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

Report No.: 50-400/87-21

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

Docket No.: 50-400 License No.: NPF-63

Facility Name: Harris 1

Inspection Conducted: May 20 - June 20, 1987

Inspectors: G. F. Maxwell 6-25-87
G. F. Maxwell Date Signed

For G. F. Maxwell 6-25-87
S. P. Burris Date Signed

Approved by: for P. E. Fredrickson, Section Chief 6-29-87
Division of Reactor Projects Date Signed

SUMMARY

Scope: This routine, announced inspection involved inspection in the areas of Follow-up on Items of Noncompliance and Bulletins, On-Site Follow-up of Events and Subsequent Written Reports of Nonroutine Events, Operational Safety Verification, Monthly Surveillance Observation, Engineered Safety Features Walkdown, Plant Tour, Monthly Maintenance Observation, and Other Activities.

Results: One violation was identified - "Failure to Maintain an Operable Air Lock Door Closed" - Paragraph 5.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

G. G. Campbell, Manager of Maintenance
J. M. Collins, Manager, Operations
G. L. Forehand, Director, QA/QC
J. L. Harness, Assistant Plant General Manager, Operations
L. I. Loflin, Manager, Harris Plant Engineering Support
G. A. Myer, General Manager, Milestone Completion
D. L. Tibbitts, Director, Regulatory Compliance
R. B. Van Metre, Manager, Harris Plant Technical Support
R. A. Watson, Vice President, Harris Nuclear Project
J. L. Willis, Plant General Manager, Operations

Other licensee employees contacted included technicians, operators, mechanics, security force members, engineering personnel and office personnel.

2. Exit Interview

The inspection scope and findings were summarized on June 19, 1987, with the Assistant Plant General Manager, Operations. No written material was provided to the licensee by the resident inspectors during this reporting period. The licensee did not identify as proprietary any of the materials provided to or reviewed by the resident inspectors during this inspection. The violation identified in this report has been discussed in detail with the licensee. The licensee provided no dissenting information at the exit meeting.

3. Follow-up on Items of Noncompliance and Bulletins (92702, 92703)

a. (Closed) Violation 400/87-06-01 "Failure to Analyze Pump Test Data Within the Required Time Period". The inspectors evaluated the licensee's initial and supplemental responses to this item, dated April 10, 1987 and May 4, 1987, respectively. The corrective action included cooling the plant down to hot shutdown (Mode 4), as required by the Operating Technical Specification action step 3.7.1.2, and repairing the conditions which caused the pump to be declared inoperable. The Operations Surveillance Test (OST) 1087 was then completed and the results indicated that the pump provided the required flow rate at the prescribed pressure. The corrective steps to avoid further noncompliance includes providing pump flow acceptance test criteria so the Operations shift foreman can compare

the test results during or immediately following the completion of pump flow rate tests. Additionally, In-Service Inspection personnel have been directed to conduct more frequent reviews of OST results, therefore assuring that prompt notification is provided to the operators when equipment test results are unsatisfactory. This item is closed.

b. (Closed) Bulletin 85-BU-01 "Steam Binding AFW Pumps". The inspectors discussed this item with responsible Region II personnel and reviewed report 50-400/87-02. Based on the review and discussions, the inspectors determined that this item is closed.

4. On-Site Follow-up of Events and Subsequent Written Reports of Nonroutine Events (92700, 93702)

The inspectors evaluated the following Licensee Event Reports (LERs) to determine if the details complied with licensee requirements, identified the root cause of the event and described appropriate corrective action:

- (Closed) LER 87-01 "Manual Reactor Trip/Digital Rod Position Indication System". While the plant was in hot standby with shutdown rod banks C and D withdrawn, digital rod position indication (DRPI) was lost for two DRPI data channels. The loss was attributed to loose pin connectors in DRPI data channels A and B.

  When the control room received the alarms indicating that two DRPI data channels were experiencing failures, the reactor shutdown rod banks were ordered to be manually tripped. The manual reactor trip was conducted by the operators to comply with Technical Specifications (TS) 3.1.3.3 requirements. When DRPI became inoperable, the reactor was already shutdown and was in the standby mode. The banks remained tripped until the affected DRPI data channels were repaired and restored to comply with TS Section 3.1.3.3 limits.

  The inspectors reviewed the above LER and the supportive documentation and interviewed responsible Operations maintenance technicians. As a result, the inspectors determined that the loss of DRPI indication was caused by loose electrical connectors. The licensee has performed a 100 percent reinspection of all DRPI-associated electrical pin connectors and has reworked all of those which were found to be loose. This item is closed.

- (Closed) LER 87-02 "Staggered Test Basis for Surveillance Tests". The reactor protection system (RPS) logic testing for the reactor trip and bypass breakers was not properly staggered. The licensee's schedule required the RPS train "A" and "B" logic to be tested on November 4 and 5, 1986. The tests should have been staggered so that both trains were not tested at such close intervals.

The tests are now staggered such that the two trains are tested at 30-day intervals. The licensee is auditing the staggered test program at least two times a month to reduce the likelihood of recurrence. The inspectors evaluated the audit program, and as a result, no similar instances were identified. This item is closed.

5. Operational Safety Verification (71707)

On June 11, 1987 the inspectors were informed by the shift foreman that the plant was experiencing problems with the personnel access air lock doors for the containment building. On June 11, 1987, at about 3:00 p.m., both doors had been declared inoperable when they did not satisfactorily pass a leak test which was conducted earlier that day. The plant was operating at about 100 percent reactor power (Mode 1) when the doors were declared inoperable. Since both doors had been declared inoperable, Section 3.0.3 of the Technical Specification (TS) went into effect.

The inspectors reviewed the control room logs and noted that the operators began to make plans to reduce reactor power within the one hour specified by TS Section 3.0.3. the inspectors were informed that the outer air lock door was returned to the operable status at about 3:48 p.m. on June 11, 1987. Having one air lock door inoperable placed the plant into the action statement requirements of TS Section 3.6.1.3.a. The action statement required the inner air lock door to be returned to operable status with 24 hours or lock the operable door, in this case the outer door.

At about 8:00 p.m. on June 11, 1987, the inner air lock door was declared operable; the containment doors were no longer under the action statement of TS 3.6.1.3.a. However, at about 9:55 p.m. the outer air lock door was again declared inoperable due to its gasket seal being loose, placing the doors back into the action statement of T.S. Section 3.6.1.3.a. At about 10:00 p.m. the shift foreman was informed that the seal had been repaired but the door had not been tested for leaks, and therefore the outer door remained inoperable and the action statement TS 3.6.1.3.a. was still in effect.

The inspectors interviewed Operations and Maintenance personnel and noted that between 10:35 p.m. and 11:20 p.m. on June 11, 1987, the action statement of TS 3.6.1.3.a had been violated. The violation occurred due to Health Physics personnel, on more than one occasion, opening the inner air lock door, when the outer door was declared inoperable. A review of the control room shift foreman's logs indicated that the outer door was not placed back into operable status until about 3:47 a.m. on June 12, 1987.

The licensee management is aware of the above TS violation and has drafted a Licensee Event Report to assure proper reporting, evaluation, tracking and resolution. This is a TS violation, "Failure to Maintain an Operable Air Lock Door Closed" (50-400/87-21-01).

6. Monthly Surveillance Observation (61726, 61700, 61710)

The inspectors witnessed performance of OST 1073, "Emergency Diesel Generator (EDG) Operability Test Monthly Interval Modes 1-2-3-4-5", which was performed to meet the commitments as outlined in TS 4.8.1.1.2.a, 4.8.1.1.2.b.1, 4.0.5 and a portion of 4.8.1.2. This monthly surveillance verified the operability of the EDG system and components. The inspectors observed the entire in-process test and reviewed the OST procedure and its supportive procedures OP-155, "Emergency Diesel Generator System" and OP-139, "Service Water System". OST 1073 verified that the "B" EDG would start and operate within the required time constraints and that the specified voltage and amperage ratings would be maintained.

While conducting the prerequisites for this monthly surveillance, the operator experienced operability problems with the diesel engine barring device. The operator was in the process of rotating the diesel engine two revolutions as required for the engine start prerequisites, when the barring device piston ram could not overcome the dead weight of the diesel engine flywheel. Investigation revealed that the piston ram seal was leaking air in excess of that required to roll the flywheel. The shift foreman was informed and as a result, two Work Requests WR87-AQNW1 and W87-AQNX1 were issued to correct this deficiency. WR87-AQNW1 requested that maintenance remove the barring device from the "B" diesel generator and replace it with the unit "A" barring device to facilitate completion of this surveillance. After implementation of WR87-AQNW1, operations personnel finished the prerequisites and satisfactorily completed OST 1073 on the "B" EDG. WR87-AQNX1 required "B" Diesel Generator barring device to be repaired. The repair was completed and the barring devices were returned to their prespective diesel generators.

During the conduct of the procedure the inspectors noted that an Advance Change Notice (ACN) to the procedure had been issued on September 21, 1986, which changed the training requirements for the person obtaining the vibration data under these surveillance requirements. In the original procedure the vibration data collector was only stipulated as an operator, however a change in the In-Service Inspection (ISI) Program required that the data collector be qualified in accordance with changes in ISI-111, "Personnel Training for ASME Section XI Pump Vibration Measurements", Vol. 6, Part B. While reviewing OST 1073 the inspectors noted that the actual procedural step still reflected that the data collector was to be an operator. When the shift foreman was questioned concerning this item, he generated a new ACN to clarify the procedure.

The inspectors reviewed the procedure and witnessed the quarterly interval OST 1076, "Auxiliary Feedwater Pump 1B-SB Operability Test Modes 1-2-3-4". This surveillance test is performed on a staggered test basis every 92 days between the 1A-SA and 1B-SB auxiliary feedwater pumps to ensure that the pumps will start on a start signal and generate the required minimum flow rates. In addition, the surveillance verifies that the feedwater valves will stroke within the required time constraints.

No violations or deviations were identified in the areas inspected.

7. Engineered Safety Features Walkdown (71710)

The inspectors verified the operability of one of the Engineered Safety Features (ESF) systems by performing a system walkdown of the accessible portions of the EDG system. This verification included witnessing the performance of the monthly OST 1073, as identified in Paragraph 6 of this report. The inspectors walked down the control room EDG section of the main control board, diesel generator building local control panel and the valves and components in the diesel generator room. The inspectors' walkdown was performed to ensure that: there were no abnormal conditions which could render the diesel generator inoperative, there were no excessive oil, water or fuel oil leaks, electrical equipment and components showed no apparent sign of degradation, water and oil temperatures for both operating and shutdown conditions were within specifications, valves and electrical circuit breakers were in their correctly aligned positions for an emergency start condition.

The inspectors verified that the valve lineup sheets for this system were completed and maintained on file in accordance with Operation Procedures OP-115 and OP-139 "Service Water System".

No violations or deviations were identified in the areas inspected.

8. Plant Tour (71707, 71710, 62703)

The inspectors conducted numerous plant tours during this inspection period to verify that the licensee met the requirements and commitments as specified in its license. These tours were conducted to ensure that plant operations personnel were aware of current plant status; equipment out of service was properly documented and tagged; radiation controls were established as required; spare equipment and material were properly stored and controlled; there were no unusual fluid leaks, piping vibration, abnormal hanger or seismic restraint settings; valves and breakers required for safe operation were in the correct position; firefighting equipment was being maintained properly, and equipment requiring calibration was current.

The tours included reviews of the shift foremen's daily logs and other control room logs, observation of shift turnovers, interviews of on-shift operators, review of clearance center tagout logs, system status logs, chemistry and health physics logs and control room daily status board. During all observed instances, the on-shift operations personnel appeared alert and aware of changing plant conditions.

The inspectors toured various plant spaces to verify that these spaces were in a condition which would not degrade the performance capabilities of any required equipment. Emphasis was placed on checking the condition of electrical and instrumentation cabinets to ensure that they were free of foreign and loose debris, or material.

The inspectors evaluated the site security measures by observing personnel inside the vital and protected areas to ensure that personnel were authorized access, security personnel were alert and attentive, and those persons performing vehicular searches were thorough and systematic, and that prompt responses were provided to security alarm conditions.

During a site tour on May 20, 1987, the inspectors noted that a tornado/ fire door (D-801) was open on the southeast corner at elevation 261' of the radwaste building. The inspectors investigated the reason for this door being open while there was no apparent movement of waste to or from the internal area to the outside area. Discussions with licensee management revealed that radiation controls had been established but the shift foreman had not been notified as required by the written instructions which were posted on the door.

Subsequently the licensee has taken corrective action to improve communications concerning the status of fire doors. These actions include requiring on-shift fire technicians to periodically brief the shift foreman concerning any changes to the overall site fire protection systems, i.e. fire doors open or fire equipment out of service. Additionally, the status of all fire doors has been included as a part of the shift turnovers and documented in the shift foreman's log.

No violations or deviations were identified in the areas inspected.

9. Monthly Maintenance Observation (62703, 62700, 37700)

Maintenance activities were evaluated during this inspection period to verify that the licensee's activities were not violating any limiting conditions for operations, procedures were adequate for the work activities being conducted, tagout and clearance approvals were obtained prior to work initiation, personnel involved with the maintenance activities were qualified to perform the necessary work, parts and materials were properly documented prior to use, QC hold points were established and observed, any post maintenance testing activities were conducted where required, and the equipment was properly returned to service. Those activities which were evaluated are as follows:

- The inspectors observed in-process maintenance activities which were conducted on the "B" main feedwater pump. The maintenance activities were required in order to repair the pump casing drain lines. The drain lines had developed a leak adjacent to the point where they were fastened to the main feedwater pump casing. The repair work was authorized by site Work Request WR87-ARQG1.

- The inspectors observed in-process maintenance activities on the turbine driven auxiliary feedwater (AFW) pump discharge line leading to the "B" steam generator. The work was authorized by Revision 9, to a Plant Change Request (PCR-1286). The change included the addition of a check valve to each of the three AFW pump discharge lines for both the motor driven and turbine driven pumps. During the

previous reporting period the licensee satisfactorily completed the check valve installations for the three motor driven lines as documented in Region II report 50-400/87-19. While observing the installation of the new check valve between the turbine driven AFW pump discharge and "B" steam generator, the inspectors reviewed the working copy of PCR-1286 and the hydrostatic pressure test record form from Operations Quality Assurance Procedure OQA-304. The inspectors noted that the assigned system pressure of 1700 psig on the test form OQA-304 for the turbine driven pump discharge line did not appear to be correct. The inspectors informed the responsible QC inspector that he should verify this pressure prior to performing the test. The QC inspector checked with the responsible design engineer and found that the actual system pressure should have been 1600 psig. All test data forms were changed to correctly reflect the system design pressure values before performing the pressure test. This condition was then documented by QC personnel on Field Reports FR 87-024 and 87-25. The inspectors will follow-up on this item during future inspections.

- In addition to the observation of the new check valve being installed between the turbine driven AFW pump and the "B" steam generators, the inspectors assisted Region II visiting inspectors. The areas of assist included a further evaluation of the licensee's design review process used by engineering. Emphasis was placed on any potential unreviewed safety questions (per 10 CFR 50.59) which may result from PCR 1286 and a recent modification made to the internals of the AFW pumps. The results of the evaluation of the design review process were documented in Region II report 50-400/87-20.

- The inspectors evaluated the work activities associated with two recently closed Work Requests. Those which were evaluated are as listed below:

  - Work Request WR87-AKYR1. This activity required repairs to the "C" chemical and volume control pump lubricating system; oil was leaking around the pump bearing cap. The cause was attributed to loose oil fittings which were easily tightened.

  - Work Request WR87-APZQ1. The pressurizer safety relief temperature indicator (TI-469) failed. The instrumentation and controls (I&C) technicians investigated and found that the process instrumentation circuit for the temperature indicator required repairs. The repairs were completed and the circuit was retested and returned to service.

No violations or deviations were identified in the areas inspected.

10. Other Activities (94600)

On June 10, 1987, management representing Region II, the offices of Nuclear Reactor Regulation and the Deputy Executive Director for Regional Operations met with the licensee site management. The agenda included a briefing by the licensee concerning the status of the condensate and feedwater systems, conduct of operations, engineering and design results. The briefing was followed by a plant tour which included a tour of the control room, security access monitoring station, turbine building, fuel handling building and auxiliary building. After the tours the meeting was concluded with a demonstration of the Engineered Response Features Information System and its capabilities.