



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

Report No. 50-395/82-43

Licensee: South Carolina Electric and Gas Company
 P. O. Box 764 (Mail Code F-04)
 Columbia, SC 29218

Facility Name: V. C. Summer

Docket No. 50-395

License No. CPPR-94

Inspection at Summer site near Columbia, South Carolina

Inspector: B.R. Crowley for
 J. W. York

8/10/82
 Date Signed

Approved by: N. Economos
 N. Economos, Acting Section Chief
 Engineering Inspection Branch
 Division of Engineering and Technical Programs

8/10/82
 Date Signed

SUMMARY

Inspection on July 13-16, 1982

Areas Inspected

This routine, announced inspection involved 24 inspector-hours on site in the areas of licensee action on previous inspection findings; seismic analysis for as-built safety-related piping systems, (IEB 79-14); removal of thermal sleeves; and failure of diesel generator cylinder.

Results

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

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *O. W. Dixon, Vice President Nuclear Operations
- *K. W. Nettles, Senior Engineer
- *G. Moffatt, Nuclear Engineer
- *T. A. McAlister, QA Supervisor
- *S. S. Howze, Nuclear Licensing Engineer
- *J. W. Poston, Site Engineering
- *A. R. Korn, Technical Service Coordinator

Other licensee employees contacted included technicians and office personnel.

NRC Resident Inspector

- *J. L. Skolds

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on July 16, 1982, 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.

3. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item 395/82-36-01, Licensee Evaluation of Discrepant Penetration Clearances. This item pertained to the penetration gap measurements on Penetration No. P-AB-2-047. Usually four measurements at 90 degree intervals are made at two wall penetration interfaces. For this penetration the licensee had listed only one measurement at one interface because the insulation had been installed. Another measurement at a position ten inches into the penetration gave another dimension. The use of these two dimensions, the ability to calculate two more dimensions, and the utilization of the maximum seismic anchor movement displacements revealed that the licensee's evaluation of the discrepant penetration was logical. This matter is considered resolved.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. (Open) Seismic Analysis for As-Built Safety-Related Piping Systems, IE Bulletin 79-14 (25529)

The licensee is using the following two-phase approach for IEB 79-14.

- Phase 1 - Supports/piping of systems required for modes 5 and 6.
- Phase 2 - All other safety related systems.

During this inspection, a meeting was held between the licensee, the inspector, and the NRC senior resident inspector to review the systems and parts of systems that had to be completed before fuel loading. The following systems were discussed in this meeting:

- Reactor Coolant System
- Residual Heat Removal System
- Safety Injection System
- Chemical and Volume Control System
- Diesel Generator
- Service Water System
- Chilled Water System
- Component Cooling Water System

The licensee gave the inspector the following status of the IEB 79-14 program:

- a. Computer Analyzed Systems (Rigorous Analysis)

These systems involve 124 isometric drawings of which 106 isometrics were completed. Most of the remaining 18 isometrics were being held up by Nonconformance Notice (NCN) No. 1500H. Three of the isometrics were awaiting NSSS supplier's official response.

- b. Cold Spacing Systems (Alternate Analysis)

This system involves 133 isometrics of which 105 are completed. Of the remaining 28 isometrics open, 11 were required to be completed before fuel loading. As of July 12, 1982, out of a total of 5,597 hangers using this analysis method, 5,533 hangers had been completely analyzed. Of the 64 open supports, 26 were required to be completed for fuel loading.

The inspector observed the inspection/reinspection of the following hangers:

- (1) Hanger No. SFH-111
- (2) Hanger No. NGH-023
- (3) Hanger No. VUH-1564
- (4) Hanger No. NGH-1020

Hangers (1) and (2) had been previously final inspected. Hangers (3) and (4) were being inspected for the QC acceptance.

During an independent reverification of IEB 79-14 performed by Stone and Webster, angular dimensions shown for supports/restraints EFH-103, 4024 and 4028 had been erroneously identified. The licensee issued NCN No. 1471 and committed to reverify all similar pipe support angular dimensions to identify any other similar discrepancies. The licensee reviewed 195 isometric drawings and identified 162 isometrics where hangers could have the same problem. The licensee inspected 1,400 hangers for this condition and identified 50 hangers from the group that had to be evaluated by an analytical group. The following groups analyzed the indicated number of hangers:

- Gilbert Associates, Inc. - 9 hangers
- Westinghouse Electric Corp. - 5 hangers
- Teledyne Engineering Services - 12 hangers
- EDS - 24 hangers

For the 50 hangers analyzed, no hardware modifications were necessary.

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

6. Independent Inspection Effort (92706)

For independent inspection effort the following areas were examined during this inspection:

- a. Because of a problem with thermal sleeves becoming detached from nozzles at other plants, the licensee stated in a letter from A. W. Dixon to H. R. Denton dated July 13, 1982, that eight thermal sleeves would be removed from nozzles at the Summer Nuclear Plant. After removal of the thermal sleeves the areas were dye penetrant inspected and some linear indications were noted. One nozzle had ID indications over approximately 90° of the nozzle to pipe weld and another nozzle had indications over approximately 180° of the same weld. The indications were suspected of being lack of fusion. The defects were in (1) Weld No. 26BC on "A" loop Isometric SE CS-89, and (2) Weld No. 22BC on "B" loop Isometric SE CS-89. The licensee was writing a procedure for removal of the defects.
- b. On July 4, 1982, the licensee was performing a 110 percent power test on diesel generator "B" when the diesel tripped for no apparent reason. The diesel had been operating for approximately one hour at this power level. At that time the licensee noticed a large amount of smoke and found that a crank case explosion had occurred.

The licensee's investigation determined that the number 11 cylinder on this diesel engine had failed. The piston head had apparently seized and the connecting rod and pin had pulled the aluminum piston head in half. An examination of the broken piston's fracture surface and of the vertical and horizontal fractures on the cylinder liner by

the inspector did not reveal an apparent cause for the fracture. The inner surfaces of the cylinder liner did not have a dark oxide or black carbonaceous deposit that would indicate overheating or loss of coolant oil. Severe abrasion and/or galling had occurred on the liner walls in certain areas. The licensee stated that a visual examination, conducted two weeks earlier, showed no apparent evidence of wear or abrasion on the cylinder wall. This diesel engine had operated for approximately 450 hours and approximately five times at 110 percent of power, on two of these tests a cylinder had seized up.

The licensee has contracted a consultant to perform a failure investigation on this cylinder and committed to inform the NRC when investigation results become available.

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