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March 26, 2015

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Kentucky Department of Environmental Protection
200 Fair Oaks, 2nd Floor
Frankfort, KY 40601

**Subject: Response to August 15, 2014 Technical NOD No. 2
Kentucky Power Co. – Big Sandy Power Plant**

Dear Mr. Hattong:

Kentucky Power (KY Power) received your letter, dated August 15, 2014, regarding the Technical Notice of Deficiency (NOD) No. 2 for the Big Sandy Plant's Fly Ash Pond Closure Permit Application. Listed below are the comments that were included in your letter, each followed by a response prepared by KY Power. Revised portions of the permit application are attached to this letter as Attachments A through K.

COMMENT 1

The reports provided in Attachments 16, 18, and 30 states that the fly ash pond is 130 acres instead of 140 acres.

KY Power Response: The source of the discrepancy as to the area of the fly ash pond (i.e. the normal water level) is that the existing pond is approximately 130 acres in size. The proposed cap system, however, is expanded to cover approximately 140 acres as the additional fill is added to generate positive grade. This extends the cap system beyond the current pond normal water level. The 130 acres referenced in these attachments are technically correct as they are strictly referring to the existing wet ash impoundment. Furthermore, Attachments 16 and 18 are documents previously provided to other agencies for review. To avoid confusion with documents provided to other agencies and because 130 acres is the actual size of the existing impoundment prior to closure, Attachment 16 and 18 have not been updated.

COMMENT 2

Additional information provided to DWM indicates coal combustion by-products (waste) will only be generated and placed into the unit for approximately one year. Pursuant to 401 KAR 45:110, Section 5(1), please provide a general timeline which includes closure activities and propose the date waste disposal will cease. Update the application accordingly.

KY Power Response:

It is projected that coal combustion residuals (CCRs) will cease to be generated by the Big Sandy Power Plant on or before February 1, 2016. At that time the remaining generating unit will undergo a conversion from coal fired to natural gas fired generation. The following high level timeline is provided for your reference:

Big Sandy Power Plant Conversion / Pond Closure Timeline

- On or about June 1, 2015, Big Sandy Unit 2 will cease operations
- On or before February 1, 2016, Big Sandy Unit 1 will cease operations and begin a conversion from coal fired to natural gas fired power generation. CCRs will no longer be produced after this date. Precipitator drains and line flushing will be necessary for a short time following plant shut down.
- On or about April 1, 2016, Closure of the Big Sandy Fly Ash Pond will commence.
- On or about June 1, 2016, Big Sandy Unit 1 will resume operations as a natural gas fired generating unit.
- On or about November 30, 2020, Closure of the Big Sandy Fly Ash Pond will be complete.

As discussed at the meeting between KY Power and KDEP on October 14, 2014, KY Power designed the fly ash pond closure based upon the estimated volumes of CCRs that are expected to be generated by the plant under this timeline. Although some variation in CCR material production is anticipated, this variation is anticipated to be relatively small in magnitude and adjustments to the design based on the actual CCR production is expected to be minor.

COMMENT 3

Due to settlement, the concrete chute may incur cracking and thus allow infiltration into the waste. Provide a discussion detailing the maintenance and inspections activities in order to prevent infiltration and sustain the integrity of the cap.

KY Power Response: As discussed at the meeting with KDEP on October 27, 2014 between KDEP Solid Waste, AEP/KY Power, and URS, the center channel will be grass lined instead of a concrete channel and is graded to be a 0.5% grade. The relatively shallow grade was utilized to reduce the amount of grading fill required to complete closure. With the drainage length being approximately 8,000 linear feet, approximately 80 feet of fall would be needed to achieve a 1% grade. In addition, achieving a 1% grade would require significantly increased stream, wetland, and bat habitat impacts due to the increased limits of the cap system and the increase in the size of the borrow area.

Due to the nature of the fly ash material, settlement is not anticipated to cause any significant concerns with respect to ponding water. Differential settlement is predicted to be minimal as demonstrated in the calculations provided in Attachment 46. In addition, an analysis of the anticipated rate of settlement shows that the majority of the consolidation will occur within 9 months of the placement of the fill. A significant portion of the consolidation will happen during initial construction. Based on recommendations from the geotechnical engineers, KY Power will also modify the construction schedule to further reduce the concerns with settlement by placing the fill during the construction season and allowing consolidation to occur during the winter/spring period prior to cap system installation. Any localized settlement of the fill material placed at the prior construction will be repaired prior to cap system installation.

An analysis of time rate of settlement for the fly ash pond is attached as Attachment A and can be inserted into Attachment 46 of the Permit Application. In addition, Kentucky Power has elected to utilize the geomembrane cap system throughout the closure area. This will further limit the infiltration due to localized ponding by preventing surface water from entering the underlying ash material. Revised drawings which replace those in Attachment 20 are attached to this response letter as Attachment B.

The existing Post Closure Plan (Attachment 48) already identifies the procedures for inspecting, identifying, and repairing areas of localized ponding on the cap system.

COMMENT 4

The deed notice required in the Closure Construction Progress Report, shall caution against future disturbance of the area. Since the mineral rights will revert to the previous property owners (or their heirs) in 2023, the deed notice shall include an advisory regarding any future mining activities.

KY Power Response: To clarify, the mineral rights currently belong to the previous property owners (heirs of William and Sylvia Thompson) and will revert back to the current landowners, KY Power, in 2023. The requirement to place a notice in deed to property has already been noted in Section 4 of Attachment 47 – Closure Plan. No changes are required as a response to this deficiency.

KY Power will record a notice that shall, in perpetuity, notify any potential purchaser of the property of the location and time of the operation of the facility, the nature of the waste placed in the site, and a caution against future disturbance of the area. A copy of the deed updated with the required notice will be included as part of the closure certification document.

COMMENT 5

DWM is unable to grant a variance to the Public Information Procedures found in the narrative for Attachment 6. Public Notices are required with the potential for a Public Hearing. Please remove this variance request from Attachment 6.

KY Power Response: The request has been removed from Attachment 6. A revised Attachment 6 is provided as Attachment C to this response letter.

COMMENT 6

In response to NOD #1, deficiency 6 states that a survey was complete in May 2014 and a report with the findings from that survey was submitted to the Kentucky Heritage Council (KHC). Please update the narrative in Attachment 16 to include this information. The narrative should also state that, once concurrence from KHC is received, DWM will receive a copy.

KY Power Response: Updated narratives and requested information for Attachments 5 and 16 are attached to this response letter as Attachment D and E.

COMMENT 7

Since the proposed plan to close the ash pond includes new borrow areas, please provide current correspondence with U.S. Fish and Wildlife Services (USFWS), Kentucky Fish and Wildlife Services, and Kentucky Nature Preserves Commission. In your request to these agencies, include a map that shows not only the current disposal areas but also any undisturbed areas, such as proposed borrow areas and spillways. Update the narrative in Attachment 17 as appropriate.

KY Power Response: Updated narratives and correspondence for Attachments 5 and 17 are attached to this response letter as Attachment D and F. As part of ongoing correspondence, KY Power will address any necessary mitigation for protected species in project areas, including borrow areas and spillways.

COMMENT 8

Please update the narrative to state that once the USACE provides a determination, Kentucky Power will submit the information to KYDEP as soon as it becomes available.

KY Power Response: The jurisdictional determination was received by KY Power on September 8, 2014, and is now included in Attachment 18 – Wetland Survey and Determination. The jurisdictional determination is attached as Attachment G to this response letter. Correspondingly, the 401/404 permit applications were submitted to the Lawrence County Floodplain Coordinator and USACE, respectively, in March and February, 2015. Once confirmation is received from the floodplain coordinator, the completed 401 package will be forwarded to KYDEP. The cover letters for the applications are included in Attachment G and the final 401/404 permits will be incorporated into Attachment 18 and submitted to the KDEP when issued by each agency.

COMMENT 9

Given waste will only be produced and disposed of for a short time, the amount generated is likely less than previously estimated and should be this time fairly predictable. Provide updated plan sheets that provide revised final grades. In addition, update other attachments as necessary.

KY Power Response: As discussed at the meeting between KY Power and KDEP on October 14, 2014, KY Power has provided the anticipated timeline for the operation of the Big Sandy Power Station and the generation of ash materials. The timeline is provided in the Comment 2 response.

COMMENT 10

The concrete chute functioning as a surface water control should have a minimum slope of 1% in order to facilitate surface water management. Please update all attachments as necessary.

KY Power Response: As discussed in the response to Comment #3 and in our meeting on October 27, 2014, the site was designed to have a minimum channel slope of 0.5%. Channels over fly ash (waste) are grass lined. The proposed concrete channels/chutes depicted in the drawings are located over earthen fill or native soils at the location of the existing dams. The site will be monitored for signs of ponding due to

settlement and repaired in accordance with the current Post-Closure Plan submitted as Attachment 48 to the Permit Application.

COMMENT 11

Please update the narrative to provide storm water data (24 hour, 100 year storm) for the pre-construction and post-construction impacts to Blaine Creek pursuant to 401 KAR 45:110 Section 1 (8), 401 KAR 45:110 Section 5 (2) (c).

KY Power Response: A simplified pre- and post-construction storm water analysis was performed using publically-available flow information for Blaine Creek for the 100-year storm event and following closure of the fly ash pond, as discussed at the October 14th meeting between KY Power and KDEP. This analysis is attached to this response letter as Attachment H and is to be inserted into Attachment 23 of the permit application.

COMMENT 12

401 KAR 45:110, Section 5 (4) requires the special waste facility be maintained under its post-closure plan for a minimum of five (5) years. In order to start this five (5) year period, a Closure Construction Progress Report (CPR) must be submitted and accepted by DWM. Indicate in the narrative a CPR will be submitted upon completion of closure activities that demonstrates compliance with the approved plans and applicable regulatory requirements, including but not limited to, the requirement to record a deed notice.

KY Power Response: In Section 3.2 of Attachment 47, the narrative discusses the requirement and intent to file the required certification upon completion of construction. As indicated in the Attachment, the certification report (or Construction Progress Report) will be filed with the Cabinet verifying that the closure and post-closure has been completed in accordance with 401 KAR 45:110, Section 5(8). This section has been revised to specifically call out that a Construction Completion Report will be submitted to DWM. The revised portion of Attachment 47 is attached to this response letter as Attachment I.

COMMENT 13

In accordance with 401 KAR 45:140, Section 2, please add Boron to the characterization (baseline) monitoring parameters.

KY Power Response: Boron has been added to Table 2 as a baseline monitoring parameter to Attachment 44. The revised section of Attachment 44 has been attached to this response letter as Attachment J.

COMMENT 14

In accordance with 401 KAR 45:160 Section 2, please add Boron and Calcium to the groundwater (detection) monitoring parameters.

KY Power Response: Boron and Calcium have been added to Table 3 for the groundwater monitoring program. The revised section of Attachment 44 has been added to this response letter as Attachment J.

COMMENT 15

The proposed cap closure cap design should specify the use of a drainage layer for all areas with a slope of less than 15% pursuant to 401 KAR 45:110. Update the application according, i.e. page 3 of 6 in the Closure Cap Risk Analysis Study.

KY Power Response: As discussed with KDEP in the meeting on October 14, 2014, KY Power has elected to install the geomembrane cap system for the entire closure cap area. KY Power will also install the geocomposite drainage layer in areas within 50 feet of the proposed drainage channels. The Attachment 20 revised drawings incorporating this closure cap system scheme are included as Attachment B to this response letter.

COMMENT 16

Recommendation: DWM recommends the use of FML in the cap design across the entire facility. If FML is not used across the entire facility, DWM recommends the use of a minimum of six (6) inches of soil with a maximum permeability of 1×10^{-7} centimeters per second for the clay layer in the cap. Please provide a response to this recommendation.

KY Power Response: KY Power has elected to install the FML cap system across the entire facility, as shown in the revised drawings in Attachment B to this response letter. In addition, a revised CQA Plan (Attachment 41) has been included as Attachment K removing sections applying to the compacted clay layer.

If you have any questions or comments concerning this letter or the attached revision to the alteration request, please do not hesitate to call me at (614) 716-1266.

If you have any questions or comments with respect to the instructions for modifying/replacing permit application documents, please contact Nick Golden (AECOM) at 330-800-2769 or at nick.golden@aecom.com.

Sincerely,



Thomas E. Webb, P.E., P.S.
Director, Land Environment & Remediation Services
American Electric Power – Kentucky Power Co.

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