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

Report Nos. 50-400/82-29, 50-401/82-29

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

Facility Name: Harris

Docket Nos. 50-400, 50-401

License Nos. CPPR-158, CPPR-159

Inspection at Harris site near Raleigh, NC

Inspector: W. P. Kleinsorge — Date Signed: September 10, 1982

Approved by: for J. J. Blake, Section Chief — Date Signed: 9/10/82
Engineering Inspection Branch
Division of Engineering and Technical Programs

SUMMARY

Inspection on August 30 - September 2, 1982

Areas Inspected

This routine, unannounced inspection involved 30 inspector-hours on site in the areas of construction progress (Units 1 and 2), safety related piping (Unit 1), reactor coolant pressure boundary piping (Unit 1), steel structures and supports (Unit 1) and reactor vessel internals (Unit 1).

Results

No violations or deviations were identified.

## REPORT DETAILS

1. Persons Contacted

   Licensee Employees

   *S. D. Smith, Vice President, Nuclear Construction
   *R. M. Parsons, Project General Manager
   *N. J. Chiangi, Manager, Engineering and Construction QA/QC
   A. M. Lucas, Senior Resident Engineer
   *G. L. Forehand, Director, QA and QC
   *R. Hanford, Resident Engineer, Metallurgy/Welding
   *D. C. Whitehead, QA Supervisor

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

   Other Organizations

   *B. E. Wells, Group Vice President Danial Construction Company

   NRC Resident Inspector

   G. F. Maxwell, Senior Resident Inspector

   *Attended exit interview

2. Exit Interview

   The inspection scope and findings were summarized on September 2, 1982, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below. No dissenting comments were received from the licensee.

   Unresolved Item 400, 401/82-29-01: "Illegible Construction Drawings" - paragraph 5.

   Inspector Followup Item 400, 401/82-29-02: "RECO Marking Materials" - paragraph 8a.

   Unresolved Item 400/82-29-03: "RECO Welding Record Inconsistancies" - paragraph 8b and 8d.

3. Licensee Action on Previous Enforcement Matters

   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 nos. 5, 8b and 8d.

5. Independent Inspection Effort

Construction Progress (Units 1 and 2)

The inspector conducted a general inspection of the power block construction site and storage areas to observe construction progress and construction activities such as welding, material handling and control, housekeeping and storage.

With regard to the above inspection, the inspector noted a stick file (No. 286) of construction drawings which were badly faded. The general notes on drawing CAR-2167-G-3244 Revision 4 were totally illegible and the revision number was not legible on drawing CAR-2167-G-3248. At the time of this inspection it could not be determined whether any safety related activities had been accomplished using the above illegible drawings. The licensee indicated that they would look into the matter further. Pending the outcome of the licensee's investigation and the NRC determination of safety significance this matter will be identified as unresolved item 400, 401/82-29-01: "Illegible Construction Drawings".

Within the area inspected, no violations or deviations were noted.

6. Safety Related Piping (Unit 1)

The inspector observed welding activities for safety related piping as described below to determine whether applicable code and procedure requirements were being met. The applicable code for safety related piping is the ASME B&PV Code, Section III, Subsections NC and ND, 1974 edition with addenda through winter 1976. The inspector observed in-process welding activities of field welds as described below to determine whether applicable code and procedure requirements were being met.

a. Welding (55183)

The below listed welds were examined in-process to verify work conducted in accordance with traveler, welder identification and location, welding procedures. WPS assignment, welding technique and sequence, materials identity, weld geometry, fit-up; temporary attachments, gas purging, preheat, electrical characteristics, shielding gas, welding equipment condition, interpass temperature, interpass cleaning, process control systems, qualifications of inspection personnel, and weld history records.

| WELD NO. | SIZE | SYSTEM |
|---|---|---|
| 1-CS-142-FW-201 | 4" X 0.465" | Chemical and Volume Control |

b. Welder Qualification (55187)

The inspector reviewed the CP&L program for qualification of welders and welding operators for compliance with QA procedures and ASME Code requirements.

The following welder qualification status records and "Records of Performance Qualification Test" were reviewed relative to the weld joints listed in paragraph 6a.

| WELDER SYMBOL | WPS | |
|---|---|---|
| C-53 | 8B2 | |
| A-60 | 8B2 | (Repair) |

c. Welding Filler Material Control (55182)

The inspector reviewed the CP&L program for control of welding materials to determine whether materials were being purchased, accepted, stored and handled in accordance with QA procedures and applicable code requirements. The following specific areas were examined:

- Purchasing, receiving, storing, distributing and handling procedures, material identification; and inspection of welding material issuing stations.

- Welding material purchasing and receiving records for the following materials were reviewed for conformance with applicable procedures and code requirements:

| TYPE | SIZE | HEAT, LOT BATCH/NO. |
|---|---|---|
| ER-308 | 1/8" | 05108 |
| ER-316 | 3/32" | C-3537T |
| ER-316 | 1/8" | 743379 |

d. Special Welding Activities (55188)

The inspector examined special welding activities including weld repair as described below to determine whether applicable code and procedure requirements were being met.

Repair Welding

The following repair welds were examined relative to the following: welding procedure used; repair welding procedure includes all pertinent requirements; repair welding procedure qualification; repair welder performance qualification; ANI witnesses performance qualification; repair area does not exceed limits; base and filler material as specified; base material repairs documents; NDE performed, and records complete.

| WELD NO. | SIZE | SYSTEM |
|---|---|---|
| 1-CT-16-FW86 (Repair 3) | 24" X 0.375" | Containment Spray |

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

7. Reactor Coolant Pressure Boundary Piping (Unit 1)

The inspector observed non-welding and welding work activities for reactor coolant pressure boundary (RCPB) piping. The applicable code for the installation of RCPB piping is the ASME B&PV Code, Section III, Subsection NB, 1974 Edition through the winter 1976 addenda.

a. Observation of Non-Welding Activities (49053)

Observation of specific work activities was conducted to determine conformance, where applicable, with the following: inspection and/or work procedures, record keeping, installation specifications or plans, specified materials, specified NDE, calibration and use of proper test equipment and qualified inspection and NDE personnel.

The inspector observed the liquid penetrant examination of the weld prep surface for control rod drive mechanism (CRDM) seal welds 05-9744D4301-M327 and 30-9744D4301-M327.

b. Welding Activities

The inspector observed in-process welding activities of RCPB piping field welds as described below to determine whether applicable code and procedure requirements were being met.

(1) Special Welding Activities (55178)

The inspector examined special welding activities including weld repair as described below to determine whether applicable code and procedure requirements were being met.

Seal Welding

The below listed welds were examined to determine whether work was conducted in accordance with travelers; welder identification and location; welding procedure; WPS assignment; welding technique and sequence; materials identity; weld geometry; fit-up; temporary attachments; gas purging; preheat; electrical characteristics; shielding gas; welding equipment condition; interpass temperature; interpass cleaning; process control system; identity of welders; and weld history records.

| WELD NO. | SYSTEM | NOTE |
|---|---|---|
| FW-3 | Control Rod Drive | Tack Only |
| FW-5 | Control Rod Drive | Tack Only |
| FW-23 | Control Rod Drive | Tack Only |
| FW-25 | Control Rod Drive | Tack Only |

(2) Welder Qualifications (55177)

The inspector reviewed the CP&L program for qualification of welders and welding operators for compliance with QA procedures and ASME Code requirements.

(a) The following welder qualification status records and "Records of Performance Qualification Test" were reviewed relative to the weld joints listed in paragraph no. 7b(1).

| WELD SYMBOL | WPS |
|---|---|
| B-43 | 8BU10 |
| B-46 | 8BU10 |
| C-22 | 8BU10 |

(b) The inspector examined the below listed welder qualification macro specimens.

| WELDER SYMBOL | WPS |
|---|---|
| C-22 | 8BU10 |
| B-43 | 8BU10 |
| B-46 | 8BU10 |

(3) Welding Filler Material Control (55172)

The inspector reviewed the CP&L program for control of welding materials to determine whether materials are being purchased, accepted, stored and handled in accordance with QA procedures and applicable code requirements. The following specific areas were examined:

- Purchasing, receiving, storing, distributing and handling procedures, material identification; and inspection of welding material issuing stations.

- Welding material purchasing and receiving records for the following materials were reviewed for conformance with applicable procedures and code requirements:

| TYPE | SIZE | HEAT, LOT BATCH/NO. |
|---|---|---|
| ER-308 | Insert | 43379 |

(4) Welding Procedure Specifications (55171)

The following welding procedure specifications (WPS) were selected for review:

CP&L 8BU10 Rev.0

The above WPS and its supporting Procedure Qualification Record (PQR) were reviewed to ascertain whether essential, supplementary and/or nonessential variables including thermal treatment were consistent with code requirements; whether the WPS was properly qualified and its supporting PQR was accurate and retrievable; whether all required mechanical tests had been performed and the resutls met the minimum requirements; whether the PQR had been reviewed and certified by appropriate personnel and, whether any revisions and/or changes to nonessential variables were noted.

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

8. Steel Structures and Supports (Unit 1)

The inspector observed welding work activities for steel structures and supports as described below to determine whether applicable code and procedure requirements were being met. The applicable code for fuel pool liner welding is the ASME B&PV Code Section III Subsection ND, 1974 Edition through the winter 1976 addenda. The applicable code for the refueling water storage tank is the ASME B&PV Code Section III, Subsection NC 1977 edition with no addenda.

a. Welding (55154)

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

The following welds were examined in process to determine work conducted in accordance with traveler; welding procedures available; welding technique and sequence; weld geometry; fitup; electrical characteristics; and equipment condition:

| STRUCTURE | ORGANIZATION | WELD IDENTIFICATION |
|---|---|---|
| Refueling Water Storage Tank | RECO | Weld 2 near weld 12 |
| Refueling Water Storage Tank | RECO | Weld 2 near weld 13 |
| Fuel Pool | CP&L | FW-159 on Drawing SKAG-0176 Rev 0 |
| Fuel Pool | CP&L | FW-663 and Drawing SKAG-073 Rev 2 |

With regard to the inspection above the inspector noted that the RECO QC inspector used a "speedry" marker type DO Model 2017 to mark temporary attachments on the refueling water storage tank. "RECO Quality Assurance Program" Rev 2 of March 3, 1982, paragraph 7.2100 requires that marking materials be approved by customer specification(s). At the time of this inspection the above marking material was not included in the CP&L program. The licensee indicated that the marking material in question was presently undergoing evaluation by CP&L. Pending the outcome of CP&L's evaluation, this matter will be identified as Inspector Followup Item 400, 401/82-29-02: "RECO Marking Materials."

b. Welder Qualifications (55157)

The inspector reviewed the CP&L and RECO programs for qualification of welders and welding operators for compliance with QA procedures and ASME Code requirements.

The following welder qualification status records and "Records of Performance Qualification Test" were reviewed relative to the weld joints listed in paragraph no.

| WELDER SYMBOL | WPS | ORGANIZATION |
|---|---|---|
| SI-93 | 8BU7 | CP&L |
| C-17 | 8BU7 | CP&L |
| SI-97 | 8B2 | CP&L |
| 430 | P8/MMA | RECO |
| 941 | P8/MMA | RECO |

With regard to the inspection above, the inspector noted the following inconsistancies in RECO welding records:

- For welder no. 430 the welder qualification certificates for welding materials P-1, to P-1 and P-1 to P-8 shows the qualified thickness range as 3/16-inch to 2-inch, but does not state the thickness of the qualification test assembly used for the test.

- For welder no. 430, the welder qualification certification for materials P-1 to P-1 indicates that the test assembly base material was SA-515-70 and that the test was administered in the 6G position. SA 515-70 is plate material. The 6G position is applicable to pipe only.

The above are examples of unresolved item 400/82-29-03 discussed further in paragraph 8d.

c. Welding Filler Material Control (55152)

The inspector reviewed the RECO and CP&L programs for control of welding materials to determine whether materials are being purchased, accepted, stored and handled in accordance with QA procedures and applicable code requirements. The following specific areas were examined:

- Purchasing, receiving, storing, distributing and handling procedures, material identification; and inspection of welding material issuing stations.

- Welding material purchasing and receiving records for the following materials were reviewed for conformance with applicable procedures and code requirements:

| TYPE | SIZE | HEAT LOT BATCH/NO |
|---|---|---|
| ER-308 | 0.035" | A8442 |
| E-308-16 | 3/16 | 90113-2 |

d. Welding Procedure Specifications (55151)

The following welding procedure specification (WPS) was selected for review:

RECO - P8/MMA dated 05/04/77

The above WPS and its supporting Procedure Qualification Record (PQR) was reviewed to ascertain whether essential, supplementary and/or nonessential variables including thermal treatment were consistent with code requirements; whether the WPS was properly qualified and its supporting PQR was accurate and retrievable; whether all required mechanical tests had been performed and the results met the minimum requirements; whether the PQR had been reviewed and certified by appropriate personnel and, whether any revisions and/or changes to nonessential variables were noted.

With regard to the inspection above the inspector noted the following inconsistancies in RECO welding records:

- RECO Welding Procedure Specification (WPS) P8/MMA states that it is applicable to a deposited weld metal thickness range of 3/16-inch to 8-inch. The supporting procedure qualification record (PQR) P-8/MMA-1 was qualified on 1½-inch material, thereby supporting a deposited weld metal thickness of three inch maximum.

The inspector discussed the above record inconsistency and those described in paragrpah 8b with the RECO representative who indicated that the above items would be investigated and corrected. Pending the outcome of the RECO investigation and a NRC evaluation of the safety significance of these problems this matter will be identified as unresolved item 400/82-29-03: "RECO Welding Record Inconsistancies."

Within the areas examined no violations or deviations were noted.

9. Reactor Vessel Internals Installation (Unit 1)

The inspector reviewed procedures, made a physical inspection, and reviewed quality records to ascertain whether procedures, field activities, and records pertaining to the installation of the reactor vessel internals were consistent with NRC requirements, applicable codes standards and commitments.

a. Review of Quality Assurance Implementing Procedures (50061)

The inspector reviewed the below listed documents to determine whether provisions had been established relative to the reactor vessel internals to assure conformance with applicable requirements for handling.

DOCUMENTS

| NO. | TITLE |
|---|---|
| WP-07, Rev 8 | "Large Vessel and Equipment Off Loading Procedure" |
| WP-07, Appendix 16 Rev. 0, with Deviation 1 | "Removing CQL Lower Internals from Containment Building" |
| WP-07, Appendix 14 Rev 0 with Deviation 4 | "Transporting CTL Upper Internals to Containment Building" |

"Westinghouse Nuclear Energy Systems Mechanical Service Manual" - Second edition dated April 1, 1978

"Westinghouse - NSSS Component Receiving and Storage Criteria," Volume 1 "Mechanical Equipment" dated March 1976

b. Observation of Work and Work Activities (50063)

The inspector observed the removal of CQL (Unit 1) upper and lower reactor internals from Unit 1 containment, transporting CTL (Unit 3) upper internals to Unit 1 containment and the storage provision for preinstallation storage of CTL (Unit 3) lower internals prior to installation into the Unit 1 containment. The inspector reviewed the documents indicated in paragraph 9a; and their associated records for the reactor vessels internals to determine whether the requirements of the applicable specifications, work procedures, and inspection procedures were met in the area of lifting and handling.

c. Review of Quality Records (50065)

The inspector reviewed pertinent quality related work and inspection (QC) records relative to the reactor vessel internals (CQL) to ascertain whether the records were in conformance with established procedures and whether they reflected work accomplishment consistent with applicable requirements in the area of lifting and handling.

Within the areas examined no violations or deviations were identified.