UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report No. 50-261/82-37

Licensee: Carolina Power and Light Company
411 Fayetteville Street
Raleigh, NC 27602

Facility Name: H. B. Robinson Steam Electric Plant

Docket No. 50-261

License No. DPR-23

Inspection at H. B. Robinson Unit 2

Inspector: C. K. Hardin for S. Weise — 12/15/82 Date Signed

Approved by: P. Bemis, Section Chief, Division of Project and Resident Programs — 12/15/82 Date Signed

SUMMARY

Inspection on October 11 - November 10, 1982

Areas Inspected

This routine, announced inspection involved 132 resident inspector-hours onsite in the areas of Technical Specification compliance, plant tour, operations performance, reportable occurrences, housekeeping, site security, surveillance activities, maintenance activities, quality assurance practices, radiation control activities, outstanding items review, IE Circular and Notice followup. enforcement action followup, procedures review, onsite safety committee review, corrective action systems, and annual emergency exercise.

Results

Of the 17 areas inspected, no violations or deviations were identified in 15 areas; two violations were found in two areas. (Failure to report - paragraph 6; Inadequate equipment control - paragraph 5); one apparent deviation was found in one area (Failure to install low pressure alarm - paragraph 9).

DETAILS

1. Persons Contacted

Licensee Employees

*R. B. Starkey, Plant General Manager
*J. Curley, Manager Technical Support
*F. Gilman, Project Specialist, Regulatory Compliance
F. Lowery, Unit 2 Operations Supervisor
*W. Crawford, Manager, Operations and Maintenance
R. Chambers, Unit 2 Maintenance Supervisor
*C. Wright, Specialist, Regulatory Compliance
S. Crocker, Manager, Environmental & Radiation Control
W. MacCready, Radiation Control Supervisor
*J. Benjamin, Project Engineer Operations
*J. Young, Director Corporate QA/QC

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

Other Organizations

R. Muth, Westinghouse

*Attended exit interview on August 15, 1982

2. Exit Interview

The inspection scope and findings were summarized on November 10 with those persons indicated in paragraph 1 above. The licensee acknowledged the violations and deviation. Corrective actions have been initiated or are being developed. With respect to the commitment requested in paragraph 9.a., the licensee agreed to revise PT 5.8 by December 31, 1982 and to perform either a calibration or the revised PT 5.8 prior to cold shutdown should a forced outage occur in the interim.

3. Licensee Action on Previous Inspection Findings

(Closed) Severity Level IV Violation 81-36-03. This item concerned inoperability of the gas analyzer. The inspector reviewed CP&L response letter dated March 10, 1982; Operating Procedure (OP) 35-1, Revision 3 for the gas analyzer (GA), and OP 35-1B, Revision 0 for GA alternate sampling. The inspector has also followed the status of the Plant Nuclear Safety Committee action item. The licensee has repaired the GA and is responding to new problems via the maintenance corrective action program. GA results appear accurate and show response to plant evolutions. Hydrogen levels in tanks generally run at or slightly above 4% but oxygen levels during these periods have been low or absent. There still appears to be a deficiency with the reactor coolant drain tank sample line in that oxygen readings are unreason-

ably high. Review of log readings taken on the GA indicate that hydrogen and oxygen concentrations are being maintained so as to avoid explosive mixtures. Where limits have been exceeded, nitrogen purging has been conducted as required by plant OP's. The licensee developed a modification to allow alternate sampling when the GA manual mode is not functional. The modification installation has been completed, but the post-modification testing has not, due to apparent system leaks requiring maintenance. The licensee has obtained the proper gas standards and instituted Chemistry Procedure-17 for analysis of grab samples of tanks. Results of these grab samples have shown comparability with GA results. Additional work and testing is still necessary to improve GA operability and provide alternative sampling capability. The licensee is also reviewing the radioactive gas system and control of hydrogen and oxygen concentrations. Followup of these efforts will be reviewed at a later date. (IFI. 82-37-01).

(Closed) Severity Level IV Violation 82-20-13. This item concerned several failures to follow Health Physics (HP) procedures. The inspector reviewed CP&L response letter dated August 20, 1982, HP-11, Survey Instrument Calibration, and HP-11.1, Administrative Controls for Survey Instruments. The licensee has several mechanisms for identifying instruments which are due for calibration. Through discussions with licensee personnel, the inspector determined that CP&L and contractor technicians have received additional training and that further revision of procedures is in progress. General Employee Training addresses Frisker use. Corrective actions to date appear adequate to prevent recurrence, and additional procedure revision and clarification is planned.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Plant Tour

a. The inspector conducted plant tours periodically during the inspection interval to verify that monitoring equipment was recording as required, equipment was properly tagged, operations personnel were aware of plant conditions, and plant housekeeping efforts were adequate. The inspector determined that appropriate radiation controls were properly established, excess equipment or material was stored properly, and combustible material was disposed of expeditiously. During tours, the inspector looked for the existence of unusual fluid leaks, piping vibrations, pipe hanger and seismic restraint abnormal settings, various valve and breaker positions, equipment clearance tags and component status, adequacy of firefighting equipment, and instrument calibration dates. Some tours were conducted on backshifts. The inspector performed major flowpath valve lineup verifications and system status checks on the following systems:

(1) Containment Spray System.

(2) Safety Injection System.

(3) Selected containment insolation valves and penetrations.

(4) Residual Heat Removal System.

(5) Service Water System.

b. During a tour of the emergency diesel generators on November 8, 1982, the inspector observed that the diesel generator air start air receiver discharge cross-connect valve (DG-AS-10) was open. This valve is normally shut in accordance with Operating Procedure (OP)-7A to be consistent with FSAR Section 1.3.4 for an independent air start supply for each diesel. Both diesel air start compressors were in the automatic mode for maintaining respective air receiver pressure. The inspector brought the condition to the Shift Forman's attention. The Shift Foreman, who was unaware of the valve out-of-position, had the valve immediately shut. The inspector reviewed plant logs to ascertain why and when the valve was opened. Only the inside auxiliary operator's log made mention of the crossconnection. No entry existed on November 8 to indicate the valve was open, and the last entry on November 7 stated that the air receivers were crossconnected on the inlet side (DG-AS-14).

The inspector also reviewed equipment control procedures for taking a diesel air compressor out of service. Generally, a clearance (Administrative Instruction 11.6) is used to remove the compressor from service. These clearances have not included the air system cross-connects in the past. Additionally, there is no Operations Work Procedure for equipment control during compressor maintenance or inoperability. Failure to adequately establish and implement equipment control procedures is a violation. (82-37-13). Adequate status logging and shift turnover by licensed operators should also have prevented this occurrence.

6. Technical Specification Compliance

a. During this reporting interval, the inspector verified compliance with selected limiting conditions for operation (LCO's) and reviewed results of selected surveillance tests. These verifications were accomplished by direct observation of monitoring instrumentation, valve positions, switch positions, and review of completed logs and records. The licensee's compliance with selected LCO action statements were reviewed as they happened.

b. During a review of equipment inoperable records, the inspector determined that the reporting requirements of Technical Specification Table 3.5-5 had not been met with respect to the Auxiliary Feedwater Flow (AFW) Indication. In particular, the following reports were overdue as of October 25, 1982:

1) Steam driven AFW flow to 'B' steam generator (S/G) inoperable from 1920 9/20/82 to 1830 9/28/82. Report due 10/12/82.

2) Motor driven AFW flow to 'B' S/G inoperable from 1400 9/21/82 to 1830 9/28/82. Report due 10/12/82.

3) Steam driven AFW flow to 'A' S/G inoperable since 10/2/82. Report due 10/23/82.

The inspector discussed the above with licensee personnel. Standing Order 12, Minimum Equipment List, is the procedure intended to identify equipment inoperable and reporting requirements. Section 9 of the Standing Order erroneously states that only one AFW flow channel per steam generator is required vice one per steam generator for both the motor-driven and steam driven pumps. The procedure requires revision for clarification, although it did reference the Technical Specification requirement. Failure to report the inoperability of AFW flow indicators is a violation. The licensee has initiated corrective action, including report submittal. (82-37-02).

c. During a tour of the isolation valve seal water (IVSW) system on October 18, 1982, the inspector noted an apparent boric acid buildup on and underneath the IVSW tank outlet valve (IVSW-12). The inspector spot-checked system valves and instrumentation and noted no discrepancies. The existence of boric acid at the outlet of the tank was unusual, since the tank is filled with pure water, and this condition was brought to the licensee's attention. The licensee inititated an investigation of the problem. On November 4, 1982, plant personnel found the tank outlet valve shut which renders the IVSW system inoperable. The valve was immediately reopened and subsequently locked. The licensee informed the NRC as required and has initiated an investigation. This event and corrective actions necessary will be reported in LER 82-17 for NRC review. Consistent with 10CFR2 Appendix C.IV.A., this event meets the criteria for a licensee identified violation. The boric acid buildup problem noted above will remain open until the licensee resolves the issue. (82-37-03).

7. Plant Operations Review

a. The inspector, periodically during the inspection interval, reviewed shift logs and operations records, including data sheets, instrument traces, and records of equipment malfunctions. This review included control room logs, auxiliary logs, operating orders, standing orders, jumper logs, and equipment tagout records. The inspector routinely observed operator alertness and demeanor during plant tours. During abnormal events, operator performance and response actions were observed and evaluated. The inspector conducted random off-hours inspections during the reporting interval to assure that operations and security remained at an acceptable level. Shift turnovers were observed to verify that they were conducted in accordance with approved licensee procedures.

b. During review of operations logs, the inspector noted that logsheets for recording Technical Specification parameter checks were not controlled as part of the licensee's procedure control program. The inspector informed the licensee that logsheets for documentation of technical specification surveillances should be controlled as required by Technical Specification 6.5.1.1. Presently, these logsheets can be changed without formal review and approval, and logsheets in use are not identifiable as being the current revision. This does not appear consistent with Appendix A to Regulatory Guide 1.33. The licensee agreed to review his logsheets and incorporate those satisfying Technical Specification requirements into the plant operating manual. Until the above is completed, this item is open (82-37-04). No missed surveillances or improper log entries were noted.

8. Physical Protection

a. The inspector verified by observation and interview during the reporting interval that measures taken to assure the physical protection of the facility met current requirements. Areas inspected included the organization of the security force, the establishment and maintenance of gates, doors and isolation zones in the proper condition, that access control and badging was proper, that search practices were appropriate, and that escorting and communications procedures were followed.

9. Low Temperature Overpressure Protection (LTOP) System Review (92706)

Due to the events discussed in IE Notice 82-17, the inspector conducted a review of the monthly functional test (Periodic Test (PT)-5.8 Revision 4) of the installed system, and of various correspondence on LTOP between CP&L and NRR. During this review, the following discrepancies were noted:

a. PT 5.8 does not fully test the electronics associated with each channel of the system. Presently, only the actuation and reset features of the pressure comparators and the alarms for block valves closed and power operated relief valve actuation are tested. The functional test does not check proper output voltage from the function generators or the 360°F alarm setpoint of the temperature comparators. The licensee committed to review this procedure and make necessary changes. (Open item 82-37-05).

b. The LTOP system valve checkoff sheet OP-50A Revision 2, require checking air pressure regulatory valves PCV-1 and -2 for proper operation. These valves were removed under temporary repair procedure 82-04 in July, 1982. The checkoff sheet and OP-50 figure 2 require updating, and a modification must be developed and approved to close the temporary repair. (IFI 82-37-06). A review of repair 82-04 showed the appropriate management and safety reviews were conducted.

c. CP&L letter dated January 25, 1978, to ONRR committed CP&L to installing a low pressure alarm on the backup nitrogen system upon

receipt of necessary parts following the 1978 refueling outage. Three refueling outages have occurred since the commitment was made, and parts have not been obtained nor the alarm installed. Failure to install the low pressure alarm is a deviation. (82-37-07). The licensee committed to conduct and document daily checks of the nitrogen system during periods when the LTOP is required to be operable.

10. Annual Emergency Exercise

During the period October 13-15, 1982, the inspector participated in the preparation for, monitoring of, and critiquing of the Robinson 2 annual emergency drill. The bulk of this inspection is documented in IE Inspection Report 50-261/82-38. During the conduct of the exercise, the licensee identified a violation to 10CFR50 Appendix R in that a fire pre-plan did not exist for the intake structure and associated safety related equipment. The licensee is reviewing the fire pre-plans with respect to safety-related equipment and will develop pre-plans for the intake structure and other plant areas identified by the review. Consistent with 10CFR2 Appendix C.IV.A., this discrepancy meets the criteria for a licensee identified violation. Until licensee corrective action is complete, this item is open. (82-37-08).

11. Reactor Trip

a. On October 24, 1982, with the reactor at 10% power and the turbine at synchronous speed, the reactor tripped during plant startup from a maintenance shutdown. The cause of the reactor trip was a generator lockout and turbine trip due to high turbine exhaust hood temperature. An unusual event was declared and the NRC notified. Safety systems performed as required. Operators had received the high exhaust hood temperature alarm during the previous shift which remained locked in. Local and computer temperature indication indicated that actual hood temperature was 20-40°F below the alarm setpoint. Sprays to the hood were initiated, but failed to clear the alarm condition, so the sprays were secured due to turbine warping concerns. The following shift was aware of the secured sprays and alarm problems but failed to restore spray flow during turbine startup prior to reaching the high turbine exhaust hood temperature trip setpoint. The licensee personnel restored spray flow which cleared the high temperature condition and verified that the alarm and trip circuitry were operating properly. The plant returned to power operation the same day.

12. Corrective Action Systems

The inspector reviewed the licensee's corrective action programs. These programs consist of work requests, nonconformance reports, regulatory agency action items, procedure change requests, various tickler systems, and Plant Nuclear Safety Committee action items. The Corrective Action Program is established by Nuclear Operatings Department Procedure (NO)-7.24 and Administrative Instruction (AI)-15. These procedures were developed to

address the program weaknesses described in IE Inspection Report 50-261/81-05 (PAS). The inspector reviewed the above procedures, CP&L response letters dated October 7, 1981 and May 3, 1982, several of the subunit informal tickler systems, the formats of the various regulatory action item listings, and the first monthly corrective action program summary. Discussions were held with various plant supervisory personnel. Based on this review, the inspector had the following findings:

a. The corrective action program needs additional improvement as evidenced by the following:

   1) The program and report do not include the Engineering Subunits. These subunits are responsible for drawing changes, plant modifications, various surveillances, and control and monitoring of the inservice inspection program. In that failures/deficiencies can and have occurred in these areas, the Engineering Subunits should be incorporated into the program.

   2) Considerable credit is taken for the use of informal tickler systems by plant subunits. These tickler systems are not consistently implemented within the various subunits. Additional management guidance on use of tickler systems appears warranted.

   3) Deficiencies identified by plant staff are not treated similar to regulatory or audit deficiencies in terms of classification and trending. Licensee identified Technical Specification and procedure violations which do not result in regulatory or audit action items are not collated, categorized, or trended. Work requests are not trended in terms of their safety priorities, safety systems affected, length of time outstanding or cause of equipment failure. Work requests on security systems are not treated separately for use in determining adverse maintenance trends. Outstanding required procedure changes, drawing changes, and plant modifications are not monitored or trended by the corrective action program. The absence of the above types of items from the corrective action tracking/trending system does not appear consistent with the AI-15 requirement that responsible supervisors determine criteria by which failure/deficiency trends get escalated through plant management.

b. The licensee conducted training for plant personnel on the corrective action program and the systems in use in their functional area. The inspector questioned selected plant employees and reviewed selected training folders. Much of the training held was not documented. Personnel appeared cognizant of the maintenance work request and procedure change request systems, but generally did not understand overall goals of the corrective action program.

   Based on the above review, previous outstanding items 81-27-19, 81-27-20, 81-27-22, 81-27-23 are closed. Licensee action on the above observations will be reviewed on a future inspection (IFI 82-37-09).

13. Plant Nuclear Safety Committee (40700)

The inspector reviewed Technical Specification (TS) 6.5, Administrative Instruction 3.0, Memo/82-509 dated September 8, 1982 concerning PNSC qualified alternates, and Memo/82-581 dated September 10, 1982 concerning qualified safety reviewers. The inspector attended several PNSC meetings in order to observe the conduct of the meeting and ascertain that TS requirements were satisfied. The inspectors attendance at the licensee's PNSC meeting does not confer NRC agreement or disagreement with the conclusions or decisions reached in the meeting. The September 1982 meeting minutes were reviewed to confirm that decisions/recommendations were reflected in the minutes and that corrective actions were monitored for progress and/or completion. The inspector had the following findings:

The present informal system for qualification of nuclear safety reviewers should be formalized in plant procedures and provide justification for personnel designated qualified in specific technical disciplines. This will reduce present confusion among plant personnel concerning safety reviewer and discipline qualifications. The licensee has recognized the existence of problems in this area and is developing corrective actions. This item will remain open until qualification procedures are approved and additional training/clarification provided to safety reviewers. (IFI - 82-37-10).

14. Licensee Event Report (LER) Followup

a. The inspector reviewed the following LER's to verify that the report details met license requirements, identified the cause of the event, described appropriate corrective actions, adequately assessed the event, and addressed any generic implications. Corrective action and appropriate licensee review of the below listed events was verified. When licensee identified violations were noted, they were reviewed in accordance with the enforcement policy. The inspector had no further comments.

LER	Event
80-27 Rev. 1	NBFD Relay Failures
80-13	'A' Service Water Pump Failure
82-05 Rev. 1	Main Steam Check Valve Degradation

b. LER 81-31, Revision 1. This LER concerns the inadequate maintenance conducted on the PORV block valves. The inspector reviewed the LER and determined that the licensee committed to establishing a formal preventative maintenance program for the block valves. This program will be reviewed when established. The LER remains open.

c. LER 82-09. This LER concerns the motor operated, Residual Heat Removal discharge valves failure to open. Some aspects of the valve failure are related to LER 81-31 above. In addition to the special preventative maintenance needed on the block valves, the licensee has determined that maintenance procedures, including the proper torque

switch settings, need to be developed for all safety related motor operated valves. The inspector discussed the program with licensee personnel. CP&L has hired a contractor to identify all motor operated valves used in Unit 2, to identify the operator type and size, and to obtain design valve thrust values from the valve vendors. Using the thrust values, procedures will be developed to measure as-found valve torque and to develop torque switch settings and limits.

The licensee has committed to complete the inspection and procedures by February 28, 1983. The program will also include an inspection of the Limitorque motor operator pinion keys. Sheared pinion keys was identified as a Limitorque operator problem in IE Notice 81-08 and, more recently, Westinghouse expanded the scope of the problem in a letter to CP&L dated August 10, 1982. The licensee's program appears comprehensive enough to address all present Limitorque operator concerns. Program progress will be reinspected at a future date. The LER remains open.

15. Proced[illegible]iew (42700)

This inspection is a continuation of the review reported in IE Report 50-261/82-20. The inspector reviewed the following Maintenance Instruction (MI) and Administrative Instructions (AI):

- MI-10, Procedure 13, Containment Spray Pump, Revision 24
- MI-10 Procedure 18, Residual Heat Removal Heat Exchanger, Revision 27
- MI-2, Procedure NP 2-5 Nuclear Instrument Adjustment Procedure, Revision 1
- MI-18, Removal, Repair, and Reinstallation of Snubbers, Revision 2
- AI 11.6, Clearances
- AI 11.11, Jumpering and Wire Removal
- AI 4.1.14, Shift Relief
- MI-19, Inspection of Series Overcurrent Tripping Devices, Revision 1
- MI-13, PMI-2, Bridging and Meggering Electric Equipment
- MI-13, PMI-1, Lubrication Program

Based on the above review and a sampling of calibration procedures, the inspector had the following findings:

a. MI's are fragmented with respect to organization and format, and calibration procedures frequently reference deleted editions of procedures. Through discussions with cognizant licensee personnel, the inspector determined that CP&L is using a contractor to rewrite maintenance procedures. This rewrite program should reorganize the MI's and put them in an ANSI N18.7 format. Better procedures are to be developed for calibration and preventative maintenance control and scheduling, and new procedures established for reactor coolant pressure boundary maintenance. This rewrite program is in progress, but is expected to take until about December, 1983 to complete. (IFI 82-37-11).

b. The inspector found no provisions in maintenance procedures for assuring that safety-related systems and components which are exposed to a freezing environment during maintenance remain functionl following such exposure. Safety-related equipment appearing to need such provisions include the steam-driven auxiliary feedwater pump, steam pressure instrumentation during freeze protection circuit inoperability, and refueling water storage tank instrumentation during freeze protection circuit inoperability. No maintenance procedure/guidance exists for freeze protection system maintenance. The licensee should review these areas and develop guidance. (Open item 82-37-12). The inspector has noted freeze protection efforts during maintenance in the past.

No violations or deviations were observed.

16. Review of IE Circulars and Notices (IEC's and IEN's)

The inspector verified that IE Circulars and Notices had been received onsite and reviewed by cognizant licensee personnel. Selected applicable IE Circulars and Notices were discussed with licensee personnel to ascertain the licensees actions on these items. The following IE Circulars and Notices were reviewed by the inspector and are closed.

IE Circulars	IE Notices
81-13	82-02
80-04	82-04

17. Outstanding Items Review

(Closed) Open item 80-18-C1. This item concerned NBFD relay failures and was addressed in previous IE Inspection Reports 80-38 and 81-31. Additionally, further information was provided in LER 80-27, Revision 1. All NBFD relay coils subject to the failure mechanism were replaced during the 1982 Refueling Outage with a new design coil. Performance of the new coils will be monitored as part of the routine inspection program.

(Closed) Inspector Followup Item (82-20-14). Development and Implementation of a Management Training Program for Plant Personnel. A discussion with the plant manager indicated that this program has been developed and training for various supervisory personnel is being accomplished. A schedule has been issued to identify personnel to attend this training with the dates the training will be conducted.

(Open) Inspector Followup Item 81-31-03. This item concerned the licensee's commitment to install sampling lines to provide radiation monitoring of the containment fan motor cooler service water discharge lines. These lines were identified as a potential unmonitored release path from containment. The system was to be placed in operation November 1, 1982, however, post-modification testing has shown that flow through the new sample lines is reversed from that expected. The licensee is evaluating this problem for

solutions. One potential solution is to provide a separate radiation monitor for the motor cooler service water discharge lines. Until this problem is permanently resolved, service water piping inside containment is being inspected daily for leaks.

(Closed) Open item 82-11-01. This item concerned the need to stipulate and record torque switch settings for safety-related valves. This item was opened due to problems noted in LER 81-31. LER 82-09 has also been issued concerning additional maintenance problems on valves with Limitorque operators. The licensee has determined that specific maintenance procedures, including the proper torque switch settings, need to be developed for all safety related motor operated valves. The licensee intends to include non-safety-related valves in his program also. A discussion of this program is presented in paragraph 14.c, and this item is being incorporated into the program followup.

(Closed) Inspector Followup Item 82-23-01. This item concerned incorporating instruments associated with safety related equipment into the calibration program. The inspector reviewed Revision 6 to Maintenance Instruction 4, Appendix A. All instruments previously identified were incorporated.

(Closed) Open item 81-27-21. The Regulatory Compliance Subunit now follows problems identified in Corporate audits, NRC inspection reports and IE Bulletin, Circulars, and Notices. INPO items are also tracked. Procedures governing the controls over those programs implemented by this subunit have been incorporated into the plant Administrative Instructions.