



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report No.: 50-261/94-12

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 Unit 2

Inspection Conducted: March 27 - April 23, 1994

Lead Inspector: FOR R. W. Wright 5/20/94
W. T. Orders, Senior Resident Inspector Date Signed

Other Inspector: FOR R. W. Wright 5/20/94
C. R. Ogle, Resident Inspector Date Signed

Approved by: H. O. Christensen 5/20/94
H. O. Christensen, Chief Date Signed
Reactor Projects Section 1A
Division of Reactor Projects

SUMMARY

Scope:

This routine, unannounced inspection was conducted in the areas of operational safety verification, surveillance observation, maintenance observation, engineered safety feature system walkdown, plant safety review committee activities, and followup.

Results:

One violation was identified involving the licensee's failure to take adequate corrective actions pertaining to a repeated occurrence of erroneously blocking a fire door open (paragraph 3).

One unresolved item, was identified involving the licensee's interpretation of closed systems outside containment (paragraph 7).

REPORT DETAILS

1. Persons Contacted

- *R. Barnett, Manager, Projects Management
- *J. Benjamin, Manager, Project Controls
 - S. Billings, Technical Aide, Regulatory Compliance
 - A. Carley, Manager, Communications
- *B. Clark, Manager, Maintenance
- *D. Crook, Senior Specialist, Regulatory Compliance
 - J. Eaddy, Manager, Environmental and Radiation Support
- *D. Gudger, Specialist, Regulatory Affairs
 - S. Farmer, Manager, Engineering Programs, Technical Support
- *J. Harrison, Manager, E&RC Technical Support
 - B. Harward, Manager, Engineering Site Support, Nuclear Engineering Department
- *S. Hinnant, Vice President, Robinson Nuclear Project
- *K. Jury, Manager, Licensing, Regulatory Programs
 - J. Kozyra, Licensing/Regulatory Programs
- *R. Krich, Manager, Regulatory Affairs
 - A. McCauley, Manager, Electrical Systems, Technical Support
 - R. Moore, Acting Operations Manager
- *P. Musser, Manager Engineering Assessment - Nuclear Assessment Department
- *M. Pearson, Plant General Manager
 - M. Scott, Manager, Reactor Systems, Technical Support
 - E. Shoemaker, Manager, Mechanical Systems, Technical Support
- *D. Taylor, Plant Controller
- *L. Woods, Manager, Technical Support

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

*Attended exit interview

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

2. Plant Status

The unit began the report period with the plant stable at 90% power in preparation for reactor physics testing. The unit went critical at 7:42 p.m. on March 20, and was placed on line at 11:55 p.m. the following day. Following successful completion of reactor physics testing, reactor power was increased to 95% on the morning of March 29, and ultimately to 100% power on the morning of April 2, 1994. The unit operated at or near full power until 10:14 p.m. on the evening of April 3, 1994, when a large E-H fluid leak forced the operators to manually trip the unit. Details pertaining to the reactor trip are delineated in paragraph 3 of this report. After necessary repairs to the E-H system were completed, the unit was made critical at 2:09 a.m. on the morning of April 5, 1994, was placed on line that afternoon, and achieved 100% power at 1:10 a.m. on the morning of April 7. The unit

operated at power for the remainder of the report period, although power level was limited on selected days as a result of weir discharge temperature limitations to Lake Robinson.

3. Operational Safety Verification (71707)

a. General

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.

The inspectors reviewed shift logs, Operation's records, data sheets, instrument traces, and records of equipment malfunctions to verify equipment operability and compliance with TS. 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 through work observations and discussions with Operations staff members. The inspectors performed channel verifications and reviewed component status and safety-related parameters to verify conformance with TS. Shift changes were routinely 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 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.

b. Reactor Trip Review

On April 3, 1994, the unit was operating at 100% power. At 10:14 p.m. that evening, a manual reactor trip was initiated when the operators determined the inability to recover from a loss of E-H oil to the main turbine control system. The event sequence started at 10:05 p.m., when the control room received a Turbine E-H Fluid Lo-Lo Level annunciator alarm. An investigation into the cause of this alarm was initiated since the E-H Fluid Lo Level alarm, which is supposed to be received before a Lo-Lo alarm, had not been received. At 10:07 p.m., a large leak was identified on the #1 turbine governor valve (GV-1). The operators began a turbine load reduction at a rate of approximately 5% per minute in preparation for isolating the E-H oil supply to the valve. At

10:11 p.m. the E-H Fluid Reservoir Lo Level alarm was received, followed shortly thereafter by an E-H fluid pump lockout which caused the E-H oil pumps to trip. At approximately the same time, the E-H Fluid System Hi/Lo Pressure alarm was received, and the turbine governor valves began to drift closed as a result of the loss of E-H oil pressure. The governor valves closing caused a rapid load reduction which would have caused a turbine trip (from governor valve closure) and a resultant reactor trip. This rapid load reduction also resulted in increasing Reactor Coolant System temperature and pressure which also would have caused an automatic reactor trip on over-temperature delta-temperature. In anticipation of an imminent automatic reactor trip, the operators initiated a manual reactor trip at 10:14 p.m.

The reactor protection system functioned as expected, although two rod bottom lights did not illuminate to indicate that the rods had fully inserted into the core. Operator action was taken to borate the reactor for the worth of the two rods. It was subsequently determined that the rods had actually inserted fully, and that the problem was one of erroneous indication.

The inspectors concluded that the transient was managed appropriately.

At the end of this report period, the inspectors had not completed their review of the circumstances pertaining to the initiation of the E-H oil leak or the reason for the failure of the E-H Lo level alarm to initiate. These items will be addressed in report 50-261/94-15.

c. Missing Support Bolts on Valves RC-553 and RC-516

On April 8, 1994, during a routine tour of the mechanical penetration area, the inspector observed discrepancies in the support bolting arrangement for valves RC-553 and RC-516 which are containment isolation valves and isolate the pressurizer relief tank from the gas analyzer. The inspector noted that of the 4 bolts provided to affix RC-553 to its dual supports, two were missing and a third was backed out approximately 3 turns. In addition, RC-516 was missing one bolt. (The licensee subsequently determined that this bolt was not missing, but the head was sheared off.) In response to this observation, the licensee entered an operability determination at 11:00 a.m. on April 8, 1994. At 11:08 p.m. that evening, NED calculations were completed which were intended to demonstrate that the valves were operable, and adequately supported in their present condition.

On Sunday, April 10, 1994, the inspector reviewed NED calculation, RNP-C/SPPT-1983, Qualification of Support for Valves RC-553 and 516. Based on the methodology used in the calculation, the inspector advised the shift supervisor of concerns for the

operability of the valves. These concerns centered on the calculation crediting the bolt which was backed out on RC-553 in the calculation of the tensile stresses experienced by the support bolts. Following this conversation, the inspector was contacted by the on-call Engineering Technical Support Manager. During the ensuing conversation, the inspector was advised that this concern though not documented in the original calculation, had been considered.

On April 11, 1994, the inspector was presented, and reviewed with the preparing engineer, Revision 1 to the calculation which among other things addressed the lack of full thread engagement for the bolt on RC-553 and its impact on the tensile capacity of the bolts. This revision also indicated that the valves were operable.

On April 12, 1994, the inspector questioned the valve weight used in the original version and first revision to the calculation. Specifically, the inspector was concerned that additional hardware attached to the valve support had not been included in the loading calculations. This included items such as air regulators and air solenoid valves. The licensee determined that this supplemental equipment represented an additional 12 pounds of weight per valve. Revision 2 demonstrated that despite this increase from the original valve/actuator weight of 72 pounds, the valves remained operable. The inspector reviewed a non-verified version of this revision, presented to them on April 18, 1994, and have no further questions on the calculation.

The inspector noted that two revisions of the calculation were required to address routine questions pertaining to the calculation. The failure to develop an original, stand-alone version of the calculation to support the initial operability determination is considered a weakness.

The inspector also questioned the fact that the observed valve regulator air pressure setpoints for RC-553 and RC-516 exceeded the 20 psig maximums specified on the valve drawing. The licensee later informed the inspectors that discussions with the valve vendor revealed that while the observed pressure readings of approximately 35 psig exceeded the recommended pressures, the valves were not damaged. The licensee also determined that no formal procedure exists by which to set the regulators. The licensee generated an ACR to resolve this issue and address any potential generic implications of this finding.

d. Inoperable Fire Door

On April 14, 1994, the inspectors noted that the automatic fire door to pipe alley was inoperable as a result of it being blocked by a pedestal-mounted, portable sign. The inspectors discussed

this observation with the Fire Protection Shift Technician who confirmed the inoperable status of the door. He also stated that he was previously unaware of this condition. Therefore, the paperwork and checks necessary for declaring the door inoperable had not been instituted. The fire technician removed the sign so that the door would operate.

The inspectors noted that this occurrence was similar to a fire door blockage described in IR 92-34 and the subject of NCV 92-34-02. In that event, the same door was obstructed by an air hose placed across the door's threshold in anticipation of maintenance activities in pipe alley. The corrective actions identified for this first event failed to prevent this occurrence.

10 CFR 50, Appendix B, Criterion XVI, requires that corrective actions be taken to preclude repetition of conditions adverse to quality. Contrary to the above, the licensee failed to take adequate corrective action to a December 23, 1992, automatic door blockage in that a similar event occurred on April 14, 1994. This is identified as a Violation, VIO: 94-12-01, Failure To Implement Adequate Corrective Actions Results In Inoperable Fire Door.

4. 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. Specific maintenance functions observed/reviewed by the inspectors included, but were not limited to, the activities detailed below:

WR/JO 94-AEIP1	Maintenance Support For Airlock Test
WR/JO 94-BX0141	Calibrate SIS Loop Flow Transmitter (FT-- 940 Only)
WR/JO 93-APCQ1	Spent Fuel Pit Skimmer Pump Maintenance

No violations or deviations were identified. The above maintenance activities were performed satisfactorily.

5. 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. Specific surveillance functions observed/reviewed by the inspectors included, but were not limited to, the activities detailed below:

a. Containment Personnel Airlock Leakage Test

On April 6, 1994, the inspectors witnessed performance of EST-010, Containment Personnel Airlock Leakage Test. Overall, the conduct of the test was satisfactory and in accordance with the procedure. The calculation of the airlock leak rate was independently verified by the inspectors and matched that calculated by the licensee. The inspectors also verified that the allowable penetration pressurization system leakage was subsequently updated on the control room minimum equipment list based on the results of this test.

The inspectors observed that maintenance personnel involved in the test appropriately questioned a discrepancy between a valve description in the procedure and the valve label. This discrepancy was resolved with a temporary procedure change prior to the continuation of the test. The inspectors also noted that one of the individuals involved in the test stepped across a step-off pad at the entrance to the air lock without obeying the instructions on the pad to remove his rubber shoecovers. The inspectors identified this discrepancy to the technician involved. A survey performed by the HP personnel after this occurrence revealed no spread in contamination as a result of this lapse. Later the step off pad was moved to the security door at the vestibule to the air lock. The licensee generated an ACR to address this issue. The inspectors have no further questions on this testing.

No violations or deviations were identified.

6. Quality Check Program Review

The resident inspectors performed a review of the CP&L Quality Check program to evaluate its effectiveness. The inspectors reviewed Nuclear Generation Group Manual Procedure NGGM 302-16, Administration Of The CP&L Quality Check Program, and Nuclear Assessment Department Procedure QLCH-01, Quality Check Program, during the review.

The purpose of the program is to provide a means for CP&L and contract employees, who are involved in nuclear work, to report nuclear safety-related and quality concerns in a confidential manner. The Program is designed to also accept other types of employee concerns such as

intimidation, harassment, wrongdoing, industrial safety, management practices, etc. when an employee does not wish to go through the normal management channels.

The program is designed to provide feedback of results of investigations and evaluations to the submitter who reported the concern, if known. The program is also designed to ensure the confidentiality of the submitter's identification to the extent possible when processing and investigating concerns and to safeguard information being maintained in the Quality Check files.

Procedure QLCH-01, Quality Check Program requires, in part, that the Manager - Quality Check, in conjunction with each nuclear plant Vice President/Manager, and or off-site support Vice President/Manager will ensure that employees terminating or transferring out of the Nuclear Generating Group exit through the Quality Check Program. The procedure also states that employees whose work activity is related to design, procurement, maintenance, or operation and whose work activity could impact the safe and reliable operation of the nuclear plant should exit through Quality Check and complete an Employee Exit Questionnaire. The procedure states further that a Quality Check representative will attempt to contact employees who do not exit through the Quality Check process to determine if they have concerns. Alternatively, the Quality Check representative will try to get the names and addresses of such employees for the purpose of mailing No-show Letters and Exit Interview forms to them.

To determine the effectiveness of the program, the inspectors selected a one week period of time during refueling outage 14 and requested that the licensee provide information pertaining to the disposition of the personnel exit interviews required by the Quality Check Program.

A review of the data requested for the period spanning from September 19 - 25, revealed that 33 personnel terminated work for CP&L during that one week period. It should be noted that all appeared to be contractors.

Of those 33 people, the data indicates that none received an actual interview before their departure, 29 were mailed employee exit questionnaires, two underwent a telephone exit interviews, and two were missed completely.

Of the 29 who were mailed employee exit questionnaires, the licensee received no response from 13, 45 percent of the number mailed. Three of the 13 were sent to invalid addresses and were returned by the post office. The inspectors determined from the review, that the licensee does not have a process in place to determine if the personnel to whom a questionnaire was mailed but from whom no response was received, actually received the questionnaire.

In summary, of the 33 personnel who departed Robinson during the period of September 19 - 25, 1993, none received a quality check interview before departure, and only 18 of the 33 or 55 percent were contacted. The inspectors concluded that based on the data received, the quality check program, as implemented at Robinson, was ineffective to "...ensure that employees terminating or transferring out of the NGG exit through the Quality Check Program".

7. Licensee Action on Previous Findings (92701, 90702)

(Closed) IFI 90-14-01, Assure Operability Determination Procedure Adequacy.

The inspectors reviewed the licensee's procedure to operability determinations, OMM-039, Operability Determination. The inspectors consider that OMM-039 is adequate and have no further questions on this issue. This item is closed.

(Closed) URI 90-17-02, Review The Basis For Discrepancies In Containment Isolation Valves Identified In The FSAR and The Appendix J Test Program.

This URI documented discrepancies in containment isolation valves between the FSAR and TMM-005, 10 CFR 50, Appendix "J" Testing Program. To address the containment system design and basis, the licensee developed Generic Issue Document, GID 90-181, Reactor Containment Isolation. The inspectors reviewed this document and based on a review of selected sections noted that it agrees with TMM-005. The inspectors were informed by the licensee that a revision to the FSAR to incorporate the information in the containment study is in progress. The licensee stated that this revision would be promulgated in May 1994. Based on the accomplished and planned effort, this item is closed.

During the review of this study, the inspectors noted that credit was taken for closed systems outside containment which are normally vented to the RWST. The inspectors will review the licensee's basis for this approach. Pending this review this item will be tracked as an Unresolved Item, URI: 94-12-02, Basis For Closed Systems Outside Containment.

(Closed) VIO 92-27-01, Failure To Adequately Establish GP-008 To Preclude The Loss Of Decay Heat Removal During RCS Inventory Reduction.

Inspection Report 93-27 documents VIO 92-27-01 regarding significant deficiencies associated with a RCS draindown on September 12, 1992. The inspectors reviewed the latest revisions to GP-008, Draining the Reactor Coolant System and PLP-037, Conduct of Infrequently Performed Tests or Evolutions. Both procedures now contain sufficient guidance and instructions to correct the causal factors associated with the draindown event. This item is closed.

(Closed) LER 93-011, Potential For Uncontrolled Release Due To Equipment Hatch Seal Leak During Refueling.

This item was addressed in Inspection Report 93-21 and was the subject of VIO 93-21-04. Thus, further inspection of this item will be performed in conjunction with the closeout inspection of that violation. This item is closed.

8. Exit Interview (71701)

The inspection scope and findings were summarized on April 29, 1994, 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. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

<u>Item Number</u>	<u>Description/Reference Paragraph</u>
VIO: 94-12-01	Failure To Implement Adequate Corrective Actions Results In Inoperable Fire Door.
URI: 94-12-02	Basis For Closed Systems Outside Containment.

9. List of Acronyms and Initialisms

ACR	Adverse Condition Report
E-H	Electro Hydraulic
FSAR	Final Safety Analysis Report
IFI	Inspector Followup Item
FT	Flow Transmitter
LCO	Limiting Condition of Operation
NCV	Non-cited Violation
NED	Nuclear Engineering Department
NGG	Nuclear Generation Group
OMM	Operations Management Manual
RC	Reactor Coolant
SIS	Safety Injection System
TMM	Technical Management Manual
TS	Technical Specification
URI	Unresolved Item
WO/JO	Work Request/Job Order