

## **FINDING OF NO SIGNIFICANT IMPACT TENNESSEE VALLEY AUTHORITY**

### **BOONE DAM SEEPAGE REMEDIATION SUPPLEMENTAL ANALYSIS**

In January 2016, the Tennessee Valley Authority (TVA) completed an environmental assessment (2016 Final EA) considering its proposal to address and remediate seepage occurring at TVA's Boone Dam, which is a multipurpose dam on the South Fork Holston River on the border between Sullivan and Washington Counties in upper East Tennessee. Based on the 2016 Final EA, TVA issued a Finding of No Significant Impact (FONSI) on January 7, 2016, concluding that its proposal to construct a composite seepage barrier along the crest of the dam embankment and the associated construction activities on TVA's reservation and adjoining TVA lands would not result in significant environmental impacts.

Since 2016, TVA has made considerable progress in constructing the barrier and remediating seepage at the dam. Grouting along the embankment has been completed, and TVA is preparing to begin the final stages of the project, which entails constructing a concrete cutoff wall along the dam's earthen embankment.

In 2018, TVA hired a construction contractor to implement the final stages of the project, and the contractor has made recommendations related to construction actions and use of the construction area. These recommendations would require several changes to TVA's original construction plan, reviewed in the 2016 Final EA. In addition, over the course of the project, several factors have arisen that have led TVA to reconsider certain actions planned for the final stages of construction. Based on these considerations, TVA proposes to change several actions described and analyzed in the 2016 EA, including changes to:

- The restoration of the dam's crest after construction of the cutoff wall is complete;
- The use of the Earl Light Tract as a construction support area; and
- The disposal of construction spoil and rock.

The contractor has provided additional information detailing how the construction zone at the dam would be utilized during cut-off wall construction, how wastes would be managed, and what facilities would be required during construction operations.

TVA has prepared a Supplemental EA to address both the changes to the original proposal as well as new information relating to the proposed action. In this Supplemental EA, TVA considered the impacts associated with the changes within the project area and reviewed the new information to determine whether this information alters any of the 2016 Final EA's analysis. The Supplemental EA, as well as the 2016 Final EA and FONSI, are incorporated herein by reference.

#### **Proposed Action**

As described at length in Section 2.2 of the Supplemental EA, TVA would continue to construct a composite seepage barrier at Boone Dam to address ongoing seepage of water and sediment. TVA, however, would make certain changes to the initial proposal analyzed in the 2016 EA. Most notably, TVA would not return the crest of the dam to its previous condition, and

for the final phase of construction, would change how it uses the Construction Support Areas near the dam, as well as how it disposes of construction spoils. A summary of the proposed actions follows:

- Crest Restoration: In the 2016 EA, TVA proposed to restore the crest of the dam as the fourth and final stage of seepage remediation. Early in the project, TVA lowered the crest of the earthen embankment 10 feet to create a work platform. Rather than removing the work platform and returning the crest of the dam to its previous height, TVA proposes to leave the work platform in place in its current condition and to install a permanent concrete flood wall, which would be approximately 9.6 feet in height and would create a minimum elevation of 1408.5 feet. The flood wall would be approximately 800 feet long, and each end would blend into existing grade at that same minimum elevation that corresponds with the concrete dam and right rim. The concrete wall would be either L-shaped or T-shaped.
- Construction Support Areas: In the 2016 Final EA, TVA identified two areas near Boone Dam to be used as Construction Support Areas. TVA has not, however, used the Earl Light Tract to the extent envisioned at the time. Only a few acres of the 71.2-acre area has been impacted by TVA's project to date. Under the Proposed Action, TVA would not utilize the parcel for construction support activities or spoils placement as planned, and would return the parcel for public use in early 2021 (estimated). TVA would remove the temporary parking area that was constructed at this location in 2016. TVA would consolidate the employee parking on Earl Light Tract into the construction area near the dam and on Tract 22R. In addition, TVA would no longer need to close a portion of Minga Road between and adjacent to these properties.
- Management of Excess Rock and Soil: Rather than move spoils from the cutoff wall construction to the Earl Light Tract for placement, TVA proposes to transport these materials to the Iris Glen Environmental Center in Johnson City, the Carter Valley Sanitary Landfill in Church Hill, Tennessee, and/or the EcoSafe Systems Landfill in Blountville, Tennessee. Clean spoils may be disposed of at other locations that meet environmental criteria. Based on initial estimates, TVA anticipates approximately 38,000 cubic yards of solids/spoils would result from construction of the cutoff wall and related infrastructure improvements. In addition, TVA estimates more than 400,000 gallons of fluids would be treated on-site, with the separated sediment and solids transported offsite for disposal.

The Proposed Action also includes more detailed information about how TVA proposes to construct the cutoff wall at the dam. The 2016 Final EA included a general description of cutoff wall construction but additional information was made available in 2018 when design was completed. As addressed in greater detail in Section 2.2.3 of the Supplemental EA, TVA's construction at the site of the dam would include the following:

- Excavation along the cutoff wall alignment by installing over 300 secant piles using drilling techniques. These activities would require management, use and recirculation of drilling fluids ("slurry") on site, as well as the construction and operation of a slurry desanding area and processing/disposal area.
- Construction and operation of a concrete batch plant to supply concrete to pile locations after drilling and excavation stabilization. The plant site would include a storage area, silos for aggregate and concrete, scales and other infrastructure, including a workshop. TVA would truck the concrete from the batch plant to the placement location.

- Construction and operation of a water treatment facility below the crest of the dam to treat all water used for either drilling, grouting, or cutoff wall construction on the work platform. Stormwater from the work platform would also be directed to this treatment facility. Once the water meets required quality standards, it would be discharged into the dam's tailrace.
- Construction and operation of drying ponds and a temporary drying area to dry fluids and solids resulting from cutoff wall excavation and slurry treatment prior to transporting the materials for disposal. Ponds would be installed for slurry settlement and to manage stormwater from the slurry desanding area. Settlement ponds would be utilized to ensure treatment of wastewater is separate from treatment of spent slurry. This infrastructure would be removed or capped with clean soils after completion of the cutoff wall, and the area would be seeded for restoration of vegetation.
- Construction and operation of a slurry desanding area for the production, treatment and collection of the slurry for cutoff wall construction.
- Installation of an extensive water supply and discharge system, including the use of a large floating pump on the upstream side of the dam to provide water supply and a pipe system to discharge treated water from the water treatment facility and water treatment ponds at the drying area. The slurry desanding stormwater would go to the ponds at the drying area, which in turn can be rerouted to either the water treatment area or the discharge point in the river below the dam, if the water is sufficiently clean to meet standards.
- Construction and operation of other support facilities, including the construction of parking, access roads, and an office facility, within the construction zone at Boone Dam.

### **Supplemental Environmental Assessment**

In the Supplemental EA, TVA reviewed the potential environmental impacts of the changes proposed by TVA to the Boone Dam Seepage Remediation project. The changes to TVA's original proposal are limited in scope, in comparison to the original scope reviewed in the 2016 Final EA. Thus, TVA identified a limited number of environmental resources or issues that required further review in the Supplemental EA:

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|-----------------------------------|--------------------|
| • Surface Water Resources         | • Recreation       |
| • Floodplains and Flood Risk      | • Transportation   |
| • Terrestrial Ecology             | • Waste Management |
| • Aquatic Ecology                 | • Land Use         |
| • Historic and Cultural Resources |                    |

In the Supplemental EA, TVA analyzed the continuation of the seepage remediation activities as described in the 2016 Final EA as the No Action Alternative. Generally, this alternative would result in greater impacts to resources at the Earl Light Tract, which TVA would utilize for construction support activities including the placement of spoils from the cutoff wall construction. These actions would temporarily impact wildlife and aquatic habitat on a large portion of the 71.2-acre tract and would require closure of a portion of Minga Road, which would impact local residents. The tract would be closed to the public for the life of the project, impacting recreation opportunities. The crest of the dam would be restored to its previous condition, requiring the borrow and placement of approximately 20,000 cubic yards of fill at the crest. As addressed in the 2016 Final EA, these activities would result in no significant impacts.

TVA found that the Proposed Action would result in minor impacts to the environment and in some cases, fewer impacts than under the No Action Alternative. The installation of a flood wall at the dam's crest was found to have adverse effects on the historic character of the dam, although TVA has previously mitigated the impact. TVA would not be required to borrow and place approximately 20,000 cubic yards of fill at the crest of the dam, resulting in fewer impacts than the No Action Alternative. In addition, the proposal to transport construction spoils and waste to regional landfills would have negligible to minor transportation and waste impacts but would result in fewer impacts to the resources of the Earl Light Tract and would return the tract to the public's use sooner than under the No Action Alternative. There would be beneficial impacts to terrestrial and aquatic resources, land use, and recreation. In addition, there would be fewer impacts to residents along Minga Road, as the road would not be closed temporarily. Although Tract 22R would be used for additional activities (e.g., employee parking), the use would be similar to those described in the 2016 Final EA and no additional areas within Tract 22R would be disturbed.

### **Necessary Permits and Consultation**

The following permits have been or would be obtained by TVA:

- National Pollutant Discharge Elimination System (NPDES) Stormwater Construction Permit: This permit is needed for clearing, grading or excavating of the project area to ensure proper stormwater management and treatment throughout the project. TVA submitted a site-specific Stormwater Pollution Prevention Plan to the Tennessee Department of Environment and Conservation (TDEC). No additional permissions would be needed for actions covered under the Proposed Action.
- Individual Aquatic Resources Alteration Permit (ARAP) Section 401 Water Quality Certification: TVA has obtained an Individual ARAP Section 401 Water Quality Certification from TDEC's Division of Water Resources for the alteration of waters of the state, including streams and wetlands. No additional permissions would be needed for actions covered under the Proposed Action.
- Section 10 / Section 404 Clean Water Act Permit: TVA has obtained a permit under Sections 10 and 404 of the Clean Water Act to implement dredge or fill activities in jurisdictional waters of the United States. TVA coordinated with the US Army Corps of Engineers (USACE) to obtain this permit. No additional permissions would be needed for actions covered under the Proposed Action.
- Ready Mix Concrete Permit NPDES General Permit: This permit is required for discharges of washwater, stormwater or a no-discharge recycle system associated with ready mix concrete facilities. A Ready Mix Concrete Facility RMCP Notice of Intent and site-specific Stormwater Pollution Prevention Plan would be developed and submitted to TDEC for approval.
- Special Waste Approval: TVA would obtain a Special Waste Approval for disposal of special wastes in a permitted landfill.
- Non-Title V Operating Permit: This permit is required for operation of an air contaminant source. This TDEC permit is needed for the proposed concrete batch plant.

Consultation with the Tennessee Historical Commission on the impact of federal actions on Tennessee historic and archaeological sites is required under Section 106 of the National Historic Preservation Act. Consultation regarding the proposed project changes was completed with the Tennessee State Historic Preservation Office (SHPO). In 2015, TVA consulted with

interested federally recognized Indian tribes on impacts of the seepage remediation project on areas that may be of religious and cultural significance to them. Because no additional areas would be impacted under TVA's new proposal, TVA did not consult again with tribes regarding its proposal.

TVA has concluded that the proposed action would not require additional consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act.

### **Mitigation and Restoration**

In the Supplemental EA, TVA identified one measure that may be necessary to mitigate a potential impact to floodplain benefits under an unforeseen circumstance. If, during the life of the project, the reservoir falls below the elevation of the floating water intake that TVA would install for water supply, TVA would be responsible for finding another source of raw water. This mitigation measure would minimize any adverse impacts to natural and beneficial floodplain values.

During consultation with the Tennessee SHPO, TVA and the SHPO concurred that the proposed installation of a flood wall at the dam's crest would adversely affect the Boone Hydroelectric Project, which is listed on the National Register of Historic Places. This adverse effect, however, was previously mitigated by TVA when TVA prepared and submitted Historic American Engineering Record documentation to the National Park Service, in accordance with a Programmatic Agreement between TVA and the Tennessee Historic Commission (Stipulation 11.B.1).

In addition, to address potential impacts to resources occurring at off-site waste disposal areas, TVA would apply the conditions for the approval of any placement of clean construction spoils at locations other than the Iris Glen, Carter Valley and EcoSafe landfill facilities. Clean spoils may be disposed in other locations that meet the following conditions:

- The property owner has contacted local or state officials and obtained verification that the spoils or fill can be placed in the designated area according to local or state regulations and environmental restrictions. Verification would be provided to TVA.
- No spoils or fill will be placed in the 100-year floodway.
- No spoils or fill will be placed in any wetland as defined by Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers and the Tennessee Department of Environment and Conservation's Aquatic Resources Alteration Permit program.
- Prior to placement of spoils or fill, TVA Environmental Compliance and Operations staff will review the designated area and determine whether additional environmental review is needed.

TVA staff must verify that these conditions are met prior to approval of the placement of clean spoils at these locations.

Applicable mitigation measures identified in the 2016 Final EA remain valid through the completion of this project.

## Conclusion and Findings

Based on the findings of the Supplemental EA, TVA concludes that the proposed modifications to TVA's seepage remediation of Boone Dam would not be a major federal action significantly affecting the environment. In addition, TVA concludes that new information pertaining to the construction of the cutoff wall are consistent with TVA's previous analysis and no additional environmental review is needed. Accordingly, an environmental impact statement is not required.



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Date Signed