



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO THE INSERVICE TESTING PROGRAM RELIEF REQUESTS

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

1.0 INTRODUCTION

The *Code of Federal Regulations*, 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* (the Code) and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to Sections (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. Additionally, paragraph (f)(4)(iv) of Section 50.55a provides that IST of pumps and valves may meet the requirements set forth in subsequent editions and addenda of the Code that are incorporated by reference in paragraph (b) of Section 50.55a, subject to the limitations and modifications listed therein, and subject to Commission approval. Portions of editions or addenda may be used provided that all related requirements of the respective editions or addenda are met. Guidance related to the development and implementation of IST programs is given in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," issued April 3, 1989, and its Supplement 1 issued April 4, 1995, and NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants."

The 1989 Edition of the ASME Code is the latest edition incorporated by reference in paragraph (b) of Section 50.55a. Subsection IWV of the 1989 Edition, which gives the requirements for IST of valves, references Part 10 of the American National Standards Institute/ASME *Operations and Maintenance Standards* (OM-10) as the rules for IST of valves. OM-10 replaces specific requirements in previous editions of Section XI, Subsection IWV, of the ASME Code. Subsection IWP of the 1989 Edition, which gives the requirements for IST of pumps, references Part 6 of the American National Standards Institute/ASME *Operations and Maintenance Standards* (OM-6) as the rules for IST of pumps. OM-6 replaces specific requirements in previous editions of Section XI, Subsection IWP, of the ASME Code.

2.0 BACKGROUND

By letter dated May 22, 1996, Union Electric Company, the licensee for the Callaway Plant, submitted revisions to the inservice testing program. The revised program included changes made in response to NRC's Safety Evaluation for the second 120-month interval, dated June 2, 1995. Several relief requests have been revised and are evaluated herein.

3.0 REVIEW OF ACTIONS AND EVALUATION OF REVISED RELIEF REQUESTS

The Callaway Plant IST Program was developed to the 1989 Edition of the ASME Code (see above). The NRC, with technical assistance from Brookhaven National Laboratory, reviewed the IST Program relief requests and issued a Safety Evaluation (SE) on June 2, 1995. In the Technical Evaluation Report (TER) attached to and incorporated in the SE, a number of action items were identified. By letter dated May 22, 1996, the licensee described actions taken to address each of the items. Where appropriate, relief requests were revised. These action items and the associated relief requests are discussed below.

3.1 Action Item 5.1/Relief Request P-02

Interim relief was granted from requirements to measure vibration of submerged fuel oil transfer pumps. It was recommended that the licensee indicate an alternative course of action, such as institution of a regular maintenance and spare parts program for the pumps, with maintenance of the pump and inspection of the bearings whenever the fuel oil storage tanks are drained. P-02 has been revised to indicate an alternative as recommended in the action item.

3.1.1 Licensee's Basis for Relief

The licensee states:

Diesel generator fuel oil transfer pumps are submersible pumps.
Vibration cannot be measured on the submersible pumps.

3.1.2 Alternative Testing

The licensee proposes:

Pump differential pressure and flow measurement will be made quarterly. The pump will be disassembled and the bearings inspected once every 10 years. If the bearing condition is in question, the bearing will be repaired or replaced prior to reinstalling the bearing.

3.1.3 Evaluation

Measuring vibration of the pump bearings is impractical because the pumps are submerged in the diesel fuel oil storage tanks and are inaccessible. Imposition of the code requirements to measure vibration would be a burden in that a modification to the system to relocate the pumps external to the tanks would be required. The hydraulic parameters will be monitored in accord with the Code. At least once every ten years, the pumps will be removed from the tanks and disassembled, inspected, and maintained as necessary. The schedule for the inspection should be set up to ensure that the minimum interval between inspection is 10 years. If the licensee determines that degradation of the bearings occurs on a shorter interval (e.g., through testing anomalies, fuel oil sampling, or maintenance of the two pumps), the inspection interval should be adjusted accordingly.

3.1.4 Conclusion

Relief is granted and the alternative imposed for the fuel oil transfer system pumps pursuant to 10 CFR 50.55a(f)(6)(i) based on the impracticality of complying with the Code requirements to measure vibration and in consideration of the burden on the licensee if the requirements were imposed. The alternative testing imposed will provide an adequate level of assurance of the operational readiness of the pumps.

3.2 Action Item 5.2

Relief Request V-07 concerned using nonintrusive techniques for testing check valves in the emergency core cooling system (ECCS) injection line. The TER action item indicated that relief was not necessary to implement nonintrusive techniques because these were considered acceptable "other means" within the Code. However, the action item recommended that the licensee ensure that each branch line be instrumented for flow during testing. The licensee indicates that the relief request has been deleted and that temporary instrumentation is installed on each branch line during the ECCS flow balance. No further NRC action is required. Implementation of the testing is subject to inspection.

3.3 Action Item 5.3

This action item identified that check valve disassembly and inspection Relief Requests EN-01, EN-02, EN-03, EP-02, and FC-01 provide acceptable alternatives to impractical Code requirements according to the guidance in Position 2 of GL 89-04 and were, therefore, granted pursuant to 10 CFR 50.55a, paragraph (f)(6)(i). However, it also noted that the particular grouping for check valves in EN-02 did not comply with the guidance in Position 2 in that two of the valves were 10-inch pump discharge valves and the other two were 12-inch pump suction valves. Position 2 specifies that the groupings be of similar valves, including size and service conditions. EN-02 was revised to remove the containment spray pump discharge check valves and place them in a separate relief request, EN-05, which complies with the guidance of Position 2. EN-02 and EN-05 are acceptable in accord with guidance in Position 2 and are granted pursuant to 10 CFR 50.55a(f)(6)(i) based on the impracticality of exercising

the valves by any other means and the burden of code compliance. The other listed relief requests have been revised to indicate compliance with the guidance of Position 2 as recommended in the action item. Therefore, these relief requests have been revised to address the concerns in the action item. Consistent with GL 98-04 and based on the impracticality of the code requirements, the burden of code compliance and the acceptability of the alternatives proposed, relief is granted pursuant to 10 CFR 50.55a(f)(6)(i). Implementation of the check valve disassembly and inspection is subject to NRC inspection.

3.4 Action Item 5.4

This action item discussed general comments on programmatic aspects of deferring testing from quarterly to cold shutdowns or refueling outages, designation of test frequencies in the valve table, and the scope of safety/relief valves in the program. The licensee indicates that the cold shutdown and refueling outage justifications have been clarified with additional details supporting test deferrals. These are subject to further review during NRC inspections. The valve tables have been revised to indicate the test frequency for each valve.

The licensee indicates that only "active" safety and relief valves are required to be in the program and that "passive" safety and relief valves have been removed from the program. It is not clear that the licensee's actions address the point of the scope for overpressure protection devices. If a device protects a system from overpressure, it will be an active valve because there must be some change of obturator position to relieve overpressure (or to break vacuum in the case of vacuum breakers). For overpressure protection devices, the active function would occur when overpressure occurs rather than necessarily during an accident. Generally, for a self-actuating valve to be considered "passive," the flow must be blocked by a closed valve, a flange, or some other isolation mechanism. It appears that the licensee's position is not in conformance with the scope of OM-10 and Section 50.55a and should be reevaluated in light of the guidance given herein. The licensee's position is subject to further NRC review through inspection activities. The licensee may consider consulting the ASME Operations and Maintenance Committee for clarification of the designation of "active" or "passive" and other issues regarding the IST scope of the overpressure protection devices.

3.5 Action Items 5.5 through 5.8

These action items relate to test deferrals. The actions taken by the licensee are subject to further review during NRC inspection activities.

3.6 Action Item 5.9

This action item relates to the scope of the IST program. The actions taken by the licensee for the specific recommendations are subject to further review during NRC inspection activities.

3.7 Additional Information

Relief Request V-02 related to mode changes in accord with technical specifications as related to IST valve operability determinations. The relief request has been removed from the IST program following the licensee's review of SE/TER Section 3.1.1. The licensee indicated no other changes to relief requests in the revision.

4.0 CONCLUSION

For Relief Request P-02, which is approved pursuant to 10 CFR 50.55a(f)(6)(i), the NRC has determined that relief may be granted and the proposed alternative allowed. Relief Request EN-05 was issued to cover valves that were previously included in EN-02. Both the revised EN-02 and the new EN-05 provide acceptable alternatives in accord with GL 89-04, Position 2, guidance for a sampling disassembly and inspection program. The regrouping of the four valves previously in a single relief request (earlier revision of EN-02) into two groups of two valves (two valves per relief request) is in accord with Position 2 guidance. Therefore, the revised relief requests including EN-01, EN-03, EP-02, FC-01 are approved pursuant to 10 CFR 50.55a(f)(6)(i). The granting of such relief is authorized by law, giving due consideration to the burden upon the licensee that could result if the Code requirements were imposed on the facility.

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