UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report No. 50-395/81-10

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

Facility Name: Summer

Docket No. 50-395

License No. CPPR-94

Inspection at Summer Site near Columbia, South Carolina

Inspectors: Nick Economos — 6/8/81
N. Economos — Date Signed

L. E. Foster — 6/8/81
L. Foster — Date Signed

John W. York — 6/8/81
J. York — Date Signed

Approved by: A R Herdt — 6/17/81
A. R. Herdt, Section Chief — Date Signed
Engineering Inspection Branch
Engineering and Technical Inspection Division

SUMMARY

Inspection on May 11-15, 1981

Areas Inspected

This routine, unannounced inspection involved 60 inspector-hours on site in the areas of licensee action on previous inspection findings, IE Bulletins, licensee identified items (50.55(e)), reactor vessel installation, and reactor vessel internals (welding).

Results

Of the areas inspected, no violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*O. S. Bradham, Station Manager
*H. Radin, Sr. Engineer
*S. J. Smith, Maintenance Supervisor
*A. A. Smith, QA Director
*J. G. Connelly, Assistant Plant Manager
J. Woods, Construction QC Manager
*K. W. Nettles, Sr. Engineer, Engineering
*S. S. Howze, Licensing Engineer
*T. A. McAlister, QA Surveillance Specialist

Other Organizations

*J. Harvey, Construction Manager, Daniel Construction Company
*J. R. Fletcher, Assistant Project QA Manager, Daniel Construction Company

NRC Resident Inspector

*J. L. Skolds

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on May 15, 1981 with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

a. (Closed) Violation (395/81-02-01) - Failure to Follow Procedure for Documenting Completion of Fabrication and Installation Operations. SCE&G's letter of response dated March 27, 1981 has been reviewed and determined to be acceptable by Region II. The inspector held discussions with the QA specialist and other cognizant personnel and examined the corrective actions as stated in the letter of response. The inspector concluded that SCE&G had determined the full extent of the subject noncompliance, performed the necessary survey and follow-up actions to correct the present conditions, and developed the necessary corrective actions to preclude recurrence of similar circumstances. The corrective actions identified in the letter of response have been implemented.

b. (Closed) Unresolved Item (395/80-30-03) - Magnetic Particle Examination Procedure. Magnetic particle procedure ISI-70 was revised and approved by the Westinghouse Level III examiner on May 4, 1981. The inspector reviewed the revised procedure for technical adequacy and compliance with ASME Section V requirements and found it satisfactory.

c. (Closed) Unresolved Item (395/81-06-01) - Inadequate Identification of RPV Internals. Sketch No. CGE-1-1200 has been revised to match more closely the items on the list of internals earmarked for PSI/ISI examination.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Inspector Followup Items (IFI)

a. (Closed) IFI 395/81-02-02 - RT Indications in the Steam Generator Flow Restrictor. Westinghouse by memorandum to O. S. Bradham dated May 14, 1981, and previous correspondence to Region II stated that the restrictors were UT inspected per ASME Section III, NB-2542 and the surfaces PT inspected per ASME Section III, NB-2546. Results of these inspections showed the material acceptable for the application.

b. (Closed) Inspector Follow-up Item 80-19-01 - As-Built Piping Inspection Procedure. The following procedures were reviewed:

(1) Procedure No. AP-III-03 "Preparation of Field Drawing and Sketches", Revision 7

(2) Procedure No. AP-III-04 "Field Engineering (Survey)", Revision 7

These two procedures are used for as-built piping inspection. This item is considered resolved.

6. Licensee Identified Items 50.55(e)

a. (Closed) Item 395/80-20-02: Piping Attachment Welds. The licensee's response to this item dated March 17, 1981 was discussed in NRC Inspection Report 50-395/81-06 and found inadequate in that it failed to indicate whether conditions identified did not extend to other areas such as equipment and piping. In a supplemental response to Region II, dated April 3, 1981, the licensee stated that inspections had been performed on equipment and pipe supports where full penetration welds were dictated by design. The inspector reviewed selected inspection reports and applicable procedures to ascertain implementation of activity in this area.

b. (Closed) Item 395/80-30-01: Pipe Hanger Material Traceability. The licensee's response to this item, dated January 13, 1981, was reviewed and discussed in NRC Inspection Report 50-395/81-06. At the time of this inspection there were eighteen (18) hangers that have been identified as having parts requiring material verification. Work on these hangers will be completed pending receipt and installation of requisitioned material as required. This problem was identified and dispositioned through the licensee's nonconformance notification (NCN) 1154H, Pipe Hangers, Material Traceability. The inspectors reviewed applicable inspection procedures, related records and observed/inspected the following hangers for compliance with drawings.

Hanger No.	System
SIH-355	Safety Injection
BRH-053	Boron Recycle
CCH-269	Component Cooling System
CCH-1599	Component Cooling System

Results of this work effort indicate the licensee's planned actions, now being implemented, should bring this matter to a satisfactory conclusion.

c. (Closed) Item 395/80-39-01: Craft Doing Unauthorized Work on Pipe Hangers. The licensee's response to this item dated January 13, 1981 was reviewed and discussed in NRC Inspection Report number 50-395/81-06. During this inspection the inspectors reviewed applicable procedures, related QC records and observed/inspected a sample of randomly selected hangers including some of which had undergone unauthorized work. The hangers observed were as follows:

Hanger No.	System
BDH-027	S/G Blowdown
RCH-284	Reactor Cooling
SIH-231	Safety Injection
RHH-204	Residual Heat Removal

Discussions with cognizant licensee representatives disclosed that in addition to planned corrective actions and inspections the licensee plans to conduct an additional walk down of the systems to confirm hanger location, type, orientation, design, etc. This will be done prior to system turnover. On the basis of these findings the inspectors concluded the licensee's planned actions, and their implementation should bring this matter to a satisfactory conclusion.

d. (Closed) Item 395/80-25-14 - Incorrectly Specified and Installed Flange Material. Review of this item was a followup to earlier reviews on the subject matter discussed in NRC Inspection Reports 50-395/81-02 and 50-395/81-06. The inspectors reviewed the licensee's reports on this matter dated July 30, 1980 and May 4, 1981. Through discussions, interviews and reviews the inspectors have concluded that actions taken to identify the cause, determine the extent and prevent recurrence were addressed satisfactorily.

e. (Closed) Item 395/80-37-13: Seismic Installation Not Inspected. The licensee submitted interim reports on this matter dated December 23, 1980 and January 30, 1981. The final report dated February 10, 1981, stated that an evaluation performed by the licensee's structural engineering department disclosed that the matter was not reportable as a significant deficiency. The inspectors have concurred with this position.

. Status of Inspection and Enforcement Bulletins

a. (Closed) IEB 395/80-BU-08: Examination of Containment Liner Penetration Welds. The licensee's response to IE Bulletin 80-08 "Examination of Containment Liner Penetration Welds" dated June 24, 1980 stated that V. C. Summer did not use the flued head design for penetration connections. In addition, the response stated that the utilized penetrations were purchased, fabricated, and installed in accordance with ASME Section III (74W75) and Code Case 1607-1. The containment field boundary butt welds were fabricated without the use of backing rings and were radiographed. These items were produced from SA-333 GR-6 material. Within these areas, the inspector selected at random the following penetration welds and reviewed existing radiographs for compliance with applicable code requirements, ASME Section III (71S73) and radiographic procedure WE1-02:

Weld	Size	ISO	System
FW-6R1	12.75" x .375"	SE-RH-10	Residual Heat Removal
FW-2	38" x 1.109"	DE-FW-203P	Feedwater
FW-1	18" x .840"	DE-SP-401P	Reactor Building Spray
FW-1	24" x 1.08"	DE-SI-227P	Safety Injection
FW-1	10.75" x .539"	DE-SI-320P	Safety Injection

Within the areas examined, no violations or deviations were identified.

b. (Open) IE Bulletin 79-02: Pipe Support Base Plate Designs Using Concrete Expansion Anchors. All of the concrete expansion anchors used by the licensee were the wedge type (Hilti "Kwik Bolts"). A 100 percent reinspection had been performed on all of the installed expansion anchors. The licensee stated that all of the anchors installed since the reinspection and any installed in the future (a small amount of construction remains to be completed, plus some modifications to existing structures) will be inspected to the same criteria in order to meet the requirements of IEB 79-02.

The wedge type concrete expansion anchors require a safety factor of four. In a response from the licensee to IEB 79-02, dated May 5, 1979, a sample of bolts from 96 base plates (out of a population of 700) revealed that approximately 10% were below the required safety factor of four. In an additional response to 79-02 and 79-14, dated August 17, 1979, the licensee agreed to either add additional supports or make modifications where the engineering design analysis indicated a safety factor below four. This decision was reaffirmed by the licensee.

Hilti expansion anchors were inspected on the following hangers:

(1) Hanger No. BRH-026 in the Boron Recycle System

(2) Hanger No. CCH-269 in the Component Cooling System

(3) Hanger No. CCH-4002 in the Component Cooling System

To further assure that the licensee had performed adequate inspections and corrective actions, the inspectors examined approximately 100 nonconformance and deficiency notices concerning the Hilti Bolt installations.

This Bulletin will remain open until all anchor bolts are installed and until modifications are made to ensure a safety factor of four.

Within the areas examined, no violations or deviations were identified.

c. (Open) IE Bulletin 79-14: Seismic Analysis for As-Built Safety-Related Piping Systems. Engineering design analysis verification using the actual as-built dimensions is complete on 39 systems out of a total of 142. Most of the other systems are almost completed. The analysis is approximately 90% complete and modifications to existing systems are presently being performed. Gilbert (GAI) is responsible for the program management of the analysis efforts and is using four subcontractors, e.g., EDS, EBASCO, Teledyne, and ENCOMP.

The systems subject to a walkdown inspection are provided by GAI to Daniels Construction Company (DCC). Daniels then prepares isometric drawings for the walkdown inspections. Another DCC group performs the inspections by measuring, locating, and identifying all of the components along the isometrics. The isometrics are then revised to depict the actual as-built system. The two following procedures that related to these inspections were reviewed:

(1) Procedure No. AP-III-03, "Preparation of Field Drawing and Sketches," Rev 7

(2) Procedure No. AP-III-04, "Field Engineering (Survey)" Rev. 7

Three isometrics with as-built dimensions were reviewed:

(1) MS 710, Rev. 6G, Main Steam System

(2) DE-MS-68, Rev. 3, Main Steam System (Revised dimensions on drawing to reflect as-built dimension per FCRB 12804-H)

(3) CS-09, Rev. 2C, Chemical System Isometric CS-09, Rev. 2 was walked down with a DCC survey team and the recorded as-built parameters were verified.

The licensee performs the inspections on the concrete anchor bolts (IEB 79-02) and on the hangers (IEB 79-14). The following SCE&G procedures relating to these inspections were reviewed:

(1) Procedure No. 6.3.1, "Inspection of Fabrication and Installation of Pipe Hangers and Supports", Rev. TA2

(2) Procedure No. MF-9, "Inspection of Fabrication of Safety-Related Pipe Hangers and Supports", Revision 7

The inspector observed modification work being performed to FCR 12967H on hanger No. SIH 322 (Isometric No. SE SI 29) in the Safety Injection System. The inspector witnessed the reinspection of the following five hangers on which a final QC inspection had been previously performed:

(1) Hanger No. BRH-023 in the Boron Recycle System

(2) Hanger No. CCH-269 in the Component Cooling System

(3) Hanger No. CCH-4002 in the Component Cooling System

(4) Hanger No. FWH-261 in the S/G Feedwater System

(5) Hanger No. WDH-029

The QC personnel performing inspections on concrete anchors and hangers had been trained to licensee's procedure Nos. 6.3.1 and MF-9. The training records of the QC technician that performed the walkdown inspections of the above five listed hangers were examined and his training to these procedures was verified.

In addition to being knowledgeable of procedures, the inspectors had been trained by performing inspections on "model" hanger installations and actual installations under the supervision of a qualified inspector. Results of their inspections were compared with the known parameters of the hangers. If the inspection results were compatible with the known parameters, the inspectors were considered trained and qualified to perform inspections of installed hangers and supports.

IE Bulletin 79-14 will remain open until all walkdown inspections are completed and the resolutions of problems as described in the licensee's letter to Region II dated March 19, 1981 have been completed.

Within the areas examined, no violations or deviations were identified.

8. Reactor Vessel Installation - Review of Quality Assurance Implementing Procedures

The reactor pressure vessel was transported and installed by Bigge Company per Drawing 74E27RV2. Other procedures applicable to this activity included:

a. FQCP-6.2.2 - Reactor Pressure Vessel Installation (Inspection of Installed Equipment)

b. FQCP-6.2.3 - Equipment Assembly and Disassembly Report

c. Reactor Vessel Setting, V. C. Summer Nuclear Plant

The transportation/installation effort began on October 25, 1977 and final setting was completed on December 1, 1977. Records selected for review included the following:

a. RPV Supports elevation and location

b. Bolted Connection Inspection Report and acceptance

c. Report of RPV installation - Form 6.2.2, 11/10/77

NOTE: This record indicated the RPV S/N XRE-0001-RC was installed satisfactorily. The record was approved by the cognizant engineer and the QC supervisor.

In addition, the inspector reviewed post-installation storage inspection records covering a period from December 1, 1977 to October 1, 1979. The vessel was turned over to operations on March 12, 1979. Records of QC personnel involved in the installation and subsequent storage inspection indicated that they were qualified to perform their assigned tasks.

Within the areas inspected, no violations or deviations were identified.

9. Reactor Vessel Internals (Welding) Observation of Welding and Associated Activities

Assembly of the reactor vessel internals required only minor field welding such as fillets and for the most part tack welds. Since all welding activity on the internals has been completed, the inspector selected records of field welded components (internals) for a review of welder qualification, welding material certifications, NDE inspections (visual/PT), and inspector qualification.

Welding was performed with Daniel weld procedure 8-8-B-16 which was qualified to Section IX of the ASME Code. Liquid penetrant inspections were performed in accordance with approved site procedure FQCP-6.5.4, while visual inspections were conducted per requirements on Westinghouse Drawing No. 1137E78, sheets 1 and 2. The items selected for review were as follows:

Item No.	Weld Type	NDE Required
Shock Absorbers	Fillet	Liquid Penetrant
Guide Tube Split Pins	Tack	Visual
Baffle Modification	Fillet/Tacks	Visual
Flow Nozzles	Fillet/Tacks	Visual

Lack of accessability precluded observation of the above welds.

Within the areas inspected, no violations or deviations were identified.