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

Report No.: 50-395/85-22

Licensee: South Carolina Electric and Gas Company
Columbia, SC 29218

Docket No.: 50-395 License No.: NPF-12

Facility Name: Summer

Inspection Conducted: May 13-17, 1985

Inspector: E. H. Girard 5/31/85
E. H. Girard Date Signed

Approved by: J. J. Blake 5/31/85
J. J. Blake, Section Chief Date Signed
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection entailed 34 inspector-hours on site in the areas of licensee action on previous enforcement matters, steam generator tube leakage, Inspection and Enforcement Bulletin 83-03, and inspector followup items.

Results: One violation was identified - Inadequate review of surveillance test procedures, paragraph 3.a.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*J. G. Connelly, Deputy Director, Operations and Maintenance
*A. R. Koon, Associate Manager, Regulatory Compliance
F. A. Miller, Associate Manager, Quality Control Systems
*A. D. Torres, NDE (Nondestructive Examination) Supervisor
D. R. Moore, Group Manager, Quality Services
*F. J. Leach, Manager, Quality Assurance (QA)
*B. G. Croley, Group Manager, Technial and Support Services
*K. W. Woodward, Manager, Operations
*G. G. Putt, Manager, Scheduling and Material Management
J. W. Turkett, Engineer, Maintenance Engineering and Support
*M. D. Quinton, Manager, Maintenance Services
L. B. Collier, Welding Supervisor
R. J. Bouknight, Technical Specialist, Regulatory Compliance
*C. J. McKinney, Technical Specialist, Regulatory Compliance
M. D. Irwin, Nuclear Licensing Specialist
*F. Zander, Manager, Nuclear Technical Training
*J. F. Helman, Associate Manager, Nuclear Operations Education and Training
M. Williams, Manager, Nuclear Operations Education and Training
*M. D. Blue, Nuclear Licensing Engineer

NRC Resident Inspector

*C. W. Hehl, Senior Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on May 17, 1985, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee. The following new items were identified during this inspection:

a. Violation 395/85-22-01: Inadequate Review of Surveillance Test Procedures, paragraph 3.a.

b. Unresolved Item 395/85-22-02: Training for Visual Examinations, paragraph 3.b.

The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

(Closed) Unresolved Item (395/85-10-02): Leakage Test Boundary. This item was opened to address the NRC inspector's finding that the test boundary identified in the licensee's procedure for leak testing the reactor coolant pressure boundary (procedure STP 150.001, Rev. 2) appeared inaccurate. The requirements for the test stem from Technical Specification (TS) 4.0.5 which specifies inservice inspection requirements in accordance with ASME Section XI and applicable addenda (hereafter referred to as the Code) identified through 10 CFR 50.55a(g). In accordance with 10 CFR 50.55a(g), the Edition and Addenda of ASME Section XI (the Code) applicable to the Summer plant is the 1977 Edition with Addenda through Summer 1978 (77S78). The Code requires that all ASME Class 1 pressure retaining components be visually examined for leakage each refueling outage.

During the current NRC inspection the inspector continued his examination of the licensee's compliance with reactor coolant pressure boundary leakage test requirements. In his examination he specifically addressed the adequacy of the procedure, and the training and qualification of personnel for performance of the test. These were examined for compliance with Code and other regulatory requirements. The inspector's findings are described below.

a. Procedure

The inspector found that the licensee's procedure for performing leak testing of the reactor coolant pressure boundary components was inadequate relative to the following:

(1) The outer test boundary for the test as specified in the Summer 1978 Addenda of the Code and clarified in 1980 Edition includes the entire pressure retaining boundary and extends to the second of two closed valves. The licensee improperly identified the test boundary as the first closed valve. This omitted piping and valves beyond the first closed valve. For example, valves 8701A and B and the piping between them and valves 8702A and B respectively, were omitted from testing by the procedure. It also omitted as boundaries the flow restrictors in many small diameter lines - for example, the flow restrictor in the 3/4-inch line at the Class 1 to Class 2A boundary at location A-15 on drawing E-302-691.

(2) The examination required by the procedure is extensive. It addresses all ASME Class 1 components. There are many components and locations to be examined for leakage-in affect, many individual examinations. The procedure does not provide a means to assure that examination points are not inadvertently bypassed. It does not identify the individual examination points and does not provide for sign-offs to verify individual examinations or groupings of examinations related by close proximity.

(3) The procedure uses "should" where "shall" is appropriate for specifying certain requirements. For example, section 2.1 of the procedure states "all requirements for the radiation work permit should be adhered to".

(4) The acceptance criteria specified by the procedure revision originally questioned (150.001, Rev. 2) are not fully correct. As stated in Attachment 1 to the procedure, the acceptance criteria are (a) no observable weld leakage and (b) all other leakage as low as practical. The licensee revised the acceptance criteria in a revision to the procedure prepared before but issued after the inspector questioned the boundary identified in the procedure. The revised acceptance criteria (revision 3 to the procedure) states as acceptance criteria that (1) there shall be no observable weld leakage and (2) all other leakage is to be within the bounds given in procedure GTP-304 for the appropriate sized piping or valves. The criteria in both revisions are unsatisfactory in that they are inconsistent with the requirements of TS 3.4.6.2.a and d which permit no presssure boundary leakage and a limit of 10 gpm (gallons per minute) of identified leakage.

(5) The procedure does not provide procedural steps for verification of the operability of leakage detection systems as required by IWA-5243 of the Code.

(6) The procedure requires entry into areas that may result in significant radiation exposure to individuals performing the prescribed examinations. Detailed information regarding locations to be inspected for leakage and how they may be most readily accessed are needed to aid in assuring that proper locations are examined and that time is not spent by individuals unnecessarily making decisions under conditions of radiation exposure. Procedure 150.001 does not provide or reference such detailed information, or require review of such information before entry into radiation areas.

(7) Valve manipulations are required by the procedure. However, it provides no identification or verifications for the valve manipulations. Note: It is the inspector's understanding that the licensee identified this procedural problem following the inspector's questioning the valve test boundary. The inspector was shown a proposed procedure revision that included changes to the test boundary valves and that added valve alignment verifications.

In addition to procedural deficiencies described above, the inspector identified a procedural deficiency in another licensee surveillance test procedure, as described in paragraph 6 below. These deficiencies constitute noncompliance with procedural review requirements of TS 6.5.3.1.a. This noncompliance is identified as Violation 395/85-22-01, Inadequate Review of Surveillance Test Procedures.

b. Training and Qualification of Personnel

The NRC inspector examined the licensee's training and qualification of personnel who perform inspections (actually visual examinations) in accordance with procedure STP 150.001. Information for the NRC inspector's examination of this area was obtained through discussions with cognizant licensee personnel and review of the following related procedures and records:

- Nuclear Operations Training Instruction NTCI-18, Rev. 1; Visual Inspector (VT-2) Qualification Program

- Nuclear Quality Control Procedure (NQCP) A-NQCP-8, Rev. 2; Qualification and Certification of Nuclear Quality Control Inspection Personnel

- Quality Assurance Audit Finding No. II-24-83-D-03, dated 11/21/83

- 8/27/84 letter from (QA) Services to Operations stating verification of implementation of an acceptable visual examination training program and on that basis closing Audit Finding No. II-24-83-D-03

- Certification records for individuals qualified to perform inspections in accordance with STP 150.001. (Three of the individuals certifcations were reviewed in detail).

In discusions with cognizant personnel the NRC inspector was informed that qualification and training of personnel for the subject surveillance test procedure had been originally performed by the licensee's Quality Control Systems organization, then later by the Operations organization, and, finally, it had been assigned to the Nuclear Operations Education and Training organization. In the course of his examination the inspector found that licensee QA personnel were auditing training, and in discussions with the auditors he was informed that there had been a previous relavent audit finding. The finding (referenced above) which was identified in 1983, indicated that Operations (then responsible for the training and qualification) did not have a formal program for qualification of pesonnel to perform VT-2 examinations. VT-2 examinations are the Code defined examinations utilized in performance of inspections such as those addressed in procedure STP 150.001. The audit finding also noted that four of 14 individuals whose records were checked did not have complete certification records. It is the inspector's understanding that it was as a consequence of this finding that the responsibility for training and qualification of personnel for VT-2 examinations (and also for Code required VT-4 examinations) was transferred to the Nuclear Operations

and Training organization. The NRC inspector's findings, from his examination of the area, indicate that the licensee's current training program may continue to be inadequate. Concerns identified by the inspector relative to the program were as follows:

(1) Procedure NTCI-18 requires that Nuclear Operations Education and Training (NDET) retains all applicable records for individuals' certification for VT-2 examinations (as required by the Code). The inspector found that the licensee had not identified what records were required or where they were to be kept (specific file). The content of individual's qualfication files that were provided to the inspector for review was inconsistent. Certification tests were included for some individuals and not for others, experience information was not included and distant vision test results and experience data required by the Code were not included.

(2) Qualification requirements for the instructor were not identified and the inspector was informed that the instructor had no certification indicating his qualifications as a VT-2 instructor.

(3) Set-up requirements for practical testing were not described. No basis for evaluation or grading of the practical test was indicated.

(4) It was not clear who would be responsible for evaluating the results of annual eye tests and assuring implementation of any restrictions resulting therefrom.

(5) It was not clear who develops and approves the test questions for qualification tests - it appeared to be the responsibility of the VT-2 Level III examiner in the Nuclear Quality Control organization.

(6) No time limit was given on the period allowed between the completion of qualification tests and the start of certification. The inspector noted instances in which a period of over five months elapsed before certification. This could allow excessive time to pass before periodic re-evaluation and re-certification of individuals.

(7) Directly related to (5) above and indirectly related to other items, it was not clear what the Level III examiner's responsibilities were relative to assurance of the maintenance of proficiency of personnel, determining (and approving) the adequacy of visual examination procedures (such as STP 150.001), determining the need for additional training, assuring the proper presentation of training, etc.

The inspector informed the licensee management personnel having responsibility for the visual examination training and for performance of the related examinations of his concern that the training program

appeared inadequate. The licensee was informed that the matter would be examined more extensively to determine its significance during a subsequent NRC inspection and it was identified as Unresolved Item 395/85-22-02, Training for Visual Examinations.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations. A new unresolved item identified during this inspection is discussed in paragraph 3.b.

5. Steam Generator Tube Leakage (92706)

The inspector questioned the cognizant licensee supervisor as to what problems they had encountered with operationally-induced tube leaks and what actions they were undertaking to avoid development of further tube leaks. The inspector was informed that they had experienced leakage in several tubes in row 1 of steam generator (SG) B. The leaks were all in the U-bends of the tubes. They appreared to be the result of stress corrosion cracking induced from the primary (reactor coolant) side of the tubes. The main factors believed involved are the temperatures, tube material, and the residual bending stresses in the tubes in the U-bend areas. It may be possible to prevent the cracking by thermally stress relieving the U-bend areas. The license has plugged all row 1 SG B tubes in expectation that this may prevent further cracking in the row 1 tubes.

If a successful method of stress relief is demonstrated they may wish to relieve the stresses and unplug these tubes to allow them to become functional again, at some future date. It is not clear why only SG B tubes have leaked thus far. Row 1 in SGs A and C may be plugged (similar to row 1 in SG B) in a future outage. The inspector was informed that the licensee is also trying to follow the guidelines developed by the Electric Power Research Institute for avoidance of tube leakage and that they meet these guidelines except for problems in transient areas and for their lack of capabilities to perform on-line sampling.

6. Inspection and Enforcement Bulletins (IEBs) (92703B)

(Closed) IEB 83-03: Check Valve Failures in Raw Cooling Water Systems of Diesel Generators

This IEB deals with generic aspects of multiple swing check valve failures identified in raw cooling water systems for diesel generators. The licensee's initial response to this IEB, dated June 8, 1983, was reviewed and determined acceptable by Region II. The licensee had committed to perform tests, to verify the condition of the subject check valves, as requested by the IEB.

During inspection 395/85-10, conducted March 11-15, 1985, the NRC inspector found that the licensee had not provided a final report requested by IEB 83-03. In response to questioning by the inspector, the licensee stated that this was an oversite and indicated the report would provided. The report was subsequently provided in a letter to NRC Region II dated March 21, 1985. This response was reviewed and determined acceptable by Region II.

During inspection 395/83-27, conducted August 1 - September 2, 1983, the NRC Resident Inspector at the Summer site reviewed the licensee's procedure for the IEB 83-03 related valve testing. The procedure was STP 123.003, Service Water System Valve Operability Test. The Resident Inspector reported that STP 123.003 was unacceptable in that it did not contain acceptance criteria for the IEB-related test. During the current NRC inspection, the NRC inspector again reviewed STP 123.003. The inspector found that the licensee had not corrected the procedure and that it still contained no acceptance criteria for the IEB testing. The licensee's failure to appropriately review and to correct the procedure is considered an additional example of Violation 395/85-22-01, described in 3.a. above. IEB 83-03 is considered closed, additional concerns regarding the licensee's testing in response to the IEB will be addressed in subsequent NRC inspection of Violation 395/85-22-01.

7. Inspector Followup Item (IFIs) (92701B)

(Open) IFI (395/85-10-03): Was Stroke Timing and Position Indicator Verification Required and Performed?

This item was opened to address the NRC inspector's concern that he would not determine whether proper testing had been performed on certain valves after maintenance - testing required to assure their acceptable operation. During the current inspection the NRC inspector was informed that the licensee had investigated his concern. The inspector reviewed the results of the investigation as documented in a Nuclear Operations memorandum identified CGSS-01-1195-NO, File No. 108.60, dated May 2, 1985. The investigation concluded that while the valves had been subsequently proven to function satisfactorily there was no clear documented evidence that the test had been performed when required, because of the manner in which the work was documented. As a consequence of their findings the licensee identified actions (in the referenced memorandum) that would be taken to better track and document such tests. In response to questioning by the NRC inspector during the exit meeting, the licensee stated that the actions could be considered a commitment. The inspector stated that the IFI would remain open pending NRC verification that the proposed actions were implemented and were effective.