



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO THE THIRD 10-YEAR INTERVAL INSERVICE TESTING PROGRAM

EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NUMBERS 50-321 AND 50-366

1.0 INTRODUCTION

The *Code of Federal Regulations* (10 CFR), Section 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* (the Code) and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the U.S. Nuclear Regulatory Commission (Commission or NRC) pursuant to paragraphs (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a. In proposing alternatives or requesting relief, the licensee must demonstrate that: (1) the proposed alternatives provide an acceptable level of quality and safety; (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety; or (3) conformance is impractical for its facility. Section 50.55a authorizes the Commission to approve alternatives and to 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 which are acceptable. Further guidance is given in GL 89-04, Supplement 1, and NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants."

In its letter of September 13, 1999, Southern Nuclear Operating Company, licensee for the Edwin I. Hatch, Nuclear Plant Units 1 and 2, submitted two relief requests related to their third 10-year interval IST program for pumps and valves that had been approved in a safety evaluation dated December 7, 1998. In accordance with the alternative of Relief Request RR-G-2, the third 10-year interval for both Units 1 and 2 began on January 1, 1996, and ends on December 31, 2006. In addition, in accordance with the proposed alternative of relief request RR-G-1, the applicable Code used for valves in the Hatch IST program will be the ASME *Code for Operations and Maintenance of Nuclear Power Plants* (OM Code)-1990.

The NRC's findings with respect to authorizing alternatives are given below.

2.0 RELIEF REQUESTS

2.1 Relief Request RR-V-12

The licensee has requested relief from the Code check valve disassembly and inspection frequency requirements of the ASME OM Code-1990, Paragraph ISTC 4.5.4(c) for Units 1 and 2 residual heat removal (RHR) and core spray check valves listed below associated with the keep-fill system for both units. The licensee has proposed to disassemble and inspect the following valves in accordance with the guidance in GL 89-04, Position 2:

1E11-F125A, B - Group 1  
1E21-F039A, B - Group 2  
2E11-F124A, B - Group 3  
2E21-F040A, B - Group 4

### 2.1.1 Licensee's Basis for Requesting Relief

The licensee states:

These valves close to maintain the RHR and Core Spray System piping filled with water during normal plant operation should the non-safety-related jockey pumps be unavailable. Exercising requires isolating the associated jockey pump and confirming check valve closure by monitoring the RHR and Core Spray system level switch alarms, or performing some type of pressure decay test. Other valve leakage within the system boundary could make it difficult to confirm actual check valve closure.

At least one jockey pump is maintained inservice during normal operation and the other(s) are in stand-by. Isolating and swapping pumps to confirm check valve closure imposes additional hardships on operations personnel and undue challenges on system components for the minimal safety benefit derived.

Disassembly of each check valve requires an excessive number of man-hours when compared to the safety benefit derived. The RHR system is usually either on or near critical path during refueling outage due to requirements to support fuel movement and core reload in the shutdown cooling mode of operation. The Core Spray System is also relied upon as a reactor coolant system make-up supply for a significant period of time during outages. Therefore, disassembly of both check valves in a group has a significant potential to impact the RHR and Core Spray systems out-of-service time and other related outage activities.

The valves in each group are of the same manufacturer, model, size, and orientation and are subjected to the same environmental and system operating conditions. NRC Generic Letter 89-04, Position 2, recognized that a sampling plan adequately monitors for any degradation and is sufficient to maintain operational readiness, and thus provides an adequate level of safety for such valves.

### 2.1.2 Alternate Testing

The licensee proposes:

The guidance of NRC Generic Letter 89-04, Position 2 will be utilized to implement a sample disassembly and inspection program for these valves (i.e., 2 valves/group). One valve from each group will be disassembled, inspected, and full-stroke exercised during the respective units refueling outage. A different valve will be selected each outage. If the valve cannot be full-stroke exercised, or there is evidence of degradation that would affect its operational readiness, then the remaining valve in the group will be disassembled during the same outage.

### 2.1.3 Evaluation

The OM Code-1990 allows check valves to be disassembled and inspected as an alternative to flow testing to verify operability and, thereby, meet the Code exercise requirements. The Code requires that each check valve be disassembled every refueling outage. GL 89-04, Position 2, states that where the licensee determines that it is burdensome to disassemble and inspect all applicable valves each refueling outage, a sample disassembly and inspection plan for groups of identical valves in similar applications may be employed. Disassembly of all the keep-fill check valves in the proposed group would unnecessarily impact outage schedules and would be a hardship without a compensating increase in the level of quality and safety.

The licensee has proposed to use the guidance in Position 2 and has defined each check valve group. All the groups contain valves that are of the same manufacturer, model, size, and orientation and are subject to the same environmental and operating conditions. Therefore, the proposed testing provides a reasonable assurance of operational readiness.

### 2.1.4 Conclusion

The proposed alternative to the check valve disassembly and inspection frequency requirements of the OM Code-1990, Paragraph 4.5.4(c), for the Units 1 and 2 keep-fill check valves listed in this relief request is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) based on the determination that compliance with the specified requirements results in a hardship without a compensating increase in the level of quality and safety.

## 2.2 RR-V-1 Relief Request 3

The licensee has requested relief from the Code check valve disassembly and inspection frequency requirements of the ASME OM Code-1990, Paragraph ISTC 4.5.4(c), for the Unit 2 plant service water (PSW) check valves 2P41-F064 and 2P41-F065. The licensee has proposed to disassemble and inspect these valves in accordance with the guidance in GL 89-04, Position 2.

### 2.2.1 Licensee's Basis for Requesting Relief

The licensee states:

ISTC 4.5.4(c) allows disassembly and inspection as an alternative to exercising check valves to verify operational readiness, but requires disassembly every refueling outage. These valves open for PSW divisional supply to the reactor building and close to maintain the downstream piping and equipment filled should the associated PSW pumps be isolated. The divisional supply lines are not provided with flow measuring instrumentation. PSW supply to the reactor building is required during all modes of normal and emergency plant operation.

The disassembly of each check valve requires an excessive number of man-hours to complete when compared to the safety benefit derived. Disassembly of each valve would require the associated PSW division supply be isolated thus rendering all of the reactor building cooling loads unavailable and the associated safety-related equipment inoperable (e.g., all ECCS pumps associated with the isolated division). Isolating both divisions of PSW to the reactor building each outage could result in a significant impact on the outage schedule and result in difficulty in returning the associated equipment to service. Disassembly of both check valves has a significant potential to impact the system out-of-service time and other related outage activities.

The valves are of the same manufacturer, model, orientation and size and are subjected to the same environmental and system operating conditions. NRC Generic Letter 89-04, Position 2, recognized that a sampling plan adequately monitors for any degradation and is sufficient to maintain operational readiness, and thus provides an adequate level of safety for such valves.

### 2.2.2 Alternate Testing

The licensee proposes:

The guidance of NRC Generic Letter 89-04, Position 2, will be utilized to implement a sample disassembly and inspection program for these valves (i.e., 2 valves/group). One valve will be disassembled, inspected, and full-stroke exercised during each refueling outage. A different valve will be selected each outage. If the valve cannot be full-stroke exercised, or there is evidence of degradation that would affect its operational readiness, then the remaining valve will be disassembled during the same outage. The valve will be partial exercised with flow after reassembly in conjunction with returning the associated division of PSW to service.

### 2.2.3 Evaluation

The OM Code-1990 allows check valves to be disassembled and inspected as an alternative to flow testing to verify operability and, thereby, meet the Code exercise requirements. The Code requires that each check valve be disassembled every refueling outage. GL 89-04, Position 2, states that where the licensee determines that it is burdensome to disassemble and inspect all applicable valves each refueling outage, a sample disassembly and inspection plan for groups of identical valves in similar applications may be employed. Disassembly of both check valves in the proposed group would unnecessarily impact outage schedules and would be a hardship without a compensating increase in the level of quality and safety.

The licensee has proposed to use the guidance in Position 2. Both valves are of the same manufacturer, model, size, and orientation and are subject to the same environmental and operating conditions. Therefore, the proposed testing provides a reasonable assurance of operational readiness.

#### 2.2.4 Conclusion

The proposed alternative to the check valve disassembly and inspection frequency requirements of the OM Code-1990, Paragraph 4.5.4(c), for the Unit 2 PSW check valves 2P41-F064 and 2P41-F065 is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) based on the determination that compliance with the specified requirements results in a hardship without a compensating increase in the level of quality and safety.

#### 3.0 CONCLUSION

The staff concludes that the proposed alternatives as evaluated by this Safety Evaluation will not compromise the reasonable assurance of operational readiness of the valves in question to perform their safety-related functions. Proposed alternatives in relief requests RR-V-12 and RR-V-13 were authorized pursuant to 10 CFR 50.55a(a)(3)(ii) in that it has been determined that compliance with the specific requirements results in a hardship without a compensating increase in the level of quality and safety.

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