

June 11, 1997

Mr. Oliver D. Kingsley, Jr.  
President, TVA Nuclear and  
Chief Nuclear Officer  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2 - TRANSMITTAL OF ENVIRONMENTAL  
ASSESSMENT RELATED TO INCREASED ENRICHMENT OF REACTOR FUEL  
(TAC NOS. M98626 AND M98627)

Dear Mr. Kingsley:

Enclosed is a copy of an "Environmental Assessment and Finding of No  
Significant Impact" for your information. This assessment relates to your  
application dated March 13, 1997, to revise the Sequoyah Nuclear Plant  
Technical Specifications to permit use of reactor fuel enriched to a nominal  
5.0 weight percent U-235 for new reload fuel assemblies and rods.

The enclosed assessment has been sent to the Office of the Federal Register  
for publication. Should you have any questions, please contact me at  
(301) 415-2010.

Sincerely,

Original signed by

Ronald W. Hernan, Senior Project Manager  
Project Directorate II-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket Nos. 50-327, 50-328

Enclosure: Environmental Assessment

cc w/enclosure: See next page

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Environmental Review Coordinator  
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Atlanta, Georgia 30365

UNITED STATES NUCLEAR REGULATORY COMMISSION

TENNESSEE VALLEY AUTHORITY

DOCKET NOS. 50-327 and 50-328

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (NRC or the Commission) is considering issuance of amendments to Facility Operating License No. DPR-77 and DPR-79, issued to the Tennessee Valley Authority (TVA, the licensee), for operation of the Sequoyah Nuclear Plant, Units 1 and 2 (SQN), located in Hamilton County, Tennessee.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

The proposed amendments would revise the SQN Technical Specifications (TS) relating to storage of reactor fuel containing a higher enrichment of Uranium-235 (5.0 weight-percent (w/o) vs. 4.5 w/o) in the new fuel pit storage racks. The Commission has already authorized use of the more highly-enriched fuel in the reactor core and storage in the spent fuel pool in previous license amendments.

The proposed amendments are in accordance with TVA's application dated March 13, 1997.

Need for the Proposed Action:

The proposed changes to the Facility Operating Licenses are needed so that the licensee can use more highly enriched fuel, and thereby provide the flexibility of extending the fuel irradiation/burnup to permit longer fuel

cycles (i.e., longer continuous periods of operation). Use of the proposed more highly enriched fuels would require the use of fewer fuel assemblies over the remaining life of the plant.

Environmental Impacts of the Proposed Action:

The Commission has completed its evaluation of the proposed revisions to the TS. The proposed revision would permit use of fuel enriched with Uranium-235 (U-235) up to 5.0 nominal w/o. The safety considerations associated with reactor operation using higher fuel enrichment and burnup rates have been evaluated by the NRC staff (the staff). Based on its review, the staff concludes that the proposed changes are acceptable and would not adversely affect plant safety. The proposed changes have no adverse affect on the probability of any accident. The increased burnup may slightly change the mix of fission products that might be released in the event of a serious accident but such small changes would not significantly affect the environmental consequences of serious accidents. No changes are being made in the types or amounts of any radiological effluents that may be released offsite during normal plant operations. There is also no significant increase in the allowable individual or cumulative occupational radiation exposure. Accordingly, the Commission concludes that there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential nonradiological impacts, the proposed changes to the TS involve components in the plant which are located within the restricted area as defined in 10 CFR Part 20. They do not affect nonradiological plant effluents and have no other environmental impacts. Accordingly, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed action.

The environmental impacts of transportation resulting from the use of more highly enriched fuel and extended burnup rates have been discussed in the generic staff assessment entitled "NRC Assessment of the Environmental Effects of Transportation Resulting from Extended Fuel Enrichment and Irradiation," dated July 7, 1988, and published in the FEDERAL REGISTER (53 FR 30355). As indicated therein, the environmental cost contribution of the proposed increase in fuel enrichment and irradiation limits are either unchanged or may in fact be reduced from those summarized in Table S-4 as set forth in 10 CFR 51.52(c).

Therefore, the staff concludes that there are no significant radiological or nonradiological environmental impacts associated with the proposed amendment. The staff finds that the action will not result in a significant increase in any adverse environmental impact previously evaluated in the SQN Final Environmental Statement (FES) dated February 13, 1974, as modified by NRC's testimony to the Atomic Safety and Licensing Board, supplements to the FES, environmental impact appraisals, or decisions of the Atomic Safety and Licensing Board.

Alternatives to the Proposed Action:

Since the Commission has concluded there is no measurable environmental impact associated with the proposed action, any alternatives with equal or greater environmental impact need not be evaluated. As an alternative to the proposed action, the staff considered denial of the proposed action. Denial of the application would result in no change in current environmental impacts and would result in reduced operational flexibility. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

The action would involve no use of resources not previously considered in the FES for SQN.

Agencies and Persons Consulted:

In accordance with its stated policy, on June 10, 1997 the staff consulted with the Tennessee State official, Eddy Nanney of the Tennessee Division of Radiological Health, regarding the environmental impact of the proposed action. The State official posed the question of whether or not TVA had revisited its emergency planning procedures because of a perceived higher source term in the core. The staff has already reviewed the use of 5.0 w/o fuel enrichment and higher fuel burnup prior to issuing the Sequoyah license amendments authorizing use of 5.0 w/o enriched fuel in the reactor core. These amendments were issued on August 1, 1990, and the supporting NRC Environmental Assessment was published in the Federal Register on July 31, 1990 (55 FR 31112). The Environmental Assessment stated the following:

The increased burnup may slightly change the mix of fission products that might be released in the event of a serious accident but such small changes would not significantly affect the environmental consequences of serious accidents. The effect of increasing the fuel enrichment to 5.0 percent and burnups to 60,000 MWD/MTU would be to only increase the calculated thyroid dose for the postulated fuel handling accident by about 20% and would not exceed acceptable values. There would be no effect on the estimated consequences of other postulated design basis accidents.

The action for which this current Environmental Assessment has been prepared only authorizes storage of new unirradiated fuel in the in the new fuel pit storage racks. This pit is maintained dry (not flooded) and new fuel stored therein would not be involved in any of the accident analyses that form the design basis of the plant. Therefore, it is not necessary to revisit emergency preparedness procedures because of these license amendments.

The staff reviewed the licensee's request and did not consult with agencies or persons other than the State of Tennessee.

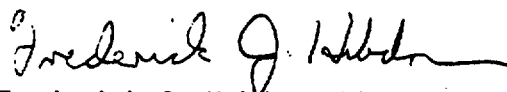
FINDING OF NO SIGNIFICANT IMPACT

Based upon the environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated March 13, 1997, which is available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW., Washington, DC, and at the local public document room located at the Chattanooga-Hamilton County Library, 1001 Broad Street, Chattanooga, Tennessee.

Dated at Rockville, Maryland, this 11th day of June 1997.

FOR THE NUCLEAR REGULATORY COMMISSION



Frederick J. Hebdon, Director  
Project Directorate II-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation