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February 6, 1997

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
NRC Inspection Report 50-382/96-24
Reply to Notice of Violation

Gentlemen:

The purpose of this letter and its attachment is to revise corrective actions and due dates for Violation 9624-01, which were submitted in letter W3F1-96-0210 dated December 26, 1996. A vertical line has been placed in the right margin of the attachment to indicate the revised information. The revisions were discussed with Mr. Phil Harrell of your staff on Thursday, January 23, 1997.

If you have any questions concerning this response, please contact me at (504) 739-6666.

Very truly yours,

T. J. Gaudet

T. J. Gaudet
Acting Director
Nuclear Safety and Regulatory Affairs

TJG/WDM/tjs
Attachment

cc: L.J. Callan (NRC Region IV), C.P. Patel (NRC-NRR),
R.B. McGehee, N.S. Reynolds, NRC Resident Inspectors Office

ATTACHMENT 1

ENTERGY OPERATIONS, INC. RESPONSE TO THE VIOLATION IDENTIFIED IN ENCLOSURE 1 OF INSPECTION REPORT 50-382/96-24

VIOLAT'ON NO. 9624-01

10 CFR Part 50, Appendix B, Criterion XVI, requires, in part, that conditions adverse to quality be promptly identified and corrected.

Procedure OP-901-511, "Instrument Air Malfunction," Attachment 5, Note 1, requires that accumulators for Valves CC-135A(B), Dry Cooling Tower A(B) Inlet Isolation Valve, have pre-staged motive cylinders (nitrogen bottle) to allow a backup air source to be connected to the accumulators on a loss of instrument air.

Contrary to the above, conditions adverse to quality were not promptly identified and corrected in that:

1. As of October 22, 1996, the licensee failed to determine all of the potential water usage sources from the Condensate Storage Pool (CSP) following a design basis tornado event, as required by Condition Report (CR) 96-0086, dated January 22, 1996.

2. From October 14-21, 1996, the licensee did not implement immediate corrective actions specified in CR 96-1603 by prestaging a nitrogen cylinder for valve CC-135B, as required in procedure OP-901-511.

This is a Severity Level IV violation (Supplement I) (50-382/9624-01).

RESPONSE

(1) Reason for the Violation (Example 1)

Entergy believes that the root cause of this condition is that design documents are inadequate for the design basis tornado accident. Contributing causes were personnel error, poor verification and testing techniques, and inadequate procedures and instructions.

Design basis document W3-DBD-003, Emergency Feedwater (EFW), states that the Component Cooling Water (CCW) Makeup Pumps will require a minimal amount of CSP volume following any design basis accident. An existing calculation which stated that the CCW Surge Tank would require 116 gallons of makeup from the CSP following a design basis tornado event was overlooked in calculation MN(Q)-9-17 and therefore, subsequently in the W4.101 evaluation performed for CR 96-0086. Weaknesses were discovered

in procedural guidance to direct engineering personnel in determining if other information exists that would affect calculations being performed or to pursue in what documents
(i.e., procedures, other calculations, etc.) information obtained from calculations should be placed.

(2) Corrective Steps That Have Been Taken and the Results Achieved

Upon discovery, calculations were performed to include the additional makeup requirements. Based on Technical Specification (TS) minimum levels, the WCT and CSP contain 344,000 gallons of water. During the first 24 hours of the design basis tornado event, a total of 343,976 gallons of water would be needed for EFW consumption, Ultimate Heat Sink (UHS) consumption, and CCW Surge Tank makeup. Based on these numbers, the WCT and CSP provided a 24 gallon margin. This margin, however, was based on the DCT outlet isolation valves, CC-181A(B) and CC-135A(B), being leak tight. Since these valves had not been leak tested, an assumed leakage of 5 gpm per valve was made. Recommendations were made to the Control Room to maintain CSP level greater than 92% to provide added volume. Operations management directed the Control Room staff to maintain CSP level greater than 96%.

With CSP level at 96%, the available margin for the tornado event, not considering seat leakage through the Dry Cooling Tower (DCT) inlet isolation valves, CC-135A(B), discharge check valves, CC-181A(B), and bundle isolation valves, is 10,555 gallons. Assuming a combined leak rate of 10 gpm for CC-135A(B) and CC-181A(B) for the initial two hours prior to isolation of the damaged bundles, the remaining margin is 9,355 gallons. The combined leakage to the damaged bundles through the bundle isolation valves for the remaining 22 hours could not exceed 7 gpm. The DCT bundle inlet and outlet isolation valves were used as isolations during two maintenance activities (Work Authorization (WA) #'s 01142260 & 01144162) with no appreciable leakage.

Testing produced the following results:

CC-181A/CC-135A	0.04 gpm
CC-181B/CC-135B	0.008 gpm

(3) Corrective Steps Which Will Be Taken to Avoid Further Violations

- Research all licensing and design documents pertaining to the design basis tornado event. Detail the design basis tornado event similar to Calculation MN(Q)-9-3 that details the LOCA event. Revise design documents and issue a Licensing Document Change Request (LDCR) to clarify the FSAR if required. Determine leakage criteria for valves

required to be leak tight during a design basis tornado event. The IST Program will be updated with these results. ECD, July 31, 1997.

- Develop a design basis for CCW Makeup following design basis accident. Revise DBD-003, Emergency Feedwater, and update Calculation EC-I91-003 with results. ECD, March 31, 1997.

- The WCT cross-connect line will be tested during RF8 to ensure make-up capability from one basin to another (corrective action from CR 96-0086). ECD, July 31, 1997.

- Revise Calculation MN(Q)-9-17 to take into account the CCW makeup from the CSP. ECD, July 31, 1997.

- Revise NOECP-011, Performance of Calculations, to strengthen the design input and verification process for calculations. ECD, January 31, 1997.

- Add DCT bundle isolation valves, CC-137A(B)/CC-179A(B), CC-141A(B)/CC-175A(B), CC-139A(B)/CC-177A(B), CC-143A(B)/CC-173A(B) to the IST Plan to ensure these components will be able to perform their specific function during a design basis tornado event. ECD, January 31, 1997.

  Initial testing has been completed on all bundle isolation valves. Subsequent quarterly testing is being incorporated into Operations department surveillance procedures.

- Determine if testing of the CCW makeup pumps in accordance with ASME Section XI is required. ECD, March 31, 1997.

(4) Date When Full Compliance Will Be Achieved

Waterford 3 is in full compliance in that all potential water usage sources during a design basis tornado accident have been identified. Estimated completion dates are provided, above, for corrective actions aimed at reducing the potential for future violations. Those corrective actions will be completed by July 31, 1997.

(1) Reason for Violation (Example 2)

The cause for the second cited condition in this violation is personnel error. Incorrect assumptions, inadequate follow-up of task status, lack of task ownership, and inadequate communications between Operations and System Engineering led to the temporary nitrogen bottle not being staged.

A Condition Report (CR) was written on 10/14/96 when it was discovered that a temporary nitrogen bottle was not staged for CC-134B and CC-135B as directed by Operations Off-Normal Procedure OP-901-511, "Instrument Air Malfunction." The nitrogen bottles are staged locally for the A and B train CCW DCT isolation and bypass valves to minimize shift effort in the event of an instrument air malfunction after normal working hours. This requirement is administrative in nature. There is no design or safety requirement that requires the bottles to be staged in the DCT areas.

A series of communication errors and incorrect assumptions led Operations personnel to assume that System Engineering would stage the bottle. Engineering personnel informed the Control Room of the lack of requirements for the bottles and believed that Operations would stage the bottle as a requirement of OP-901-511. No one person took ownership of the issue and acted as the coordinator to ensure replacement of the bottle.

On 10/21/96, NRC inspectors discovered that a nitrogen bottle was staged in the A DCT area but not in the B.

(2) Corrective Steps that Have Been Taken and Results Achieved

Once informed, the shift superintendent directed personnel to immediately place a nitrogen bottle along with the necessary equipment in the area of CC-135B.

(3) Corrective Steps Which Will Be Taken to Avoid Further Violations

- A review will be done of the need for the temporary nitrogen bottles to be staged in the DCT areas. If the bottles are left in the area, they will be identified with an OPS AID.
- As an enhancement, OP-901-511 will be revised to remove requirements for staging the nitrogen bottles in the DCT area.
- Operations management will review this CR with personnel with emphasis on the necessity for thorough communications and proper follow-up of assigned task completion. Also stressed will be the consequences of incorrect assumptions during problem solving.

(4) Date When Full Compliance Will Be Achieved

Waterford 3 is currently in full compliance in that the temporary nitrogen bottle has been staged in the DCT area. Estimated completion dates are provided, above, for corrective actions aimed at reducing the potential for future violations. Those corrective actions will be completed by July 31, 1997.

VIOLATION NO. 9624-02

10CFR50.55a(g) requires, in part, that inservice testing to verify operational readiness of pumps and valves whose function is required for safety be accomplished in accordance with Section XI of the ASME Boiler and Pressure Vessel Code.

Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," Subsection IWV-1100, includes within the scope of inservice testing, Class 1, 2, and 3 valves (and their actuating and position indicating systems), that are required to perform a specific function in shutting down the reactor or in mitigating the consequences of an accident.

Contrary to the above, as of October 22, 1996, the licensee failed to verify the operational readiness of valves whose function is required for safety in accordance with Section XI of the ASME Boiler and Pressure Vessel Code. Specifically, the licensee failed to perform testing that ensured operational readiness of the safety-related air accumulators of ASME Class 3 valves.

RESPONSE

Basis for Disputing the Violation

Waterford 3 disputes the NRC's position that the failure to stroke fail-as-is valves CC-134A(B) and CC-135A(B) using their air accumulators as the source of air constitutes a violation of 10CFR50.55a(g) and ASME Section XI.

As noted in your inspection report, the operation of ASME Class 3 valves CC-134A(B) and CC-135A(B) mitigate the consequences of the design basis tornado event. Therefore, Waterford performs the following tests to verify the operational readiness of each valve and its actuating device:

- Quarterly IST stroke time test using the IA system as the motive force for the valves. Both valves are timed in the open and closed directions.

- Accumulator drop test each refueling outage to meet 10CFR Appendices A and B operational readiness criteria.

Inspection Report 96-24 cites Information Notices (IN) 85-84 and 86-50 which describe the failure to test valves that have been identified as fail-safe (i.e., valves that fail to either the open or closed position on a loss of control air or power). ASME Section XI, Subsection IWV-3415, also addresses fail-safe valves. This section

states that when practical, valves with fail-safe actuators shall be tested by observing the operation of the valves upon loss of actuator power.

Valves CC-134A(B) and CC-135A(B) are not fail-safe valves. These valves are fail-as-is valves (i.e., valves that do not change position on loss of control air or power). Because they fail-as-is, these valves do not change position on loss of control air or power. These valves are therefore not subject to testing in accordance with subsection IWV-3415.

Engineering inspection report 96-202 also comments on Waterford 3's position on testing of fail-safe valves in accordance with IWV-3415. The inspection report states that the licensee did not interpret the ASME quarterly test specified in the ASME Code Section XI, Article IWV-3415 for fail-safe valves, to include valves that relied on air accumulators to change position on loss of normal non-safety IA.

The IST Program monitors valves for degradation so that corrective action may be taken in a timely manner should problems with the valves develop. Valves CC-134A(B) and CC-135A(B) are in Waterford's IST Program. The testing currently performed on these valves satisfies all applicable ASME Section XI requirements.

Consistent with the definitions from Regulatory Guide 1.22, the actuator or actuating system of the code class valve is taken to be, "A component or assembly of components that directly controls the motive power (electricity, compressed air, etc.) for actuated equipment." An air accumulator does not "control the motive power"; rather, it provides the motive power which is controlled by the actuator. An air accumulator is therefore not part of the actuator or actuating system. There is no requirement in ASME Section XI, Subsection IWV, to test accumulators on fail-as-is valves.

Waterford 3 does believe, however, that periodic testing of accumulators for CC-134A(B) and CC-135A(B) should be conducted in accordance with 10CFR50 Appendix B Criterion XI, Test Control, to duplicate, as closely as practicable, the performance required of the valves in the event of an accident. This has been addressed in Condition Report CR-96-1978. Therefore, stroke testing CC-134A(B) and CC-135A(B) using the accumulator as the motive source will be added to STA-001-005, "Leakage Testing of Air and Nitrogen Accumulators for Safety Related Valves." Initial testing will be completed by January 15, 1997, with subsequent testing being performed on a refueling outage basis. Waterford 3 believes that stroke testing these valves each refueling outage will verify their operational readiness under all conditions.

In addition, it has also been determined and documented in CR-96-1978 that periodic testing of the accumulators for the following valves should be conducted. These valves will be stroke tested with their respective accumulators each refueling outage beginning with RF8:

- CC-641, CCW to Containment Outside Containment Isolation

- CC-710, Containment CCW Return Header Inside Containment Isolation
- CC-713, Containment CCW Return Header Outside Containment Isolation
- CC-963A, Shutdown Heat Exchanger A CCW Flow Control Valve
- CVR-101, Containment Vacuum Relief Train B Control Valve
- CVR-201, Containment Vacuum Relief Train A Control Valve

A preliminary evaluation has been performed regarding the above valves. It has been determined that the accumulators for CC-134B and CC-135B are free from moisture accumulation. Since these valves are located in the -35 wing area at the lowest point of the IA system, this is strong evidence that IA accumulators in general will not experience air volume reduction due to moisture buildup. Accumulator volume reduction could result in degradation or loss of function of the associated valve if the accumulator was needed during a loss of instrument air event.

Further review has shown that there is a high degree of confidence that listed valves will perform if needed based on:

1. all of the listed valves are tested periodically as required by ASME Section XI

2. the IA system dewpoint is maintained at $\leq$ -10 °F and is therefore very dry and will not promote corrosion

3. a maintenance history search was performed and only one recorded event was found where an IA check valve (test boundary valve) failed to close during accumulator testing

Given the above, Waterford 3 believes there is a high degree of certainty that the subject will perform as designed. This, coupled with the stroke testing of these valves each refueling outage will verify operational readiness for air-operated safety-related valves supplied with air accumulators under all conditions.