



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30303

Report No.: 50-400/84-17

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

Docket No.: 50-400

License No.: CPPR-158

Facility Name: Harris Unit 1

Inspection Dates: May 20 - June 20, 1984

Inspection at Harris site near Raleigh, North Carolina

Inspectors: <u>A. K. Hardum for</u>	<u>7/2/84</u>
G. F. Maxwell	Date Signed
<u>A. K. Hardum for</u>	<u>7/2/84</u>
R. L. Prevatte	Date Signed
Approved by: <u>A. K. Hardum for</u>	<u>7/2/84</u>
Paul R. Bemis, Section Chief	Date Signed
Division of Reactor Projects	

SUMMARY

Scope: This routine announced inspection involved 212 inspector-hours on site in the areas of licensee action on previous enforcement matters, inspector follow-up and unresolved items, welding, electrical, storage, instrumentation and controls, preoperational test program and other activities.

Results: Of the eight areas inspected, no violations or deviations were identified.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- R. A. Watson, Vice-President, Harris Nuclear Project
- \*R. M. Parsons, Project General Manager
- J. L. Willis, Plant General Manager
- \*P. Foscolo, Assistant Project General Manager
- \*N. J. Chiangi, Manager, QA/QC Harris Plant
- L. I. Loflin, Manager, Harris Plant Engineering Support
- B. Van Metre, Manager, Harris Plant Maintenance
- C. S. Hinnant, Manager, Start-up
- J. M. Collins, Manager, Operations
- G. L. Forehand, Director, QA/QC
- \*M. D. Vernon, Superintendent, QC
- D. A. McGaw, Superintendent, QA
- \*M. Thompson Jr., Senior Resident Engineer
- \*W. M. Langlois, CI Unit Supervisor
- \*C. S. Bohanan, Director, Regulatory Compliance

Other licensee employees contacted included 8 construction craftsmen, 7 engineers, 6 operators, 4 mechanics, 6 security force members, and 11 office personnel.

#### Other Organizations

- \*W. D. Goodman, Project Manager, Daniel Construction Company

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on June 20, 1984, with those persons indicated in paragraph 1 above.

### 3. Licensee Action on Previous Enforcement Matters (92702)

- a. (Closed) Violation 400/83-36-01, "Failure to Protect Equipment". The inspector evaluated CP&L's letter to Region II dated February 8, 1984 concerning this item. CP&L has replaced the damaged transformer. Subsequent inspections have not found this to be a repetitive type of violation. The CP&L operators presently conduct routine tours of the various site buildings and areas. The operations supervisor has required, as a part of these routine tours, that the operators check to make sure that equipment is not being subjected to potentially hazardous weather conditions. This item is closed.

- b. (Closed) Violation 400/82-39-01, "Nonconformance to Procurement Documents." The inspector evaluated CP&L's responses to Region II dated February 4, 1983, August 31, 1983 and November 30, 1983. The inspector found that sufficient action has been taken by CP&L to resolve this violation, i.e. defective welds have been repaired; the hold down bolts have been replaced with bolts that meet the design criteria. Other seismic category I pumps of this type were reviewed to insure that the criteria were met. This item is closed.
- c. (Closed) Violation 400/83-12-02, "Failure to Control DDRs". The inspector evaluated CP&L's response to Region II dated May 3, 1983, concerning this item. CP&L revised the applicable procedural requirements to require more timely controls for the issuance of Deficiency and Disposition Reports (DDR's). DDR 1301 was evaluated by CP&L on the same day that it was located by CP&L (March 3, 1983) and the conditions described on the DDR were found not to be reportable per 10 CFR 50.55(e) or 10 CFR 21. This item is closed.
- d. (Closed) Violation 400/82-24-02, "Failure to identify and Correct Nonconforming Conditions on Electrical Cable Tray Supports." The inspector evaluated the licensee's response to Region II, dated December 7, 1982, concerning this item. The inspector observed that the licensee has taken corrective action to resolve those welds which were identified as nonconforming. The remaining steps in the licensee's corrective action were evaluated and found to be satisfactory. This item is closed.
- e. (Closed) Violation 400/83-06-01, "Failure to Support Piping in Accordance with Procedural Requirements." The inspector evaluated CP&L's response to Region II dated April 26, 1983. The evaluation included: a review of the calculations provided in Nonconformance Reports numbered NCR-M-223 and NCR-M-224; observation of the storage conditions of piping located at the site (observed during subsequent routine NRC resident inspections); and interviews with CP&L QA and craft personnel. The inspector observed that the conditions identified in 400/83-06-01 have not been repetitive in nature and found that the specific piping in question was not overstressed. This item is closed.
- f. (Closed) Violation 83-26-01, "Failure to Provide a Controlled QA Program for the Installation of Piping Systems." This violation was a result of Construction Inspection (CI) personnel performing inspections on piping installation without detailed procedures, appropriately controlled drawings, and indoctrination of inspection personnel as to inspection and documentation requirements. The deficient examples included: use of marked-up inspection drawings, unauthorized entries on inspection forms, inadequate procedural requirements, lack of established acceptance criteria, and inspections requested prior to work completion.

CP&L has reviewed and revised the applicable inspection procedure, Mechanical Pipe Inspection (TP-240), to correct these discrepancies. The inspections of safety-related and ASME code piping has been transferred to the Mechanical QC inspection group. The only piping inspections presently conducted by CI are for fire protection, radiation waste processing and nonsafety systems.

A review of the nonconformance logs and inspections conducted in this area by the resident inspector indicates that this problem has been corrected. The mechanical QA and CI inspections in this area will continue to be evaluated in subsequent inspections. This item is closed.

- g. (Closed) Violation 400/83-22-01, "Failure to Control Nonconformance Reports." This violation was the result of unauthorized personnel dispositioning NCRs and DDRs, site QA not reviewing the disposition of all DRs, and DDRs not being issued within the four day time limit required by procedures.

CP&L has conducted an audit of previously closed DRs, DDRs and NCRs to insure that dispositions were technically correct. All closed DRs have been reviewed by QA. In January 1984 CP&L implemented procedural changes that provide for one nonconformance report (NCR) to be used by all inspection personnel to document discrepancies. The use of this standard form, with centralized control, by all inspection personnel has essentially eliminated the root cause of the above problem. Subsequent inspections by the inspector indicate that these problems have been satisfactorily resolved. The item is closed.

- h. (Closed) Violation 400/83-37-02, "Failure to Review and Properly Store QA Records." This violation resulted from an audit by the inspectors of QA operations surveillance records. This review showed that 4 of 37 QA surveillance records had not been reviewed and forwarded to the QA vault in timely manner.

CP&L has implemented procedural changes and revised the surveillance report log to include dates when the reports are submitted to the QA vault. These administrative changes should prevent future occurrences of this nature. A review of this log by the inspectors and a review of nonconformance reports indicate that this problem is not recurring. The long-term effects of this corrective action will be evaluated by the inspectors in subsequent inspections. This item is closed.

- i. (Closed) Violation 400/84-07-03, "Failure to Require that Written Procedures Be Provided for Periodic Battery Maintenance." The inspector evaluated the actions taken by CP&L as described in its letter to Region II dated March 30, 1984. The inspector observed the results of CP&L QA Surveillance activities as they relate to equipment which requires in-storage maintenance. The evaluation indicates that

procedures have been established for equipment after RFT acceptance by the Start-up Group. The inspector did not find this to be a repetitive condition. This item is closed.

- j. (Open) Violation 400/83-22-01, "Failure to Comply with Procurement Requirements." The inspector evaluated the action which is being taken by CP&L relative to its response to Region II in a letter dated September 2, 1983. CP&L is requiring that all shop-welded joints which require ISI (In Service Inspection) to be identified, inspected and reworked as necessary to meet the required surface finish. CP&L does not expect this task to be accomplished until shortly before fuel loading. Therefore this item will remain open pending CP&L's final notification to NRC that the action has been taken to resolve this matter.

#### 4. Unresolved Items

Unresolved items were not identified during this inspection.

#### 5. Inspector Follow-up and Unresolved Items (92701)

- a. (Closed) Inspector Follow-up Item 400/81-04-01, "Installation of Chemical and Volume Control Pumps." This item was updated in Region II report 400/82-35 and has been further evaluated during this reporting period. A review of current construction procedures WP-105 and TP-28 indicates that CP&L has made modifications to its installation and inspection program. The changes provide clear requirements for determining that mechanical equipment has been properly fastened to its foundation. This item is closed.
- b. (Closed) Inspector Follow-up Item 400/82-09-02 and Inspector Follow-up Item 400/82-09-03, "Evaluation of Shop Welds Supplied by Peden Steel" and "Shop Welds on Common HVAC and Electrical Vertical Supports." Both of the Inspector Follow-up Items are concerned with the identification of defects on Peden Steel supplied auxiliary supports. The inspector's inquiry was sufficiently addressed in a nonconformance report identified as DDR-858. The nonconformance report generically addresses the overall concerns about Peden Steel shop welding practices. Even though DDR-858 remains open, the inspector noted that CP&L has sufficiently tracked the inspector's questions. CP&L's activities concerning Peden Steel supplied materials will be evaluated as a matter of routine inspection during subsequent inspections. However, these two Inspector Follow-up Items are closed.
- c. (Closed) Inspector Follow-up Item 400/83-12-05, "Main Control Board Deficiencies." The inspector observed that site construction activities and the actions being taken to resolve the DDRs and RIRs associated with the main control board are being accomplished in a timely manner. This item is closed.

- d. (Closed) Inspector Follow-up Item 400/83-06-02, "Discrepancy Between the Design Specification Sheet 17E and the FSAR, Section 9.5." The inspector observed that the FSAR has been amended to reflect the requirements depicted in site specification 2166-B060 sheet 17E. The inspector observed that the design review groups have been placing special emphasis on reviewing the sections of the FSAR to assure that special commitments made in the specifications are addressed in the FSAR. This item is closed.
- e. (Closed) Inspector Follow-up Item 400/83-37-04, "Tracking of Incomplete Start-up Items." The inspector evaluated a tracking program which the Start-up and Test personnel have instituted. The program requires that the Start-up Engineers assigned to the various portions of systems maintain a test procedure status log sheet for each section. The logs are updated monthly and reflect the tests conducted, those yet to be conducted, and any specific section of a test which has not been completed. This method will be evaluated further during subsequent inspections. This item is closed.
- f. (Closed) Inspector Follow-up Item 400/83-36-02, "Diesel Generator Installation." The installation activities which were observed concerning the emergency diesel generators were documented, in some instances, as items of nonconformance by the responsible inspection personnel. The nonconforming conditions were documented in a Non-conformance Report identified as NCR 83-052. The NCR resulted in the affected procedure (WP-105) being revised, and a Field Change Request being written to provide additional information to craft and inspection personnel concerning work activities on the emergency diesel generator. This item is closed.
- g. (Open) Unresolved Item 400/82-24-01, "Installation of Nonsafety-related Nonseismic Supports for Electrical Conduit in the Vicinity of Safety-related Equipment or Components." This item was followed up in Region II report 400/83-02 by responsible electrical inspection personnel from Region II. Since that report, CP&L has not provided any further conclusive data concerning the justification that commercial grade conduit installation will withstand the destructive tests conducted to simulate a condition observed during a Safe Shutdown Earthquake (SSE). The inspector has discussed this unresolved item extensively with CP&L and NRC Region II management. CP&L's current position on this matter remains that CP&L plans to develop procedural controls to address design acceptance criteria and specific system walkdown requirements. CP&L is scheduled to complete the procedure and program development in the third quarter of 1984 and the Regulatory Guide 1.29 walkdown and documentation of fuel load. This item remains open pending NRC review of the results of CP&L's program development and its implementation concerning this item.

## 6. Welding (55083C)

- a. The inspector examined the following welding activities on safety-related piping to determine whether applicable specifications and procedures were being met:
  - (1) Piping weld joint A1-236-1-SI-94 FW 279 (observed in-process welding);
  - (2) Piping weld joint A1-236-1-SI-94 FW 280 (observed in-process inspection).
- b. The above observations included examination to determine if:
  - (1) Welding identification and location were as specified;
  - (2) Welding procedure specification assignment was in accordance with applicable code requirements;
  - (3) Welding techniques and sequences were specified and adhered to;
  - (4) Alignment of parts was as specified;
  - (5) Welding equipment was in good working order;
  - (6) Welding personnel were qualified;
  - (7) Welding procedure specifications adhered to the requirements of ASME Section IX;
  - (8) Welding inspection personnel followed the requirements of the inspection procedures;

No violations or deviations were identified.

## 7. Electrical (51053C, 51063C, 92706B)

- a. The inspector observed the installation activities associated with four class IE cables with the following numbers: 11040F/SB, 11944J-SA, 11073H-SA and 10093G-SB. The observation related to cable pulling between switchgear and various cabinets and termination activities. The following were evaluated during the observations:
  - (1) The latest pull cards and procedures were in use;
  - (2) The size and type cable were correct;
  - (3) The cable identification (cable number and color code) was correct;
  - (4) The correct pulling tension was applied;

- (5) The correct bending radius was applied;
- (6) The cable routing was correct;
- (7) The cables were protected from damage;
- (8) Qualified electrical inspection personnel were monitoring the installation activities.

No violations or deviations were identified.

8. Storage (50073C, 92706B)

The inspector toured warehouses 1, 2 and 3, the outside piping laydown yard number 12 and various plant equipment storage areas. During the tours, the storage conditions of the equipment were evaluated to determine whether requirements are being met as follows:

- a. Piping and equipment, in general, were stored off the ground to prevent entry of dirt into them, or contamination from environmental conditions.
- b. The storage areas were identified sufficiently to provide identity and location as required by those who may be seeking the location of certain pipe spool pieces or equipment.
- c. The drainage, in general, was acceptable in areas where the piping spool pieces and tanks were stored.
- d. Access was adequate for placement or removal of pipe spool pieces and equipment.
- e. Warehouse equipment was stored in correct position.
- f. The required temperature and humidity control were being met as required.
- g. Access to plant storage areas was being maintained.
- h. Equipment installed heaters were energized as required.
- i. Protective covers were in place.

During the observation, the following were referenced for requirements: PSAR Section 1.8, and Construction Procedures AP-XIII-05, AP-XIII-07 and PGD-002.

No violations or deviations were identified in the areas inspected.

## 9. Instrumentation and Control (52053C)

The inspector accompanied the Construction Inspectors (CI) on an inspection for installation of Instrumentation and Control equipment (TE-01-FW-2004A1S). The following were evaluated during this inspection:

- a. Component identification and location;
- b. Mounting and applicable torquing requirements;
- c. Component accessibility for maintenance, calibration and testing;
- d. Protection from damage due to adjacent work activities;
- e. Inspection conducted in accordance with applicable procedures.
- f. Qualifications of inspection personnel.

During these observations the following were referenced for requirements: PSAR Section 1.8, Technical Procedure TP-54, Inspection of Instrumentation, and references provided by TP-54.

No violations or deviations were identified in the areas inspected.

## 10. Independent Inspection (71302)

The inspector conducted tours of the various plant areas. During the tours, plant activities were evaluated to determine if they were being performed in accordance with applicable requirements and procedures. The activities which were evaluated included: hot work (welding, burning, cutting, etc.); accessible fire protection equipment; housekeeping; equipment preservation (protection from climatic conditions); review of the clearance log; logs being kept by start-up personnel; and security of areas requiring access control.

No violations or deviations were identified in the areas inspected.

## 11. Preoperational Test Program Implementation (70302)

- a. During the weeks of June 4 and 11, 1984, the inspector observed parts of the turbine lube oil flushing and cleaning activities which were in process. The flushes were being controlled by representatives from CP&L and Westinghouse. The inspector was shown charts which outlined the various planned points which were to occur to assure that the turbine lube oil system is satisfactorily cleaned.

The processes being utilized consisted primarily of using a portable heating and cooling system which contains two oil pumps. The pumps each have an approximate pumping capacity of 2,500 gallons per minute. The oil was circulated through the turbine lube oil system at about 175° at a rate of 3,000 gallons per minute. Oil strainers were

provided in the system to assist in the cleaning process. The oil temperatures were dropped to lower temperatures, at prescribed intervals, as a further aid in the cleaning of the system surfaces.

The inspector was informed by responsible Westinghouse personnel that the system would normally require about seven weeks of flushing to assure that it has reached a satisfactory cleanliness level.

- b. During the weeks of May 28 and June 4, 11 and 18, 1984, the inspector observed work activities as they relate to the emergency diesel generator. The activities which were in process included: disassembly of the engines to remove the piston skirts for return to Transamerica DeLaval, inspection of the governor and in general, to start preparation for those inspections for which the Owners Group is developing inspection criteria.

DeLaval has supplied a representative to assist CP&L during the disassembly and reassembly of the engines. The inspector was advised by CP&L management that the DeLaval representative was not being viewed by CP&L as anything other than a consultant for assisting in the disassembly and reassembly process. CP&L has assigned a supervisor from Field Engineering to be responsible for the overall diesel engine, and Construction Inspection (CI) and CP&L QA have assigned inspection personnel to track the current work activities. CP&L has not determined exactly who will conduct each of the inspections which will be required by the Owners Group.

The inspector evaluated the controls which have been placed on the diesel engine parts. The controls include: posting a security guard to control access into the diesel generator room; tagging and logging of the engine parts as they are disassembled. CP&L constructed a temporary building adjacent to the diesel generator building which will house the engine parts and will be primarily utilized during the special Owners Group inspection(s) of the various engine parts.

No violations or deviations were observed in the areas inspected.

## 12. Other Activities (92706B)

- a. On May 22, 1984, the inspector attended a meeting between NRC and CP&L. The meeting was held to discuss the Emergency Operating Procedures (EOP) which CP&L plans to utilize at the Harris site. Following the meeting and subsequent discussions, a simulator demonstration of the EOPs was conducted. Those NRC representatives present during the meeting included: three individuals from the Department of Human Factors Studies (Washington, D.C.); a representative from the Region II Operator Licensing Branch and the Region II Section Chief for the Division of Reactor Projects Section 1.C. The meeting concluded in the evening following a brief tour, provided by CP&L, of the site control room.

- b. On May 23, 1984, the inspector and Paul R. Bemis, Chief, Region II Division of Reactor Projects Section 1.C held meetings with CP&L management. During the meetings the following were discussed: the status of open items, Bulletins, Circulars, etc.); the status of staffing operations; procedures for operations and maintenance; qualification requirements for reactor operators and the overall status of major construction activities at the site. The status of NRC's inspection program was discussed, as it relates to the preoperational testing of systems.
- c. The Atomic Safety and Licensing Board environmental hearing for Shearon Harris commenced in Raleigh, N.C. on June 14, 1984. It is anticipated that the hearing will continue through the week of June 18, 1984.