BILLING CODE 8120-08-P

TENNESSEE VALLEY AUTHORITY

Dam Safety Modifications at Cherokee, Fort Loudoun, Tellico, and Watts Bar Dams

AGENCY: Tennessee Valley Authority.

ACTION: Issuance of Record of Decision.

SUMMARY: This notice is provided in accordance with the Council on Environmental Quality's regulations (40 CFR 1500 to 1508) and TVA's procedures for implementing the National Environmental Policy Act (NEPA). TVA has decided to adopt the preferred alternative in its final environmental impact statement (EIS) for the dam safety modifications at Cherokee, Fort Loudoun, Tellico, and Watts Bar Dams. The notice of availability (NOA) of the Final Environmental Impact Statement for Dam Safety Modifications at Cherokee, Fort Loudoun, Tellico, and Watts Bar Dams was published in the Federal Register on May 31, 2013. This alternative, Permanent Modifications of Dam Structures: Combination of Concrete Floodwalls and Earthen Embankments, will protect the four dams against failure during the Probable Maximum Flood (PMF) event while minimizing the adverse effects to the appearance and recreational use of the dam reservations.

FOR FURTHER INFORMATION CONTACT: Charles P. Nicholson, NEPA Compliance Manager, Tennessee Valley Authority, 400 West Summit Hill Drive,

WT 11D, Knoxville, Tennessee 37902-1499; telephone 865-632-3582, or email cpnicholson@tva.gov.

SUPPLEMENTARY INFORMATION: TVA is an agency and instrumentality of the United States, established by an act of Congress in 1933, to foster the social and economic welfare of the people of the Tennessee Valley region and to promote the proper use and conservation of the region's natural resources. A fundamental part of this mission was the construction and operation of an integrated system of dams and reservoirs. As directed by the TVA Act, TVA uses this system to manage the water resources of the Tennessee River for the purposes of navigation, flood control, power production. Consistent with these purposes, TVA operates the system to provide a wide range of other benefits.

As the Federal agency responsible for the operation of numerous dams, and consistent with the Federal Guidelines for Dam Safety issued by the Federal Emergency Management Agency, TVA prepares for the worst case flooding event in order to protect against dam failure, loss of life, major property damage, and impacts to critical facilities. This worst case flooding event is known as the PMF, defined as the flood that may be expected from the most severe combination of critical meteorological and hydrological conditions that are reasonably possible in a particular area. Nuclear Regulatory Commission (NRC) nuclear plant operating regulations also require that nuclear plants be protected against the adverse effects of the PMF. TVA periodically reviews and revises its calculations of PMF elevations. During the most recent review (completed in 2008), TVA determined that the updated PMF elevations at Cherokee, Fort

Loudoun, Tellico, and Watts Bar Dams, as well as at TVA's Watts Bar and Sequoyah Nuclear Plants, were higher than previously calculated.

The differences in PMF elevations are sufficient to indicate that a PMF event could cause water to flow over the top of the dams, even with the floodgates wide open, possibly resulting in dam failure. Failure of one or more of these dams would result in extensive damage to buildings, infrastructure, property, and natural resources, as well as potential personal injury and loss of life.

In 2009, TVA implemented temporary measures at the four dams to remain consistent with Federal guidelines and to comply with nuclear operating regulations for safe operations of the river and reservoir system, and to minimize the potential effects of the PMF. These temporary measures consisted of raising the heights of the four dams by installing interconnected, fabric lined HESCO Concertainer® units filled with No. 10 crushed stone on top of the earthen embankments of each dam. These HESCO barriers raised the height of each dam by 3 to 8 feet and provided additional floodwater storage capacity. The length of the HESCO barrier floodwalls totaled approximately 19,100 feet (7,000 feet at Cherokee; 4,500 feet at Fort Loudoun; 6,000 feet at Tellico; and 1,600 feet at Watts Bar). TVA also installed a permanent concrete apron on approximately 2 acres of the downstream earthen embankment of Watts Bar Dam.

In a January 25, 2012 letter from NRC to TVA, NRC stated that the HESCO barriers were not capable of resisting impacts from large debris during a

flood and are not acceptable as a long-term solution to protecting the dams, and downstream nuclear plants, during the PMF. At the time the NRC letter was received, TVA had not made any decisions about whether or how to replace the HESCO barriers. After receiving the letter, TVA made the commitment to NRC to develop and implement permanent dam safety modifications to replace the temporary measures at the four dams.

Alternatives Considered

TVA considered three alternatives in the Draft EIS and the Final EIS. These alternatives are:

Alternative A – No Action. TVA would leave the HESCO barriers in place and replace or maintain them as necessary. The major maintenance activity would be the replacement of the geotextile liners on approximately five-year cycles. This would require removing the crushed stone from the containers, removing and replacing the liners, and then refilling the containers with the previously used crushed stone. The HESCO barriers would continue to minimize the potential for failure of the four dams and prevent an increase in flooding at downstream locations, including TVA's nuclear plants, during the PMF. As stated in the above-mentioned NRC letter, this is not a long-term solution acceptable to NRC. It does, however, represent the current baseline conditions and is therefore the appropriate No Action alternative.

Alternative B – Permanent Modifications of Dam Structures: Combination of Concrete Floodwalls and Earthen Embankments. TVA would raise the heights

of the dams as follows: Cherokee – 6.6 feet; Fort Loudoun – 4.8 to 6.0 feet; Tellico – 4.8 feet, and Watts Bar – 3.5 feet. These heights are approximately two feet greater than the PMF elevations because of the need to maintain adequate freeboard to minimize overtopping by waves. The length of floodwall and raised earthen embankment at each dam would be as follows: Cherokee – 5,300 feet of floodwall and 3,150 feet of embankment; Fort Loudoun – 3,800 feet of floodwall and 250 feet of embankment; Tellico – 3,400 feet of floodwall and 2,450 feet of embankment; and Watts Bar – 1,650 feet of embankment. At Cherokee, TVA would also install about 40 post-tensioned anchors into the concrete portion of the dam, construct a 13.6-foot tall concrete floodwall on a 93-foot section of the dam, and raise the height of a 400-foot long section of the south spillway training wall by up to 40 feet. At Watts Bar, TVA would also strengthen an existing concrete floodwall on the east end of the dam. TVA identified Alternative B as its preferred alternative in both the Draft EIS and Final EIS.

Alternative C – Permanent Modification of Dam Structures: All Concrete Floodwalls. TVA would replace the HESCO barriers with concrete floodwalls in approximately the same locations. The heights of the floodwalls would be the same as the permanent modifications proposed under Alternative B. The additional modifications to Cherokee and Watts Bar dams described under Alternative B would be implemented under Alternative C.

Public Involvement

TVA published a notice of intent to prepare the EIS in the Federal Register on June 14, 2011. TVA sought input from Federal and state agencies, Federally recognized Indian tribes, local organizations and individuals during the 55-day public scoping period. Open house meetings were held in Lenoir City and Louisville, Tennessee. TVA received a total of 248 scoping comment letters; primary topics included impacts to scenery, land use, and recreation at the dams; the methodology used to calculate the PMF; and alternatives to the proposed permanent dam modifications.

The notice of availability (NOA) of the Draft EIS was published in the Federal Register on September 28, 2012. TVA held a public meeting on the Draft EIS on October 22, 2012 and accepted comments until November 19, 2012. TVA received 21 comment submissions on the Draft EIS, and the Final EIS contains responses to these comments. After considering the comments and the results of additional engineering studies conducted after publication of the Draft EIS, TVA made several modifications to Alternative B. These modifications included the use of earthen embankments in place of some segments of concrete floodwalls at Cherokee and Fort Loudoun. Earthen embankments would also be constructed at several segments at Cherokee, Tellico, and Watts Bar Dams identified in the Draft EIS as suitable for either floodwalls or embankments. The increased use of earthen embankments would reduce the visual impacts of floodwalls and restrictions on recreational use of the dam reservations. It would also eliminate the need for gap closure barriers between segments of floodwalls. An additional modification to Alternative B is

the elevation of the surface of roadways adjacent to floodwall segments on saddle dams at Cherokee and Tellico. This measure would reduce the effective height of the floodwalls for recreational users walking the roads and eliminate obstructions to their views of the reservoirs.

The NOA for the Final EIS was published in the Federal Register on May 31, 2013.

Environmentally Preferred Alternative

Alternative A – No Action would likely result in the lowest level of environmental impacts. The construction-related impacts resulting from the two action alternatives, Alternatives B and C, would be largely avoided. The current adverse impacts to visual resources and recreational use of the dam reservations would continue. Of the two action alternatives, Alternative B would result in greater impacts during construction but reduced long-term impacts. Based on consideration of the overall impacts, the difference between the two action alternatives is small and Alternative B is environmentally preferable over Alternative C.

Decision

TVA has decided to implement the preferred alternative identified in the Final EIS, Alternative B – Permanent Modifications of Dam Structures: Combination of Concrete Floodwalls and Earthen Embankments. This alternative was selected over Alternative C – Permanent Modification of Dam

Structures: All Concrete Floodwalls because of the reduced long-term impacts and slightly lower construction costs. Alternative B also eliminates the need for gap closure barriers between floodwall segments.

Mitigation Measures

TVA would use appropriate best management practices during all phases of construction and maintenance associated with the proposed action. TVA would also establish the necessary traffic controls such as use of warning signs, flagmen, and lane closures during construction and maintenance activities in order to minimize traffic and safety impacts. In order to minimize impacts to potential habitat for the endangered Indiana bat, TVA would comply with the terms of the Memorandum of Agreement with the U.S. Fish and Wildlife Service. These terms include delaying the removal of suitable roost trees where feasible until after July 31, surveying for the presence of the bats before removing suitable roost trees prior to July 31, and the mitigation payment of $13,986 to the Indiana Bat Conservation Fund.

Dated: July 2, 2013

John J. McCormick, Jr.

Senior Vice President, River Operations & Renewables.

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