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SUBJECT: Responds to violations noted in Insp Rept 50-261/91-01.
 Corrective actions: mod testing requirements being added to
 continuous training program for instrumentation & control
 personnel.

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H. B. ROBINSON STEAM ELECTRIC PLANT
UNIT NO. 2
DOCKET NO. 50-261
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NRC INSPECTION REPORT NO. 50-261/91-01 REPLY TO A NOTICE OF VIOLATION

Gentlemen:

Carolina Power and Light Company (CP&L) hereby provides this reply to the Notice of Violation identified in Inspection Report 50-261/91-01. In addition, as requested in the inspection report, this response describes the particular actions taken concerning the adequacy of the completion of the Plant Specific Technical Guidelines, as previously committed to in response to Inspection Report 50-261/89-16.

Severity Level IV Violation (RII-91-01-02)

10 CFR 50, Appendix B, Criterion V requires activities affecting quality be accomplished in accordance with prescribed instructions, procedures, and drawings. Modification M-1016, Electrical Penetration Replacement, prescribed specific procedures to be performed in accomplishing component functional testing for modification acceptance testing. Additionally, Control Wiring Diagram B-190628, Sheet 237 required a 10 ampere fuse to be installed in the A safety injection pump control circuit.

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Contrary to the above, activities affecting quality were not accomplished in accordance with prescribed procedures or drawings in that:

1. Prior to Modification M-1016 being declared operable on January 22, 1991, loop calibration procedures LP-551 which was specified to be performed on 45 RPIs, and LP-251, Radiation Area Monitors RMS (R1-R8), which was specified to be performed on radiation monitors R-2 and R-7, were not performed as required by the modification's acceptance testing.
2. A 30 ampere fuse was installed in the A safety injection pump control circuit instead of the 10 ampere fuse required by Control Wiring Diagram B-190628.

REPLY

Example 1

1. Reason for the Violation

Modification 1016, Electrical Penetration Replacement, required replacing certain instrument penetrations with new penetrations. The electrical portion of this modification consisted of re-routing affected cables from existing penetrations to newly installed penetrations located in close proximity. The affected cables were re-routed and spliced onto the pigtails of the new penetrations both inside and outside the containment vessel. No logic or circuit functional changes were involved in this modification.

Acceptance testing for Modification M-1016 was completed on January 22, 1991. During performance of procedure EST-048, "Control Rod Drop Test" on January 29, 1991, control rod indication for a control rod in Bank "B" failed to move when Bank "B" was withdrawn, and control rod indication for a control rod in Bank "C" moved when Bank "B" was withdrawn. Upon investigation, it was determined that the cables supplying Rod Position Indication (RPI) for the two control rods in question had been "rolled" during the transfer of cables in the performance of Modification M-1016. It was also determined that the procedures specified for acceptance testing of the Rod Position Indicators (RPI) and Radiation Monitors R-2 and R-7 were not performed as required. Adverse Condition Report ACR-91-060 was initiated in accordance with the Plants' Corrective Action Program to identify the condition and to provide a root cause investigation.

Modification M-1016 provided for the installation of three new penetrations and the transfer of cables from the six existing penetrations to the new penetrations. The modification required that, prior to taking an instrument out of service for transfer, appropriate operability data be taken and recorded on the sign-off matrix in the modification package. However, no procedures were provided to specify what data was to be taken. Therefore, resistance measurements were taken and recorded for the RPI operability data.

After the transfer was completed, acceptance testing was performed in accordance with the Modification step that stated "Functionally test or prove operability of each instrument using the appropriate portions of the procedures identified in the database for the instrument. I&C must verify." When the testing was conducted, the resistance test was again performed with the understanding that it met the "appropriate portions" requirement of the step quoted above. If the required loop calibration procedure LP-551, "Rod Position Indication System" had been performed, it would have identified the "rolled" cables that existed, but would not have identified "rolled" cables within the same rod bank.

The testing that was done on Radiation Monitors R-2 and R-7 was in the form of a calibration check. Plant Operating Manual Loop Calibration procedure LP-251, "Radiation Monitors RMS R1-R8" provided for electronic calibration of those monitors and contained a step in the "Return to Service" section to inform the Shift Foreman that the system was ready for source calibration. This source calibration was performed as the "appropriate portion" of the procedure for modification acceptance testing. The technician conducting the test performed the test from memory. However, he was unaware that, although required by the Modification, the procedure had been previously deleted from the Plant Operating Manual.

Based on the above, the cause of this violation is the failure to adequately establish modification acceptance testing, and the failure of personnel performing the acceptance testing to fully understand the testing requirements.

2. Corrective Steps Which Have Been Taken and the Results Achieved

The acceptance testing requirements for Modification M-1016 were reviewed, areas determined to be inadequate or weak were revised, and the associated equipment was retested to ensure other problems did not exist and was returned to service. Additionally, a sample of modifications was reviewed to determine if testing inadequacies existed, and none were identified.

3. Corrective Steps Which Will Be Taken to Avoid Further Violations

In order to preclude recurrence of this violation, modification testing requirements are being added to the Continuous Training Program for Instrumentation and Control personnel. In addition, with respect to the failure of the Modification to adequately specify acceptance testing, the corrective actions taken to avoid further violations are as specified in response to violation 91-01-03, discussed later in this report.

4. Date When Full Compliance Will Be Achieved

Full compliance will be achieved by September 15, 1991.

Example 2

1. Reason for the Violation

Preliminary investigation indicates that it will be unlikely that the reason the 30 ampere fuse was installed in the circuitry for the "A" Safety Injection Pump instead of the required 10 ampere fuse will be identified. It is believed that the installation was caused by human error, and an Adverse Condition Report was initiated to conduct a root cause analysis investigation.

2. Corrective Steps that Have Been Taken and the Results Achieved.

The incorrect 30 ampere fuse installed in "A" Safety Injection Pump circuitry was replaced with the correctly sized 10 ampere fuse, and the system was satisfactorily tested. In addition, fuses in Emergency Buses E-1 and E-2, Motor Control Centers MCC-5, MCC-6, MCC-9, and MCC-10, and the Safeguards panels, were verified as appropriate as required by their respective drawing. The Reactor Protection Panels were inspected, fuse sizes identified, and the sizing was verified as correct.

3. Corrective Steps That Will be Taken to Avoid Further Violations

CP&L is presently in the process of developing a design guide for fuse selection which will ultimately result in a fuse program that will provide acceptable size, types, and manufacturers for each safety related fuse selection.

4. Date When Full Compliance Will be Achieved.

Full compliance will be achieved with the implementation of the fuse program, which will begin prior to the end of Refueling Outage 14.

Severity Level IV Violation (RII-91-01-03)

10 CFR 50, Appendix B, Criterion III, requires in part, that measures shall provide for verifying or checking the adequacy of design, such as by the performance of a suitable testing program. ANSI N18.7-1976, Administrative Controls and Quality Assurance Requirements for the Operational Phase of Nuclear Power Plants, section 5.27, states that a suitable level of confidence in structures, systems or components on which maintenance or modifications have been performed shall be attained by appropriate inspection and performance testing.

Contrary to the above, appropriate performance testing was not identified for Modification M-1016, Electrical Penetration Replacement, prior to the Modification being declared operable on January 22, 1991. The specified position for 45 Rod Position Indicators (RPI) was performance of Loop Calibration Procedure LP-551, Rod Position Indication System; however, this test was inadequate to functionally verify individual RPI performance. Additionally, a resistance check specified for approximately 60 temperature elements was inadequate to verify proper connection of the elements' respective power cables. These examples are not inclusive of all potentially inappropriate tests identified in the modification.

REPLY

1. Reason for the Violation

Modification M-1016, Electrical Penetration Replacement, required replacing certain instrument penetrations with new penetrations. The electrical portion of this modification consisted of re-routing affected cables from existing penetrations to newly installed penetrations located in close proximity. The affected cables were re-routed and spliced onto the pigtails of the new penetrations both inside and outside the containment vessel. No logic or circuit functional changes were involved in this modification.

Emphasis was placed on establishing strict work control measures over the electrical modification work. The modification, as written, provided a level of confidence that the modification would be performed correctly and accurately. Work controls included: identifying each field circuit; a check of field cable labels/tagging against a data base in the modification which was developed from plant record information; proper labeling of each cable and wire; post termination inspections/signoffs; and circuit continuity tests. In addition, it was understood that pre-startup testing to be conducted outside the modification provided end-to-end verification of some circuit functions, but this testing was not mandated for operational turnover of the modification for the above stated reasons. During the performance of one such pre-startup test, EST-048, Control Rod Drop Testing, and through subsequent investigation, it was determined that the cables had been "rolled". This condition had not been identified by the modification work controls or acceptance testing specified.

It is CP&L's position that the modification controls and original testing specified provided a high degree of confidence that the modification would be performed properly and accurately, especially since no circuit function changes were involved. A breakdown in the modification work control did occur for two out of the 213 circuits; however, this is considered to be an isolated event. CP&L does acknowledge the importance of performing adequate post-modification testing to demonstrate that equipment functions properly and that related portions of the plant have not been adversely affected.

2. Corrective Steps Which Have Been Taken and the Results Achieved

When it was discovered that the testing specified by the Modification was not adequate to test the affected cables, an Adverse Condition Report was initiated in accordance with the Plants' Corrective Action Program. As a result, a detailed review of the original modification testing requirements was completed. Those circuits requiring additional testing to confirm proper circuit wiring/functioning were identified and subsequent testing has been completed. No other circuits were found to be incorrectly wired out of the 213 cables involved. There is no evidence to indicate that other modifications done during Refueling Outage 13 had inadequate acceptance testing specified in the Modification.

3. Corrective Steps Which Will Be Taken to Avoid Further Violations

CP&L's Nuclear Engineering Department is developing an H. B. Robinson Design Guideline addressing modification acceptance testing adequacy. This Guideline will be issued by July 15, 1991. Appropriate personnel will be trained on this Guideline by September 15, 1991.

4. Date When Full Compliance Will Be Achieved

Full compliance will be achieved by September 15, 1991.

Severity Level IV Violation (RII-91-01-04)

Technical Specification 6.5.1.1.1.c requires written procedures be established for surveillance and test activities of safety-related equipment. Technical Specification 4.1.1 requires calibration of Table 4.1-1 item 18, containment pressure channels. Procedure OST-351, Containment Spray System, revision 10, performed the required functional test of the steam line isolation function associated with the containment pressure channel calibration.

Contrary to the above, procedure OST-351 was not adequately established, in that, the procedure did not fully test the steam line isolation circuitry associated with the containment pressure channel.

REPLY

1. Reason for the Violation

Modification M-845, "Safeguards Actuation of All MSIV's by Either Train", was implemented in 1985. This modification addressed the ability of both safeguards trains to independently cause the open MSIV solenoids to de-energize on a 'CLOSE' signal. The original configuration of the system, with a postulated failure of a particular train, did not ensure that the open solenoids would de-energize. For proper MSIV operation, the solenoids must be de-energized on a 'CLOSE' signal. This modification did not identify that a change was necessary to testing procedures for the MSIV logic.

Procedure OST-351 fulfills the requirements of Technical Specifications 4.5.1.3, 4.5.1.5, and Table 3.5-3, Item 2.a. This procedure tests, at each refueling interval, the Containment Spray System relative to both the automatic and the manual spray actuation, and documents the initiation of Containment Spray, Containment Isolation, and Steam Line Isolation (automatic only). The portion of the test that initiates automatic steam line isolation provides steps to verify that Main Steam Isolation Valves (MSIV) MS-V1-3A, B, and C are closed, or provides steps to check that the relays are energized in the MSIV circuits. Operation of the associated relays is dependent upon the positioning of the valves' switch on the RTGB in the Control Room, and the installation of circuit fuses. The fuses must be installed to complete the procedural steps indicating an energized condition. The RTGB switch must be in the 'OPEN' position to allow the relays to de-energize, allowing the safeguards signal to be indicated. If the RTGB switch is in the 'CLOSED' position, the associated relays are always energized. The "Initial Conditions" section of the test did not address requirements for fuse installation or the correct positioning of the MSIV switches on the RTGB.

Previous performances of OST-351 utilized the relay method of steam line isolation when the MSIV's were under clearance. Typical clearance requirements would remove the fuses from the MSIV circuits and require the RTGB switch to be in the 'CLOSED' position. This is in conflict with the requirements needed for the relay method to properly test the automatic steam line isolation function. Therefore, the validity of previously performed testing to demonstrate operability of the steam line isolation circuitry became in question.

On January 18, 1991, when this condition was discovered, revision 10 to OST-351 was prepared by personnel on back shift and approved the next day to correct this problem. Appropriate resources were not applied to assure adequacy of steps to test the MSIV logic. This was shown to be the case when on January 19, 1991, the on shift personnel preparing to perform the test discovered the inadequacy.

2. Corrective Steps That Have Been Taken and the Results Achieved

On January 19, 1991, an Adverse Condition Report was initiated in accordance with the Plants Corrective Action Program to identify this condition and to provide a Root Cause Analysis. Based on this review, it was determined that at the time Modification M-845 was implemented, an adequate review was not performed to determine the effect of the modification on testing procedures.

OST-351 was revised on January 24, 1991, to ensure the necessary steps were in place for the adequate surveillance of the MSIV closure signals. This revision, which was performed on January 26, 1991, provided a testing overlap with the testing provided by OST-501, "Main Steam Isolation Valves". This overlap included the portion of the circuit that existed between the RTGB Steam Line Isolation switches and the Main Steam relays. This revision, and subsequent system testing, was adequate to fully address the steam line isolation circuitry associated with the containment pressure channel.

3. Corrective Steps That Will Be Taken to Avoid Further Violations

CP&L has previously committed to an in-depth review of the programmatic and procedural adequacy of the Technical Specification Surveillance program. Completion of this program will prevent further violations of the nature described in the inspection report.

4. Date When Full Compliance Will Be Achieved

As previously committed, the Technical Specification Surveillance Program upgrade will be completed during 1992.

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Additional Information Concerning PSTG Commitment Implementation

Response to Inspection Report 50-261/89-16, dated December 8, 1989, Robinson Serial No. RNP/89-4143, committed to the development of well-defined Plant Specific Technical Guidelines (PSTG) by September 28, 1990. The purpose of the PSTG is to document the technical basis for the Emergency Operating Procedures (EOP's). This commitment was entered into the Plants Regulatory Action Item List (RAIL) Commitment Tracking System to follow until its completion.

NUREG-1358 provides guidance relative to the PSTG for plants using generic technical guidelines, and states that the generic technical guidelines can be used to satisfy the PSTG requirement, provided that plant specific deviations are included and justified. The Westinghouse Owners Group (WOG) Emergency Response Guidelines (ERG) are the generic technical guidelines used to develop the foundation for the H. B. Robinson EOP's. To complete the requirement for addressing plant specific deviations, two other documents were utilized to supplement the ERG's. The Plant Differences Document provides a comparison of the H. B. Robinson design and the ERG Low Pressure Reference Plant, providing the equivalence between the two designs. The Generic Analysis Applicability Document provides the analytical basis for the use of the ERG's as the technical basis for the EOP's. These two documents supplement the ERG's and the H. B. Robinson Setpoint Document to provide compliance with the PSTG requirement.

Subsequent review of the information provided has indicated that the commitment may not have been completely met. The previously approved Plant Setpoint Document, when incorporated into the newly developed PSTG, was not completely updated to incorporate existing comments. Further, engineering judgment was used instead of a calculational basis for several setpoints.

In order to completely satisfy this commitment, a calculational basis for setpoints will be developed during 1991. H. B. Robinson intends to supplement the original response to NRC Inspection Report 89-16 to this effect by May 31, 1991.

Should you have any questions regarding this matter, please contact Mr. J. D. Kloosterman at (803) 383-1491.

Very truly yours



Charles R. Dietz
Manager

Robinson Nuclear Project Department

RDC:td

cc: Mr. S. D. Ebnetter
Mr. L. W. Garner
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