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

Report No.: 50-261/88-30

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

Docket No.: 50-261 License No.: DPR-23

Facility Name: H. B. Robinson

Inspection Conducted: October 11 - November 10, 1988

Inspector: _____ 12/9/88
L. W. Garner, Senior Resident Inspector Date Signed

Approved by: _____ 12/9/88
for P. E. Fredrickson, Section Chief Date Signed
Reactor Projects Section 1A
Division of Reactor Projects

SUMMARY

Scope: This routine, announced inspection was conducted in the areas of operational safety verification, physical protection, surveillance observation, maintenance observation, onsite followup of events at operating power reactors and onsite review committee.

Results: A weakness was identified in the Operation Department's review for applicable Technical Specification action statements upon determination of inoperable equipment, paragraph 7.a.

Within the areas inspected, no violations or deviations were identified.

Four unresolved items were identified involving:

- Improper setpoints of MCC-5 and MCC-6 feeder breakers, paragraph 7.a.
- HVH 1-4 penetration splices being non-EQ, paragraph 7.b.
- Declaration of an Unusual Event when shutdown by TS is determined, paragraph 7.b.
- Unreinforced masonry block wall, paragraph 7.c.

## REPORT DETAILS

1. Licensee Employees Contacted

R. Barnett, Maintenance Supervisor, Electrical
R. Chambers, Engineering Supervisor, Performance
*J. Curley, Director, Regulatory Compliance
C. Dietz, Manager, Robinson Nuclear Project Department
R. Femal, Shift Foreman, Operations
W. Flanagan, Manager, Design Engineering
W. Gainey, Support Supervisor, Operations
R. Johnson, Manager, Control and Administration
D. Knight, Shift Foreman, Operations
E. Lee, Shift Foreman, Operations
D. McCaskill, Shift Foreman, Operations
R. Moore, Shift Foreman, Operations
*R. Morgan, Plant General Manager
M. Page, Engineering Supervisor, Plant Systems
D. Quick, Manager, Maintenance
*D. Sayre, Senior Specialist, Regulatory Compliance
D. Seagle, Shift Foreman, Operations
*J. Sheppard, Manager, Operations
R. Steele, Shift Foreman, Operations
*H. Young, Director, Quality Assurance/Quality Control

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

NRC Resident Inspector

*L. Garner

*Attended exit interview on November 22, 1988.

Acronyms and initialisms used throughout this report are listed in the last paragraph.

2. Licensee Action on Previous Enforcement Matters (92702)

Not Inspected.

3. Operational Safety Verification (71707)

The inspector observed licensee activities to confirm that the facility was being operated safely and in conformance with regulatory requirements, and that the licensee management control system was effectively discharging its responsibilities for continued safe operation. These activities were confirmed by direct observations, tours of the facility, interviews and discussions with licensee management and personnel,

independent verifications of safety system status and limiting conditions for operation, and reviews of facility records.

Periodically, the inspector reviewed shift logs, operations records, data sheets, instrument traces, and records of equipment malfunctions to verify operability of safety related equipment and compliance with TS. Specific items reviewed include control room logs, auxiliary logs, operating orders, standing orders, and equipment tagout records. Through periodic observations of work in progress and discussions with operations staff members, the inspector verified that the staff was knowledgeable of plant conditions; responding properly to alarm conditions; adhering to procedures and applicable administrative controls; and aware of equipment out of service, surveillance testing, and maintenance activities in progress. The inspector also observed that access to the control room was controlled and operations personnel were carrying out their assigned duties in an attentive and professional manner. The control room was observed to be free of unnecessary distractions. The inspector performed channel checks, reviewed component status and safety related parameters to verify conformance with the TS.

During this reporting interval, the inspector verified compliance with selected LCOs. This verification was accomplished by direct observation of monitoring instrumentation, valve positions, switch positions, and review of completed logs and records. Plant tours were routinely conducted to verify the operability of standby equipment; assess the general condition of plant equipment; and verify that radiological controls, fire protection controls, and equipment tag out procedures were being properly implemented. These tours verified the absence of unusual fluid leaks; the lack of visual degradation of pipe, conduit and seismic supports; the proper positions and indications of important valves and circuit breakers; the lack of conditions which could invalidate EQ; the operability of safety related instrumentation; the calibration of safety related and control instrumentation including area radiation monitors, friskers and portal monitors; the operability of fire suppression and fire fighting equipment; and the operability of emergency lighting equipment. The inspector also verified that housekeeping was adequate and areas were free of unnecessary fire hazards and combustible materials.

No violations or deviations were identified within the areas inspected.

4. Physical Protection (71707)

In the course of the monthly activities, the inspector included a review of the licensee's physical security program. The inspector verified by general observation and interviews, that measures taken to assure the physical protection of the facility met current requirements. The performance of various shifts of the security force was observed to verify that daily activities were conducted in accordance with the requirements of the security plan. Activities inspected included protected and vital areas; access controls; searching of personnel, packages, and vehicles;

badge issuance and retrieval; patrols; escorting of visitors; and compensatory measures.

No violations or deviations were identified within the areas inspected.

5. Monthly Surveillance Observation (61726)

The inspector observed certain surveillance related activities of safety related systems and components to ascertain that these activities were conducted in accordance with license requirements. For the surveillance test procedures listed below, the inspector determined that precautions and LCOs were met, the tests were completed at the required frequency, the tests conformed to TS requirements, the required administrative approvals were obtained prior to initiating the tests, and the testing was accomplished by qualified personnel in accordance with an approved test procedure. The inspector independently verified that the systems were properly returned to service. Specifically, the inspector witnessed/ reviewed portions of the following test activities:

- OST-010 (revision 9) Power Range Calorimetric During Power Operation

  The test compares the power range neutron indications to the calculated thermal power as required by TS Table 4.1-1. The inspector verified that the neutron indications were within accepted tolerances and required no adjustments.

- RST-001 (revision 29) Radiation Monitor Source Checks

  The test is a channel functional test of the Radiation Monitoring System monitors as required by TS Table 4.1-1. The inspector verified that for selected monitors the test procedure was performed properly and the acceptance criteria was met.

No violations or deviations were identified within the areas inspected.

6. Monthly Maintenance Observation (62703)

The inspector observed several maintenance related activities of safety-related systems and components to ascertain that these activities were conducted in accordance with approved procedures, TS, and appropriate industry codes and standards. The inspector determined that these activities were not violating TS LCOs and that redundant components were operable. The inspector also determined that activities were accomplished by qualified personnel using approved procedures, QC hold points were established where required, required administrative approvals and tagouts were obtained prior to work initiation, proper radiological controls were adhered to, appropriate ignition and fire prevention controls were implemented, replacement parts and materials used were properly certified, and the effected equipment was properly tested before being returned to service. In particular, the inspector observed/reviewed the following maintenance activities:

- W/R 88-ALBM1 Replace HVH 1-4 Cable Splices

- CM-309 (revision 4) Environmental Sealing Low Voltage Electrical Splices

  The inspector verified that the butt splices were performed in accordance with the procedure. This included verification of proper cleaning of the cable jacket, sufficient overlap of sleeve and cable jacket, removal of rough edges, sealing of the ends as demonstrated by adhesive flow, and proper inspection of installation by QC as specified by attachments 8.3 and 8.4.

No violations or deviations were identified within the areas inspected.

7. Onsite Followup of Events at Operating Power Reactors (93702)

   a. On October 5, 1988, during reconstitution of the design basis for the electrical loading of safety related MCCs, the licensee discovered a potential overload condition could exist under certain postulated accident conditions. A LOCA with offsite power available and the loss of either MCC-5 or MCC-6 would result in the starting of standby non-vital loads on the other MCC. This starting of standby loads would trip the feeder breaker to the operating MCC, thereby, resulting in a loss of all 480 V safety related MCC power. The condition would not be expected to exist with the loss of offsite power because the standby non-vital loads are stripped from the MCCs under this condition in order to limit the loading on the EDGs. Anticipated loads on MCC-5 and MCC-6 are 794 and 820 amps, respectively. These loads could cause the feeder breakers to MCC-5 and MCC-6 to trip, since the feeder breakers' trip setpoints are 800 amps +/- 10%. In addition, the MCCs' continuous rating of 600 amps would be exceeded.

      While verification of the initial calculations were being performed, the licensee implemented compensatory actions on October 6, 1988, to lock out certain non-vital loads on MCC-5 and MCC-6 in order to limit anticipated loads under the postulated scenario to less than 700 amps. On October 10, 1988, the potential setpoint problem was confirmed and the event reported to the NRC in accordance with 10 CFR 50.72. Pending further review by the NRC of the circumstances surrounding the event, this is considered an UNR: Investigate Circumstances Surrounding Improper Setpoints of MCC-5 and MCC-6 Feeder Breakers (261/88-30-01).

      On October 11, 1988, subsequent reviews of limiting components identified that the feeder cables to MCC-6 from emergency bus E-2 were potentially undersized. In accordance with design standards the derated cable ampacity for continuous duty was determined to be 474 amps. A similar problem did not exist with MCC-5 because those cables had been changed to a larger ampacity due to Appendix R modifications. Based upon engineering judgement, the licensee believed that refined calculations, with actual plant configurations

taken into account, would demonstrate the acceptability of the MCC-6 feeder cables. On October 13, 1988, preliminary calculations indicated a continuous duty ampacity of approximately 750 amps. However, the licensee was informed by a consultant who was performing similar independent calculations that the value was approximately 450 amps. Based upon this information the licensee declared MCC-6 inoperable at 9:00 p.m., on October 13, 1988. On October 14, 1988, a plant shutdown was commenced. The unit was placed in hot shutdown by 1:00 p.m. that same day and in cold shutdown at 9:45 a.m. on October 15, 1988.

Upon reaching cold shutdown, MCC-6 was removed from service and the cables were replaced. In addition, critical portions of MCC-5 and MCC-6, as well as other safety related cables were physically inspected for signs of overheating. None were found. The inspector witnessed the replacement of the MCC-6 feeder cables and independently inspected parts of MCC-5 and MCC-6. No conditions effecting operability were noted. Subsequent calculations verified that the continuous duty ampacity of the removed MCC-6 feeder cables had in fact been adequate to assure MCC-6 operability. Apparently, a miscommunication problem between the licensee and their consultant had resulted in the consultant utilizing the incorrect plant configuration. Even though this was thought to be the case prior to the shutdown, plant management determined that it was prudent to shutdown and replace the cables.

The licensee issued JCO no. 88-010 to address the potential safety significance of cable sizing of loads fed from MCC-5 and MCC-6. Although some cables were determined to be undersized, the licensee demonstrated that either a failure would not occur or would not result in a safety problem. The inspector reviewed the JCO and had no outstanding concerns. The unit was returned to service at 3:45 p.m. on October 18, 1988.

On October 14, 1988, a review by a licensed operator on rotation into the regulatory compliance group identified that on October 13, at 9:00 p.m., the plant should have declared a phase B containment isolation valve inoperable when MCC-6 was declared inoperable. This automatic isolation valve, CC-735, is associated with the reactor coolant pumps' component cooling water return line from containment. Consequently, it can not be shut when the reactor coolant pumps are running. PEP-101, Initial Emergency Actions, item 6, Loss of CV Integrity, requires an unusual event be declared if one or more automatic isolation valves are inoperable for greater than 4 hours and are not isolated or repaired. Thus in accordance with PEP-101, an unusual event was declared at 11:06 a.m., on October 14, 1988. The plant remained in an unusual event status until 9:45 a.m. on October 15, 1988, when the unit was placed in cold shutdown. Containment integrity is not required per TS when the unit is in cold shutdown. The failure to identify that a containment isolation valve

was effected resulted in the unusual event being declared approximately 11 hours late. Additionally, TS 3.6.3 LCO was unknowingly entered when the MCC was declared inoperable, but was not violated in that the plant was in cold shutdown within 40 hours of the initial inoperability determination. As stated above, after the fact, it was proven that MCC-6 had been operable and declaration of an unusual event had not been required. Nevertheless, it is of significant concern that all the relevant TS Action Statements and regulatory requirements were not properly assessed by the operations department personnel. This is of significant concern because of the long period of time that was available for review prior to declaring MCC-6 inoperable (e.g. from October 5, 1988, when the operability of MCC-6 came into question, to October 13, 1988, when MCC-6 was declared inoperable).

b. Non-EQ Splices on Containment Fan Coolers

On October 27, 1988, while performing field verifications to resolve documentation discrepancies, it was determined that the pigtail splice to the penetrations for the containment fan coolers HVH 1-4 were not as expected. Engineering review and subsequent review by the PNSC determined that the splices were non-EQ and were not qualifiable. The HVH 1-4 units were declared inoperable at 10:20 p.m. Reactor shutdown was commenced from 91% power at 11:00 p.m. Hot shutdown was obtained at 2:03 a.m., on October 28, 1988. HVH 1 and 3 were removed from service and the splices upgraded to be in conformance with a qualified configuration. The inspector verified that the repairs were performed in accordance with approved procedures. These units were returned to service at 1:16 a.m. on October 29, 1988. HVH 2 and 4 were then removed from service, upgraded, tested, and declared operable at 10:36 a.m. on the same day. Reactor startup was commenced at 4:39 p.m. and the generator synchronized to the grid at 5:46 p.m., on October 29, 1988.

The reason why the Cruise-Hinds supplied penetration splices on power cables were not replaced with an EQ configuration during the August 1987 shutdown to upgrade Cruise-Hinds supplied penetration splices for instrumentation cables in not known at this time. Pending further inspection, this item is considered an UNR: Review Circumstances Surrounding HVH 1-4 Penetration Splices Being Non-EQ (261/88-30-02).

During review of the event, the inspector questioned if an unusual event should have been declared per PEP-101, Initial Emergency Actions. Item 1 of Attachment 9.1 to the PEP requires an unusual event be declared upon "violation of any limiting condition for operation requiring shutdown ....". Preliminary discussions with regional specialists in this area indicates that the intent of these words is that if a shutdown is required per TS 3.0 (e.g., if an LCO cannot be satisfied because of circumstances in excess of those addressed, place the unit in hot shutdown within

eight hours) then an unusual event is to be declared. However, the licensee indicates that it has always been their position that violation of a LCO has meant not meeting the time limitation (e.g., eight hours to be in hot shutdown). The licensee also polled other utilities within Region II and determined that there is no consistent practice of declaring an unusual event involving shutdowns due to TS 3.0 type statements. Furthermore, the licensee provided the inspector a draft final report, Methodology For Development of Emergency Action Levels, by the Nuclear Management and Resource Council which documents an industry initiative to standardize this practice in a fashion similar to the licensee's position. Pending further review by the NRC, this item is considered an UNR: Determine If a Shutdown per TS 3.0 Requires Declaration of an Unusual Event (261/88-30-03).

c. AFW Hanger Attached to An Unreinforced Block Wall

On November 2, 1988, while drilling into a wall for pre-outage work, the licensee determined that wall penetration no. P4 in the AFW pump room had been filled with unreinforced masonry block. One brace of AFW hanger no. FW-2-136 was determined to be attached to this wall. This is the first seismic support from the B MDAFW pump discharge nozzle. Subsequent analysis indicated that this block wall could fail under lateral compressive loads during a seismic event. Such a failure could potentially render the support inoperable. A design change notice was issued to existing modification no. 937 to add additional support members and remove the effected brace from the hanger. Upon notification of the inoperable hanger, the B MDAFW pump was declared inoperable in accordance with TS 3.4.4.6 at 5:29 p.m., on November 3, 1988. The system was returned to service at 9:35 p.m., on November 5, 1988, after final QC inspection of the modified support. The inspector verified that the redundant AFW pumps were operable in accordance with TS during this period. The licensee is submitting a special report to the NRC concerning this event. Pending further review by the NRC, this item is considered an UNR: Review special report and related corrective actions regarding unreinforced masonry block wall (261/88-30-04).

No violations or deviations were identified within the areas inspected.

8. Onsite Review Committee (40700)

The inspector evaluated certain activities of the PNSC to determine whether the onsite review functions were conducted in accordance with TS and other regulatory requirements. In particular, the inspector attended a PNSC meeting on October 27, 1988, concerning non-qualified splices to containment cooling fans HVH 1-4. It was ascertained that provisions of the TS dealing with membership, review process, frequency, and qualifications were satisfied. Previous meeting minutes were reviewed to confirm that decisions and recommendations were accurately reflected in the minutes.

No violations or deviations were identified within the areas inspected.

9. Exit Interview (30703)

The inspection scope and findings were summarized on November 22, 1988, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection findings listed below, as well as the NRC concern over the exhibited weakness in identifying the applicable TS action statement upon declaring MCC -6 inoperable. In addition, the identification of UNR 261/88-30-04 was discussed with the licensee on December 9, 1988. Dissenting comments were not received from the licensee. Proprietary information is not contained in this report. No written material was given to the licensee by the Resident Inspector during this report period.

| Items Numbers | Status | Description/Reference Paragraph |
|---|---|---|
| 88-30-01 | Open | UNR - Investigate Circumstances Surrounding Improper Setpoints of MCC-5 and -6 Feeder Breakers. Paragraph 7.a. |
| 88-30-02 | Open | UNR - Review Circumstances Surrounding HVH 1-4 Penetration Splices Being Non-EQ. Paragraph 7.b. |
| 88-30-03 | Open | UNR - Determine If a Shutdown per TS 3.0 Requires Declaration of an Unusual Event. Paragraph 7.b. |
| 88-30-04 | Open | UNR - Review Special Report and Related Corrective Actions Regarding Unreinforced Masonry Block Wall. Pararaph 7.c. |

10. List of Abbreviations

| | |
|---|---|
| AFW | Auxiliary Feedwater |
| CFR | Code of Federal Regulations |
| CM | Corrective Maintenance |
| CP&L | Carolina Power & Light |
| CV | Containment Vessel |
| EDG | Emergency Diesel Generator |
| EQ | Environmental Qualifications |
| FW | Feedwater |
| HVH | Heating Ventilation Handling |
| JCO | Justification For Continued Operation |
| LCO | Limiting Condition for Operation |
| LOCA | Loss of Coolant Accident |
| MCC | Motor Control Center |
| MDAFW | Motor Driven Auxiliary Feed Water |
| NRC | Nuclear Regulatory Commission |

| | |
|---|---|
| OMM | Operations Management Manual |
| OST | Operations Surveillance Test |
| PEP | Plant Emergency Procedure |
| PNSC | Plant Nuclear Safety Committee |
| QC | Quality Control |
| TS | Technical Specification |
| *UNR | Unresolved Item |
| W/R | Work Request |

* Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations.