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FINDING OF NO SIGNIFICANT IMPACT
TENNESSEE VALLEY AUTHORITY
PARADISE CCR MANAGEMENT OPERATIONS
MUHLENBERG COUNTY, KENTUCKY

The Tennessee Valley Authority (TVA) is proposing to implement projects to change the management of Coal Combustion Residuals (CCR) produced at Paradise Fossil Plant (PAF). The purpose of the proposed action is to convert the management of CCR produced at PAF from wet to dry storage. To enable this wet-to-dry storage conversion, TVA proposes to construct and operate a Gypsum Dewatering Facility and a Dry Fly Ash Handling System, close three impoundments, and construct an onsite landfill to manage dry CCR produced at PAF.

The proposed individual projects are needed to support the goal established by the TVA Board of Directors to handle CCR on a dry basis and to eliminate all wet CCR storage at its coal plants by closing CCR impoundments. The project is also needed to comply with present and future regulatory requirements related to CCR production and management as identified in U.S. Environmental Protection Agency's (EPA) Final Disposal of Coal Combustion Residuals from Electric Utilities rule (CCR Rule). TVA has prepared an environmental assessment (EA) for this proposed action, which is incorporated by reference.

Alternatives

TVA evaluated three primary alternatives in the EA: Alternative A – No Action; Alternative B – Construction of an Onsite CCR landfill, Implementation of CCR Dewatering and Handling Projects and Impoundment Closures; and Alternative C – Offsite Disposal of CCR in an Existing Permitted Landfill (Hopkins County Regional Landfill), Implementation of CCR Dewatering and Handling Projects and Impoundment Closures.

Under the No Action Alternative, TVA would continue current plant operations and not construct dewatering facilities to manage CCR produced at PAF. TVA would not close the ash impoundments. Accordingly, TVA would not seek additional disposal options for CCR generated at PAF. Rather, CCR would continue to be managed in the current impoundments for as long as storage capacity is available. As such, the No Action Alternative would not support the goal established by the TVA Board of Directors to eliminate all wet CCR storage at its coal plants, which also fosters TVA's compliance with present and future regulatory requirements related to CCR production and management. The No Action Alternative would not support TVA's plan to continue operating PAF Unit 3 as a base load facility in accordance with the 2015 TVA Integrated Resource Plan. Consequently, this alternative would not satisfy the project purpose and need and, therefore, is not considered viable or reasonable. However, the No Action Alternative provides a baseline for describing the anticipated environmental effects of the proposed action, as required in regulations issued by the Council on Environmental Quality for implementing the National Environmental Policy Act.

Under Alternative B, TVA would conduct a series of actions to manage CCR produced at PAF. Each of these actions are described below.

CCR Dewatering and Handling Projects

In order to manage CCR in a dry form, TVA would construct and operate a Gypsum Dewatering Facility and a Dry Fly Ash Handling and Disposal System at its coal fired electric generating unit, Unit 3. All dewatering equipment would be constructed within a 29.1-acre previously disturbed site located south of Unit 3. Truck scales used by both facilities would be installed at the exit from the site loading area. Construction of the dewatering and handling facilities is expected to take place over a 12- to 24-month period.

The Gypsum Dewatering Facility would be located inside a building built in the 29.1-acre site. Gypsum slurry would be delivered to one of two gypsum slurry storage tanks located adjacent to the building. The tanks would be approximately 50 feet in diameter and 45 feet high. Gypsum would be pumped from the storage tanks to the Gypsum Dewatering Facility where it would be mechanically dewatered using vacuum belt filters. Dewatered gypsum would be conveyed from the facility and stacked in a pile on a concrete storage pad adjacent to the dewatering facility. The maximum height of the storage pile would be 30 feet at full capacity. Discharge waste water from the gypsum dewatering system would initially be routed to new clarifiers for further treatment before being sent to the onsite equalization basins and then ultimately discharged. Effluent quality would be monitored and treated as needed to ensure compliance with Kentucky Pollutant Discharge Elimination System (KPDES) permit limits.

The new Dry Fly Ash Handling and Storage System would pneumatically convey fly ash from Unit 3 to a transfer station within the existing power plant and onto one of two storage/disposal silos located adjacent to the future gypsum dewatering facility. A separate dewatering facility is being designed to manage boiler slag and would be evaluated in a separate NEPA document when the details of that facility are developed. Consequently, boiler slag would be managed on an interim basis by relocating the current Harsco operations approximately 400 feet closer to the plant where slag can be reclaimed from the pumps, stacked and dried. Precipitation runoff from this area would be collected in two man-made ponds located upstream and downstream of Stilling Impoundment 2A. All of these operations would be contained within the existing previously disturbed area encompassing the existing slag impoundments.

Ash Impoundment Closure

Slag Impoundment 2A/2B and Stilling Impoundment 2C, the Gypsum Disposal Area, and the Peabody Ash Impoundment would be closed. The evaluation of environmental effects of closing these impoundments is tiered to the June 2016 Final Programmatic Environmental Impact Statement (PEIS), which analyzed methods for closing impoundments that hold CCR materials at TVA fossil plants. The PEIS programmatically considered all TVA ash impoundment closures and the environmental effects of Closure-in-Place and Closure-by-Removal methods.

Consistent with the programmatic analysis in the PEIS, Closure-By-Removal for the impoundments at PAF was eliminated from detailed consideration as it was determined to be unreasonable given the large volumes of CCR in the impoundments (total volume of CCR in the ash impoundments at PAF exceed 1 million yd³), extended duration of normal removal operations (estimated to range from approximately 8 years to 81 years for the three impoundments), duration of offsite transport activities that would increase environmental emissions related to trucking operations and represent a greater impact to public safety due to potential increases in motor vehicle crashes, and excessive cost. Slag Impoundment 2A/2B and Stilling Impoundment 2C encompass 34.2 acres and lie immediately to the north of the plant. No additional laydown areas to support closure activities are anticipated. Closure activities would begin with dewatering the impoundment to sufficiently remove free liquids. Some CCR in Slag Impoundment 2A/2B would be excavated to achieve the final desired grade. This excavated CCR would be consolidated into the Peabody Ash Impoundment or would be recovered by

Harsco for marketing where feasible. The excavated surface would be covered with a composite geosynthetic liner to meet or exceed applicable permeability requirements, and the impoundment would be converted to lined process water ponds (equalization basins). The equalization basins would treat process water flows prior to discharge through a permitted outfall.

Construction activities associated with the closure of the 232.9-acre Gypsum Disposal Area would entail dewatering, re-grading of the CCR impoundment, and disturbance of a 5-acre laydown area. CCR material would be excavated from the Upper Stilling Basin, decanted and re-used as fill material to create design grades for the final cover system. Additional fill material as needed would be obtained from one of two areas identified on PAF property. A composite geosynthetic protective cover system which meets CCR Rule requirements would be placed over the entire Gypsum Disposal Area. The final cover system would be vegetated to minimize erosion and the need for future maintenance. The closure option identified for this impoundment is similar to the criteria identified for the reduced footprint Closure-In-Place option as described in the PEIS.

Construction activities associated with closure of the Peabody Ash Impoundment entail dewatering and construction of a divider dike between the northern and southern portions of the impoundment. CCR from the northern portion (approximately 70 acres including the Stilling Impoundment) would be excavated and re-utilized as fill material in the southern portion of the impoundment. The southern portion of the Peabody Ash Impoundment (approximately 64 acres) would be Closed-in-Place. CCR materials from the northern portion, together with additional material from on-site borrow areas, would be used to construct design grades prior to the installation of the final cover system. The final cover system, which meets CCR Rule requirements, would be installed over the southern portion (approximately 64 acres) of the impoundment. The final cover system would be graded to promote drainage to the existing perimeter ditches and stilling basins.

Construct and Operate an Onsite CCR Landfill at PAF

TVA would construct and operate a landfill for disposal of dry CCR generated at the plant on PAF property located approximately 0.5 mile southeast of the plant. This site encompasses 123.8 acres with a landfill footprint of approximately 80 acres. The estimated capacity of the landfill is 13.8 million yd³ which would provide up to 32 years of disposal capacity based on estimated energy production and consumption rates. The estimated capacity conservatively provides more than adequate CCR storage for long range planning purposes; however, TVA believes this conservative estimate of capacity is needed to account for potential changes in future consumption. In addition, the landfill would be built in a series of four cells (each with two subcells) that can be developed over time as needed. The landfill would be approximately 210 feet tall measured from the perimeter access road. The limits of disturbance of the landfill include two leachate lagoons located to the west of the proposed limit of waste and two stormwater ponds, one to the east of the limit of waste and one to the west.

The proposed landfill would be designed and constructed to meet CCR Rule requirements for new landfills and would include a composite liner system and leachate collection and treatment system. Stormwater would be conveyed to one of two onsite stormwater ponds. One of the ponds would discharge to an existing permitted outfall and the other would discharge to the Green River through a new permitted outfall. The final cover system would be developed in accordance with the CCR Rule.

Alternative C is substantially similar to Alternative B for construction of the CCR dewatering and handling facilities and ash impoundment closure, except it considers long-term management of CCR at an existing offsite permitted landfill rather than the construction of a landfill on PAF property. The analysis of impacts associated with this alternative are based on the closest landfill that can currently accept CCR material, the Hopkins County Regional Landfill, located approximately 33 miles west of PAF. The landfill is owned and operated by Waste Connections and serves western Kentucky. Dry CCR generated at PAF would be transported by over-the-road tandem dump trucks on existing roadways. Barge and rail transport were evaluated but determined not to be feasible options.

Alternatives B and C both provide long-term benefits, and meet the purpose and need of the project as both alternative would transition PAF to dry storage of CCRs and accomplish the closure of CCR stored in impoundments. Implementation of these alternatives would also facilitate compliance with current and potential future regulatory requirements related to CCR production and management, including requirements of EPA's CCR and ELG rules. Neither Alternative B nor Alternative C would result in substantial impacts to the environment. However, Alternative B avoids the offsite transport of CCR along public roads which eliminates the long-term impacts associated with increased air emissions, increased traffic and associated long-term safety risks, and disruptions to the public that would be realized with offsite transport of CCR. Therefore, TVA's preferred alternative is Alternative B – Construction of the Onsite CCR Landfill and Implementation of CCR Dewatering and Handling Projects and Impoundment Closures.

Impacts Assessment

Based on the analyses in the EA, TVA concludes that the implementation of Alternative B would not affect climate change, prime farmland, threatened and endangered species, cultural and historic resources, environmental justice, or public health and safety. There would be no change in land use as all projects would be located within an area that supports industrial uses. There would be minor and mostly temporary construction-related impacts to air quality, aquatic ecology, solid and hazardous waste, natural areas parks and recreation, local transportation networks and noise.

Lands used for construction-related activities and operations are previously disturbed areas that lack notable plant communities. Therefore, impacts to vegetation and wildlife would be minor.

There would be a long-term change in visual integrity of the landscape; however, this impact would be minor and the CCR management projects would be constructed in an area that is currently used for heavy industrial purposes.

Implementation of Alternative B would not result in disproportionate adverse impacts to minority or low income populations. Construction and operation of the CCR management projects would have a small positive effect on the local economy with the short-term employment of workers during construction and would have positive economic benefits to regional economy related to increased capital expenditures.

Alternative B would result in direct permanent impacts to an ephemeral stream on the landfill site. This impact will be mitigated because of adherence to permit requirements. A total of 1.8 acre of wetland across the project sites would be impacted. Wetland impacts are minimal when viewed in the context of wetland resources within the surrounding 5 miles, impacting less than 0.1 percent of wetlands within the region. In terms of EO 11990, there is no practicable alternative that would avoid impacting such wetlands given the operational constraints

associated with the proposed projects. Such unavoidable direct impacts to wetlands would be mitigated as required by both state and federal agencies in accordance with Kentucky Water Quality Certification Program and Section 404 of the Clean Water Act.

Based on current topographic conditions, all of the project areas would be located outside the 100- or 500-year floodplains, which would be consistent with EO 11988. However, discrepancies exist between the 2013 Flood Insurance Rate Map (FIRM) 100-year floodplain boundary (402-foot contour) and the 402-foot contour developed using 2012 Light Detection and Ranging (LiDAR) data of the PAF facility. Therefore, TVA will submit documentation to the Commonwealth of Kentucky to update the effective Flood Insurance Study and FIRMs based on current topography and conditions. Additionally, closure of the Peabody Ash Impoundment would result in an increase in the effective flood area along Jacobs Creek. Because the topography in the vicinity of Peabody Ash Impoundment would change, the FEMA FIRM would be updated with a Letter of Map Revision (LOMR). Therefore, no adverse impacts to floodplains are expected.

Compared to Alternative A (the No Action Alternative), Alternatives B and C would have beneficial impacts to surface water and groundwater as the closure of the impoundments reduce or eliminate potential risk of migration of constituents to groundwater and discharge of ash sluice water to surrounding streams and rivers exists.

Implementation of Alternative C would have the same impact on the resources affected by construction and operation of the CCR dewatering and handling facilities and ash impoundment closure as described for Alternative B. There would be no minor, primarily construction-related impacts associated with landfill construction. However, long-term off-site transport of CCR along public roadways, would result in increased air emissions, noise emissions, long-term safety risks and disruptions to the public.

Public and Intergovernmental Review

The Draft EA was released for public review and comment for 30 days beginning on March 28, 2017. The availability of the Draft EA was announced in two local newspapers and posted on TVA's Web site. TVA circulated the draft EA to local, state, and federal agencies and federally recognized tribes. One comment was received from a member of the public, and comments were received from the U.S. Fish and Wildlife Service, Kentucky Ecological Services Field Office (USFWS). In addition, TVA received a letter from the Kentucky State e-Clearinghouse, the designated Single Point of Contact for the Commonwealth. TVA considered all substantive comments received on the Draft EA and has responded to them in the Final EA. Pursuant to Section 106 of the National Historic Preservation Act, TVA consulted with the Kentucky State Historic Preservation Officer (SHPO) requesting concurrence that the proposed action would have no effect on cultural resources. The SHPO concurred with this determination in letters dated March 30, 2017 and May 23, 2017.

Mitigation

TVA will implement operating permit requirements, supplemental groundwater mitigative measures as mandated by state requirements, as appropriate, and the routine best management practices necessary to avoid or reduce minor adverse environmental effects from the construction of the projects, as described in the EA for Alternative B. In addition, TVA has identified the following non-routine mitigation measures to reduce potential impacts further

- Impacts to wetlands would be mitigated in accordance with USACE 404 permit as well as state Section 401 water quality certification permit requirements.
- TVA will perform a study to evaluate the functionality of the equalization basins prior to the operation of the Dry Fly Ash Handling and Storage System and Gypsum Dewatering Facility to ensure that all permit limits would be met. Water treatment measures would be identified, as needed, to ensure the discharge from the Gypsum Dewatering Facility and bottom ash operations and the altered receiving waters into the equalization basin have no significant impact on the receiving stream or outfall.
- TVA will submit documentation to update current and future site topography for both the CCR landfill and the Peabody Ash Impoundment. Changes in topography will be documented with FEMA through completion of a LOMR.

Conclusion and Findings

Based on the findings in the EA, TVA concludes that implementing Alternative B – Construction of an Onsite CCR landfill, Implementation of CCR Dewatering and Handling Projects, and Impoundment Closures, would not be a major federal action significantly affecting the environment. Accordingly, an environmental impact statement is not required.



Amy B. Henry, Manager
NEPA Program & Valley Projects
Environmental Compliance & Operations
Tennessee Valley Authority

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Date Signed