

## FINDING OF NO SIGNIFICANT IMPACT TENNESSEE VALLEY AUTHORITY

### BLUE RIDGE DAM REHABILITATION PROJECT

#### Proposed Action and Need

The penstock on Tennessee Valley Authority's (TVA) Blue Ridge Dam was damaged due to excessive water pressure in 1931. TVA did not acquire Blue Ridge Dam until 1939 and, in the acquisition, inherited this problem. TVA has periodically lowered the elevation of water in Blue Ridge Reservoir to inspect the penstock safely. Because of these inspections and the need to upgrade Blue Ridge Dam to meet modern dam safety standards, TVA has reviewed the proposed action and reasonable alternatives in an environmental assessment (EA) prepared in accordance with its procedures in implementing the *National Environmental Policy Act* (NEPA). This EA is attached and incorporated by reference.

TVA's proposed action is to repair the penstock, repair and stabilize the upstream face of the dam, stabilize the intake tower base, and stabilize the downstream face of the dam. These repairs would begin during the regularly scheduled deep drawdown for dam safety inspection, which would normally begin in summer 2010. TVA proposes to repair and stabilize the upstream face of the dam during the period the reservoir elevations would be lowered to accommodate work on the penstock and to stabilize the intake tower base before refilling the reservoir. Repair of the penstock would require that Blue Ridge Reservoir be maintained at an elevation ranging from about 1,620 to 1,630 feet above mean sea level (msl) for approximately six months. Safe operation of the dam would require the drawdown to occur slowly over a three- to four-month period. Returning the reservoir to summer pool levels in 2011 would also occur slowly over a four- to five-month period depending on rainfall. To minimize impacts on lake users, downstream water supplies, and downstream recreation resources, the drawdown is proposed to begin near or shortly after mid-July 2010.

#### Alternatives

For the purpose of environmental review under NEPA, TVA has considered two alternatives in detail, the No Action Alternative and the Proposed Action Alternative of repairing the penstock and upgrading Blue Ridge Dam to meet the recommendations in the *Federal Guidelines for Dam Safety*.

#### Impacts Assessment

##### No Action Alternative

Under the No Action Alternative, TVA would not undertake the proposed repairs at Blue Ridge Dam. Instead, TVA would continue its current drawdowns for inspection. Under the No Action Alternative, TVA would not meet modern dam safety standards for Blue Ridge Dam. The slow erosion of the upstream dam face would likely continue, allowing earthfill material from the dam to slough, which would gradually tend to weaken the dam. Similarly, the potential for liquefaction of the upstream face during a seismic event would remain unmitigated. Without the proposed stabilization of the downstream face of the dam, the downstream portion of the embankment could fail during a very large earthquake due to slope instability.

If the No Action Alternative were adopted, there is an increased risk that the intake tower could overturn during a seismic event. If the intake tower overturned, this would interfere with water flow through the penstock, potentially resulting in an uncontrolled release of water from the reservoir.

Although the probability of the maximum design earthquake is very small, modifications are required for the dam to meet the recommendations in the *Federal Guidelines for Dam Safety*. Potential consequences of a seismic event could range from minor to severe and would depend on a variety of factors including the size and proximity of the earthquake, the amount of water behind the dam at the time of the seismic event, and soil conditions at the time of the event. An uncontrolled release of water and sediment into the tailwater resulting from such consequences would cause adverse effects to water quality and aquatic life downstream. Likewise, subsequent flooding from such an event could cause scouring and alteration of the tailwater channel and possibly affect downstream terrestrial habitats. In the unlikely event of a failure of Blue Ridge Dam, especially a rapid failure occurring over a matter of hours, significant flooding would occur downstream on the Toccoa and Ocoee Rivers. Flooding that might occur in the event of a rapid and catastrophic failure of Blue Ridge Dam could potentially endanger lives and property.

The Toccoa River below Blue Ridge Dam is a Georgia primary trout stream, but the Toccoa River is subject to seasonal weather-related temperature impacts, which have temporarily resulted in temperatures in excess of 20 degrees Celsius in September and October for six of the past 11 years. Only two of these years were deep drawdown years, indicating that the temperature impacts on the trout stream are related more to the weather than to deep drawdowns. Deep drawdowns during dam safety inspections every five years appear to only slightly increase the peak water temperatures. Under the No Action Alternative, TVA would continue to draw the reservoir down at least once every five years for the penstock inspections.

#### Proposed Action Alternative

Under the Proposed Action Alternative, TVA would conduct a deep drawdown, repair the penstock, repair and stabilize the upstream dam face, stabilize the downstream dam face, stabilize the intake tower base, and refill the reservoir.

Due to dam safety constraints, the deep drawdown would require approximately 16 weeks to reach the elevations needed to safely work on the penstock. The deep drawdown for the proposed action would cause only a slight increase in tailwater temperatures during September and October of the deep drawdown, but the amount of any such increases caused by the deep drawdown and the temporary nature of these increases would be an insignificant impact on the Toccoa River trout fishery. TVA has extremely limited means of attempting to influence the temperature of the Toccoa River below Blue Ridge Dam. At the request of the Fisheries Management Section of the Georgia Department of Natural Resources (GADNR), TVA will implement the monitoring plan described in Appendix A of the attached EA that provides the state agency data necessary to forecast tailwater temperatures for adjusting stocking plans. Further, if monitoring indicates a need, and if practicable given available water, dam safety constraints, minimum flow requirements, power system requirements, and downstream water supply needs, TVA would generate with the large unit at Blue Ridge Hydro with the objective of cooling the Toccoa River trout fishery. These and other mitigation measures are described below.

Based on analyses of more than 100 years of hydrologic data, by starting the deep drawdown in mid-July 2010, Blue Ridge Reservoir recreational boating capacity would gradually drop by 39

percent in the weeks leading up to Labor Day 2010, but would be recovered to 70 percent of recreational boating capacity by Memorial Day 2011. Under other deep drawdown start scenarios, recreational boating capacity of Blue Ridge Reservoir would be only 47 to 63 percent of normal by Memorial Day 2011. Since the impacts on reservoir recreational boating are temporary, the impacts of all three drawdown scenarios evaluated would be insignificant. TVA prefers the mid-July drawdown start scenario, because it provides the greatest probability of refilling Blue Ridge Reservoir in 2011 and the least probability of incurring weather-related delays during the construction work that requires a deep drawdown.

With the proper implementation of appropriate construction Best Management Practices (BMPs), as required by necessary permits as well as the required mitigation measures described below, potential effects to surface water quality, aquatic life, air quality, terrestrial ecology, managed areas, transportation, noise, and recreation would be minor and insignificant. None of the actions associated with the project would disproportionately affect minority or low-income populations. Accordingly, impacts to environmental justice would be insignificant. No socioeconomic impacts are anticipated.

No federally listed as endangered or threatened plant or animal species are present in the project area; therefore, the proposed project would have no effect on these species. In response to an agreement with the Georgia State Historic Preservation Officer (SHPO), implementation of mitigation measures would avoid potential adverse impacts of the proposed action on the historic structures and archaeological resources. The repairs would not result in increased upstream flood elevations and would reduce the potential downstream flood risk. Therefore, the proposed project would comply with EO 11988 (Floodplain Management). Based on the scope and duration of the action, no significant impacts to wetlands associated with the proposed project would be expected. Therefore, the proposed project would comply with EO 11990.

By completing the proposed project, TVA would eliminate the need for regularly scheduled deep drawdowns and reduce the risk of dam failure and the consequential downstream effects would be minimized.

### **Mitigation**

In addition to the requirements of any necessary permits, the following mitigation measures would be required by TVA to avoid or to reduce the potential for adverse environmental impacts:

- (1) TVA will contact marina owners to discuss project schedules prior to drawdown operations.
- (2) TVA will supply the marina operator with hazard buoys, which will be placed at various sites around the slips to notify the public of safety and navigation concerns during the drawdown.
- (3) TVA will provide temporary stabilization of archaeological sites by seeding exposed shoreline with grass to reduce erosion and provide law enforcement patrols to prevent looting and vandalism to protect eligible and potentially eligible archaeological sites.
- (4) TVA will take photographs of the dam in accordance with the August 22, 2007, GADNR Historic Preservation Division's *Guidelines for Establishing a Photographic Permanent Archival Record, Revised Draft*.

- (5) TVA will provide a copy of an original schematic drawing of Blue Ridge Dam indicating design measurements to the Georgia SHPO.
- (6) TVA will create and maintain an information kiosk at Blue Ridge Dam for public viewing of photographs and other displays depicting the downstream face of the dam prior to construction and of a narrative conveying the need for the repairs. The narrative will include the eligibility status of Blue Ridge Dam for the National Register of Historic Places. This kiosk will be installed after construction is completed.
- (7) All disturbed areas will be revegetated with native or noninvasive plant species.
- (8) Rock used in stabilization activities will be clean and free of weed seeds or parts.
- (9) TVA will attempt to limit deliveries of crushed stone, riprap, and other materials to usual business hours, approximately 10 hours per day to the extent practicable. TVA will avoid deliveries of materials after 10:00 p.m. and before 7:00 a.m.
- (10) TVA will limit rock handling and placement activities and use of associated heavy equipment to the hours between 7:00 a.m. and 10:00 p.m. TVA will require the use of modern, well-maintained heavy equipment and will screen the equipment for noise emissions to reduce the potential noise impact, when practicable.
- (11) Water quality near the construction and reservoir releases will be sampled periodically to document temporary changes associated with construction activities and with the deep drawdown, maintenance of the deep drawdown, and refill of Blue Ridge Reservoir. Control measures will be modified as needed to ensure protection of water quality in the reservoir and reservoir releases. Monitored water quality parameters will include, but not be limited to, dissolved oxygen, temperature, and turbidity. The Water Quality Monitoring, Data Transmission, and Coordination Plan in Appendix A will be implemented.
- (12) During the project, if monitoring indicates a need, and if practicable given available water, dam safety constraints, minimum flow requirements, power system requirements, and downstream water supply needs, TVA will generate with the large unit at Blue Ridge Hydro with the objective of cooling the Toccoa River trout fishery.
- (13) TVA will consult and collaborate with the Fisheries Management Section of the GADNR to reduce impacts of the proposed project on the Toccoa River trout fishery downstream of Blue Ridge Dam by providing data necessary to forecast tailwater temperatures.

### **Public and Intergovernmental Review**

TVA released the draft of the EA on June 3, 2009. The draft EA was posted on TVA's external Web site and mailed to government agencies, seven public libraries, and individuals listed in Chapter 5 of the EA. An open house-style public meeting, announced in local news media, held at Fannin County Middle School in Blue Ridge, Georgia, on June 18, 2009, provided an opportunity for the public to comment on the draft EA and to learn more about the proposed project. One hundred and thirty attendees at the open house registered. At the request of the Fisheries Management Section of the GADNR, the public and interagency review period was extended 15 days, so the public and intergovernmental review period ran from June 3 to

July 15, 2009. Government agency responses appear in Chapter 6 of the attached EA. Summaries of the comments and TVA's responses appear in Chapter 7 of the EA.

**Conclusion and Findings**

Based on the findings in the EA and the implementation of the stated mitigation measures, TVA concludes that the proposed rehabilitation of Blue Ridge Dam would not be a major federal action significantly affecting the quality of the environment. Accordingly, preparation of an environmental impact statement is not required.

*Linda B. Shipp*

December 22, 2009

---

Linda B. Shipp, Senior Manager  
NEPA Compliance  
Environmental Permitting and Compliance  
Office of Environment and Research  
Tennessee Valley Authority

---

Date Signed