



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

Report No.: 50-261/89-32

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: December 16, 1989 - January 10, 1990

Inspectors:	<i>L. W. Garner</i>	<i>2/8/90</i>
	L. W. Garner, Senior Resident Inspector	Date Signed
	<i>K. R. Jury</i>	<i>2/8/90</i>
	K. R. Jury, Resident Inspector	Date Signed
Approved by:	<i>H. C. Dance</i>	<i>2/8/90</i>
	H. C. Dance, Section Chief Division of Reactor Projects	Date Signed

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of operational safety verification, surveillance observation, maintenance observation, ESF system walkdown, onsite followup of events at operating power reactors, and fitness for duty training, and followup.

Results:

The AFW forced outage ended after 123 days. The AFW system was successfully tested and returned to service.

The SI sequencer demonstrated repeatability of plus or minus 0.1 second after AGASTAT relay replacement.

Overheating of an electrical breaker due to a poor breaker stab to receptacle bus connection resulted in RPI loss and a turbine runback.

Fitness for duty training met 10 CFR Part 26 objectives.

## REPORT DETAILS

### 1. Persons Contacted

R. Barnett, Shift Outage Manager, Outage Management  
C. Baucom, Senior Specialist, Regulatory Compliance  
C. Bethea, Manager Training  
D. Crook, Senior Specialist, Regulatory Compliance  
J. Curley, Manager, Environmental and Radiation Control  
C. Dietz, Manager, Robinson Nuclear Project  
R. Femal, Shift Foreman, Operations  
W. Flanagan, Outage Manager, Outage Management  
S. Griggs, Technical Aide, Regulatory Compliance  
E. Harris, Director, Onsite Nuclear Safety  
R. Johnson, Manager, Control and Administration  
\*J. Kloosterman, Director, Regulatory Compliance  
D. Knight, Shift Foreman, Operations  
E. Lee, Shift Outage Manager, Outage Management  
A. McCauley, Principal Engineer, Onsite Nuclear Safety  
R. Moore, Shift Foreman, Operations  
\*R. Morgan, Plant General Manager  
D. Myers, Shift Foreman, Operations  
M. Page, Manager, Technical Support  
D. Seagle, Shift Foreman, Operations  
J. Sheppard, Manager, Operations  
R. Smith, Manager, Maintenance  
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.

\*Attended exit interview on January 22, 1990.

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

### 2. Operational Safety Verification (71707)

The inspectors evaluated licensee activities to confirm that the facility was being operated safely and in conformance with regulatory requirements. These activities were confirmed by direct observation, facility tours, interviews and discussions with licensee personnel and management, verification of safety system status, and review of facility records.

To verify equipment operability and compliance with TS, the inspectors reviewed shift logs, operations' records, data sheets, instrument traces, and records of equipment malfunctions. Through work observations and

discussions with Operations Staff members, the inspectors verified the staff was knowledgeable of plant conditions, responded properly to alarms, adhered to procedures and applicable administrative controls, cognizant of in-process surveillance and maintenance activities, and aware of inoperable equipment status. The inspectors performed channel verifications and reviewed component status and safety-related parameters to verify conformance with TS. Shift changes were observed, verifying that system status continuity was maintained and that proper control room staffing existed. Access to the control room was controlled and operations personnel carried out their assigned duties in an effective manner.

Plant tours and perimeter walkdowns were conducted to verify equipment operability, assess the general condition of plant equipment, and to verify that radiological controls, fire protection controls, physical protection controls, and equipment tagging procedures were properly implemented.

The AFW forced outage which began August 22, 1989, ended on December 23, 1989, when the unit was synchronized to the grid. On the previous day, with the reactor critical, the SDAFW valve, FCV-6416, was adjusted by placement of a mechanical stop per modification M-1025. This modification was made to prevent the potential overfeeding of the S/G's during a steam-line break accident. On December 27, 1989, modification M-1018's acceptance test, ST-2, was performed to demonstrate that sufficient NPSH will be provided to all AFW pumps when run simultaneously. Review of M-1025 and M-1018 test data is an IFI: Review M-1025 and M-1018 Acceptance Tests, 89-32-01.

The AFW forced outage was 123 days in length. Major critical path activities included the AFW system work, EDG exhaust lines upgrade to seismic class 1, repair of the MDAFW pumps, flushing and cleaning melted coal tar lining from the SW piping, replacement of Patel conduit seals due to improper use range, and resolution of emergency power design deficiencies by AGASTAT relays' replacement in the SI sequencer.

No violations or deviations were identified.

### 3. Monthly Surveillance Observation (61726)

The inspectors observed certain safety-related surveillance activities on systems and components to ascertain that these activities were conducted in accordance with license requirements. For the surveillance test procedures listed below, the inspectors determined that precautions and LCOs were adhered to, the required administrative approvals and tagouts were obtained prior to test initiation, testing was accomplished by qualified personnel in accordance with an approved test procedure, the tests were completed at the required frequency, and the tests conformed to

TS requirements. Upon test completion, the inspectors verified the recorded test data was complete, accurate, and met TS requirements, test discrepancies were properly documented and rectified, and that the systems were properly returned to service. Specifically, the inspectors witnessed/reviewed portions of the following test activities:

- \*OST-051 (revision 11)            Reactor Coolant System Leakage Evaluation
- \*OST-163 (revision 14)        Safety Injection Test

After the AGASTAT relay replacement and successful performance of OST-163, the SI sequencer was declared operable. The inspectors observed several performances of OST-163. Several performances were required due to software/hardware problems with the ERFIS computer. These problems resulted in a loss of data or incorrect data acquisition. Review of the OST-163 data sets revealed a high degree of SI sequencer logic response time repeatability. The times from SI signal initiation to ESF pump motor breaker actuations were within plus or minus 0.1 second.

No violations or deviations were identified.

#### 4. Monthly Maintenance Observation (62703)

The inspectors observed safety-related maintenance activities on systems and components to ascertain that these activities were conducted in accordance with TS, and approved procedures. The inspectors determined that these activities did not violate LCOs and that required redundant components were operable. The inspectors verified that required administrative and material controls were adhered to. In particular, the inspectors observed/reviewed the following maintenance activity:

- \*WR/JO 90-AA111                Repair RPI Supply Breaker

No violations or deviations were identified.

#### 5. ESF System Walkdown (71710)

The inspectors performed a SDAFW subsystem inspection of the AFW system. Previous inspection of the MDAFW subsystem was documented in IR 89-25. On December 22, 1989, the inspectors witnessed the initial starting of the SDAFW pump following the overhaul conducted during the AFW forced outage. Vibration readings indicated improved performance from those taken prior to the overhaul. The inspectors visually examined piping, instrumentation, valves, and supports associated with the system. No conditions which could render the subsystem inoperable were observed. The inspectors verified that surveillance tests were satisfactorily completed after required corrective actions were taken.

No violations or deviations were identified.

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

On January 10, 1990, at 9:08 a.m., the unit experienced a loss of power to the RPI indicators and rod bottom bistables, resulting in a turbine runback. The steam dump system actuated and cycled open several times until the operators stabilized the plant at approximately 45% of full power. Because the conditions of TS 3.5.1.3 and associated item 15.a of Table 3.5-2 could not be met, TS 3.0 was entered. This specification requires the unit to be in hot shutdown within 8 hours. Repair efforts identified that the 70 amp supply breaker to the RPI system was tripped. The inspectors observed the removal of the breaker; there were obvious signs of overheating, e.g. breaker casing was discolored and cracked. Apparently, the breaker stabs had become loose from the bus bar in the breaker receptacle. Both the breaker and receptacle were replaced. The rods were exercised to verify correct RPI response and the system was returned to service at 2:40 p.m. The inspectors plan to review the licensee's investigation of this event and proposed corrective actions, if any, when available.

No violations or deviations were identified.

7. Fitness For Duty Training (2515/104)

On November 30, 1989, and January 2, 1990, the inspectors attended and evaluated the licensee's FFD training for general employees and supervisors, respectively. This training was conducted in accordance with 10 CFR, Part 26, which became effective on January 3, 1990. All personnel with unescorted access to the protected area were required to attend the general employee FFD training, with all supervisory personnel (including craftsmen) receiving the additional supervisory training. The licensee's FFD training program adequately covered all major elements of their program and the objectives of the FFD rule. Questioning during the training was encouraged and often times resulted in minor modifications to the FFD program. Escort responsibilities were delineated in the general employee FFD training and will be re-emphasized during yearly GETR. Refinements/changes to the FFD program will also be addressed in this training.

No violations or deviations were identified.

8. Follow-up (92701)

(Closed) URI 89-23-08, EDG Exhaust Lines Not Seismically Qualified. As detailed in IR 89-23, as part of the comprehensive review of potential items that could have affected unit re-start from the AFW outage, the licensee re-reviewed their engineering packages relating to seismic issues addressed in IEBs 79-02 and 79-14. As a result of this review, a situation was identified where the EDG exhaust lines could potentially fail during a DBE. This issue was originally addressed in 1983 and was

apparently satisfactorily resolved in 1985. Due to the extensive corrective actions initiated by the licensee as a result of the AFW system NPSH issue, the licensee identified that this item's closure in 1985 was based upon erroneous methodologies. The licensee promptly reported this concern and performed expedient and prudent corrective actions in upgrading the exhaust lines. The efforts expended by the licensee in identifying, reporting, and correcting this deficiency are especially noteworthy. The hardware corrective actions performed ensure that each EDG's respective exhaust line meets seismic Class I criteria. As a result of the above and consistent with the NRC enforcement policy, no enforcement action is being taken on this item.

#### 9. Exit Interview (30703)

The inspection scope and findings were summarized on January 22, 1990, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection findings listed below and in the summary. Dissenting comments were not received from the licensee. Proprietary information is not contained in this report.

<u>Item Number</u>	<u>Description/Reference Paragraph</u>
89-32-01	IFI- Review Modification M-1025 and Modification M-1018 Acceptance Test

#### 10. List of Acronyms and Initialisms

AFW	Auxiliary Feedwater
CFR	Code of Federal Regulation
DBE	Design Basis Earthquake
EDG	Emergency Diesel Generator
ERFIS	Emergency Response Facility Information System
ESF	Engineered Safety Feature
FCV	Flow Control Valve
FFD	Fitness For Duty
GETR	General Employee Training Requalification
IEB	Inspection Enforcement Bulletin
IFI	Inspector Followup Item
IR	Inspection Report
LCO	Limiting Condition for Operation
MDAFW	Motor Driven Auxiliary Feed Water
NPSH	Net Positive Suction Head
NRC	Nuclear Regulatory Commission
OST	Operations Surveillance Test
RPI	Rod Position Indication
SDAFW	System Driven Auxiliary Feedwater
S/G	Steam Generator
SI	Safety Injection
SW	Service Water
TS	Technical Specification
URI	Unresolved item
WR/JO	Work Request/Job Order