February 11, 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, UNIT NOS. 1 AND 2 - EVALUATION OF RELIEF REQUEST RV-4, PRESSURE RELIEF VALVE HOLD-TIME REQUIREMENT (TAC NOS. MA6762 AND MA6763)

Dear Mr. Scalice:

By letter dated July 30, 1999, the Tennessee Valley Authority submitted a request for relief (Relief Request RV-4), from the requirement for a 10-minute hold time between valve openings during inservice testing of pressure relief valves. The U.S. Nuclear Regulatory Commission staff has completed its review of the subject relief request and has concluded that the licensee's proposed alternative, a 5-minute hold time for pressurizer and main steam safety valves, with no minimum hold time for other valves, will provide an acceptable level of quality and safety. Therefore, the proposed alternatives are authorized pursuant to Title 10, *Code of Federal Regulations*, Section 50.55a(a)(3)(i). Enclosure 1 is a copy of the staff's safety evaluation.

Sincerely,

/RA/

Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AN INSERVICE TESTING REQUEST FOR RELIEF

FOR TENNESSEE VALLEY AUTHORITY'S

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NUMBERS 50-327 AND 50-238

1.0 INTRODUCTION

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 10 CFR 50.55a, requires that inservice testing (IST) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 pumps and valves be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda, except where relief has been requested and granted or proposed alternatives have been authorized by the Commission pursuant to 10 CFR 50.55a (f)(6)(i), (a)(3)(i), or (a)(3)(ii). In order to obtain authorization or relief, the licensee must demonstrate that: (1) conformance is impractical for its facility; (2) the proposed alternative provides an acceptable level of quality and safety; or (3) compliance would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety.

2.0 BACKGROUND

By letter dated July 30, 1999, Tennessee Valley Authority (the licensee) submitted a request for relief from certain ASME Code IST requirements pertaining to testing of ASME Class 1, 2, and 3 pressure relief valves. The plant IST program requires that the testing meet the requirements of Part 10 of ANSI/ASME Operations and Maintenance (OM) Standard, OM-1987 Edition through the OMa-1988 Addenda which references the requirements of OM Part 1-1987 Edition (herein referred to as OM-1). Specifically, this request seeks relief from performing testing on pressure relief valves in a manner that includes a 10-minute hold time between consecutive set pressure tests as required by OM-1 paragraphs 8.1.1.8, 8.1.2.8, and 8.1.3.7. For air and water system pressure relief valves, the licensee proposes to eliminate the 10-minute hold time. For the pressurizer safety valves (PSVs) and main steam safety valves (MSSVs), the licensee proposes to relax the hold time from 10 minutes to 5 minutes.

The staff authorized a similar alternative for the first 10-year IST interval for Sequoyah 1 and 2 (Ref: Letter from J. Zwolinski to S. White dated October 23, 1987).

ENCLOSURE

3.0 BASIS FOR RELIEF

As justification for the proposed testing of the plant water and air pressure relief valves, the licensee states that the testing of the relief valves is conducted under steady-state thermal conditions. The licensee states that the plant pressure relief valves in ASME Class 2 and 3 water systems are bench tested at ambient conditions using water as the test medium. The licensee also states that the pressure relief valves in Class 2 and 3 air systems are bench tested at ambient conditions using compressed gas as the test medium. The licensee states that the valves and the test medium for both the water and air valves are in thermal equilibrium with no thermal source introduced during the tests which would result in a thermal imbalance or skew the accuracy of the tests. The licensee also states that for the air valves, test control methods prevent prolonged blowdown in order to minimize any cooling effect from gas expansion.

As justification for the proposed testing of the plant MSSVs and PSVs, the licensee states that the testing of the safety valves is conducted under steady-state thermal conditions. The licensee states the MSSVs are tested in place with an assist device during power operation just prior to removing a unit from service for a refueling outage. The licensee states that the testing with an assist device occurs in less than 1 second which minimizes the steam flow through the valves and minimizes valve temperature changes. Further, the licensee states that the test method for the MSSVs exposes test personnel to a high humidity and high temperature environment, and the proposed 5-minute hold time would reduce the risk of personnel exposure to these test conditions. The licensee also states that the PSVs are removed from service during a unit refueling outage and are shipped to a test laboratory for testing and that the tests limit valve disk lift time, which limits flow through the valves and minimizes valve temperature changes. The licensee states that the proposed testing with a 5-minute hold time provides thermal stability for the MSSVs and PSVs and provides accurate and repeatable set pressure test results.

4.0 EVALUATION

The staff finds that the proposed 5-minute hold time between consecutive set pressure tests for the PSVs and MSSVs and no hold time between set pressure tests of the Class 2 and 3 water and air system relief valves provides an adequate method of accurately and repeatedly determining set pressure. The staff finds that the ASME Code Class 2 and 3 air and water pressure relief valves are in thermal equilibrium under the ambient test temperature conditions such that thermal stabilization is achieved with no hold time specified. The staff also finds that for the PSVs and MSSVs, the proposed 5-minute hold time provides the necessary steady-state thermal conditions for testing. It is noted that the licensee has a significant amount of experience with the proposed testing methods during the first 10-year IST interval to demonstrate that the methods provide accurate and repeatable results. Finally, the staff notes that the 1997 ASME OM Code specifies a 5-minute hold time which is a relaxation of the 10-minute hold time specified in previous editions of the OM Code. Therefore, the staff finds the licensee's proposed method of set pressure testing the PSVs and MSSVs with a 5-minute hold time and set pressure testing the air and water system pressure relief valves with no hold time to be acceptable.

5.0 CONCLUSION

The staff concludes that the licensee's proposed alternative to the above discussed ASME Code testing requirements for Code Class 1, 2, and 3 pressure relief valves is authorized pursuant to 10 CFR 50.55a(a)(3)(I) on the basis that the proposed alternative testing provides an acceptable level of quality and safety.

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Dated: February 11, 2000

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SEQUOYAH NUCLEAR PLANT

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