Document Type: EA-Administrative Record
Index Field: Finding of No Significant Impact (FONSI)
Project Name: SQN Steam Generator Replacement
Project Number: 2009-35

FINDING OF NO SIGNIFICANT IMPACT
TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT UNIT 2 STEAM GENERATOR REPLACEMENTS
HAMILTON COUNTY, TENNESSEE

Proposed Action and Need

The Tennessee Valley Authority (TVA) proposes to replace the four steam generators in Unit 2 at the Sequoyah Nuclear Plant (SQN). The subject steam generators use pressurized hot water from the reactor to generate steam for propelling the turbines used to produce electric power. Over time, tubes within the steam generators can degrade, leading to decreased power generation efficiency. The Unit 2 steam generators have been in operation since June 1982. The Unit 1 steam generators were replaced in 2003. Replacement of the Unit 2 steam generators would allow TVA to operate SQN more efficiently and maintain the generating capacity of Unit 2.

Alternatives

In accordance with the *National Environmental Policy Act* (NEPA), TVA developed and evaluated two feasible alternatives in the attached environmental assessment (EA). These were the No Action Alternative and the Action Alternative.

Under the No Action Alternative, TVA would not replace the Unit 2 steam generators. If this alternative were chosen, TVA would eventually either have to derate Unit 2 (i.e., operate the unit at a reduced level of power generation) or conduct extensive costly repairs to the steam generators.

Under the Action Alternative, TVA would replace the four Unit 2 steam generators at SQN. The new steam generators would be delivered to the site by barge. A hole would be cut in the dome roof of the Unit 2 concrete containment building using a high-pressure water jet. The old steam generators would be disconnected and removed through this hole with a heavy-duty crane. New steam generators would be lowered into the concrete containment building and connected to the existing piping system. The hole in the roof would be repaired, and the old steam generators would be stored on site in a special storage building constructed for this purpose. The replacement would occur during a regularly scheduled outage in 2012.

Impacts Assessment

Implementing the Action Alternative would not involve any changes in land use or affect prime farmland, unique farmland, or farmland of state significance. Similarly, no stream modification is involved. Undertaking the proposed steam generator replacement project would not result in measurable changes in the production of electric and magnetic fields. Any effects to local air quality, primarily from construction equipment exhaust, would be minimal.

Construction activities associated with replacement of the four Unit 2 steam generators would cause noise and other temporary changes in the aesthetic character of the SQN site. Noise from hydrodemolition of the Unit 2 concrete containment building dome would last about seven days. Visual changes due to the presence of cranes and other heavy equipment on site would likewise be restricted to the construction period.

The old stream generators are considered radioactive waste. The old steam generators, along with most of their metallic insulation, would be stored on site in a concrete building. Such storage would provide sufficient shielding to limit the dose rate to less than 1 millirem per hour outside the building. This level does not require access control. The expected dose rate at the SQN boundary would be considerably less. The radioactive materials associated with the stored steam generators decay rapidly during the first two years of storage. Therefore, radiation doses to the public from on-site storage of the steam generators would be minimal.

Based on the analysis of the replacement of the Unit 1 generators, the project is expected to produce about 4,500 uncompacted cubic feet of dry active radioactive waste along with about 500 gallons of decontamination wastes and another 1,000 cubic feet of uncompactable construction waste. Radioactive wastes would be shipped to an existing licensed burial or recovery area for permanent disposal.

Creation of the 45-foot by 22-foot oval access hole in the roof of the concrete shield building is expected to generate about 4,800 cubic feet of concrete rubble, which would be either stored on site or disposed of on site, depending on its level of radioactivity. Debris from the project would be managed in accordance with the Special Waste Disposal Procedure. Any chemicals approved for use would be assessed against the Standard Programs and Processes 5.4, Chemical Traffic Control. Compliance with these procedures would ensure proper handling of such materials and that they are properly disposed or recycled. Additional trash and rubbish generated by the additional 1,000 project workers would be collected as part of normal trash collection and disposed of in local landfills.

A small amount of ground disturbance would be necessary to off load the steam generators from the delivery barges. Construction of the old steam generator storage building would also involve ground disturbance. Appropriate best management practices (BMPs) would be used to prevent the entry of sediment-laden runoff into surface waters. No river bottom would be disturbed during the proposed activities. Thus, any effects to water quality would be minor and insignificant.

Replacement of the steam generators would require an additional 1,000 workers on site beyond the additional 1,000 workers required for the outage, and peak construction would last approximately eight weeks. Although there would be a slight increase in economic activity due to the increased workforce at SQN, this localized benefit would be temporary and minor relative to the local economy. Similarly, temporary increases in local traffic would be minor.

The proposed actions would involve a small amount of site disturbance; thus, any potential effects to wildlife or plant life would be minor and insignificant. Because precautions would be taken to prevent adverse effects to water quality, no effects to local aquatic life or aquatic habitats are anticipated. Four federally listed aquatic species, i.e., the snail darter and three mussel species, may occur in Chickamauga Reservoir. Snail darters do not inhabit the Chickamauga Reservoir pool; thus, the snail darter would not be affected by the proposed actions. Because BMPs would be implemented to prevent adverse effects to water quality and instream habitat, implementation of the Action Alternative would have no effect on individuals or populations of these federally listed mussel species.

Replacement of the Unit 2 steam generators would not adversely affect any nearby natural areas, recreational facilities, or recreation opportunities.

Mitigation

No specific nonroutine environmental commitments or mitigation measures were identified to reduce potential environmental effects. Use of standard plant practices for work planning will minimize both worker and public radioactive exposure and dose. Implementation of routine BMPs during construction will minimize potential environmental effects associated with constructing the steam generator storage building and with operations to off load the new steam generators from the delivery barges.

Public and Intergovernmental Review

Appropriate recognized Native American tribes were consulted concerning the proposed undertaking. TVA received no comments from any of these tribes. The Tennessee State Historic Preservation Officer concurred with TVA's finding that there are no National Register of Historic Places-listed or -eligible properties affected by this undertaking.

Conclusion and Findings

Adoption and implementation of the proposed action would cause no effects to any federally listed terrestrial or aquatic species or to their habitats. Thus, no consultation with the U.S. Fish and Wildlife Service under Section 7 of the *Endangered Species Act* was necessary, and the proposed action complies with the *Endangered Species Act*. There are no historic structures within the viewshed of the proposed actions. Because the proposed actions would involve only a small amount of ground disturbance, there would be no effects to historic resources eligible or potentially eligible for inclusion in the National Register of Historic Places. Thus, TVA's obligations under Section 106 of the *National Historic Preservation Act* have been satisfied.

Activities involved with off loading the replacement steam generators would occur within the 100-year flood zone. However, no placement of fill within the floodplain would be necessary, and proposed actions would not affect floodplain values or functions adversely. Therefore, implementation of the Action Alternative would be consistent with Executive Order (EO) 11988 (Floodplain Management). There would be no effects to wetland function from the proposed actions; thus, adoption of the Action Alternative is consistent with EO 11990 (Protection of Wetlands).

Based on the findings of the EA, TVA has concluded that the proposed replacement of the four Unit 2 steam generators at SQN would not result in significant adverse impacts to the environment. NEPA Compliance has determined that the proposed action is not a major federal action significantly affecting the quality of the environment. Accordingly, an environmental impact statement is not required.

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Date Signed