UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report No.: 50-400/86-28

Licensee: Carolina Power and Light Company
P. O. Box 1551
Raleigh, NC 27602

Docket No.: 50-400 License No.: CPPR-158

Facility Name: Harris 1

Inspection Conducted: April 14-18, 1986

Inspectors: M. F. Runyan 5-8-86
Date Signed

M. A. Scott 5-8-86
Date Signed

Approved by: G. A. Belisle, Acting Section Chief 5/8/86
Division of Reactor Safety
Date Signed

SUMMARY

Scope: This routine, unannounced inspection was conducted on site in the areas of design control, tests and experiments, surveillance testing and calibration control, and measuring and test equipment.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

T. Brombach, Project Specialist, Inservice Inspection
*G. Campbell, Maintenance Manager
J. Collins, Operations Manager
R. Fair, Engineer, Technical Support
C. Gentile, Senior Reactor Operator
T. Gilbert, Quality Assurance (QA) Specialist
W. Holley, Senior Engineer, Technical Support
B. Lamb, Project Engineer, Design Engineering
G. Lashley, Calibration Laboratory Supervisor
L. Laughlin, Manager, Engineering
*T. Lentz, Supervisor, Engineering
T. Morton, Instrumentation and Control (I&C) Supervisor
*S. Rea, Engineer, Technical Support
*C. Rose, QA Supervisor
*D. Tibbetts, Manager, Regulatory Compliance
B. Van Meader, Manager, Technical Support
H. Wagner, Senior Specialist, QA Surveillance
*M. Wallace, Compliance Engineer
*J. Willis, General Manager, Plant

Other licensee employees contacted included office personnel.

NRC Resident Inspectors

*G. Maxwell, Senior Resident Inspector
S. Burris
P. Humphrey

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on April 18, 1986, 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.

Inspector Followup Item: Improper Wording in Procedure MOD-202, paragraph 6.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during the inspection.

5. General

a. Final Safety Analysis Report (FSAR)

At the time of this inspection, Shearon Harris was writing site procedures based on the FSAR, Amendment 27. This amendment had yet to be approved by the NRC. Additionally, plant configuration and operational characteristic changes were driving another amendment to the FSAR which will affect 800 pages of text and 500 figures. The licensee indicated that this change would be sent to the NRC for approval in mid June 1986.

b. Technical Specifications (TS)

As with the FSAR, the TS for the site is unapproved. The NRC is expected to return the last revision of the TS with comments by mid May 1986. Due to the fact that site personnel have been traveling to Washington, D.C. to confer with the NRC on a weekly basis, the licensee believed that they were aware of the upcoming NRC comments on the TS revision; the results of the weekly trips were being translated into site procedures.

c. NRC 2513 Modules

Sections 2513-03, 2513-05, and Appendix A of the NRC Inspection and Enforcement Manual indicate that the modules inspected for this report should be programmatically completed prior to license issue. In accordance with 10 CFR 50.54(a)(1), the licensee is to have implemented certain Quality Assurance programs prior to license based on the sites working versions of the FSAR and TS. Shearon Harris is expected to request their license by mid June 1986. Of the four programs inspected, only one, tests and experiments (35749), was in place which met the ANSI standards and regulatory guides adopted by the site, and, which met the working versions of the FSAR and TS.

The three programs that were not programmatically complete were under development. The main administrative procedures were either written or being rewritten. The implementing procedures were either not written or being rewritten.

6. Design Control (35744)

References:
(a) 10 CFR 50.54(a)(1), Conditions of Licenses

(b) Shearon Harris Nuclear Plant Final Safety Analysis Report

(c) 10 CFR 50 Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, Criterion III

(d) Regulatory Guide 1.64, Quality Assurance Requirements for the Design of Nuclear Power Plants

(e) ANSI N45.2.11-1974, Quality Assurance Requirements for the Design of Nuclear Power Plants

(f) Regulatory Guide 1.33, Quality Assurance Requirements (Operations)

(g) ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants

(h) 10 CFR 50.59, Changes, Tests, and Experiments

(i) Technical Specifications, Section 6.5, Review and Audit

The inspector reviewed the licensee's design change program required by references (a) through (i) to determine if the program was structured in accordance with regulatory requirements, industry guides and standards, and Technical Specifications. The following criteria were used during the review to assess the overall implementation of the established program:

- Procedures have been established to control design changes which include assurance that a proposed change does not involve an unreviewed safety question or a change in Technical Specifications as required by 10 CFR 50.59.

- Procedures and responsibilities for design control have been established including responsibilities and methods for conducting safety evaluations.

- Administrative controls for design document control have been established for the following:

  Controlling changes to approved design change documents

  Controlling or recalling obsolete design change documents such as revised drawings and modification procedures

Release distribution of approved design change documents

- Administrative controls and responsibilities have been established commensurate with the time frame for implementation to assure that design changes will be incorporated into:

  Plant procedures

  Operator training programs

  Plant drawings to reflect implemented design changes and modifications

- Design controls require that implementation will be in accordance with approved procedures.

- Design controls require assigning responsibility for identifying post-modification testing requirements and acceptance criteria in approved test procedures and for evaluation of test results.

- Procedures assign responsibility to delineate the method for reporting design changes to the NRC in accordance with 10 CFR 50.59.

- Controls require review and approval of temporary modifications in accordance with Section 6 of the Technical Specifications and 10 CFR 50.59.

The documents listed below were reviewed to verify that these criteria had been incorporated into the licensee design program:

Carolina Power and Light Corporate Quality Assurance Program, Revision 7
Section 3, Design Control - New Plants and Nuclear Fuel
Section 14, Operating Plant Modification Control

AP-600 Plant Change Request, Revision 0

PLP-601 Plant Program for Plant Modification Control, Revision 0

MOD-200 Plant Change Request Design Development, Revision 1

MOD-201 Design Verification, Revision 0

MOD-202 Plant Change Request Implementation, Revision 0

AMM-05 Document Control - Conduct of Operations, Revision 0

RMP-002 Document Distribution and Control, Revision 0

The inspector was not able to completely verify the adequacy of the licensee's design control program inasmuch as the program was incomplete at the time of the inspection. Due to changes in upper tier documents and philosophical viewpoints, several design control implementing procedures were undergoing significant revision. Although the inspector was provided draft copies of several such revisions, unapproved procedures will not be used to assess program adequacy. In addition, a new procedure, Harris Procedure 3.22, is scheduled to be written prior to licensing and will describe the handling of plant change requests (PCR).

Within the framework of approved procedures, the inspector determined that the design control program is virtually in place and requires only fine tuning to displace several inconsistencies caused by the continuing revision process. For the most part, the programmatic requirements of references (a) through (i) have been addressed. Several exceptions are discussed in the following paragraphs.

The design control program lacks procedures defining interfaces between various design organizations. Licensee personnel explained that the design effort in-house will be conducted by a single entity. When outside consultants are used, they will be required to adhere to site design procedures.

Procedures and responsibilities for identifying, reviewing, and approving design input requirements were absent from the program. A set of informal design input documents have been written. Licensee management desired Ebasco certification of these design basis documents and has contracted for this service. This will result in 60 to 70 design basis documents. The licensee stated that this effort should be completed by July or August of this year. The design basis documents and the associated programmatic controls will be inspected at a later date.

Procedures outlining temporary bypass, jumper, and wire removal control were inadequate in that these activities were not subject to the same controls as permanent plant modifications. The licensee was in the process of revising and upgrading this procedure and provided the inspector a draft revision. Although the draft appeared to rectify the deficiencies, assessment in this area will be performed at a later date when the procedure is formally approved.

Coordination and consistency among procedures describing the design control program were not assessed due to the status of revisions.

Within this area, one inspector followup item was identified. In procedure MOD-202, Sections 6.4 and 6.7, describing field revisions and acceptance tests for modifications, the word "should" is used in lieu of "shall" in all procedural steps. This wording change was made to forestall audit findings in that not all PCRs require field revisions or acceptance tests. The

inspector objected that this made the requirement optional in all cases. Until the licensee reinstates the word "shall" in these sections , this will be tracked as Inspector Followup Item 50-400/86-28-01, Improper Wording in Procedure MOD-202.

7. Tests and Experiments (35749)

References:
(a) 10 CFR 50.54(a)(1), Conditions of Licenses

(b) Shearon Harris Nuclear Power Plant Final Safety Analysis Report

(c) 10 CFR 50 Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants

(d) 10 CFR 50.59, Changes, Tests, and Experiments

(e) Technical Specifications, Section 6.5, Review and Audit

(f) Regulatory Guide 1.33, Quality Assurance Requirements (Operations)

(g) ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants

The inspector reviewed the licensee's test and experiment program required by references (a) through (g) to determine if the program was in conformance with regulatory requirements, commitments in the application, and industry guides and standards. The following criteria were used during this review to assess the overall acceptability of the established program:

- A formal method had been established to handle all requests or proposals for conducting plant tests involving safety-related components.

- Provisions have been made to assure that all tests will be performed in accordance with approved written procedures.

- Responsibilities have been assigned for reviewing and approving test procedures.

- A formal system, including assignment of responsibility, has been established to assure that all proposed tests will be reviewed to determine whether they are as described in the FSAR.

- Responsibilities have been assigned to assure that written safety evaluations required by 10 CFR 50.59 will be developed for each test to assure that it does not involve an unreviewed safety question or a change in Technical Specifications.

The documents listed below were reviewed to determine if the previously listed criteria had been incorporated into the licensee's tests and experiments program.

FSAR Section 17.2.11, Test Control

AP-002 Plant Conduct of Operations, Revision 1

AP-005 Procedures Format and Preparation, Revision 1

AP-006 Procedure Review and Approval, Revision 5

AP-011 Safety Reviews, Revision 1

AP-014 Criteria for Qualified Safety Reviewers, Revision 4

OMM-001 Operations - Conduct of Operations, Revision 2

MOD-202 Plant Change Request Implementation, Revision 0

The inspector determined that the licensee has not developed a specific procedure or program controlling the use of tests, experiments, or other operations not described in the TS or FSAR. Licensee personnel stated that tests and experiments as such will be handled as temporary procedures, defined in procedure AP-005, Section 5.7, as procedures which provide guidance in unusual situations not within the scope of normal operations. This procedure states that temporary procedures shall be prepared, reviewed, approved, and revised in the same manner as permanent plant procedures. Procedure AP-011 requires the preparation of a safety review for all new procedures and proposed tests and experiments. Procedure AP-002 requires that procedures be written to prescribe those actions necessary to assure that quality and nuclear safety is assured for all activities involving plant components, systems, or structures and states that adherence to plant procedures is mandatory. Therefore, despite the lack of an explicit tests and experiments program it appears that plant procedures require tests and experiments to be conducted in such a manner that all regulatory requirements will be met.

Within this area, no violations or deviations were identified.

8. Surveillance Testing and Calibration Control (35745)

References: (a) 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants

(b) Regulatory Guide 1.33, Quality Assurance Program Requirements (Operation)

(c) ANSI N18.7-1972, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants

(d) Technical Specifications, Section 4

(e) 10 CFR 50,54(a)(1), Conditions of Licenses

(f) Shearon Harris Nuclear Power Plant Final Safety Analysis Report

The inspector reviewed the licensee surveillance testing and calibration control program required by referenced (a) through (f) to verify that the program had been established in accordance with regulatory requirements, industry guides and standards, and Technical Specifications. The following criteria were used during this review to determine the overall acceptability of the program being established:

- A master schedule for surveillance testing and calibration delineated test frequency, current status, and responsibilities for performance.
- The master schedule reflected the latest revisions of the Technical Specifications and operating license.
- Responsibilities were assigned to maintain the master schedule up-to-date and to ensure that required tests were performed.
- Detailed procedures with appropriate acceptance criteria had been approved for all surveillance testing requirements.
- The program defined responsibilities for the evaluation of surveillance test data as well as the method of reporting deficiencies and malfunctions.

Where appropriate, information of paragraph 5 of this report impact the above criteria. Comments regarding the licensee meeting the above criteria are indicated below.

At the time of the inspection, a master schedule for testing did not exist. The four site groups which were generating the schedule framework or matrix for the total schedule had provided some portions of the schedule. The TS driven matrix of the schedule had not been provided to Compliance on site which is the group that will control input of all testing matrices into a computer program which was expected to become the preliminary schedule in May.

The administrative procedures detailing the requirements of reference (c) were written for master schedule maintenance and test performance. These procedures are as follows:

ISI-203 ASME Section XI Pump and Valve Program Plan, Revision 1

ISI-800 Inservice Testing of Pumps, Revision 0

ISI-801 Inservice Testing of Valves, Revision 1

MMM-001 Maintenance Conduct of Operations, Revision 2, Change 2

MMM-007 Maintenance Surveillance and Periodic Test Program, Revision 2, Change 1

OMM-001 Operations - Conduct of Operations, Revision 2

OMM-005 Operations Work Procedures, Revision 0

OMM-007 Operations Surveillance, Periodic and Reliability Test, Revision 0, Change 0/1

PLP-103 Surveillance and Periodic Test Program, Revision 0

PLP-604 Inservice Inspection, Revision 1

PLP-607 Vibration Monitoring and Analysis Program, Revision 0

PPP-101 Performance Problem Reports, Revision 0

Detailed procedures for TS driven testing and ISI testing of pumps and valves were in various stages of production. The inspector identified a number of implementing, issued tests which did not identify specific Measuring and Test Equipment (M&TE) for the testing nor did they contain acceptance criteria. Operations informed the inspector that 44 percent of the identified tests had been recently rewritten and sent to the site review committee and that the remainder of the tests were in a new, draft form; these rewritten procedures were stated to contain M&TE and acceptance criteria. The inspector examined several of the draft procedures and noted improvement in their informational content. Completion of the procedure rewrite and approval was stated to be targeted for May 15, 1986.

Other tests procedures were to be written or are awaiting rewrite. These tests were periodic and reliability. Periodic tests are those tests performed for any commitments other than the TS (e.g., FSAR). While reliability tests are those tests performed on equipment as deemed necessary for good engineering practice; both of these definitions were from OMM-007. It was stated that work would be started on these procedures after April 31, 1986.

The procedures for the installed process instrumentation that will be used to verify TS parameters but are not specified in the TS were reviewed. The administrative procedure has been written to control these instruments. A calibration schedule for all plant instrumentation has been established; the safety related process equipment has not been separated out from the balance of plant instruments thus creating a potential administrative control problems (relative to section 5.3.10 of reference (c)). New process instruments and new M&TE to calibrate the gear were being identified as preop testing progressed; preop testing was less than 50 percent complete.

ISI pump and valve test acceptance criteria baseline data was not taken at the time of the inspection. The baseline data is not required until the beginning of commercial operation; but after taking the data, test procedures will probably require changing at a minimum.

The writing of vibration procedures, technique training, and performance group selection has not occurred for ISI pumps. Pump vibration techniques and procedures had been developed/written (PLP-607) for the maintenance program (i.e., other than ISI testing). This sophisticated vibration program can be used for predictive maintenance on pumps. Section 5.5 of ISI-800 indicated that Technical Support personnel was responsible for test acceptance criteria and trending of ISI data. At the time of the inspection, Technical Support and Operations were discussing ISI vibration performance.

No violations or deviations were identified in this area.

9. Measuring and Test Equipment (M&TE) Program (35750)

References:
(a) 10 CFR 50.54(a)(1), Conditions of Licenses

(b) 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants

(c) Shearon Harris Nuclear Power Plant Final Safety Analysis Report

(d) Regulatory Guide 1.33, Quality Assurance Program Requirements (Operations)

(e) ANSI N18.7-1976, Administrative Controls and Quality Assurance of the Operational Phase of Nuclear Power Plants

(f) Regulatory Guide 1.30, Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment.

(g) ANSI N45.2.4-1972, IEEE Standard, Installation, Inspection, and Testing Requirements for Instrumentation and Electric Equipment During the Construction of Nuclear Power Generating Stations

The inspector reviewed the M&TE program required by references (a) through (g) to verify that the program had been established in accordance with regulatory requirements and industry guides and standards. The following criteria were used during this review to determine the overall acceptability of program being established:

- Responsibility was delegated and criteria established to assign and adjust calibration frequency for each type of M&TE.

- An equipment inventory list identified all M&TE used on safety-related components, the calibration frequency and standard, and the calibration procedure.

- Formal requirements existed for marking the latest calibration data on each piece of equipment.

- The program assured that each piece of equipment was calibrated on or before the date required or stored in a location separate from inservice M&TE.

- Written requirements prohibited the use of M&TE which had not been calibrated within the prescribed frequency.

- When M&TE was found out of calibration, the program required documented evaluations to determine the cause of the out-of-calibration condition and the acceptability of items previously tested.

- The program assured that new M&TE was added to the inventory lists and calibrated prior to use.

The documents listed below were reviewed to verify that these criteria had been incorporated into the M&TE program:

MMM-001 Maintenance Conduct of Operations, Revision 2, Change 2

MMM-004 Process Instrument Calibration, Revision 3, Change 2060

MMM-006 Measuring and Test Equipment Calibration Program, Revision 4, Change 4/1

The inspector discussed the interface between the M&TE program and operational test program with maintenance personnel. As indicated in the previous paragraph, issues involving process instrumentation and M&TE inclusion into test procedures were still open. In mid May 1986, the surveillance test schedule was to be trial integrated, this may impact the M&TE calibration scheme. Maintenance surveillance procedures and preventative maintenance procedures which involve M&TE were still being written.

As preoperational testing and system turn-over progressed new M&TE was being procured and brought into the calibration system. At the time of the inspection, approximately one tenth to one fifth of the plant's systems had been turned over to Operations. The total number of new M&TE to be achieved was not well identified.

The calibration laboratory had been functioning to support plant operations. The program was being changed to support new plant evolutions. Maintenance personnel were planning for a contaminated tool issue/calibration satellite space and were aware that this space would probably require certain environmental controls. The personnel appeared to have incorporated the lessons learned at other sites into their program.

No violations or deviations were identified in this area.