APPENDIX A

NOTICE OF VIOLATION

Carolina Power and Light Company Shearon Harris License Nos. CPPR-158 CPPR-159 CPPR-160 CPPR-161

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Based on the NRC inspection January 2-4, 1980, certain of your activities were apparently not conducted in full compliance with NRC requirements as indicated below. These items have been categorized as described in correspondence to you dated December 31, 1974.

As required by Criterion V of Appendix B to 10 CFR 50, implemented by Carolina Power and Light PSAR Section 1.8.5.5, "Activities affecting quality shall be prescribed by documented instructions, procedures or drawings, and shall be accomplished in accordance with these instructions, procedures or drawings." Shearon Harris Specification CAR-SH-CH-6, "Concrete" requires curing of concrete test cylinders to be in accordance with ASTM C192. ASTM C192 requires concrete cylinder to be stored in a moist room meeting the requirements of ASTM C511. ASTM C511 requires that moisture in the curing room atmosphere be saturated to the degree needed to ensure that the exposed surfaces of all cylinders in storage will both look moist and feel moist at all times.

Contrary to the above, on January 4, the surface of cylinder numbers 4818 through 4849 and cylinder numbers 4707 through 4757 stored in the concrete laboratory curing room were dry.

This is a deficiency.

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

JAN 2 2 1980

Report Nos. 50-400/80-01, 50-401/80-01, 50-402/80-01 and 50-403/80-01

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

Facility Name: Shearon Harris

Docket Nos. 50-400, 50-401, 50-402, 50-403

License Nos. CPPR-158, CPPR-159, CPPR-160, and CPPR-161

Inspection at Shearon Harris site near Raleigh, North Carolina

Inspector: 1 I Lenahan for Chief. RCES Branch Aproved by: Section Chi

SUMMARY

Inspection on January 2-4, 1980

Areas Inspected

This routine, unannounced inspection involved 18 inspector-hours onsite in the areas of site preparation and lakes, dams and canals work and work activities, structural concrete quality records, soils and concrete laboratory, and licensee identified items.

Results

Of the five areas inspected, no items of noncompliance or deviations were identified in four areas; one item of noncompliance was found in one area (Deficiency -Improper curing of concrete cylinders in the concrete laboratory - paragraph 5).

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DETAILS

1. Persons Contacted

Licensee Employees

*T. H. Wyllie, Senior Construction Manager

- *P. W. Howe, Vice-President, Technical Services
- *R. M. Parsons, Site Manager
- *A. M. Lucas, Resident Engineer
- *G. M. Simpson, Principal Construction Inspector
- *N. J. Chiangi, Manager, Engineering and Construction QA
- *G. L. Forehand, Principal QA Specialist
- J. F. Nevill, Senior Engineer Civil
- A. Fuller, Area Engineer, Main Dam
- R. Marler, Area Engineer, West Aux Dam

E. L. Kelley, Senior Civil QA Specialist

- H. Casanova, 2nd Shift QA Supervisor
- P. Bean, Mechanical QA Inspector

Other licensee employees contacted included 4 civil construction inspectors, 5 civil QA inspectors and 3 mechanical QA inspectors.

Other Organizations

*W. D. Goodman, Project Manager, Daniel E. Hedgecock, Soils Engineer, EBASCO I. Ciloglu, Geologist, EBASCO

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on January 4, 1980, with those persons indicated in Paragraph 1 above. The licensee acknowledged the noncompliance discussed in paragraph 5.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Independent Inspection Effort

The inspector examined the following areas:

- a. * Construction Status
- b. Soils and concrete laboratories and currentness of calibration of laboratory equipment
- c. Partial placement and curing of pour number 1 TKIW 258001, an interior wall in the tank building
- d. Reinforcing steel laydown areas.

Examination of the curing of conrete cylinder in the Environmental Center concrete laboratory disclosed the following noncompliance: Specification CAR-SH-CH-6 requires curing of concrete cylinders to be in accordance with ASTM C 192. ASTM C 192 requires concrete cylinders to be stored in a moist room meeting the requirements of ASTM C 511. ASTM C 511 requires that moisture in the curing room atmosphere be saturated to the degree needed to ensure that the exposed surfaces of all cylinders in storage will both look moist and feel moist at all times. On January 4, 1980, the inspector observed that the surfaces of cylinder numbers 4818 through 4849 and cylinders numbers 4707 through 4757 stored in the concrete curing room looked and felt dry. This was identified to the licensee as Deficiency Item 400/80-01-01, 401/80-01-01, 402/80-01-01, and 403-80-01-01, "Improper curing of conrete cylinders in the concrete laboratory".

No deviations were identified.

 Lakes, Dams and Canals - Observation of Work and Work Activities Units 1, 2, 3, and 4

The inspector observed placement, compaction and quality control testing of impervious fill in the west auxiliary dam. Fill activities were continously monitored by construction inspectors. Acceptance criteria for dam embankment fill activities examained by the inspector appear in PSAR Appendix 2E, SER Section 2.7, EBASCO specification CAR-SH-CH-4, CP&L Procedure TP-08 and drawing numbers CAR-2167-G-6270, 6171, 6272 and 6273.

The inspector also witnessed partial placement of pour number WAD ST 020, a mass concrete pour in the OG section of the west auxiliary dam spillway. Forms were tight, clean, and level. Placement activities pertaining to delivery time, free fall, flow distance, layer thickness and consolidation conformed to specification requirments. Concrete placement activities were continously monitored by inspectors. Examination of batch tickets indicated that the specified design mix was being delivered. Samples of plastic concrete were tested in accordance with specification requirements. The test results indicated that the plastic concrete being placed met the mass concrete specification requirements for slump, air content and temperature. Examination of the batch plant indicated materials were being controlled and accurate batch records were being generated. Storage of materials • · · ·

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(aggregates, cement and admixtures) were observed to be in accordance with specification requirements. Batch plant activities were continously monitored by inspectors. Acceptance criteria examined by the inspector appear in PSAR Section 5, EBASCO Specification CAR-SH-CH-6, CP&L Procedures CQC-13, TP-15, QCI 13.2, QCI 13.3, and WP-3 through WP-5, and drawing numbers CAR 2167-G-6280, 6281, 6282, 6284, 6285 and 6286.

No items of noncompliance or deviations were identified.

7. Site Preparation - Observation of Work and Work Activities - Units 1, 2, 3 and 4

The inspector observed excavations for the foundation of the Units 1 and 2 diesel generator building and examined the completed excavation for the emergency service water system intake structure. Final foundation clean up and geologic mapping of the foundation rock was in progress at the emergency service water system intake structure. The inspector reviewed geologic mapping which had been completed to date and discussed with the EBASCO geologist. The evaluation of minor rock slides which had occurred during excavation for the intake structure.

Acceptance criteria examined by the inspector appear in the following documents:

- a. Section 2 of the PSAR
- b. EBASCO Specification CAR-SH-CH-8, "Excavation, Backfill, Filling, and Grading"
- c. Drawing number CAR-2167-G-3039, "Diesel Generator Buildings Excavation and Concrete Fill - Plans and Sections"
- d. Drawing number CAR 2167-G-2843 "Emergency Service Water System Intake Structure Excavation - Seal Mat, Plan and Sections"

No items of noncompliance or deviations were identified.

8. Containment (Structural Concrete I) - Review of Quality Records - Unit 2

The inspector examined quality records for pour numbers 2CBSL216001 and 2CBSL216002 in the Unit 2 reactor building base mat. Pour number 2CBSL216001 was placed on November 20, and 21, 1979, and pour number 2CBSL216002 was placed on December 14-16, 1979. Records exmained included:

- a. Concrete mix design for mix number M 56M
- b. Results of 7 and 28 day compressive strength tests performed on cylinders from pour number 2CBSL216001
- c. Results of 7 day compressive strength tests performed on cylinders from pour number 2CBSL216002

- e. Results of in-process testing of plastic concrete for pour number 2CBSL216002, including slump, air content, unit weight and temperature
- f. Completed pour card for pour number 2CBSL216002
- g. Placement checklist for pour number 2CBSL216002
- h. Location drawings for cadweld splices in the Unit 2 basemat
- i. Inspection data for cadweld numbers 770, 772-774, 777-789, 861, 863, 864, 866, 868, 869, 872, 5093x, 5094x, and 5095x
- j. Qualification records of cadweld operators C034, C059, and C077
- k. Training and qualification records of 5 mechanical (cadweld) QA inspectors.

Acceptance criteria examined by the inspector appear in PSAR section 5, EBASCO specification CAR-SH-CH-6, CP&L procedures CQC 13, CQC 15, WP-1, WP-3 through WP-5, WP-15, TP-15, QCI 13.1 through 13.3, and QCI 15.5 through 15.4, and drawing numbers CAR 2167-G-0880 through CAR 2167-G-0889.

No items of noncompliance or deviations were identified.

9. Licensee Identified Item (10 CFR 50.55(e))

Prior to this inspection, the licensee identified the following items under 10 CFR 50.55(e):

a. (Open) (401/79-23-02), Omission of rebar in the Unit 2 reactor auxiliary south shear wall

In order to confirm the repair procedure for the omitted rebars, test bars were installed on November 27, 1979, and pull tests were performed on these bars on December 28, 1979. The inspector examined the test bar installation to confirm that structural cracking of the grout had not occurred during the pull test. The inspector reviewed a draft of the test report and reviewed the pull test data. The final report will be submitted for review to EBASCO Engineering and NRC Region II. Installation of the repair bars will follow engineering evaluation of the pull test data and Region II concurrence. Installation of the test bars and the pull tests was observed by Region II inspector during previous inspections.

b. (Open) Item (400/401/80-02-01), Rejectable cadwelds accepted by qualified inspectors. Region II was notified on December 20, 1979 that a potentially reportable deficiency involving cadwelds had been found by the licensee. A newly qualified inspector accepted three cadwelds in the Unit 1 reactor containment wall which were later rechecked and found to be rejectable. The licensee made a recheck of all work accepted by the new inspector, and a spot recheck of cadwelds accepted by other qualified inspectors. The

spot recheck of the other inspector's work disclosed that they too, had accepted cadwelds which were rejectable. Based on this, a complete reinspection was made of all cadwelds not embedded in concrete. The results of the reinspection were as follows:

(1) Unit 1 Containment Building - Exterior Wall

Bar <u>Size</u>	Cadweld Position	Number Reinspected	Number <u>Rejected</u>
18	Horizontal	1261	12
18	Vertical	1152	23
18	Diagonal	1106	14
11	Horizontal	1	0
11	Diagonal	35	0

(2) Unit 1 Containment Building - Primary and Secondary Shield Walls

Bar Size	Cadweld <u>Position</u>	Number Reinspected	Number <u>Rejected</u>
ì 1	Horizontal	888	1
11	Vertical	33 '	0
8	Horizontal	8	0
18	Horizontal	2	0

(3) Unit 2 Containment Building - Exterior Wall

No rejectable cadwelds were found during the reinspection of the 105 cadwelds which have been installed to date in the wall of this structure.

With the exception of one rejected cadweld which contained slag at the tap hole, the remaining rejected cadwelds contained excessive voids in the bar ends.

Two inspectors had accepted 34 of the 50 rejectable cadwelds. The remaining 16 were inspected and accepted by 7 other inspectors. The inspectors have been retrained and inspection methods have been stand-ardized to avoid acceptance of rejectable cadwelds in the future.

The rejectable cadwelds have been or will be cut out of the structure and replaced with new cadwelds. As many as possible of the rejectable cadwelds will be pull tested to destruction to determine whether or not they would have performed as intended even though they did not meet the visual inspection (acceptance) criteria. The inspector witnessed tensile testing of three of the rejected cadweld splices. Tensile strengths of these and of six other rejected cadwelds which had been tested as of this inspection date exceeded the specification requirements. Upon completion of the tensile testing of the rejectable cadwelds, an engineering evaluation will be performed to determine the effect of the rejectable cadwelds on the integrity of structures involved.