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

Report No.: 50-261/91-91

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: June 8 - July 12, 1991

Lead Inspector: R E Carroll for 7/23/91
L. W. Garner, Senior Resident Inspector Date Signed

Other Inspectors: R. E. Carroll, Project Engineer
K. R. Jury, Resident Inspector

Approved by: H. O. Christensen 7/24/91
H. O. Christensen, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of operational safety verification, surveillance observation, maintenance observation, and followup.

Results:

A non-cited violation was identified for failure to maintain records as required by procedures (paragraph 2).

REPORT DETAILS

1. Persons Contacted

*R. Barnett, Manager, Outages and Modifications
C. Baucom, Senior Specialist, Regulatory Compliance
D. Bauer, Regulatory Compliance Coordinator, Regulatory Compliance
S. Billings, Technical Aide, Regulatory Compliance
R. Chambers, Manager, Operations
D. Crook, Senior Specialist, Regulatory Compliance
*C. Dietz, Manager, Robinson Nuclear Project
*W. Doorman, Acting Manager, Nuclear Assessment Department Site Unit
J. Eaddy, Manager, Environmental and Radiation Support
S. Farmer, Manager - Engineering Programs, Technical Support
R. Femal, Shift Supervisor, Operations
*W. Gainey, Manager, Plant Support
B. Harward, Manager - Mechanical Systems, Technical Support
**J. Kloosterman, Manager, Regulatory Compliance
D. Knight, Shift Supervisor, Operations
*D. Labelle, Project Engineer, Nuclear Assessment Department Site Unit
*A. McCauley, Manager - Electrical Systems, Technical Support
R. Moore, Shift Supervisor, Operations
*C. Oliver, Senior Specialist - Nuclear Design, Nuclear Engineering Department Site Unit
M. Page, Manager, Technical Support
*R. Parsons, Manager, Robinson Engineering Support
D. Seagle, Shift Supervisor, Operations
M. Scott, Manager - Support Systems, Technical Support
*J. Sheppard, Plant General Manager, H. B. Robinson Steam Electric Plant
*R. Smith, Manager, Maintenance
W. Stover, Shift Supervisor, Operations
D. Winters, Shift Supervisor, Operations
*H. Young, Manager, Quality Control

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

*Attended exit interview on July 16, 1991
**Attended exit interview on July 22, 1991

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

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, Operation's 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-progress 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. Control room demeanor and communications were appropriate.

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.

On June 19, 1991, the inspectors observed that there was no official record copy of oversized emergency procedure PATH-1 revision 6. Control of oversized procedures was not well defined. A record quality copy of this procedure revision is being made from existing information only copies. The licensee agreed to verify that there are official records of other oversized procedures. In addition, a review of record control practices in this area is being performed. Section 5.2 of RMP-005, Control And Distribution Of Plant Operating Manual, Revision 4, requires that the record management vault maintain for each plant operating manual procedure a permanent history file which will contain a copy of the approved revision. Failure to maintain a record quality copy of PATH-1 Revision 6 is a failure to implement RMP-005. Based upon the corrective actions taken and planned, the violation meets the criteria specified in section V.A of the NRC Enforcement Policy for not issuing a Notice of Violation and is not cited. The violation is identified as a NCV: Failure To Maintain Record Copy Of PATH-1 Procedure As Required By RMP-005; 91-15-01.

On June 27,1991, the inspectors observed that the RTGB PZR vapor space temperature indicator, TI-454, had failed downscale. This was brought to the attention of the control board operator. A work request was initiated to correct the condition.

On June 27, 1991, OP delta T, OT delta T, Tavg deviation, and turbine runback alarms were received. No turbine runback or equipment actuation occurred. Subsequent review of ERFIS data revealed that some of the RCS loop 3 temperature system bistables associated with the RPS and the control system had momentarily actuated, i. e., approximately 300 milliseconds. Troubleshooting activities determined the most probable

cause of the event was a momentary failure of the TM-432K summator module. The module was replaced with a rebuilt unit from stores (new units are no longer available). The circuit was successfully tested and returned to service with no subsequent recurrences.

One NCV was 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, test instrumentation was properly calibrated, the tests were completed at the required frequency, and that 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:

EST-002	NI System Power Range Axial Offset Calibration - Monthly
EST-101	RTD Bias Data Collection Procedure
MST-003	TAVG And Delta-T Protection Channel Testing
SP-1023	IVSW Leak Test OF Penetration 6

Special procedure SP-1023 was performed on July 11, 1991, to return valve WD-1722, the RCDT pump discharge outboard containment isolation valve, to service. At the end of the report period, the inspectors were reviewing with the licensee's staff the adequacy of the test. Both the inboard and outboard containment isolation valves from the RCDT are normally closed valves. Resolution of the inspectors' questions will be documented in a subsequent inspection report.

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, approved procedures, and appropriate industry codes and standards. The inspectors determined that these activities did not

violate LCOs and that required redundant components were operable. The inspectors verified that required administrative, material, testing, radiological, and fire prevention controls were adhered to. In particular, the inspectors observed/reviewed the following maintenance activities:

WR/JO 91-AHASI	A EDG Fuel Filter Changeout
WR/JO 91-AHAT1	A EDG Exhaust Leak Repair
WR/JO 91-ARR261	A EDG Quarterly PM
WR/JO 91-AIPRI	TM-432K Changeout Per PIC-602
WR/JO 91-AISX1	A SWBP Breaker Troubleshooting/Repair
PIC-602	Hagan Signal Summator Calibration

SWBP Breaker Troubleshooting

On July 1, 1991, during normal swap-over of the SWBPs, indication was lost on the RTGB for the A pump subsequent to it being shutdown. Upon investigation, it was determined that the thermal overload had tripped, thus opening the breaker and preventing pump operation. This thermal overload also tripped during performance of OST-163, Safety Injection Test And Emergency Diesel Generator Auto Start On Loss Of Power And Safety Injection And Emergency Diesel Trips Defeat, during RO 13. At that time, no root cause could be determined. While troubleshooting the problem on July 1, it was determined that the motor thermal overload would not reset until tapped with a screwdriver, i. e., the thermal overload block was faulty. The thermal overload block was subsequently replaced. The pump was started, run for approximately one hour, stopped, and restarted satisfactorily. Thermal overload tripping did not recur and current readings were satisfactory. The pump was returned to service.

Root cause of the problem was apparently a defective thermal overload block which spuriously tripped due to normal MCC vibration when the pump motor breaker opened, not due to an overload condition. ACR 91-230 was generated to document this condition and to address the root cause. Bench testing of the faulty thermal overload block failed to determine the cause of the failure. The failure was considered as a isolated event.

No violations or deviations were identified.

5. Followup (92700, 92701, 92702)

(Open) LER 90-01, Loss Of All Control Rod Position Indication. On January 10, 1990, the unit experienced a loss of power to the RPIS indicators and rod bottom bistables, resulting in a turbine runback from 100 percent to 45 percent power. Because 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. As previously discussed in IR 89-32, the failed circuit breaker and associated buss receptacle were subsequently replaced, and TS 3.0 was exited. The most probable cause of failure for the circuit breaker was determined to be poor electrical contact between an input #12 AWG wire and the failed wire fastening clip due to the presence of a metal sliver on

its threaded fastener of the wire fastening clip. This sliver of metal prevented adequate mechanical engagement (i.e., poor electrical contact) between the wire and connector, resulting in arcing and long term thermal degradation of the circuit breaker. The licensee has indicated an intention to use thermography to provide early detection of such long term degradation in the future. Related concerns over turbine runback time and ERFIS were satisfactorily resolved. However, concerns regarding the validity of using a 70 amp size breaker in a #12 AWG wired circuit (25 amps continuous current capacity), as well as using such a breaker device in what appears to be an essentially inductive load circuit, have not yet been addressed/resolved.

(Open) URI 90-02-01, Determination Of IST Program Capabilities. This item remains open based upon CCW pump flow testing anomalies identified from August 2, 1990 - July 2, 1991. These anomalies consisted of varying pump flows from test to test with no apparent change in the pumps' hydraulic characteristics. The licensee has attempted to improve test repeatability through procedural and flow measurement enhancements; however, these enhancements have not proven effective in improving test results repeatability. As a result, the licensee has scheduled a CCW component/system review as part of their Performance Monitoring Program efforts. This CCW system review is to be performed in late 1991 with any necessary corrective action/testing changes to be initiated subsequently.

Although the current testing methodology is in conformance to ASME Section XI requirements, the test results do not provide a true indication of pump performance from test to test, i. e., results cannot be effectively trended. As a result, the licensee has been required to routinely increase testing frequency and continually recalibrate gauges (which are within their respective calibration intervals) to receive acceptable test results. This item remains open pending review of the CCW component/system review results.

(Closed) LER 90-07, Reactor Trip Due To Failure Of Feedwater Regulating Valve. The related automatic reactor trip (steam flow-feedwater flow mismatch coincident with a low level in B S/G) was due to valve plug and stem separation in the B MFRV. Shearing of the valve's spring pin, which goes through the valve stem and both sides of the plug boss, allowed the valve plug to rotate and unthread from the stem. As determined, contributing factors to this failure were a lack of full spring pin engagement and an absence of a stem-to-valve plug torque value in corrective maintenance procedure CM-107, Main Feedwater Regulating Valve Maintenance. Accordingly, the licensee verified proper stem-to-valve plug torque and installed a longer spring pin on all three MFRVs. Having verified that CM-107 was revised to reflect a stem-to-valve plug torque value of 105 ft.-lbs. (100-115 ft.-lbs.), the inspector had no further concerns.

(Closed) LER 90-09, Service Water Booster Pumps Control Cable Separation. During design basis document validation, control power cables for bypassing the SWBPs' low pressure starting interlocks (during SI) were determined to be routed with the redundant SWBP's control power cables. As

discussed in IR 90-14, this condition was addressed in EE 90-053 as having minor safety significance. The inspector verified that the licensee corrected this condition during refueling outage 13 under plant modification PM-1014. Related concerns over the adequacy of the licensee's operability determination procedure will be addressed under existing IFI 90-14-01.

(Closed) URI 89-12-03, Review Root Cause Analysis Performed On Fuel Handling Tool. This item addresses the April 26 and June 23, 1989 instances of the fuel handling tool becoming unlatched from fuel assemblies. Upon inspection and evaluation by CP&L and Westinghouse, it was determined that there were no apparent mechanical problems with either fuel handling tool which would have led to the dropped assemblies. It was determined that the tool had not been properly engaged into the fuel element nozzle blocks. Corrective actions included caution statement incorporation into various FHPs and ISFS-002, Loading of Fuel Into The Dry Shielded Canister, as well as performance of SP-899, Fuel Assembly Orientation, Rotation, And Fuel Assembly Movement Into The Spent Fuel Pit, to give operators hands on training. Additionally, a requirement was implemented that two licensed operators be in the Spent Fuel Pit building while moving fuel for the DSC. The fuel handling tool was also tested ten times prior to being placed back in service. These corrective actions were verified by QA surveillance personnel. This item is closed.

(Closed) IFI 89-23-03, Verify MDAFW Pump Motor Starting Voltages. The MDAFW pumps' starting voltages were measured during the performance of Start-Up Test Procedure ST-2 of Modification M-1018. Per attachments to EEs 89-090 and 89-092, the minimum allowable continuous voltage is 90% of rated, and the minimum allowable starting voltage is 80% of rated. According to these EEs, normal motor starting time is 3.4 seconds. Westinghouse memorandum RSPO-90-026, dated April 17, 1990, states that if the swagged motors' starting times are less than 4 seconds and the starting voltage is greater than 90% of rated, the motors should be acceptable for a minimum of 21,000 cycles. As the licensee has calculations which demonstrate that starting voltages will not drop below 90% of rated for the AFW motor under worse case conditions, and has demonstrated acceptable starting voltages under normal conditions, reduced motor starting voltages should not be of concern for potentially damaging motor rotor bars during the expected life of the AFW pump motors. Additionally, motor rotor bar condition analyses performed to date have been acceptable. Based upon the calculations, analysis, and testing performed, this item is closed.

(Closed) VIO 90-22-02, Failure To Adequately Implement Procedures. The associated examples involved two occurrences of valve mispositionings: the first resulted in draining 8000 gallons of spent fuel pool water and the second isolated both primary and backup pneumatic supplies to the reactor cavity pneumaseal. In the first example, lower cavity drain valve WD-1757C (a reverse acting ball valve operated by means of a reach rod) was mistakenly operated clockwise instead of counter-clockwise to close.

Recognized as a "human performance" problem, related refueling and waste disposal procedures were revised to conspicuously identify valve WD-1757C as reverse acting; permanent labels were installed on the valve position indication plate to identify the open and closed valve stops; and training program revisions were made to reflect such. Unlike the first example, the cause of the second could not be determined. In addition to the isolated pneumaseal, IR 90-22 also addressed the lack of acceptance criteria and verification sign-offs as a weakness of MRP-001, Pneumaseal Installation And Removal. Accordingly, the licensee revised MRP-001 to require the placement of caution tags on the supply line valves as part of the pneumaseal installation, as well as providing acceptance criteria and sign-off steps. The inspector confirmed/reviewed the action taken in both examples and found them to be appropriate. This item is closed.

No violations or deviations were identified.

6. Exit Interview (30703)

The inspection scope and findings were summarized on July 16 and 22, 1991, 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. Although proprietary material was reviewed during the inspection, proprietary information is not contained in this report.

Item Number	Description/Reference Paragraph
91-15-01	NCV - Failure To Maintain Record Copy Of PATH-1 Revision 6 As Required By Procedure RMP-005 (paragraph 2)

7. List of Acronyms and Initialisms

ACR	Adverse Condition Report
AFW	Auxiliary Feedwater
Amp	Ampere
ASME	American Society of Mechanical Engineers
AWG	American Wire Gage
CCW	Component Cooling Water
CM	Corrective Maintenance
CP&L	Carolina Power & Light
DSC	Dry Shielded Canister
EE	Engineering Evaluation
EDG	Emergency Diesel Generator
ERFIS	Emergency Response Facility Information System
EST	Engineering Surveillance Test
FHP	Fuel Handling Procedure
IFI	Inspector Followup Item
IR	Inspection Report
ISFS	Independent Spent Fuel Storage

IST	Inservice Test
IVSW	Isolation Valve Seal Water
LCO	Limiting Condition for Operation
LER	Licensee Event Report
M	Modification
MCC	Motor Control Center
MDAFW	Motor Driven Auxiliary Feed Water
MFRV	Main Feedwater Regulating Valve
MRP	Maintenance Refueling Procedure
MST	Maintenance Surveillance Test
NCV	Non-Cited Violation
NI	Nuclear Instrumentation
NRC	Nuclear Regulatory Commission
OP Delta T	Overpower delta temperature
OST	Operations Surveillance Test
OT Delta T	Overtemperature Delta Temperature
PIC	Process Instrument Calibration
PM	Preventive Maintenance
PZR	Pressurizer
QA	Quality Assurance
RCDT	Reactor Coolant Drain Tank
RMP	Records Management Procedure
RO	Refueling Outage
RPIS	Rod Position Indicating System
RPS	Reactor Protection System
RTD	Resistance Temperature Detector
RTGB	Reactor Turbine Generator Board
S/G	Steam Generator
SI	Safety Injection
SP	Special Procedure
SWBP	Service Water Booster Pump
TAVG	Temperature Average
TI	Temperature Indicator
TM	Temperature Module
TS	Technical Specification
URI	Unresolved Item
VIO	Violation
WD	Waste Disposal
WR/JO	Work Request/Job Order