



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

Report Nos. 50-400/82-32 and 50-401/82-32

Licensee: Carolina Power and Light Company
411 Fayetteville Street
Raleigh, NC 27602

Facility Name: Shearon Harris

Docket Nos. 50-400 and 50-401

License Nos. CPPR-158 and CPPR-159

Inspection at Shearon Harris site near Raleigh, North Carolina

Inspector: J. R. Harris 9/30/82
J. R. Harris Date Signed

Approved by: T. E. Conlon 9-30-82
T. E. Conlon, Section Chief Date Signed
Engineering Inspection Branch
Division of Engineering and Technical Programs

SUMMARY

Inspection on September 14-17, 1982

Areas Inspected

This routine, unannounced inspection involved 26 inspector-hours on site in the areas of structural concrete, backfill and licensee action on previously identified items.

Results

Of the three areas inspected, no violations or deviations were identified in two areas; one apparent violation was found in one area (Failure to verify that process control cabinets were seismically qualified as installed, paragraph 3).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *R. M. Parsons, Project General Manager
- *A. M. Lucas, Senior Resident Engineer
- *N. J. Chiangi, Manager Engineering and Construction QA
- *L. T. Loflin, Manager Harris Plant Engineering
- *G. L. Forehand, Site Director - QA/QC
- *D. C. Whitehead, QA Supervisor
- E. L. Kelly, Civil QC Supervisor
- W. E. Seyler, Principal Civil Engineer

Other licensee employees contacted included four construction craftsmen, six technicians, and two office personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on September 17, 1982, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings. The following items were opened.

- a. Violation 400/82-32-01, Failure to verify that process control cabinets are seismically qualified as installed.
- b. Inspector Followup Item 400,401/82-32-02, Implementation of Procedure QCI 6.1, Receiving Inspection Statistical Sampling.

3. Licensee Action on Previous Enforcement Matters

(Closed) Violation (400,401,402,403/82-24-01), Improper Field Curing of Concrete Test Cylinders. Field cured test cylinders were stored during the first 24 hours after molding at temperatures less than the 60 to 80 degrees Fahrenheit range specified by Specification CAR-SH-CH-6. The inspector examined the licensee response dated January 27, 1982. The concrete cylinders in question were compression tested and the results met the project specification requirements. Field curing of test cylinders is now controlled with thermostatically controlled incubators. This item is closed.

(Closed) Inspector Followup Item (400/80-17-02, 401/80-25-02, 402/80-15-02, and 403/80-15-03), Erosion Control. This item was opened by A. Cunningham during a July 14-16, 1980, inspection as a reminder to followup on the monitoring of ph, suspended solids, plankton and benthic communities in

onsite streams which receive construction runoff and which flow into the Cape Fear River. These items are now being addressed by EPA. This item is closed.

(Closed) Unresolved Item (400/82-15-01), Verify That Process Control Cabinets Are Seismically Qualified as Installed. Confirming information was not available to verify that process control cabinets SA-09, SA-13, SB-10, and SB-14 were seismically qualified as installed. These cabinets were installed and anchored to concrete embedment plates which were not level. In order to level these cabinets it was necessary to place shims around the anchor bolts between the base of the cabinets and the plates mounted in the floor. This resulted in the cabinets being supported at approximately twelve points rather than along the entire surface of the floor. This unresolved item is closed and upgraded to a violation as discussed in the following paragraph.

Subsequent verification checks made by the licensee at the request of the NRC disclosed that the process control cabinets were installed per field change request (FCR) number FCR-M-462 without verifying that the mounting design specified in the FCR met the original seismic qualification test requirements that were performed on the equipment. The original qualification tests were run with the equipment flush mounted and having 100 percent bearing. FCR-M-462 has now been voided and replaced by FCR-M-485, R-1 and R-2. These FCRs call for filling the gaps between the base of the cabinets and the floor with epoxy grout to provide 100 percent bearing.

Failure to verify that the mounting design met the original seismic test requirements is contrary to the requirements of Criterion III of 10 CFR 50, Appendix B and Section III of the Carolina Power and Light Corporate QA Manual. These documents require that design changes including field changes shall be subject to design control measures commensurate with those applied to the original design and approved by the organization that performed the original design. Failure to verify that the process control cabinets were seismically qualified as installed was identified to the licensee as violation 400/82-32-01.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Independent Inspection Effort (92706)

The inspector examined the following:

- a. Soils and concrete testing laboratory and currentness of calibration
- b. Ongoing backfill operations in the power block
- c. Concrete batch plant controls
- d. Completed concrete work at the intake pumping station and riprapp protection on the intake canal.

Observations showed that ongoing and completed work was accomplished in accordance with applicable specifications and procedures.

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

6. Containment Structural Concrete (47054) - Unit 1

The inspector observed preparation and partial placement of pour numbers 1CBXW314-001 and 1CBXW416-001 in the Unit 1 containment building. Acceptance criteria examined by the inspector appear in the following documents.

- a. PSAR Section 5
- b. EBASCO Specification CAR-SH-CH-6
- c. CP&L procedure, CQA-6, WP-11, TP-15, TP-22 and TP-40
- d. American National Standard, ANSI/ASME N45.2.5-1978

Forms were tight, clean and level. Rebar was properly installed and clean. Placement activities pertaining to delivery time, free fall, flow distance, layer thickness, and consolidation conformed to specifications. Concrete placement activities were continuously monitored by construction and QA inspectors. Examination of batch tickets showed that the specified design mix was being delivered. Samples of plastic concrete were obtained from the pumpline discharge and tested in accordance with specification requirements. Test results showed that plastic concrete being placed met requirements for slump, air content, and temperature. Post placement inspection showed that proper curing controls were being maintained.

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

7. Licensee Identified Item (92700)

- a. (Open) CDR 50-400/82-71) Deficiencies in Welded Studs on Embedded Strip Plates. This item was reported to NRC Region II on February 17, 1982. The licensee submitted a final report to NRC on March 19, 1982, and an addendum to the final report on April 15, 1982. During receipt inspection of strip plates which are to be embedded in concrete, licensee inspectors found plates which contained studs with inadequate weld connections to the plate. These plates which were supplied by Alfab, Inc., were received onsite on January 10 and 29; February 25 and April 2, 1982. Of the 1,993 plates received on those dates, licensee inspectors rejected 96 plates. The licensee has determined that the rejected plates could not meet the plate design criteria with the defective studs. Plates found to contain defective studs were returned to Alfab or repaired on site. Discussions with responsible engineers and review of licensee documentation showed that Alfab was removed from the licensee approved Vendor list as a supplier of Seismic Category I structural steel on April 20, 1982.

The inspector informed the licensee that the final report does not address the quality of Alfab embed plates received between February 27, 1980 (date of closure of previous 50.55e item on Alfab supplied embedment plates and January 1982 date of discovery of this 50.55e item). This item remains open pending clarification on number of purchase orders, number of plates received and number of defects found for materials received from Alfab during the above stated interim period.

Review of receiving documents for embedment plates received on November 20, 1980, and December 15, 1980, under purchase orders 28931 and 30402 respectively, disclosed the following inspector followup item. Procedure QCI-6.1, Receiving Inspection Statistical Sampling, indicates items received for inspection shall be sampled in accordance with Table A, Receiving Acceptance Sampling Plan. Table A and paragraph 4.3 of the procedure appear to indicate that if one or more rejects are found in the specified sample size for a batch size of 500 items then the entire batch is rejected or 100 percent inspected. The shipment received on November 20, 1980, contained 384 embed plates and had one defective stud in a specified sample size of 50 plates. The shipment received on December 15, 1980 contained 360 embed plates and had two defective studs in a specified sample size of 50 plates. These batches of plate were not rejected or 100 percent inspected. Discussions with responsible receiving inspectors indicate that the studs on the plates are being considered as a separate item and the sample size is based on the total number of studs on the plates in each shipment. The inspector requested the licensee to clarify the intent of procedure QCI 6.1. This item was identified to the licensee as Inspector Followup Item 400,401/82-32-02, Clarification and Implementation of Procedure QCI6.1.