

April 10, 2000

Mr. J. A. Scalice
Chief Nuclear Officer
and Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2 - ENVIRONMENTAL
ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT RELATED TO THE
ISSUANCE OF EXEMPTION TO 10 CFR PART 50 SECTION 44,
10 CFR PART 50 SECTION 46 AND 10 CFR PART 50, APPENDIX K (TAC NOS.
MA8223 AND MA8224)

Dear Mr. Scalice:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application for exemption from certain requirements of Title 10 *Code of Federal Regulations*, Part 50, dated February 11, 2000. The proposed exemption would exempt the Tennessee Valley Authority from requirements related to fuel rod cladding materials.

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

/RA/

Ronald W. Hernan, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

Enclosure: Environmental Assessment

cc w/encl: See next page

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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

INTRODUCTION

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an exemption from Title 10, *Code of Federal Regulations* (10 CFR), Section 50.44, 10 CFR 50.46, and 10 CFR Part 50, Appendix K, for Facility Operating Licenses Nos. DPR-77 and DPR-79, issued to the Tennessee Valley Authority (TVA) for operation of the Sequoyah Nuclear Plant (SQN) Units 1 and 2, located in Hamilton County, Tennessee.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

The proposed action is in accordance with TVA's application for exemptions dated February 11, 2000.

The proposed action is to exempt TVA from requirements to base its analyses of hydrogen generation, energy release and cladding oxidation, during design basis accidents, on the assumption that either zircaloy or ZIRLO is used as the fuel rod cladding material. The design of a new fuel planned for use at SQN utilizes M5 alloy as the fuel rod clad, spacer grid, fuel assembly guide, instrument tube and fuel rod end plug material.

The Need for the Proposed Action:

The proposed exemption is needed because the regulations indicate that light-water reactors contain fuel of uranium oxide pellets enclosed in zircaloy or ZIRLO cladding. The licensee proposes to use a new fuel having "M5" cladding instead of zircaloy or ZIRLO. Exemptions are, therefore, required in order to use the new fuel.

One specific regulation that references use of zircaloy and ZIRLO as fuel cladding material is 10 CFR 50.46, which defines the analytical requirements related to the performance of Emergency Core Cooling Systems (ECCS). TVA has provided information that indicates that the effectiveness of ECCS will not be affected by the use of M5 material, and that the ECCS acceptance criteria specified in the regulations for use with zircaloy and ZIRLO are also applicable to M5. Because the underlying purpose of 10 CFR 50.46 is achieved through the use of M5, special circumstances are present under 10 CFR 50.12(a)(2)(ii) for granting an exemption to 10 CFR 50.46.

The other regulations that relate to use of zircaloy and ZIRLO are 10 CFR 50.44 and 10 CFR 50, Appendix K, which ensure that cladding oxidation and hydrogen generation are limited during a loss-of-coolant accident and conservatively accounted for in analytical models. TVA has provided information indicating that the "Baker-Just equation," referenced in these regulations for use with zircaloy and ZIRLO, are also conservative for use with M5. Because the underlying purpose of 10 CFR 50.44 and 10 CFR 50, Appendix K, is achieved through the use of M5, special circumstances are present under 10 CFR 50.12(a)(2)(ii) for granting an exemption to these regulations.

Environmental Impacts of the Proposed Action:

The NRC has completed its evaluation of the proposed action and concludes that with regard to radiological impacts to the general public, the proposed action involves features located entirely within the restricted area as defined in 10 CFR Part 20. The proposed action

will not significantly increase the probability or consequences of accidents, no changes are being made in the types of any effluents that may be released off site, and there is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential non-radiological impacts, the proposed action does not involve any historic sites. It does not affect non-radiological plant effluents and has no other environmental impact. Therefore, there are no significant non-radiological environmental impacts associated with the proposed action.

Accordingly, the NRC concludes that there are no significant environmental impacts associated with the proposed action.

Alternative to the Proposed Action:

As an alternative to the proposed action, the staff considered denial of the proposed action (i.e., the "no action" alternative). Denial of the exemption would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the Final Environmental Statement dated February 13, 1974, for SQN Units 1 and 2.

Agencies and Persons Consulted:

In accordance with its stated policy, the NRC staff consulted with an official of the State of Tennessee, Ms. Joelle Key, on March 29, 2000, regarding the environmental impact of the proposed action. Ms. Key had no comments.

FINDING OF NO SIGNIFICANT IMPACT

On the basis of 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 this action, see the licensee's letter dated February 11, 2000, which is available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street NW., Washington, DC. Publically available records will be accessible electronically from the ADAMS Public Library component on the NRC Web site, <http://www.nrc.gov> (the Electronic Reading Room) and from the Agencywide Documents Access and Management System.

Dated at Rockville, Maryland, this 10th day of April 2000.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Ronald W. Hernan, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Mr. J. A. Scalice
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SEQUOYAH NUCLEAR PLANT

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