

# CP&L

Carolina Power & Light Company

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Dr. J. Nelson Grace, Regional Administrator  
United States Nuclear Regulatory Commission  
Region II  
101 Marietta Street, N. W., Suite 3100  
Atlanta, Georgia 30323

ROBINSON NUCLEAR PROJECT DEPARTMENT, UNIT NO. 2  
DOCKET NO. 50-261  
LICENSE NO. DPR-23  
NRC REGION II INSPECTION REPORT 84-44

Dear Dr. Grace:

Carolina Power and Light Company has received and reviewed the subject report and provides the following response:

A. SEVERITY LEVEL IV VIOLATION (RII-84-44-02-SL4)

Section 4.0.1.a of the Licensee Technical Specifications requires the Licensee to perform inservice inspection and testing in accordance with Section XI of the ASME Boiler and Pressure Vessel Code. Paragraph IWV-3415 "Fail-Safe Valves" states, in part, "when practical, valves with fail-safe actuators shall be tested by observing the operation of the valves upon loss of actuator power."

Contrary to the above, the Licensee's Operation Surveillance Test Procedure OST-501 (Revision 1) titled "Main Steam Isolation Valves (MSIV) (Refueling)" does not require that "actuator power," which is the instrument air supply; a non-safety grade system, be isolated from the MSIV accumulators prior to the test. Additionally, the Licensee stated that OST-501 is executed with the instrument air supply connected.

1. Admission or Denial of the Alleged Violation

CP&L acknowledges the alleged violation.

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2. Reason For The Violation

ASME Section XI requires testing the actuator of the Main Steam Isolation Valve (MSIV) by observing the operation of the valves upon loss of actuator power. Operation Surveillance Test OST-501, which is referenced in the violation, is intended only to satisfy Technical Specification (TS) 4.7 which verifies that the MSIVs will close within 5 seconds with the Plant at the hot, no load condition. OST-501 is not intended to meet the requirements of Section XI. OST-702 is intended to meet this Section XI requirement.

OST-702 did not adequately test the MSIVs in the event of the loss of all actuator power as required by Section XI. The loss of actuator power was misinterpreted to mean only the loss of electrical power and not the loss of the instrument air supply. The loss of electrical power was simulated by turning the control board switch for the MSIVs to the closed position. Instrument air, which remained valved into the MSIVs, is not a safety-related system and should have been isolated for a proper test.

3. Corrective Steps Which Have Been Taken

On January 8, 1985, the MSIVs were tested with the instrument air isolated to assess if the MSIVs would close with the Plant at hot, no load condition with motive air isolated.

As a result of the test, it was determined that:

- A. Under no flow conditions, the MSIVs will partially close (into the flow stream) but will drift back open if the actuating instrument air is depressurized.
- B. If closed, though, the MSIVs will not drift open with no measurable differential pressure across the valves and the actuating instrument air depressurized.

From these results, it can be concluded that in the event of a steam line break downstream of the MSIVs coincident with a loss of instrument air, the resultant steam flow would close the MSIV satisfying the design requirement of the valve for this event. However, in the event of a steam generator tube rupture, isolation of the faulty steam generator within 30 minutes, as addressed in the FSAR, relying solely on instrument air, cannot be assured. Specifically, a steam generator tube rupture may not create the steam flows and differential pressure across the MSIV to assure the valve closes and remains closed without instrument air. Therefore, a bottled nitrogen back-up to the MSIV actuators has been provided on an interim basis to ensure adequate pressure is available to close the valves within this safety analysis assumption. This manually aligned back-up pressure source will be available until a permanent modification can be made or until additional evaluations indicate other permanent corrective action.

4. Corrective Steps Which Will be Taken

- A. OST-702 will be revised to include proper failure mode testing to meet the requirements of ASME Section XI. This test is done at cold shutdown but will serve to assess valve operation until the problems addressed above can be permanently resolved.
- B. The OSTs designated to meet the Section XI requirement on failure mode testing for other ISI valves will be reviewed to ensure this is an isolated problem.

5. Date When Full Compliance Will be Achieved

- A. OST-702 will be updated by June 1, 1985.
- B. The other ISI OSTs will be reviewed by October 1, 1985.
- C. The evaluations addressed in Item 3 above will be completed and permanent corrective action taken prior to power operation following the next refueling outage.

B. SEVERITY LEVEL IV VIOLATION (RII-84-44-04-SL4)

10CFR50 Appendix B, Criteria III "Design Control," requires, in part, that the design control measures provide for verifying or checking the adequacy of design and that design changes be subject to design control measures commensurate with those applied to the original design.

Contrary to the above, design control measures were inadequate in that installation of Modification Package No. 680, a Condensate Storage Tank (CST) oxygen control bladder, resulted in the bladder sealing a manway at the top of the tank when the tank was full, thus eliminating a vent path formerly used in preventing overpressurization.

1. Admission or Denial of The Alleged Violation

CP&L acknowledges the alleged violation.

2. Reason For The Violation

The Condensate Storage Tank (CST) was damaged by an overpressurization event which occurred on November 8, 1984 while the Plant was in cold shutdown with flushing of the Condensate System in progress. When one condensate pump was started while the hotwell level was above the high level setpoint, condensate was pumped back to the CST from the discharge of the condensate pumps through a 2-inch line and the automatic hotwell level control valve. The flowrate entering the CST exceeded that discharging through the tank's 6-inch overflow line, overpressurizing the tank and resulting in deformation of the tank top and some restraining devices.

Although deformed, the integrity of the CST was not lost. Physical inspection verified that there was not a breach of the fluid containing portion of the CST nor of any attached piping.

Subsequent calculations indicated that the flow rate into the CST, via the condensate recirculation line with both condensate pumps running could have exceeded CST overflow capability. However, with one condensate pump running, recirculation flow did not exceed the design flow rate of the CST 6-inch overflow line. Apparently, some restriction in the underground drainage piping into which the CST overflow line discharged reduced the overflow capacity of the CST to less than the inflow from the condensate system. Modification 680 installed a bladder in the CST designed to eliminate the absorption of oxygen from the vented tank air space. Prior to this modification, this condition would have resulted in the CST overflowing through the manway and atmospheric vent at the top of the tank. The bladder provided a seal which in effect prevented water from flowing out these two paths. Discussions with Operations personnel after the event revealed that overflow out these paths had occurred. However, these occurrences were not common and were noted only by a few Operations personnel. This information was not known by the engineering organizations responsible for installing the bladder. Without this information, the engineering design focused on preserving existing overflow capability through the normal 6-inch overflow line.

3. Corrective Steps Which Have Been Taken

The following interim actions were taken until the Condensate System could be fully evaluated and modified to ensure the CST overpressurization does not recur.

- A. Necessary repairs were effected and the structural and seismic capability of the CST, the CST restraint devices, and concrete pad were restored.
- B. The CST overflow line has been cut off above the point it entered the drainage system, so its discharge flowrate is not limited by the drainage system.
- C. Procedures have been revised to further ensure the CST is not overpressurized. These changes included isolating the condensate pump discharge back to the CST (C-48a, Locked Closed) during recirculation of the Condensate System and during normal operation. This manual valve is opened only in the unlikely event the hotwell level needs to be lowered during normal operation. Additional precautions on the control of valve C-48a are provided by a locally mounted sign.

4. Corrective Steps Which Will be Taken

- A. The upper portion of the CST which was deformed and temporarily strengthened will be replaced during the next refueling outage.
- B. Modifications providing overflow capacity margin are being considered for implementation during the next refueling outage.

- C. This event, including the lessons to be learned, will be incorporated into appropriate retraining programs to encourage communication of unusual conditions that may need to be factored into facility changes.

5. Date When Full Compliance Will be Achieved

Full compliance was achieved with the interim repairs and measures addressed above. The permanent repairs will be completed during the next refueling outage. A review of this event by appropriate personnel will be completed by July 1, 1985.

C. SEVERITY LEVEL IV VIOLATION (RII-84-44-03-SL4)

10CFR50.59 "Changes, Tests, and Experiments" requires evaluations be performed on changes to the facility as described in the FSAR and that these evaluations provide the basis for the determination that the change does not involve an unreviewed safety question (USQ).

Contrary to the above, 10CFR50.59 reviews did not contain adequate basis in that two reviews conducted on March 24, and May 7, 1984, for Modification Package No. 680, Revision 1, "Condensate Storage Tank Sealing Bladder" did not identify that an increase in the probability of occurrence of a malfunction of equipment important to safety as previously analyzed in the updated FSAR would occur with the implementation of this modification. Increasing this probability is one of the conditions necessary to involve a USQ. FSAR Section 9.2.5.1 analyzes the "malfunction" of the CST to be a complete failure. Modification Package 680 installation resulted in a CST overpressurization, a potential complete failure.

1. Admission or Denial of The Alleged Violation

CP&L denies the alleged violation.

2. Reason For The Denial

The 10CFR50.59 evaluation and reviews were adequately performed. 10CFR50.59 allows a change to the facility without prior Commission approval if the change does not involve a change to the Technical Specifications and is determined not to be an unreviewed safety question. Modification 680 installed a bladder in the Condensate Storage Tank (CST) to minimize the absorption of oxygen by the water in the CST. This is a standard Engineering solution for this concern.

The 10CFR50.59 evaluation and reviews concluded that a Technical Specification change was not required and an unreviewed safety question did not exist. The basis for this conclusion was that the bladder would not block the auxiliary feedwater pump suction line and that the bladder would not affect the ability of the CST to maintain the minimum required water volume.

The 10CFR50.59 review did not specifically evaluate the overflow capability since:

1. The CST was initially designed to the AWWA D100-67 Code which addresses adequate overflow.
2. A downcomer was being installed on the overflow line inside the CST to ensure the bladder could not obstruct the overflow pipe preserving the original overflow capability.
3. The flow control valve in the 2-inch line from the discharge of the condensate pumps back to the CST was not altered.

The original design did not require that the manway and the vent on top of the tank be overflow paths. It was not known by the safety reviewers that these penetrations had provided overflow paths on occasion in the past. As was acknowledged in our response to Violation B of this response, this lack of knowledge was a result of inadequate design controls during the Modification 680 design process. Based on the information available to the safety reviewers at the time, there was no basis for the safety reviews under 10CFR50.59 to consider the potential for overpressurization.

The overpressurization of the CST was apparently due to a problem with the initial design in that the overflow line was not capable of relieving inflow under all conditions. The 10CFR50.59 evaluation and review are not intended to involve recalculations of the initial design requirements, but rather consider changes made to the existing design based on available information in the design package. To that extent, the safety reviews associated with this modification were adequate.

Carolina Power and Light Company respectfully requests that this violation be withdrawn.

D. SEVERITY LEVEL IV VIOLATION (RII-84-44-01-SL4)

Section 3.6.1.a of the Licensee's Technical Specifications requires that containment integrity shall not be violated unless the reactor is in the cold shutdown condition.

Contrary to the above, on November 30, 1984, with the reactor average temperature above 200°F, Licensee personnel opened service water vent valve SW 231, located outside containment. Because of a hole created during weld repair of service water piping inside containment, containment integrity was breached via a path within the service water supply piping to HVH-3 for a period of 40 hours.

1. Admission or Denial of The Alleged Violation

CP&L acknowledges the alleged violation.

2. Reason for the Violation

The following was extracted from LER 84-011.

On November 27, 1984, the Plant was in hot shutdown. Containment Fan Cooler HVH-3 was isolated for weld repairs to its service water lines. During welding, a pin hole was made in the service water line to HVH-3 in containment. Water leaking from this hole prevented further welding repair. The Shift Foreman directed a member of this shift to open a vent valve outside containment between the isolation valve and HVH-3, which should have allowed the service water line to HVH-3 to drain. Opening this vent valve was not properly documented; therefore, it was not properly controlled.

On November 29, 1984, the Shift Foreman was requested to drain this service water line for radiographic testing. The Operating Supervisor recognized that containment integrity would be violated with this service water vent valve open outside containment with a hole in the same service water line inside containment. The recent position of the vent valve was questioned, so an operator was asked to check the valve's position. The valve was found open and was subsequently shut at 1615 hours on November 29, 1984.

The vent valve was open coincident with the service water line in containment leaking. This resulted in a direct path from the containment atmosphere to the outside atmosphere. During the two-day period of the event, Reactor Coolant System (RCS) temperature varied from 520°F to 545°F. Containment integrity is required by Technical Specifications whenever RCS temperature is greater than 200°F. Therefore, a violation of containment integrity existed during this period.

The Shift Foreman determined that the hole in the service water line was not a containment integrity concern based on a determination that weepage on the service water lines in containment did not constitute a containment integrity concern as long as the Plant was in hot shutdown. At the time the vent valve was opened, HVH-3 was out of service in accordance with the Operations Work Procedure (OWP). Also, the individual involved did not realize that the manipulation of this valve without a procedure and without independent verification is in conflict with Plant procedures and the OWP.

3. Corrective Steps Which Have Been Taken

The individual involved in this incident has been counseled on the causes of its occurrence in order to ensure that there is not a recurrence. Operations personnel reviewed LER 84-011 that dealt with this event.

4. Corrective Steps Which Will Be Taken

No further corrective action is necessary.

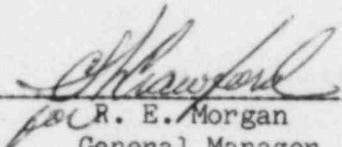
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5. Date When Full Compliance Will be Achieved

Full compliance has been achieved.

  
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for R. E. Morgan  
General Manager  
H. B. Robinson S. E. Plant

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cc: H. E. P. Krug  
Document Control Desk