



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

Report No.: 50-261/91-24

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 12 - November 8, 1991

Lead Inspector: *R. E. Carroll for* 11/20/91  
L. W. Garner, Senior Resident Inspector Date Signed

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

Approved by: *H. O. Christensen* 11/20/91  
*for* 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:

There were no violations or deviations identified.

## REPORT DETAILS

### 1. Persons Contacted

- \*C. Baucom, Senior Specialist, Regulatory Compliance
- \*R. Beverage, Manager, Quality Control
- \*R. Chambers, Plant General Manager
- \*C. Dietz, Vice President, Robinson Nuclear Project
  - D. Dixon, Manager, Control and Administration
- \*A. Dobbs, Manager, Nuclear Assessment Department Site Unit
- \*W. Gainey, Manager, Plant Support
- \*P. Jenny, Project Specialist, Regulatory Compliance
- \*J. Kloosterman, Manager, Regulatory Compliance
  - A. McCauley, Manager - Electrical Systems, Technical Support
  - A. Padgett, Manager, Environmental and Radiation Control
  - M. Page, Manager, Technical Support
  - R. Smith, Manager, Maintenance
- \*D. Stadler, Onsite Licensing Engineer, Nuclear Licensing

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

\*Attended exit interview on November 12, 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.

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 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 for the completed tests reviewed that the 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-010	Power Range Calorimetric During Power Operation
OST-051	Reactor Coolant System Leakage Evaluation
OST-902	Containment Fan Coolers Component Test

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, testing, radiological, and fire prevention controls were adhered to. In particular, the inspectors observed/reviewed the following maintenance activities:

WR/JO 91-APKA1	Incore Nuclear Instrumentation System Troubleshooting
WR/JO 91-APNC1	Repair RCDT Pump Discharge Isolation Valve WD-1722

No violations or deviations were identified.

## 5. Followup (92700, 92701, 92702)

(Closed) VIO 89-10-01, Failure to Promptly Identify and Correct Conditions Adverse to Quality. This violation concerned three examples where deficient conditions associated with the CCW system were not identified or corrected in a prompt manner. The first example involved a one month period where leakage from the B CCW heat exchanger went unidentified/uncorrected in spite of 13 PW make-ups to the CCW system (i.e., approximately 100 gallons every two and one half days). This situation resulted in CCW chemistry being out of specification (i.e., reduced chromate levels) since Operations did not notify chemistry when a PW addition was made. Addressed in the second example were instances of overfilling the CCW system surge tank due to make-up valve CC-832 failing to go fully closed with the PW make-up pump running. Although identified, and an EWR written concerning the lack of a torque switch setting, this condition went uncorrected for over a year awaiting an engineering evaluation. Identified in the third example was a situation where corrective action did not preclude the recurrence of TCV-144, the non-regenerative heat exchanger CCW outlet valve, from failing to stroke within its required time on three occasions within an eight month period.

In all three examples, the hardware problems were corrected, and related corrective action deficiencies were appropriately addressed. However, since that time, CP&L developed/implemented a new company-wide Corrective Action Program that utilizes only one problem identification form (ACR) and provides for trending, as well as a lower threshold for problem identification. As addressed in IR 91-12, the licensee also implemented a company-wide Nuclear Prioritization Program in June 1990, with plans for full computer-based implementation by December 1991. In addition, resident inspector observations of operator logging activities (i.e., entry of required logable events, awareness of previous log-entries, and notification of chemistry following any CCW system make-ups) have identified improvements. Accordingly, based on the above, this item is considered closed.

(Closed) VIO 89-12-02, Inadequate Design Controls Result in Non-Conservative RPS Setpoints. This violation concerned two separate issues where breakdowns in engineering review/coordination functions resulted in non-conservatism in OT Delta T and OP Delta T setpoints. The first issue (identified in December 1987) concerned the failure of the licensee's fuel vendor after 1974 (previously Exxon, ANF, and now Siemens) to use the proper time response and delay values in the safety analysis computer programs that were used to verify design adequacy. The fuel vendor used a 2.3 second time response/delay versus the conservative 6 second value previously utilized by Westinghouse (the fuel vendor prior to 1975). Upon discovery, the PNCS conservatively directed that the OT Delta T K1 bias constant be changed to 1.09 and tasked the fuel vendor to assess the impact of the longer delay time. In February 1988, NRC was informed that re-analysis (utilizing the actual value of 4.75 seconds) showed the previous OT Delta T trip set point to be acceptable. However, in May 1988, it was identified that: (1) the fuel vendor had utilized 2.3

seconds (versus 4.75 seconds) in one of the computer codes during the re-analysis and (2) the previous OT Delta T trip setpoint was non-conservative. In addition to maintaining the conservative K1 bias constant during the remainder of cycle 12, corrective actions taken included such things as providing additional testing guidelines for vendor computer codes and calculational notebooks; strengthening of vendor procedures related to the training of personnel and contractors, and the identification/correction of errors; revising the fuel vendor's quality assurance program; and developing and maintaining a current plant parameters document which is required to be reviewed each cycle.

The second issue (identified in April 1989) concerned the fact that the full power Delta T value used in the RPS circuitry was different than the value assumed in certain accident conditions. Specifically, the actual Delta T values for all three loops were not rescaled to 55 degrees F from 57.5 degrees F as recommended by NFS in support of the RTD bypass manifold removal modification. This inconsistency introduced non-conservatism in both the OT Delta T and OP Delta T trip setpoints. The apparent cause of the error was poor communications between the three groups involved (i.e., NFS, NED, and Technical Support). Accordingly, aside from properly rescaling the Delta T values for all three loops, a formal communications process was developed/implemented to assure the proper transmittal (to and from NFS) of any document which provides operating recommendations, precautions, or changes to current plant configurations or procedures.

On August 16, 1991, the unit was shut down due to the discovery of excessive OT Delta T time delays which were the result of circuitry lag filters that Westinghouse had intended for the licensee to remove in support of the RTD bypass manifold removal modification. This additional example of an engineering design control/interface problem (as well as other examples) are the subject of violation 91-20-06, and will be programatically addressed as such. Accordingly, violation 89-12-02 is considered closed.

No violations or deviations were identified.

#### 6. Exit Interview (30703)

The inspection scope and findings were summarized on November 12, 1991, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection findings in the summary. Dissenting comments were not received from the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

#### 7. List of Acronyms and Initialisms

ACR	Adverse Condition Report
ANF	Advanced Nuclear Fuels
CC	Component Cooling
CCW	Component Cooling Water

CP&L	Carolina Power & Light
EWR	Engineering Work Request
F	Fahrenheit
i. e.	That is
IR	Inspection Report
LCO	Limiting Condition for Operation
NED	Nuclear Engineering Department
NFS	Nuclear Fuels Section
NRC	Nuclear Regulatory Commission
OP Delta T	Overpower Delta Temperature
OST	Operations Surveillance Test
OT Delta T	Overtemperature Delta Temperature
PNSC	Plant Nuclear Safety Committee
PW	Primary Water
RCDT	Reactor Coolant Drain Tank
RPS	Reactor Protection System
RTD	Resistance Temperature Detector
TCV	Temperature Control Valve
TS	Technical Specification
VIO	Violation
WD	Waste Disposal
WR/JO	Work Request/Job Order