



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report No. 50-395, 1-19

Licensee: South Carolina Electric and Gas Company
P. O. Box 764
Columbia, South Carolina 29218

Facility Name: V. C. Summer Nuclear Station

Docket No. 50-395

License No. CPPP-94

Inspection at Summer site near Columbia, South Carolina

Inspector: J. J. Lenahan
J. J. Lenahan

8/21/81
Date Signed

Approved by: T. E. Conlon
T. E. Conlon, Section Chief
Engineering Inspection Branch
Engineering and Technical Inspection Division

8/21/81
Date Signed

SUMMARY

Inspection on July 28-30, 1981

Areas Inspected

This routine, unannounced inspection involved 17 inspector-hours onsite in the areas of post tensioning quality records, containment structural integrity test quality records, service water pumphouse settlement records, the service water pond, IE Bulletin 20-11, and follow-up on Regional request.

Results

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

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *O. S. Bradham, Station Manager
- *A. A. Smith, Director, QA Surveillance Systems
- *D. Moore, QA Manager
- *T. A. McAlister, QA Surveillance Specialist
- R. Boknight, QA Surveillance Specialist
- R. Lindler, Civil QC Supervisor
- *H. Radin, Director; Project Engineering
- S. Smith, Maintenance Supervisor
- C. Fields, Technical Support Engineer

M&C Resident Inspector

- *J. L. Skolds

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on July 30, 1981 with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

Not inspected.

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. New unresolved items identified during this inspection are discussed in paragraph 6.

5. Independent Inspection Effort

- a. The inspector examined monthly service water pumphouse settlement records and the service water pond piezometer data for the period July, 1979 through June, 1981.
- b. The inspector reviewed the following reports:
 - (1) 1980 Inspection of Service Water Pond Dam
 - (2) 1981 Inspection of Service Water Pond Dam

- c. The inspector examined the service water pond. With the exception of some vegetation growing on the embankment slopes, no problems were observed. This same problem was noted by licensee engineers during the 1981 annual inspection of the service water pond. Licensee personnel stated that the vegetation will be removed in the near future and that a spraying program will be initiated to prevent vegetation from growing on the embankments.
- d. The inspector reviewed a draft of Specification SP-220, "Surveillance of Reactor Building Post Tensioning System."

No deviations or violations were identified.

6. Containment (Prestressing) - Review of Quality Records

The inspector examined the following quality records related to post-tensioning of the reactor building:

- a. Stressing cards for tendon numbers V-4, V-22, V-30, V-34, V-36, V-50, V-52, V-60, V-70, V-88, V-90, V-92, V-102, V-108, V-114, D101, D104, D109, D118, D217, 1AC, 2AC, 4AC, 5AC, 12AC, 49AC, 9BA, 24BA, 5CB, and 21CB.
- b. Greasing records for tendon numbers V-4, V-22, V-30, V-53, D-111 through D-116, D-229, 4AC through 10AC, and 14AC through 24AC.
- c. INRYCO Nonconformance Report numbers NCR G75 - F-46 through NCR G75-F-74
- d. Calibration records for hydraulic rams, register numbers 9361 through 9366, and 9367
- e. Licensee QA Surveillance Reports
 - (1) For March 1979, number 3-35, 3-36, and 3-122
 - (2) For April, 1979, numbers 4-19 and 4-110
 - (3) For June, 1979, numbers G0389, G0379, and G0999

Acceptance criteria examined by the Inspector appear in FSAR Section 3.8, and INRYCO Field Installation Manual Procedures F7.0 through F7.4, F8.1 through F8.4, and F9.1.

Review of the hydraulic ram calibration records disclosed the following unresolved item. The ram calibration procedure requires the stressing rams to be calibrated before the tendons are stressed, after repairs to the stressing rams, and following completion of stressing operations.

The records available for review by the inspector were those for calibration of the rams prior to start of work, and those for rams which had repairs made to them while stressing was in progress. There were no records available for calibration of the rams following completion of the onsite stressing work. The licensee indicated that these records were at the home office of the post-tensioning system contractor, INRYCO, Inc. The lack of records for ram calibration following completion of the onsite stressing work was identified to the licensee as Unresolved Item 395/81-19-01, "Post-tensioning Ram Calibration Records" pending further review by NRC.

No violations or deviations were identified.

7. Containment Structural Integrity Test

The inspector examined Gilbert/Commonwealth report entitled "V. C. Summer Nuclear Station Reactor Containment Building Structural Acceptance Test." Review of report disclosed that all deflections and measured stresses were within the predicted values. Acceptance criteria examined by the inspector appear in Section 3.8.1 of the FSAR and Regulatory Guide 1.18.

No violations or deviations were identified.

8. (Closed) IE Bulletin 80-11, Masonry Wall Design

IE Bulletin 80-11 was issued to Summer and other construction sites for information only. This bulletin was received by the licensee and evaluated in response to the NRR information request discussed below. This bulletin is closed.

In a letter dated April 21, 1980 to all licensees with plants under construction, the NRC office of Nuclear Reactor Regulation (NRR) requested design and construction information on Category I Masonry Walls. South Carolina Electric and Gas responded to the NRR information request in a letter dated May 8, 1980 and reported that there were no Category I Concrete Masonry walls in the Summer Plant. The inspector made a walkdown inspection of the reactor building, the auxiliary building, and portions of the control building and service water pumphouse to verify that there were no Category I Concrete Masonry Walls in these structures.

No violations or deviations were identified.

9. Followup on Regional Requests

Two individuals who were formerly employed at the site testified at an ASLB prehearing conference on August 2, 1978 and expressed several concerns relating to civil construction activities. The licensee's QA staff conducted detailed investigations into each of the concerns these individuals expressed and issued two investigation reports. The inspector

examined these investigation reports and conducted an independent review of the concerns to verify the accuracy and completeness of the licensee's investigations. The concerns and the results of the investigations are discussed below:

a. Concern

Concrete formwork buckled during several concrete placements. No specific examples or locations were specified by the individual.

Discussion

Concrete formwork is not safety related. A review of QA records disclosed that problems were experienced on some concrete placements with formwork which buckled. QC procedures required the outline dimensions of safety related concrete to be checked after completion of the pour and out of tolerance conditions be documented on NCNs and referred to Engineering for disposition. The inspector noted that the licensee had documented out of tolerance concrete on NCNs. The cause for some of the out of tolerance concrete was formwork which buckled or moved during placement of concrete. The licensee had taken adequate measures to document and correct the problems. Buckling of the formwork does not affect the integrity of the structure or the quality of the concrete being placed. Concrete formwork is not safety related.

b. Concern

Concrete formwork "broke out" while concrete was being placed.

Discussion

This concern is similar to the one discussed in paragraph 9.a, above. The licensee had taken adequate measures to document and correct the problems. Formwork is not safety related.

c. Concern

Concrete formwork "came apart" while being transported to the location where it was to be installed.

Discussion

Concrete formwork is not safety related. The failure of concrete formwork prior to its installation has no effect on the quality of the finished concrete placed for a structure.

d. Concern

Unauthorized welders welded wall ties during erection of formwork in the control building.

Discussion

The purpose of wall ties is to support and brace concrete formwork during the placement of concrete. These wall ties are only temporary and do not contribute to the structural integrity of the concrete. Concrete formwork is not safety related.

e. Concern

A tied column of reinforcing steel in the turbine building was blown over by the wind prior to concrete placement.

Discussion

The Turbine Building is a non-safety related structure. The column of reinforcing steel did in fact blow over prior to installation of the concrete formwork. This occurs occasionally on projects. It had no affect on the structural integrity of the Turbine Building.

f. Concern

Blockouts were formed at the wrong location in the "Amertap" Building.

Discussion

The "Amertap Building" is a portion of the Turbine Building. This structure is not safety related. The licensee reviewed the records available for construction of this portion of the turbine building and concluded that all blockouts were in their proper location.

g. Concern

Anchor Bolts were not placed at the proper locations in the base slab of the Fuel Handling Building.

Discussion

Mislocation of items embeded in concrete such as anchor bolts is a common problem on any construction project. This problem is easily corrected. In addition, design changes often result in requirements for installation of additional anchor bolts and/or other embeds after

the concrete has been placed. The installation of additional anchor bolts and embeds is not a problem if it is properly controlled and inspected. NRC has identified a generic problem in the installation of anchor bolts in concrete and the installation of pipe hanger supports, including location control for anchor bolts, which was common to several sites. This resulted in the issuance of IE Bulletins 79-02 and 79-14 which dealt with these problems. The work required to close out these bulletins is presently in progress at Summer. The licensee's investigation into this concern disclosed that there had been problems with mislocation of items embedded in concrete and that these problems had been documented on Nonconformance Reports (NCNs). The inspector reviewed the NCNs to verify that they had been properly dispositioned.

h. Concern

A large concrete placement was made in the early summer of 1974 in the reactor building foundation. During this placement there was a heavy rainstorm which resulted in water knee deep in a portion of the placement.

Discussion

The individual who expressed this concern stated that this concrete placement was a 500 to 600 cubic yard pour placed on top of other concrete in the reactor building foundation. The individual also said there was reinforcing steel in the pour and suggested that because of this it was part of the reactor building structural foundation base mat. Review of the licensee's investigation disclosed that a heavy rainstorm occurred during a fill concrete placement under the reactor building structural foundation mat and that the rain did affect a portion of the placement. This was documented as NCN-44. This pour (number CFRB-51) was placed on June 3, 1974. The inspector reviewed the concrete pour card and drawing numbers E-411-015 and E-411-018 "Reactor Building Leveling Mat Elevator 374". Review of the above documents disclosed that placement CF RB-51 was a fill concrete pour of 571 cubic yards which was placed on top of a previously placed fill concrete pour. The concrete placement contained reinforcing steel. The required design compressive strength of the concrete for this pour was 1500 psi. Disposition of the NCN resulted in removal of the concrete in the area affected by the heavy rainstorm. The extent of the concrete to be removed was determined by a detailed engineering investigation. The first concrete placement in the reactor building structural foundation mat was not made until October, 1974. Therefore the placement in question was not a portion of the reactor building basement. The inspector concurs with the results of the licensee's investigation which concluded that this problem was properly documented and corrected.

i. Concern

Improper concrete placement techniques and conditions during freezing weather. The individual gave no specific details as to concrete placements or locations on which he felt improper cold weather concrete operation occurred.

Discussion

The licensee's investigation into this concern disclosed that several NCNs had been written by QC personnel to document and correct procedural violations which occurred during cold weather concrete placements. The inspector reviewed the NCNs to verify that they had been properly dispositioned. The licensee concluded that the individual's concern was a valid one, however that sufficient controls existed to assure that cold weather concreting operations were properly executed. The inspector concurs with the results of the licensee's investigation. Similar concerns regarding cold weather concreting operations were expressed to NRC Region II by another individual who had been employed at the site. The result of the NRC investigation into these concerns is documented in IE Inspection Report number 50-395/79-38.

j. Concern

A concrete placement in the turbine building cured too fast and cracked.

Discussion

The Turbine Building is a nonsafety related structure. Review of the licensee's investigation disclosed that this problem occurred. This problem was properly evaluated. It has no impact on safety.

k. Concern

Voids in concrete (honeycomb) were not being properly repaired.

Discussion

The individual who expressed this concern stated that he saw a concrete finisher tap an area of a concrete wall with a hammer and then place a concrete patch on the area. He was approximately 100 feet away from the area being repaired and he could not give any specific details as to location of the repair or its size or depth. The licensee's investigation of this concern disclosed that numerous NCNs had been written to document and correct defects such as concrete honeycomb. The inspector reviewed these NCNs to verify they had been properly

dispositioned. Procedures and documentation of repairs to concrete surface defects and honeycomb had been reviewed by NRC inspectors on several occasions during previous inspections.

1. Conclusion

Seven of the concerns expressed by the two individuals were either not safety related or did not involve safety related structures. The remaining four concerns which were safety related had been detected by the licensee, documented, and corrected prior to the ASLB prehearing conference.

No violations or deviations were identified.