

U. S. NUCLEAR REGULATORY COMMISSION
REGION II

Docket No: 50-261
License No: DPR-23

Report No: 50-261/99-03

Licensee: Carolina Power & Light (CP&L)

Facility: H. B. Robinson Unit 2

Location: 3581 West Entrance Road
Hartsville, SC 29550

Dates: April 11 - May 22, 1999

Inspectors: B. Desai, Senior Resident Inspector
A. Hutto, Resident Inspector

Approved by: Brian R. Bonser, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

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EXECUTIVE SUMMARY

H. B. Robinson Power Plant, Unit 2
NRC Integrated Inspection Report 50-261/99-03

This integrated inspection included aspects of licensee operations, maintenance, engineering, and plant support. The report covers a six-week period of resident inspection.

Operations

- The conduct of operations was professional, risk informed, and safety-conscious (Section O1.1).
- Two power reductions conducted during the report period were well planned and executed. Effective communications were maintained between operations personnel. Technical Specification limiting conditions for operation were met throughout the evolutions (Section O2.1).
- A system walkdown found that the Post Accident Containment Ventilation System and the Isolation Valve Seal Water System were appropriately configured and maintained. System parameters were being maintained within Technical Specification requirements (Section O2.2).
- A clearance associated with a safety injection pump breaker inspection provided adequate isolation conditions for personnel safety and protection of plant equipment. The clearance was implemented in accordance with the licensee's procedures (Section O2.3).
- Overall plant housekeeping was found to be maintained in accordance with licensee procedures. The licensee's plant housekeeping procedure was noted to have some confusing guidelines with regard to temporary material storage. The licensee plans to resolve the concern through the condition report process (Section O2.4).
- The Equipment-Out-Of-Service (EOOS) program had not been utilized in the scheduling of work activities for a week contrary to recommendations in the licensee's procedures. The EOOS program graphically illustrates the change in core damage frequency when equipment is taken out-of-service. An acceptable level of risk was ensured by utilizing the matrix of safety significant combinations as presented in the work coordination procedure (Section O2.5).

Maintenance

- Maintenance activities were conducted in accordance with applicable work documents and procedures. Personnel were properly trained and knowledgeable of their assignments (Section M1.1).

- A review of completed surveillance test packages demonstrated acceptable test results (Section M2.1).

Engineering

- A 10 CFR 50.59 screening and Unreviewed Safety Question determination for the modification of the north service water header included the appropriate design considerations and was performed in accordance with the licensee's procedure (Section E1.1).

Plant Support

- Radiological controls and security practices were properly conducted. Areas observed in the radiological control area were appropriately posted and secured. The security plan was effectively implemented and compensatory actions were initiated when required (Section R1.1, S1.1).
- The sampling and analysis to determine reactor coolant system (RCS) gross activity and dose equivalent iodine-131 activity was performed by knowledgeable technicians in accordance with the licensee's procedures. Technical Specification(TS) surveillance frequency requirements were being met and the RCS gross activity and dose equivalent iodine activity were well below TS limits (Section R1.2).
- A violation involving the failure to follow procedures during a vehicle search was identified by the inspectors. A security officer was observed filling out and signing-off a vehicle search checklist before the search was completed (Section S1.2) .

Report Details

Summary of Plant Status

Robinson Unit 2 operated at 100 percent power throughout the inspection period with the following exceptions: Power was reduced to 65 percent and returned to 100 percent power for turbine valve testing on April 11. Power was also reduced to 70 percent on May 10 and returned to 100 percent on May 11 to conduct repairs on the 1IL turbine intercept valve.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

The inspectors conducted frequent control room tours to verify proper staffing, operator attentiveness and communications, and adherence to approved procedures. The inspectors routinely attended operations turnover meetings, management review meetings, and plan-of-the-day meetings to maintain awareness of overall plant operations. Operator logs, Condition Reports (CR), and instrumentation were routinely reviewed. Plant tours were conducted to verify operational safety and compliance with Technical Specifications (TS), as well as to assess plant housekeeping. In general, the inspectors concluded that the conduct of operations was risk informed, professional, and safety-conscious.

O2 Operational Status of Facilities and Equipment

O2.1 Power Reductions

a. Inspection Scope (71707)

The inspectors observed and assessed the performance of operations personnel during a power reduction from 100 percent to 65 percent power on April 11 to support scheduled turbine valve testing, and another power reduction from 100 percent to 70 percent power on May 10 to repair the hydraulic operator (HO) on the 1IL turbine intercept valve.

b. Observations and Findings

The inspectors observed operations personnel during both power reductions. Communications between control room personnel were clear and unambiguous. The control room shift supervisor conducted several briefings during the power reductions to keep the control room personnel focused on, and involved in, the evolution. Reactor engineering personnel were present to provide power tracking data to the operators as necessary. The inspectors verified that the Technical Specification (TS) required reactor coolant system (RCS) dose equivalent iodine samples were obtained and analyzed by

the licensee within the required time frame. The inspectors also verified that axial flux distribution limits were maintained within TS requirements during the power changes. No unanticipated alarms or conditions were encountered throughout the maneuvers.

Power was reduced on May 10 to conduct repairs on turbine intercept valve 1IL. Intercept valve 1IL had failed to an intermediate position from a normally fully open position. The problem was manifested by an increase in reactor power from 100 percent to 100.3 percent and a concomitant reduction of eight megawatts(MW) electrical. The reasons for the reactor power and MW output changes were attributed to a decrease in the total overall efficiency of the turbine and moisture separator reheat (MSR) system. This discrepancy was immediately recognized by the operators. The unit was brought back to full power shortly after midnight on May 11. The inspectors observed a significant portion of the power reduction, as well as the discussions held by the licensee to understand the transient and to plan repairs.

c. Conclusions

Two power reductions conducted during the report period were well planned and executed. Effective communications were maintained between operations personnel. Technical Specification limiting conditions for operation were maintained throughout the evolutions.

O2.2 Safety System Walkdown

a. Inspection Scope (71707)

The inspectors conducted a system walkdown of the isolation valve seal water (IVSW) system and the post accident containment ventilation (PACV) system.

b. Observations and Findings

The inspectors conducted a system walkdown of the IVSW and the PACV systems to assess the general condition of system components, including labeling, to verify that system valve positions matched the system drawings and station operating procedures, and to assess plant housekeeping and radiological conditions around system components.

No misaligned valves were identified, housekeeping and component labeling were adequate. The inspectors also reviewed the applicable sections of the Updated Final Safety Analysis Report (UFSAR) and TS and identified no discrepancies. A review of the Maintenance Rule data base was also performed and the inspectors found that the appropriate performance criteria data were being collected.

c. Conclusions

A system walkdown found that the IVSW and the PACV systems were appropriately configured and maintained. System parameters were being maintained within TS requirements.

O2.3 Clearance Walkdown (71707, 62707)

The inspectors verified proper implementation of clearance, 99-00594, during a walkdown on May 19. The clearance was to isolate the "B" safety injection (SI) pump crosstie breaker 52/22B. The inspectors verified that electrical breakers were aligned appropriately to provide an adequate boundary for the scheduled maintenance activity. No discrepancies were identified during verification of the clearance. The inspectors verified that the clearance was implemented in accordance with the licensee's procedures.

The breaker was under clearance for megger testing. On May 17 during a scheduled inspection , an electrician had observed a cracked insulator on the load side "A" phase inside the breaker cubicle. An engineering evaluation was performed that determined the cracked insulator on breaker 52/22B to be acceptable until refueling outage-20. The megger testing of the insulator also provided satisfactory results and was used as the basis for the evaluation. The vendor of the breaker was also contacted. The inspectors viewed the cracked insulator and reviewed the evaluation and determined the evaluation to be technically sound.

O2.4 Plant Housekeeping

a. Inspection Scope(71707, 62707, 37551)

The inspectors routinely performed plant walkdowns to verify housekeeping, general system conditions, conformity to fire protection requirements, radiological conditions and material conditions.

b. Observations and Findings

During a routine walkdown on May 7 the inspectors noted that a temporary rolling cart was installed in the auxiliary feedwater (AFW) pump room with an emergency light placed on the cart. The wheels of the cart were chocked, and the cart was located less than two inches away from and tied to a conduit associated with AFW flow instrumentation. The cart had a temporary fire loading permit tag but no unsecured material storage tag. The inspectors reviewed procedure AP-10, "Housekeeping Instructions," Revision 10, to determine applicable requirements. During this review the inspectors noted that AP-10 had potentially conflicting information with regard to what constituted secured or unsecured material. Unsecured material requires a material storage tag identifying that an engineering evaluation considering seismic interaction with plant equipment has been performed.

The inspectors notified the control room with regard to the condition. CR99-00954 was initiated and engineering personnel verified that the temporary cart did not present any seismic interaction concerns. The licensee plans to review AP-10 for clarifying any potentially confusing or conflicting information with regard to what constitutes secured or unsecured material.

c. Conclusion

Overall plant housekeeping was found to be maintained in accordance with licensee procedures. The licensee's plant housekeeping procedure was noted to have some confusing guidelines with regard to temporary material storage. The licensee plans to resolve the concern through the condition report process.

O2.5. Work Coordination and Safety Assessment

a. Inspection Scope (71707)

The inspectors routinely reviewed the licensee's use of probabilistic safety assessment in the scheduling of equipment taken out-of-service.

b. Inspection Findings

The inspectors noted that the Equipment Out-Of-Service (EOOS) program had not been used in the scheduling of work activities for the week of May 7-14. The EOOS program graphically illustrates the change in the core damage frequency when equipment is taken out-of-service. The EOOS program is recommended by procedure OMM-48, "Work Coordination and Safety Assessment", Revision 5, to be used as a backup to the matrix of safety significant combinations as described in OMM-48. OMM-48 is designed to identify combinations of equipment whose removal could result in unnecessary and unacceptable levels of risk and is utilized during the planning and scheduling of maintenance and surveillance activities. The licensee generated CR 99-00999 which determined the cause of not using the EOOS safety profile to be human error.

c. Conclusions

The Equipment-Out-Of-Service (EOOS) program had not been utilized in the scheduling of work activities for a week contrary to recommendations in the licensee's procedures. The EOOS program graphically illustrates the change in core damage frequency when equipment is taken out-of-service. An acceptable level of risk was ensured by utilizing the matrix of safety significant combinations as presented in the work coordination procedure.

II. Maintenance

M1 Conduct of Maintenance

M1.1 Observation of Maintenance Activities (62707)

The inspectors observed all or portions of the following work requests (WR):

- WR/JO 99-ABFM1, "Sample "A" SI Pump Outboard Bearing Oil"
- WR/JO ALRQ 002, "Calibrate RMS Temperature Instruments TS-4360 A,B,&C"
- WR/JO AKHV 002, "Calibrate the Power Range Nuclear Instrument System Channel N-44"
- WR/JO A1MV 011, "Calibrate the AFW Pump "B" Discharge Pressure Switches PSL-1474B1, PSL-1474B2"
- WR/JO AHLT 004, "Inspection and Testing of Breaker 52/22A (RHR Pump "A")"
- PM-402, "Inspection and Test of Circuit Breakers for 480 Volt Bus E1," Revision 16

The inspectors determined that the maintenance observed was properly approved and was included on the plan of the day. The inspectors found that the work observed was thorough, and performed with the work package present and in use. Accompanying documents such as procedures and supplemental work instructions were properly followed. Personnel were properly trained and knowledgeable of their assignments. The inspectors noted that supervisors and system engineers monitored the jobs on a frequent basis.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Review of Completed Surveillance Test Packages (61726)

The inspectors reviewed test package documentation for the following completed surveillance tests:

- OST 401-1, "EDG "A" Slow Speed Start," Revision 10
- MST 3, "Tavg. And Delta-T Protection Channel Testing," Revision 25
- MST 19, "Tavg And Delta-T Protection Channel Data Collection (Quarterly), When Reactor Power Is Greater Than 99.5%," Revision 2
- OST 201-2, "MDAFW System Component Test - Train "B"," Revision 10

- IST DS-99-03, "Retest AFW-V2-20B IAW OST 201-1", Revision 0

No problems were identified. Completed surveillance test packages demonstrated acceptable test results.

III. Engineering

E1 Conduct of Engineering

E1.1 North Service Water (SW) Header Replacement Activities

a. Inspection Scope (37551)

The inspectors reviewed the 10 CFR 50.59 evaluation for Engineering Service Request (ESR) 98-00509, "North Service Water Header Replacement." The evaluation was inspected against requirements found in the licensee's procedure REG-NGGC-0002, "10 CFR 50.59 and Other Regulatory Evaluations," Revision 2.

b. Observations and Findings

The licensee is currently replacing the north SW header as a result of leaks that occurred in a portion of the header that was rerouted around the radwaste building in the mid-1980's. ESR 98-00509 was approved on April 22 and field work has commenced. The inspectors reviewed the 10 CFR 50.59 evaluation supporting this ESR. The inspectors verified that the ESR was appropriately screened in accordance with REG-NGGC-0002. It was determined that the proposed activity constituted a change to the facility as described in the safety analysis report (SAR), and therefore required an unreviewed safety question (USQ) evaluation. Additionally, a fire protection screening evaluation was performed since a new penetration in the auxiliary building was being created.

The inspectors found that the USQ evaluation was thorough and performed in accordance with the licensee's procedures. The evaluation considered physical rerouting, mechanical, hydraulic, seismic and external event implications in determining whether a USQ existed. The inspectors' review concluded that a USQ did not exist. The inspectors verified that the evaluations had the required technical reviews and concurrences required by REG-NGGC-0002.

The inspectors did note that the 10 CFR 50.59 evaluation did not consider the abandonment of the old buried north header piping following the installation of the new SW pipe. This was brought to the attention of the responsible engineer who responded that this aspect of the modification was intentionally not addressed in ESR 98-00509, and will be addressed by an amendment prior to abandonment.

c. Conclusions

A 10 CFR 50.59 screening and USQ determination for the modification of the north SW header included the appropriate design considerations and was performed in accordance with the licensee's procedures.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 General Comments (71750)

The inspectors periodically toured the radiological control area (RCA) during the inspection period. Radiological control practices were observed and discussed with radiological control personnel including RCA entry and exit controls, survey postings, locked high radiation area controls, and radiological area material condition. The inspectors concluded that radiation control practices were being conducted in accordance with procedures. The inspectors also toured the radwaste building and found that radwaste storage containers and laundry bags were in good condition and appropriately labeled. In addition, outside radwaste storage areas and structures were properly posted and exhibited correct labeling and effective housekeeping. The inspectors found that housekeeping throughout the plant was effective in maintaining areas free of unnecessary equipment and debris. Relatively few contaminated areas were noted, and posted locked high radiation areas were properly secured against unauthorized entry.

R1.2 Reactor Coolant System (RCS) Sampling

a. Inspection Scope (71750)

The inspectors observed the performance of chemistry procedure CP-003, "Systems Sampling Procedure," Revision 39, associated with sampling of the RCS. The inspectors also observed and assessed the analyses performed in the chemistry lab to determine gross activity, equivalent iodine-131 activity and gaseous activity in the RCS as required by TS.

b. Observations and Findings

The inspectors observed chemistry personnel collect and analyze a reactor coolant system (RCS) sample for liquid and gaseous radioactivity per CP-003 and chemistry procedure CP-023, "Gas Analysis," Revision 9. The inspectors found the technician to be knowledgeable with regards to sample sink operation and proper radiological and contamination controls. Effective use of anti-contamination clothing and As Low As Reasonably Achievable (ALARA) practices were demonstrated. The technician had the procedure at the job site and correctly performed the applicable steps.

The inspectors reviewed the procedures for RCS sample collection and analysis and found no discrepancies in the methodology. The radiochemistry analysis results reported for dose equivalent iodine-131 activity and gross specific activity were verified to be below the TS limits. The inspectors also reviewed RCS chemistry data for the month of April and found all analyses met the TS surveillance frequency requirements and limits.

c. Conclusions

The sampling and analysis to determine RCS gross activity and dose equivalent iodine-131 activity was performed by knowledgeable technicians in accordance with the licensee's procedures. Technical Specification surveillance frequency requirements were being met and the RCS gross activity and dose equivalent iodine activity were well below TS limits.

S1.1 General Comments (71750)

During the period, the inspectors toured the protected area and noted that the perimeter fence was intact and not compromised by erosion or disrepair. Isolation zones were maintained on both sides of the barrier and were free of objects which could shield or conceal an individual. Lighting of the perimeter and of the protected area was acceptable.

S1.2 Vehicle Access Control

a. Inspection Scope (71750)

The inspectors periodically observed personnel, packages, and vehicles entering the protected area and verified that necessary searches, visitor escorting, and special purpose detectors were used as applicable prior to entry.

b. Observations and Findings

During an observation of a search being conducted on a non-designated truck entering the protected area, the inspectors noted that the applicable procedure, SP-008, "Vehicular Access Control," Revision 28, was being utilized in a manner that was inconsistent with administrative requirements for procedure usage. Security procedure SP-008 is a continuous use procedure requiring sign-offs at the completion of each step of the vehicle search. There were two security officers performing SP-008. One officer was conducting the vehicle search while the other officer was completing the procedure signoffs. The officer controlling the procedure had inappropriately completed the entry checklist without the guard conducting the search having completed the search. The inspectors notified the licensee and a condition report was initiated.

Administrative Procedure AP-006, "Procedure Use and Adherence," Revision 10 requires that continuous use procedure steps be signed off at the completion of each step. Contrary to this, a security officer had filled out and signed-off the necessary steps

for a vehicle search before the actual steps were completed. TS 5.4.1.a requires that written procedures be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide (RG) 1.33, Revision 2, Appendix A. Appendix A of RG 1.33 includes procedures covering procedure adherence and security controls. The failure to follow the requirements of AP-006 during a performance of SP-008, "Vehicle Access Control," is considered a violation. This Severity Level IV violation is being treated as a Non-Cited Violation consistent with Appendix C of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as CR 99-001001. This violation is identified as 50-261/99-03-01, Failure to Follow Procedure During Vehicle Search.

c. Conclusions

A violation involving the failure to follow procedures during a vehicle search was identified by the inspectors. A security officer was observed filling out and signing-off a vehicle search checklist before the search was completed.

V. Management Meetings**X1 Exit Meeting Summary**

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on June 1. The licensee acknowledged the findings presented at the exit meeting. No proprietary information was identified.

X2 Public Meeting Presentation of Plant Performance Review Results

On May 4 a public meeting was conducted at the Robinson Visitor Center to present the results of the periodic Plant Performance Review. In addition to the licensee, state and local authorities also attended.

PARTIAL LIST OF PERSONS CONTACTED**Licensee**

T. Cleary, Manager, Operations
H. Chernoff, Supervisor, Licensing/Regulatory Programs
J. Clements, Manager, Site Support Services
R. Duncan, Manager, Robinson Engineering Support Services
J. Fletcher, Manager, Maintenance
J. Moyer, Director, Site Operations
R. Steele, Manager, Outage Management
T. Walt, Plant General Manager
R. Warden, Manager, Regulatory Affairs
A. Williams, Manager, Training
D. Young, Vice President, Robinson Nuclear Plant

NRC

B. Desai, Senior Resident Inspector
A. Hutto, Resident Inspector

INSPECTION PROCEDURES USED

IP 37551:	Onsite Engineering
IP 61726:	Surveillance Observations
IP 62707:	Maintenance Observation
IP 71707:	Plant Operations
IP 71750:	Plant Support Activities

ITEMS OPENED AND CLOSED

Opened

50-261/99-03-01 NCV Failure to Follow Procedure During Vehicle Search
(Section S1.2).

Closed

50-261/99-03-01 NCV Failure to Follow Procedure During Vehicle Search
(Section S1.2).