

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION
HAROLD R. DENTON, DIRECTOR

DD-80-31

In the Matter of)	Docket No. 50-327
)	(10 CFR 2.206)
TENNESSEE VALLEY AUTHORITY)	
(Sequoyah Nuclear Plant,)	
Unit 1))	October 8, 1980

DIRECTOR'S DECISION UNDER 10 CFR 2.206

By petition dated May 29, 1980, "The Nuclear Regulatory Commission" (TNRC, a five-member musical group) requested that the Nuclear Regulatory Commission (NRC) revoke the license issued to conduct the low power test program at the Sequoyah facility in order to protect the public health and safety. The petition also requested such other action as may be proper. This request has been considered under the provisions of 10 CFR 2.206 of the Commission's regulations. Notice of receipt of the petition was published in the Federal Register on July 3, 1980 (45 FR 45429).

TNRC's concern with respect to low power operation was based upon the potential failure of the ice-condenser pressure suppression containment system employed at the Sequoyah facility. Containment integrity is not a safety concern during the conduct of low power testing. The issue of containment integrity during low power testing was examined by the NRC staff. The staff considered whether a loss-of-coolant accident from low power operations would likely lead to significant metal-water reaction (and hydrogen generation) even under severely degraded ECCS conditions. It was concluded that there is time available to take corrective action

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to cool the core before there is any substantial hydrogen generation.¹ Also, the potential for the release of radioactivity, should the containment fail, is virtually non-existent since the power levels during low power testing do not exceed five percent of full power and the one-week test program would produce insignificant amounts of radioactivity. This program has been completed at the Sequoyah facility without endangering the public health and safety.

TNRC also expressed a concern in its petition that the Sequoyah containment building could provide inadequate protection in the event of a TMI-2 type incident. A TMI-2 type incident could produce large amounts of hydrogen in the Sequoyah containment. Should a combustion pressure spike of the magnitude experienced at TMI-2 occur, the Sequoyah containment pressure rating could be exceeded resulting in a loss of containment. TNRC noted in its petition that, in light of operating experience obtained at TMI-2, a multiple-failure accident sequence with significant core damage, hydrogen liberation and combustion, and major metal-water reactions, must be regarded as a plausible occurrence.

This concern was intensively studied by the NRC staff, the Advisory Committee on Reactor Safeguards (ACRS) and the Commission prior to the issuance of the Sequoyah full power license which occurred on September 17, 1980. Specifically, the Commission had before it:

1. SECY 80-107, Proposed Interim Hydrogen Control Requirements for Small Containments, dated February 22, 1980.
2. SECY 80-107A, Additional Information Re: Proposed Interim Hydrogen Control Requirements, dated April 22, 1980.

(1) Supplement No. 1 to Safety Evaluation Report related to operation of Sequoyah Nuclear Plant, Page 11.B-1

3. SECY 80-107B, Additional Information Re: Proposed Interim Control Requirements, dated June 20, 1980.
4. Supplement No. 1 to Safety Evaluation Report Related to Operation of Sequoyah Nuclear Plant Units 1 and 2 (Page 11.B-1), dated February 1980. (NUREG-0011)
5. Supplement No. 2 to Safety Evaluation Report Related to Operation of Sequoyah Nuclear Plant Units 1 and 2 (Page 22.2-27), dated August 1980. (NUREG-0011)
6. Supplement No. 3 to Safety Evaluation Report Related to Operation of Sequoyah Nuclear Plant Units 1 and 2, dated September 1980. (NUREG-0011)
7. ACRS letter on Sequoyah Nuclear Plant, dated September 8, 1980.

Copies of these documents are attached.

These documents and reports embrace the concerns raised by TNRC in its petition. The conclusion reached by both the NRC staff and the ACRS was that full power licensing of Sequoyah facility need not await completion of ongoing work related to hydrogen control measures for the Sequoyah-type of containment.²

After due consideration of this issue, the Commission approved on September 17, 1980 the issuance by the Director of the Office of Nuclear Reactor Regulation of a full-power facility operating license for Sequoyah Nuclear Plant, Unit 1, subject, however, to the following conditions relative to hydrogen control measures:

- (a) By January 31, 1981, TVA shall by testing and analysis show to the satisfaction of the NRC staff that an interim hydrogen control system will provide with reasonable assurance protection against breach of containment in the event that a substantial quantity of hydrogen is generated.
- (b) For operation of the facility beyond January 31, 1982, the Commission must confirm that an adequate hydrogen control system for the plant is installed

(2) Supplement 3 to Safety Evaluation Report related to operation of Sequoyah Nuclear Plant (Page 22.2-1) and ACRS letter of September 8, 1980

and will perform its intended function in a manner that provides adequate safety margins.

- (c) During the interim period of operation, TVA shall continue a research program on hydrogen control measures and the effects of hydrogen burns on safety functions and shall submit to the NRC quarterly reports on that research program.

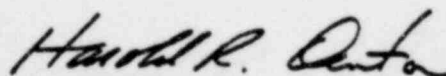
In my judgement, the analyses performed by the NRC staff and accepted by the Commission, as described in the documents referenced above, in conjunction with the license conditions imposed on the Sequoyah facility, adequately address the concerns raised in your petition and, on these bases, I deny your petition.

A copy of this Decision and its attachments will be placed in the Commission's Public Document Room at 1717 H Street, N. W., Washington, D. C. 20555 and the Local Public Document Room for the Sequoyah facility, located at the Chattanooga Hamilton County Bicentennial Library, 1001 Broad Street, Chattanooga, Tennessee 37402.

A copy of this Decision will also be filed with the Secretary for the Commission for its review in accordance with 10 CFR 2.206(c) of the Commission's regulations.

As provided in 10 CFR 2.206(c) of the Commission's regulations, this Decision will constitute the final action of the Commission twenty (20) days after the date of issuance, unless the Commission, on its own motion, institutes a review of this Decision within that time.

Dated at Bethesda, Maryland
this 8 day of October, 1980



Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosures:
As Stated