Document Type: EA–Administrative Records
Index Field: Finding of No Significant Impact (FONSI)
Project Name: BFN Units 2 & 3 Power Uprate EA
Project Number: 2003-90

August 7, 2003

John A. Scalice, LP 6A-C

BROWNS FERRY NUCLEAR PLANT UNITS 2 AND 3 EXTENDED POWER UPRATE PROJECT - ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT (FONSI)

In accordance with the National Environmental Policy Act (NEPA) and TVA's implementing procedure, Environmental Policy and Planning is issuing the attached Environmental Assessment (EA) and the attached FONSI. This serves as documentation of TVA's environmental review. As stated in the FONSI, we conclude that the proposed action to implement extended power uprate for Units 2 and 3 at Browns Ferry Nuclear Plant will not have a significant impact on the quality of the environment. This FONSI is contingent upon successful implementation of the commitments regarding use of existing cooling towers and derating as necessary, continuation of aquatic monitoring, and spent fuel storage, as stated in Section 3.4 "Summary of TVA Commitments and Proposed Mitigation Measures" of the attached EA.

Original signed by

Jon M. Loney, Manager
NEPA Administration
Environmental Policy and Planning

TMT:TMH
Attachments (2)--[FONSI and EA]
cc: T. E. Abney, PAB 1G-BFN
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Prepared by Tina M. Tomaszewski; reviewed by C. Rusty Cooper (TVAN) with concurrence of Khurshid K. Mehta (OGC)

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FINDING OF NO SIGNIFICANT IMPACT

TENNESSEE VALLEY AUTHORITY
FINAL ENVIRONMENTAL ASSESSMENT
BROWNS FERRY NUCLEAR PLANT UNITS 2 AND 3
EXTENDED POWER UPRATE PROJECT
LIMESTONE COUNTY, ALABAMA

Proposed Action and Need

The Tennessee Valley Authority (TVA) proposes to increase the reactor thermal power for Browns Ferry Nuclear Plant (BFN) Units 2 and 3 such that the reactors can be operated at 120 percent of their original licensed thermal power of 3,293 megawatts-thermal. This project involves modifications to the high-pressure steam path, reactor feed pump turbines, and condensate demineralizer system; installation of higher horsepower condensate pump motors and new heater drain valves; as well as miscellaneous safety system setpoint changes.

The demand for electricity in the TVA service area has continued to increase beyond what was forecast in *Energy Vision 2020 - Integrated Resource Plan/Programmatic Environmental Impact Statement*, which was completed in 1995. The proposed uprate of reactor thermal power at BFN Units 2 and 3 could add approximately 250 megawatts-electric to the system by using an existing plant and without a significant environmental impact. This proposal was previously evaluated in the TVA March 2001 *Browns Ferry Nuclear Plant Extended Power Uprate for Units 2 and 3 Final Environmental Assessment* (EA). Newly available technical and economic analyses indicate that a different approach to mitigating potential thermal impacts has become more appropriate, i.e., use of existing cooling towers and derating (decreasing unit loads) in lieu of the March 2001 EA commitment to use existing cooling towers and construct a new cooling tower. Consequently, TVA elected to review anew the environmental impacts potentially resulting from this proposal.

Alternatives

TVA considered two alternatives, a No Action Alternative, under which BFN Units 2 and 3 would continue to operate at the currently licensed power levels through expiration of operating licenses, and the Action Alternative described above.

Impacts Assessment

The following environmental issues were identified in the scoping process as having the potential for environmental effects as a result of the proposed extended power uprate (EPU) of BFN Units 2 and 3: spent fuel storage, generation of solid and hazardous wastes, radiological health, surface water resources, aquatic ecology, and socioeconomic/environmental justice. The proposed action would not affect historic sites, threatened or endangered species, groundwater, floodplains, visual, recreational,

transportation, or terrestrial ecology, nor would it cause land use changes, or create significant effects from the minor amounts of noise or fugitive dust generated during construction activities on the existing BFN industrial site.

The proposed action would not increase the probability or consequences of accidents, change the types of effluents that may be released off site, or significantly increase occupational or public radiation exposure. The evaluations of issues relating to potential radiological impacts (spent fuel storage, low-level radioactive waste, radiological impacts from normal operation, occupational radiation dose, or radiological impacts from potential accidents) indicated no significant radiological environmental impacts associated with the proposed action.

Computer modeling of Units 2 and 3 operating at 120 percent EPU with 16 years of historic weather data indicates that the proposed mitigation strategy of using existing cooling towers and derating as necessary will maintain compliance with the existing National Pollutant Discharge Elimination System (NPDES) permit. Far-field analysis of predicted discharge water temperature data indicates that operating BFN Units 2 and 3 at EPU, while using the existing cooling towers and derating to maintain NPDES permit compliance, will result in insignificant changes in the water temperature downstream of BFN in the forebay segment of Wheeler Reservoir (TRM 280.7 to 274.9). Threatened and endangered aquatic species in the general vicinity occur upstream of BFN in reaches which would be unaffected by plant operations under either the No Action or the Action Alternative. Current monitoring programs have documented that operating BFN under the existing NPDES permit has not adversely impacted aquatic ecology and biodiversity in Wheeler Reservoir. No significant impacts to aquatic communities are expected following implementation of the EPU. Potential environmental impacts for socioeconomic and environmental justice would be insignificant and temporary.

Mitigation

As this project is implemented, TVA will use existing cooling towers and derate BFN Units 2 and 3 as necessary to maintain compliance with thermal limits specified by the NPDES permit and to ensure that potential impacts to reservoir water and ecological conditions are insignificant.

In accordance with the current NPDES permit and previous commitments, TVA will continue annual monitoring of reservoir conditions. This monitoring will continue for three years following implementation of the EPU and is to confirm results of thermal modeling that indicate no significant impact on a balanced indigenous population of fish, shellfish, and wildlife in and on Wheeler Reservoir from the EPU of Units 2 and 3. Annual monitoring results will be reported to the state of Alabama.

Spent fuel will be stored in a facility licensed and approved by the Nuclear Regulatory Commission.

Conclusion and Findings

Environmental Policy and Planning's National Environmental Policy Act (NEPA) administration staff has prepared the *Browns Ferry Nuclear Plant Units 2 and 3 Extended Power Uprate Project Environmental Assessment* and determined that the potential environmental consequences of TVA's proposed action to increase the reactor thermal power for BFN Units 2 and 3 such that the reactors can be operated at

120 percent of their original licensed thermal power have been addressed and that the proposed action is not a major federal action significantly affecting the quality of the environment. This finding is contingent upon successful implementation of the commitments listed above. Accordingly, an Environmental Impact Statement is not required.

Original signed by *August 7, 2003*

Jon M. Loney, Manager
NEPA Administration
Environmental Policy and Planning
Tennessee Valley Authority

Date Signed