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FINDING OF NO SIGNIFICANT IMPACT TENNESSEE VALLEY AUTHORITY

SHAWNEE FOSSIL PLANT BOTTOM ASH PROCESS DEWATERING FACILITY
MCCRACKEN COUNTY, KENTUCKY

The Tennessee Valley Authority (TVA) is proposing to construct and operate a bottom ash process dewatering facility at the Shawnee Fossil Plant (SHF) in McCracken County, Kentucky. In July 2009, the TVA Board of Directors passed a resolution for TVA to review its practices for storing coal combustion residuals (CCRs) at its generating facilities, including SHF. This review resulted in a recommendation to convert the wet bottom ash management system at SHF to a dry storage system. To enable this wet-to-dry storage conversion, TVA proposes to install a dewatering facility for bottom ash at SHF. The purpose of the proposed action is to help TVA convert CCR storage from wet to dry and comply with present and future regulatory requirements related to CCR production and management, including, EPA's CCR rule and EPA's Effluent Limitations Guidelines (ELG) 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/Operation of a Process Dewatering Facility using a Continuous “Once Through” System, and Alternative C – Construction/Operation of a Process Dewatering Facility with a Recirculated Bottom Ash Sluice Stream.

Under the No Action Alternative, TVA would not construct the dewatering facility. Currently, bottom ash is discharged to a sluice trench where the majority of the ash settles out while the waste water flows continue on to the stilling basin and bottom ash impoundment. The bottom ash is dug up out of the trench and allowed to dry in piles on the ground next to the trench. After further dewatering and drying, the bottom ash is eventually relocated to the on-site special waste landfill.

Under the No Action Alternative, TVA would continue to dispose of wet bottom ash in accordance with the Kentucky Pollutant Discharge Elimination System (KPDES) permit. This alternative does not meet the purpose of achieving the overall TVA goal of converting the storage of bottom ash at SHF from wet to dry CCR storage. 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 construct a bottom ash mechanical dewatering facility at SHF to create dry CCR for disposal in the existing on-site special waste landfill. The dewatering equipment would be constructed just west of SHF Units 1-9 on SHF property. Construction activities would require grading the 6.1-acre project area. An additional 10.9-acre site on SHF property would be used for temporary equipment laydown and mobilization during construction. Construction is expected to take place over a 12- to 14-month period.

Sluice lines for the bottom ash would be routed to the proposed dewatering facility. Bottom ash would be dewatered using specialized equipment that would operate continuously while SHF is generating. Discharge from the dewatering facility would be released to the existing wet trench and allowed to drain to the existing bottom ash impoundment and stilling basin where it would be discharged according to TVA's current permitting requirements. Clarified water from the dewatering facility would meet current KPDES permit limits.

Under Alternative C, TVA would construct the same dewatering facility as described under Alternative B in the first phase, but, in a subsequent phase, would add a recirculation system. Instead of discharging water that is left over from the dewatering process out of the existing KPDES permitted outfall (Phase 1), the water would be rerouted back into the plant for future sluicing operations. This recirculated sluice stream would require a blow-down stream, make-up stream and outage waste stream. The recirculation system would include additional recirculating pumps, sluice line, additional power from the electrical room and a water containment facility. The containment facility would hold previously dewatered sluice water for recirculation in the dewatering process and would make it readily available, when needed, for sluicing operations. Water recovered in the bottom ash dewatering process would recirculate to the intake side of the bottom ash sluice pumps at the powerhouse. The proposed dewatering and recirculation systems would require approximately 300 to 600 gallons per minute of make-up water to replace water evaporated or otherwise lost from the recirculation system and to help to balance the pH and other chemical constituents in the recirculating system. The de-watered ash would be handled in the same manner as described under Alternative B.

In addition to the two action alternatives, TVA considered isolation and separate processing of bottom ash and pyrite streams, and dry boiler bottom conversion but these alternatives were dismissed from detailed analysis. SHF is not a candidate for separate processing of bottom ash and pyrite streams because the type of coal burned at SHF produces few (if any) pyrite materials. Therefore, additional pyrite management is not required. Dry boiler bottom conversion was found to be infeasible at SHF due to substantially greater costs and substantial engineering problems associated with and dry boiler bottom conversion at SHF.

TVA's preferred alternative is Alternative C – Construction/Operation of the Process Dewatering Facility with a Recirculated Bottom Ash Sluice Stream. Alternatives B and C both provide long-term benefits, and meet the purpose and need of the project as these alternatives both would move the plant to dry storage of CCRs. While Alternative C is more costly than Alternative B (because of the addition of a recirculation system), TVA prefers Alternative C because of the benefits of water reuse that facilitates TVA's future compliance with the ELG through the reduction of discharge from the KPDES permitted outfalls. TVA would implement its preferred alternative (i.e., Alternative C) in a phased manner, starting with the construction of the dewatering facility in the first phase and then adding the recirculating system at a later time.

Impacts Assessment

Based on the analyses in the EA, TVA concludes that the implementation of Alternative B would not affect climate change, wetlands, prime farmland, threatened and endangered species, natural areas, parks, recreation, or public health and safety. Lands expected to be used for construction-related activities and operations are already used for heavy industrial use and no changes in land use would occur with this alternative. There would be minor and mostly temporary construction-related impacts to air quality, groundwater, surface water, vegetation, aquatic ecology, solid and hazardous waste, local transportation networks and noise and the visual landscape. There would be a minor long-term impact to common wildlife species due to the loss of limited habitat

Due to age and other factors, SHF is considered a historic property under the National Historic Preservation Act. It has, however, been extensively altered by modern construction. Although implementation of Alternative B or C would have no effect on its status as a historic property, it would result in an adverse visual impact to SHF due to the potential change that the new construction would have to the historic setting of the plant. Typically adverse visual impacts would require consultation with the State Historic Preservation Officer (SHPO) to determine the appropriate form of mitigation. However, since Historic American Building Survey (HABS) documentation of the plant has already been conducted, no further mitigation is recommended beyond concurrence with the SHPO. TVA sought concurrence in a letter dated July 6, 2016. The SHPO did not respond within thirty days; therefore, in accordance with applicable regulations, TVA's responsibilities under the Act are fulfilled and no future coordination is required.

Implementation of Alternative B would not result in disproportionate adverse impacts to minority or low income populations. Construction and operation of the dewatering facility would have a very small positive effect on the local economy with the short-term employment of workers during construction and long-term positions created by operation of the facility.

Implementation of Alternative C would have the same impact on the resources affected by construction, dewatering and ash storage activities described for Alternative B. However, the addition the recirculation facility would have a minor incremental benefit to water quality and aquatic life in the Ohio River due to the decrease in discharge rate, discharge concentrations and volume of surface water released via KPDES Outfall 001.

Compared to Alternative A, Alternative B – Construction/Operation of a Process Dewatering Facility using a Continuous “Once Through” System, and Alternative C – Construction/Operation of a Process Dewatering Facility with a Recirculated Bottom Ash Sluice Stream would have a beneficial impact to surface water and groundwater as the use of surface impoundments and discharge of bottom ash sluice water to Ohio River would be reduced or eliminated.

Public and Intergovernmental Review

The Draft EA was released for public review and comment for 30-days beginning on June 15, 2016. The availability of the Draft EA was announced in a local newspaper and posted on TVA's Web site. TVA's agency involvement includes circulation of the Draft EA to local, state and federal agencies for review. Federally recognized tribes were notified of the availability of the Draft EA for review and comment. TVA received one comment from a member of the public. The remaining comments received on the Draft EA were from the Kentucky Department of Environmental Protection/Solid Waste Branch (KYDEP) and from a document jointly submitted by the Sierra Club and Southern Alliance for Clean Energy. In addition, the Draft EA was reviewed by the appropriate state agencies in the Kentucky State e-Clearinghouse. TVA considered all of the 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 Tennessee SHPO requesting concurrence that the proposed action will result in an adverse visual effect on NRHP-eligible SHF, and that the mitigation measures specified by the Memorandum of Agreement (MOA) adequately mitigate this adverse effect. As described above, the SHPO did not respond within 30 days; therefore, in accordance with applicable regulations, TVA's responsibilities under the Act were fulfilled. Federally recognized Native American tribes were consulted concerning the proposed undertaking, and TVA received no objection from any of them. Further, implementation of Alternative B or C would be consistent with Executive Order (EO) 11998 (Floodplains Management) and EO 11990 (Protection of Wetlands).

Mitigation

TVA would implement operating permit requirements and the routine best management practices listed in the EA to avoid or reduce minor adverse environmental effects from the construction of the dewatering system and subsequent addition of the recirculation system as described in the EA for Alternative B and Alternative C. TVA has not identified the need for any non-routine mitigation measures to reduce potential impacts further

Conclusion and Findings

Based on the findings in the EA, TVA concludes that implementing Alternative B – Construction/Operation of a Process the Dewatering Facility using a Continuous “Once Through” System or Alternative C - Construction/Operation of the Process Dewatering Facility with a Recirculated Bottom Ash Sluice Stream, would not be a major federal action significantly affecting the environment. Accordingly, an environmental impact statement is not required to implement any of these alternatives. TVA’s preferred alternative and the one it is inclined to implement is Alternative C.



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9/14/16

Date Signed