal Option- Cost Estimate	1-3
1.6	Pond Closure In-Place – On-Site Closure Option 1.....	1-3
1.7	Landfill Closure In-Place – On-Site Closure Option 2.....	1-4
2.0	PERMITTING REQUIREMENTS	2-1
3.0	MATERIAL REMOVAL PHASING PLAN	3-1
3.1	Areas For Ash Removal.....	3-1
3.2	Dewatering.....	3-1
3.3	Interferences.....	3-2
4.0	HAULING PLAN	4-1
5.0	CONTRACTING PLAN	5-1
6.0	PRELIMINARY PROJECT SCHEDULE	6-1
6.1	General.....	6-1
6.2	Construction.....	6-1
6.3	Ash Hauling to J.K. Smith	6-1
7.0	COST ESTIMATE	7-1
7.1	General.....	7-1
7.2	Cost Estimate Basis.....	7-2
7.2.1	Capital Cost Estimate Scope.....	7-2
7.2.2	Major Capital Cost Estimate Assumptions.....	7-3
7.2.3	Major Commercial Terms.....	7-3
7.3	Yearly Cash Flow	7-3
7.4	Limitations and Qualifications.....	7-4
8.0	POND CLOSURE IN-PLACE – ON-SITE CLOSURE OPTION 1	8-1
8.1	Material Consolidation Phasing Plan.....	8-2

8.1.1	Subsurface Analysis.....	8-2
8.2	Contracting Plan.....	8-4
8.3	Preliminary Pond Closure In-Place – On-Site Closure Option 1 Schedule	8-5
8.4	Cost Estimate	8-5
8.4.1	Cost Estimate Basis.....	8-6
8.4.2	Capital Cost Estimate Scope.....	8-7
8.4.3	Major Capital Cost Estimate Assumptions	8-7
8.4.4	Major Commercial Terms.....	8-8
8.4.5	Yearly Cash Flow	8-8
8.4.6	Limitations and Qualifications.....	8-8
9.0	LANDFILL CLOSURE IN-PLACE – ON-SITE CLOSURE OPTION 2	9-1
9.1	Material Consolidation Phasing Plan.....	9-2
9.1.1	Subsurface Analysis.....	9-3
9.2	Contracting Plan.....	9-3
9.3	Preliminary Landfill Closure In-Place – On-Site Closure Option 2 Schedule	9-4
9.4	Cost Estimate	9-5
9.4.1	Cost Estimate Basis.....	9-6
9.4.2	Capital Cost Estimate Scope.....	9-6
9.4.3	Major Capital Cost Estimate Assumptions	9-7
9.4.4	Major Commercial Terms.....	9-7
9.4.5	Yearly Cash Flow	9-7
9.4.6	Limitations and Qualifications.....	9-8
APPENDIX A - ASH RESTORATION DRAWINGS		
APPENDIX B - ASH RESTORATION PROJECT SCHEDULE		
APPENDIX C - POND CLOSURE IN-PLACE – ON-SITE CLOSURE OPTION 1 REFERENCE DOCUMENTS		
APPENDIX D - LANDFILL CLOSURE IN-PLACE – ON-SITE CLOSURE OPTION 2 REFERENCE DOCUMENTS		

LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
Ash	Coal combustion residuals including fly ash and bottom ash
BMcD	Burns & McDonnell
CCR	Coal Combustion Residuals
Dale/ site	William C. Dale Power Station
EKPC	East Kentucky Power Cooperative
EPA	Environmental Protection Agency
EPC	Engineering, Procurement, and Construction
GCL	Geosynthetic Clay Liner
HDPE	High-Density Polyethylene
J.K. Smith	J.K. Smith Station
KDEP	Kentucky Department for Environmental Protection
KDWM	Kentucky Division of Waste Management
KPDES	Kentucky Pollution Discharge Elimination System
LiDAR	Laser Imaging Detection and Ranging
LLDPE	Linear Low-Density Polyethylene
OHWM	Ordinary High Water Mark
O&M	Operations and Maintenance
PHA	Peak Horizontal Ground Acceleration
TVA	Tennessee Valley Authority

1.0 EXECUTIVE SUMMARY

East Kentucky Power Cooperative's (EKPC) Dale Station (Dale or site) began commercial operation on December 1, 1954, with Dale Units 3 and 4 to follow in 1957 and 1960 respectively. EKPC has constructed and operated four surface impoundments for the storage of ash at Dale. The surface impoundments are designated as Ash Pond 1, Ash Pond 2, Ash Pond 3, and Ash Pond 4.

Ash Pond 1 was constructed when Dale commenced operation in 1954. Ash Pond 2 was constructed in the late 1950s, and was separated from Ash Pond 1 by a dike. The dike was removed in the late 1990s, and the combined Ash Pond 1 and Ash Pond 2 are now (and will be hereinafter) referred to as Ash Pond 2. Ash Pond 3 was constructed in the 1960s as an overflow pond for Ash Pond 1. Ash Pond 3 was converted to dry storage in 1979, and has since been used for the dewatering of ash removed from Ash Pond 2 and Ash Pond 4. Ash Pond 4 was constructed in 1977. From 1954 to 1985, the ash which was produced from the operations at Dale was normally stored at one of the four onsite ponds/dry storage areas.

From 1985 to 2010, EKPC utilized the Hancock Creek Landfill (located at the Winchester Headquarters of EKPC) to dispose of ash produced at Dale Station (Dale or site). In 2010, the Hancock Creek Landfill reached the limit of its capacity and a new location for disposal was sought. During the interim, ash storage capacity at Dale was adequate to accommodate anticipated operations until another disposal alternative could be ready.

Subsequent studies and evaluations for disposal of ash from operating Dale Station revealed that no practicable on-site alternatives were available for a new special waste landfill, while the station was operating. Five off-site alternatives were considered including: 1) new landfill near Dale, 2) new landfill at the EKPC J.K. Smith Station (J. K. Smith) where two suitable locations were evaluated, 3) transport ash via truck to the Hugh L. Spurlock Station, 4) transport ash via rail to the Hugh L. Spurlock Station and, 5) transport ash via truck to a privately operated landfill. These alternatives were evaluated by others as to feasibility, cost, and environmental impact, and the new landfill at J.K. Smith was selected as the best alternative.

In April 2015, EKPC will cease coal generating operations at Dale, and ash will no longer be produced on the site. In preparation for the closure of Dale, this study seeks to develop scope for the permanent removal of ash from Dale, as well as to assess the feasibility of permanent on-site disposal of ash material at Dale.

EKPC retained BMcD for a scoping study of a project to permanently remove ponded ash from EKPC Dale Station, transport it to a new landfill at J. K. Smith, and restore the Dale site. BMcD investigated two on-site closure options, which consist of a feasibility summary for both pond and landfill closure in-place methods at the Dale site. This study includes permitting requirements, construction phasing plan, hauling plan, contracting plan, project schedule, and a cost estimate for the Project in Chapters 1 through 7, while all details for the Closure In-Place options are included in Chapters 8 and 9. All the study options are intended to achieve compliance with the impending Environmental Protection Agency (EPA) coal combustion residual (CCR) rule and the Kentucky Department for Environmental Protection (KDDEP) special waste regulations, where applicable.

Throughout detailed design, unforeseen circumstances may require the plan presented herein to change; however, the intent is for the overall project scope to remain the same.

1.1 PERMANENT REMOVAL OPTION- MATERIAL REMOVAL PHASING PLAN

Based upon preliminary geotechnical borings and a 2010 topographical survey, the estimated amount of ash to be removed from Dale is 557,250 cubic yards. For the purposes of this study, the Ash Pond cells were prioritized for closure, with the order for ash removal as follows: Ash Pond 3, Ash Pond 4, Ash Pond 2, and remaining northern area. The ash excavation is assumed to require double handling for the ash stored in Pond 2 and Pond 4, once to stockpile for dewatering and again to be loaded on to the trucks. It is recommended that EKPC begin discharging the ash pond water prior to contractor mobilization and continue throughout the construction period. Water will be routed to alternating ponds (i.e. to Pond 2 from Pond 4) for further settling before discharging.

The ash cannot be hauled to J. K. Smith Station until the landfill is constructed, or at a minimum, until the geomembrane liner is in-place. Approximately 42,000 cubic yards of ash may then be used for protective cover for the geomembrane liner during landfill construction. Once an Operational Permit is received from the KDWM, ash can be disposed of in the J.K. Smith Landfill. Based on discussion with EKPC, BMcD assumed the landfill would be available for ash disposal by late summer/ early fall 2015.

There are some existing plant facilities that will require relocation or removal to not interfere with the project. There are four transmission line circuits that will need to be relocated to remove the ash. The spray field piping is planned to be removed and hauled off site by the contractor.

1.2 PERMANENT REMOVAL OPTION- HAULING PLAN

The amount of ash removed each 8-hour working day is assumed to be approximately 2,100 cubic yards, which is equivalent to 132 truckloads using a fleet of 33 trucks.

1.3 PERMANENT REMOVAL OPTION- CONTRACTING PLAN

BMcD recommends contracting the Ash Impoundment Closure & Site Restoration project as a unit price contract with a contract value determined with estimated quantities. Actual project costs will be based on the survey of in-place quantities. Contractor will excavate to the grades indicated and if more or less ash is present than currently expected, the contract price would be adjusted using unit prices.

Costs and schedule have been included for the transmission relocation work, but the work will be completed under a separate contract.

1.4 PERMANENT REMOVAL OPTION- PRELIMINARY SCHEDULE

The project schedule is based on engineering design for permitting to be complete in October 2014 with activities through Project Completion in October 2017. The schedule is dependent on when the landfill at J. K. Smith will be ready to receive ash, and assumes this date will be by August 2015. The schedule is based on seasonal hauling for eight hour work days, five days per week.

1.5 PERMANENT REMOVAL OPTION- COST ESTIMATE

The estimated cost for the Project, inclusive of contingency, fee, and escalation, is \$27 million. Cash flow by year is estimated to be approximately \$0.6 million in 2014, \$6.6 million in 2015, \$10.6 million in 2016, and \$9.1 million in 2017. It should be noted that the cost estimates do not include further restoration expenditures for post ash removal.

1.6 POND CLOSURE IN-PLACE – ON-SITE CLOSURE OPTION 1

Another option for impoundment closure at the Dale Station is a closure in-place option. For this option it was assumed the ash would be disposed of on-site rather than hauled to the J.K. Smith landfill. Permitting requirements will be more stringent in some cases as material is being left in the floodplain.

This option includes excavating/ moving ash from its current location for dewatering purposes and consolidating in the existing Pond 2 area. The ash in Ponds 2 and 4 would be double handled for dewatering purposes. The ash present in Pond 3 and other remaining ash for fill around Pond 3 would be loaded and directly hauled to the Pond 2 area. Once the ash is consolidated, a cover system consisting of geotextile, 60 mil high-density polyethylene (HDPE) geomembrane, 18 inches of cover, and 6 inches of topsoil for seeding will be installed over the Pond 2 area. The Pond 4 area would be re-graded to drain. The existing rip rap from Pond 2 and Pond 4 areas would be removed and reused on the new slopes of the disposal area and the remaining slopes of the Pond 4 area.

The contracting plan would be the same as with the material removal plan. A concern with the pond closure in-place option is the stability of the river side slope in the event of a high intensity seismic event. The intensity of event used for estimation purposes was the same as required by the Commonwealth of Kentucky for KDWM permits at both EKPC's Cooper and Smith landfills. To mitigate possible liquefaction under KDWM seismic requirements, the pond closure in-place option includes soil stabilization along the toe of the slope of the closure area. The estimated total cost for the pond closure in-place option is \$34.8 million and the project permitting and construction is estimated to take place during 2016 and 2017.

1.7 LANDFILL CLOSURE IN-PLACE – ON-SITE CLOSURE OPTION 2

A second closure in-place option for site restoration is to encapsulate the material using a landfill closure technique previously approved by the KDWM. As such, permitting requirements for Option 2 would most likely be similar to the KDWM requirements for the construction of a special waste landfill. On-Site Closure Option 2 would be completed by installing an intermediate liner system over the dewatered Pond 2 ash material and consolidating the ash from Ponds 3 and 4 over the intermediate liner.

For this option, it was again assumed the ash would be disposed of on-site rather than hauled to the J.K. Smith landfill. This option includes dewatering and grading the existing Pond 2 ash, placing an intermediate liner, consolidating the remaining ash on-site over the intermediate liner system, and installing a final cap over all of the ash. For this option, only the ash in Pond 4 would be double handled. The intermediate liner system would consist of a six (6) inch soil liner, geosynthetic clay liner (GCL), 60 mil HDPE geomembrane liner, leachate collecting geonet, and a geotextile. The ash present in Pond 3, other remaining ash for fill around Pond 3, and the dewatered ash from Pond 4 would then be hauled to the Pond 2 area. After the ash is consolidated, a final cover system consisting of geotextile, 40 mil linear low-density polyethylene (LLDPE) geomembrane, 18 inches of protective soil cover, and 6 inches of topsoil and seeding will be installed. The Pond 4 area would be re-graded to drain. The existing rip rap from Pond 2 and Pond 4 areas would be removed and reused on the new slopes of the Pond 2 disposal area and on the remaining slopes of the Pond 4 area.

The contracting plan would be the same as the other options. As with the pond closure in-place option, there is a concern with the stability along the toe of the river side slope in the event of liquefaction of existing material, resulting from a high intensity seismic event. Costs were included for soil stabilization along the toe of the slope of the closure area. The estimated total cost for the Landfill Closure In-place – On-Site Closure Option 2 is \$36.6 million, and the project construction is estimated to be completed during 2016 and 2017.

2.0 PERMITTING REQUIREMENTS

BMcD was engaged to provide only engineering support for permitting activities that will be conducted by EKPC.

3.0 MATERIAL REMOVAL PHASING PLAN

3.1 AREAS FOR ASH REMOVAL

There are five major areas where ash removal will take place: Ash Pond 2, Ash Pond 3, Ash Pond 4, and the remaining northern area around Ash Ponds 2 and 3. For purposes of this study, it is recommended that ash removal phasing take place in the following sequence:

- Ash Pond 3 – Estimated 58,000 CY of ash.
- Ash Pond 4 – Estimated 67,000 CY of ash
- Ash Pond 2 – Estimated 248,000 CY of ash.
- Remaining northern area including coal pile – Estimated 175,750 CY of ash.
- Area west of switchyard – Estimated 8,500 CY of ash.

Ash quantities were developed using the preliminary boring log data provided by EKPC geotechnical contractor S&ME on October 9th, 2013, and the topographical LiDAR survey from 2010 provided by EKPC. Prior to detailed engineering, EKPC will conduct a new site survey. Costs for the survey were not included in the cost estimate contained herein. Grading plans to excavate the ash are included in Appendix A.

Pond 3 is assumed to be the first area for site restoration because of its location near the Kentucky River and the ash stored in Pond 3 is dry and will not need further dewatering. Following work at Pond 3, Pond 4, Pond 2, and the remaining north areas are proposed next for site restoration. The order was based on priorities determined by BMcD and EKPC.

3.2 DEWATERING

It is BMcD's recommendation that EKPC should begin lowering pond elevations as soon as possible leading to the start dates of each of the phases. This may or may not be done by discharging continuously out the existing Outfalls 002 and 004, per the existing KPDES permit. Water that is not discharged will be pumped to Pond 2 from Pond 4 using an existing piping system. Pond 4 ash would be staged for further dewatering and then removed from site to J.K. Smith. Once the ash from Pond 4 is removed, the water from Pond 2 would be pumped to Pond 4 for settling before being discharged from the site. The staging for further dewatering of the ash would take place using a long-reach backhoe to create alternating piles the length of the pond, with channels in-between to accumulate the water percolating from the ash.

No water will be pumped directly out the existing outfalls; instead, it will be temporarily retained for treatment within the ponds.

Supplemental pumps will likely need to be set up by the contractor to remove any additional free water that cannot be removed by normal pond discharge operation or with the in-place systems to route water between Pond 2 and Pond 4. Depressions will be excavated in the existing ash material to allow pumps to be set and discharged to the Pond 2 (Outfall 002) for the northern area and to the Pond 4 (Outfall 004) discharge for the southern area.

For purposes of the estimate, it was assumed that three draglines, each with a 3 CY bucket, would be used with a daily output of 720 CY each per day, and they would be working an eight hour, five-day work week. It was assumed that only the ash present in Pond 2 and Pond 4 would need to be staged for further dewatering.

3.3 INTERFERENCES

Interferences are present throughout the Dale site that will affect the ash impoundment closure and site restoration work. A major interference is the transmission lines and structures that are located along Ash Pond 2 and 3.

The transmission line portion of this project involves relocating the existing transmission lines in order for the necessary site grading work to take place. There are four existing lines that will need to be relocated. For preliminary scheduling purposes only, the total outage time for the relocation has been assumed to be 16 weeks. Outages will be critical to the project timeline and the station, so planning will be required to reduce the outage times as much as possible.

Another hurdle to the site restoration work is the presence of an existing spray cooling field, which is composed of varying sizes and materials of pipe, a base of crushed rock, and wood and/or concrete piles. BMcD's proposed finish grading plan includes minimal grading of the spray cooling field. The cost estimate in Chapter 7 includes the removal of the piping, but excludes the piling being removed.

4.0 HAULING PLAN

The route from Dale Generating Station to J. K. Smith Generating Station landfill is 27.3 miles each way, and is comprised of state highways and interstates with the exception of the plant drives. See Drawing C001 of Appendix A for the anticipated haul route. A complete cycle for a truck including loading and unloading time is estimated to be two hours at an average moving speed of 35 miles per hour. Loading is assumed using a 4.5 cubic yard front end loader. The trucks are assumed to be covered. They will have a 20 cubic yard capacity, with approximately 16 cubic yards being placed on each truck. The daily output for one – 4.5 cubic yard front end loader is assumed to be 2,100 cubic yards, which results in approximately 132 truckloads each eight hour work day. Therefore, a fleet of 33 trucks will be required to maintain the output of the front end loader. It is estimated that each truck will be loaded in an average of approximately three and a half minutes. Sufficient time is allowed for the truck to dump for protective cover in the landfill or for unloading into the completed landfill.

Previous studies provided by EKPC, which discuss the new landfill at Smith, have been completed by Kenvirons and Redwing Ecological Services. These reports indicate the total construction cost of the new special waste landfill to be approximately \$4 million. A portion of ash material from Dale, totaling 42,000 cubic yards, is to be used as protective cover at Smith. The spreading and grading of this material will be completed by the landfill contractor and was included in the \$4 million construction cost. Furthermore, all operational grading of ash material (after placement of protective cover) at Smith has been included in the total project cost, assuming the material is only coming from Dale.

5.0 CONTRACTING PLAN

The contracting plan BMcD has developed for this project is a multiple prime contract approach. This approach is based on one prime contractor executing the earthwork and hauling. The prime contractor may subcontract and coordinate specialty items of the scope such as, but not limited to, trucking, clearing and grubbing, and erosion control. The transmission line work will be a separate technical specification/contract.

BMcD recommends the project be contracted as a unit price agreement. An initial value would be assigned to the contract, established with estimated design quantities and associated unit prices. The basis for payment would be per actual installed quantities, as determined by in-place surveys.

The contractor's bid tabs should be set up based on yearly cost proposals for the work. This will ensure a clean cut-off point should EKPC not be comfortable with a contractor after the first phase of work is completed.

6.0 PRELIMINARY PROJECT SCHEDULE

6.1 GENERAL

The project schedule is based on engineering design for permitting to be complete in October 2014 with activities through Project Completion in October 2017. A schedule summary is presented in Table 6-1 below, which includes activities from engineering design to project completion. This schedule depicts the key milestone dates and key construction activity dates. The schedule reflects a 21 month construction plan over three years for the construction period. The schedule construction date is driven by the activities of the J. K. Smith landfill construction. These activities will need to be coordinated to determine when the first trucks can haul ash material to J. K. Smith from Dale, for use as protective cover. A Level 1 schedule is provided in Appendix B. The schedule does not include specific durations for jurisdictional water delineations, endangered species studies, or other permitting.

Table 6-1: Schedule Summary

Activity/Milestone	Date
Engineering Design for Permitting Support Complete	10/1/2014
General Construction Season 1 Starts	4/13/2015
Demobilize for Winter, Stabilize Site	11/23/2015
General Construction Season 2 Starts	4/4/2016
Relocate Transmission Lines	9/19/2016
Demobilize for Winter, Stabilize Site	11/14/2016
General Construction Season 3 Starts	4/4/2017
Project Completion	10/27/2017
Project Closeout Completion	11/24/2017

6.2 CONSTRUCTION

The overall schedule reflects the volume of ash being hauled off site, and the stopping of the construction work during the winter months of 2015 and 2016. This schedule includes five (5) months for detailed engineering design and ample time for a bid process. The construction schedule was developed based on 8-hour work days, occurring for five (5) days a week.

6.3 ASH HAULING TO J.K. SMITH

The ash hauling activity is the critical path in the schedule and is dependent on when the newly constructed J. K. Smith landfill will be available to accept ash from Dale. It is assumed that ash hauling, for landfill protective cover, will begin in late summer/ early fall of 2015. Remaining ash will be hauled starting in April of 2016 or once an operating permit for the J.K. Smith special waste landfill is obtained

by EKPC. The duration of hauling is estimated to take 53 weeks and it is estimated to be completed over the course of a small part of the 2015 construction season and over most of the 2016 and 2017 construction seasons.

7.0 COST ESTIMATE

7.1 GENERAL

The estimated cost for the Project, inclusive of contingency and escalation, is \$27.0 million for the multiple prime contract as described in Chapter 5. This includes the site preparation contract work and transmission line relocation. Table 7-1 provides a summary breakdown of the Capital Cost Estimate.

Table 7-1: Estimated Capital Cost Summary

Dale Ash Restoration	Price Breakdown
Project Costs	
Engineering	\$ 750,000
Mobilization	\$ 400,000
Removing Rock and Riprap and Replacing	\$ 1,365,000
Demolition	\$ 452,000
Grading and Drainage	\$ 1,447,000
Ash Removal and Hauling	\$ 9,857,000
Grading and Capping Ash at J.K. Smith	\$ 1,140,000
Erosion Control	\$ 399,000
Overhead Transmission Relocation	\$ 1,980,000
Total Direct Costs	\$ 17,790,000
Construction / Project Indirects	
Construction Management & Indirects	Incl in Owner's Cost
Insurance	Incl in Owner's Cost
Performance Bond	Incl in Owner's Cost
Permits	Incl in Owner's Cost
Escalation (3%)	\$ 512,000
Contingency (20%)	\$ 3,408,000
Total Indirect Costs	\$ 3,920,000
Owner's Costs	\$ 1,252,000
J.K. Smith Landfill Construction Costs	\$ 4,000,000
Total Project Cost	\$ 26,962,000

7.2 COST ESTIMATE BASIS

The following describes the methodology used in the development of the Project cost estimate.

- Estimates are based on the scope assumptions described in this report.
- Construction Estimates: Construction costs were estimated using recent pricing and factored adjustments to quantities from other similar projects in which BMcD has been involved as well as RSMeans 2013 Building Construction Cost Data reference.
- Project Indirects: Project indirects were estimated based on BMcD's experience as an Owner's Engineer and Engineering, Procurement, and Construction (EPC) contractor.

7.2.1 Capital Cost Estimate Scope

Below are listings of the major scope items included and excluded from the cost estimate.

The following major scope items are included in the estimated costs:

- Spray field pipe demolition, hauling off-site, and disposal fees, which do not include any salvage value
- Tree removal, hauling off-site, and disposal fees
- Riprap removal and replacement on new slopes at Dale
- Ash dewatering, staging, loading, and hauling to J. K. Smith landfill
- General grading and drainage
- Erosion control throughout construction
- Overhead transmission line relocation
- Costs for three mobilizations and demobilizations for site preparation contractor to coincide with the schedule described herein
- J.K. Smith Landfill capital construction costs provided by EKPC
- Hauling topsoil from J.K. Smith to Dale
- Grading of the ash at J. K. Smith
- Temporary cover over ash at J. K. Smith, consisting of 6" topsoil and seeding

The following items are excluded from the estimated costs included in this report.

- Removal of the existing membrane liner at Pond 4 as it should not be impacted by the site restoration activities
- Additional treatment for discharging of the ash pond water

- Costs for environmental impacts
- Costs for topographical survey

7.2.2 Major Capital Cost Estimate Assumptions

Several major assumptions were used in developing the capital cost estimates. These assumptions include the following:

- Cost estimates were based on 2013 dollars
- Topsoil and fill material will be available at the J. K. Smith site for use at Dale (loading and hauling costs included)
- Material on site will be suitable for capping the slope of the existing beneficially re-used ash, starting at the edge of the KY 1924 turn lane

7.2.3 Major Commercial Terms

The project capital cost estimates were developed based on the typical multiple prime contract terms and conditions. The following list highlights the major items. Minor assumptions are either self-evident in the data or have an insignificant effect on the estimated project capital costs.

- The Project is assumed to be executed on a multiple prime contract basis.
- The Project will be executed with durations as shown on the project schedule included in Appendix B with project completion in November 2017. It is assumed the Project will be executed with a schedule sufficient to minimize overtime.

7.3 YEARLY CASH FLOW

Table 7-2 shows an estimated cash flow by year. Start of engineering will take place in 2014. Start of construction will start in 2015 and will be ongoing until completion in 2017.

Table 7-2: Yearly Cash Flow

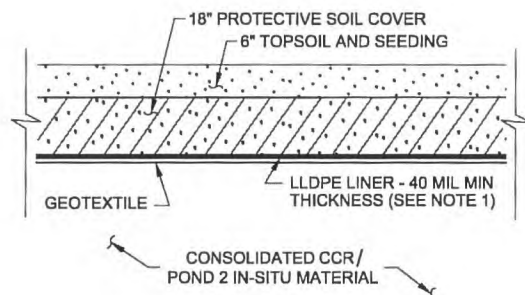
	2014	2015	2016	2017	Task Subtotals
Engineering/Construction Management					
	\$ 620,000	\$ 40,000	\$ 40,000	\$ 50,000	\$ 750,000
Owner's Costs (5%) & Escalation (3%)					
	\$ -	\$ 256,000	\$ 848,000	\$ 660,000	\$ 1,764,000
Construction					
	\$ -	\$ 1,941,000	\$ 8,095,000	\$ 7,004,000	\$ 17,040,000
Contingency (20%)					
	\$ -	\$ 389,000	\$ 1,619,000	\$ 1,400,000	\$ 3,408,000
J.K. Smith Landfill Construction					
	\$ -	\$ 4,000,000	\$ -	\$ -	\$ 4,000,000
<i>Yearly Subtotals</i>	<i>\$ 620,000</i>	<i>\$ 6,626,000</i>	<i>\$ 10,602,000</i>	<i>\$ 9,114,000</i>	<i>\$ 26,962,000</i>

7.4 LIMITATIONS AND QUALIFICATIONS

Estimates and projections prepared by BMcD relating to schedule, performance, and construction costs are based on our experience, qualifications and judgment as a professional consultant in the coal-fired power plant industry. Since BMcD has no control over weather, cost and availability of labor, material and equipment, labor productivity, construction contractor's procedures and methods, unavoidable delays, construction contractor's method of determining prices, economic conditions, government regulations and laws (including interpretation thereof), competitive bidding and market conditions or other factors affecting such estimates or projections, BMcD does not guarantee that actual rates, costs, performance, schedules, etc., will not vary from the estimates and projections prepared by BMcD.

8.0 POND CLOSURE IN-PLACE – ON-SITE CLOSURE OPTION 1

EKPC has retained BMcD for a feasibility assessment for a site restoration project to evaluate capping the CCR material, or ash, in-place at the EKPC Dale Station. For Option 1 of this study, the ash throughout the site including Pond 2, Pond 3, and Pond 4 will be consolidated to Pond 2. The capping system, as shown in Figure 8-1, is assumed to be a geotextile under a 40 mil LLDPE geomembrane under 18 inches of protective cover. The protective cover will be topped with six inches of topsoil and then be seeded and mulched. The area to be capped will be graded, topsoiled, and seeded once the CCR material has been removed and consolidated to the Pond 2 area. Ponds 3 and 4 will be graded, topsoiled, and seeded as indicated on drawings CG007 of Appendix C and CG005 of Appendix A.



NOTE:

1. GEOMEMBRANE LINER ON SIDE SLOPES SHALL BE TEXTURED.

TYPICAL SECTION
NOT TO SCALE

Figure 8-1: Pond 2 Cross Section

By leaving the CCR material in-place and capping it, rather than excavating it and hauling it to a permitted landfill, EKPC would not be mitigating future risk of an ash spill at Dale to the maximum extent possible. An example of the risk that is not being eliminated is evidenced by the event that occurred at the Tennessee Valley Authority’s (TVA) Kingston Plant, and more recently at the Duke (Duke) Energy, Dan River Steam Station.

In 2008, a dike of the existing ash pond at the Kingston Plant ruptured, sending 1.1 billion gallons of CCR materials into the Emory River and Swan Pond embayment, covering approximately 300 acres of nearby property. At the time this report was written, TVA had spent over \$1 billion on the cleanup efforts, and planned to spend a total of \$1.1 billion by the time the cleanup effort is completed by the end of 2015. TVA has been able to recover around \$42 million of this money from insurers, and may be able

to max out their total policy limits of \$200 million. Even if they are successful in obtaining the maximum insurance claim policy limit, TVA will still only recover a quarter of their total lost costs.

The ash spill event at a retired Duke plant occurred on February 2, 2014, where a stormwater pipe beneath an ash pond broke, releasing up to 39,000 tons of ash into the Dan River. Since the spill is so recent, cost data is not yet available, but preliminary outsider estimates indicate it could take at least two years and over \$70 million to clean up.

8.1 MATERIAL CONSOLIDATION PHASING PLAN

BMcD's estimate of existing CCR material volume and plans for consolidating the material on-site were discussed in Chapter 3.0. These still apply to the pond closure in-place option. Furthermore, the pond closure in-place option would still include the demolition of the spray cooling field piping and the relocation of the transmission lines. The transmission lines would need to be relocated to recover the ash located immediately below and around the foundations. The existing riprap present in Pond 4 and Pond 2 could likely be removed and reused to line stormwater let-down channels along the river side of the Pond 2 closure and the new slopes up to the 100-year flood elevation. Trees along the river will be removed in order to excavate and relocate the ash to Pond 2. The Pond 4 area would be graded as shown on CG005 of Appendix A. A finish conceptual grading plan of the North Area (Pond 2) for the closure option is shown on CG007 of Appendix C.

The consolidated ash in Pond 2 will be covered with the following cover system: non-woven geotextile, 40 mil LLDPE geomembrane, 18 inches of protective cover, and six inches of topsoil to be seeded. For the purpose of this evaluation, BMcD assumes that the protective cover and the topsoil material will be hauled from J. K. Smith. As there will not be a lining system under the in-situ Pond 2 material, a leachate collection system is not assumed to be needed.

8.1.1 Subsurface Analysis

As part of the assessment of leaving ash material at Dale, long term geotechnical hazards were considered in the preliminary hazard analysis. EKPC provided BMcD with subsurface investigative information which was used for the following geotechnical evaluation. During the subsurface investigation performed for the Ash Pond 3 Stability Analysis, loose sands and soft silts were encountered below the water table in several borings completed in the area of Ash Pond 3. Assuming these materials are indicative of conditions throughout the site, liquefaction is a site specific geotechnical hazard that will need to be assessed. If liquefaction were to occur, possible global instability of the slopes situated above any liquefied material may occur. In this case, subsurface stabilization would therefore be required to

improve the shear strength of in-situ materials that are susceptible to liquefaction, and thereby prevent liquefaction, and subsequent global instability of any slopes during a seismic event leading to liquefaction. As part of this preliminary hazard analysis, multiple seismic events were utilized to assess liquefaction hazard. The different analyses and their results are provided below.

For the first analysis, several different design seismic events were considered from previous work completed by Stantec for the permitting of the J.K. Smith landfill, and they were evaluated for their liquefaction potential and for their impact on overall mass stability. Stantec's work is presented in a report titled *Seismic Analysis J.K. Smith, East Kentucky Power Cooperative, JK Smith Station Landfill, Clark County, Kentucky*, dated February 13, 2013 and was provided to BMcD by EKPC. As part of their work at J.K. Smith, Stantec considered two seismic events, denoted as Local and New Madrid. The magnitude associated with the Local and New Madrid seismic events are 5.2M and 7.7M, respectively. Each seismic event had multiple peak horizontal ground acceleration (PHA) values based on the different attenuation relationships used for the calculations. There were five PHA values provided for the Local seismic event varying between 0.122g and 0.194g with an average of 0.167g. There were two PHA values provided for the New Madrid seismic event varying between 0.027g and 0.047g with an average of 0.037g.

For the first analysis, the two design seismic events from the Stantec work described above were considered using the subsurface materials and conditions encountered in the borings completed for the Ash Pond #3 Stability Evaluation. Pseudostatic stability evaluations were performed, utilizing the earthquake parameters from the Stantec report, to assess the stability of the slope during an earthquake.

To help further quantify risk, a second analysis was performed utilizing a high intensity seismic event. A high intensity seismic event is defined as having a 2 percent probability of exceedance in 50 years. The peak horizontal ground acceleration associated with a seismic event having a 2 percent probability of exceedance in 50 years, using the 2008 deaggregation algorithm available on the USGS website, is 0.094g. The deaggregation also provides the distribution of earthquake magnitudes associated with the seismic event under consideration. For this event, an earthquake magnitude of 7.4M was used for the liquefaction analysis. For the design seismic event, a magnitude of 7.4M approximately represents the minimum magnitude at which extensive liquefaction occurs for the materials encountered at the site. Magnitudes of 7.4M and above represent approximately 14 percent of all earthquake probabilities in the deaggregation. It should be noted that for lesser magnitudes, liquefaction may not be as extensive or occur at all.

To mitigate this possible liquefaction, and provide material with adequate shear strength to prevent slope instability, jet grouting of the liquefaction susceptible materials in the toe portion of the slope is proposed. Jet grouting uses high pressure air and liquid to erode discrete layers of soil material and mix it with grout, leaving a high strength soil-grout column. For estimating purposes, the columns are assumed to have a six-foot diameter and be constructed in a rectangular grid with a center-to-center column spacing of one diameter. The final product will be a matrix of soil-grout columns that will eliminate the susceptibility of these particular materials to liquefaction and thus mitigate the risk of soil and ash being deposited into the Kentucky River due to slope instabilities during a high intensity seismic event.

The most stringent analysis was utilized for the both the On-Site Closure Option 1 and Landfill Closure Option 2 feasibility cost estimates, as this criterion would address the potential for liquefaction and allow for a conservative project approach. In addition, the conservative approach is consistent with EKPC's experience with KDWM requirements. It should be noted this analysis is only preliminary. A final investigation and analysis would need to be performed to confirm subsurface conditions as well as final seismic design values for the liquefaction analysis.

8.2 CONTRACTING PLAN

The contracting plan BMcD has developed for this project is a multiple prime contract approach. This approach is based on a general contractor executing the earthwork, ash consolidation, and capping system placement. The prime contractor may subcontract and coordinate specialty items of the scope such as, but not limited to clearing and grubbing, geomembrane installation, erosion control, and monitoring well installation. BMcD anticipates the subsurface stabilization scope will be executed through a separate specialized contract. The transmission line work will be a separate technical specification/contract.

BMcD recommends the project be contracted as a unit price agreement. An initial value would be assigned to the contract, established with estimated design quantities and associated unit prices. The basis for payment would be per actual installed quantities, as determined by in-place surveys.

The contractor's bid tabs should be set up based on yearly cost proposals for the work. This will ensure a clean cut-off point should EKPC desire to separate from a contractor after the first phase of work is completed.

8.3 PRELIMINARY POND CLOSURE IN-PLACE – ON-SITE CLOSURE OPTION 1 SCHEDULE

The pond closure in-place project schedule is based on engineering design for permitting to be complete in October 2014 with activities through Project Completion in November 2017. A schedule summary is presented in Table 8-1 below, which includes activities from engineering design to project completion. This schedule depicts the key milestone dates and key construction activity dates. The schedule below does not include any durations for jurisdictional water delineations, endangered species studies, or other permitting. A Level 1 schedule is shown in Appendix C.

Table 8-1: Schedule Summary

Activity/Milestone	Date
Engineering Design for Permitting Support Complete	10/1/2014
General Construction Season 1 Starts	3/21/2016
Subsurface Stabilization and Transmission Line Relocation Starts	9/19/2016
Winter General Construction Shutdown Starts	11/21/2016
General Construction Season 2 Starts	4/3/2017
Project Completion	10/17/2017
Project Closeout	11/14/2017

The overall construction schedule reflects the volume of ash being consolidated on-site while stopping the construction work during the winter months for the earthwork scope. The transmission line relocation and subgrade stabilization will be completed outside regular construction months and will need to be coordinated with EKPC. This schedule includes approximately five (5) months for detailed engineering design and ample time for a bid process. The construction schedule was developed based on 8-hour work days, occurring for five (5) days a week.

8.4 COST ESTIMATE

The estimated cost for the Project, inclusive of contingency and escalation, is \$34.8 million for the multiple prime contract approach as described in Section 8.2. This includes the site preparation contract work (including groundwater monitoring well installation), subsurface stabilization contract, and transmission line relocation. Table 8-2 provides a summary of the Capital Cost Estimate.

Table 8-2: Estimated Capital Cost Summary

Dale Ash Pond Closure - On-Site Closure Option 1	
Direct Costs	Cost
Engineering (5%)	\$ 1,295,000
Mobilization	\$ 300,000
Riprap Removal and Placement	\$ 1,333,000
Demolition	\$ 452,000
Grading, Drainage, and Liner Construction	\$ 2,983,000
Ash Consolidation	\$ 4,971,000
Erosion Control	\$ 319,000
Overhead Transmission Relocation	\$ 1,980,000
Subsurface Stabilization	\$ 13,440,000
Ground Water Monitoring Wells	\$ 120,000
Total Direct Costs	\$ 27,193,000
Construction / Project Indirects	Cost
Construction Management & Indirects	Incl in Owner's Cost
Insurance	Incl in Owner's Cost
Performance Bond	Incl in Owner's Cost
Permits	Incl in Owner's Cost
Escalation (3%)	\$ 816,000
Contingency (20%)	\$ 5,439,000
Total Indirect Costs	\$ 6,255,000
Owner's Costs	\$ 1,360,000
Total Project Cost	\$ 34,808,000

8.4.1 Cost Estimate Basis

The following describes the methodology used in the development of the Project cost estimate.

- Construction Estimates: Construction costs were estimated using recent pricing and factored adjustments to quantities from other similar projects in which BMcD has been involved as well as RSMeans 2013 Building Construction Cost Data reference.
- Project Indirects: Project indirects were estimated based on BMcD's experience as an Owner's Engineer and EPC contractor.

8.4.2 Capital Cost Estimate Scope

Below are listings of the major scope items included and excluded from the cost estimate.

The following major scope items are included in the estimated costs:

- Spray field pipe demolition, hauling off-site, and disposal fees, which do not include any salvage value
- Tree removal, hauling off-site, and disposal fees
- Riprap removal and reuse
- Ash dewatering, staging, loading, and placement in Pond 2 area
- General grading and drainage
- Capping system including geotextile, geomembrane, protective cover material installation, topsoil, and seeding
- Erosion control throughout construction
- Subsurface stabilization of the river embankment
- Groundwater monitoring well installation
- Overhead transmission line relocation
- Costs for two mobilizations and demobilizations for site preparation contractor to coincide with the schedule described herein
- Hauling protective cover and topsoil from J.K. Smith to Dale

The following items are excluded from the estimated costs included in this report:

- Removal of the existing membrane liner at Pond 4 as it should not be impacted by the site restoration activities
- Additional treatment for discharging of the ash pond water
- Costs for environmental impacts
- Costs for topographical survey
- Future operations and maintenance (O&M) costs to have a professional engineer inspect the capped facility
- Future O&M costs for groundwater monitoring
- Future O&M costs for closed facilities

8.4.3 Major Capital Cost Estimate Assumptions

Several major assumptions were used in developing the capital cost estimates. These assumptions include the following:

- Cost estimates were based on 2013 dollars
- Protective cover and topsoil will be available at the J. K. Smith site for use at Dale (loading and hauling costs included)

8.4.4 Major Commercial Terms

The project capital cost estimates were developed based on the typical multiple prime contract terms and conditions. The following highlights the major items. Minor assumptions are either self-evident in the data or have an insignificant effect on the estimated project capital costs.

- The Project is assumed to be executed on a multiple prime contract basis as discussed in Section 8.2.
- The Project will be executed with durations as shown on the project schedule included in Appendix C with project completion in November 2017. It is assumed the Project will be executed with a schedule sufficient to minimize overtime.

8.4.5 Yearly Cash Flow

Table 8-3 shows an estimated cash flow by year. Start of engineering takes place in 2014, and construction starts in 2016. Construction will be ongoing until completion in 2017.

Table 8-3: Pond Closure In-Place – On-site Closure Option 1 Yearly Cash Flow

	2014	2015	2016	2017	Task Subtotals
Engineering/Construction Management (5%)					
	\$ 777,000	\$ 258,000	\$ 130,000	\$ 130,000	\$ 1,295,000
Owner's Costs (5%) & Escalation (3%)					
	\$ 63,000	\$ 21,000	\$ 594,000	\$ 1,498,000	\$ 2,176,000
Construction					
	\$ -	\$ -	\$ 7,297,000	\$ 18,601,000	\$ 25,898,000
Contingency (20%)					
	\$ 156,000	\$ 52,000	\$ 1,485,000	\$ 3,746,000	\$ 5,439,000
Yearly Subtotals	\$ 996,000	\$ 331,000	\$ 9,506,000	\$ 23,975,000	\$ 34,808,000

8.4.6 Limitations and Qualifications

Estimates and projections prepared by BMcD relating to schedule, performance, and construction costs are based on our experience, qualifications and judgment as a professional consultant in the coal-fired power plant industry. Since BMcD has no control over weather, cost and availability of labor, material and equipment, labor productivity, construction contractor's procedures and methods, unavoidable delays, construction contractor's method of determining prices, economic conditions, government regulations and

laws (including interpretation thereof), competitive bidding and market conditions or other factors affecting such estimates or projections, BMcD does not guarantee that actual rates, costs, performance, schedules, etc., will not vary from the estimates and projections prepared by BMcD.

9.0 LANDFILL CLOSURE IN-PLACE – ON-SITE CLOSURE OPTION 2

EKPC has retained BMcD for a feasibility assessment for a site restoration project to evaluate capping the ponded CCR material, or ash, in-place at the EKPC Dale Station. For On-Site Closure Option of this study, the ash throughout the site including Pond 3 and Pond 4 will be consolidated above the in-situ material of Pond 2. This is similar to the landfill closure technique previously approved by the KDWM. The ash present in Pond 2 would be dewatered, finish graded, and covered with an intermediate liner system before the other ash from the site would be consolidated above the intermediate liner. This intermediate liner system over the Pond 2 in-situ CCR material would include six (6) inches of soil liner, geosynthetic clay liner (GCL), 60 mil HDPE geomembrane, geonet, and a non-woven geotextile. The non-woven geotextile was not present in the design cross-section that was approved by the KDWM in the past, but it was an addition because of its typical use to minimize clogging of the geonet material.

The ash from Ponds 3 and 4 and the remaining north area (which includes areas outside the dike footprint of Ponds 2 and 3) would be consolidated over the Pond 2 intermediate liner system as a special waste landfill (see the section view on drawing CG008 in Appendix D). A final cover system of a geotextile under a 40 mil LLDPE geomembrane, under 18 inches of protective cover would be placed over all the ash. The protective cover would be topped with six inches of topsoil that would be seeded and mulched. The areas where CCR material has been removed would be graded, topsoiled, and seeded as indicated on drawings CG008 of Appendix D and CG005 of Appendix A. See Figure 9-1, below, for a typical cross section of the intermediate liner and final cover systems.

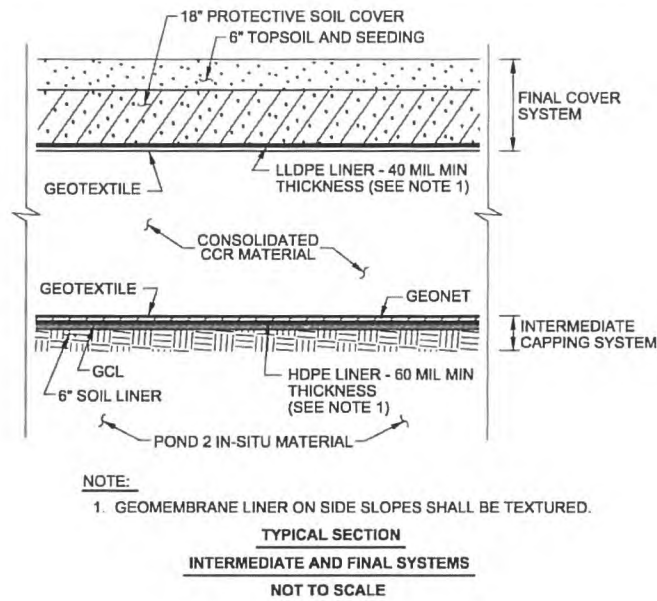


Figure 9-1: Pond 2 Cross Section

Similar to the Pond Closure In-place – On-Site Closure Option 1 that was discussed in Chapter 8, EKPC would not be mitigating future risk of an ash spill at Dale to the maximum extent possible by leaving the Pond 2 CCR material in-place and capping it rather than removing it from the site by hauling it to an off-site permitted landfill. On-Site Closure Option 2 will encapsulate the material from existing Ponds 3 and 4 between the intermediate liner and final cover systems, however, the Pond 2 in-situ material (including berms) will only be capped over, not encapsulated. Therefore, there is the potential for future risk as the “landfill” would be located in the 100-year floodplain where there would be threat of a washout of waste material.

9.1 MATERIAL CONSOLIDATION PHASING PLAN

BMCD’s estimate of existing CCR material volume and plans for consolidating the material in-place for On-Site Closure Option 1 was discussed in Chapter 3.0; these still apply to the Landfill Closure In-place – On-Site Closure Option 2. Furthermore, the On-Site Closure Option 2 would still include the demolition of the spray cooling field piping and the relocation of the transmission lines. The transmission lines would need to be relocated to recover the ash located immediately below and around the transmission pole foundations. The existing riprap present along the slopes of Pond 4 and Pond 2 would likely be removed and reused to line stormwater let-down channels along the river side of the Pond 2 closure and to line the new slopes up to the 100-year flood elevation. Trees along the river would be removed in order to excavate and relocate the ash to Pond 2. The Pond 4 area would be graded as shown on CG005 of

Appendix A. A conceptual finish grading plan of the North Area (Pond 2) for the landfill closure option is shown on CG008 of Appendix D.

The ash will be consolidated to the Pond 2 area in two phases. First the ash present in Pond 2 would be dewatered, graded, and capped with an intermediate liner system, as described in Section 9.0. The second phase would transport in the remaining ash on site from Ponds 3 and 4 along with the other remaining ash outside of the Pond 2 and Pond 3 limits to the top of the intermediately lined Pond 2 ash. Once the ash is consolidated it will be covered with the final cover system described in Section 9.0. For the purpose of this evaluation, BMcD assumed the soil liner, protective cover, and topsoil material would be hauled from J.K. Smith.

The intermediate liner system would include a leachate collection system. There would be a network of perforated pipes throughout the intermediate liner system which would drain to a low point collection sump. The sump could be controlled with level switches and would discharge to an above ground storage tank.

9.1.1 Subsurface Analysis

The same evaluations for seismic stability analysis are to be used for the Landfill Closure In-Place – On-site Closure Option 2 as were considered for On-Site Closure Option 1. This information is discussed in Section 8.1.1 - Subsurface Analysis. The cost for jet grouting liquefaction susceptible materials has been included in the total cost for On-Site Closure Option 2.

9.2 CONTRACTING PLAN

The contracting plan BMcD has developed for this project is a multiple prime contract approach. This approach is based on a general contractor executing the earthwork, intermediate liner system installation, ash consolidation, and final cover system installation. The prime contractor may subcontract and coordinate specialty items of the scope such as, but not limited to clearing and grubbing, geomembrane and/or GCL installation, erosion control, and monitoring well installation. The transmission line work will be a separate technical specification/contract.

BMcD recommends the project be contracted as a unit price agreement. An initial lump sum value would be assigned to the project, established with estimated design quantities and associated unit prices. The basis for payment would be per actual installed quantities, as determined by in-place surveys.

The contractor’s bid tab should be set up based on yearly cost proposals for the work. This will ensure a clean cut-off point should EKPC not be comfortable with a contractor after the first phase of work is completed.

9.3 PRELIMINARY LANDFILL CLOSURE IN-PLACE – ON-SITE CLOSURE OPTION 2 SCHEDULE

The landfill closure in-place project schedule is based on engineering design for permitting to be complete in October 2014 with activities through project completion occurring in November 2017. A schedule summary is presented in Table 9-1 below, which includes activities from engineering design to project completion. This schedule depicts the key milestone dates and key construction activity dates. A Level 1 schedule is shown in Appendix D.

Table 9-1: Landfill Closure In-Place – On-Site Closure Option 2 Schedule Summary

Activity/Milestone	Date
Engineering Design for Permitting Support Complete	10/1/2014
General Construction Season 1 Starts	3/21/2016
Subsurface Stabilization and Transmission Line Relocation Starts	9/19/2016
Winter General Construction Shutdown Starts	11/21/2016
General Construction Season 2 Starts	4/3/2017
Project Completion	10/27/2017
Project Closeout	11/24/2017

The overall construction schedule reflects the volume of ash being consolidated on-site and liner and cap system construction while stopping the construction work during the winter months for the earthwork scope. The transmission line relocation will be completed outside regular construction months and will need to be coordinated with EKPC. The construction schedule was developed based on 8-hour work days, occurring for five (5) days a week.

9.4 COST ESTIMATE

The estimated cost for the Project, inclusive of contingency and escalation, is \$36.6 million for the multiple prime contract approach as described in Section 9.2. This includes the site preparation contract work including groundwater monitoring well installation, and transmission line relocation. Table 9-2 provides a summary of the Capital Cost Estimate.

Table 9-2: Estimated Capital Cost Summary

Dale Ash Landfill Closure In-Place – On-Site Closure Option 2	
Direct Costs	Cost
Engineering (5%)	\$ 1,361,000
Mobilization	\$ 400,000
Riprap Removal and Placement	\$ 2,689,000
Demolition	\$ 452,000
Intermediate Liner and Leachate Collection	\$ 1,555,000
Ash Consolidation	\$ 3,200,000
Cover Installation	\$ 1,380,000
Grading and Drainage	\$ 1,678,000
Erosion Control	\$ 319,000
Overhead Transmission Relocation	\$ 1,980,000
Subsurface Stabilization	\$ 13,440,000
Ground Water Monitoring Wells	\$ 120,000
Total Direct Costs	\$ 28,574,000
Construction / Project Indirects	Cost
Construction Management & Indirects	Incl in Owner's Cost
Insurance	Incl in Owner's Cost
Performance Bond	Incl in Owner's Cost
Escalation (3%)	\$ 858,000
Contingency (20%)	\$ 5,715,000
Total Indirect Costs	\$ 6,573,000
Owner's Costs	\$ 1,429,000
Total Project Cost	\$ 36,576,000

9.4.1 Cost Estimate Basis

The following describes the methodology used in the development of the Project cost estimate.

- Construction Estimates: Construction costs were estimated using recent pricing and factored adjustments to quantities from other similar projects in which BMcD has been involved as well as RSMeans 2013 Building Construction Cost Data reference.
- Project Indirects: Project indirects were estimated based on BMcD’s experience as an Owner’s Engineer and EPC contractor.

9.4.2 Capital Cost Estimate Scope

Below are listings of the major scope items included and excluded from the cost estimate.

The following major scope items are included in the estimated costs:

- Spray field pipe demolition, hauling off-site, and disposal fees, which do not include any salvage value
- Tree removal, hauling off-site, and disposal fees
- Riprap removal and reuse
- Ash dewatering, staging, loading, and placement in Pond 2 area
- General grading and drainage
- Pond 2 intermediate liner system including soil liner, GCL, 60 mil HDPE geomembrane, drainage geonet, and non-woven geotextile.
- Leachate collection system included in the intermediate liner system.
- Final cover system including geotextile, 40 mil LLDPE geomembrane, protective cover material installation, topsoil, and seeding
- Erosion control throughout construction
- Subsurface stabilization of the river embankment
- Groundwater monitoring well installation
- Overhead transmission line relocation
- Costs for two mobilizations and demobilizations for site preparation contractor to coincide with the schedule described herein
- Hauling soil liner, protective cover, and topsoil from J.K. Smith to Dale

The following items are excluded from the estimated costs included in this report:

- Removal of the existing membrane liner at Pond 4 as it should not be impacted by the site restoration activities
- Additional treatment for discharging of the ash pond water
- Costs for environmental impacts
- Costs for topographical survey
- Future operations and maintenance (O&M) costs to have a professional engineer inspect the capped facility
- Future O&M costs for groundwater monitoring
- Future O&M costs for closed facilities

9.4.3 Major Capital Cost Estimate Assumptions

Several major assumptions were used in developing the capital cost estimates. These assumptions include the following:

- Cost estimates were based on 2013 dollars
- Soil liner, protective cover, and topsoil will be available at the J. K. Smith site for use at Dale (loading and hauling costs included)

9.4.4 Major Commercial Terms

The project capital cost estimates were developed based on the typical multiple prime contract terms and conditions. The following highlights the major items. Minor assumptions are either self-evident in the data or have an insignificant effect on the estimated project capital costs.

- The Project is assumed to be executed on a multiple prime contract basis as discussed in Section 9.3.
- The Project will be executed with durations as shown on the project schedule included in Appendix D with project completion in October 2017. It is assumed the Project will be executed with a schedule sufficient to minimize overtime.

9.4.5 Yearly Cash Flow

Table 9-3 shows an estimated cash flow by year. Start of engineering takes place in 2014. Construction will be ongoing from 2015 until completion in 2017.

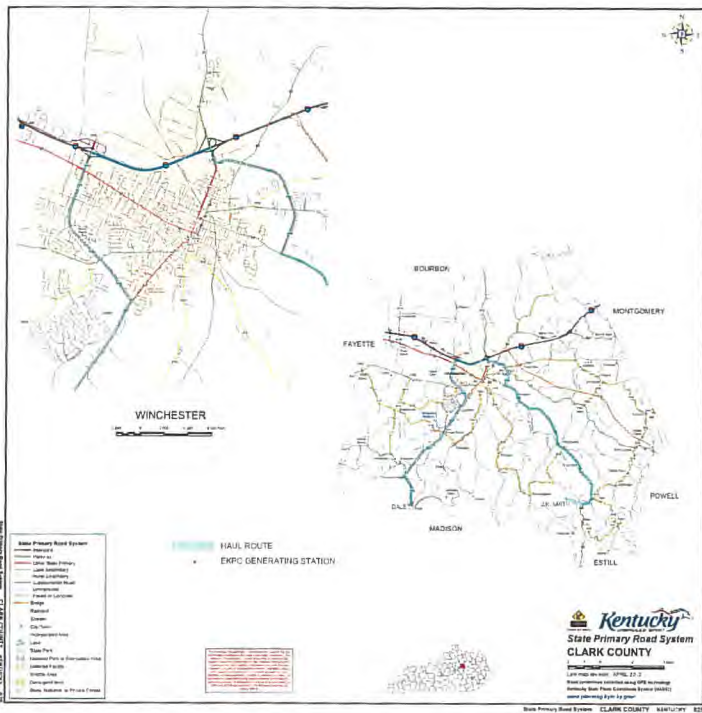
Table 9-3: Yearly Cash Flow for Landfill Closure In-place – On-Site Closure Option 2

	2014	2015	2016	2017	Task Subtotals
Engineering/Construction Management (5%)					
	\$ 953,000	\$ 204,000	\$ 102,000	\$ 102,000	\$ 1,361,000
Owner's Costs (5%) & Escalation (3%)					
	\$ 77,000	\$ 17,000	\$ 641,000	\$ 1,552,000	\$ 2,287,000
Construction					
	\$ -		\$ 7,913,000	\$ 19,300,000	\$ 27,213,000
Contingency (20%)					
	\$ 191,000	\$ 41,000	\$ 1,602,000	\$ 3,881,000	\$ 5,715,000
<i>Yearly Subtotals</i>	<i>\$ 1,221,000</i>	<i>\$ 262,000</i>	<i>\$ 10,258,000</i>	<i>\$ 24,835,000</i>	<i>\$ 36,576,000</i>

9.4.6 Limitations and Qualifications

Estimates and projections prepared by BMcD relating to schedule, performance, and construction costs are based on our experience, qualifications and judgment as a professional consultant in the coal-fired power plant industry. Since BMcD has no control over weather, cost and availability of labor, material and equipment, labor productivity, construction contractor's procedures and methods, unavoidable delays, construction contractor's method of determining prices, economic conditions, government regulations and laws (including interpretation thereof), competitive bidding and market conditions or other factors affecting such estimates or projections, BMcD does not guarantee that actual rates, costs, performance, schedules, etc., will not vary from the estimates and projections prepared by BMcD.

**APPENDIX A – ASH RESTORATION
DRAWINGS**



NO.	DATE	BY	REVISION
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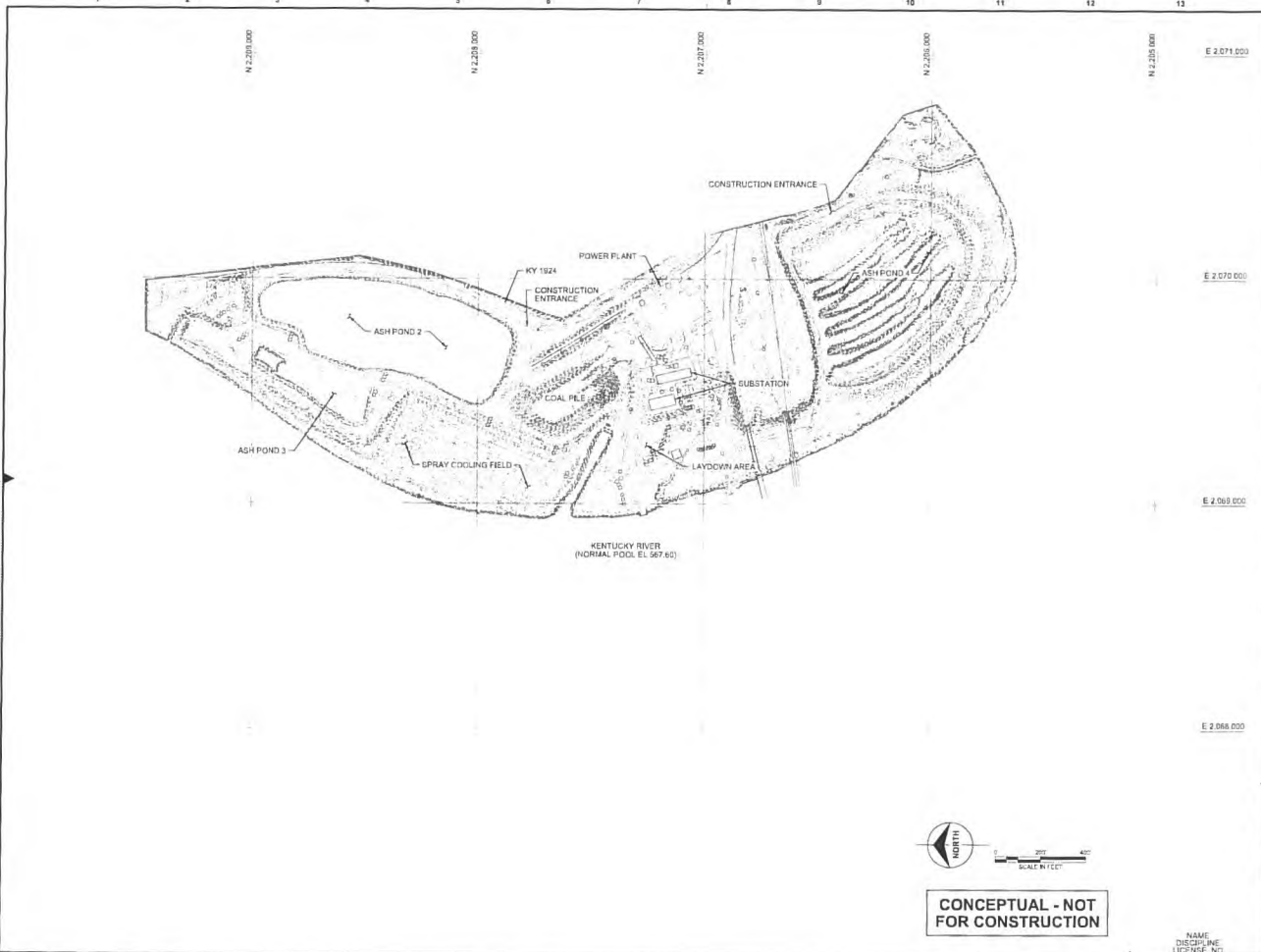
Burns & McDonnell
INCORPORATED
 9400 WARD PARKWAY
 KANSAS CITY, MO 64114
 P.O. BOX 30400
 FIRM LICENSE NO. 43

DATE	OCTOBER 23, 2013	DRAWN BY	J. RIDDER
CHECKED BY	D. ROGER	CHECKED BY	R. SEDLACEK

EAST KENTUCKY POWER COOPERATIVE
 CLARK COUNTY, KENTUCKY
 DALE STATION ASH REMEDIATION
 HAUL ROUTE

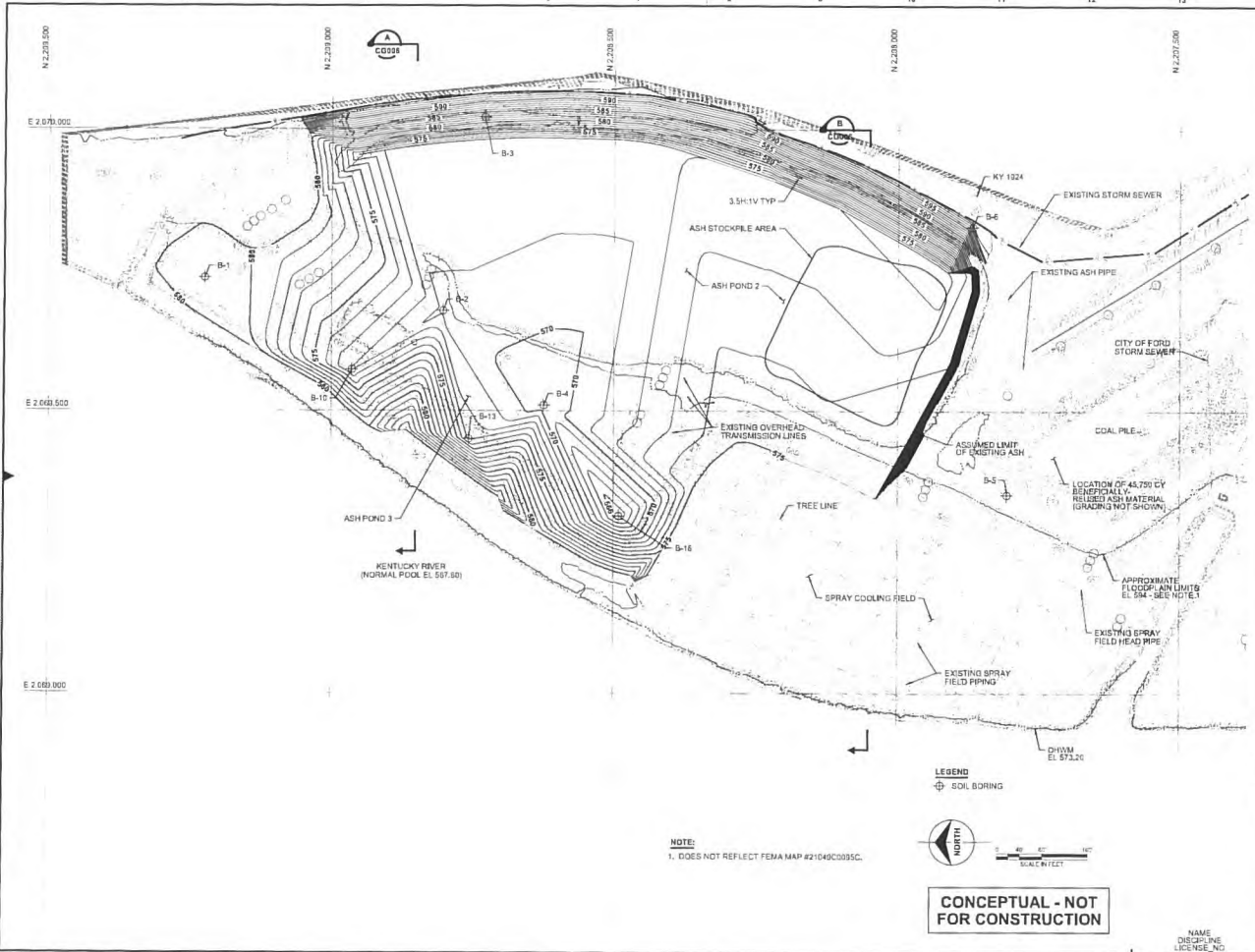
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DRAWING BY		DATE			
NAME	DISCIPLINE	LICENSE NO.			
		REV. 7/23/2013.DWG			

PRELIMINARY - NOT FOR CONSTRUCTION



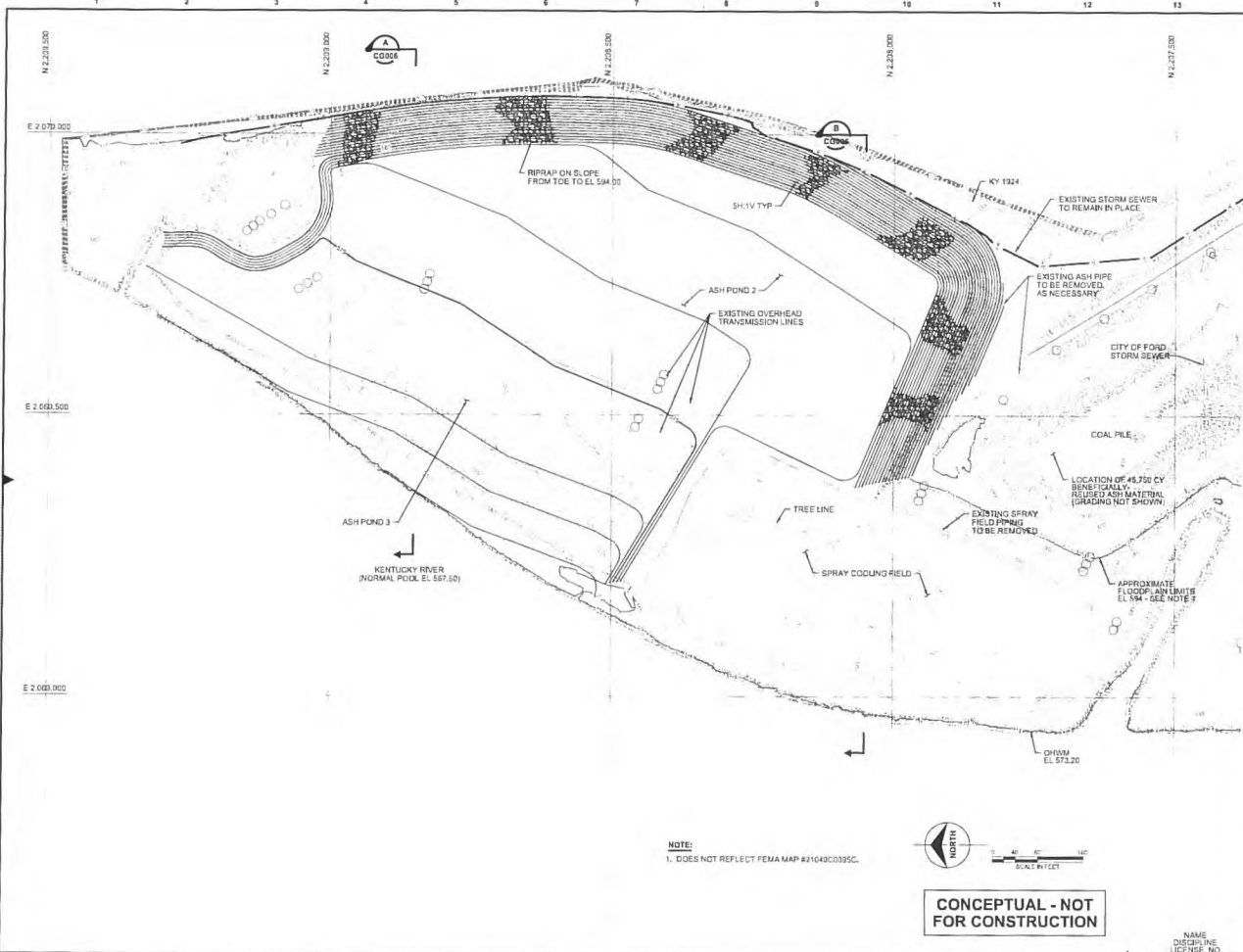
no.	date	by	rev.	description
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E 2 071 000				
E 2 070 000				
E 2 069 000				
E 2 068 000				

8400 WARD PARKWAY KANSAS CITY, MO 64114 (816) 333-3400 FIRM LICENSE NO. 43	
date	designed
OCTOBER 18, 2013	J. RIDDER
designed	checked
D. KRUGER	R. SEDLACEK
EAST KENTUCKY POWER COOPERATIVE CLARK COUNTY, KENTUCKY	
DALE STATION ASH REMEDIATION SITE PLAN	
project	contract
75031	
drawing	rev.
CG001	A
sheet	of
1	1
NAME	LICENSE NO.
	75031CG001.DGN



Rev	Date	By	Val	Description
A	11/13	CGK	RLS	ISSUED FOR OWNER REVIEW
B	12/13	CGK	RLS	ISSUED FOR OWNER REVIEW
C	3/14	KEW	RLS	ISSUED FOR OWNER REVIEW

8401 WARD PARKWAY KANSAS CITY, MO 64114 (816) 313-3400 FIRM LICENSE NO. 43	
Date	DESIGNED
OCTOBER 18, 2013	J. RIDDER
DESIGNED BY	CHECKED
D. KRUGER	R. SEDLACEK
EAST KENTUCKY POWER COOPERATIVE CLARK COUNTY, KENTUCKY	
DALE STATION ASH REMEDIATION NORTH AREA ASH REMOVAL PLAN	
Project	License
75031	
Drawing	REV
CG002	C
Sheet	OF
Rev	75031CG002.DGN



NOTE:
1. DOES NOT REFLECT FEMA MAP #104000395C.



CONCEPTUAL - NOT FOR CONSTRUCTION

NAME
DISCIPLINE
LICENSE NO.

NO.	DATE	BY	EXT.	DESCRIPTION
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B	12/13	DDK	RLS	ISSUED FOR OWNER REVIEW
C	11/14	HEW	RLS	ISSUED FOR OWNER REVIEW

Burns & McDonnell
INCORPORATED

8400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-3400
FIRM LICENSE NO. 43

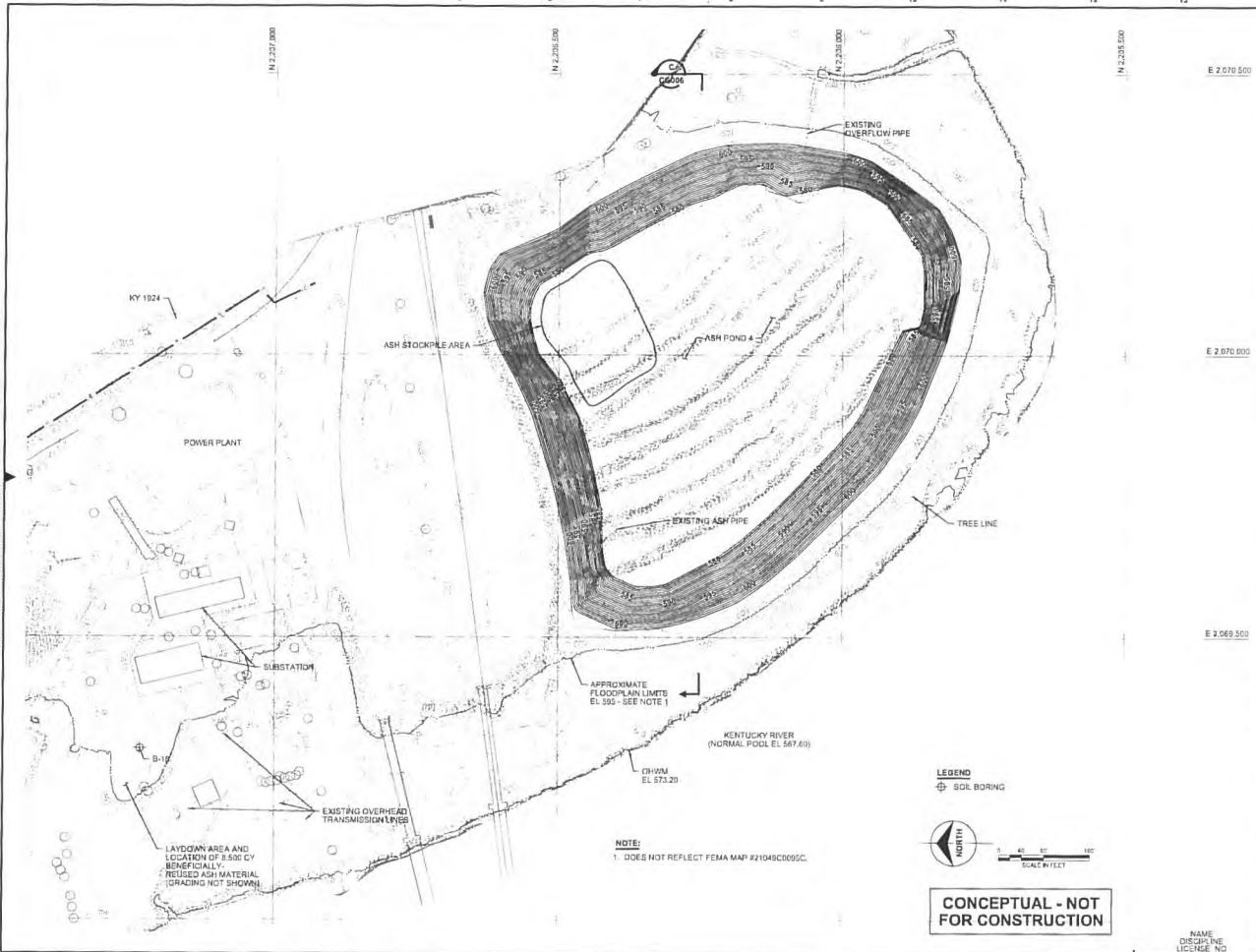
DATE	OCTOBER 18, 2013	DESIGNED	J. RIDDER
DESIGNED	D. KRUGER	CHECKED	R. SEDLACEK

EAST KENTUCKY POWER COOPERATIVE
CLARK COUNTY, KENTUCKY

DALE STATION ASH REMEDIATION
NORTH AREA
FINISH GRADING PLAN

PROJECT	75031	CONTRACT	
DRAWING	CG003	REV.	C
DRAWN		CHECKED	
DATE		BY	

NAME: _____ DISCIPLINE: _____ LICENSE NO.: _____

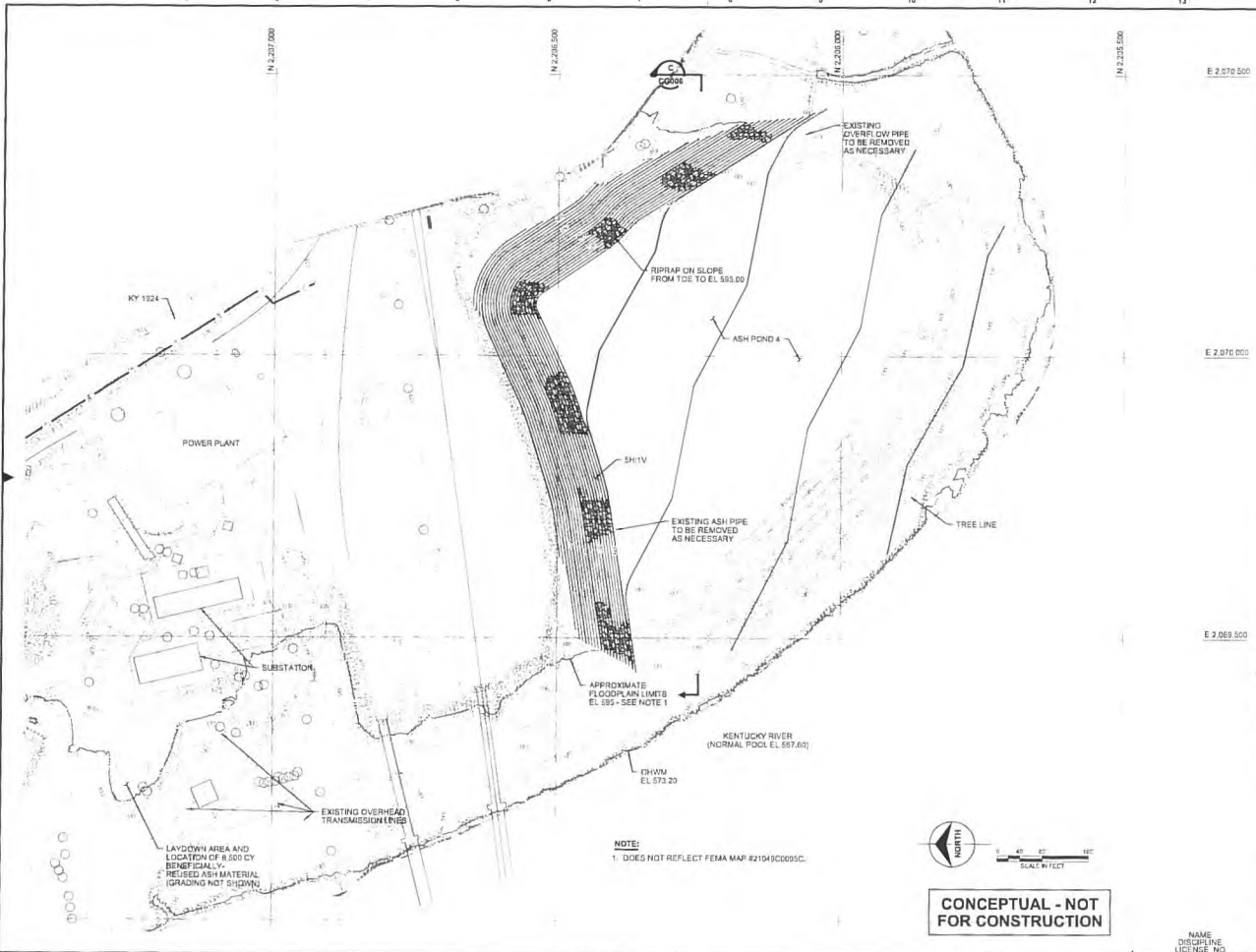


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C	3/7/14	NEW	RLS	ISSUED FOR OWNER REVIEW

E 2,070,500	
E 2,070,000	
E 2,069,500	

Burns & McDonnell <small>EST. 1984</small>	
3400 WARD PARKWAY KANSAS CITY, MO 64114 (816) 333-4400 FIRM LICENSE NO. 43	
DATE	DESIGNED
OCTOBER 18, 2013	J. RIDGER
DRAWN	CHECKED
D. KRIGER	R. SEDLACEK

EAST KENTUCKY POWER COOPERATIVE CLARK COUNTY, KENTUCKY	
DALE STATION ASH REMEDIATION ASH POND 4 / LAYDOWN AREA ASH REMOVAL PLAN	
PROJECT	CONTRACT
75031	
DRAWING	REV
CG004	C
SHEET	SHEETS
1	1
NAME	LICENSE NO.



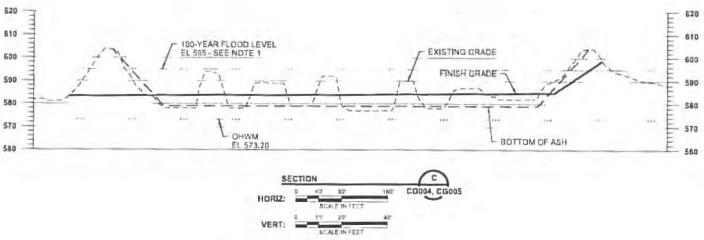
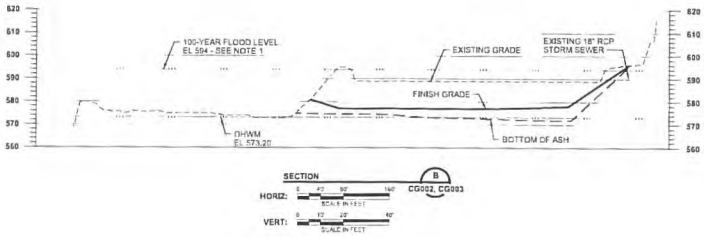
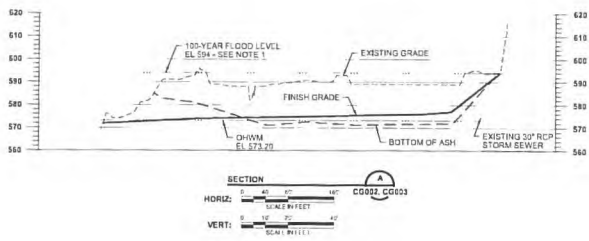
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B	12/13/11	DDK	RLS	ISSUED FOR OWNER REVIEW
C	3/27/14	KEW	RLS	ISSUED FOR OWNER REVIEW

E 2.070.500	
E 2.070.000	
E 2.069.500	

Burns & McDonnell SINCE 1888	
3433 WARD PARKWAY KANSAS CITY, MO 64114 816-333-2400 FIRM LICENSE NO. 43	
DATE	DRAWN
OCTOBER 16, 2013	J. RIDDER
DESIGNED	CHECKED
D. KRUGER	R. SEDLACEK

EAST KENTUCKY POWER COOPERATIVE CLARK COUNTY, KENTUCKY	
DALE STATION ASH REMEDIATION ASH POND 4 / LAYDOWN AREA FINISH GRADING PLAN	
PROJECT	CONTRACT
75031	
DRAWING	REV.
CG005	C
SHEET	SHEETS
1	1

NAME	
DISCIPLINE	
LICENSE NO.	



NOTE:
 1. DOES NOT REFLECT FEMA MAP #21045C003C.

CONCEPTUAL - NOT FOR CONSTRUCTION

NAME
 DISCIPLINE
 LICENSE_NO

no.	date	by	chk	description
A	11/11/13	DGK	RLS	ISSUED FOR OWNER REVIEW
B	12/13/13	DGK	RLS	ISSUED FOR OWNER REVIEW



8400 WARD PARKWAY
 KANSAS CITY, MO 64114
 ST. LOUIS, MO
 FIRM LICENSE NO. 43

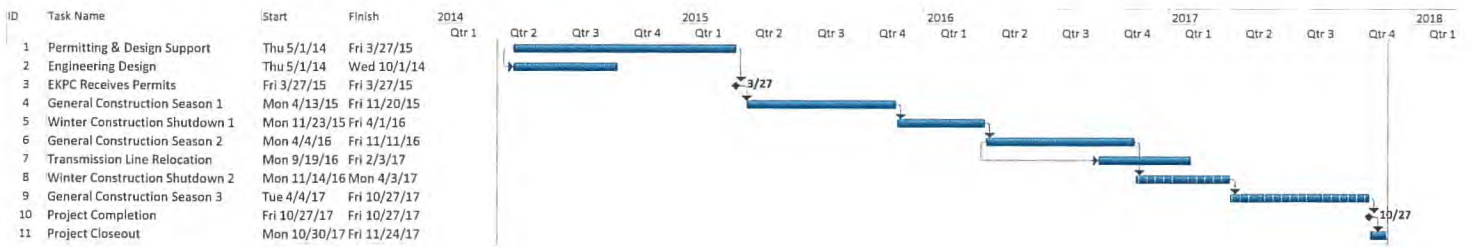
DATE	OCTOBER 16, 2013	DESIGNED	J. RIDDER
DRAWN	D. KRUGER	CHECKED	R. SEDLACEK



EAST KENTUCKY POWER COOPERATIVE
 CLARK COUNTY, KENTUCKY
 DALE STATION ASH REMEDIATION
 SECTIONS

PROJECT	75031	CONTRACT	
DRAWING	CG006	REV	B
SHEET		OF	
NO.	75031-CG006.DGN	SHEETS	

**APPENDIX B – ASH RESTORATION
PROJECT SCHEDULE**



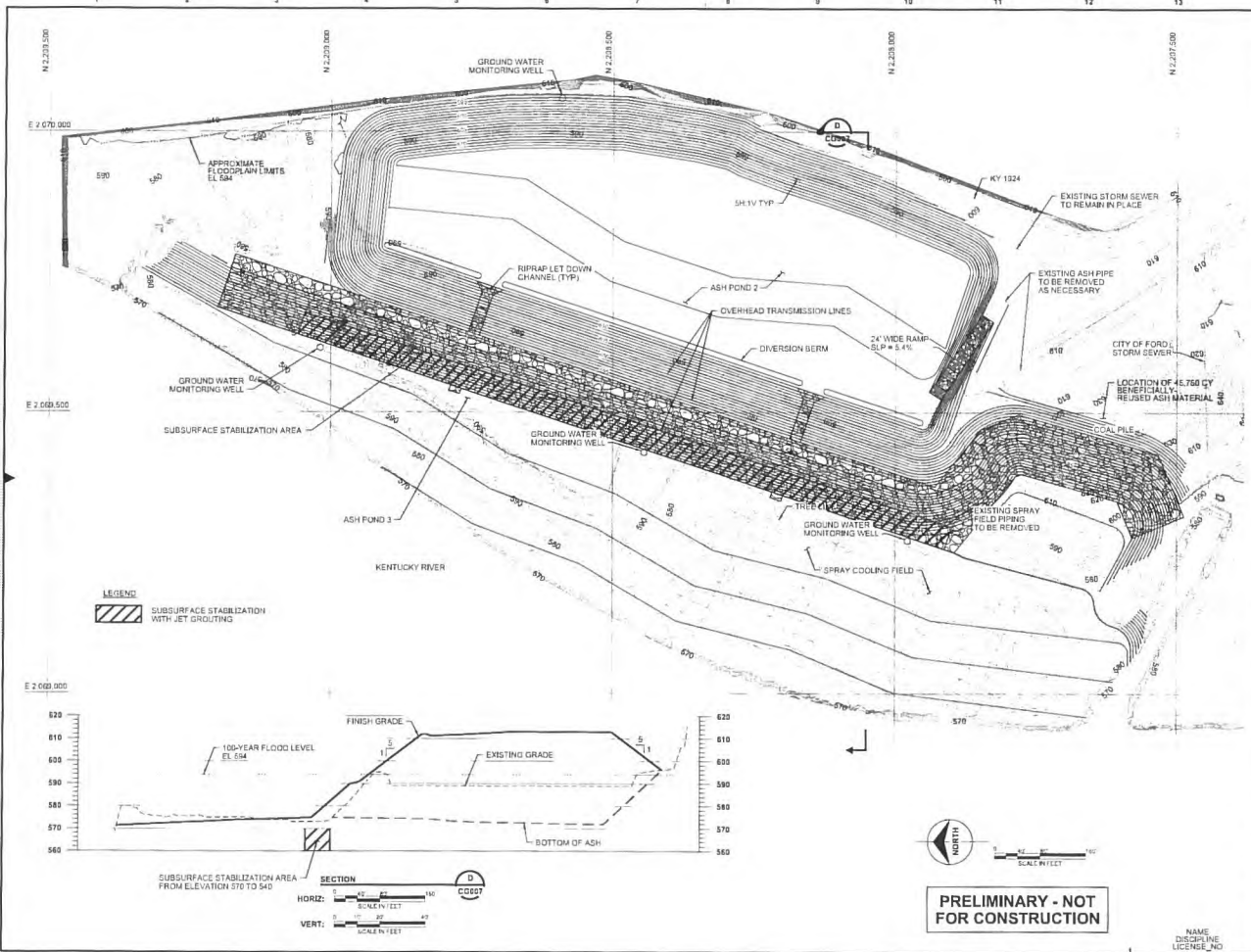
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Split	External Tasks	Inactive Summary	Manual Summary	Progress
Milestone	External Milestone	Manual Task	Start-only	
Summary	Inactive Task	Duration-only	Finish-only	

**APPENDIX C –
POND CLOSURE IN-PLACE –
ON-SITE CLOSURE OPTION 1**

REFERENCE DOCUMENTS

Pond Closure In-Place –
On-Site Closure Option 1
Finish Grading Plan

Drawing # CG007-A



no.	date	by	chkd	description
A	11/13/2013	JDK	RLS	ISSUED FOR OWNER REVIEW
B	12/13/2013	JDK	RLS	ISSUED FOR OWNER REVIEW
C	1/1/14	NEW	RLS	ISSUED FOR OWNER REVIEW

Burns & McDonnell
 3400 WARD PARKWAY
 KANSAS CITY, MO 64114
 P.O. BOX 2400
 FINN LICENSE NO. 43

DATE: NOVEMBER 8, 2013
 DESIGNED: D. KROGER
 CHECKED: J. RIDDER
 R. SEDLACEK

EP

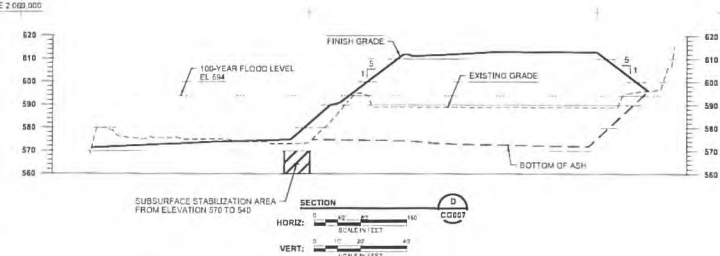
EAST KENTUCKY POWER COOPERATIVE
 CLARK COUNTY, KENTUCKY

DALE STATION ASH REMEDIATION
 NORTH AREA
 CLOSURE IN PLACE FINISH GRADING PLAN

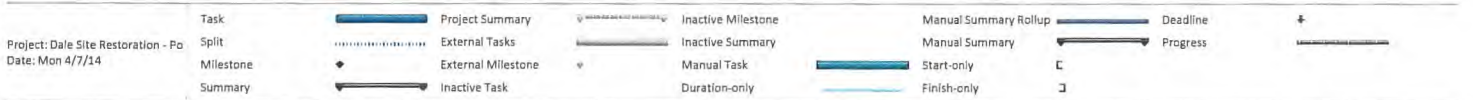
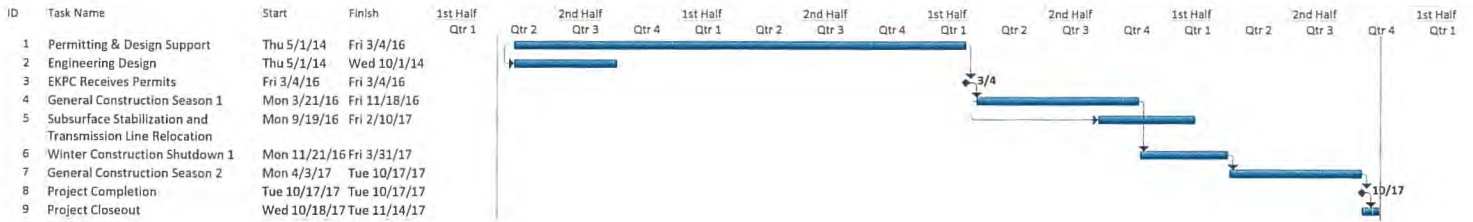
PROJECT: 75031
 DRAWING: CG007
 SHEET: 1 OF 1
 DISCIPLINE: CIVIL
 LICENSE: 75031CG007 DGN

PRELIMINARY - NOT FOR CONSTRUCTION

LEGEND
 SUBSURFACE STABILIZATION WITH JET GROUTING



Pond Closure In-Place –
On-Site Closure Option 1
Schedule

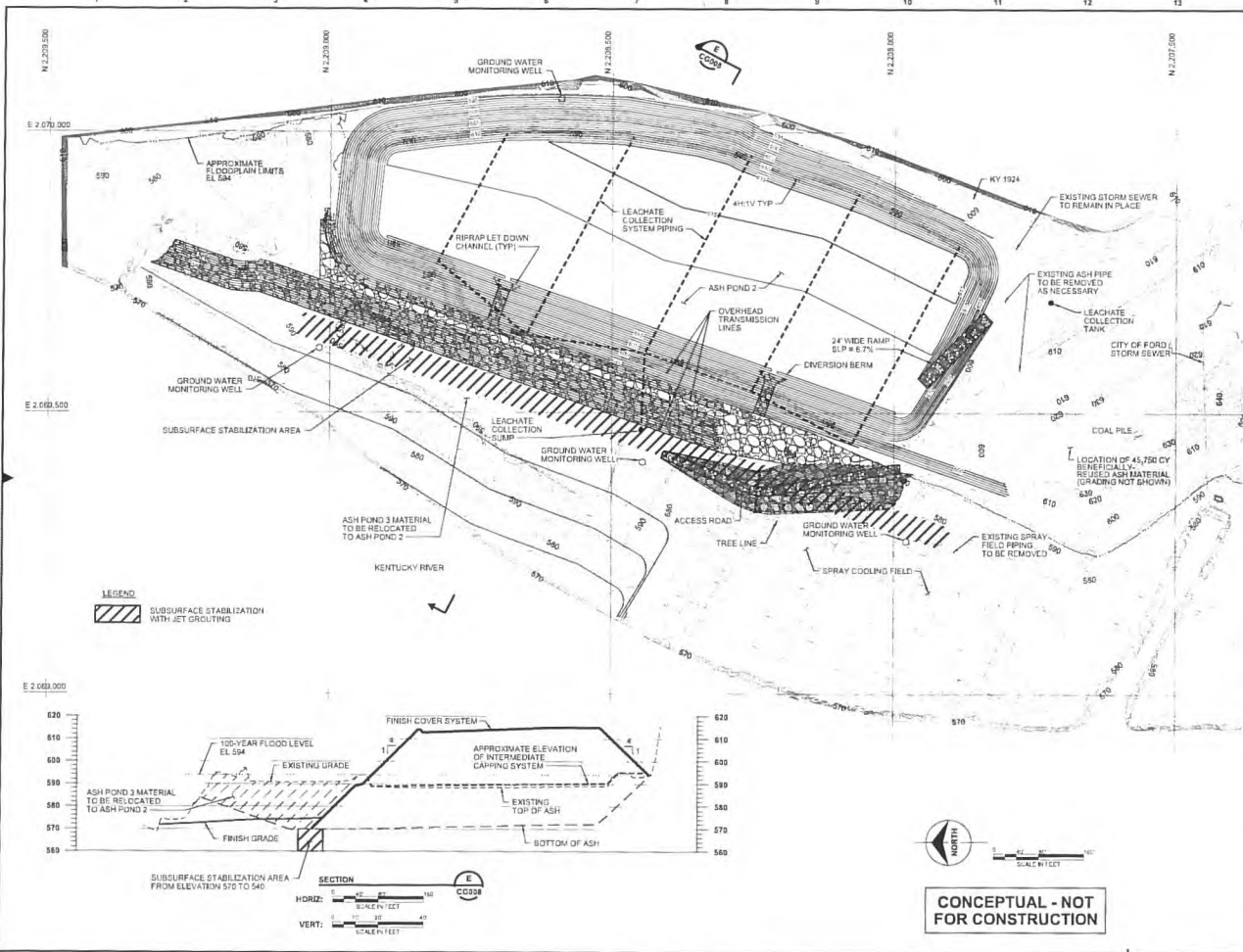


**APPENDIX D –
LANDFILL CLOSURE IN-PLACE –
ON-SITE CLOSURE OPTION 2**

REFERENCE DOCUMENTS

Landfill Closure In-Place –
On-Site Closure Option 2
Finish Grading Plan

Drawing # CG008-A



no.	date	by	chkd	description
A	10/14	DDK	RLS	ISSUED FOR OWNER REVIEW
B	12/04	KEW	RLS	ISSUED FOR OWNER REVIEW

Burns & McDonnell
 8400 WARD PARKWAY
 KANSAS CITY, MO 64114
 PLS-33-8400
 FIRM LICENSE NO. 43

DATE: JANUARY 3, 2014
 DESIGNED: D. KRUEGER
 CHECKED: R. SEIDLACEK
 DRAWN: J. RIDDER

EP

EAST KENTUCKY POWER COOPERATIVE
 CLARK COUNTY, KENTUCKY

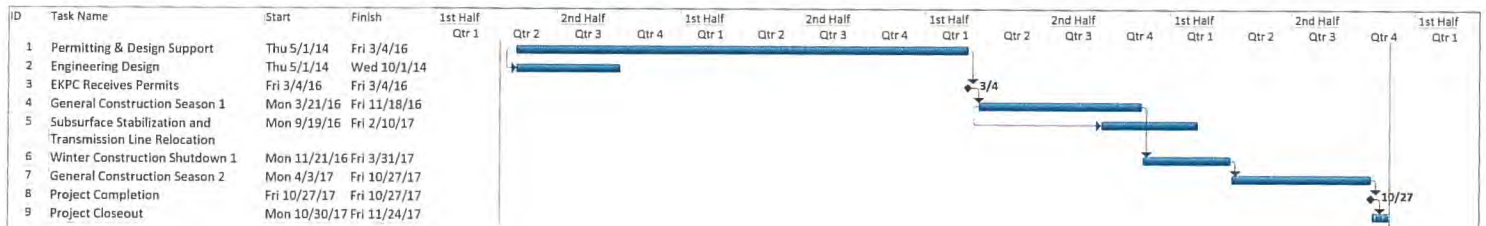
DALE STATION ASH REMEDIATION
 NORTH AREA
 LANDFILL CLOSURE IN PLACE-OPTION J
 FINISH GRADING PLAN

PROJECT: 75031 CONTRACT: _____
 DRAWING: _____ REV: _____
 SHEET: CG008 OF _____ SHEETS
 FILE: 75031 CG008.DGN

CONCEPTUAL - NOT FOR CONSTRUCTION

Landfill Closure In-Place –
On-Site Closure Option 2

Schedule



Project: Dale Site Restoration - La
Date: Mon 4/7/14

Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
Split		External Tasks		Inactive Summary		Manual Summary		Progress	
Milestone		External Milestone		Manual Task		Start-only			
Summary		Inactive Task		Duration-only		Finish-only			

Page 1



Burns & McDonnell World Headquarters
9400 Ward Parkway
Kansas City, MO 64114
Phone: 816-333-9400
Fax: 816-333-3690
www.burnsmcd.com

Burns & McDonnell: Making our clients successful for more than 100 years

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

AN APPLICATION OF EAST KENTUCKY)	
POWER COOPERATIVE, INC. FOR A)	
CERTIFICATE OF PUBLIC CONVENIENCE)	
AND NECESSITY FOR CONSTRUCTION OF AN)	
ASH LANDFILL AT J. K. SMITH STATION, THE	)	CASE NO.
REMOVAL OF IMPOUNDED ASH FROM	)	2014-00252
WILLIAM C. DALE STATION FOR TRANSPORT)	
TO J. K. SMITH, AND APPROVAL OF A)	
COMPLIANCE PLAN AMENDMENT FOR)	
ENVIRONMENTAL SURCHARGE RECOVERY)	

DIRECT TESTIMONY OF ISAAC S. SCOTT
ON BEHALF OF EAST KENTUCKY POWER COOPERATIVE, INC.

Filed: September 8, 2014

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND**
2 **OCCUPATION.**

3 A. My name is Isaac S. Scott and my business address is East Kentucky Power
4 Cooperative, Inc. ("EKPC"), 4775 Lexington Road, Winchester, Kentucky 40391.
5 I am the Manager of Pricing for EKPC.

6 **Q. PLEASE STATE YOUR EDUCATION AND PROFESSIONAL**
7 **EXPERIENCE.**

8 A. I received a B.S. degree in Accounting, with distinction, from the University of
9 Kentucky in 1979. After graduation I was employed by the Kentucky Auditor of
10 Public Accounts, where I performed audits of numerous state agencies. In
11 December 1985, I transferred to the Kentucky Public Service Commission
12 ("Commission") as a public utilities financial analyst, concentrating on the
13 electric and natural gas industries. In August 2001, I became manager of the
14 Electric and Gas Revenue Requirements Branch in the Division of Financial
15 Analysis at the Commission. In this position I supervised the preparation of
16 revenue requirement determinations for electric and natural gas utilities as well as
17 determined the revenue requirements for the major electric and natural gas
18 utilities in Kentucky. I retired from the Commission effective August 1, 2008. In
19 November 2008, I became the Manager of Pricing at EKPC.

20 **Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF YOUR DUTIES AT**
21 **EKPC.**

22 A. As Manager of Pricing, I am responsible for rate-making activities which include
23 designing and developing wholesale and retail electric rates and developing

1 pricing concepts and methodologies. I report directly to the Director of
2 Regulatory and Compliance Services.

3 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
4 **PROCEEDING?**

5 A. The purpose of my testimony is to describe the cost of constructing a Special
6 Waste Landfill cell for coal combustion residuals (“CCRs” or “coal ash”) at
7 EKPC’s J. K. Smith Station (“Smith Station”), as well as the costs for the removal
8 of CCRs from EKPC’s William C. Dale Station (“Dale Station”) for transport and
9 disposal at the proposed Special Waste Landfill cell (collectively, the “Project”).
10 I will also discuss EKPC’s position with regard to the return that should be earned
11 on the Project, the financing plan for the Project, how the proposed amendment to
12 EKPC’s Environmental Compliance Plan will be implemented on a monthly basis
13 and the rate impact at the wholesale and retail levels. Finally, I will describe the
14 proposed revisions to EKPC’s monthly environmental surcharge reporting forms.

15 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

16 A. Yes. I am sponsoring the following exhibits, which I ask be incorporated into my
17 testimony by reference:

- 18 • Exhibit ISS-1, a schedule showing the current environmental compliance
19 plan and the addition of the Project.
- 20 • Exhibit ISS-2, a sample copy of the monthly environmental surcharge
21 reporting formats which reflect the inclusion of the Project.
- 22 • Exhibit ISS-3, a schedule showing the determination of the Base
23 Environmental Surcharge Factor (“BESF”) reflecting retirements and

1 replacements of utility plant at the Dale Station associated with the
2 Project.

- 3 • Exhibit ISS-4, an estimate of revenue increases resulting from the
4 inclusion of the Project and the estimated bill impact on retail customers.

5 **Q. PLEASE DESCRIBE THE ESTIMATED COST OF THE PROJECT.**

6 A. EKPC estimates the total cost of the Project at \$26,962,000. This figure includes
7 total direct costs of \$17,790,000, total indirect costs of \$3,920,000, owner’s costs
8 of \$1,252,000, and construction costs of the Special Waste Landfill cell at Smith
9 Station of \$4,000,000. A detailed projected cost estimate, which is incorporated
10 herein by reference, is contained in Exhibit ET-1 to the Direct Testimony of Ed
11 Tohill, Table 7-1.

12 **Q. HOW DOES EKPC PLAN TO FINANCE THE TOTAL CAPITAL COST**
13 **OF THE PROJECT?**

14 A. EKPC plans to fund the expenditures associated with the Project by using the
15 remaining proceeds of its 2014A Private Placement.¹ EKPC has pre-funded this
16 Project, and as expenditures are incurred, EKPC will utilize balances in its short-
17 term investments for Project payments. The interest rate for the 2014A Private
18 Placement is a fixed interest rate of 4.61%.

¹ The Commission approved the Private Placement financing in Case No. 2013-00306, *East Kentucky Power Cooperative, Inc. Application for Approval of the Issuance of up to \$200,000,000 of Secured Private Placement Debt, for the Amendment and Extension of an Unsecured Revolving Credit Agreement in an Amount up to \$500,000,000, and for the Use of Interest-Rate Management Instruments* (Ky. PSC September 27, 2013). On December 11, 2013 EKPC entered into a Bond Purchase Agreement for \$200,000,000 4.61% First Mortgage Bonds, Series 2014A due February 2044. The transaction closed and funded on February 6, 2014.

1 **Q. WHAT DOES EKPC ANTICIPATE WILL BE THE OPERATIONS AND**
2 **MAINTENANCE COSTS ASSOCIATED WITH THE PROJECT ONCE**
3 **COMPLETED?**

4 A. EKPC estimates that the operation and maintenance expenses associated with the
5 Project once completed will be \$26,132. However, because some of the expenses
6 are not expected to occur with the same frequency year to year, the annual level of
7 expense is expected to fluctuate. For example, in 2018 and 2019, EKPC expects
8 the annual expense level to be \$23,266. In 2020 the annual expense is expected to
9 be \$68,266 primarily because two types of expenses which are anticipated every
10 five years first occur in that year. EKPC has determined that the operation and
11 maintenance expenses are specifically related to the Special Waste Landfill cell.

12 **Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF EKPC'S CURRENT**
13 **ENVIRONMENTAL COMPLIANCE PLAN.**

14 A. EKPC currently has 14 projects in its environmental compliance plan. Exhibit
15 ISS-1 lists each of the projects, the pollutant or waste/by-product to be controlled,
16 the control facility, the generating station, the applicable environmental regulation
17 addressed by the project, the applicable environmental permit, the completion
18 date of the project, and the project cost. Projects 1 through 4 were approved by
19 the Commission in Case No. 2004-00321.² Projects 5 through 10 were approved
20 by the Commission in Case No. 2008-00115.³ Projects 7 through 9 were

² Case No. 2004-00321, *Application of East Kentucky Power Cooperative, Inc. for Approval of an Environmental Compliance Plan and Authority to Implement an Environmental Surcharge* (Ky. PSC March 17, 2005).

³ Case No. 2008-00115, *Application of East Kentucky Power Cooperative, Inc. for Approval of an Amendment to Its Environmental Compliance Plan and Environmental Surcharge* (Ky. PSC September 29, 2008).

1 amended by and Projects 11 through 13 were approved by the Commission in
2 Case No. 2010-00083.⁴ Project 14 was approved by the Commission in Case No.
3 2013-00259.⁵ This Project will be Project 15.

4 **Q. DOES THE PROJECT MEET THE REQUIREMENTS OF KRS 278.183,**
5 **AND THUS QUALIFY FOR ENVIRONMENTAL SURCHARGE**
6 **RECOVERY?**

7 A. Yes, EKPC believes that the entire Project meets the requirements of KRS
8 278.183 and qualifies for environmental surcharge recovery. As discussed in
9 Section III, part J of the Application, the Project includes the relocation of two
10 138 kV and two 69 kV transmission lines. In order for EKPC to safely and
11 properly remove the coal ash in the Dale Station ash ponds, the route of these
12 transmission lines needs to be relocated on the property. These transmission lines
13 would not need to be relocated, were it not for the Project. EKPC is aware of a
14 previous environmental surcharge compliance plan amendment application where
15 the utility proposed and the Commission permitted the recovery of the cost of
16 relocated transmission lines in the utility's environmental surcharge.⁶

⁴ Case No. 2010-00083, *Application of East Kentucky Power Cooperative, Inc. for Approval of an Amendment to Its Environmental Compliance Plan and Environmental Surcharge* (Ky. PSC September 24, 2010).

⁵ Case No. 2013-00253, *Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity for Alteration of Certain Equipment at the Cooper Station and Approval of a Compliance Plan Amendment for Environmental Surcharge Cost Recovery* (Ky. PSC February 20, 2014).

⁶ See Case No. 2009-00197, *Application of Kentucky Utilities Company for Certificates of Public Convenience and Necessity and Approval of Its 2009 Compliance Plan for Recovery by Environmental Surcharge* (Ky. PSC December 23, 2009). Kentucky Utilities Company's ("KU") proposed 2009 environmental compliance plan contained six projects which included a proposal to construct a new landfill at its Ghent Station. KU sought a Certificate of Public Convenience and Necessity ("CPCN") for the Ghent landfill project. The project required the acquisition of land and the relocation of existing transmission lines. In its Order, the Commission granted a CPCN for the Ghent landfill project and approved the 2009 environmental compliance plan.

1 **Q. PLEASE DISCUSS THE RETURN EKPC WOULD PROPOSE FOR THE**
2 **PROJECT.**

3 A. The settlement agreement approved in Case No. 2004-00321 provided that
4 EKPC's rate of return would be based on a weighted average cost of debt
5 issuances directly related to the projects in its environmental compliance plan
6 ("average cost of debt") multiplied by a Times Interest Earned Ratio ("TIER")
7 factor. The average cost of debt could be updated to reflect current average debt
8 cost as of the end of each six-month environmental surcharge review period.
9 EKPC is proposing that this approach be continued. If the Commission grants the
10 requested Certificate of Public Convenience and Necessity ("CPCN") for the
11 Project and approves EKPC's request to amend its environmental compliance
12 plan to include the Project, EKPC would propose that the return authorized for the
13 other projects in the amended environmental compliance plan be applied to the
14 Project. EKPC is not seeking a separate or distinct return on the Project.

15 As noted previously, the Project is to be financed using the remaining proceeds
16 from the 2014A Private Placement. Assuming the Commission grants the CPCN
17 and approves the amendment to its environmental compliance plan, EKPC would
18 include the fixed interest rate from the 2014A Private Placement in the
19 determination of the average cost of debt provided in the first six-month
20 environmental surcharge review proceeding initiated after the approvals.

21 **Q. USING THE APPROACH YOU HAVE JUST DESCRIBED AND BASED**
22 **ON TODAY'S CONDITIONS, IF THE CPCN HAD BEEN GRANTED AND**
23 **THE PROJECT HAD BEEN APPROVED FOR INCLUSION IN EKPC'S**

1 **ENVIRONMENTAL COMPLIANCE PLAN, WHAT RETURN WOULD**
2 **EKPC BE PROPOSING FOR THE PROJECT?**

3 A. EKPC would propose that the return authorized for the other projects in its
4 amended environmental compliance plan be applied to the Project. The return is
5 composed of a Times Interest Earned Ratio (“TIER”) component and an average
6 cost of debt component. EKPC would propose that the TIER component of the
7 return on the Project be based on a 1.50 TIER, which the Commission approved
8 in Case No. 2011-00032.⁷ EKPC would propose that the average cost of debt
9 component be 4.042%; this figure reflects the average cost of debt as of
10 November 30, 2013, and is consistent with the average cost of debt proposed in
11 EKPC’s most current six-month environmental surcharge review case, Case No.
12 2014-00051.⁸ Using a TIER of 1.50 and an average cost of debt of 4.042% would
13 result in a rate of return of 6.063%.

14 **Q. PLEASE DISCUSS HOW THE SPECIAL WASTE LANDFILL CELL**
15 **COMPONENT OF THE PROJECT WOULD BE REFLECTED IN EKPC’S**
16 **ENVIRONMENTAL SURCHARGE MECHANISM.**

17 A. The Project is made up of two specific components: the investment to construct
18 the Special Waste Landfill cell at the Smith Station and the costs incurred to
19 remove and transfer the ash from the Dale Station to the Special Waste Landfill
20 cell at the Smith Station, and reclaim the site at Dale Station. During the

⁷ Case No. 2011-00032, *An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of East Kentucky Power Cooperative, Inc. for the Six-Month Billing Period Ending December 31, 2010; and the Pass-Through Mechanism for Its Sixteen Member Distribution Cooperatives* (Ky. PSC August 2, 2011).

⁸ Case No. 2014-00051, *An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of East Kentucky Power Cooperative, Inc. for the Six-Month Billing Period Ending December 31, 2013 and the Pass-Through Mechanism for Its Sixteen Member Distribution Cooperatives*.

1 construction phase of the Special Waste Landfill cell, EKPC is proposing that it
2 be permitted to earn a return on the monthly Construction Work in Progress
3 (“CWIP”) balance. This request is consistent with the treatment approved in Case
4 No. 2008-00115. Upon completion of the Special Waste Landfill cell, EKPC is
5 proposing that it be permitted to begin recovery of amortization, return, insurance
6 expense, taxes, and operation and maintenance expenses associated with the
7 Special Waste Landfill cell.

8 **Q. PLEASE DISCUSS HOW THE COSTS TO TRANSFER THE ASH**
9 **WOULD BE REFLECTED IN EKPC’S ENVIRONMENTAL**
10 **SURCHARGE MECHANISM.**

11 A. The majority of the Project costs are related to the removal and transfer of the ash
12 from the Dale Station to the new Special Waste Landfill cell at the Smith Station.⁹
13 As these costs are associated with the retirement of the Dale Station, the usual
14 accounting treatment for these costs would be to record the costs on retirement
15 work orders and accumulate the costs in Account No. 108.8 – Retirement Work in
16 Progress. EKPC believes these costs are eligible for recovery through the
17 surcharge, and proposes that it be permitted to treat these accumulated retirement
18 costs as a capital expenditure for environmental surcharge purposes. The
19 accumulated retirement costs would earn a return on the monthly balance, similar
20 to the CWIP treatment for the Special Waste Landfill cell. Once the transfer of
21 the ash to the Special Waste Landfill cell was completed, currently expected in
22 late 2017, EKPC is proposing that it be permitted to begin recovery of

⁹ The detailed cost estimates for the Project contained in Table 7-1 of Exhibit ET-1 to the Direct Testimony of Ed Tohill referred to the ash removal and transfer costs as “capital costs”.

1 amortization and a return on the unamortized balance of the accumulated
2 retirement costs.

3 **Q. HAS EKPC RECORDED AN ASSET RETIREMENT OBLIGATION ON**
4 **ITS BOOKS FOR THE DALE STATION ASH POND RETIREMENT?**

5 A. Yes. EKPC previously had recorded Asset Retirement Obligations (“AROs”)
6 related to asbestos abatement at its coal-fired plants. During 2013, EKPC
7 increased its ARO liability for legal obligations associated with ash ponds and the
8 reclamation and capping of ash disposal sites at its coal-fired facilities. The Dale
9 Station ash ponds were part of the 2013 addition. In the near future EKPC
10 anticipates it will file an application with the Commission seeking authorization
11 to establish regulatory assets to recognize the impact of ARO asset depreciation
12 expense and ARO liability accretion expense for all AROs as of December 31,
13 2013.

14 **Q, PLEASE DISCUSS THE AMORTIZATION OF THE PROJECT COSTS**
15 **AND HOW THE AMORTIZATION WOULD BE REFLECTED IN**
16 **EKPC’S ENVIRONMENTAL SURCHARGE MECHANISM.**

17 A. EKPC is proposing to amortize the investment in the Special Waste Landfill cell
18 and the accumulated retirement ash transfer costs each over a 10-year period. For
19 the investment in the Special Waste Landfill cell, it is difficult to determine a
20 reasonable time period over which to recover the investment, as the potential
21 service life for such construction is expected to be several decades. For the
22 accumulated retirement ash transfer costs, while the resolution of the permanent
23 disposal of the Dale Station ash benefits future periods, it is difficult to determine

1 exactly how long that benefit exists. Since there are no specific time periods on
2 which to base the investment and capital expenditure recoveries, it is reasonable
3 to consider the effect the proposed amortization period would have on the
4 surcharge factor billed to Member Cooperatives and eventually retail customers.
5 EKPC believes that an amortization period of 10 years represents a reasonable
6 balance between itself, its Member Cooperatives, and the retail customers.

7 It is currently assumed that the Special Waste Landfill cell construction will be
8 completed and some ash hauling will begin in late summer or early fall of 2015,
9 while the transfer of ash from the Dale Station will be completed in late 2017.¹⁰

10 EKPC proposes that upon the completion of the construction of the Special Waste
11 Landfill cell, the 10-year amortization should begin. For the accumulated
12 retirement ash transfer costs, EKPC proposes that the 10-year amortization begin
13 with the December 2017 expense month based on the total accumulated balance
14 of retirement ash transfer costs.

15 **Q. WILL ANY REVISIONS TO THE MONTHLY ENVIRONMENTAL**
16 **SURCHARGE REPORTING FORMS BE NECESSARY?**

17 A. Yes. The proposed revisions to the monthly reporting formats are shown in
18 Exhibit ISS-2. EKPC believes that two revisions will be needed to the monthly
19 environmental surcharge reporting formats. First, Form 2.1 – Plant, CWIP,
20 Depreciation, Taxes and Insurance Expenses will need to be revised to include
21 Project 15 – Smith Special Waste Landfill. The accumulated amortization and
22 monthly amortization expense would be recorded in the columns for accumulated

¹⁰ See Exhibit ET-1 of the Direct Testimony of Ed Tohill, page 6-1.

1 depreciation and depreciation expense. Second, Form 2.5 – Operating and
2 Maintenance Expenses will need to be revised to include the appropriate
3 operation and maintenance expense account related to the Project. Based on its
4 review of the Rural Utilities Service Uniform System of Accounts, EKPC
5 believes the operation and maintenance expenses anticipated for the Project
6 should be recorded in Account No. 506 – Miscellaneous Steam Power Expenses.
7 A specific subaccount will be established to track the operation and maintenance
8 expenses for the Project. The subaccount will be further identified as being
9 associated with the Special Waste Landfill cell. As the operation and
10 maintenance expenses are related to the Special Waste Landfill cell, EKPC
11 expects that these expenses will be reflected in the surcharge filings after the
12 construction of the Special Waste Landfill cell is completed and ash is being
13 received there.

14 **Q. WILL INCLUSION OF THE PROJECT IN EKPC'S APPROVED**
15 **ENVIRONMENTAL SURCHARGE COMPLIANCE PLAN REQUIRE**
16 **ANY REVISIONS TO EKPC'S RATE ES-ENVIRONMENTAL**
17 **SURCHARGE?**

18 A. No.

19 **Q. WILL THE PROJECT RESULT IN ANY RETIREMENTS OR**
20 **REPLACEMENTS OF EXISTING UTILITY PLANT?**

21 A. Yes. The Project when completed will result in virtually all of the coal ash stored
22 in the ash ponds at the Dale Station being removed to the Smith Station. The
23 Project will result in the retirement of the Dale Station ash ponds. The Project

1 also includes the relocation of portions of four existing transmission lines, which
2 represents a replacement of those portions of the transmission lines.

3 **Q. WILL THE RETIREMENT OF THE DALE STATION ASH PONDS AND**
4 **THE REPLACEMENT OF A PORTION OF THE TRANSMISSION LINES**
5 **RESULT IN AN AMOUNT TO BE RECOGNIZED IN THE BESF**
6 **COMPONENT OF THE SURCHARGE MECHANISM?**

7 A. The Dale Station ash ponds and the relocated portion of the four transmission
8 lines would currently be recovered through existing EKPC base rates, so the
9 possibility exists that a BESF component would be necessary. EKPC has
10 reviewed its accounting records and determined an original cost of \$526,871 for
11 the Dale Station ash ponds and the portion of the transmission lines being
12 relocated. The accounting records indicate that the Dale Station ash ponds are
13 fully depreciated while the transmission line portions are not fully depreciated.
14 Consequently, there would be corresponding depreciation expense and property
15 taxes associated with the transmission lines. EKPC was not able to identify any
16 operating or maintenance expense associated with the Dale Station ash ponds or
17 the relocated transmission lines. The only remaining expense would be property
18 insurance.

19 Exhibit ISS-3 is a calculation of the possible BESF component based on the
20 accounting information. EKPC believes that the resulting BESF of 0.002059% is
21 immaterial and proposes that no BESF be recognized in the environmental
22 surcharge mechanism as a result of the Project.

1 **Q. PLEASE DESCRIBE HOW THE INCLUSION OF THE PROJECT IN**
2 **EKPC'S ENVIRONMENTAL SURCHARGE WILL IMPACT THE BILLS**
3 **OF EKPC'S WHOLESALE AND RETAIL CUSTOMERS.**

4 A. Once the Project becomes operational, EKPC estimates that the annual revenue
5 requirement impact would be \$4.7 million. This estimated annual revenue
6 requirement translates into an increase of approximately 0.53% in the
7 environmental surcharge for all customer classes at wholesale and would be
8 passed through as an approximate 0.38% retail increase. The estimated increase
9 on an average residential customer's monthly bill would be approximately \$0.34.
10 Exhibit ISS-4 shows the determination of these impacts.

11 **Q. DID EKPC PROVIDE ADVANCED NOTICE OF ITS INTENT TO FILE**
12 **AN APPLICATION TO AMEND ITS ENVIRONMENTAL COMPLIANCE**
13 **PLAN AND ENVIRONMENTAL SURCHARGE?**

14 A. Yes. Pursuant to KRS 278.183(2), EKPC has given thirty (30) days' advanced
15 notice of its intent to file its Application to Amend its Environmental Compliance
16 Plan and Environmental Surcharge. On July 11, 2014, EKPC provided such
17 notice to the Commission, a copy of which is attached as Exhibit 5 to the
18 Application submitted by EKPC in this matter. EKPC has also provided notice to
19 its member distribution cooperatives on August 27, 2014, which notice is attached
20 as Exhibit 6 to the Application submitted by EKPC in this matter.

21 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

22 A. I have described how EKPC plans to finance the Project utilizing the 2014A
23 Private Placement. Based on my understanding of KRS 278.183, I believe the

1 costs of the Project are eligible for and should be recovered through the
2 environmental surcharge. I am requesting that during construction, EKPC be
3 allowed to earn a return on the appropriate balance of CWIP for the Special Waste
4 Landfill cell and the accumulated retirement ash transfer costs. I am also
5 requesting that the rate of return utilized to determine that return be the rate of
6 return established for EKPC's other environmental compliance plan projects. I
7 believe it has been shown there is no need to recognize a BESF component in
8 EKPC's surcharge mechanism as a result of the Project. I have described the
9 impact the Project would have on retail residential customers' bills. I recommend
10 that the Commission approve EKPC's request to amend its compliance plan to
11 include the Project and include the Project for recovery through the surcharge
12 mechanism.

13 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

14 A. Yes.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In re the Matter of:

AN APPLICATION OF EAST KENTUCKY)
POWER COOPERATIVE, INC. FOR A)
CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR CONSTRUCTION OF AN)
ASH LANDFILL AT J. K. SMITH STATION TO)
RECEIVE IMPOUNDED ASH FROM WILLIAM)
C. DALE STATION, AND FOR APPROVAL OF A)
COMPLIANCE PLAN AMENDMENT FOR)
ENVIRONMENTAL SURCHARGE RECOVERY)

CASE NO.
2014-00252

AFFIDAVIT

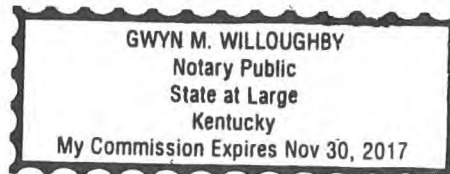
STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Isaac S. Scott, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

Isaac S. Scott

Subscribed and sworn before me on this 8th day of September, 2014.

Gwyn M. Willoughby #370144
Notary Public



**EAST KENTUCKY POWER COOPERATIVE, INC
ENVIRONMENTAL COMPLIANCE PLAN
PURSUANT TO ENVIRONMENTAL SURCHARGE LAW**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Project	Pollutant or Waste/By-Product To be Controlled	Control Facility	Generating Station	Environmental Regulation	Environmental Permit	Actual or Scheduled Completion	Actual (A) or Estimated (E) Project Cost
1.	Fly Ash/Particulate NOx & SO2	Boiler SNCR Baghouse Flash Dry Absorber	Gilbert	401 KAR Ch. 45 CAAA Sec.404 40 CFR Part 72 401 KAR 50:035 CAAA Sec.407 40 CFR Part 76	081-0005 V-97-050 Rev. 1	2005	\$69.6 M (A)
2.	Particulate	Precipitator	Spurlock 1	401 KAR 61:015	V-95-050 (Revision 1)	2003	\$24.3 (A)
3.	NOx	SCR	Spurlock 1	CAAA Sec. 407 40 CFR Part 76	V-97-050	2003	\$84.4 M (A)
4.	NOx	SCR	Spurlock 2	CAAA Sec. 407 40 CFR Part 76	V-97-050	2002 Fall 2007 & Spring 2008	\$47.2 (A)
5.	NOx	Low NOx Burner	Dale	CAN:06-cv-00211 40 CFR Part 76.7 Title IV-A, 42 USC 7651-7651o, Sect 502, 401KAR51:160	V-04-038	Fall 2007	\$2.0 M (A)
6.	NOx	NOx Reduction Equipment	Spurlock 1	40 CFR Part 76.7 CAN 04-34-KSF	V-06-007	Spring 2009	\$3.09 M (A)
7.	SO2	Scrubber	Spurlock 2	CAN 04-34-KSF CAAA Sec 405	V-97-050 Rev. 1	Oct. 2008	\$194.1 M (A)
		Switchyard Improvements				In Svce	\$8.398 M (A)
		Isolation Valve	Spurlock 2 Scrubber	40CFR Part 76.7 CAN 04-34-KSF CAAA Sec 405 CAAA Sec 404	V-06-007, Rev 2	Fall 2010	\$787,793 (A)
8.	SO2	Scrubber	Spurlock 1	CAN 04-34-KSF CAAA Sec 404	V-97-050 Rev. 1	Spring 2009	\$145.8 M (A)
		Switchyard Improvements				In Svce	\$1.26 M (A)
		Isolation Valve	Spurlock 1 Scrubber	40CFR Part 76.7 CAN 04-34-KSF CAAA Sec 405 CAAA Sec 404	V-06-007, Rev 2	Spring 2011	\$677,992 (A)
9.	Fly Ash/Particulate NOx & SO2	Boiler SNCR Baghouse Flash Dry Absorber	Spurlock 4	401 KAR Ch. 45 CAAA Sec.404 40 CFR Part 72 401 KAR 50:035 CAAA Sec.407 40 CFR Part 76	V-06-007	April 2009	\$84.8 M (A)
		Ash Silos	Spurlock 4	401 KAR 63:010	V-06-007	Summer 2010	\$11.7 M (A)

**EAST KENTUCKY POWER COOPERATIVE, INC
ENVIRONMENTAL COMPLIANCE PLAN
PURSUANT TO ENVIRONMENTAL SURCHARGE LAW**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Project	Pollutant or Waste/By-Product To be Controlled	Control Facility	Generating Station	Environmental Regulation	Environmental Permit	Actual or Scheduled Completion	Actual (A) or Estimated (E) Project Cost
10.	PM & Mercury CEMS	Stack Emissions Monitoring	Spurlock Dale Cooper	40 CFR Part 60 App. B, PS 11, & App. F Proced. 2. CD para 97-102. 40 CFR 75	CAN 04-34-KSF	Spring 2010	\$2.9 M (A)
11	NOx and SO2, Particulate Matter	Air Quality Control System	Cooper 2	Consent Decree CAN 04-34-KSF KY BART SIP	V-05-082 R1	Summer 2012	\$222 M (A)
12	Coal Combustion by products (CCB)	Landfill Area C Expansion and Sediment Pond Construction	Spurlock 1, 2, 4, Gilbert; Spur 1, 2 Scrubbers	Clean Water Act (CWA) Section 404	KPDES No. KY0022250	Fall 2010	\$6.5 M (E)
13	SOx, H2SO4, Mercury	Replacement of Retired Ductwork	Spurlock Unit #2	CFR Title 40, Part 51 CFR Title 40, Part 52 (New Source Review)	V-06-007	Spring 2010	\$2.8 M (A)
14	NOx and SO2, Particulate Matter	Ductwork to Connect to Existing Air Quality Control System	Cooper 1	Mercury Air Toxics Rule, 40 CFR Parts 60 & 63 EPA BART & KY BART SIP, 40 CFR Parts 51 & 52	V-05-082R1	Summer 2016	\$15 M (E)
15	Coal Combustion by products (CCB)	Ash Special Waste Landfill Construction	Smith	Regulations proposed at 75 Fed. Reg. 35128 (June 21, 2010) that are anticipated to be finalized in 40 CFR Parts 257, 261, 264, 265, 268, 271, and 302; 401 KAR 45; 401 KAR 5:055; 401 KAR 63:010	USACE Individual 404 Permit # LRL-2012-455-mdh; KY Division of Water (KDOW) KPDES Permit # KY0055972; KDOW 401 Water Quality Certification # 2012-049-7R; KY Division of Waste Permit # 025 00022	Nov. 2017	\$27 M (E)

East Kentucky Power Cooperative, Inc.
Environmental Surcharge Report
Plant, CWIP, Depreciation, & Taxes and Insurance Expenses

Form 2.1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Project No.	Description	Eligible Gross Plant in Service	Eligible Accumulated Depreciation	CWIP Amount Net of AFUDC	Eligible Net Plant in Service (2)-(3)=(5)	Monthly Depreciation Expense	Monthly Tax Expense	Monthly Insurance Expense
1	Gilbert							
2	Spurlock 1 - Precipitator							
3	Spurlock 1 - SCR							
4	Spurlock 2 - SCR							
5	Dale 1 & 2 - Low NOx Burners							
6	Spurlock 1 - Low NOx Burners							
7	Spurlock 2 - Scrubber							
8	Spurlock 1 - Scrubber							
9	Spurlock 4							
10	Spurlock, Cooper & Dale - Continuous Monitoring Equipment							
11	Cooper 2 - Air Quality Control System							
12	Spurlock - Landfill Area C Expansion							
13	Spurlock 2 - Replace Ductwork							
14	Cooper 1 - Ductwork							
15	Smith Special Waste Landfill							
	Total							

East Kentucky Power Cooperative, Inc.
Environmental Surcharge
Operating and Maintenance Expenses
For the Expense Month Ending _____

Expense Type	Acct No.		Account Description	Amount
I Ash Handling	501010	CPXX	Fuel Coal Cooper (Unit # 2 AQCS)	xx
	501010	SP03	Fuel Coal Gilbert	xx
	501010	SP04	Fuel Coal Spurlock 4	xx
II Operating Expense - Ammonia & Limestone	506001	CO00	Misc Steam Power Expense - Cooper	xx
	506001	COXX	Misc Steam Power Expense - Cooper Unit # 2 AQCS	xx
	506001	DA00	Misc Steam Power Expense - Dale	xx
	506001	SP01	Misc Steam Power Expense - Spurlock 1	xx
	506001	SP02	Misc Steam Power Expense - Spurlock 2	xx
	506001	SP03	Misc Steam Power Expense - Gilbert	xx
	506001	SP04	Misc Steam Power Expense - Spurlock 4	xx
	506001	SP21	Misc Steam Power Expense - Spurlock 1	xx
	506001	SP22	Misc Steam Power Expense - Spurlock 2	xx
III Air Permit Fees	506002	CP00	Misc Steam Power Environmental Cooper	xx
	506002	DA00	Misc Steam Power Environmental Dale	xx
	506002	SP00	Misc Steam Power Environmental Spurlock	xx
IV Maintenance	512000	CPXX	Maintenance of Cooper Unit # 1 Ductwork	xx
	512000	CPXX	Maintenance of Cooper Unit # 2 AQCS	xx
	512000	SP01	Maintenance of Boiler Plant Spurlock 1	xx
	512000	SP02	Maintenance of Boiler Plant Spurlock 2	xx
	512000	SP03	Maintenance of Boiler Plant Gilbert	xx
	512000	SP04	Maintenance of Boiler Plant Spurlock 4	xx
	512000	SP21	Maintenance of Boiler Plant Scrubber 1	xx
	512000	SP22	Maintenance of Boiler Plant Scrubber 2	xx
V Other	50600X	XXXX	Misc Steam Power Special Waste Landfill Cell	xx
Total				\$ XX

**Determination of BESF
Retirements and Replacements Associated with the
Smith Special Waste Landfill**

Expenses

1. Depreciation Expense	\$5,333	Transmission lines only
2. Operation & Maintenance	\$0	No O&M specifically associated with the plant components to be retired or replaced.
3. Property Tax and Insurance	<u>\$443</u>	Property tax on transmission lines only; property insurance determined by applying applicable premium to original book cost of assets.
4. Total Expenses	<u>\$5,776</u>	

Return on Rate Base

5. Rate Base		
Original Book Cost	\$526,871	
Less Accumulated Depreciation	<u>\$374,828</u>	
Subtotal	\$152,043	
Plus Cash Working Capital	<u>\$0</u>	1/8 of O&M, line 2
Total Rate Base	<u>\$152,043</u>	
7. Apply rate of return to Rate Base	6.786%	Authorized in Case No. 2011-00032.
8. Return on Rate Base	<u>\$10,318</u>	
9. Total Revenue Requirement:		
Total Expenses	\$5,776	
Return on Rate Base	<u>\$10,318</u>	
Total Revenue Requirement	<u>\$16,094</u>	

Determination of Member System Allocation Percentage

Revenues from December 2011 Environmental Surcharge filing; last month of forecasted test year of last rate case.

10. Member System Revenues	\$754,300,857	96.50%
Off System Sales Revenues	<u>\$27,324,301</u>	3.50%
Total Revenues	<u>\$781,625,158</u>	<u>100.00%</u>
11. Total Revenue Requirement	\$16,094	
Member System Allocation Percentage	<u>96.50%</u>	
Jurisdictional Revenue Requirement	<u>\$15,531</u>	

Calculation of BESF Related to Smith Special Waste Landfill

12. Jurisdictional Revenue Requirement	\$15,531	
13. Member System Revenues	\$754,300,857	December 2011 Filing, Form 3.0; excludes Environmental Surcharge Revenues
BESF [Line 12 divided by Line 13]	<u>0.002059%</u>	

Based on the above calculation, EKPC believes the calculated BESF is immaterial and proposes that no BESF should be recognized in EKPC's environmental surcharge mechanism as a result of the Smith Special Waste Landfill.

**EAST KENTUCKY POWER COOPERATIVE
ESTIMATED COST RECOVERY IMPACT OF
SMITH SPECIAL WASTE LANDFILL**

Estimated Annual Revenue Requirements

Capital Costs	\$26,962,000	Estimated Capital Cost
Fixed Charge Rate	<u>17.318%</u>	
Estimated Annual Revenue Requirements	<u>\$4,669,279</u>	

Derivation of Fixed Charge Rate

	<u>Average Factor</u>	
Interest	4.042%	Proposed in Case No. 2014-00051
TIER (Based on 1.50)	2.021%	
Amortization	10.000%	
Property Taxes	1.034%	
Property Insurance	<u>0.124%</u>	
Subtotal	17.221%	
Total O&M	<u>0.097%</u>	
Total Fixed Charge Rate	<u>17.318%</u>	

**EAST KENTUCKY POWER COOPERATIVE, INC.
ESTIMATED IMPACT ON RESIDENTIAL RATES**

Estimated Annual Revenue Requirements

Capital Costs	\$26,962,000
Fixed Charge Rate	17.318%
Estimated Annual Revenue Requirements	<u>\$4,669,279</u>

Revenue Information as of December 31, 2013 Billings

Rate Schedule	Total Revenues	Base Rate and FAC Revenues	Environmental Surcharge	Allocation Percentage	Allocated Annual Revenue Require.
Rate E	\$708,346,262	\$613,789,467	\$94,556,795	80.565%	\$3,761,805
Rate B	\$61,667,636	\$53,441,795	\$8,225,841	7.014%	\$327,503
Rate C	\$22,269,638	\$19,294,942	\$2,974,696	2.533%	\$118,273
Rate G	\$23,819,270	\$20,622,636	\$3,196,634	2.707%	\$126,397
Inland Steam	\$13,618,254	\$11,774,749	\$1,843,505	1.546%	\$72,187
Gallatin	\$48,359,118	\$41,972,895	\$6,386,223	5.509%	\$257,231
Tenn Gas Pipeline	\$1,093,342	\$957,853	\$135,489	0.126%	\$5,883
Totals	<u>\$879,173,520</u>	<u>\$761,854,337</u>	<u>\$117,319,183</u>	100.000%	<u>\$4,669,279</u>

Note: Allocation Percentage is calculated off of Base Rate and FAC Revenues; Green Power is excluded.

Percentage Increase at Wholesale

Total Estimated Annual Revenue Requirement	\$4,669,279
Total Revenues as of December 31, 2012	\$879,173,520
Percentage Increase at Wholesale	0.53%

Percentage Increase at Retail

Based on historical billing information, the retail Environmental Surcharge has been approximately 72% of the wholesale Environmental Surcharge.

Percentage Increase at Wholesale	0.53%
Historic relationship between retail and wholesale	72.00%
Percentage Increase at Retail	0.38%

Impact on Average Residential Bill at Retail

Allocated Annual Revenue Requirement - Rate E	\$3,761,805
2013 billed kWh Sales - Rate E	9,659,751,000 kWh
Wholesale Rate E Revenue Requirement per kWh	\$0.00039
Average Residential Bill in kWh	1,200 kWh
Impact on Average Residential Bill at Wholesale	\$0.468
Historic relationship between retail and wholesale	72.00%
Impact on Average Residential Bill at Retail	\$0.34