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

Report No.: 50-261/94-04

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: January 23 - February 25, 1994

Lead Inspector: _____ 3/22/94
W. T. Orders, Senior Resident Inspector Date Signed

Other Inspectors: C. Ogle, Resident Inspector
L. Garner, Project Engineer
M. Scott, Resident Inspector
K. Ivey, Resident Inspector
P. Balmain, Resident Inspector
J. Starefos, Project Engineer
D. Roberts, Resident Inspector
T. Farnholtz, Resident Inspector
P. Byron, Resident Inspector
M. Miller, Reactor Engineer

Accompanying Personnel: E. Wang, General Engineer (Intern)

Approved by: _____ 3/22/94
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, followup of previously identified items and verification of the completion of Confirmation of Action Letter commitments.

Results:

Four unresolved items were identified. An Unresolved Item was identified involving inadequacies associated with MSIV testing and design, paragraph 3.b; a second Unresolved Item was identified involving the corrective actions associated with the Enercon study, paragraph 4.c; a third Unresolved Item was identified involving the diesel generator evaporative air coolers, paragraph 5.d; and a fourth Unresolved Item was identified involving the adequacy of diesel generator maintenance, paragraph 5.e.

The unit restart of February 8, 1994, was well controlled and conducted in a professional manner; however, during the shutdown on February 17, 1994, command and control was lacking during plant cool down difficulties, paragraph 4.c.

# REPORT DETAILS

1. Persons Contacted

*R. Barnett, Manager, Projects Management
*S. Billings, Technical Aide, Regulatory Compliance
*A. Carley, Manager, Communications
*B. Clark, Manager, Maintenance
T. Cleary, Manager, Technical Support
D. Crook, Senior Specialist, Regulatory Compliance
J. Eaddy, Manager, Environmental and Radiation Support
*W. Farmer, Manager, Engineering Programs, Technical Support
B. Harward, Manager, Engineering Site Support, Nuclear Engineering Department
*S. Hinnant, Vice President, Robinson Nuclear Project
*J. Kozyra, Acting Manager, Licensing/ Regulatory Programs
*R. Kritch, Manager, Regulatory Affairs
A. McCauley, Manager, Electrical Systems, Technical Support
R. Moore, Acting Operations Manager
*C. Olexik, Manager, Robinson Assessment
A. Padgett, Manager, Environmental and Radiation Control
*M. Pearson, Plant General Manager
M. Scott, Manager, Reactor Systems, Technical Support
E. Shoemaker, Manager, Mechanical Systems, Technical Support
*D. Winters, Shift Supervisor, Operations

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

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

2. Plant Status

The Unit remained shutdown until February 8, 1994, while the licensee implemented corrective actions to equipment and corrected personnel deficiencies identified during the forced outage and as required by an NRC Confirmation of Action Letter issued on November 19, 1993. On February 8, 1994, the unit was restarted after necessary repairs and corrective actions were completed. On February 18, 1994, with the unit having achieved 30 percent power, the licensee was forced to shut the unit down due to the failure of the scavenging air blower on the B EDG. The unit remained shut down through the end of the report period while the licensee completed repairs on the B EDG, and searched for a loose part which had been detected in the C S/G.

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. Through work observations and discussions with Operations staff members, the inspectors verified the staff was knowledgeable of plant conditions, responded properly to alarms, adhered to procedures and applicable administrative controls, cognizant of in-progress surveillance and maintenance activities, and aware of inoperable equipment status. The inspectors performed channel verifications and reviewed component status and safety-related parameters to verify conformance with TS. Shift changes were 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. MSIV Performance and Modification

On January 28, 1994, during post-maintenance testing, the licensee determined that the A MSIV required 5 seconds to close with instrument air supplied to the valve actuator and the steam generator at hot shutdown condition. Similar testing of the B and C MSIVs on January 31, 1994, revealed closing times greater than 5 seconds. In response to closing times at, or in excess of the 5 second limit specified in TS 3.7.1, the licensee declared the valves inoperable and failed them shut in accordance with TS 3.6.3.

Subsequent licensee troubleshooting revealed that with instrument air isolated to the MSIVs, and only the MSIV air accumulators providing the motive force, all three valves required in excess of 5 seconds to shut. On February 7, 1994, following installation

and testing of additional MSIV accumulator flasks in accordance with MOD-1137, all three valves were declared operable and the licensee exited TS 3.6.3.

The inspectors reviewed the licensees troubleshooting and resolution of the MSIV performance. The inspectors witnessed MSIV stroke time testing per OST-501, Main Steam Isolation Valves, and OST-702, ISI Secondary Side Valve Test, as well as a portion of the post-modification acceptance testing. Additionally, the inspectors independently reviewed the results of previous MSIV testing and other pertinent historical information available on the valves.

Overall, the conduct of testing and modification witnessed by the inspectors was satisfactory. However, concerns were identified by the inspectors while reviewing the historical data. These concerns involved the testing of the MSIVs and centered on 3 observations: the failure to test the MSIVs while in hot shutdown condition during two surveillance test performed on June 17, 1992, and November 5, 1993; the failure to routinely test the MSIVs with instrument air isolated and the accumulators providing the motive force; and the failure to perform a performance based check of the MSIV accumulators or their associated piping prior to January 1994.

The inspectors reviewed OST-501 test data and noted that the June 17, 1992, and November 5, 1993, data was performed with the steam generators at less than 200°F. As a result, the valves were tested without steam pressure in the generators. This condition represented a less challenging test of the MSIVs and did not demonstrate the capability of the MSIVs to close against a pressurized generator. The capability of the MSIVs to shut against and isolate a pressurized steam generator is implicit in the FSAR analysis for the main steam line break accident and the steam generator tube rupture scenarios. The two performances of OST-501 failed to adequately demonstrate the capability of the MSIVs to perform their design function.

The licensee has historically performed OST-501, and its predecessor, Periodic Test, PT 25.3, Steam Generator Isolation Valves, while in a hot shutdown condition. Of the 16 MSIV tests accomplished prior to January 1991, 13 were performed with the steam generators in a hot shutdown condition. In fact, the oldest MSIV test retrieved by the inspectors from January 28, 1978, specifically required hot shutdown as a condition of the test. This condition was changed in September 1978, to permit MSIV testing with the reactor critical (hot steam generators). Though a detailed justification was not available to describe the basis for this change, the inspectors noted that this change to PT 25.3 was accomplished by simply lining out the hot shutdown test condition. No corresponding notation was made in the test prerequisites to denote the plant critical requirement. This

reduction in the initial condition was carried forward through several revisions to the test procedure. By September 1990, the initial conditions had evolved into "plant at no load condition." However, Revision 6 to OST-501 dated January 31, 1991, fundamentally changed the test prerequisites to specifically allow MSIV testing during cold shutdown conditions. The document change form associated with this revision specified that the change was accomplished to reduce LCO entries associated with MSIV testing. The document change form also stated that a review of Standard TSs revealed that MSIV testing was accomplished in cold shutdown for Standard TS plants.

In addition to representing a fundamental shift in the testing of MSIVs, the inspectors also noted that this change was not in keeping with supporting verbiage contained in the licensee's response to a previous violation on MSIV testing, VIO 84-44-02. That response, dated March 8, 1985, stated: "Operations Surveillance Test, OST-501, is intended only to satisfy Technical Specification (TS) 4.7 which verifies that the MSIVs will close within 5 seconds with the Plant at the hot, no load condition."

The second concern identified by the inspectors centered on the observation that instrument air was routinely used as the motive force for MSIV testing during OST-501. Thus, the operability testing of the Class I MSIVs relied upon the operation of the non-Class I instrument air system. This is contrary to the original licensing basis for the plant as outlined in Section 3.1.1.2.1 of the FSAR. This section states that Class I systems are designed so that there is no loss of function in the event of the maximum hypothetical ground acceleration..." Hence, the licensee's routine testing failed to demonstrate the operability of the Class I MSIVs without taking into account the loss of a non-Class I instrument air system.

This interdependence had been previously questioned during a November 1984 NRC inspection of the licensee's MSIV testing program. In response, on January 8, 1985, the licensee performed SP-647, Main Steam Isolation Valve Operability Test. During this test, the valves were shut while in hot shutdown, with instrument air isolated. For this SP, the MSIV accumulators provided the motive force for closing the valves. All three MSIVs closed during this test though closing times were not recorded. However, all three MSIVs subsequently drifted partially open within 10-minutes of their closing. Additional testing per SP-647 demonstrated that steam flows as high as 8 percent would not cause a partially open MSIV to reshut.

In response to this observation and to reduce the vulnerability resulting from MSIVs that drifted open upon a loss of instrument air, the licensee made provisions to attach a temporary nitrogen source to the valves on January 9, 1985. The nitrogen was available as a motive force in the event instrument air was lost

to the valves. The nitrogen was subsequently removed in accordance with Modification 882 in March 1986. This modification also provided a redundant solenoid in the closing side vent path intended to provide a pneumatic lock on the valves following closure.

The inspectors reviewed this modification package and subsequent MSIV testing per OST-501 and OST-702. This review failed to reveal any instances where the capability to shut the valves using the accumulators, while in hot shutdown, was verified again prior to January 1994. Likewise, no post-modification testing was identified which demonstrated the capability of the valves to remain shut following a loss of instrument air.

The final concern identified by the inspectors involved the lack of a routine testing or monitoring program to verify the integrity of the MSIV accumulators and associated piping. The capability of the instrument air supply check valve to backseat and prevent the loss of accumulator air through a depressurized instrument air supply line is checked per OST-702. However, no performance-based mechanism is in place to detect other leakage paths.

These concerns are identified as Unresolved Item, URI: 94-04-01, Inadequacies Associated With MSIV Testing and Design, pending the completion of a team evaluation of the issues being performed by the licensee.

4. Confirmation of Action Letter Followup Efforts

On November 18, 1993, CP&L management made the decision to place Robinson Unit 2 in cold shutdown to re-configure the reactor core, after they were notified by their fuel manufacturer that six new fuel elements which had been loaded during the outage, had been improperly manufactured. A Confirmation of Action Letter (CAL) was subsequently issued documenting the licensee's planned actions to identify the root cause of the mis-configuration, determine the cause of detected nuclear instrumentation anomalies, evaluate operator performance, and assess the status of the facilitiy's organization, and plant equipment, to determine if the unit was ready for restart.

The Resident Inspection Staff, assisted by Region II inspectors, conducted an independent review of the licensee's actions. The issues inspected during this report period included but were not limited to the following:

a. Action Item: Operations Assist Visit

The licensee performed an Operations Assist Visit (OAV) using senior personnel from the Brunswick facility. This group looked at Backlog Management Staffing, Recovery Plans, and Conduct of Operations.

The OAV noted that the Procedure Problem Concern Form (PPCF) backlog for Operations was 1455 as of November 30, 1993. The licensee reviewed the open Operations PPCFs and determined that of these, 318 had been previously addressed, and only two procedures required revision prior to restart.

The inspectors reviewed AOP-018, Reactor Coolant Pump Seal Flow Limit Changes which was one of the procedures recommended as "restart required." This procedure provided actions to be taken when seal leakage exceeded a certain quantity. The licensee initially was not timely with this revision in that it was based on a Westinghouse Technical Bulletin, NSD-TB-93-01-RO, dated March 30, 1993.

The OAV identified that there were 44 open Level 1 and 2 ACRs and that Level 3 ACRs were not tracked or trended. As a result of this finding, the licensee now tracks all ACRs. The inspectors determined that there were 502 open ACRs as of December 31, 1993.

The OAV also noted that 105 new ACRs were added or initiated during January 1994 alone and that only 13 ACRs were closed during the same period. The inspectors were informed that the licensee plans to obtain additional resources to track and trend ACRs to achieve better control.

The OAV noted that for a significant period of time, the position of Operations Manager had been staffed with temporary personnel, and that there were several projected near term staff vacancies with no replacement planning. The Plant Manager took this as an Action Item and stated that he was taking actions to correct the staffing weaknesses, although these actions were not specified.

The OAV identified several problems with operator command and control as well as use of procedures. The licensee counselled the operators and re-emphasized their expectations for procedure adherence.

The OAV also identified problems with communications in that management expectations were not fully understood by the staff. They also identified that training for startup and power ascension had not been thorough, and that the procedures and plans necessary for startup and power ascension were not in place.

By the end of the report period however, the inspectors confirmed that the licensee had given the operators specific training on startup and power ascension and that the procedures required for startup and power ascension were in place. The plant manager assumed the responsibility for providing corrective actions for the OAV's findings. Although there was no formal tracking system for these items, the inspectors were able to verify that corrective actions had been taken for all the identified issues except staffing levels.

The inspector's concluded that there were no outstanding issues which would affect startup or safe operation.

b. Action Item: Enercon Study Corrective Actions

On January 31, 1994, the unit was in the cold shutdown condition and the licensee was preparing for reactor startup. As part of the start-up readiness review, the licensee determined, that an assessment completed in June, 1992, by a contractor (Enercon), revealed that a previously accepted interpretation of testing methodology for certain Technical Specifications required surveillance tests may be incorrect, and that the tests may not have been adequately implemented.

The evaluation which was completed in June 1992, identified eighteen items for which corrective actions were not initially taken. The licensee reviewed these items and implemented the required corrective actions. The inspectors reviewed the 18 items addressed in the Enrcon report and concluded that the licensee had addressed these issues in a satisfactory manner for unit restart. However, the inspectors were concerned over two issues; first, why corrective action was not taken immediately after the identification of the problems and second, the ramifications of possibly having failed to perform required surveillances. Pending completion of the licensee's ongoing analysis, this concern will be documented and tracked as Unresolved Item, URI: 94-04-02, Enercon Study Corrective Action.

c. Action Item: Extended Control Room Observations

On February 8, 1994, the unit was restarted, the overall startup evolution was well controlled and conducted in a professional manner. The initial problems that occurred during the November 1993 startup had been adequately addressed. On February 11, 1994, the unit was synchronized to the grid and on February 13, 1994, the licensee performed a 25 percent flux map. The inspectors reviewed the flux map and determined that it was satisfactory.

On February 17, 1994, after it became apparent that the B EDG could not be repaired within the time remaining in the TS action statement, a reactor shutdown was commenced from 29% power.

The inspectors attended the pre-shutdown shift brief and observed portions of the shutdown. Overall, the shutdown evolution was well executed and involved only a small number of minor equipment malfunctions. Except as noted below, command and control and intra-shift communications were good. Repeat-backs were used to confirm that information provided to operations personnel were understood and instructions were acknowledged prior to their performance. Of note was the coordination between the RO and the BOP operator during the power reduction. Before performing actions that could affect the operation of a system controlled by

the other operator, the operator was informed of the actions to be taken and their potential consequences. Self-checking techniques such as point and verify that the correct control switch was about to be manipulated were utilized. When possible, procedure steps were performed singularly and sequentially. Actions were taken to ensure that everyone involved in the evolution were cognizant of the next step to be performed prior to its execution. When the procedure lacked detailed instructions to perform certain evolutions or omitted actions that were necessary, these items were noted for future incorporation into the procedure. Annunciator procedures were appropriately utilized when required. Access to the control room was well controlled and distractions to the operating staff were kept to a minimum.

The inspectors noted however that during a brief interval, approximately ten minutes in duration, command, control and communications were not maintained as described above. During the initial attempt to reduce reactor power to 10E-8 amps on the immediate range monitors, difficulty was experienced in maintaining Tavg at the desired value. Due to steam loads, Tavg decreased approximately seven degrees below the desired 543 degrees F before the temperature decline was reversed. With the operating staff involved in several actions/responses simultaneously, use of repeat backs and acknowledgements were discontinued. The inspectors noted that two or three individuals would attempt to communicate to the same person at the same time, with several persons directing actions without consulting the SCO. It became unclear who was actually in charge of the evolution. For example, the SCO was observed directing that a redundant valve be closed to isolate blowdown from the B SG when its normal isolation valve failed. An operator had already directed that this be done. In another instance, the RO informed the BOP operator, as well as, other control room personnel that a coolant alarm on a thermal barrier heat exchanger had been received. Approximately 30 seconds later, the BOP operator observed the alarm was in, went over to the panel to read the annunciator window, and announced that this alarm had been received. The inspectors noted that once the level of activity subsided, the previous control demeanor was automatically re-established. Based upon these observations, the inspectors concluded that Operations personnel were cognizant of management expectations in the control of plant operations but these expectations had not yet become ingrained or second nature to operating personnel. Of particular concern was shift management's failure to detect the ongoing activities and take action to restore the higher standards.

5. Maintenance Observation (62703)

The inspectors observed safety-related maintenance activities on selected 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.

a. Diesel Maintenance, Air Start Check Valves

The inspector observed the inspection and rebuild of six air start check valves for the "A" emergency diesel generator (WO/JO 94-AAMMI). Several of the valves exhibited leakage during as-found bench testing. One of the valves had wear indications on its seating surface and was replaced with a new valve. The other valves seats were lapped with an approved lapping compound. The licensee performed the maintenance in accordance with approved procedures and calibrated tools. The inspector observed that quality control measures were in place and that signatures were obtained as required. In addition, a member of the licensee's Diesel Generator Team was present during the check valve inspections to document any findings. The inspector also reviewed the completed work package and verified that all valve inspections, corrective actions, and post maintenance activities were documented. Overall, this activity was performed satisfactorily.

b. Diesel Maintenance, Fuel Oil System, Air Inlet Valve

On February 12, 1994, the B EDG failed to start during a routine surveillance test. The inspectors observed selected corrective maintenance activities on the diesel. The inspectors noted that the pre-inspection planning for possible blockage in the B EDG fuel oil system was thorough and used a systematic approach. The disassembly and inspection of the B EDG fuel oil system was in the most part performed in accordance with good work practices that reflected a high quality of workmanship.

The air inlet check valve inspection was initially conducted on February 13, 1994. On February 17, an additional air inlet check valve inspections, utilizing a mini-camera, determined that the valve disk was not attached properly to its shaft. The proper connection of the shaft to disk connection was not verified visually on February 13, because this area could not be clearly seen. Disk movement at the same time the external counterweight arm was moved was taken as evidence that the valve was performing satisfactorily. The potential for disk slippage on its shaft was not properly evaluated. In addition, failure to adequately determine what the valve's response would be when the mechanical stop was moved also contributed to an inadequate inspection. Specifically, with the valve closed (i.e., the external counterweight arm in contact with the mechanical stop, the mechanical stop) was moved out of the way and the external arm moved correspondingly. This condition was determined to be acceptable since the valve was thought not to be in contact with

the valve walls when it was closed. Later, a system engineer found a vendor sketch that showed the disk would rest at a slight angle on the inside valve wall when the valve was in the closed position. The adequacy of the maintenance activities on the diesel will be tracked as an Unresolved Item, see paragraph 4.d. for further detail.

c. Diesel Generator Room Cooler Operability

On January 20, 1994, the service water supply line to the evaporative air coolers (EAC) for the diesel rooms burst due to freezing. A review of the system's design determined that freezing of the piping had not been considered. In addition, it was determined that the service water piping was installed as non-Q/non-seismic. The licensee's immediate corrective action entailed isolating service water to the EACs.

The inspectors asked the licensee to determine if the EACs are required diesel generator support equipment, since current design documentation does not specify a position. The licensees's initial opinion was that the EACs are not required for diesel operability. At the end of the report period, the licensee had not completed the analysis to support their contention.

Pending completion of this analysis, the issue will be carried as an Unresolved Item, URI: 94-04-03, Evaporative Air Cooler/Diesel Support.

d. Emergency Diesel Generator Failure To Run

On February 12, 1994, the B EDG failed to start during a routine surveillance test. Ultimately, the cause was identified as a malfunctioning air check valve allowing pressurized air from the blower to be directed back to the blower inlet instead of the cylinders. The pin which connects the aluminum valve disc to its shaft had fallen out. The pin was located in the air piping below the valve. The pin was re-inserted into the shaft and efforts were made to stake around the disc pin hole.

During a post maintenance test run on February 17, 1994, the pin fell out and was ingested by the scavenging air blower. After inflicting catastrophic damage to the blower the pin exited and was found at the air inlet to the turbo chargers. Severe damage was done to the scavenging air blower and both turbochargers.

At the end of this report period, the inspectors were continuing to evaluate the maintenance evolutions which ultimately resulted in the aforementioned engine damage. Pending completion of this evaluation, this issue will be tracked as an Unresolved Item, URI 94-04-04, Adequacy of Diesel Generator Maintenance.

6. Surveillance Observation (61726)

The inspectors observed selected safety-related surveillance activities to ascertain that these activities were conducted in accordance with license requirements. 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. The tests observed by the inspectors included but was not limited to the following:

| | |
|---|---|
| MST-006 | RCP Flow |
| MST-022 | Safeguards Relay Rack Train A |
| MST-013 | Narrow Range S/G Level |
| OST-011 | Rod Movement Test |
| OST-501 | MSIVs (Refueling) |
| OST-702 | ISI Secondary Side Valve Test |
| OST-750 | Control Room Ventilation System |
| EST-050 | Refueling Startup Procedure |
| OST-206 | Steam Driven Auxiliary Feedpump |
| OST-401 | Emergency Diesels (slow start) |
| MST-003 | Tavg and Delta T Protection |
| OST-409 | Emergency Diesels (fast start) |
| EST-051 | Operational Alignment of NIs |
| EST-052 | Process Temperature Instrumentation |
| EST-053 | Thermal Power Measurement |
| EST-054 | Power Distribution Maps |

a. Cold Rod Drop Test

In preparation for restarting the unit, the licensee performed procedure EST-048, Cold Rod Drop Test, to verify that all full length control rods were correctly latched and would drop within the time limits specified by Technical Specification 3.10.4.1. The inspector observed this surveillance test from both the control room and the rod drive room. From the control room, the inspector verified that the operator was complying with the procedure, proper communications had been established with personnel in the field, and that annunciators and alarms, including expected ones, were acknowledged. From the rod drive room, the inspector observed tests for Control Banks B, C, and D, and reviewed the visicorder plots for all control rods. All of the control rods for which legible plots were available were shown to be properly latched. All of the rod drop times met the acceptance criteria of 1.8 seconds from rod drop to dashpot entry.

Three of the rods (two in Shutdown Bank A and one in Control Bank B) did not have legible plots available and were to be retested during the following shift. The inspector concluded that this activity was performed satisfactorily.

b. RHR Valve Stroke Test

On February 1, 1994, operators attempted to stroke open valve RHR-744A from the RTGB. This valve is the RHR cold leg injection valve inside containment and is required to stroke fully open in 15 seconds. When operators took the RTGB control switch for the valve to the open position, they immediately received dual green and red indication signaling that the valve had begun to open. However, after two minutes, the valve was still indicating mid-position. With the valve in mid position, the operator took the switch to the open position once again and the valve traveled to the full open position.

Because the valve failed the OST on the initial attempt to open it, operators declared RHR-744A inoperable and entered a 72 hour LCO in accordance with Technical Specification 3.3.1.2. Licensee personnel immediately began troubleshooting the valve and its control circuitry to determine why the valve initially failed to travel to the full open position. Troubleshooting included operators attempting to recreate the failure by taking the control switch to the open position and then quickly returning it to the mid-position so as to prevent the open circuitry from sealing in the signal. None of these attempts to recreate the failure were successful. Technicians checked motor start and run currents from the breaker and determined that no abnormalities existed. Technicians also measured the resistances of the contacts in the control circuit with the valve in both the closed and mid-positions and determined all readings to be normal. The resistance of the thermal overload contacts were measured and found to be normal. It is possible that the thermal overload protective circuit had tripped open during the initial attempt to open the valve, causing it to stop travel in mid-position; however, the operator had depressed the thermal overload reset button prior to determining whether or not it had tripped. The thermal overload protection was later determined to be operating in its normal band.

Following visual checks of the limit and torque switch contacts at the valve, adjustment of the open torque switch to a higher setting as supported by revised NED design calculations, and a check of the RTGB control switch, RHR-744A was declared operable and the LCO was exited. Similar troubleshooting efforts were performed on RHR-744B and other RHR valves as a precautionary measure.

The inspector reviewed the circuit wiring diagram for the valve and procedures related to the above activities and determined the licensee's efforts to be satisfactory in addressing the operability of the RHR system flowpaths.

7. Meetings with Local Officials (94600)

On February 18, 1994, following the NRC's presentation of the Robinson SALP to the Licensee, senior NRC management conducted a meeting with local officials who had attended the public SALP meeting. The discussions which ensured were candid, frank, and pertained in the main with the licensee's emergency planning and response capabilities. The meeting was attended by senior CP&L management personnel.

8. Review of LERs (30703)

The below listed LERs were reviewed to determine if the information provided met NRC requirements. The determination included: adequacy of description, verification of compliance with Technical Specifications and regulatory requirements, corrective action taken, existence of potential generic problems, reporting requirements satisfied, and the relative safety significance of each event.

LER-92-023: Failure Of ERFIS Processing Function Results In Inoperability Of Control Rod Monitoring System.

LER-92-011: Condition Outside Design Basis Due To Inadequate Seismic Restraints.

LER-92-014: Entry Into TS 3.0 Due To Safety Injection Pump Inoperability

LER-92-024: Unusual Event And Technical Specification Plant Shutdown Initiated Due To Loss Of Containment Vessel Integrity.

LER-92-27: Technical Specification 3.0 Implementation Due To IVSW Isolation.

LER-92-008: Failure Of RTD To Meet Technical Specification Lag Time Requirements.

LER-93-002: Exceeding Fire Protection System Action Statement.

LER-93-003: Technical Specification 3.0 Entry Due To Reduced Temperature Of Boric Acid Flowpath.

The corrective actions for the above LERs have been completed.

These items are closed.

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

(Closed) URI-89-12-01, Maintenance Procedure Upgrade. The adequacy of maintenance procedures continue to be a problem. This issue will be tracked in the licensee's response to Violation 93-29-04. Therefore, this item is considered to be closed.

(Closed) IFI-91-20-04, Review Corrective Actions Associated With Failure Of A Ground Relay Flag To Drop. An evaluation has been completed by the licensee. Plant improvement request (PIR) has been initiated. Annunciator panel procedure, APP-009 has been revised to incorporated the contact closer verification of CV-8 relay for the 4 KV ground detection system. The inspector reviewed the current revision of APP-009, Rev. 12, in which such a verification is incorporated as described in the corrective actions. This item is considered to be closed.

(Closed) IFI-92-07-01, Intermediate Range Channels failure. While performing a normal shutdown prior to RFO 14, both Intermediate Range Channels indications failed to follow the expected neutron flux decay. Channel N35 appeared to hang at 6E-10 amps and channel 36 appeared to hang at 1.2E-9 amps.

The licensee contacted the detector vendor. The vendor indicated that the problem could be attributed to trace impurities in the boron used to line the neutron sensitive portions of detectors. Due to geometrical considerations, activation of contaminants in the boron lining will induce a current in the neutron sensitive chamber which adds to the total current seeing by the amplifiers, increasing the observed flux. In addition, General Procedure, GP-006 has been revised to address such a concern. The inspector has reviewed the latest version of the procedure, Revision 21, and found it to be satisfactory. This item is considered to be closed.

10. Exit Interview (71701)

The inspection scope and findings were summarized on February 25, 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.

| Item Number | Description/Reference Paragraph |
|---|---|
| URI 94-04-01 | Inadequacies Associated With MSIV Testing And Design |
| URI 94-04-02 | Enercon Study Corrective Action |
| URI 94-04-03 | Evaporative Air Cooler/Diesel Support |

URI 94-04-04 Adequacy of Diesel Generator Maintenance.

11. List of Acronyms and Initialisms

| | |
|---|---|
| AFW | Auxiliary Feedwater |
| EDG | Emergency Diesel Generator |
| EST | Engineering Surveillance Test |
| FSAR | Final Safety Analysis Report |
| LCO | Limiting Condition For Operation |
| LER | Licensee Event Report |
| MSIV | Main Stream Isolation Valve |
| NED | Nuclear Assessment Department |
| OAV | Operations Assist Visit |
| OST | Operations Surveillance Test |
| PPCF | Procedure Problem Concern Form |
| PWR | Pressurized Water Reactor |
| RHR | Residual Heat Removal |
| RTD | Resistance Temperature Detector |
| RTGB | Reactor Turbine Gauge Board |
| S/G | Steam Generator |
| SALP | Systematic Assessment of Licensee Performance |
| TS | Technical Specification |