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

Report Nos. 50-400/80-15, 50-401/80-13, 50-402/80-13, and 50-403/80-13

Licensee: Carolina Power & Light Company
411 Fayetteville Street
Raleigh, NC 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 Harris site near Raleigh, North Carolina

Inspector: P. K. Van Doorn 7/25/80
W. P. Kleinsorge Date Signed

Approved by: B. R. Crowley for 7/25/80
A. R. Herdt, Section Chief, RCES Branch Date Signed

SUMMARY

Inspection on June 16-20, 1980

Areas Inspected

This routine, resident inspection involved 41 inspector-hours on site in the areas of licensee action on previous inspection findings; radiographic examination (Unit 1); cadweld splicing (Unit 1); reinforcing steel storage (Units 1, 2, 3 and 4); inspector followup items; licensee identified items (50.55(e)); safety-related component - Observation of work and work activities (Unit 1); and steel structures and supports (Unit 1).

Results

Of the eight areas inspected, no items of noncompliance or deviations were identified in six areas; two items of noncompliance were found in two areas (Infraction - "Fabricator and Contractor Under Cut" paragraph 3.d; Infraction - "Failure to Follow Reinforcing Steel Storage Procedure" -paragraph 5.d.)

DETAILS

1. Persons Contacted

Licensee Employees

*R. M. Parsons, Site Manager
*G. L. Forehand, Principal QA Specialist
*V. M. Safarian, Senior QA Specialist - Welding
*F. A. Shaikh, Project Engineer Welding
*T. H. Wyllie, Senior Construction Manager - CP&L
*M. F. Thompson, Jr., Director C&S - CP&L
*R. Hanford, Principal Engineer, Metallurgy/Welding
*N. J. Chiangi, Manager, Engineering and Construction QA
*G. M. Simpson, Principal Construction Spec - Inspection
*W. Seyler, Project Civil Engineer
W. P. Tomlinson, Project Engineer - Nuclear

Other licensee employees contacted included five construction craftsmen, three technicians, and four office personnel.

Other Organizations

*R. Isom, Construction Manager Daniel Construction Co. (DCC)
F. P. Hazelip, Welding & QA Superintendent Chicago Bridge and Iron Co., (CB&I)

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on June 20, 1980 with those persons indicated in Paragraph 1 above. The items of noncompliance described in paragraph Nos. 3d and 5d were discussed. No dissenting comments were received from the licensee.

3. Licensee Action on Previous Inspection Findings

a. (Closed) Unresolved Item (400/79-05-01): Cold spring controls. This item concerns the licensee lack of workable requirements in the area of cold spring controls for piping. The inspector reviewed EBASCO Drawings CAR-2165-G-107S01 Rev 1 "Field Installation Tolerances for Hangers" and CAR-2165-G-107 S02 Rev. 1" Field Installation Tolerances for Piping" which the licensee had developed to provide workable requirements for piping cold spring control. No discrepancies were noted. This item is considered closed.

b. (Closed) Unresolved Item (400/80-09-01): "Surface Defects in Hanger and Liner Attachment Welds".

This item concerns NRC inspector identified surface defects in containment spray system hanger and attachment welds made and accepted by the licensee's contractor, CB&I. The inspector reviewed results (records) of visual examination, made by the licensee, performed on welds subject to the under cut requirements described in paragraph 3.6.4 of AWS D1.1-77. This review disclosed that RH vertical weld of clip to pad joint (hanger No. 1-CT-H-7 and pad No. 65C3 on drawing CB&I-65 Rev. 3) did not meet the undercut requirement. The undercut was repaired at the licensee's direction. The inspector stated that he would close this matter as an unresolved item and would identify it as a noncompliance. This matter is discussed under paragraph 3d of this report.

c. (Closed) Unresolved Item (400/80-09-02): "Undercut Containment Spray Piping Attachment Weld".

This item concerns NRC inspector identified mechanical undercut in containment spray system piping attachment weld made and accepted by the licensee's fabricator, Southwest Fabricating and Welding Company, Inc. (SwFab). The inspector reviewed results (records) of visual examination, made by the licensee, performed on welds subject to the undercut requirements described in paragraph NB-4424 of ASME Section III (71S73). This review disclosed that the top trunnion weld on Bergen Paterson drawing 1-CT-H-71 and SwFab drawing 1-CT-5-1 did not meet the undercut requirements. The undercut was repaired at the licensee's direction. The inspector stated that he would close this matter as an unresolved item and would identify it as a noncompliance. This matter is discussed under paragraph 3d of this report.

d. The following are examples of unacceptable undercut:

The undetected unacceptable undercut discussed in paragraph 3b and 3c above indicate that the contractor and fabricator did not inspect in that area and the licensee's QA program did not prevent the incorporation of nonconforming supporting structures into the plant.

(1) The RH vertical weld of clip to pad Joint (hanger 1-CT-H-7 and pad 65C3 on drawing CB&I 65 Rev. 3) exhibited undercut 1/8" long by 0.043" deep. AWS D-1.1-77 requires that undercut be no more than 1/32-inch (0.03125") deep.

(2) The top trunnion attachment weld, on Bergen Paterson Drawing 1-CT-11-71 and SwFab Drawing 1-CT-5-1, exhibited undercut that reduced the material thickness to 0.186"; the required minimum thickness as determined by CP&L is 0.190." ASME B and PV Code S71 Paragraph NB-4400 requires that undercut shall not reduce material thickness below the required minimum.

Failure to fabricate and inspect in accordance with above applicable codes is in noncompliance with 10 CFR 50.55a.

This is an infraction and is assigned item no 400/80-15-01: "Fabricator and Contractor Undercut".

e. (Open) Unresolved Item (400/80-13-04, 401, 402, 403/80-11-04): Final Weld Peening".

This item concerns the peening of final weld layers without regard for final surface inspection. This item was discussed with the licensee, who stated that they expect a resolution by July 1, 1980. This item remains open.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Independent Inspection Effort (Units 1, 2, 3 and 4)

a. Construction Progress

The inspector conducted a general inspection of the power block construction site, the pipe fabrication shop, the pipe storage area and the containment dome fabrication area, to observe construction progress and construction activities such as welding, nondestructive examination, material handling and control, housekeeping and storage.

b. Radiographic Examination

The inspector observed radiographic inspection in progress for repair weld no HXSN19A58062 R1 on a Unit 1 component cooling heat exchanger. The above inspection was compared with the applicable procedure in the areas of type of material, surface condition, material thickness, type of radiation source, film brand/type, minimum source to film distance, type and thickness of screens, exposure condition, radiographic film processing, quality of radiographs, film density, use of densitometer, radiographic identification, use of location markers, method of reducing and testing for back scatter, selection and use of penetrmeters, and evaluation and disposition of radiographs.

c. Cadweld Splicing (Unit 1)

The inspector observed the cadweld splicing of three joints and the inspection of seven cadweld joints to determine whether applicable procedural requirements were met. The applicable procedures are as follows:

QCI-15.4 Rev. 2	"Cadweld Splicing Inspection"
WP-01 Rev. 11	"Installation of Cadweld Splices"
WP-15 Rev. 5	"Cadweld Splicer Qualification"
CQC-15 Rev. 2	"Cadweld Control"

d. Reinforcing Steel Storage (Units 1, 2, 3 and 4)

On June 24, 1980, the inspector, accompanied by a representative of the licensee, made a general inspection of the excavated area north of

the power block. The inspector noted in excess of seventy five examples of reinforcing steel in the mud and/or covered with oil. CP&L Procedure AP-X-01 Revision 0, "Temporary Storage of Reinforcing Steel and Embeds" requires reinforcing steel to be maintained in Level D storage. CP&L Procedure AP-XIII-05 Revision 8 "Material Storage" requires Level D stored items to be on dunnage to allow air circulation and to minimize trapped water. Failure to follow established procedure is in noncompliance with 10 CFR 50 Appendix B Criterion V. This is an infraction and is assigned item No. 400/80-15-02, 401, 402, 403/80-13-02: "Failure to Follow Reinforcing Steel Storage Procedure".

Within the areas inspected, no items of noncompliance or deviations except as described in paragraph 5d were identified.

6. Inspector Followup Items

a. (Closed) Inspector follow-up Item (400, 401/79-26-01, 402, 403/79-25-01): "QA/QC Inspection Procedures".

This item concerns the licensee need for adequate guidance within procedure for visual inspection of piping welds. The inspector reviewed licensee inspection procedure NDEP-601 Rev 2, "Visual Examination of Welds" which the licensee revised to provide additional guidance for visual inspection of piping welds. No discrepancies were noted. This item is considered closed.

b. (Open) Inspector Follow-up Item (400, 401/79-26-02, 402, 403/ 79-25-02): "QA Surveillance of Contractor Welding Activities".

This item concerns the lack of a QA surveillance procedure for contractor welding. The inspector reviewed licensees Procedure CQA-20 Rev 0, "Surveillance of Contractor Welding and related Activities". The inspector stated that in view of connection between this item and the item of noncompliance discussed in paragraph 3d this item will remain open.

c. (Open) Inspector Follow-up Item (400/80-13-02, 401, 402, 403/80-11-02): "Interrupted Preheating".

This item concerns procedural inadequacy in the area of weld preheat maintenance. This item was discussed with the licensee, who stated that they expect a resolution by July 1, 1980. This item remains open.

d. (Open) Inspector follow-up Item (400/80-13-03, 401, 402, 403/80-11-03): "Flux Storage".

This item concerns procedural inadequacy in the area of submerged arc welding flux storage. This item was discussed with the licensee, who stated that they expect a resolution by July 1, 1980. This item remains open.

7. Licensee Identified Items (50.55(e))

a. New 50.55(e) Items

Prior to the inspection the licensee identified the following item as a potential reportable item:

(1) One instrumentation tubing support frame manufactured by Bergen-Paterson of Laconia, New Hampshire was found to contain deficient welds during receiving inspection. The welds exhibited undercut and lack of fusion. After the initial notification and prior to this inspection the licensee stated that this condition was not considered significant and thus not reportable. This inspector reviewed/inspected the applicable deficiency reports, evaluation and the item in question. Based on the above review and inspection this inspector concurs that the item is not reportable.

(2) Thirteen embedment plates manufactured by Afco in Little Rock, Ark. were rejected during receiving inspection for deficient welds. Anchor bolt and shear lug fillet welds were found to contain porosity, lack of fusion, and overlap. After the initial notification and prior to this inspection the licensee stated that this condition was not considered significant and thus not reportable. This inspector reviewed/inspected the applicable deficiency reports, evaluation and a representative sample of the items in question. Based on the above review and inspection this inspector concurs that the item is not reportable.

(3) One embedment plate manufactured by Alfab of Enterprise, Alabama, was rejected during receiving inspection for deficient welds. Three anchor bolt fillet welds were rejected for unacceptable undercut. After the initial notification and prior to this inspection the licensee stated that this condition was not considered significant and thus not reportable. This inspector reviewed/inspected the applicable deficienty reports, evaluation and the item in question. Based on the above review and inspection this inspector concurs that the item is not reportable.

(4) Five of five embedment plates for the emergency service water intake structures supports received from the Peden Steel Company in Raleigh, North Carolina have been rejected. The welds attaching the anchor bolts to the embedment plates do not meet code overlap requirements. After the initial notification and prior to this inspection the licensee stated that this condition was not considered significant and thus not reportable. This inspector reviewed/inspected the applicable deficiency reports, evaluation and a representative sample of the items in question. Based on the above review and inspection this inspector concurs that the item is not reportable.

(5) Four No. 8 and four No. 11 "L" shaped rebars were not placed in a column as required by drawings. The column is located in the auxiliary building and is integral with a wall. The bars were noted missing during a routine QC check in preparation for the next pour. After the initial notification and prior to the conclusion of this inspection the licensee stated that this condition was not considered significant and thus not reportable. This inspector examined the column in question to verify location and the number of missing bars. The inspector observed concrete removal activities on the top of the column. This item will be evaluated during subsequent inspections.

8. Safety Related Components - Observation of Work and Work Activities (Unit 1)

a. The inspector observed lifting, setting, and placement activities for steam generator serial No 1631 to determine whether work and inspection activities, location placement and mounting/supporting, and generation and maintenance of inspection records met applicable procedural requirements. The applicable procedures are as follows:

Rigging International	Procedure 960-17 Rev 3, "Lifting, Rigging and Placement of Steam Generator"
CP&L	Procedure WP-120 Rev 2, "Setting the Steam Generator"

The inspector noted, during the lifting setting and placement activities, of the above steam generator, there appeared to be an adequate number of QA/QC inspection personnel performing their assigned duties and responsiblities.

Within the area inspected, no items of noncompliance or deviations were identified.

9. Steel Structures and Supports (Unit 1)

The inspector observed welding work activities for steel structures within the containment as described below to determine whether applicable code and procedure requirements were being met. The applicable code for containment fabrication is the ASME B and PV Code Section III Division 2 1975 edition with addenda through winter 76.

The inspector observed in-process welding activities of containment structural field welds as described below to determine whether applicable code and procedure requirements were being met. The following weld was examined

in process to determine work conducted in accordance with traveler, welding procedures available; welding technique and sequence; weld geometry, fit-up electrical characteristics; equipment condition:

Structure	Identification
Containment Spray Piping Restraint	CT-H-33

In the area inspected no items of noncompliance or deviations were identified.