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 AUTH. NAME AUTHOR AFFILIATION
 DIETZ, C.R. Carolina Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
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SUBJECT: Responds to violations noted in Insp Rept 50-261/89-11.
 Corrective action: analytical basis established.

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Carolina Power & Light Company

ROBINSON NUCLEAR PROJECT DEPARTMENT
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HARTSVILLE, SOUTH CAROLINA 29550
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United States Nuclear Regulatory Commission
Attn: Document Control Desk
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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. 50-261/89-11 REPLY TO A NOTICE OF VIOLATION

Gentlemen:

Carolina Power and Light Company (CP&L) provides this reply to the Notice of Violation identified by NRC Inspection Report No. 50-261/89-11. This Inspection Report also identified a number of weaknesses which were designated as Inspector Follow-up Items (IFI). The letter transmitting the Inspection Report requested that CP&L respond to each IFI with a statement of the intended corrective actions and the dates that these actions would be completed. Based on discussions between CP&L and NRC Region II Management, an extension of 30 days beyond the original due date is appropriate to facilitate response to these Inspector Follow-up Items. As such, this response addresses only the three violations identified within the Notice of Violation.

Severity Level IV Violation (RII-89-11-03-SL4)

10 CFR 50.59 states:

"(a)(1) The holder of a license authorizing operation of a production or utilization facility may (i) make changes as described in the safety analysis report . . . without prior Commission approval, unless the proposed change, . . . involves a change in the technical specifications incorporated in the license or an unreviewed safety question."

"(2) A proposed change, . . . shall be deemed to involve an unreviewed safety question (i) if the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased . . ."

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"(b)(1) The licensee shall maintain records of changes in the facility . . . These records must include a written safety evaluation which provides the bases for the determination that the change . . . does not involve an unreviewed safety question."

Contrary to the above, the licensee made changes to the heat transfer characteristics of the Component Cooling Water System Heat Exchangers which are described in the UFSAR, by plugging tubes in both of the heat exchangers, without accomplishing the required safety evaluation.

Reply

1. Admission or Denial of the Violation

CP&L acknowledges the violation.

2. Reason for the Violation

A review of this occurrence has identified two causal factors which resulted in the plugging of Component Cooling Water (CCW) System heat exchanger tubes without accomplishing the required safety evaluation.

First, specific procedural requirements were not in place to control and support the plugging of CCW heat exchanger tubes. Plant procedure CM-201, "Safety Related Heat Exchanger Maintenance," was used to perform the tube plugging. This is a generic procedure which is applicable to a number of safety-related heat exchangers, without regard to the specific type and application of the heat exchanger. The existence of this procedure implied that plugging of tubes in these types of heat exchangers is a documented, well-established evolution, and that the operability and safety considerations associated with this maintenance had been addressed, at least on a generic basis.

Second, an unvalidated vendor analysis was used to support the heat exchanger tube plugging. This analysis was interpreted as establishing a tube plugging limit of 300 tubes per heat exchanger before a degradation of heat exchanger performance would be observed. Due to the lack of a well-established, documented design basis, this analysis, although not formalized as a specific calculation, was the only technical information available on which to base the determinations of safety and operability. As such, this unvalidated analysis was overly relied upon in determining whether a formal safety evaluation was actually required. Essentially, this unvalidated vendor analysis led personnel to believe that the number of tubes to be plugged was within the "design value" and that the plugging of tubes did not require a formal safety evaluation.

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

The immediate corrective steps taken involve an effort by CP&L personnel to establish an analytical basis for the required CCW heat exchanger heat transfer capability, and to quantify and document the effect of tube plugging on this heat transfer requirement. The results of preliminary calculations indicate that the CCW heat exchangers are capable of performing their intended function. This effort assumed the current level of CCW heat exchanger tube plugging, plus some additional margin in the event that tube plugging is required prior to the completion of the corrective actions described in the following paragraphs.

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

To provide a well-documented basis for future tube plugging, the applicable maintenance procedures will be revised to either incorporate a specific tube plugging limit, or to have the System Engineer contacted to evaluate the acceptability of plugging a given number of tubes in a specific safety-related heat exchanger. These procedure changes will be implemented by January 15, 1990.

In addition, the results of the preliminary calculations will be further reviewed, enhanced as needed, and developed into formalized calculations. This information will document the ability of CCW heat exchangers to meet design requirements for both normal and accident conditions. This task will be completed by March 19, 1990.

5. Date When Full Compliance Will Be Achieved

The completion dates for each identified corrective action are provided above with the associated description of the action to be taken.

Severity Level IV Violation (RII-89-11-02-SL4)

10 CFR 50, Appendix B, Criterion V, and the licensee's accepted QA Program, UFSAR Section 17.2, require 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 and qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished."

Additionally, 10 CFR 50, Appendix B, Criterion XVII, and the licensee's accepted QA Program, UFSAR Section 17.2, require, "Sufficient records shall be maintained to furnish evidence of activities affecting quality..." Also, the licensee's accepted QA Program, UFSAR Section 17.2, commits to ANSI N45.2.8. ANSI N45.2.8, Paragraph 4.4 states in part that: "Inspections of the work areas and the work in progress shall be performed to verify that mechanical items are being located, installed, assembled or connected in compliance with the latest approved-for-construction drawings, manufacturers instructions, codes, installation instructions and procedures. Inspections performed shall include as appropriate, but not be limited to, the following: . . . (e.) Tightness of connections and fastenings"

Contrary to the above, inadequate instructions were provided to ensure proper torquing of various system closure fasteners. In addition, independent inspection or verification of the torquing of fasteners was not provided. Examples of the above include:

-WR/JO 89-AACY1, CCW system check valve CC-721C: Instructions were not provided to control the torquing of the valve body to bonnet fasteners, resulting in incorrect torquing. Documentation of the actual applied torque was not performed.

-WR/JO 88-AITF1, CCW system check valve CC-731: An incorrect procedure (CM-120) was referenced for performance of work resulting in incorrect torquing. Documentation of actual applied torque was not performed.

-WR/JO 89-ABYB1, CCW flange joint between the "B" RCP upper oil cooler and valve CC-719B: The work request failed to require lubrication of the fasteners to obtain the required torque as specified by notes in the generic vendor manual.

-WR/JO 89-ACRC1, CCW blind flange between valve CC-795J and the CCW cooler to the "B" Safety Injection Pump: The work request provided instructions for torquing the flange which failed to consider the type of gasket installed.

-WR/JO 87-AKWN1, CCW system relief valve CC-791L: The work order and the associated maintenance procedure (CM-102) did not provide the vendor manual specified torque values for assembly. Documented evidence of proper assembly does not exist.

The types of deficiencies addressed above are typical of maintenance work performed on site where torquing is applicable. The specific examples cited are not considered to be all inclusive of deficiencies which exist with the program for application of and documentation of torque.

Reply

1. Admission or Denial of the Violation

CP&L acknowledges the violation.

2. Reason for the Violation

As stated in the violation description, the types of deficiencies cited as examples were typical of maintenance work performed where torquing was applicable. These occurrences are attributable to a lack of clear, concise, and accurate guidelines for planning, performing, documenting, and inspecting or verifying maintenance activities which involve torquing. Traditionally, system and component closure which involved connections or fasteners has relied upon the skill and expertise of those plant personnel who routinely performed these activities, i.e., "skill of the craft." Although this generally has resulted in satisfactory operation of plant systems and components, it had previously been recognized that this method of performing and controlling maintenance activities may not result in a consistent and well-documented maintenance program. In summary, the reason for this violation is the lack of clear, concise, and technically accurate guidance for controlling and performing maintenance activities which involve torquing.

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

On July 28, 1989, a memorandum was issued from the Manager - Maintenance to appropriate Maintenance personnel which provides interim guidance with respect to maintenance activities which involve torquing. The intent of this memorandum is to "provide guidelines for proper bolting practices and controls for the disassembly/reassembly of bolted joint pressure boundaries and bolted stress applications on safety-related systems and all balance of plant bolting 1/4 inch or greater, in areas where approved plant procedures/drawings/technical manuals do not specify a required torque and/or gasket compression thickness. In cases where all vendor avenues have been exhausted, (Maintenance) Planners will request an Engineering Evaluation to determine the torque value to be utilized. In all cases, the planning on the Work Request will specify lubrication prior to torquing." This interim guidance will remain in effect until superceded by a specific torquing procedure which is to be developed.

Also maintenance procedures for specific equipment are being revised prior to starting work on the associated equipment. These revisions incorporate specific torque values and independent verification of torquing requirements.

Finally, MMM-001, "Maintenance Administration Program Procedure," has been revised to state that Quality Assurance/Quality Control will perform a QA/QC Holdpoint and independent verification for maintenance activities involving safety-related systems and components. Maintenance personnel will perform independent verification for maintenance activities involving nonsafety-related systems and components.

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

A maintenance procedure is being developed to provide specific instructions to Maintenance personnel with regard to torquing. This procedure will provide general information, specific responsibilities, and step-by-step instructions for determining and achieving proper torque.

5. Date When Full Compliance Will Be Achieved

The development of a maintenance torquing procedure will be completed by April 2, 1990.

Plant maintenance procedures are being revised by an on-going Maintenance Procedures Upgrade Program. As part of this overall upgrade, the appropriate maintenance procedures will be revised to incorporate specific torque values and independent verification requirements. This procedures upgrade program is currently scheduled to be completed by December 31, 1990.

Severity Level IV Violation (RII-89-11-04-SL4)

Technical Specifications Section 6.5.1.1.1 states that written procedures shall be established, implemented, and maintained covering activities referenced in Appendix A of Regulatory Guide 1.33, Rev. 2, February 1978.

Appendix A of Regulatory Guide 1.33, Revision 2, February 1978 states in Paragraph 9.a that Maintenance that can affect the performance of safety related equipment should be performed in accordance with written procedures, documented instructions, or drawings.

Contrary to the above, the following deficiencies concerning failure to follow approved procedures were noted in review of WR/JOs:

-WR/JO 88-AIFT1, CCW system check valve CC-731: The procedure referenced for the work on this check valve (CM-120) was incorrect for performing the work. Maintenance personnel performed the work, signed off portions of this procedure and filed the procedure as a permanent record. Some of the instructions in this procedure were not applicable to the valve being worked.

-WR/JO 87-AKWN1, CCW system relief valve CC-791L: Paragraphs 7.1.1, 7.1.11 and 7.3.13 of maintenance procedure CM-102 attached to this work order required data to be recorded concerning the "as found" and "as left" position of the blowdown ring. This information was not recorded during the performance of work as required.

-WR/JO 89-ABIS1, motor operated valve CC-749B: The work request required the packing gland of CC-749B to be torqued to a value of 6 ft-lbs. It allowed the packing gland torque to be increased in 0.5 ft-lbs increments to a value of 7 ft-lbs, if necessary, in order to stop the packing leak. Work was to be stopped and the maintenance planner was to be notified if more than 7 ft-lbs of torque was required. During performance of work, the packing gland was torqued to 8.5 ft-lbs and the planner was not notified as required. This resulted in failure to repack the valve in accordance with vendor packing instructions.

Reply

1. Admission or Denial of the Violation

CP&L acknowledges the violation.

2. Reason for the Violation

The violation description provided three instances where maintenance activities were not performed in accordance with approved procedures. These instances are addressed individually as follows:

- a. For CCW system check valve, CC-731, an incorrect procedure was referenced for performing the maintenance, and this procedure was used to perform the task. This occurrence has been attributed to an error on the part of the Maintenance Planner in that the incorrect procedure was referenced during the initial planning of the Work Request. The mechanic followed the instructions of the Work Request and, therefore, used the incorrect procedure to perform the maintenance task.
- b. With regard to CCW system relief valve, CC-791L, the "as found" and "as left" positions of the blowdown ring were not recorded as required by the associated maintenance procedure. This failure to follow procedure instructions has been attributed to inattention to detail on the part of the maintenance personnel who performed this task.

- c. The torquing of the packing gland for motor operated valve CC-749B was not performed in accordance with the instructions provided by the Work Request. As such, this valve was not repacked in accordance with vendor instructions. A review of this occurrence has determined that conflicting instructions between the Work Request and an associated procedure contributed to the error. The Work Request instructed the Mechanic to notify the Maintenance Planner if 115% of nominal torque did not stop the valve leakage. However, the associated procedure, CM-127, "Valve Packing Using the Chesterton Packing System," instructed the mechanic to notify the Maintenance Foreman if the same criteria was exceeded, i.e., 115% of nominal torque. Subsequently, the Mechanic was instructed by the Maintenance Foreman to increase the torque in 5% increments until the leakage stopped. Although these 5% increments were consistent with the vendor instructions, the packing was ultimately torqued to approximately 140% of nominal torque, which exceeded the 115% limit. Therefore, this error has been attributed to a procedural inconsistency, with a contributing factor being the failure to effectively communicate between the Maintenance Planner, the Maintenance Foreman, and the Mechanic.

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

The three instances are addressed individually as follows:

- a. A Work Request was initiated and completed which correctly torqued the fasteners for CCW system check valve, CC-731.
- b. A Work Request has been initiated to rework CCW system relief valve, CC-791L, and to record the "as found" and "as left" blowdown ring positions. Also, the valve vendor has been contacted to ensure the adequacy of plant-specific procedural requirements and to verify any technical information which will be required to properly rework this valve.
- c. Although CC-749B satisfactorily passed the post maintenance testing, the existing packing will be replaced based on exceeding the 115% torquing criteria. A Work Request has been initiated to repack this valve at the next appropriate opportunity; however, the unit must be in cold shutdown with the reactor core off-loaded to complete this maintenance. Therefore, this task will not be completed prior to completion of Refueling Outage 13.

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

To stress the importance of attention to detail, procedure adherence, and communications, these occurrences will be reviewed with all Maintenance Planners, Maintenance Foreman, Mechanics, and other appropriate members of Maintenance Management.

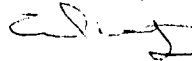
Also, maintenance procedure CM-127 will be revised to instruct the Mechanic to contact both the Maintenance Foreman and Planner if valve leakage continues after reaching 115% of nominal torque. Instructions will also be added to require initiation of a new Work Request for valve repacking if 115% of nominal torque is exceeded to stop leakage and the valve satisfactorily passes its required post maintenance testing. Therefore, if the torque criteria is exceeded and the valve is successfully tested, the valve will be scheduled for repacking at the next appropriate opportunity.

5. Date When Full Compliance Will Be Achieved

Unless otherwise stated within the above paragraphs, corrective actions will be completed by December 31, 1989.

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

Very truly yours,



C. R. Dietz
Manager

Robinson Nuclear Project Department

CTB:lko

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