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

FEB 27 1980

Report Nos. 50-400/80-04, 50-401/80-04, 50-402/80-04 and 50-403/80-04

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

Facility Name: Shearon Harris Nuclear Power Plant

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

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

Inspection at Shearon Harris site near Raleigh, North Carolina

Inspector: R. D. Bradley — Date Signed: 2/22/80

Approved by: M. D. Hunt, Acting Section Chief, RC&ES Branch — Date Signed: 2/22/80

SUMMARY

Inspection on February 5-7, 1980

Areas Inspected

This routine unannounced inspection involved 20 inspector hours on site in the areas of construction progress; licensee action on previous inspection findings; licensee identified items; and IE Circular 79-25.

Results

Of the four areas inspected, no items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

   Licensee Employees

   *J. S. Elleman, Vice President, Nuclear Safety & Research
   *S. D. Smith, Vice President, Power Plant Construction
   *P. W. Howe, Vice President, Technical Services
   *R. M. Parsons, Site Manager
   *A. M. Lucas, Senior Resident Engineer
   *G. L. Forehand, Principal Site QA Specialist

   Other licensee employees contacted included construction craftsmen, QA technicians, geologists, civil engineers and QA specialists.

   *Attended exit interview

2. Exit Interview

   The inspection scope and findings were summarized on February 7, 1980 with those persons indicated in Paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

   (Open) Noncompliance (400/401/79-23-01): Failure to Follow Procedures.

   The licensee's procedure for field bending of rebar is in preparation and will be released upon completion of bend method evaluation and architect-engineer approval. This noncompliance will remain open pending completion and subsequent evaluation of the licensee's procedure.

4. Unresolved Items

   Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve noncompliance or deviations. New unresolved items identified during this inspection are discussed in Paragraph 5c.

5. Independent Inspection

   a. Construction Progress

      Preparations for erection of the stainless steel liner plate for the fuel handling building south fuel pool is continuing as well as piping and electrical activities on elevation 216. Installation of reinforcing steel continues on the remaining portion of the Unit 1 containment secondary shield wall from azimuth 0° to the south refuel canal wall. Chicago Bridge and Iron is continuing to work on the erection of spray header pipe hangers in the containment dome for Unit 1. Reinforcing

steel, formwork, and embed installation is in progress for the emergency service water intake screening structure interior and exterior walls. Main dam core trench cleaning was completed between stations 0+00 and 1+90. Unit 1 is now approximately 27% complete and Unit 2 is currently 4%.

b. Main Dam Core Trench

On January 31, 1980, Region II was notified that eight small faults had been noted during geologic mapping of the main dam core trench. The faults are located between stations 1+90 and 0+15 and are believed to be noncapable. During this inspection, the reported faults were observed and discussion was held with the licensee's geologists. Mapping is continuing and a formal report will be prepared following completion of fault investigation. A representative of NRC - NRR will observe the faults and evaluate the licensee's findings.

c. Unit 1 Containment Primary Shield Wall

The inspector observed construction repair activities underway at the primary shield wall following placement number 1CBIW236001 between elevations 249 and 259. This is the fourth lift of the shield wall and it encompassed the six main loop pipe penetration sleeves. The 188 yard placement was initiated late Thursday, January 24, 1980, and continued until Friday morning. Due to the high concentration of rebar and embeds within the shield wall, placement difficulties were anticipated and mesh screens were installed beneath the four foot diameter penetration sleeves to monitor placement progression. During the placement, it was observed that crescent shaped voids were developing beneath each of the six sleeves even though special precautions had been taken. The placement was momentarily stopped and special attention was given to eliminating the voids through concentrated use of vibrators. When it was determined that the voids could not be completely eliminated before the concrete hardened, the placement was resumed and the wall completed up to elevation 259. The utility contacted the inspector and discussions were held January 25, 28 and 29, and February 1 and 4.

During this inspection, a complete review of the original placement activities was conducted by examining all associated documents prepared during preplacement, placement, and post placement/curing activities. Selected personnel were contacted and discussions were held on placement performance. Crescent shaped voids had been formed beneath each of the sleeves and some honeycombing was observed on wall surfaces. Repair activities currently underway were observed, repair documents reviewed, and details were discussed with site engineering and management personnel. The steel penetration sleeves serve as forms for the concrete and provide a small surface area for restraint interface. Depending on void configuration, portions of the sleeves have been removed to facilitate repairs to the concrete. Those portions of the sleeves required to support the restraint system will be replaced. Necessary repairs for the sleeves are addressed in field change request

FCR-AS-173. The licensee's architect-engineer, Ebasco, evaluated the placement conditions at the site on January 26 and 31, and approporiate approvals are being obtained prior to commencing repairs on the sleeve configuration. All repairs are being conducted in accordance with established procedures.

The following documents were reviewed by the inspector during the course of this inspection:

(1) Ebasco specification CAR-SH-CH-6, Concrete Paragraphs 5, 6 and 9.

(2) Instruction QCI-13.4 Concrete Repair Inspection

(3) Procedure CQC-13, Concrete Control

(4) Procedure WP-27, Repairing of Concrete Surfaces

(5) Procedure WP-17, Concrete Curing

(6) Concrete curing temperature logs for the original placement

(7) Concrete placement repair reports P01, P02, P03, P04-A, P05, P13 and P14-A and their associated concrete repair checklists

(8) Concrete test report (form QA-24) for original placement

(9) Batch plant tickets for the 188 cubic yards placed

(10) FCR-AS-173 dated 2/5/80, to allow pipe sleeves to be modified and HVAC duct to be redesigned

(11) Concrete placement report number 1CBIW2360001 with associated placement and post placement checklists

(12) QC field reports C-640 dated 1/28/80 and C-646 dated 2/1/80

(13) FCR-C-1135 dated December 20, 1979, to allow changes in CH-6 specification requirements under cold weather conditions

As a result of the above review, the inspector raised questions concerning the compatibility of specification CH-6/ACI 306 with work procedure WP-17 regarding recording requirements for curing temperatures; specifically, the requirements for monitoring and logging ambient and concrete surface temperatures on the Concrete Curing Temperature Log. This matter will be identified as Unresolved Item No. 400/80-04-01, Recording of concrete curing temperatures, pending further evaluation by a RII civil engineering specialist. The inspector has no futher questions regarding other documents and activities examined.

Within the above areas of inspection, no items of noncompliance or deviation were noted.

6. Licensee Identified Items (10 CFR 50.55(e))

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

a. (Closed) Item (400/80-04-02), ULtrasonic test not performed on vendor supplied spool piece elbows. Region II was notified of this potentially reportable item on December 7, 1979. On January 31, 1980, the licensee reported that the spool pieces had been returned to the supplier, Southwest Fabrication, and had passed the required NDT evaluation. The omitted NDT requirements were for liquid penetrant and not ultrasonic testing as had been reported. The inspector reviewed the deficiency and disposition report DDR 336 and associated corrective action report and has no further questions.

b. (Closed) Item (400/80-04-03), Ultrasonic test not performed on a spool piece supplied by Southwest Fabrication. The licensee reported this potential 55(e) item to Region II on December 11, 1979 and subsequently determined it to be nonreportable on January 31, 1980. The spool piece was returned to Southwest where it successfully passed the ultrasonic test requirements.

c. (Closed) Item (400/401/79-24-01 and 402/403/79-23-01), Defective stud welds on vendor supplied embedment plates. The licensee reported on December 14, 1979 that this item had been determined to be nonreportable under 10 CFR 21 and was considered to be potentially reportable under 10 CFR 50.55(e). On January 7, 1980, CP&L informed RII that they had evaluated the items and considered them to be reportable under 55(e) in that the strip plates could not meet their original design criteria with inadequate stud welds. The investigation of welding processes at Alfab disclosed the cause of the weld failures to be the welding procedures used. The welding procedure was modified to result in a changed lift height resulting in a better contact surface between the stud and the plate.

7. Inspection and Enforcement Circular

(Open) 79-CI-25: Shock Arrestor Strut Assembly Interference. Supplement A of the subject circular identified the Harris facility as having received one of the Bergen-Paterson part 2540 strut assemblies with an interference between the mechanical shock arrestor and rear bracket. The licensee determined that the assembly had been received and placed on hold. A deficiency and disposition report has been prepared and a replacement bracket is on order. The assembly is for Unit 1 and is a part of the service water system. This item was reported earlier to NRC as a Part 21 item by Bergen-Paterson.