October 24, 2005

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

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNIT 1 — REQUEST FOR ADDITIONAL INFORMATION TO SUPPORT AUTHORIZATION TO EXTEND THE SECOND 10-YEAR INSERVICE INSPECTION INTERVAL FOR REACTOR VESSEL WELD EXAMINATION (TAC NO. MC7561)

Dear Mr. Singer:

By letter dated July 8, 2005, the Tennessee Valley Authority submitted a request for relief for the Sequoyah Nuclear Plant, Unit 1. The submittal proposes to extend the second 10-year inservice inspection interval for the reactor vessel weld examination by one fuel cycle.

In order to complete our review of the subject relief request, we request that you provide responses to the enclosed request for additional information. Based on discussions with your staff, it is our understanding that you plan to respond to the enclosed request by approximately November 18, 2005. If you have any questions about this material, please contact me at (301) 415-1364.

Sincerely,

/RA/
Douglas V. Pickett, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-327

Enclosure: Request for Additional Information

cc w/enclosure: See next page

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Mr. Karl W. Singer
Tennessee Valley Authority

SEQUOYAH NUCLEAR PLANT

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REQUEST FOR ADDITIONAL INFORMATION

SEQUOYAH NUCLEAR PLANT, UNIT 1

REQUEST FOR AUTHORIZATION TO EXTEND THE SECOND 10-YEAR

INSERVICE INSPECTION (ISI) INTERVAL FOR REACTOR VESSEL WELD EXAMINATION

DOCKET NO. 50-327

In your July 8, 2005, request for authorization to extend the second 10-year ISI interval for reactor pressure vessel retaining weld examinations, you stated that the technical justification for your request is consistent with the guidance provided in a January 27, 2005, letter from the U.S. Nuclear Regulatory Commission to Westinghouse Electric Company (Summary of Teleconference with the Westinghouse Owners Group Regarding Potential One Cycle Relief of Reactor Pressure Vessel Shell Weld Inspections at Pressurized Water Reactors Related to WCAP-16168-NP, "Risk Informed Extension of Reactor Vessel In-Service Inspection Intervals"). Item number 6 of this guidance is repeated below.

> The licensee could then provide a discussion of how, based on its plant operational experience, fleet-wide operational experience and plant characteristics, the likelihood of an event (in particular, a significant pressurized thermal shock event) over the next operating cycle which could challenge the integrity of the reactor vessel pressure vessel (RPV), if a flaw was present, is very low.

Section 5.5 of your submittal includes general statements indicating that the likelihood of pressurized thermal shock (PTS) events is small. The submittal briefly describes the strategy of the Sequoyah Nuclear Plant, Unit 1's emergency operating procedures intended to allow the operators to identify the onset of PTS conditions and provide the steps required to mitigate any cold pressurization challenges to the reactor vessel integrity.

The staff is re-evaluating the risk from PTS events in a study done to develop a technical basis for revising Title 10 of the *Code of Federal Regulations*, Part 50, Section 61. Although the staff has not yet completed its evaluation, the current results indicate that the following three types of accident sequences cause the more severe PTS events, and thereby dominate the risk. Please describe the characteristics of your plant (design and operating procedures) that provide assurance that the likelihood of a severe PTS event over the next operating cycle which could challenge the integrity of the RPV, if a flaw was present, is very low.

Sequence 1

> Any transient with reactor trip followed by one stuck-open pressurizer safety relief valve that re-closes after about 1 hour. Severe PTS events also require the failure to properly control high head injection.

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Sequence 2

Large loss of secondary steam from steam line break or stuck-open atmospheric dump valves. Severe PTS events also require the failure to properly control auxiliary feedwater flow rate and destination (e.g., away from affected steam generators) and failure to properly control high pressure injection.

Sequence 3

A 4-9-inch loss-of-coolant accident. Severity of PTS event depends on break location (worst location appears to be in the pressurizer line) and primary injection systems flowrate and water temperature.