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FINDING OF NO SIGNIFICANT IMPACT

TENNESSEE VALLEY AUTHORITY

OAK RIDGE NATIONAL LABORATORY PRIMARY 161-KV SUBSTATION AND TRANSMISSION LINE CONNECTIONS

ANDERSON AND ROANE COUNTIES, TENNESSEE

Proposed Action and Need

The Oak Ridge National Laboratory (ORNL), located in Anderson and Roane Counties, Tennessee, performs research in support of the U.S. Department of Energy (DOE). The existing substation that serves ORNL is over 50 years old and contains obsolete equipment that is difficult to repair. DOE has determined that a new, more reliable substation and a local (i.e., 13-kilovolt [kV]) distribution system are necessary to improve power reliability and to meet future power demands.

DOE has contracted the Tennessee Valley Authority (TVA) to design and construct new transmission and distribution facilities and a new substation. The proposed action consists of the following components:

- Design and construct a new 161-kV substation
- Provide an interconnection between the new substation and the TVA Fort Loudoun-Spallation Neutron Source 161-kV Transmission Line
- Install water and sewer lines to service the new substation
- Design and install approximately 7 miles of new 13-kV distribution lines to serve ORNL on approximately 4 miles of new right-of-way

TVA has reviewed the proposed action and reasonable alternatives in an Environmental Assessment (EA) in accordance with its procedures implementing the National Environmental Policy Act (NEPA). This EA is incorporated by reference.

Alternatives

Three alternatives, i.e., a No Action Alternative and two action alternatives, were developed. Under Alternative A, the No Action Alternative, the proposed substation, the connection between the substation and the TVA 161-kV transmission line, and the 13-kV distribution lines would not be built by TVA. Implementation of this alternative would not resolve ORNL's power reliability problems, and future demands for additional power at ORNL would be difficult to meet.

Under Alternative B, TVA would construct the proposed 161-kV substation, along with the sewer and water lines to serve the substation. A 161-kV interconnection would be made to TVA's Fort Loudoun-Spallation Neutron Source 161-kV Transmission Line. This interconnection would be approximately 1,100 feet long and would be located on new right-of-way. Approximately 7 miles of new 13-kV distribution lines would be constructed to serve ORNL. Implementation of this alternative would result in providing ORNL with a reliable source of electric power, and additional capacity would be available to meet anticipated future power demand.

Under a second action alternative, Alternative C, existing facilities would be repaired or replaced at the present location. Adoption of this alternative would involve extensive repairs and outage

times. Also, availability of repair parts is limited, and repairs may not be economically justified. Consequently, this alternative was eliminated from consideration.

Impacts Assessment

Under the No Action Alternative, the proposed substation and associated 13-kV distribution lines would not be constructed. The existing X-10 Substation would remain in service, and reliability problems are expected to persist. Potential construction-related effects to the environment associated with substation and power line construction would not occur under this alternative. No effects beyond those already associated with maintenance of the existing X-10 Substation and local distribution lines are expected to occur.

Under Alternative B, TVA would build the proposed facilities described above. Power lines would be mounted on single-steel poles. The 161-kV lines would use poles 80 to 90 feet tall, while the 13-kV line poles would be 30 to 50 feet tall. These distribution lines would parallel existing roadways, and clearing of some additional right-of-way along the roadway would be required. Because of the adjacent roadway, additional access roads would not be necessary, and pole installation would involve a minimum amount of site disturbance. The proposed substation and the adjacent laydown area have been cleared of vegetation by DOE.

The new right-of-way for the 13-kV distribution lines and the sewer and water lines would parallel existing roadway. Plant and animal communities along the routes are common. Although clearing would remove tree cover and displace some animals, additional open habitat would be created. Overall, potential effects to terrestrial communities would be insignificant.

Because no state-listed or federally listed as threatened or endangered plant species or suitable habitats were found within the project area, the proposed action would not affect any listed as threatened or endangered plant species. Implementation of the Action Alternative could temporarily disturb some state-listed terrestrial animal species but would not result in any significant adverse effects. There would be no effects to two federally listed mussel species (the spectaclecase and the pink mucket), both of which may occur in the Clinch River. Two federally listed as endangered species (the Indiana bat and the gray bat) and a listed as threatened species (bald eagle) are known to occur in Anderson and Roane Counties. Suitable bat foraging habitat exists where the proposed distribution lines would cross Bearden Creek embayment. The presence of these lines would not reduce the value of this area to Indiana or gray bats, nor would the lines affect potential foraging habitat for bald eagles. Thus, the proposed project would not affect any federally listed as threatened or endangered species. The creation of additional open area along Melton Valley Drive from right-of-way clearing could be beneficial to four state-listed species, namely, sharp-shinned hawks, southeastern shrews, smoky shrews, and barn owls. Potential effects to state-listed terrestrial species would be minor and insignificant.

Although the proposed 13-kV distribution lines would cross floodplain areas, installation of the support structures is not expected to result in any increase in flood hazard. Therefore, construction, operation, and maintenance of the proposed power lines would not have significant effects on floodplains. The proposed substation, underground water and sewer lines, and the 161-kV transmission lines would be located above the 100-year floodplain, and their construction would not affect floodplains.

Best Management Practices (BMPs) as described in *A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Transmission Construction and Maintenance Activities* as well as environmental protection measures outlined in the following

TVA documents: *Right-of-Way Clearing Specifications*; *Environmental Quality Protection Specifications for Transmission Line Construction*; *TVA Transmission Construction Guidelines Near Streams*; and *Right-of-Way Vegetation Management* would be employed to minimize adverse effects to water quality and aquatic life from construction activities. Thus, potential effects to surface water, groundwater, and aquatic life would be minor and insignificant.

Public access to the upper portions of Bearden Creek embayment in the vicinity of the 13-kV line crossings is discouraged. Elevation of the conductors at the crossing would be adequate to provide sufficient clearance for watercraft. Thus, the project would not affect navigation.

The proposed work would occur within the Oak Ridge Reservation within areas designated as a National Environmental Research Park, a Biosphere Reserve, and Wildlife Management Area. Other natural areas and managed areas are in the vicinity. Due to the nature of the action, no adverse impacts to these managed areas are anticipated from the proposed activities. Two natural areas, the Rocky Limestone Forest and the Melton Valley Lily Area, would be crossed by the proposed distribution lines. Although the Rocky Limestone Forest would lose some forested area, no protected plant species would be affected. No Canada lilies were found in the portion of the Melton Valley Lily Area that would be affected by the right-of-way for the distribution lines. Thus, potential effects to natural areas are expected to be insignificant.

Views of the proposed substation and power lines would be consistent with the visual character of the ORNL area, which has restricted access to the general public. There could be some minor visual discord in the vicinity during construction, but this would be temporary, and the area would be restored. Because of the distance and intervening vegetation, the project would not be generally visible to the public. Thus, construction, operation, and maintenance of the proposed facilities would not result in any significant visual impacts.

The proposed action would affect six small wetland areas totaling 0.79 acre. Five of the wetland areas (0.34 acre) would be affected by construction of the 13-kV distribution lines, while a 0.45-acre forested wetland would be affected by substation construction. Of the 0.79 total acreage, 0.64 acre is considered forested wetlands. A total of 0.19 acre of forested wetlands would be converted to emergent wetlands by right-of-way clearing for the distribution lines. Right-of-way clearing would affect 0.15 acre of emergent wetlands, but effects would be insignificant, as no long-term loss of wetland functions are likely with the implementation of BMPs. All potentially affected wetlands were considered to be Category 2 wetlands, i.e., wetlands of moderate quality that have been degraded. Because the total area of Category 2 wetlands is less than an acre, and because BMPs would be implemented during construction to prevent erosion and sedimentation, potential effects to wetlands would be minor and insignificant, and compensatory mitigation is not required.

Following an archaeological survey, TVA concluded that the project area contains no archaeological resources eligible for listing in the National Register of Historic Places (NRHP). The Deputy State Historic Preservation Officer concurred in this determination. An early twentieth-century house site lies within the Area of Potential Effect. However, this site lacks integrity and the potential for further research and is considered ineligible for inclusion in the NRHP. Due to intervening topography and because the historic setting of the New Bethel Church has been compromised previously, TVA determined that the proposed action would not have additional effects on this structure. The Tennessee State Historic Preservation Officer did not respond to TVA's request for concurrence. The proposed undertaking will not affect any historic properties that are potentially eligible, eligible, or currently listed in the NRHP.

The project area is restricted to the general public for security reasons. The nearest public recreation areas, Clark Center Park and Melton Hill Park, are approximately 5 miles upstream. Thus, potential effects to land- and water-based recreation would be minor and insignificant.

Mitigation

The following routine measures would be applied during construction and operation of the proposed facilities:

- Appropriate BMPs as described in *A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Transmission Construction and Maintenance Activities* would be implemented during construction and maintenance activities.
- During construction, the environmental quality protection specifications as described in Appendices A, B, C, and D of the attached EA would be implemented to reduce the potential for adverse environmental effects.

Implementation of these measures and safeguards would help ensure that potential adverse effects are insignificant.

Public and Intergovernmental Review

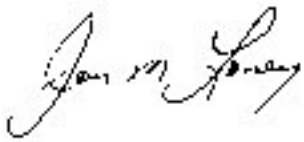
The Tennessee Historical Commission, State Historic Preservation Office, was contacted in accordance with the provisions of the National Historic Preservation Act regarding concurrence with TVA's determination of no effect to historic properties. The environmental review was coordinated with DOE, which provided comments on the draft document.

Conclusion and Findings

The proposed project would not affect any federally listed as threatened or endangered species. Following a cultural resources survey, TVA determined that the proposed undertaking would not have the potential to affect any historic properties that are potentially eligible, eligible, or currently listed in the NRHP.

Placement of transmission line support structures in the 100-year floodplain is considered a repetitive action under Executive Order 11988. Such structures are not expected to increase the flood hazard. Construction of the proposed substation and 13-kV distribution lines would not affect wetlands significantly, and no compensatory mitigation is required.

Environmental Policy and Planning's NEPA Administration staff have reviewed the subject EA and determined that the potential environmental consequences of the proposed power system improvements have been addressed adequately in the EA. Based on the findings in the EA, including implementation of the required mitigation, TVA concludes 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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