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Southern Nuclear Operating Company
the southern electric system

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June 29, 1994

Docket No.: 50-348

10 CFR 2.201
10 CFR 2, App. C

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

Joseph M. Farley Nuclear Plant - Unit 1
Reply to Notice of Violation
NRC Inspection Report No. 50-348/94-13

Ladies and Gentlemen:

As requested by your transmittal dated June 1, 1994, this letter responds to notice of violation 50-348/94-13-01, "Inadequate Evaluation of Plant Conditions Prior to Removing Tags," which is cited in the subject NRC inspection report.

The notice of violation states:

Technical Specification 6.8.1 requires that applicable written procedures recommended in Appendix A of Regulatory Guide (RG) 1.33, Revision 2, 1978 shall be established, implemented and maintained.

Farley Nuclear Plant (FNP) Administrative Procedure (AP), FNP-0-AP-14, Revision 15, "Safety Tagging," Section 5.3 states that "The Approval Official is responsible for overall evaluation of the acceptability of the execution of the Tag Order with regard to its effect on plant status. He must ensure the effect on the plant has been adequately evaluated and all necessary plant requirements . . . have been met." Furthermore, Section 5.35 states that "During removal the Approval Authority should pay particular attention to assure plant components are restored to the desired status."

Contrary to the above, on three (3) separate occasions as indicated below, the approval official/authority (i.e., Shift Supervisor) failed to adequately evaluate the impact of executing certain revised tagging orders upon safety-related equipment. In all three cases, the removal of tags, and associated repositioning actions, resulted in unexpected and adverse operation of safety-related equipment.

a. On March 31, Operations re-energized the 208 VAC section of Motor Control Center (MCC) 1G by implementing tagging order 94-0137-0 Revision 04. Several hours afterwards, operators discovered that the Computer Room and "B" Train Control Room Ventilation System fans were rotating backwards.

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b. On April 2, Operations realigned the 1A Containment Spray (CS) system in accordance with tagging order 94-0697-1 Revision 2. Subsequent start of the 1A CS pump for surveillance testing resulted in an uncontrolled discharge of water from the Refueling Water Storage Tank into containment and the 1A CS pump room. Several individuals were contaminated.

c. On April 2, Operations placed the "A" Train Solid State Protection System (SSPS) Mode Selector Switch in the OPERATE position according to tag order 93-3379-1 Revision 1. As a consequence of placing the switch in OPERATE, an "A" Train Containment Spray Actuation occurred.

This is a severity Level IV violation (Supplement 1)

The [illegible] clear Operating Company (SNC) response to this notice of violation is provided as follows.

[illegible]ssion or Denial

The above violation occurred as described in the inspection report. Each event addressed in the violation is discussed below.

1. Power Leads Reversed on 1G MCC

MCC 1G was removed from service to install a new 75KVA transformer fed by a fused disconnect. This new transformer was for the 208VAC section of the MCC. The new power supply cable for the 75KVA transformer was laid out and the conductors marked. During the cable fit up process, the cable conductors required cutting. During the cutting of the conductors it is believed the cable markers were shifted between conductors in error. This resulted in the 208 VAC section having an incorrect phase rotation when the cable was terminated. The Plant Modifications Department (PMD) engineers intended to perform a phase rotation check of certain equipment following re-energization of the bus. The decision to perform this phase rotation check was not documented. Additionally, when the Shift Supervisor was advised power could be restored to the MCC, he was not informed of the need to check proper phase rotation. Subsequently the PMD engineer informed the Shift Supervisor the MCC could be re-energized. The Shift Supervisor directed the tag order to be cleared and power to be restored. The Shift Supervisor had various equipment started to verify power available, however, no check was performed for proper phase rotation. Based on this check, the MCC was considered operable. Several hours later due to ventilation flow abnormalities an investigation was begun. After observing several pieces of equipment rotating backwards, the problem with the MCC 1G 208VAC phase rotation was identified. The error in cable lead termination was discovered and the leads were relanded correctly.

2. Water Discharge During Containment Spray Flow Test

During the Unit 1 Spring, 1994, outage, preparations had begun to perform flow tests of the A-train Containment Spray System. A tag order was prepared and executed to isolate a portion of the system so that a spool piece could be installed to pass flow from the pump to the reactor cavity transfer canal. The tag order properly isolated the portion of the

system associated with the spool piece and opened appropriate vents and drains to drain the piping. The spool piece was subsequently installed. In order to perform the test, directions were given to remove the tags on the tag order boundary valves to allow a flow path for the test. The tag order was revised to remove the tags on the major system flow path valves. Contrary to the requirements of FNP-0-AP-14 (Safety Tagging) the vents and drains were not closed when the tags were removed from the tag order boundary valves. The individuals preparing the tag order revision thought a system lineup would be performed prior to the test. The Shift Supervisor conducting the test thought the tag order had lined up the system and he failed to ensure adequate system integrity prior to conducting the test. As a result, when the test commenced water was discharged from the open vents and drains. The plant operator immediately stopped the containment spray pump and personnel in both areas responded quickly to close the vents and drains.

3. Solid State Protection Relays for Containment Spray Actuated

On April 2, 1994, I&C was performing response time testing in the solid state protection system (SSPS). During this same time frame Operations began meeting initial conditions to perform a test of the containment sump to RHR interlock. Miscommunications occurred between the Operations test engineer and the I&C technicians. The I&C technicians indicated they were finished with their SSPS testing. This was interpreted by the Operations test engineer to mean it was allowable to perform the Operations SSPS testing. It was not understood that I&C testing equipment was still connected in the SSPS System. When the mode selector switch was placed to the OPERATE position a printed circuit card in I&C's response time test console shorted which caused containment spray relays in the SSPS to pick up. Since the containment spray system was tagged out at the time of the occurrence, the only component that actuated was the Containment Spray Additive Tank Outlet Valve (MOV 8836A) which stroked open. After the Mode Selector Switch was restored to the Test position, the valve was re-closed.

Reason for Violation

These events were caused due to personnel error. This violation reflects three separate incidents in which communications between plant groups and the Shift Supervisor failed to achieve an understanding of existing system status. As a result, tag order revisions were performed which resulted in improper restoration of plant components.

These events are generic in that miscommunications between the Shift Supervisor and multiple groups resulted in restoration of plant systems without assuring appropriate system status.

Corrective Action Taken and Results Achieved

1. Upon discovery of problems with the ventilation system, an investigation was begun. The cause of the improper phase rotation of the MCC 1G 208 VAC section was identified. The improperly landed leads were corrected. Technical Specifications were consulted and it was verified no Technical Specification actions were exceeded.

2. Upon initiation of the containment spray flow test, the control room operator was immediately informed of the open valves and the test was secured. All operations testing was stopped. A complete valve lineup of the "A" train containment spray system was performed. The components in the area of the water discharge were evaluated for possible adverse consequences with no problems identified. An immediate investigation was begun and a memo concerning lessons learned from the event was distributed to Operations shift supervisory personnel shortly after the event.

3. When the SSPS mode selector switch was placed to operate the test engineer noted that a relay(s) actuated. He notified the Shift Supervisor and an investigation was commenced. The mode selector was then returned to the test position. The investigation revealed that only one valve had stroked (containment spray outlet valve MOV 8836A). This valve was restored to its pretest condition. Testing was stopped.

Corrective Steps to Avoid Further Violations

1. Power Leads Reversed on 1 MCC

   a. PMP-501, CABLE TERMINATION, DETERMINATION AND SPLICING has been revised to require a phase rotation check for modifications affecting the power supply of three-phase systems. This check is to be performed immediately upon re-energization of switchgear, and, if possible, prior to energization of critical loads.

2. Water Discharge During Containment Spray Flow Test

   a. The principles of STAR and the need to establish system integrity within the boundaries before removing tags from the boundary isolations were stressed to tagging officials.

   b. The containment spray flow test procedure was revised to include an initial condition that the system lineup be checked against the system checklist.

   c. The Operations individuals involved in revising the tag order for performance of the containment spray flow test were coached on the requirements of FNP-0-AP-14 (SAFETY TAGGING).

3. Solid State Protection Relays for Containment Spray Actuated

   a. IMP-0.7 has been revised to add I&C Supervision to the tag order and to require the addition of a Caution tag. This Caution tag will specify an I&C foreman is to walk down the SSPS system and verify no conflict exists with installed test equipment or related work activities prior to removing the tag on the mode selector switch. Also the Caution tag will require the Shift Supervisor and the I&C foreman to brief the control room operators prior to placing the mode selector switch to OPERATE.

   b. The Operations test engineer performing the SSPS containment sump to RHR Suction interlock test was coached on ensuring proper system status prior to test performance.

4. Generic Actions

a. A Training Notice was distributed to plant personnel regarding the three incidents and the lessons learned.

b. The three events were discussed during a weekly outage meeting with plant and contractor supervisory personnel.

c. In addition to the above actions already completed, the following additional actions will be performed stressing the communications aspect of these events:

A training advisory notice will be prepared and distributed to appropriate plant personnel.

Operations management will discuss these events with Shift Supervisors and substitute Shift Supervisors.

Systems Performance and PMD management will discuss these events with their personnel.

These events will be included in the 1994 Operations, Maintenance, Chemistry and Health Physics retraining cycle.

Date of Full Compliance

This item will be in full compliance by 10/31/94.

Confirmation

I affirm that the response is true and complete to the best of my knowledge, information and belief.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

DM Morey

Dave Morey

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cc: Mr. S. D. Ebneter
Mr. B. L. Siegel
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