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**DUKE POWER**

April 5, 1990

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

Subject: Catawba Nuclear Station, Unit 1  
Docket No. 50-413  
NRC Inspection Report No. 50-413/90-05  
Reply to a Notice of Violation and a Notice of Deviation

Gentlemen:

Enclosed is the response to the Notice of Violation transmitted per Stewart D. Ebnetter's March 6, 1990 letter. This violation involved a failure to maintain adequate procedures to preclude unauthorized operation of the Containment Air Return fan power lockout breaker.

Very truly yours,

*Hal B. Tucker* *msr*

Hal B. Tucker

WRC142/JGT

Attachment

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U. S. Nuclear Regulatory Commission

April 5, 1990

Page Two

xc: Mr. Stewart D. Ebnetter  
Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta St., NW, Suite 2900  
Atlanta, Georgia 30323

Mr. W. T. Orders  
NRC Resident Inspector  
Catawba Nuclear Station

Duke Power Company  
Reply To A Notice Of Violation  
413/90-05-01

10 CRF 50, Appendix B, Criterion XIV, Inspection Test and Operating Status, as implemented by Duke Power Company Topical Report Quality Assurance Program, Duke-1-A, which incorporates in part, section 5.2.6 of ANSI N18.7-1976 AND-3.2 requires that procedures be provided for control of equipment as necessary to maintain reactor safety and avoid unauthorized operation. These procedures shall require control measures such as locking or tagging to secure and identify equipment in a controlled status.

Contrary to the above, procedures to maintain reactor safety and avoid unauthorized operation of the 1B Containment Air Return Fan Power Lockout Breaker were inadequate in that the power lockout breaker was not controlled to preclude unauthorized operation. As a result, the power lockout breaker was opened sometime during the period October 23, 1989, to January 3, 1990, causing the 1B Containment Air Return Fan to be inoperable with no indication of the condition available in the control room. The fan remained inoperable for an indefinite period of time until it failed a required surveillance test on January 3, 1990.

1. Admission or Denial of the Violation

Duke Power Company admits the violation.

2. Reason for the Violation

The violation occurred due to inappropriate action on the part of an unidentified individual who manually opened the breaker.

3. Corrective Steps Which Have Been Taken and Results Achieved

- 1) The CARF-1B circuitry was investigated under Work Request (W/R) 7353 PRF. The power lockout breaker for CARF-1B (breaker F01A in MCC 1EMXN) was found, under priority 2X W/R 7353 PRF, to be in the full open position. The breaker was not in the intermediate mechanical slot (trip) position, but was full open. The trip capability of this breaker was examined, and it was determined that a manual, not automatic, trip would be required to move the breaker completely to the OFF position. The breaker was closed under W/R 7353 PRF. This breaker must be closed to start CARF-1B. CARF-1B was started during the performance of PT/1/A/4450/05B, Containment Air Return Fan 1B and Hydrogen Skimmer Fan 1B Performance Test, which was successfully completed on 1/3/90.
- 2) Following the completion of the actions on the CARF 1B Test, the Security Force implemented "Heightened Awareness" in the area of the CARF Breaker.

- 3) Tie wraps initially and locks subsequently were placed on these power lockout breakers as an interim measure, until a permanent solution is reached.
- 4) The power supply breaker for Containment Floor and Equipment Sump Pump 2B1 (Breaker F10B in MCC 2MXM) was found to be open by an Operator following a control board review, which was performed at 1915 hours on January 4, 1990. Since indication was present at the 0700 hours control board review, and not at the 1915 hours control board review, it is apparent that this breaker was opened sometime between 0700 hours and 1915 hours on 1/4/90. The breaker was closed by Operations, restoring its Control Room indication.
- 5) On January 4, 1990 an inspection of the two areas involved (MCC 1EMXN and MCC 2MXM) was performed by Security. Collections of protective clothing and other materials, determined to have been used as bedding, were found in cable trays above both MCC 1EMXN and MCC 2MXM. The materials were removed.
- 6) On January 4, 1990, tagouts (R&Rs) were searched for any breakers on MCCs 1EMXM, 2EMXM, 1EMXN and 2EMXN, and none were found which could have opened breaker F01A on MCC 1EMXN by mistake. There is no work activity in which breaker F01A on MCC 1EMXN is opened. R&Rs were searched for CARF-1B, as well as any R&Rs on the VX System for the period in question. R&Rs were searched for preplanned tagouts on this breaker, and none were found. Subsequently, Unit 2 tagouts on VX were searched for the period in question. None of these searches revealed a situation in which this breaker was opened.
- 7) An Operator Update entitled "Power Lockouts" was initiated on January 18, 1990. This update described the power lockout breaker. It stated that if one of these breakers is inadvertently opened, power is interrupted to the component, but Control Room indication is compromised. It also stated that a periodic verification of the positions of these breakers would be added to PT/1(2)/A/4350/03, Electrical Power Source Alignment Verification. An Operator Update entitled "Verification Prior to Action" was initiated on February 5, 1990. This update emphasized the importance that the correct unit, train, motor control center, and breaker compartment have been verified before repositioning a breaker. The mispositioned power lockout breaker for CARF-1B was referenced.
- 8) Operations submitted a Station Problem Report (SPR) to initiate an evaluation of the appropriate long term action for the CARF 1B breaker on 1EMXN.
- 9) Operations evaluated other applications where the Control Room indicating light may not provide electrical status of the component and as a result procedures PT/1(2)/A/4350/03, Electrical Power Source Alignment Verification, were revised to include the following weekly checks of these breakers being in the closed position:

PT/1/A/4350/03

F04C in 1EMXG Cont. Rm. Area PFT-1 Moist. Sep. Htr.  
F02D in 1EMXG Cont. Rm. Area Chiller Comp A Oil Pump Mtr.  
F08B in 2EMXH Stat. Rn. Hdr Disch to RL Syst Vlv 1RN-843B  
F07C in 1EMXK Elec. Hydrogen Rec. Pwr. Sup. Pnl. 1A  
F01A in 1EMXM Pwr L/O for CARF-1A  
F01B in 1EMXM Pwr L/O for 1NI-173A  
FC1D in 1EMXM Pwr L/O for 1NI-121A  
F01E in 1EMXM Pwr L/O for 1NI-162A  
F01A in 1EMXN Pwr L/O for CARF-1B  
F01B in 1EMXN Pwr L/O for 1NI-178B  
F01D in 1EMXN Pwr L/O for 1NI-152B  
F01E in 1EMXN Pwr L/O for 1NI 183B  
F01A in 1EMXZ Pwr L/O for 1NI-100B  
F01B in 1EMXZ Pwr L/O for 1NI-147B  
F07C in 1EMXL Elec Hydrogen Rec Pwr Sup Pnl 1B  
F01D in SDSA RC Sup to Aux. Feed. Isol. Vlv. 1CA-174  
F07C in SDSA RC Sup to Aux. Feed. Isol. Vlv. 1CA-175

PT/2/A/4350/03

F06B in 2EMXH Stat Hdr Disch to RL Sys Vlv 1RN-843B  
F04C in 2EMXH Cont. Rm. Area PFT-2 Moist. Sep. Htr.  
F07D in 2EMXH Cont. Rm. Area Chiller Comp. B Oil Pump Mtr  
F07C in 2EMXK Elec. Hyd. Rec. Pwr. Sup. Pnl. 2A  
F01A in 2EMXM Pwr. L/O For CARF-2A  
F01B in 2EMXM Pwr. L/O for 2NI-173A  
F01D in 2EMXM Pwr. L/O for 2NI-121A  
F01E in 2EMXM Pwr. L/O for 2NI-162A  
F01A in 2EMXN Pwr. L/O for CARF-2B  
F01B in 2EMXN Pwr. L/O for 2NI-178B  
F01D in 2EMXN Pwr. L/O for 2NI-152B  
F01E in 2EMXN Pwr. L/O for 2NI-183B  
F07C in 2EMXL Elec. Hyd. Rec. Pwr. Sys. Pnl. 2B  
F01C in 1EMXZ Pwr. L/O for 2NI-100B  
F01D in 1EMXZ Pwr. L/O for 2NI-147B  
F03C in SDSA RC Sup. to Aux. Feed. Isol. Vlv. 2CA-174  
F04B in SDSA RC Sup. to Aux. Feed. Isol. Vlv. 2CA-175

The above breakers were added as Enclosure 13.7. A subsequent procedure change was made which removed all of the power lockout breakers except the Containment Air Return Fan Breakers from the enclosure. This change was made as a result of Design Engineering's evaluation that the valves' safety function would not be impaired by opening of the breaker.

- 10) Security implemented "Random Patrols" to vary their surveillance times in an attempt to identify the individual(s) involved.
- 11) Between January 4 and January 6, 1990, K-Mac personnel performed an inspection in other areas of the Auxiliary Building, and discovered bedding materials in 14 locations (additional collections have been found, and removed since this inspection).

- 12) The K-Mac organization was revised to increase Supervisor involvement with their work crews. This reorganization reduces the number of employees per supervisor, which will result in closer tracking of employees during shifts. The supervision within other groups onsite was evaluated as well for necessary improvements.
- 13) Nuclear Safety Related stickers were placed on 1EMXM, 1EMXN, and 2EMXM. These stickers are required per CNS-1390-01-00-0095, Procedure for Tagging Electrical Nuclear Safety-Related Equipment. Maintenance personnel will be responsible for ensuring these stickers are in place in the future.
- 14) On January 23, meetings were held with selected Supervisors whose employees were involved in work activities in the area of Breaker F10B in MCC 2MXM where a bedding material collection was found. These Supervisors subsequently interviewed their employees to attempt to identify the responsible individual(s).
- 15) An extensive investigation involving CSS, CNS Security, Forensic Analytical Services and Testing, Inc. and Professional Investigators of Raleigh, N.C. was performed to attempt to determine the responsible individual(s).
- 16) Design Engineering (DE) evaluated the potential for this event at Oconee and McGuire. DE notified both stations.
- 17) A review was performed by Design Engineering of a possible cause of the breaker (F01A on MCC 1EMXN) opening through the trip (intermediate mechanical slot) position (i.e., tripping to the full open position). An overcurrent condition would trip the breaker to the intermediate position.
- 18) Periodic test procedures were reviewed at the time of the event to determine if those procedures could have inadvertently left the CARF-1B breakers open. No discrepancies were found.
- 19) Station Management has reviewed the need to protect certain breakers from damage or inadvertent opening. It is their belief that this was an isolated event and that other actions that have been taken or are in progress prevent recurrence rather than placing protective covers over certain breakers. Those actions included:
  1. K-Mac and Security inspections for beds.
  2. Staff notes on the subject of equipment protection and the specific CARF-1B breaker event.
  3. Discussions with supervision on the event and their subsequent discussions with their staffs.
  4. Equipment protection training now underway and continuing training that is planned as a result of a mid-1989 violation from Messrs. Glassman and Coley.

4. Corrective Steps to be Taken to Avoid Further Violations

- 1) Labels will be added by 06/30/90, next to the power supply label for affected components, which identify power lockout breakers. Each label is to be approximately 1 1/2 in. by 1/2 in. These labels are being added under OMP 1-6, Control Panel Information Changes. A total of 20 labels will be added on Control Panels MC-4 and MC-11, Units 1 and 2 Components affected are VX CARF 1(2) A, VX CARF 1(2) B, 1(2)NI-173A, 1(2)NI-121A, 1(2)162A, 1(2)NI-178B, 1(2)NI-152B, 1(2)NI-183B, 1(2)NI-100B, and 1(2)NI-147B. A program for labeling maintenance will be established within the maintenance group.
- 2) A study is being performed to determine if there are other safety-related circuits, similar to the VX design, where a breaker can be in the OFF position such that Control Room indication would be compromised. The scope of this study will include QA-1, 600V breakers. An evaluation will be performed to determine if further measures are needed in addition to those already taken. The purpose of this review is to provide a permanent solution to the problem of important breakers being in the OFF position, such that Control Room indication is compromised. The study will be complete by 07/31/90. Following that study, Operations will evaluate implementation of the study results and complete its action by 11/30/90.
- 3) K-Mac has begun a periodic (monthly) inspection of cable trays. Station Management will review the results of these inspections for necessary actions. In addition, Security is performing random cable tray inspections. The inspections will continue until station management determines the need for further inspections is removed.
- 4) Operator training will be conducted by 05/30/90 on the possible causes of this incident, to further emphasize the importance of verifying that the correct breaker has been identified.
- 5) The investigation to determine the individual(s) involved will continue with Legal Department assistance. The LER will be revised as necessary.
- 6) Operator training will be conducted by 05/30/90 on power lockout breakers.

5. Date When Full Compliance Will Be Achieved

Duke Power Company will be in full compliance by 12/31/90.