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

JUN - 3 1980

Report Nos. 50-400/80-12, 50-401/80-10, 50-402/80-10 and 50-403/80-10

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

Facility Name: Harris

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

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

Inspection at general offices in Raleigh, NC and at Harris site near Raleigh, NC

Inspectors: J. D Sutton for — V. L. Brownlee — 5/23/80 Date Signed

T E Burdette — T. E. Burdette — 6-2-80 Date Signed

M. Thomas — M. Thomas — 6-2-80 Date Signed

C.R. McFarland — C. R. McFarland — 6-2-80 Date Signed

W.A. Ruhlman — W. A. Ruhlman — 6-3-80 Date Signed

For M. C. Ashenden — 6/3/80 Date Signed

Accompanying Personnel: C. M. Upright and T. E. Conlon

Approved by: T E Conlon — T. E. Conlon, Section Chief, RC&ES Branch — 6-3-80 Date Signed

SUMMARY

Inspection on April 28 through May 2, 1980

Areas Inspected

This special, unannounced inspection involved 221 inspector-hours in the general offices and on site in the areas of organization, reporting and enforcement history, design control, document control, procurement, receiving, storage, training, records, audits.

Results

Of the ten areas inspected, no items of noncompliance or deviations were identified in seven areas; five items of noncompliance were found in three areas [Infraction - No comprehensive system of planned and periodic audits for non-ASME areas, Paragraph 6.h(3)(a); Infraction - Failure to properly identify audit nonconformances, Paragraph 6.h(3)(a); Infraction - Failure to take adequate corrective action for previous noncompliance for concrete test cylinders, paragraph 6.h.(3)(a); Deficiency - Failure to document training, Paragraph 6.e(4); Deficiency - Unauthorized use of food in storage areas, Paragraph 6.e(5)].

DETAILS

1. Persons Contacted

   Licensee Employees

   *P. W. Howe, Vice President, Technical Services Department
   *A. B. Cutter, Manager, Nuclear Power Plant Engineering Department
   T. S. Elleman, Vice President, Nuclear Safety and Research Department
   *R. M. Parsons, Site Manager
   *N. J. Chiangi, Manager, Engineering and Construction QA
   *A. M. Lucas, Senior Resident Engineer
   *S. McManus, Manager, Corporate Nuclear Safety and QA Audit
   D. A. McGaw, Principal Vendor Surveillance Specialist
   *S. N. Hamilton, Manager, Construction Procurement and Controls
   L. E. Jones, Principal QA Engineer
   *G. L. Forehand, Principal QA Specialist
   *L. I. Loflin, Manager, Harris Plant Engineering Section
   *G. M. Simpson, Construction Inspection
   *J. C. Whitehead, Senior QA Specialist

   Other licensee employees contacted during this inspection included one contract officer, six engineers, twelve QA/QC inspectors, four warehouse workers, seven craft and five office personnel.

   *Attended exit interview

2. Exit Interview

   The inspection scope and findings were summarized on May 2, 1980 with those persons indicated in Paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

   Not inspected.

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 6.e(7).

5. Independent Inspection Effort

   a. Concrete Placement

      CP&L site management personnel informed the inspectors that on April 29, 1980 the fuel handling building interior wall pour no. 1FHIW246009 was mistakenly placed for exterior wall pour 1FHXW246001. The pour card for 1FHXW246001, which was completely signed off, was used to place

1FHIW246009. Both wall pours were being set up simultaneously when the first shift ended. The second shift was instructed to finish set up on both walls and pour wall 1FHXW246001. When the second shift concrete personnel arrived at the fuel handling building, both pours appeared to be set up. Without checking the pour card numbers, the second shift concrete General Foreman and Construction Inspector assumed that pour 1FHIW246009, which was almost set up, was the pour that had a completed sign off.

CP&L's investigation concluded that inspector's reports for the "placed" wall (1FHIW246009) indicate that all rebar and embedded items were installed as required by design documents and only minor clearance and form tolerances remained to be resolved. CP&L has submitted PW-C-1419 (permanent waiver) to Ebasco (AE) to allow wall to remain "as is".

The inspectors held discussions with CP&L QA management and engineering personnel, and inspected the pour sites. The inspectors concur with the licensee's conclusion that the design intent of the wall was satisfied.

b. Quality Assurance, Quality Control Functions - Onsite

(1) Quality Assurance Program

Section 1.8.2 of the PSAR (item a on page 1.8.2) states that Quality Assurance and inspection of construction activities will be the responsibility of the CP&L Engineering and Construction Quality Assurance Section of the Technical Services Department. As currently organized, the QC function is split between the Site QA group and Construction Inspection group.

(2) Implementation

The inspector observed QA/QC field activities and interviewed twelve persons engaged in these activities. During the interviews and observations, the inspector ascertained that there was no apparent lack of objectivity in the QA/QC functions as a result of contract (Daniels) personnel under CP&L supervision performing these activities on Daniels' work.

While no lack of objectivity was observed, persons interviewed indicated, either on their own initiative or as a result of a specific question by the inspector, that the combined functions of QA and QC under the same group and performed by the same personnel was causing a strained if not inadequate performance of these activities. Although neither the inspector's observations nor the interviewee's accounts gave a single case of improper functioning of either QA or QC, the concerns expressed were valid. Since a person performs QC of an activity one day and provides the site QA of the same area the following day, a possibility of a conflict exists even though no cases were found or stated where an inspector ever performed QA on the same job where

he had previously performed the QC. In addition, the demands of the QC function, according to the interviewees, occasionally prevented them from performing "as much QA as they would have liked" to perform, although, in all cases reviewed or discussed, the minimum requirements were met.

Since the licensee's current organization is not as defined in the PSAR, a change notification will be required for NRR's review. The Site Manager also stated the current dual QA/QC functions within the Site QA group would be reviewed and evaluated in light of the inspector's findings, and any changes would be proposed and included in the submittal to NRR. Until this review and the proposed changes have been submitted, this item will be designated as inspector followup item 400/80-12-11; 401/402/403/80-10-11.

6. Overall Review and Inspection of the Quality Assurance (QA) Program Implementation

a. General

CP&L received the construction permits for the Shearon Harris Power Plant units (Harris) on January 28, 1978. Ebasco Services, Incorporated (Ebasco) was engaged for engineering of Harris. CP&L Power Plant Engineering Department (PPED) has overall responsibility for proper application of quality standards, practices, and procedures during the engineering, design and procurement phase. PPED fulfills this responsibility by approving specifications, recommended bidders lists, successful bidders, selections, purchase order placement and review of selected drawings. PPED presently has 26 engineers at the site that provide engineering interface activities with Ebasco. Westinghouse Electric Corporation was contracted to design, fabricate, and deliver the Nuclear Steam Supply System (NSSS), fuel and turbine generators for Harris. Daniel Construction Company (DCC) is the constructor. Site construction is performed in accordance with Ebasco specifications, drawings and other engineering documents by the various CP&L contractors. CP&L manages site construction and QA/QC activities. Daniel works under direct supervision and technical control of CP&L. CP&L's QA program is imposed upon DCC. CP&L's site QA Unit and Construction Inspection group performs QA/QC functions. Field storage and installation requirements are the responsibility of the CP&L Site Manager. Site construction procurement is performed by CP&L. CP&L furnishes vendor surveillance inspection functions for construction purchased items and CP&L contracts.

b. QA Manual, Inspection and Enforcement History

The inspectors performed a review of the QA manuals and docket files to include the following: inspections relative to QA programs and site; enforcement correspondence and responses; and the construction deficiency and Part 21 report file.

The inspectors reviewed Harris enforcement history for the period October 1, 1979 through April 25, 1980. Two infractions and three deficiencies were identified during this review period. The noncompliances revealed no indication of any significant failure trends.

During the period October 31, 1979 through April 17, 1980 two IE/licensee management meetings were held to discuss omission of reenforcement steel from Class I concrete placements. No noncompliances or deviations were identified as a result of either meeting. Both matters were determined to be reportable in accordance with the requirements of 10 CFR 50.55(e).

The review findings indicate that CP&L has developed and is executing a QA program consistent with the SAR commitments relative to design, procurement, construction, enforcement response and reporting of deficiencies.

c. Engineering and Design Control

(1) Documents examined: Engineering Department Procedures:

(a) Section 2.1, Control of Procedures
(b) Section 2.2, Engineer Training Program
(c) Section 2.10, Management Development Training
(d) Section 3.1, Design Control
(e) Section 3.3, Preparation of Specifications
(f) Section 3.4, Preparation and Control of Inquiries
(g) Section 3.6, Document Review
(h) Section 3.8, Initiating and Updating Plant "Q-List"
(i) Deficiency and Disposition Report No. 227, 306, 309
(j) SAR Section 1.8

(2) QA Program

CP&L's Quality Assurance Program along with Ebasco's and Westinghouse Quality Assurance Programs for the Harris Plant is set forth in Section 1.8 of the SAR and is committed to meet the requirements in ANSI N45.2.11 (Draft 3, Revision 1, July 1973) for Quality Assurance Requirements for Design of Nuclear Power Plants.

The CP&L Power Plant Engineering Department has overall responsibility for proper application of the quality standards, practices and procedures during the engineering, design and procurement phases. These responsibilities are carried out utilizing the following areas of review and approval. These include: (1) selected drawings review; (2) evaluation of potential equipment suppliers; (3) selected equipment specification review; (4) bid proposal review; (5) purchase order review for engineered items.

CP&L Engineering has located 26 engineers at the site for Engineering Management Control and provides an interface between Power Plant Construction and Ebasco.

(3) Implementation

The inspectors held discussions with the Manager Power Plant Engineering Department at the general offices to determine Engineering Design Control Program existence, adequacy, implementation, qualification and training.

The inspectors held discussions at the plant site with the Manager - Harris Plant Engineering to determine program implementation and awareness.

The inspector reviewed the five field change/permanent waiver requests listed below:

- PW-W-029, Reactor Auxiliary Building, Valve Chamber Nozzle to Shell Welds
- FCR-E-060, Embeded Plate
- FCR-E-065, Turbine Building
- PW-C-1381, Anchor Bolts
- FCR-W-028, Welding of Pool Liner with Automatic Welding Machines

The inspector conducted an inspection of the Unit 1 containment dome and observed pipe fitters and iron workers performing welding operations.

Discussions were held with QA/QC personnel in regard to quality standards and monitoring of safety-related activities.

Discussions were held with the ANI inspectors assigned to the plant site and the inspector observed an inspection of a completed weld in the containment spray system piping.

The inspector conducted a walk through inspection of the fab shop where the main steam isolation valves were being fitted for welding operations. The QA specialist responsible for the monitoring of the operation was questioned to determine technical background and QA program awareness.

The inspectors reviewed three deficiency and disposition reports where procedural deviations were identified in the implementation of field change requests.

(4) Conclusions

The licensee appears to have an adequate management control system in the area of engineering and design control for the areas inspected. No items of noncompliance or deviations were identified.

d. Procurement

(1) Documents Examined:

(a) SAR Section 1.7, Identification of Contractors

(b) SAR Section 1.8, Quality Assurance Program

(c) AQAS-9, Procedure for Training and Qualification of Engineering and Construction Quality Assurance Personnel, Revision 4, dated November 16, 1979

(d) VQA-2, Procedure, Vendor Shop Surveillance, Revision 4, dated September 28, 1979

(e) VQA-5, Procedure Preparation and Maintenance of Approved Suppliers List

(f) Contract, PPCD-78-115, Structural Integrity Testing of Containment Structure

(g) Contract PPCD-76-045, Inspection Services

(h) Procedure PPCD-P-0086, For Indoctrination, Training, Qualification of Personnel in Requirements Related to Construction Contracting Revision 3, dated July 15, 1978

(i) Procedure No. PPCD-P-0664, For Preparation of Construction Proposals by PPCD, Revision 1, dated May 10, 1979

(j) Procedure No. PPCD-P-0066, For Construction Procurement, Revision 6, dated January 15, 1980.

(k) Procedure No. PPCD-P-0007, For Contract Document Preparation, Processing and Control, Revision 4, dated March 26, 1979

(l) Procedure CQC-4, Revision 3, Procurement Control

(m) Procedure AP-XII-01, Revision 14, The Requisitioning of Materials and Equipment

(n) Corporate QA Program Part 1 Engineering and Construction, Section 4, Procurement Control, Revision 4

(2) Quality Assurance Program

In Section 1.8 of the SAR CP&L commits to implement ANSI N45.2.13 (Draft 2, Revision 2, October 1973) for control of procurement of equipment, materials and services.

CP&L PPED has overall responsibility for proper application of quality standards, practices, and procedures during the engineering, design and procurement phase. QA/QC functional responsibilities for design engineering, specifications, drawings, procurement and manufacturing/fabrication for engineer procured items has been delegated to Ebasco and Westinghouse with respect to scope of contract. PPED monitors engineering activities.

Site construction procurement is performed by CP&L Procurement Department. Vendor qualification and vendor inspection for construction procured items is performed by CP&L vendor surveillance unit.

(3) Implementation

The inspectors reviewed the documents, listed above, and discussed the procurement and surveillance programs with responsible personnel at the general offices and at plant site.

The inspectors reviewed two contract documents to verify that the procurement specifications were included in the document package.

The inspectors reviewed the following vendor surveillance audits to verify compliance with the commitments described above.

QAA/509-1
QAA/465-1
QAA/466-1
QAA/466-1
QAA/420-1
QAA/506-2
QAA/505-2
QAA/451-2
QAA/508-1
QAA/609-2
QAA/402-5
QAA/421-1
QAA/648-1

The inspectors interview selected individuals at the general offices in the subject area to verify that they were familiar with their responsibilities.

(4) The only site-originated and site-completed procurement activities that were ongoing at the time of the inspection dealt with imbedments. The inspector selected two separate procurement packages which originated onsite. The engineers who prepared the documents, the QA personnel

who reviewed the documents, and the appropriate supervisors were interviewed to determine that appropriate controls were implemented. One of the items was also reviewed during the onsite receiving inspection documented elsewhere in this report. The inspectors, however, did identify two items that require action and are described in paragraphs 6.d.(5) and 6.d.(6).

(5) Modification of Procurement Procedure to Reflect Current Practices When a Vendor is Removed from the Approved Vendors List

The inspector found that when a vendor is removed from the approved suppliers list that all outstanding (issued) purchase orders (PO's) are reviewed. Any PO issued to a vendor removed from the approved suppliers list are identified and the site QA group is notified so that appropriate action is taken when and if the material is subsequently received onsite. However, this practice was not documented in current procedures. Prior to completion of the inspection, Deviation 1 to CQC-4, Revision 3 was issued. This deviation notice incorporates the current practices described above. To verify incorporation into a subsequent revision of CQC-4 and implementation, this item will be reviewed during a subsequent inspection and is designated inspector followup item 400/80-12-09; 401/402/403/80-10-09.

(6) Part 21.31, Procurement Documents

Part 21.31 requires that each individual corporation, partnership or other entity subject to the regulations in this part shall assure that each procurement document for a facility, or a basic component issued on or after January 6, 1978 specifies, when applicable, that the provisions of 10 CFR Part 21 apply.

Contract PPCD-76-045 dated April 6, 1977 with supplement dated May 1, 1979 did not have Part 21 provision incorporated. For further clarification, see NUREG 0302, Revision 1, Page 21.3(a)-5, Question #13.

Procedures P-0007 and 0064, Contract Document Preparation, Processing and Control and Preparation of Construction Proposals by PPCD does not address Part 21 requirements. This item will be designated Inspector Followup Item (400/80-12-12; 401,402, 403/80-10-12; based on a similar previous finding on which the licensee is still implementing corrective action, see inspection report 50-261/79-19, dated October 12, 1979 and CP&L response dated November 2, 1979 which addressed the corrective action at the H. B. Robinson and Harris facilities.

e. Handling, Storage, Receiving

(1) Documents Examined:

(a) PSAR Section 1.8

(b) Construction Procedures Manual, General Section No. XIII, "Warehousing", Revision 5, dated May 24, 1979

(c) AP-XIII-02, "Material and Equipment Receiving", Revision 2, dated June 5, 1978

(d) AP-XIII-03, "Receiving Identification and Inspection", Revision 9, dated September 18, 1979

(e) AP-XIII-04, "Receiving Discrepancy", Revision 3, dated June 5, 1978

(f) AP-XIII-05, "Material Storage", Revision 8, dated June 5, 1978

(g) AP-XIII-06, "Receiving Reports and Documentation", Revision 2, dated June 28, 1979

(h) AP-XIII-07, "In-Storage Inspection and Maintenance", Revision 12, dated June 12, 1979

(i) AP-XIII-09, "Material, Construction Equipment and Tool Incoming Transfers", Revision 0, dated August 7, 1979

(j) AP-XIII-14, "Warehousing Document Distribution", Revision 0, dated April 4, 1975

(k) Corporate QA Program, Part 1, Engineering and Construction, "5 - Material and Equipment Control"

(l) Corporate QA Program, Part 1, Engineering and Construction, "9 - Nonconformance Control and Corrective Action"

(m) QC1-2.2, "Nonconformance Trending", Revision 1, dated June 7, 1979

(n) QC1-6.1, "Receiving Inspection Statistical Sampling", Revision 1, dated July 21, 1977

(o) QC1-6.2, "Reinforcing Bar Receiving", Revision 4, dated July 16, 1979

(p) QC1-7.1, "QA Inspection Status Indication", Revision 2, dated November 8, 1979

(q) CQC-2, "Nonconformance Control", Revision 3, dated November 5, 1979

(r) CQC-5, "Hoisting and Lifting Equipment Control", Revision 1, Deviation 1, dated March 28, 1980

(s) CQC-6, "Receiving Inspection", Revision 2, dated December 11, 1978

(t) CQC-7, "Marking and Tagging", Revision 2, dated December 11, 1978

(u) CQA-21, "Storage Control Surveillance", Revision 0, dated January 30, 1980

(v) PGD-001 (AP-XIII-05), "Material and Equipment Storage Requirements", Revision 11, dated February 20, 1980

(w) PGD-002 (AP-XIII-07), "Material Maintenance Requirements During Storage for Shearon Harris Nuclear Power Plant", Revision 10, dated October 8, 1979

(2) Quality Assurance Program

PSAR Section 1.8.1 states that the program will meet Regulatory Guide 1.38 which endorses ANSI N45.2.2-1972. The licensee receives stores and handles equipment at the site for items procured by either CP&L or its contractors.

(3) Implementation

The inspector observed the conduct of two receiving inspections: one a primary receiving activity (no source inspection had been conducted) on imbedments; the other a secondary (source inspection had been completed, items verified for conformance to procurement documents) on various valves. Both activities were observed on April 29, 1980. No items of noncompliance or deviations were observed, but an area for additional followup with respect to identification of materials in the outside laydown area was found which has been combined with another item as discussed in paragraph (6) below.

The inspector also performed a walk through inspection of the onsite warehouses. The inspection included a review of handling, storage, and maintenance of materials in accordance with the licensee's commitment to follow ANSI N45.2.2. Several variances with the standard were identified prior to the inspection by the licensee. These are discussed and summarized in an unresolved item documented in paragraph (7) below. During this inspection the outside laydown area was also inspected. Checks were made for dunnage, required pressure in sealed and purged vessels, material marking and segregation, and general accessibility. An

area for additional followup with respect to identification of materials was found which has been combined with another item as discussed in paragraph (6) below.

Warehouse 7, where hazardous materials (paints, cadweld powder, etc.) are stored was excessively congested and dirty when first inspected on April 29, 1980. This congestion was due to formwork placed in front of the access door which prevented the entry and use of a forklift. The excessive dirt resulted from the entry of previous forklifts during periods of rainy weather. A new concrete apron was completed, the area was cleared, and the congested aisleways were cleared prior to reinspection on May 1, 1980. The shelf-life control and documentation system used in control of these materials was inspected. No items of noncompliance or deviations were identified.

In Warehouse 6, lunch boxes, 2 liter plastic bottles of soda, and thermos bottles were observed during the tour on April 29, 1980. These same items were also observed on April 30, 1980. In addition, a warehouse worker was interviewed on April 30, 1980 at which time the worker stated that lunches were routinely consumed in the warehouse. A nearby trash container was observed with paper bags, lunch wrapping material, and empty soda cans. This is contrary to the licensee's commitment to ANSI N45.2.2 and the item of noncompliance is more fully discussed in paragraph (5) below.

In seeking to determine the qualifications of material handling personnel, the inspector found that no training records existed and no other listing of certified/qualified/trained personnel existed. This is contrary to the licensee's commitment to ANSI N45.2.2 and is discussed in paragraph (4) below.

As a result of the above implementation inspection activities, two items of noncompliance (one unresolved item and one inspector followup item) were identified. These items are discussed below.

(4) Failure to Document Training

Section 1.8.1 of the PSAR states that CP&L will follow ANSI N45.2.2. Section 7.5 of ANSI N45.2.2 requires that the responsible organization determine that personnel engaged in operating material handling equipment are competent and have demonstrated satisfactory ability in operating similar lifting equipment. Section 8 of the standard requires that personnel qualification records shall be retained. The inspector found that the personnel in the warehouse that operate handling equipment are supplied by Daniels, and that they had been trained (based on personnel interviews), but that no listing of qualified personnel was available nor were there any training records. This failure to maintain required personnel training records is contrary to 10 CFR 50, Appendix B, Criterion XVII, and the PSAR commitment to

comply with ANSI N45.2.2. This item of noncompliance is designated 400/80-12-06; 401/402/403/80-10-06. Prior to the completion of the inspection, a listing of qualified personnel was generated and furnished to the inspector.

(5) Use of Food in a Storage Area

Section 1.8.1 of the PSAR states that CP&L will follow ANSI N45.2.2. Section 6.2.4 of ANSI N45.2.2 states that use or storage of food, drinks, and salt tablet dispensers in any storage area shall not be permitted. On April 29 and again on April 30, 1980 the inspector found food and drinks stored in warehouse 6. One warehouse worker was interviewed on April 30 and stated that meals were consumed in the warehouse on a routine basis; a nearby trash container was filled with lunch bags, food wrappers, and empty soda cans. The use of food in a storage area is contrary to 10 CFR 50, Appendix B, Criterion II and the PSAR commitment to comply with ANSI N45.2.2. This item of noncompliance is designated 400/80-12-07; 401/402/403/80-10-07.

(6) Material Control - Outside Laydown Area

The licensee's current procedures state that, unless otherwise indicated, all material in a QA Accept area in the outside laydown yard is acceptable for use. Other procedures allow for marking of QA Hold material either by tag or by ribbons (with QA Hold printed thereon). Many QA Hold ribbons were found, unattached, in the laydown area. However, the inspector was not able to identify any examples where hold material was in the QA Accept area and unmarked, bu the inspector had no confidence (based on the number of loose QA Hold ribbons observed) that such cases did not exist.

The inspector also found that QA Hold items were often moved to other storage locations where receipt inspection is performed. There was no formal system to assure that either the laydown location designation was changed to indicate the new location or to assure that the items were replaced in the original storage location. The Senior QA Specialist - Material Control instituted a system of 3-copy memoranda to assure that items were replaced in the original storage locations.

Both of these areas dealing with control of laydown storage will be designated as an Inspector Follow-Up Item 400/80-12-08; 401/402/403/80-10-08.

(7) Licensee Identified Variances with ANSI N45.2.2

In memoranda from R. M. Parsons to N. J. Chiangi, dated August 22, 1977 (MS-4554) and March 28, 1980 (MS-7200), the licensee identified various areas where plant activities were not in complete

agreement with ANSI N45.2.2 as required by Section 1.8.1 of the PSAR. Based on discussions with the Quality Assurance Branch of NRR, the licensee will submit a letter similar in content to the referenced memoranda, requesting a modification of the current commitment to ANSI N45.2.2 to allow continuation of current practices. Based on a preliminary discussion with QAB:NRR and past exceptions granted, the licensee may continue his current practice pending completion of the QAB:NRR review.

Until NRR has reviewed these variances and has determined their acceptability, this is an unresolved item (400/80-12-10; 401/402/403/80-10-10).

f. Document Control

(1) Documents Examined:

(a) PSAR Section 1.7, Identification of Contractors

(b) PSAR Section 1.8, QA Program

(c) ANSI N45.2.9, QA Records

(d) ANSI N45.2.11, QA Requirements for Design of Nuclear Power Plants

(e) AP-1X-02, Document Distribution and Control

(f) AP-1X-05, Field Change Request

(g) AP-1X-06, Handling of Nonconformances

(h) AP-1X-07, Site Drawings and Sketches

(i) AP-1X-13, Document Control Training and Indoctrination

(j) AP-1X-15, Implementation of DCN's, FCR's and PW's

(k) CQA-2, QA Document Control

(l) CQA-4, QA Records

(m) CQA-5, Document Reviews

(n) QAI-1, Instruction Issue and Control

(o) QAI-4.1, Records Filing Index

(p) PSAR Deviation Notices 31, 32, 33, 34 and 35

(q) Design Drawings 2168-G-220, 2168-G441, S02 and S03, 2168-G444 S02, 2168-G-237 S01, 2168-G-239 S01 and S02, 2168-G-238 S01, 2168-G222 S01 and S03, 2168-G-519 S01, 2168-G-867 S01

(r) CBI Drawings 84031-PC-2, 13, 31, 45, 68 and R22

(s) Pelden Steel Co. Drawings 1364-11214, 1364-18813, C3977N-S14 and C3977NG-7

(t) Drawing Change Notices (DCN) 650-222, 650-224, 530-220, 650-312, 650-350, and 650-354

(u) Field Change Request (FCR) C1396

(2) QA Program

As stated in the PSAR sections 1.7 and 1.8, CP&L is the licensee and manages the principal constructor Daniel International Corporation and a number of other contractors that perform construction work onsite. Administrative procedures (AP) are used to issue and control the drawings and documents used for the construction work. The Engineering and Construction (E&C) QA manual provides procedures and instructions for the E&C QA and QC staff that monitors the issuance and control of drawings and other documents.

(3) Implementation

The inspector discussed with the document control supervisor, the drawing control assistant and the document control technician that distributes the drawings, the procedures used for controlling drawings and other documents related to site construction activities, physically examined the adequacy of the facilities related to the control and storage (at representative field work locations) of these drawings and related documents. Drawings are issued for construction per the procedure AP-1X-02, a record file of the drawing approval status is being maintained, voided drawings are replaced upon receipt of revised drawings and drawing changes are documented per controlled procedures. A report of DCN's and FCR's open for more than 30 days is issued biweekly.

The inspector verified the accuracy of field file drawings at four representative construction activity centers versus the document record file maintained by the construction document control supervisor as required by the controlling procedure, AP-1X-02. The drawings selected related to current work on the containment structural steel and the fuel handling building, the major work items onsite. The field observations verified that the procedure requirements are in effect for transmittals of revised drawings and design change notices. The internal auditing system has recently been improved.

The inspector discussed the CQA with the principal QA specialist and reviewed procedures CQA-2, CQA-4 and CQA-5 and instructions QAI-1 and QAI-4.1. These procedures are used to ensure the adequacy of the documents being prepared for use for construction, QC and QA work and for the issue and control of these documents. The review of the documents require a knowledge of the CP&L QA program, the ASME QA manual for the Harris project, the PSAR commitments, applicable codes, specifications and other administrative and engineering documents. Deviations from the procedures are limited and controlled as stated in the CQA-2. The inspector reviewed representative, recent deviation notices. The above activities are routinely audited by the corporate audit program.

(4) Conclusions

The inspector's review of the commitments and procedures, discussions with the staff, and observation of the related work indicates that CP&L has developed an adequate program relative to drawing and document control, that the staff is knowledgeable of the procedures and are implementing the procedures as required, that reasonable training and guidance are provided to the staff, and the management control systems are being maintained.

No items of noncompliance or deviations were identified.

g. Indoctrination and Training of QA Personnel

(1) Documents examined:

(a) PSAR Section 1.4.9

(b) ANSI N45.2.6, 1973

(c) Corporate Quality Assurance Program Manual, Indoctrination and Training

(d) QAAI-2, Instruction for Training and Qualification of Quality Assurance Program Audit Personnel

(e) AQAS-9, Training and Qualification of Engineering and Construction Quality Assurance Personnel

(f) CQA-1, Personnel Training and Qualification

(g) QAI-1.1, Visual Acuity and Color Perception Tests

(h) QAI-1.2, Personnel Qualifications Requirements for Non-Special QA/QC Activities

(i) TP-40, Training and Qualification of Construction Inspection Personnel

(2) QA Program

The above documents are the controlling procedures for indoctrination and training. PSAR section 1.4.9 commits to Regulatory Guide 1.58 and ANSI N45.2.6 and the provisions outlined therein for qualification and training of QA personnel, with noted exceptions to ANSI N45.2.6 being paragraphs 2.2.4, 3.1, 3.2.1 and 3.2.2. The QA functions and activities are performed by the Corporate Nuclear Safety and QA Audit Section, Engineering and Construction QA Section, and the QA Section at Shearon Harris Nuclear Power Plant (SHNPP). Inspection activities at SHNPP are performed by the Construction Inspection (CI) Section and the site QA section. Personnel indoctrination and training are conducted within each unit of responsibility, with the unit supervisor having overall responsibility for that training.

(3) Implementation

The inspector held discussions with responsible personnel and reviewed the training and certification records of the following personnel:

J. V. Gailey; Lead Auditor, Engineering and Construction QA Section

R. A. Delcastilho, Lead Auditor, Engineering and Construction QA Section

C. G. Hensley, Lead Auditor, Engineering and Construction QA Section

A. E. Hall, Lead Auditor, Corporate Nuclear Safety and QA Audit Section

I. A. Johnson, Lead Auditor, Corporate Nuclear Safety and QA Audit Section

L. W. Bissette, Auditor, Corporate Nuclear Safety and QA Audit Section

E. L. Kelly, Senior QA Specialist, SHNPP

P. McCurdy, QA Inspector, SHNPP

R. Warren, QA Technician, SHNPP

R. Breedlove, CI, SHNPP

M. Forrest, CI, SHNPP

K. Goold, CI, SHNPP

(4) Conclusions

The system that the licensee has in place and implemented is effective in achieving the objectives for indoctrination and training as described in the referenced documents.

No items of noncompliance or deviations were identified.

h. QA Audits and Monitoring

(1) Documents examined:

(a) PSAR Section 1.8.5.18, Criterion XVIII: Audits

(b) ANSI N45.2.12, Draft 3, Revision 2, dated October 5, 1973

(c) CP&L Corporate Quality Assurance Program Part 1 Engineering and Construction - 10 Audits

(d) QAAI-1, Instruction for Preparing, Distributing, and Maintaining the Corporate QA Audit Documents and the Corporate QA Program, Revision 8, dated November 15, 1979

(e) QAAI-2, Instruction for Training and Qualification of Quality Assurance Program Audit Personnel, Revision 3, dated September 1, 1979

(f) QAAP-1, Procedure for Corporate and ASME QA Audits, Revision 9, dated November 15, 1979

(g) QAA/81-13, Quality Assurance Audit of SHNPP Construction, dated March 10, 1980

(h) QAA/81-12, Quality Assurance Audit of SHNPP Construction, dated August 16, 1979

(i) QAA/81-11, Quality Assurance Audit of SHNPP Construction, dated February 22, 1979

(j) QAA/81-10, Quality Assurance Audit of SHNPP Construction, dated August 18, 1978

(k) CQA-6, Concrete Monitoring, Revision 1, dated March 13, 1980

(l) CQA-10, Structural Steel Monitoring, Revision 0, dated November 14, 1978

(m) CQA-11, Protective Coatings Monitoring, Revision 0, dated November 21, 1978

(n) CQA-12, Mechanical Equipment Installation Monitoring, Revision 0, dated May 14, 1979

(o) CQA-13, Electrical Equipment Installation Monitoring, Revision 1, dated July 25, 1979

(p) CQA-17, Grout Placement Monitoring, Revision 0, dated October 17, 1979

(q) CQA-19, Cadweld Inspection Monitoring, Revision 0, dated January 24, 1980

(r) CQA-22, Monitoring of Concrete Material Testing and Batch Plant Activities, Revision 0, dated March 25, 1980

(s) QAA/170-1, QA Audit - ASME QA - SHNPP Construction Site/ASME Construction, dated March 19-23, 1979

(t) QAA/170-2, QA Audit - ASME QA - SHNPP Construction Site/ASME Construction, dated September 17-20, 1979

(u) QAA/170-3, QA Audit - ASME QA-SHNPP Construction Site/ASME Construction, dated March 10-12, 1980

(2) QA Program

PSAR Section 1.8.5.18 sets forth CP&L's commitment for planned and periodic audits to verify compliance with all aspects of the Shearon Harris Nuclear Power Plant (SHNPP) Quality Assurance Program. PSAR Section 1.8.1 commits to an audit program structured in accordance with ANSI N45.2.12 (Draft 3, Revision 2, October 5, 1973). The Manager - Corporate Nuclear Safety and QA Audit has the responsibility for a comprehensive system of planned corporate audits of the SHNPP QA program. The Principal QA Specialist in the Engineering and Construction Quality Assurance Section of the Technical Services Department is responsible for implementation of a QA monitoring program. The licensee has developed Corporate Quality Assurance Program procedures and instructions for audits and Site Quality Assurance Unit Manual procedures for monitoring.

(3) Implementation

(a) Audits

The inspector reviewed quality assurance audits of construction completed from August 1978 to March 1980. The inspector also reviewed ASME QA audits of construction performed in March 1979, September 1979 and March 1980. The inspector held discussions with auditors responsible for ASME QA and construction QA audits. The inspector reviewed a comprehensive

plan of ASME audits performed to assure that all QA aspects of the ASME code area are reviewed periodically. The inspector reviewed checklists utilized to perform the ASME QA audits and construction QA audits. Auditors' qualifications were reviewed against the requirements of QAAI-2 for proper auditor certifications. In reviewing the audit program for construction (Non-ASME), the licensee was unable to provide a comprehensive plan to assure that all aspects of the QA program are audited annually. The licensee reported that a current overall audit plan, comparing construction audits performed versus applicable quality assurance procedures, has not been developed. The inspector determined through discussions with responsible personnel that audit checklists were utilized to date in order to assure auditing of applicable elements of the QA program on an annual basis. The inspector reviewed the construction audit (Non-ASME) checklists and the quality assurance procedures applicable to construction. The inspector determined that all aspects of the QA program are not audited on an annual basis. Construction audits (Non-ASME) are planned, but a comprehensive system has not been developed to assure that elements of the quality assurance program are audited annually or at least once within the life of the activity, whichever is shorter (ANSI N45.2.12, Draft 3, Revision 2, October 5, 1973). Criterion XVIII states in part that, "A comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the quality assurance program...". The inspector informed the licensee that this area is in noncompliance with 10 CFR 50, Appendix B, Criterion XVIII and ANSI N45.2.12 (Draft 3, Revision 2, October 5, 1973). This item is identified as an infraction 400/80-12-01, 401/402/403/80-10-01, no comprehensive system of planned and periodic audits for Non-ASME areas.

In reviewing the audit "findings and concerns" portion of audits, the inspector noted that nonconformances were incorrectly identified as "concerns" (potential problems) in construction audits QAA/81-11, QAA/81-12, QAA/81-13. Corrective action responses are normally not required for "concerns". The inspector pointed out to the Manager of Nuclear Safety and QA Audits that deficiencies with regard to quality assurance procedures and standards are being incorrectly identified as "concerns". Deficiencies in regard to CQC, CQA, TP and AP procedure compliance were noted as "concerns". Also, deficiencies in regard to Criterion V and ANSI N45.23 were noted as "concerns". The inspector informed the licensee that this area is in noncompliance with 10 CFR 50, Appendix B, Criterion V and QAAP-1. QAAP-1 requires acknowledgement by management of the audited activity for nonconformances and written responses for nonconformances. This item is identified as an infraction

400/80-12-02; 401/402/403/80-10-02, failure to properly identify and handle audit nonconformances.

In reviewing an area of concern (#4) in audit report QAA/81-13 dated March 10, 1980, the inspector noted that the auditor found concrete test cylinders in the same deficient condition as reported in January 1980 by NRC in IE Report 50-400/80-1. The inspector was unable to determine if the auditor's noted deficient cylinders had been documented on a deficiency report. On May 1, 1980 the inspector observed in the SHNPP site moist room the same deficient condition with concrete test cylinders as noted by NRC in January and CP&L auditors in the March audit report. On May 1, 1980 these deficiencies in regard to concrete test cylinder curing were subsequently identified by CP&L QA in Nonconformance Report NCR C-319. The inspector informed the licensee that this area is in noncompliance with 10 CFR 50, Appendix B, Criterion XVI in that measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. CP&L letter to Region II dated February 5, 1980 indicated actions to avoid further noncompliance (IE Report 50-400/80-1) would be achieved by April 1, 1980. This item is identified as an infraction 400/80-12-05; 401/402/403/80-10-5, failure to take adequate corrective action for a previous noncompliance for concrete test cylinder.

In reviewing QAAP-1, the inspector noted that paragraph 5.2 incorrectly permitted auditing of applicable elements of engineering, construction QA activities at least every two years. ASME N45.2.12 (Draft 3, Revision 2, October 5, 1973) requires auditing of applicable elements of the QA program at least annually. The Manager - Corporate Nuclear Safety and Audit indicated that action will be taken to correct this procedure discrepancy. Pending correction of QAAP-1, this item will be identified as an inspector followup item 400/80-12-03; 401/402/403/80-10-03, audit frequency incorrectly specified in QAAP-1.

(b) Monitoring

The inspector reviewed the Site Quality Assurance Unit Manual of Procedures in the area of monitoring. CQA-6, 10, 11, 12, 13, 17, 19 and 22 are the controlling procedures for monitoring of site activities. The inspector held discussions with the Principal QA Specialist in regard to monitoring activities. The inspector reviewed monitoring reports for site activities. The inspector discussed CP&L actions taken in regard to monitoring of concrete pours as a result of recent problems. CP&L letter to Region II dated April 16, 1980 reported that the QA field audit program will be modified to monitor a few of the more difficult details of pours rather

than 100 percent of selected pours. The monitoring procedure for concrete, CQA-6, is presently being modified to provide a frequency of monitoring in regard to pours. The inspector also discussed the lack of frequency establishment for monitoring procedures in general. The Principal QA Specialist reported that this area of establishing minimum levels of monitoring will be reviewed. Pending changes to the concrete monitoring program (CQA-6) and review of other areas for establishing minimum levels of monitoring, this item will be identified as an inspector followup item 400/80-12-04, 401/402/403/80-10-04, modification of QA monitoring program procedures - concrete, etc.

(4) Conclusions

The inspector concluded that CP&L has developed and implemented an audit program to verify compliance and to determine the effectiveness of the Shearon Harris QA Program. In corporate audits, the auditors are effective in determining system deficiencies. However, recent audit checklists in the construction area have reflected various areas which the auditor(s) failed to audit due to time limitations. For example, inspection and documentation of embedded items, concrete placements, and rebar were not audited in audit QAA/81-13, dated March 10, 1980. The inspector also expressed concern with the limited site time allocated by corporate auditors to construction activities, as evidenced by audits QAA/ 81-13 and QAA/81-12. The inspector noted that a negative impact on quality will occur if site audit time is not proportionally increased with the expanding construction activities at Shearon Harris.