



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

Report No. 50-261/81-15

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

Inspectors: *R. Butcher for* 5-26-81
 S. Weise, Resident Inspector, Robinson Date Signed

R. Butcher for 5-26-81
 T. Donat, Senior Resident Inspector Date Signed

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 P. Taylor, Project Inspector Date Signed

Approved by: *C. Julian* 5/26/81
 C. Julian, Acting Section Chief, Resident and Date Signed
 Reactor Project Inspection Division

SUMMARY

Inspection on April 11, - May 10, 1981

Areas Inspected

This routine, announced inspection involved 228 resident inspector-hours on site in the areas of technical specification compliance, previous enforcement action followup, outstanding items review, plant tour, operations performance, reportable occurrences, housekeeping, site security, surveillance activities, TMI action Plan requirements, maintenance activities, quality assurance practices, radiation control activities, IE Bulletin followup, IE Circular and Notice review, Procurement and Storage, and Environmental Protection.

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Results

Of the seventeen areas inspected, no items of noncompliance or deviations were identified in fourteen areas; four items of noncompliance were found in three areas (Inadequate surveillance procedures, paragraph 9.b.; failure to implement the maintenance program, paragraph 5.b.; violation of containment integrity, paragraph 5.b.; failure to perform required surveillance, paragraph 11.d). One deviation was found in one area (Failure to perform surveillance as committed, paragraph 11.d).

DETAILS

1. Persons Contacted

Licensee Employees

- *R. B. Starkey, Plant General Manager
- *H. S. Zimmerman, Director Plant Scheduling
- *S. Crocker, Manager, Environmental and Radiation Control
- *F. L. Lowery, Unit 2 Operations Supervisor
- *M. Page, Engineering Supervisor
- *J. M. Curley, Manager, Technical Support
- *C. W. Crawford, Manager, Operations and Maintenance
- D. Baur, Senior QA Specialist
- S. Clark, Fire Protection Specialist
- P. Monroe, Stores Foreman
- W. Flanagan, Project Engineer
- J. Eaddy, Senior Nuclear Generation Specialist

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

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on April 27 and May 8, 1981 with those persons indicated in Paragraph 1 above. The licensee acknowledged the findings, but felt that the violation concerning testing of containment isolation valves was due to a change in interpretation of the Technical Specifications in the case of the letdown valves.

3. Licensee Action on Previous Inspection Findings

- a. (Closed) Unresolved item 79-19-11. This item concerns separation of circuits that could impact safety. The inspector identified during the review of Modification 440 which was completed in January 1979, that a common cable was pulled as a power supply for Cooling fans installed in safety-related relay cabinets (numbers 51, 52, 53, 54, 55, 56, 59, 60, 61, 62, 63, 64) which consisted of both Channel A and Channel B relay cabinet designations. The inspector discussed this problem with the licensee and the licensee agreed to evaluate the design of the modification and correct the design if required. The licensee completed his evaluation. Separation of these circuits will be conducted under plant modification M-581. In that this modification is neither approved or completed, the original item is closed and an inspector follow-up item (50-261/81-15-09) is opened.
- b. (Closed) Unresolved item 79-29-02. This item concerns the Halon fire suppression system and its inability to provide a five percent Halon

concentration for fifteen minutes. The licensee redesigned the Halon system, included additional Halon bottles and an extended discharge header into the cable spreading and electrical equipment relay rooms. Post-modification system testing in October, 1980 conducted by Chemetron Fire System Company yielded a soak time of greater than fifteen minutes.

- c. (Open) Infraction 80-30-06. This item dealt with the failure to have procedures for handling and storage of radioactive waste drums and dumpsters outside the auxiliary building. The inspector reviewed the procedure changes to HP-33 and the licensee's response letter of February 5, 1981. The inspector expressed concern that the procedure did not discuss allowable contamination levels for storage outside the auxiliary building. The licensee agreed to review this area and modify procedures as necessary.
- d. (Closed) Severity Level IV Violation 81-03-02. This item dealt with an inadequate work procedure which resulted in deenergization of the heat tracing for both boric acid transfer pumps. The inspector confirmed that the corrective action reported in the CP&L response letter to Inspection Report 81-03 dated March 23, 1981 had been completed.
- e. (Closed) Severity Level V Violation 81-05-01. This item concerned the failure to have a procedure for returning systems to normal alignments after a safety injection signal. The inspector reviewed the licensee's response letter dated April 3, 1981, the revisions to Emergency Instruction-1, and new Abnormal Procedure-25. The inspector had no further questions.

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.
- b. During a tour of the auxiliary building on April 13, 1981, the inspector noted the following discrepancies on the primary sample valve

control and position indication panel:

- (1) The switch for the pressurizer liquid space containment isolation valves (SS-956C, SS-956D) was taped in the valves open direction. No valve position indicating lights were lit.
- (2) The three switches for the six additional sample system containment isolation valves were in the valves closed position, however, no position indicating lights for valves SS-956A, B, F, G, and H were lit.
- (3) Of the eight remaining sample valves having control switches and position indication on the panel, all eight switches were in the closed position. However, the valve closed indicating lights for five valves were not lit, and both the open and closed position indication lights for valve SS-955B were lit. These valves are part of the reactor coolant pressure boundary.

Discussions with plant personnel resulted in the tape being removed and a work request being initiated by the Chemistry Foreman. The valves SS956C and SS-956D were 3/8 inch and contained a shut manual sampling valve to the sample sink. On April 14, 1981, the inspector determined that with the valve switch taped to the open position, these containment isolation valves would not automatically close on a containment phase A isolation signal, and so informed the plant management. The inspector was concerned that these containment isolation valves had been inoperable over an extended period of time. Discussions with plant personnel determined the following:

- (1) Samples were drawn on April 13 and 14, 1981, by taping the switch in the open position.
- (2) The valve circuitry malfunction which resulted in taping of the switch apparently occurred on April 13th, and the operator taped the switch in order to keep the valves open for sampling. Without the tape, the valves would not remain open. Only one of the two open indications for the valves was working.
- (3) On completion of sampling, the operator loosened the tape, the switch moved, and the valve open light went out. No valve closed indications lit. Over an hour later the inspector found the switch taped in the open (right-of-center) direction.
- (4) Personnel performing primary sampling did not recognize the safety of taping the switch to the open position.

Based on the above, the inspector now concludes that the phase A isolation feature of the valves was probably defeated only during the sampling process. The operator, however, used no indication

other than the extinguishing of the open indication light with which to verify that the valves were closed.

In conclusion, the inspector's findings are as follows:

- (1) During the periods when the valve switch was taped for sampling, the two containment isolation valves in question (SS-956C and -956D) would not have automatically responded to a phase A containment isolation signal. This is a breach of containment integrity and is a violation (50-261/81-15-01).
- (2) The unlicensed personnel who conducted primary sampling did not understand the ramifications of taping the valve operating switch. This is an inadequacy in the training program for chemistry personnel, and is an open item. (50-261/81-15-02).
- (3) The existing degradation in the position indicating lights on the sample panel, coupled with the failure of plant personnel to immediately report the valve actuation circuitry malfunction for the two containment isolation valves, exemplifies both a departure from maintenance program requirements and from the plant policy defined in Section 2.1.30 of the Administrative Instructions. This failure to implement the maintenance program to correct nonconforming conditions is a violation (50-261/81-15-03). This is a repeat violation in that this failure to report and correct nonconforming conditions was identified in IE Inspection Report 50-261/80-21. The licensee's response should address this recurrence in their action to prevent further recurrence.

6. Plant Trip

At 1515 on April 21, 1981, H. B. Robinson Unit 2 experienced a reactor trip from 96% power. All systems responded as expected. The trip occurred due to confusion between the operator and the technician performing a periodic test on turbine first stage pressure channels. The operator misunderstood which section of the test was being conducted and thus had the C steam generator steam flow transmitter selector switch selected to the flow transmitter under test. When the test was commenced, the steam flow input to the C steam generator water level control system went to zero, yielding a steam/feed flow mismatch. Feed flow to C steam generator decreased rapidly, and this resulted in a plant trip when C steam generator water level reached 30%. The licensee is correcting his testing procedure to require operator initialing of verification of initial conditions to prevent recurrence.

A second reactor trip, from 5% power, occurred at 2139 due to a steam/feed flow mismatch with 30% level in B steam generator. After a normal plant startup, at about 20% power, water hammer damage was experienced on 6A and 6B feedwater heater drain lines and valves. Reactor power was reduced to about 5%, and when the plant generator was separated from the grid, a steam flow spike occurred on all three steam generators. This transient coupled

with a slight manual overfeeding of B steam generator resulted in the reactor trip. Repairs were made to the secondary system and the licensee checked the electrohydraulic control (EHC) system for proper operation. The plant returned to power operation on April 22. The licensee is continuing to investigate for any EHC system anomalies that may have caused the steam flow spike.

7. Technical Specification Compliance

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.

8. Plant Operations Review

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. The inspector had no further comments.

9. Physical Protection

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.

10. Followup of IE Bulletins

For the following Bulletins, the inspector verified that the response was timely, included the required information, contained adequate commitments and that corrective action as described in the written responses was completed.

- a. IE Bulletin 79-21, Temperature Effects on Level Setpoints. This bulletin and the licensee's response had been previously reviewed in inspection reports 80-13 and 80-38. As a result of these reviews, an open item 80-13-01 had been identified concerning whether boiling could occur in the steam generator level instrumentation reference leg. The inspector reviewed the licensee memorandum dated 2/23/81 and the Westinghouse letter (CPL-80-54) referenced therein which states that reference leg boiling will not occur in those plants which have either main steam line check valve or automatic steamline isolation on low steam line pressure only. Since H. B. Robinson has main steam line check valves, the licensee has concluded that S/G level instrumentation reference leg boiling will not occur. The inspector had no further questions on item 80-13-01 or the Bulletin. Bulletin 79-21 is closed.
- b. IE Bulletin 79-06A and -06C, Response to TMI-2 Immediate Action Items. The licensee response was evaluated by NRR and documented in Supplement 2 to the Robinson Safety Evaluation Report. The inspector reviewed this supplement as well as inspection reports 50-261/79-08, 79-11, 80-28, and 80-30. Based on the review of these documents, four items from the subject bulletins remained to be verified. These items were the removal of the pressurizer level input into the Low Pressurizer Pressure Safety Injection bistable, the auxiliary feedwater system automatic start feature, the 1300 PSIG low pressure setpoint for reactor coolant pump operation, and the shutting of all containment phase A isolation valves on receipt of a safety injection signal.

The inspector reviewed Change No. 3467, which modified PLS-1, Setpoint I.1.A.1 to initiate safety injection when pressurizer pressure falls below 1715 PSIG independent of pressurizer level. The inspector also reviewed the instrument calibration sheets to confirm that the bistables trip at the setpoint pressure.

The inspector reviewed a completed copy of PT-2.1, Safety Injection Test (Refueling) and determined that the automatic starting of the auxiliary feedwater system is confirmed in step 5.11 and start time recorded on data sheet 1.

The inspector reviewed change No. 3547, which considered the low pressure setpoint for reactor coolant pump operation. The inspector reviewed the material and found no discrepancies in the licensee's calculation of 1300 PSIG for the pump cutoff pressure.

The inspector reviewed the licensee's list of penetrations to be isolated in the event of a Safety Injection, as stated in CP&L letter to NRR dated December 31, 1979. Using this list and Emergency Instruction-1, Incident Involving Reactor Coolant System Depressurization, the inspector generated a list of valves which must close to

provide Containment Phase A isolation. The inspector next compared this list of valves against the valves tested in Periodic Test (PT) 2.1, Safety Injection Test (Refueling) and PT-2.6, Isolation Valve Seal Water (Refueling). All valves/penetrations are tested except the letdown line penetration (isolation valves CVC-204A and CVC-204B), the containment atmosphere radiation monitor penetrations (isolation valves RMS-1, 2, 3, and 4), and the nitrogen supply to pressurizer relief tank (PRT) penetration isolation valve RC-550). The plant's technical specification for containment integrity establishes the surveillance requirement that isolation valves be tested for operability at each refueling. Valves RMS-1, 2, 3, 4 and RC-550 were tested in November, 1980 as part of a plant modification, however, this testing has not been incorporated into the plant surveillance procedures. This failure to test the letdown line penetration containment isolation valves and failure to have complete procedures to meet the surveillance requirement is a violation (50-261/81-15-04). In that valve RC-550 has not been installed for one refueling interval, the fact that it has not been added to a PT is not part of the violation.

The licensee maintains that valve operability is shown for the letdown line by moving the valve with its control board switch, by doing a valve stroke time test, and by requiring its position be verified in EI-1. The inspector concurs that all of these things are performed but notes that the valves are not verified operable with respect to a containment phase A isolation signal and that the surveillance requirement is intended to insure operability in the event of an accident. This Bulletin is closed.

11. 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 licensee's actions on these items. The inspector also verified that IE Circulars and Notices were reviewed by the Plant Nuclear Safety Committee in accordance with facility administrative policy. Licensee action on the following IE Circulars and Notices were reviewed by the inspector and are closed.

IE Circulars

80-09
80-22
81-01

IE Notices

79-36
80-08
80-15
80-29 and Supplement 1
81-01

12. TMI Action Items

- a. TAP No. II.F.1. Items 1A and 2A; NUREG 0578, Section 2.1.8.b Interim High Range Noble Gas and Iodine Monitors.

The inspector reviewed the interim methods for monitoring high-level releases. The inspector reviewed the following documents:

1. CP&L letter dated December 31, 1979 to NRR.
2. CP&L letter dated March 31, 1980 to NRR.
3. Appendix A to Environmental Sampling Procedure-4.
4. Health Physics Procedure-34.
5. Modification Packages 505 and 506.
6. Sections 3.3, 3.4, and 3.6 of the Plant Emergency Procedures, Volume 13, Book 2.
7. Volume 15, Curve Book, of the Plant Operating Manual.

Based on the review of post-accident effluent monitoring procedures and the apparent operability of the high range plant vent monitor, the inspector considers this item closed.

- b. TAP No. II.K.3, Item 9, PID Controller for PORV.

The inspector reviewed the plant operating manual for consistency with CP&L letter dated June 27, 1980 to the Office of NRR. The rate (derivative) control has been set to OFF, and changes have been made to applicable documents and procedures. Although not specifically required, the inspector questioned not performing a baseline dynamic response check after the modification was made. In light of the fact that the PORV block valves are closed due to PORV leakage, PORV controller dynamics is presently academic. The inspector will follow-up on this item during the next refueling outage. (50-261/81-15-05). The TMI Action Item is closed.

- c. TAP No. II.E.4.2., Item 6, NUREG 0737. This item concerns verifying that purge valves that do not meet the operability criteria are sealed closed. The inspector reviewed the requirements of the NRR letter of October 23, 1979 and the CP&L responses of December 7, 1979 and June 20, 1980. Modification 507 was also reviewed.

Containment purge valves (V12-6, 7, 8, 9) are presently tagged shut on a clearance and their travel mechanically limited to 30° open by modification 507 accomplished in November, 1980. Containment vacuum relief valves (V12-12, 13) are also tagged shut with air to their operators isolated. Containment pressure relief valves (V12-10, 11)

are used intermittently for pressure relief, are normally shut, and their travel has been mechanically limited to 30° since December, 1979. The Containment Ventilation isolation and Phase A isolation signals cannot be blocked.

CP&L is committed to limiting all purging and venting times to as low as achievable, based on habitability or other essential requirements. Plant procedure ES-4 requires strict control of purging, such that purge time above 200° F does not exceed 90 hours per year.

CP&L has submitted the results of their valve operability qualification in letters dated June 20, 1980 and December 24, 1980. It is their intention, after NRC approval of their valve qualification data, to remove the mechanical stops from the pressure relief valves and to limit the travel of the purge valves to 70° open.

Based on the above review, this item is closed.

- d. TAP No. III.D.1.1, NUREG 0578 No. 2.1.6.a - Primary Coolant Outside Containment. The inspector reviewed the licensee's Periodic Test (PT) files to verify that the licensee had implemented a continuing leak reduction program. The licensee's program consists of integrity tests covered by the following PT's: 2.11, 2.12, 3.6, 14.0, 18.4, 18.5, 18.6, 27.1, 45.0, 46.0, 47.0. Following a review of the original integrity tests and the first performance of these annual PT's, the inspector noted the following deficiencies:
1. In general, documentation on the PT's did not show either completed repairs or initiation of a work request to repair components failing the acceptance criteria. Copies of completed work requests were later shown to the inspector, so the problem appeared to be one of documentation rather than failure to repair the components.
 2. PT 2.12 Safety Injection System Boron Injection Tank Integrity Test (Annual) had not been completed as of April 13, 1981. This PT was overdue as of March, 1981. The licensee was informed and performed this PT on April 14, 1981.
 3. PT 14.0 Residual Heat Removal System Integrity Test (Annual) had not been completed as of April 13, 1981. This PT was overdue as of February, 1981. This PT is also required to be performed by Technical Specification 4.4.3. The licensee was informed and the PT satisfactorily performed on April 16, 1981.

Failure to perform the PT's discussed in items (2) and (3) above constitutes a deviation from the commitment made in CP&L letters dated December 31, 1979 and March 31, 1980 to ONRR. (50-261/81-15-06). The failure to perform PT 14.0 constitutes a violation of Technical Specifications. (50-261/81-15-07).

13. Review of Outstanding Items

- a. (Closed) Open Item 79-09-01 concerning temperature correction of hydraulic shock suppressor test data. The inspector reviewed the EBASCO letter dated July 7, 1979 from M. L. Mancini (EBASCO) to R. S. Starkey (CP&L). This letter provided acceptance criteria for the temperature corrected data, formulae for use in computing the new lockup and bleedrate, and curves for fluid viscosity versus temperature. The inspector also reviewed a CP&L "memorandum to file" concerning measurement of ambient temperature in the region surrounding the safety related shock arrestors. This memorandum shows normal operating temperature and assigns maximum and minimum operating temperatures. Based on these memoranda and the issuance of PT-31.0, this item is closed.
- b. (Closed) Open item 80-13-01. This item dealt with the concern that during an accident boiling could occur in the steam generator level instrumentation reference leg. This item is discussed in paragraph 9.a.
- c. (Closed) Inspector follow-up item 79-30-01. This item concerns the tripping of the auxiliary feedwater supply valve (to 'A' steam generator) motor breaker on thermal overload. This problem was reported in CP&L licensee event reports 79-32, 33, 34. The licensee has replaced the previous crane solid disc valve with an Anchor-Darling split-disc valve. No problems with the new valve have been reported. The licensee indicated that the thermal overload problem was caused by a worn gear assembly.
- d. (Closed) Open item 79-19-20. This item concerns the failure to have a housekeeping procedure. The licensee issued their housekeeping procedure as Standing Order No. 13. Review of this document in Inspection Report 50-261/81-06 revealed that this Standing Order was inadequate. The licensee has issued a surveillance report OQAI-81-16 which identifies the deficiencies of Standing Order no. 13 with respect to ANSI N45.2.3-1973. Action on OQAI 81-16 is due May 13, 1981 within the licensee organization. The original open item is closed. This item will be tracked under an inspector follow-up item. (50-261/81-15-08).

- e. (Open) Inspector follow-up item (79-19-19) Warehousing. The licensee continues to upgrade the warehousing and storekeeping programs to meet the requirements of ANSI N45.2.2. Sections 3 (Packaging) and 7 (Handling) of ANSI N45.2.2 were identified as areas remaining to be accomplished in Inspection Report 261/80-25 dated October 21, 1980. The inspector verified that detailed requirement for packaging have been established in Storeroom Procedure SR-3, Storing Certified Parts. The inspector noted that the licensee is preparing a procedure to implement Section 7 of ANSI N45.2.2. This item will remain open, pending completion of licensee corrective actions.

14. Licensee Event Report (LER) Followup

The inspector reviewed the following LER's to verify that the report details met licensee 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 events was verified. The inspector had no further comments.

LER	Event
81-06	Fires Suppression Water Containment Isolation Valve Breaker Trip
81-10	Inoperable Control Rod N-9

15. Procurement and Storage

The inspector reviewed selected purchase orders, storeroom personnel training records, material receipt records, shelf-life item records and inspected stored equipment and parts to verify that:

- Material and spare parts are being received, stored, inspected by qualified personnel and stored as required by procedure.
- Non - conforming items are segregated and tagged.
- Environmental and housekeeping conditions are being met.
- Shelf-life items are being control as required by procedure.

The inspector used the following document to inspect and evaluate the above areas.

Storeroom Procedures:

- SR-1 Procurement
- SR-2 Receiving Certified Parts
- SR-3 Storing Certified Parts

Training Instructions:

- T.R-107 Replacement Training and Retraining Storeroom Personnel
- T.R-106 Crane and Forklift Qualification

Within the areas inspected no violation or deviations were identified.

16. Environmental Protection

The inspector toured selected environmental monitoring stations inside and outside the plant site boundaries to verify that monitoring equipment (as specified by Environmental Surveillance Procedure E.S.1) is installed and operational. In addition the inspector observed the licensee sample collecting technique and preventive maintenance activities on equipment in the field.

Semiannual environmental reports for 1980 were reviewed with respect to trends and the completeness of the reports.

Within the areas inspected no violations or deviations were identified.