



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

Report No.: 50-261/88-06

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: March 11 - April 10, 1988

Inspector: *R. L. Carroll Jr.*
L. W. Garner, Senior Resident Inspector

5/12/88
Date Signed

R. L. Carroll Jr.
R. M. Latta, Resident Inspector

5/12/88
Date Signed

Contributing Inspector: P. Hopkins, Resident Inspector (Summer)

Approved by: *R. L. Carroll Jr.*
P. E. Fredrickson, Chief
Reactor Projects Section 1A
Division of Reactor Projects

5/12/88
Date Signed

SUMMARY

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

Results: No violations or deviations were identified in the areas inspected.

REPORT DETAILS

1. Licensee Employees Contacted

- R. Barnett, Maintenance Supervisor, Electrical
- *G. Beatty, Vice President, Robinson Nuclear Project Department
- C. Bethea, Manager Training
- R. Chambers, Engineering Supervisor, Performance
- *J. Curley, Director, Regulatory Compliance
- R. Femal, Shift Foreman, Operations
- W. Flanagan, Manager, Design Engineering
- W. Gainey, Support Supervisor, Operations
- E. Harris, Director, Onsite Nuclear Safety
- D. Knight, Shift Foreman, Operations
- F. Lowery, Manager, Operations
- D. McCaskill, Shift Foreman, Operations
- *A. McCauley, Principle Engineer, Onsite Nuclear Safety
- R. Miller, Maintenance Supervisor, Mechanical
- R. Moore, Shift Foreman, Operations
- *R. Morgan, Plant General Manager
- D. Myers, Shift Foreman, Operations
- D. Nelson, Operating Supervisor
- M. Page, Engineering Supervisor, Plant Systems
- D. Quick, Manager, Maintenance
- D. Sayre, Senior Specialist, Regulatory Compliance
- D. Seagle, Shift Foreman, Operations
- R. Smith, Manager, Environmental and Radiation Control
- R. Steele, Shift Foreman, Operations
- H. Young, Director, Quality Assurance/Quality Control (QA/QC)

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

NRC Resident Inspectors

- *L. Garner
- R. Latta

*Attended exit interview on April 14, 1988

2. Exit Interview (30703)

The inspection scope and findings were summarized on April 14, 1988, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection findings listed below. 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 Inspectors during this report period.

Note: A list of abbreviations used in this report is contained in paragraph 13.

<u>Item Number</u>	<u>Status</u>	<u>Description/Reference Paragraph</u>
LER88-01	Closed	Automatic Reactor Trip Due to Turbine Trip on Loss of Autostop Oil Pressure.
88-06-01	Open	IFI - Review Inadvertent Shipment of Contaminated Liquid to Quadrex (paragraph 10.a).
88-06-02	Open	UNR* - Reporting Requirements Associated with Loss of Emergency Siren Capability (paragraph 10.b.).

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

3. Licensee Action on Previous Enforcement Matters (92702)

This area was not inspected.

4. Onsite Review of Licensee Event Reports (93702)

The listed LER was reviewed to verify that the information provided met NRC reporting requirements. The verification included adequacy of event description and corrective action taken or planned, existence of potential generic problems and the relative safety significance of the event. Onsite inspections were performed and concluded that necessary corrective actions have been taken in accordance with existing requirements, license conditions and commitments. The following report is considered closed:

(Closed) LER 88-01; Automatic Reactor Trip Due to Turbine Trip on Loss of Autostop Oil Pressure. As previously documented in Inspection Report 261/88-03 the faulty relief valves in the turbine electro-hydraulic control system have been replaced and the inspectors witnessed the successful completion of the post maintenance acceptance testing as controlled by OST-551. This item is closed.

No violations or deviations were identified within the areas inspected.

5. Operational Safety Verification (71707)

The inspectors 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 inspectors 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, maintenance work requests, auxiliary logs, operating orders, standing orders, jumper logs, and equipment tagout records. Through periodic observations of work in progress and discussions with operation staff members, the inspectors verified that the staff was knowledgeable of plant conditions, responding properly to alarm conditions, adhering to procedures and applicable administrative controls, aware of equipment out of service, and surveillance testing and maintenance activities in progress. The inspectors routinely observed shift changes to verify that continuity of system status was maintained and that proper control room staffing existed. The inspectors 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 inspectors performed channel checks, reviewed component status and safety related parameters, including SPDS information, to verify conformance with the TS.

During this reporting interval, the inspectors verified compliance with selected limiting conditions for operation. This verification was accomplished by direct observation of monitoring instrumentation, valve positions, switch positions, and review of completed logs and records. The inspectors verified the axial flux difference was within the values required by the TS.

Plant tours were routinely conducted to verify the operability of standby equipment, to assess the general condition of plant equipment, and to 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 environmental qualifications, 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 inspectors 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.

6. Physical Protection (71707)

In the course of the monthly activities, the inspectors included a review of the licensee's physical security program. The inspectors verified by general observation, perimeter walkdowns 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 area access controls; searching of personnel, packages and vehicles; badge issuance and retrieval; escorting of visitors; patrols; and compensatory measures. In addition, the inspectors routinely observed protected and vital area lighting and barrier integrity.

No violations or deviations were identified within the areas inspected.

7. Monthly Surveillance Observation (61726)

The inspectors observed certain surveillance related activities of safety related systems and components to ascertain that these activities were conducted in accordance with license requirements. The inspectors determined that the surveillance test procedures listed below conformed to TS requirements, that all precautions and LCOs were met, and that the surveillance test was completed at the required frequency. The inspectors also verified that the required administrative approvals and tagouts were obtained prior to initiating the test, that the testing was accomplished by qualified personnel in accordance with an approved test procedure, and that the required test instrumentation was properly calibrated. Upon completion of the testing, the inspectors observed that recorded test data was accurate, complete and met TS requirements, and test discrepancies were properly rectified. The inspectors independently verified that the systems were properly returned to service. Specifically, the inspectors witnessed/reviewed portions of the following test activities:

a. OST-010 (revision 7) Power Range Calorimetric During Power Operation

The stated purpose of this test is to ensure an accurate power range neutron indication by comparing the power range channel instrument readings to the calculated thermal power. The successful completion of this surveillance test satisfies TS 4.1.1 and Table 4.1-1, Item 1. The inspectors witnessed all aspects of this surveillance test and verified that the core thermal power did not exceed the TS authorized limit of 1380 MWt.

b. OST-353 (revision 6) Containment Spray System Component Test

The test is performed quarterly to verify operability of the containment spray system valves as required by ASME Section XI. The inspector verified that each valve stroked within the acceptance criteria provided in the procedure.

c. MST-003 (revision 11) T Avg and Delta T Protection Channel Testing

The bi-weekly conduct of this surveillance test verifies the operability of overtemperature and overpower protection channel sets I, II, and III and satisfies the requirements of TS. Specifically, the inspectors observed the redundant verification of selected test channel positions by the operations personnel stationed at the reactor turbine generator board and by the I & C technicians involved. The inspectors determined that the required annunciators for this test provided the proper status and alarm function and that the test voltages as measured in the protection channel cabinets were within the required tolerances.

d. MST-014 (revision 13) Steam Generator Pressure Protection Channel Testing

The inspectors witnessed major portions of this surveillance test which is conducted monthly to determine the operability of the steam generator pressure protection channel sets II, III, and IV. In particular the inspectors confirmed that the required annunciators gave the proper status, that the associated alarms responded as required, and that the specified test voltages were acceptable.

e. MST-015 (revision 7) Turbine First Stage Protection Channel Testing

As required by TS, this surveillance test is conducted monthly to determine the operability of the turbine first stage pressure protection channel sets III and IV. The inspectors determined that: all independent verifications were properly performed, the recorded test voltages were within the acceptable tolerance, and participating personnel observed all test prerequisites and limitations.

f. OST-401 (revision 17) Emergency Diesels

The inspectors witnessed the performance of the normal surveillance tests on both EDG A and B. The inspectors observed that both EDGs started, were paralleled to the grid, and operated satisfactorily throughout the 90 minute operating time. See WR/JO 88-AEHC1 in paragraph 8 below for additional information concerning EDG B.

No violations or deviations were identified within the areas inspected.

8. Monthly Maintenance Observation (62703)

The inspectors 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 inspectors determined that these activities were not violating LCOs and that redundant components were

operable. The inspectors also determined that the procedures used were adequate to control the activity, that QC hold points were established where required, that required administrative approvals and tagouts were obtained prior to work initiation, that proper radiological controls were adhered to, that appropriate ignition and fire prevention controls were implemented, and that replacement parts and materials used were properly certified. The inspectors confirmed that these activities were accomplished by qualified personnel using approved procedures and that the effected equipment was properly tested before being returned to service. In particular the inspectors observed/reviewed the following maintenance activities:

- a. WR/JO 87-ARKB1 - Adjust Spring Pack and Torque Switch Setting on V2-14 A, B, and C, and V2-16 A, B, and C.
- b. WR/JO 88-ADCN1 - Repair/Replace EDG B starting Air Low Pressure Alarm.
- c. WR/JO 88-AEHC1 - Investigate Response of EDG B to Manual Load Demands.

WR/JO 88-AEHC1 was issued on April 5, 1988, when a control operator unsuccessfully attempted to increase load on EDG B above 2200 Kw during post maintenance testing. The inspector observed trouble shooting activities which included checking of fuel racks for freedom of movement, verification of proper governor speed setting clutch drive torque and transient/step load response testing of the EDG governor. The licensee concluded that the governor response to manual load changes was slow (e.g. the time from a step load demand to the time the governor completes positioning the fuel racks is between 25 and 30 seconds). Discussions with technical representatives of Woodward Governor Co., the cognizant vendor, indicated that the operation of the EDG in this manner could be expected as a result of the governor compensation adjustments made in February, 1988, to reduce the amount of no load speed oscillations. For this governor design, increased stability during no load conditions is at the expense of a fast manual load response capability. The representative confirmed that a slow response time to manual load demand changes in no way effects the EDG's ability to automatically respond to load changes on the output bus. Through interview of the control operator and observation of over and under adjustments of load demand by other operators, including one on the previous morning, the inspector concluded that the operator, as well as others who have indicated the response is sluggish, are not accustomed to the way in which the EDG B governor responds. As a temporary measure, operating crews have been instructed to wait at least 15 seconds between demand changes to prevent excessive load swings. The licensee is presently evaluating the need to change procedures to provide a similar caution.

Though the event demonstrated a lack of knowledge of the expected response of EDG B during manual loading, the inspector noted that the operator's actions represented a highly professional mannerism, in that when faced

with an unexpected situation, instead of trying to force the expected response, he elected to rectify and consult with his supervisor concerning the potential problem.

No violations or deviations were identified within the areas inspected.

9. ESF System Walkdown (71710)

The inspectors verified the operability of an ESF system by performing a walkdown of the accessible portions of the containment spray system. The inspectors confirmed that both train A and B spray systems were aligned in accordance with attachment 9.1 of OP-202, Safety Injection and Containment Vessel Spray System, revision 14. The inspectors verified that valves were locked as required, pipe and conduit supports appeared to be installed correctly, the system pumps were lubricated, valves required for automatic operation were energized, local and remote indications agreed with actual valve stem positions, and actuation instrumentation was in service. Minor conduit support problems for SI-844A, Spray Pump A Suction Valve, were reported to the licensee for correction. The inspectors also verified that OP-202 attachment 9.1 correctly reflected the as built system configuration as shown on drawing 5379-1082 sheet 3, Safety Injection System Flow Diagram, revision 22.

No violations or deviations were identified within the areas inspected.

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

a. Inadvertent Shipment of Contaminated Liquid

On March 14, 1988, Quadrex Recycle Center of Oakridge, Tennessee notified the licensee that 9 gallons of liquid had been received in a shipment of contaminated solid material. The shipping papers did not indicate that liquid waste was being shipped. Approximately 7 gallons of the liquid was found in a decontamination tank with the remainder in a shielding device. The isotopic activity of the contaminated liquid was CO-57 1.49 E-03 microcuries/ml, CO-60 9.44 E-01 microcuries/ml and Mn-54 2.22 E-02 microcuries/ml. The liquid was processed by Quadrex and sent to Barnwell, S. C. for burial. The shield and tank were decontaminated and returned to the site. The licensee suspended radioactive shipments from the site unless special authorization was granted by the Manager of E & RC until an investigation into the cause of the event was completed. The investigation, as documented in Plant Operating Experience Report 88-10, was issued on April 7, 1988. Authorization to resume normal shipments was reinstated by the Manager of E & RC on this date. The circumstances surrounding this event and adequacy of corrective actions to prevent recurrence will be inspected by cognizant inspectors from the Region II office during a future routine inspection. This item is considered as an IFI: Review Inadvertent Shipment of Contaminated Liquid to Quadrex (261/88-06-01).

b. Lee County Emergency Sirens

On March 28, 1988, at 8:40 a.m., licensee personnel discovered via meter counters that all four Lee County emergency sirens had not been tested at the required frequency. The Lee county police dispatcher was contacted. The police department radio, used for initiating the weekly silent test, had been out of service since March 26, 1988. Since the county has no backup radio, this rendered all four of the Lee county sirens within the 10 mile EPZ inoperable. The radio was restored to service on March 29, 1988. The county has backup contingency plans to notify the approximately 1,200 people in the effected area via use of police department personnel if it had become necessary. The licensee notified the State of South Carolina of the loss of the sirens. Pursuant to 10 CFR 50.72 (b)(2)(vi) a four hour notification was made to the NRC because notification was made to other government agencies.

Because the Lee County sirens represent only 4 out of 45 sirens and the number of people represent less than 5% of the 10 mile EPZ population, the licensee determined that this event did not meet the reporting requirements of 10 CFR 50.72 (b)(1)(V). The reporting requirement states that the NRC be notified within one hour of any event that results in a major loss of offsite response capability or communications capability. The inspectors informed the licensee that this may indeed be reportable. The licensee disagreed with the inspectors position. However, while reviewing their position, the licensee determined that unlike the other two CP&L nuclear sites which have written guidance on what constitutes a major loss, HBR procedures contain no written guidance. The need for such guidance is currently being evaluated.

This is considered to be an UNR item pending review and resolution by the Region II Emergency Preparedness staff: Reporting Requirements Associated With Loss of Emergency Siren Capability (261/88-06-02).

No violations or deviations were found within the areas inspected.

11. Onsite Review Committee (40700)

The inspectors evaluated certain activities of the plant nuclear safety committee to determine whether the onsite review functions were conducted in accordance with TS and other regulatory requirements. In particular, the inspectors attended the special PNSC meeting held on March 15, 1988, concerning revisions to procedures associated with accumulator charging. It was ascertained that provisions of the TS dealing with membership, review process, frequency, qualifications, etc., were satisfied, and that the previous meeting minutes were reviewed to confirm that decisions and recommendations were accurately reflected in the minutes. The inspectors also followed up on selected previously identified PNSC activities to independently confirm that corrective actions were progressing satisfactorily.

No violations or deviations were identified within the areas inspected.

12. Backup Inspector Inspection

The resident inspector from V. C. Summer, one of the designated backup inspectors for HBR, assisted the resident inspectors in their routine duties during the period March 21 - March 25, 1988. In addition, the HBR site backup inspector participated in site training to maintain a current access badge, toured the TSC and EOF, refamiliarized himself with plant emergency procedures and met with key members of the plant staff.

13. List of Abbreviations

ASME	American Society of Mechanical Engineers
AVG	Average
CFR	Code of Federal Regulations
CP&L	Carolina Power and Light
E & RC	Environment and Radiation Control
EDG	Emergency Diesel Generator
EOF	Emergency Operations Facility
EPZ	Emergency Protection Zone
ESF	Engineered Safety Feature(s)
F	Fahrenheit
FSAR	Final Safety Analysis Report
HBR	H. B. Robinson
I & C	Instrumentation & Control
IFI	Inspector Followup Item(s)
Kw	Kilowatt
LCO	Limiting Conditions for Operations
LER	Licensee Event Report
MST	Maintenance Surveillance Test
MWt	Megawatt Thermal
NRC	Nuclear Regulatory Commission
OST	Operations Surveillance Test
OT Delta T	Overtemperature Delta Temperature
PNSC	Plant Nuclear System
QC	Quality Control
SPDS	Safety Parameter Display Systems
T	Temperature
TS	Technical Specification
TSC	Technical Support Center
UNR	Unresolved Item
W/R	Work Request
WR/JO	Work Request/Job Order