February 21, 2003

Mr. H. L. Sumner, Jr.
Vice President - Nuclear
Hatch Project
Southern Nuclear Operating
Company, Inc.
Post Office Box 1295
Birmingham, Alabama 35201-1295

SUBJECT: RELIEF REQUEST FOR THE THIRD 10-YEAR INSERVICE INSPECTION PROGRAM RE: EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2 (TAC NOS. MB6655 AND MB6656)

By letter dated October 30, 2002, Southern Nuclear Operating Company, Inc., the licensee for Edwin I. Hatch Nuclear Plant, Units 1 and 2, submitted a request for relief from certain American Society of Mechanical Engineers (ASME) Code inservice testing (IST) requirements pertaining to testing of the main steam safety/relief valves (SRVs). Specifically, the licensee's Relief Request RR-V-11 sought relief from performing certain stroke testing of the SRVs.

The enclosed Safety Evaluation provides the results of the review. The staff finds that the licensee's alternative to the IST requirements in Appendix I to the 1995 Edition of the ASME Code for Operation and Maintenance of Nuclear Power Plants, is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the third 10-year IST interval on the basis that compliance with the Code requirements would result in hardship without a compensating increase in the level of quality and safety. The licensee's proposed alternative provides reasonable assurance that the SRVs will perform their intended safety function.

Sincerely,

/***RA***/

John A. Nakoski, Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosure: As stated

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-321 AND 50-366

1.0 INTRODUCTION

By letter dated October 30, 2002, Southern Nuclear Operating Company, Inc., the licensee for Edwin I. Hatch Nuclear Plant (Hatch), Units 1 and 2, submitted a request for relief from certain American Society of Mechanical Engineers (ASME) Code inservice testing (IST) requirements pertaining to testing of the main steam safety/relief valves (SRVs). Specifically, the licensee's Relief Request RR-V-11 sought relief from performing certain stroke testing of the SRVs. The Hatch, Units 1 and 2, SRVs are identified below.

Unit 1 SRVs: 1B21-F013A, B, C, D, E, F, G, H, J, K, & L
Unit 2 SRVs: 2B21-F013A, B, C, D, E, F, G, H, K, L, & M

2.0 REGULATORY EVALUATION

The *Code of Federal Regulations* (10 CFR), Section 50.55a, requires that IST of certain 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 proposing alternatives or requesting 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. Pursuant to 10 CFR 50.55a, the Commission may authorize alternatives or grant relief from ASME Code requirements upon making the necessary findings. NRC guidance contained in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provides alternatives to the Code requirements that are acceptable to the NRC staff. Further guidance is given in GL 89-04, Supplement 1, and NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants."

The licensee's IST program for Hatch, Units 1 and 2, SRVs are based on the requirements of Appendix I to the 1995 Edition of the ASME Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code). Appendix I, Paragraph I.3.4.1(d), requires that valves that have been maintained or refurbished in place, removed for maintenance and testing, or both, and reinstalled shall be remotely actuated at reduced or normal system pressure to verify the opening and closing capability of the valve before resumption of electric power generation.

Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee sought relief from the Appendix I, Paragraph I.3.4.1(d), requirement and proposed an alternative to perform testing of the SRVs at a test facility. The licensee's proposed alternative is consistent with similar alternatives authorized for other facilities. The licensee's proposed alternative testing would be applicable for the third 10-year IST interval that ends on December 31, 2005.

3.0 TECHNICAL EVALUATION

3.1 Licensee's Basis for Relief

The Hatch SRVs are the Target Rock Two-Stage, Model 7567F design. The SRVs are dual-function valves capable of being independently opened in either the safety or the relief mode of operation. The safety mode is the self-actuating function, and the relief mode is accomplished by an automatic or manual control circuit that applies electric power to solenoids that actuate the valve. When the solenoid valves are energized, pneumatic pressure is routed into the operator to lift the pilot rod against the force of the compressed setpoint spring. This allows system pressure to lift the pilot disk, venting the volume on the reactor side of the disk to open the valve. The relief mode of operation is used for the Automatic Depressurization System (ADS), Low-Low-Set (LLS), and remote manual operation. In each unit, seven SRVs are part of ADS, while the remaining four constitute LLS.

The licensee stated that in order to satisfy Technical Specifications Surveillance Requirements (SRs) and the ASME OM Code requirements, certain tests are currently performed with the SRVs installed (in situ), while other tests are performed as "bench tests" after the valve is removed and transported to a maintenance and testing facility. The licensee stated that to meet the Appendix I, Paragraph I 3.4.1(d), requirement, the main disks of the SRV must be exercised after reinstallation during reactor startup when there is sufficient steam pressure to actuate the main disk. The licensee stated that past history indicates that the main and pilot disks routinely do not reseat properly after being exercised during reactor startup, resulting in steam leakage into the suppression pool. The licensee stated that this leakage results in a decrease in plant performance, the potential for increased suppression pool temperatures, more frequent use of the suppression pool cooling mode of the residual heat removal (RHR) system, and may cause the valve to inadvertently actuate, possibly resulting in a plant shutdown. The licensee stated that SRV leakage results in radiological challenges since radioactive nuclides contained in the steam can become a potential source for personnel contamination. The licensee also stated that past operating history indicated that the exercising performed during reactor startup was of no significant benefit in ensuring the proper operation of the individual SRV assemblies.

3.2 Proposed Alternative Testing

The licensee stated that during each refueling outage, all 11 pilot assemblies and approximately one-third of the main disk assemblies are sent to the test facility (i.e., Wyle Laboratories) and tested with steam pressure. The valves are refurbished as necessary to meet acceptance criteria of zero leakage. As an alternate to the testing required by Appendix I, Paragraph I 3.4.1(d), the licensee proposed to actuate the SRVs in the relief mode at the test facility, without opening either the pilot or main disks. The solenoid valve would be energized, the actuator stroked, and the pilot rod lift measured. The licensee stated that this test will verify that, given a signal to energize the solenoid, the pilot disk rod will lift. The ability of the pilot and main disks to open would be demonstrated in the safety mode actuation bench test. The licensee stated that the remaining segments of the SRV relief mode of operation would be proven by other tests. The integrity of the pneumatic and solenoid system for the SRVs would be verified by performance of post-maintenance leakrate testing and separate tests of the solenoids. The licensee stated that the automatic valve actuation function is tested by logic system functional tests that include verification that the solenoid actuates from the automatic signal. Actual valve movement would not be performed after the SRV is reinstalled in the plant, but all pilot assemblies are tested with steam once per cycle and all the main disks are tested with steam pressure approximately once every three cycles.

3.3 Evaluation

The safety mode of the SRVs is to open when system pressure exceeds the valve's setpoint pressure. All 11 SRV's operate in the safety mode, providing the safety function of over-pressure protection. The staff finds that the ASME Code requirement to perform in situ stroke testing of the SRVs may contribute to undesirable SRV leakage and could result in spurious actuation of the valves during power operation, failure to reseat, increased use of RHR for suppression pool cooling, decreased generating capacity, and increased radiation hazard. Although leakage from the SRVs is considered within the plant's design basis, the failure to reseat during reactor start-up would cause unnecessary heating of the suppression pool, and could result in a decrease in plant performance and a plant shutdown to repair the leaking SRV. The alternative testing method proposed by the licensee provides periodic verification of all of the individual SRV components that are currently being tested. However, some tests, including closure testing, would be performed at a test facility instead of in situ with reactor steam. The staff finds that the proposed surveillance and testing of the SRVs and associated components provide reasonable assurance of adequate valve operation and readiness. Therefore, the staff finds that the proposed alternative testing method to that required by ASME OM Code-1995, Appendix I, Paragraph I 3.4.1(d), is acceptable.

4.0 <u>CONCLUSION</u>

Based on the above evaluation, the staff concludes that, pursuant to 10 CFR 50.55a (a)(3)(ii), the proposed alternative is authorized for the remainder of the third 10-year IST inspection period for Hatch, Units 1 and 2, on the basis that compliance with the ASME Code testing requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The licensee's proposed testing provides reasonable assurance that the plant SRVs will perform their intended safety function.

Principal Contributor: G. Hammer, NRR/DE

Date: February 21, 2003

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