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**DUKE POWER**

April 28, 1995

Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

Subject: Catawba Nuclear Station  
Dockets 50-413 and 50-414  
Reply to Notice of Violation  
Inspection Report 50-413, 414/95-07

Attached is Duke Power Company's response to the two (2) Level IV violations cited in Inspection Report 50-413, 414/95-07, dated March 30, 1995. These violations were identified during the Residents' Monthly Inspection.

If there are any questions concerning this response, please contact Kay Nicholson at (803) 831-3237.

Sincerely,

A handwritten signature in dark ink, appearing to read 'DL Rehn', with a long horizontal flourish extending to the right.

D. L. Rehn

\KEN:RESP95.07

xc: S. D. Ebnetter, Regional Administrator

R. E. Martin, ONRR

R. J. Freudenberger, SRI

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CATAWBA NUCLEAR STATION  
REPLY TO NOTICE OF VIOLATION  
50-413, 414/95-07-01

*Notice of Violation*

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

Contrary to the above, procedure TN/1/A/1331/00/01A, Procedure for the Implementation of Modification CN-11331, Rev 0, Work Unit 01, for implementing Nuclear Station Modification CN-11331 to delete the Residual Heat Removal System Autoclosure Interlock function, was not appropriate to the circumstances in that it did not ensure that power was removed from the Unit 1 Residual Heat Removal Pump B suction isolation valves 1ND37A and 1ND36B prior to de-energizing relays 1PY/405BX and 1PY/403BX. As a result, when relay 1PY/405BX was de-energized on February 13, 1995, valve 1ND37A closed and shutdown cooling was lost on Unit 1 for approximately 23 minutes.

This is a Severity Level IV Violation (Supplement I).

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RESPONSE:

1. Reason for Violation

The primary root cause of this event was inadequate communication between Implementation Accountable personnel and Operations matrix personnel responsible for the cross-disciplinary review of the Implementation Procedure (TN) and scheduling of the work. This communication deficiency resulted in an error in the preparation of the TN which was not identified in the subsequent qualified review and cross-disciplinary review of the procedure. The impact of de-energizing relay 1PY/405BX was not adequately communicated between Engineering and Operations personnel. This ultimately led to the closing of valve 1ND37A isolating Residual Heat Removal (ND) flow. A secondary factor in this communication deficiency was a lack of operational perspective within the Electrical Design group.

2. Corrective Actions Taken and Results Achieved

On loss of ND flow, Operations personnel immediately recognized the problem and entered AP/1/A/5500/19, Loss of Residual Heat Removal System, to restore core cooling. Operations personnel directed the Instrument and Electrical (IAE) craft to restore power to relay 1PY/405BX. Once power was restored, 1ND37A was opened and cooling flow was restored.

The effect of this transient was evaluated on the following equipment/components to ensure that ND Train 1B remained operable:

ND Pump 1B  
Valves 1ND-37A and 1ND-59B  
ND piping and supports  
Instrumentation

Based on this evaluation, there was no visible damage to the listed equipment/components. ND Train 1B was determined to be operable.

The TNs for NSM CN-11331 were reviewed and revised before work was resumed on the NSM.

All modification work for the outage was put on hold until MOD Engineering reviewed each implementation package to identify any similar problems. This review was completed the following day with no

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***Notice of Violation***

*Technical Specification 6.8.1, Procedures and Programs, requires, in part, that written procedures be established, implemented and maintained covering the activities referenced in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, which includes licensee procedures controlling the plant independent review verification process.*

*Operations Management Procedure 2-33, Valve and Breaker Position Verification and Valve Operation, requires in part, for motor operated valves requiring independent verification, valve position should be determined by use of control indicating lights.*

*Operations Management Procedure 1-5, Independent Verification, requires in part, that valve positions shall be verified as directed by Operations Management Procedure 2-33.*

*Operations Management Procedure 1-5, Independent Verifications, requires that, before an action is performed that involves independent verification, both individuals will verify that the component on which action is to be performed is correct.*

*Contrary to the above:*

*Example 1*

*On February 17, 1995, during performance of a Technical Specification 4.9.4.1 (Refueling Operations Containment Building Penetrations) required surveillance, two operators failed to adequately implement Operations Management Procedure 1-5. Specifically, the operators failed to properly verify and independently verify by use of control indicating lights that valve 1BB56A, Steam Generator Blowdown Containment Isolation Valve, was in the closed position. Valve 1BB56A was de-energized at the time and was subsequently determined to be open.*

*Example 2*

*On February 26, 1995, while Unit 2 operated in Mode 4 (Hot Shutdown) with the 2B Residual Heat Removal pump providing shutdown cooling, two operators failed to adequately implement Operations Management Procedure 1-5. Specifically, the operators failed to properly perform independent valve verification while performing Removal and Restoration Tagout 25-199 to remove the 2A Residual Heat Removal pump from service for maintenance. Consequently, instead of closing valve 2KC75, 2A Residual Heat Removal Pump Mechanical Seal Heat Exchanger Inlet Valve, the operators erroneously closed valve 2KCA75 and isolated Component Cooling Water to the operating 2B Residual Heat Removal pump motor cooler.*

*This is a Severity Level IV Violation (Supplement I).*

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**RESPONSE:**

**Example 1: Containment Integrity Valve Position Surveillance**

**1. Reason for Violation**

The cause of this event is attributed to failure to properly initially verify and to independently verify the position of de-energized motor operated valve 1BB-56A. The element of co-dependency is rudimentary in this event. A contributing cause is attributed to insufficient guidance being provided for properly verifying the position of a de-energized motor operated valve.

The initial verification performed was deficient in that the verification was not performed directly, but was documented based on a phone conversation with control room personnel. The independent verification performed was deficient in that the independent verification was not performed directly, completely independent from the initial verification, but was documented based on the phone conversation the initial verifier had with the control room personnel.

Operations Management Procedure 2-33, Valve and Breaker Position Verification and Valve Operation, is deficient in that it does not provide guidance for verifying the position of a de-energized motor operated valve.

**2. Corrective Actions Taken and Results Achieved**

Acceptable guidelines for verifying the position of a de-energized motor operated valve were communicated to all Operations Teams.

A discussion of the event was conducted with the Operations Shift Managers to disseminate with their teams.

Individuals involved with this event were counseled on their actions.

**3. Corrective Actions to be Taken to Avoid Future Violations**

Operations Management Procedure 2-33, Valve and Breaker Position Verification and Valve Operations, will be revised by June 1, 1995, to provide guidance for verifying the position of a de-energized motor operated valve.

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additional concerns being identified. All modifications were then released for implementation.

Two teams (Failure Investigation Process Team and a Significant Event Investigation Team) were formed to independently review this event and determine the root cause as described under 'Reason for Violation'.

**3. Corrective Actions to be Taken to Avoid Future Violations**

Formal written guidance for the development of the Electrical Isolation Sheet will be developed and included in the Catawba Modification Manual. When this revision is complete, all managers, engineers, and technicians/specialist who develop, review, or approve TNs will be trained in these requirements. This training will also include Operations Matrix personnel and others who perform cross-disciplinary reviews of electrical TNs. This revision and training will be completed by September 1, 1995.

To obtain Operations' perspective in the review of modifications, a screening criteria will be developed and incorporated into the modification process by September 1, 1995, to identify critical modifications. The critical modifications identified will then be independently reviewed by a Senior Reactor Operator level person to identify critical steps and then review these steps to ensure nuclear safety is not compromised.

**4. Date of Full Compliance**

Duke Power Company is now in full compliance.



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FPI International has been contracted to provide training to establish worker skills in error reduction. Training will also be conducted to provide supervisors and a target group (i. e., Operations, Maintenance, Instrument and Electrical workers) with better "tools" to perform investigations. This training will be complete by December 1, 1995.

4. Date of Full Compliance

Duke Power Company is now in full compliance.

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RESPONSE:

**Example 2: Component Cooling Water Valve Misposition**

**1. Reason for Violation**

The most fundamental cause of this event was co-dependency (overconfidence) which resulted from the interpersonal relationship between the two operators. It is likely that either operator acting alone would have been successful in positioning the correct valve. Co-dependency impacted both 1) self-checking of the valve and 2) the lack of follow-up that occurred after it was questioned by one of the operators if the correct valve had been closed because of the appearance that the piping from the valve went into the wrong pump room.

Implementation of self-checking (STAR) was weak. Expectations are that the valve number will be matched number-by-number, letter-by-letter with the valve designator on the tagout sheet. This was not done. A metal tag, which partially obscured the valve label, could have been easily moved to the side. Co-dependency impacted self-checking. The verification performed by the independent verifier was not performed completely independent from the doer.

Verification that the correct valve had been closed after a question was raised was not rigorous enough to detect the error. A cue (question) was present and several sources of information were available to verify the correct valve. The fact that a question was raised indicates a good questioning attitude, but the process or tool for following up on the question was inadequate. Again, co-dependency impacted this follow-up.

**2. Corrective Actions Taken and the Results Achieved**

FPI International was contracted to investigate this event and to make improvement recommendations. A preliminary investigation (fact finding, data gathering) was performed at the station on February 28 through March 02 by the investigation team.

A discussion of the event was conducted with the Operations Shift Managers and to disseminate with their teams.

Individuals involved with this event were counseled on their actions.



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3. Corrective Actions to be Taken to Avoid Future Violations

FPI International has been contracted to provide training to establish worker skills in error reduction. Training will also be conducted to provide supervisors and a target group (i. e., Operations, Maintenance, Instrument and Electrical workers) with better "tools" to perform investigations. This training will be complete by December 1, 1995.

4. Date of Full Compliance

Duke Power Company is now in full compliance.