



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W.
ATLANTA, GEORGIA 30323

Report No.: 50-400/88-31

Licensee: Carolina Power and Light Company
P. O. Box 1551
Raleigh, NC 27602

Docket No.: 50-400

License No.: NPF-63

Facility Name: Harris

Inspection Conducted: August 22-26, 1988

Inspector: Robert P. Garrion 21 SEP '88
Robert P. Garrion Date Signed

Approved by: J. J. Blake 9/22/88
J. J. Blake, Chief Date Signed
Materials and Processes Section
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection was conducted in the areas of Previous Enforcement Matters: Violation 400/86-21-01, Violation 400/86-77-02 and IFI 400/88-26-03.

Results: In the areas inspected, no violations or deviations were identified.

Generally, the licensee demonstrated a high level of professionalism and safety consciousness throughout its organization. ALARA considerations were given a high priority during the valve walkdown. However, for the calculation associated with Violation 86-21-01, minor errors were made during its revision to satisfy the findings of the violation. Otherwise, the calculations were readily available, in good physical condition, and had been done in accordance with applicable codes and standards.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *R. T. Biggerstaff, Principal Engineer - ONS
- *J. A. Brown, Senior QA Specialist - Corp. QA
- *G. L. Forehand, Director - QA/QC
- *C. S. Hinnant, Plant General Manager
- *W. Ponder, Reactor Coolant System Engineer
- *W. T. Shenton, Project Engineer
 - W. Slover, Project Engineer - Technical Support
 - V. K. Stephenson, Project Engineer - Civil - NED
- *D. L. Tibbitts, Regulatory Compliance
- *R. B. Van Maire, Manager - T/S
- *T. J. Wait, Senior QA Specialist - OQA
- *M. G. Wallace, Senior Specialist - Regulatory Compliance
- *E. E. Willett, Manager - Modification Projects
- *H. L. Williams, Principal Engineer - Civil - NED

Other licensee employees contacted during this inspection included administrative personnel.

NRC Resident Inspector

W. H. Bradford, Senior Resident Inspector

*Attended exit interview

2. Action On Previous Inspection Findings (92701)(92702)

- a. Violation 50-400/86-21-01 (Closed). The final design calculations for Pipe Support 1-S1-H-1284, Rev. 0S4 contained four discrepancies as outlined in the Notice of Violation. A review of Calculation No. S1-H-1284, Rev. 3 and Pipe Support Drawing No. A-1-190-1-SI-H-1284, Rev. 0S5 determined that the discrepancies have been resolved. Specifically, the information of field modification MOD 0S3-M-6 has been correctly incorporated into the drawing via Rev. 0S5; the calculation has been revised to include an evaluation of the weld to withstand the external load transmitted by the structural plates (Page 9b of 32); the STRUDL analysis has been verified and signed by a qualified checker; and the structural plates, which were modelled into the STRUDL analysis as rigid members, have been evaluated by a hand calculation (Page 9b of 32). While reviewing the calculation for resolution of the issues identified in the violation, the inspector noted some minor editorial errors on the pages on which the revisions were done. These errors were corrected, the calculation



was up-graded to Revision 4 and completely signed off before the conclusion of the inspection. Therefore, this violation is closed.

- b. Violation 50-400/86-77-02 (Closed). The welds made on cable tray support connections required by field modification FM-C-CAR-2168-G-251-S01 (Detail G) R-1 were under-sized and the licensee QA/QC inspectors did not identify this deficiency.

- (1) The undersized welds were analyzed by engineering to determine their capacity and compared to the loads of the final verification analysis. The vertical weld of Detail G on Drawing 2168-G-251-S01 was to be 1/4" by design but measured 3/16" on one of the clip angle legs as installed. A calculation was done assuming that the undersized weld was completely omitted and determined that the remaining weld was adequate for the maximum connection loading. Refer to "Detail G Qualification (2168-G-251-S01) HPES FM-C-11020," Pages 24 and 25 of 28, verified November 26, 1986. Upon completion of the previously-described weld evaluation, NCR-OP-86-0163, issued to address the undersized weld, was closed with no additional work or inspection required. The horizontal weld was addressed in NCR-OP-86-0149 and the above-noted Detail G Qualification calculations via a finite element computer analysis. The analysis showed that while a localized stress concentration developed which was higher than the allowable working stress, it remained in the elastic range, thereby precluding a failure of the weld. Refer to the Baseplate II Computer Run, entitled "Clip 017," dated November 1, 1986. As a corrective action to ensure adequate preventive measures, a training session was conducted on February 26, 1987, for all craft welders emphasizing weld profiles and acceptance criteria.
- (2) NCR-87-014 addresses the issue of weld inspection. To ensure that QA/QC inspectors did not overlook any future weld deficiencies relating to Detail G, a training class was conducted for the QC weld inspection personnel on April 29, 1987, at which the background, causes, and lessons to be learned were discussed and workmanship samples of the type weld used in Detail G were reviewed.

The actions taken by the licensee appear to be adequate to resolve the issues raised by the violation. Therefore, violation 50-400/86-77-02 is closed.

- c. Inspector Follow-up Item 50-400/88-26-03, Kerotest Valves Installed Backwards on Leakoff Lines for RC-107 and RC-103. Cognizant licensee personnel stated that if the valve manufacturer was not able to supply information about the flow which would cause the Kerotest valve to close automatically, the licensee would conduct its own tests to develop the information. Also, to ensure that prior leakage from Pressure Spray Discharge Valve RC-103 has not damaged its

associated Kerotest valve, licensee personnel stated that the Kerotest valve would be tested to confirm that it is not stuck in the closed position. The inspector was told that a Non-Conformance Report (NCR) had been dispositioned during plant construction to permit the installation of the Kerotest valves with the flow arrow opposite to the normal leak-off flow. However, the licensee was not able to produce a copy of it during this inspection.

In an effort to determine if there is a relationship between valve leakage and a valve configuration which includes a Kerotest valve (like the configuration associated with RC-103), the inspector walked down the following valves:

<u>Valve No.</u>	<u>Description</u>
1S1-246	Accumulator 1A-SA Discharge
1CS-480	Alt Charging Line Isolation Valve
1CS-492	Alt Charging Line Isolation Valve
1CS-464	Excess Pressure Letdown Control Valve
1RC-103	FCV from RCS Loop 2 to PRZ Spray
1RC-107	FCV from RCS Loop 1 to PRZ Spray
1C9-466	Excess Letdown Three-way Valve
1S1-248	Accumulator Valve
1RC-117	Isolation Valve PCV-445A Block Valve
1RC-114	PRZ-PORV A
1RC-113	Isolation Valve PCV-444B Block Valve
1RH-39	Isolation Valve RCS Loop to RHR Pump B Isolation
1RH2*	Isolation Valve RCS Loop to RHR Pump A
1RH40*	Isolation Valve RCS Loop to RHR Pump B

* Note: No Kerotest Valves Associated with this valve.

The observed valves showed various degrees of leakage, from none to substantial. The worst case observed was valve RC-103.

Because further evaluation of this subject is required, especially in view of the fact that definitive flow rates to automatically close the Kerotest valve are unknown and the Kerotest valve installation NCR has not yet been retrieved, IFI 50-400/88-26-03 remains open.

3. Exit Interview

The inspection scope and results were summarized on August 26, 1988, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed below. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.