



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

Report No.: 50-261/84-52

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

Docket No.: 50-261

License No.: DPR-23

Facility Name: H. B. Robinson

Inspection Conducted: December 10-14, 1984

Inspectors:	<u>P. E. Fredrickson</u>	<u>1/29/85</u>
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for	W. E. Holland	Date Signed
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	<u>G. A. Schnebli</u>	<u>1/29/85</u>
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	D. M. Verrelli, Branch Chief	Date Signed
	Division of Reactor Projects	

SUMMARY

Scope: This special, announced readiness for operation inspection entailed 160 inspector-hours on site in the areas of review of operator logs and shift turnover, review of system status and independent verification program, surveillance testing, startup testing, modification implementation and control, onsite nuclear safety, quality assurance staff activities, and licensee action on previously identified inspection findings.

Results: No violations or deviations were identified in the eight areas inspected.

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## REPORT DETAILS

### 1. Licensee Employees Contacted

- \*G. Beatty, Manager, Robinson Nuclear Projects Department
- \*R. Morgan, Plant General Manager
- \*J. Benjamin, Principal Engineer, Operations
- \*D. Stadler, Director, Regulatory Compliance
- \*C. Wright, Senior Specialist, Regulatory Compliance
- \*J. Sturdavant, Regulatory Compliance Technician
- \*A. McCauley, ONS Project Engineer
- \*J. Curley, Manager, Technical Support
- \*L. East, Supervisor, Project Engineering
- \*F. Lowery, Manager, Operations
- \*R. Smith, Manager, E&RC
- \*H. Young, Director, QA/QC
- M. Page, Supervisor, Performance Engineering
- J. Huntley, Maintenance Planner
- C. Moon, Shift Technical Advisor
- D. Bates, Senior Specialist, Licensing
- R. Abbott, Senior Specialist, Regulatory Compliance
- G. Hanna, Specialist, Regulatory Compliance
- E. Lee, Shift Foreman
- D. Nelson, Supervisor, Operations
- A. Wallace, Director, ONS
- D. Bauer, Specialist, QA/QC

Other licensee employees contacted included construction craftsmen, technicians, operators and office personnel.

NRC Resident Inspector

\*H. E. P. Krug, Senior Resident Inspector

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on December 14, 1984, with those persons indicated in paragraph 1 above. The licensee acknowledged the findings.

### 3. Licensee Action on Previous Enforcement Matters

Not inspected.

#### 4. Review of Operational Logs and Shift Turnovers

The inspector conducted daily observations of the control room operations personnel from December 11 through December 14, 1984. The operations personnel were manning twelve hour shifts due to a shortage of licensed personnel available. The staff included two licensed reactor operators and one senior reactor operator (shift foreman) per shift. All personnel contacted were knowledgeable in their duties and readily provided requested information. The inspector reviewed the control reactor operator and shift foreman's logs. Both logs were neat and provided the necessary information required by plant procedure.

The inspector also observed the shift turnover on the evening of December 11, 1984. On-coming personnel reviewed plant status logs and the control panel prior to assuming the watch. Also, discussions were held between on-coming and off-going operators with regards to evaluations in progress and accomplishments on the previous shift. Based on this review, operator logs and shift turnovers appeared to be adequate.

No violations or deviations were identified during this inspection.

#### 5. Review of System Status (Value Lineup) and Independent Verification Program

The inspector conducted a review of the subject program in order to evaluate the licensee controls of system configuration. This inspection included a review of operational procedures (OPs) used to establish system lineups, a review of clearance and test procedure controls and a partial walkdown of selected safety systems to verify that the licensee's procedures are being effectively utilized.

At the beginning of the inspection, the inspector was informed by the licensee that all systems, except the service water system, were properly aligned in accordance with procedures. The plant was in cold shutdown (<200°F) and maintenance was being performed on portions of the service water system.

The inspector reviewed selected portions of the system status logs which are being maintained in the control room. The review included the valve/breaker lineups in accordance with applicable procedure for the following systems:

- OP-101, Reactor Coolant System
- OP-202, Safety Injection and Containment Spray System
- OP-301, Chemical and Volume Control System
- OP-306, Component Cooling System
- OP-402, Auxiliary Feedwater System
- OP-601, DC Power Supply

During the review, the inspector verified that safety valves/breakers received independent verification during system lineup.

The inspector then conducted a walkdown of portions of selected safety systems to verify actual valve/breaker positions. Approximately 200 valve/breakers in the safety injection, component cooling water, auxiliary feedwater, DC power Supply and instrument busses were checked. During the walkdown, all checked valves were found to be in the correct position. However, three valves checked (SI-886E, AFW-43 and SW-562) did not have permanent identification tags attached. A review of the licensee's program to replace missing tags indicated these discrepancies would be identified and corrected during routine system lineup checks; however, replacement of the three missing tags will be identified as inspector followup item 261/84-52-01.

During the walkdown the inspector identified five valves that were tagged for maintenance. The valves were tagged in accordance with the licensee's procedure to protect personnel during maintenance, Operations Management Procedure, OMM-005, Clearance and Test Request. OMM-005 requires that a local clearance and test request (LCTR) be issued for maintenance on local plant equipment. The LCTR identified all valves/breakers which are tagged for the clearance. The inspector returned to the control room to review the LCTRs for the tagged valves; however, the LCTR for valve SGB-34 which was tagged shut was not in the active log. The licensee conducted a review of inactive LCTRs and determined that the LCTR for the valve in question indicated that the tag on SGB-34 had been cleared on or before October 12, 1984. The licensee stated that the operator made a mistake in not clearing the tag; however, the valve was in the proper position for operation and they had removed the system downstream of the valve during the past outage. The inspector then conducted additional system walkdowns and checked an additional 20 valves/breakers that were tagged. No additional deficiencies were found and the inspector considers that the preceding occurrence was an isolated case.

During the electrical systems walkdown, all checked breakers were found to be in the correct position; however spare breakers which were identified in instrument bus cabinets did not have a uniform requirement for position nor were all of the spare breakers in the instrument bus cabinets identified. Identification of all spare instrument bus breakers and requirements for control of position (on/off) of spare breakers will be identified as inspector followup item 261/84-52-02.

The inspector reviewed OMM-005 for independent verification requirements when system configuration is returned to normal after maintenance and considers that adequate controls are in place to provide for independent verification.

The inspector also reviewed an event involving valve positioning of a service water vent valve which allowed a breach in containment integrity while the unit was in hot standby. The event occurred as a result of operator error during welding of service water piping inside containment. The inspector does not consider that this event represents a breakdown in the licensee's program for maintaining system status/control. The event will be addressed in a subsequent resident inspection report.

No violations or deviations were identified during this inspection.

6. Surveillance Testing (61701)

The inspector reviewed the licensee's Surveillance Test Program in the following areas:

a. Closeout of Surveillance Procedures.

OMM-015, Operations Surveillance Testing (OST), which provides the administrative guidelines for the execution and completion of operational surveillance tests was reviewed and compared to completed surveillance tests to ensure that:

- final review and analysis of data is accomplished by proper personnel
- Certification and Review Form was properly completed and reasons for an unsatisfactory test were documented.
- equipment that did not meet the acceptance criteria was properly documented and retested subsequent to repair.

b. Technical Specification Verification

The inspector randomly selected the following Technical Specifications to ensure that a surveillance procedure existed to accomplish the testing and that the test interval met the required frequency:

T/S (Surveillance Test): 4.3.1 (OST-52); 4.3.2 (Special Procedure, as required); 4.3.3 (Special Procedure, as required); 4.5.1.1 (OST-163); 4.5.1.2 (OST-163); 4.5.1.3 (OST-351); 4.5.1.4 (EST-006); 4.5.1.5 (OST-351, EST-006); 4.5.1.6 (OST-902, OST-302); 4.5.2.2 (OST-151, OST-251, OST-352); 4.6.1.1 (OST-401); 4.6.1.2 (OST-162); 4.6.1.3 (PM-008); 4.6.1.4 (OST-401); 4.6.3.1 (MST-902); 4.6.4 (OST-162); 4.7.1 (OST-501); 4.12.1.a (EST-016, EST-022); 4.13.2.a (EST-033); 4.14.1.2 (OST-601); 4.15.2.a (EST-023).

c. Technical Specification Amendments

The licensee's program for requesting, processing, and implementing Technical Specifications changes was reviewed to ensure that:

- changes were completed in accordance with the licensee's administrative guidelines contained in AP-027, Section 7 (Changes to the Operating License).
- a safety analysis was performed for items identified in the changes.



- documents affected by the amendment were properly revised. In this review, the inspector selected Amendment No. 78 and 87 and reviewed several procedures (GP-002, GP-003, GP-004, OMM-8, EST-002, and EST-053) to ensure revisions were issued to reflect the changes required by the amendment.

No violations or deviations were identified in the areas inspected.

7. Startup Testing - New or Modified Systems (72701).

The inspector continued his review of the integrated startup program required because of the modifications accomplished during the steam generator outage (see Inspection Report No. 50-261/84-41). At the time of this inspection, the licensee had completed the required testing, that could be accomplished prior to criticality, identified in the letter from H. B. Robinson to the NRC dated July 26, 1984 (Serial: RSEP/84-500). The remaining testing will be accomplished during the initial startup following this outage utilizing existing procedures. The inspector considers that licensee's actions in identification, tracking, and performance of testing required as a result of this major outage to be satisfactory.

No violations or deviations were identified in the areas inspected.

8. Modification, Implementation, and Control

Inspectors reviewed the licensee's Modification Development and Implementation program for adequacy, completeness, proper controls, procedures reviewed included MOD Series 1 - 5, 10 & 11 which provided guidance for modification package development, review, turnover, and closeout.

The modification program was compared to the outline given the NRC at a management briefing on H. B. Robinson's Operational Readiness Program, November 23, 1984. The existing program was found to meet the program outlined at this briefing.

The inspectors interviewed personnel from Engineering, Safety Reviewers, Training QA/QC, and Operations. These interviews emphasized the training of personnel and their use of approved procedures in interfacing with the modification package. Specific procedures and documentation indigenous to the groups were reviewed for general content and not necessarily adequacy.

a. Modification Engineers

After a modification is approved for development it is assigned to a cognizant engineer. He is responsible for designating or coordinating the design of the modification. He then develops the package in accordance with licensee procedure MOD-005. This involves development of all element required attachments and the initial requirements of each modification manager.

Most cognizant engineers are off-site; therefore, after initial development of the modification package it is assigned to an on-site modification manager. His responsibilities include verifying that initial safety reviews are completed, tracking of package implementation and closing out the completed package.

The inspector reviewed procedures, and interviewed personnel in this area. No problems were identified.

b. Safety Reviewers

The inspectors reviewed the licensee's program for Safety Reviews of Modification packages. This program is encapsulated in the "Safety Reviewers Procedure" licensee procedure MOD-013. Safety reviews are accomplished in many areas of expertise. Packages are reviewed to ensure that potential FSAR and Technical Specifications changes are properly identified. Safety reviewers also do a secondary review to determine if the modification involves an unreviewed safety question.

MOD-013 also details the qualification procedure for safety reviewers. These reviewers must have been working at the unit for a minimum of two years, and have a bachelors degree, as a minimum. Previous training and work experience is also weighted. If selected, a would-be safety reviewer then goes through a course on the content of the FSAR and Technical Specifications, and also on how to recognize an unreviewed safety question. After passing a test in this area, the person becomes a safety reviewer in his area of expertise.

The inspector interviewed several safety reviewers and found them knowledgeable in the review process and procedures.

No problems were found in this area.

c. Training on Modifications

The inspector reviewed the licensees training program for modifications. In addition to a training audit of pre-approved mod. packages, each member of the training staff reviews the approved package for possible training action in his area of expertise. These areas include: Electrical, I&C, Mechanical, E&C, RC, Licensed Operators, Non-Licensed Managers and Engineering. These reviews are done under the guidance of licensee procedure TI-303.

These reviews by the "Subject Matter Experts" can result in one of four actions. There may be no training required in the subject area, materials can be routed to personnel requiring information, lectures on the modification can be developed and given, or re-training lessons can be updated to reflect the modification and the information can be routed to personnel in the interim.

The training review process is tracked both on an individual level for the Subject Matter Experts and on the training group level by a comprehensive tracking program monitored by the Production Assistant, training. The program helps ensure that reviews are completed and implemented in a timely fashion, and that the review is documented in the training section (Attachment III) of the modification package.

Through a review of procedures and documentation as well as interviews with training and operations personnel, the inspector determined that this program was adequate to insure that the training required on plant modifications was identified and completed in a timely manner. (This inspection did not review the content or adequacy of the training plans developed under this program.)

d. QA/QC Audit of Modifications

The inspector interviewed QA/QC personnel in order to determine knowledge level of procedures and guidance in the area of modifications. Quality assurance reviewers initially receive mod packages prior to approval for implementation. At this time the package is compared to QA requirements. It is reviewed to determine that licensee procedures were followed in the package development; specifically, TMM-011, OMM-004 and MOD-005. QC hold points are also reviewed at this time to insure adequate controls during the modification implementation. A memo from the Manager, Corporate Quality Assurance to site management provides guidance on how initial package reviews should be accomplished.

After the package is approved for implementation, QC receives distribution of a working copy. At each QC hold point workers wait for a QC inspector to approve further work. If no signoff spot is available in the procedure, the inspector must fill out an Inspection Report Form for the hold point which is then incorporated into the mod package. QA surveillances are conducted on a large percentage of the system walkdowns and turnover meetings. This is done by attendance of a QA inspector as well as the performance of a document review. QA's role in walkdowns and turnovers is defined in licensee procedure MOD-011.

Quality Assurance is also tasked with final review of the modification package before it is closed. This review verifies sign-offs, and references as well as completeness, auditability and traceability. QA personnel informed the inspector that >50% of the packages had problems and review forms were sent to responsible parties for resolution. The QA group also writes Non-Conformance Reports (NCR) for major problems in the packages.



e. Operations Involvement With Modifications

The inspector discussed the operations aspects of modification development and implementation with licensee operations staff and licensed operators. Interviews involved discussion of system clearances, involvement with acceptance testing and final modification walk-down.

Construction personnel request clearance of a particular section of pipe or a whole system in order to work on a modification. At this point operations does one of two things.

- (1) Create a Local Clearance Test Requests (LCTR)
- (2) Institute an Operating Work Procedure (OWP)

An LCTR is developed on the spot using the guidance of licensee procedure OMM-005. The LCTR then tells what valve lineup and tagging requirements exist and what needs to be accomplished in order to place the system back into operation following the modification. An OWP is a pre-approved procedure, similar to an LCTR, except written for specific jobs that are regularly done (i.e., remove and return the RHR pumps to service).

OWPs are controlled documents that help the operator verify that Technical Specifications are met throughout the work process. It specifies the plant conditions required for taking the equipment out of service and what surveillance requirements are required after the work is complete.

The inspector determined that a possible weakness existed in this system. Licensed operators informed the inspector that OWPs were often used for work not precisely defined in the procedure. When this was done at the option of the Shift Foreman, he could waive testing requirements that did not apply. The example given was an RHR pump that was taken out-of-service to replace the nipple. On returning the pump to service, the Shift Foreman signed that the pump did not have to be run as designated in the OWP because work had not been done on the pump.

Although the inspector determined that this event had minimal safety significance, it is questionable whether such an action is permitted by licensee administrative procedures. Administrative Procedure OMM-004 Rev. 3 Section 6.2.1 requires the Shift Foreman to execute the following:

- "o Perform required operability testing.
- o Attach any procedures required for testing redundant equipment and post maintenance testing to the OWPs."

The inspector informed licensee management of this problem and requested that they review the above exceptions to determine whether the Shift Foreman has proper authority to modify a controlled document and that they clarify their administrative procedures accordingly. This item will be followed as inspector followup item 261/84-52-03.

During acceptance testing, operations personnel perform required valve line-ups and assist on an as-needed basis. After lineups are complete, operations has no formal involvement with the modification until it is turned back over to them for any required surveillance testing.

The Operations Department also has many ties with the modifications procedure. Operations personnel are usually present during system walk-downs and in turnover meetings. They help perform tests and interface with engineering personnel to facilitate Operating Procedure Updates.

#### Modification Package Review

Approximately 5% of the outage modification packages were reviewed by the inspectors. These packages were checked for proper signoffs and procedure adherence during development and safety review. Each package was checked for the required attachments to insure completeness and necessary interaction among groups involved in the modification.

A sampling of drawing and procedure revisions from each of the packages was checked. Procedures were reviewed to verify that revisions were in place prior to modification implementation. Drawings were reviewed for updates or updates were checked for red-lined copies in the control room.

One package, Modification-767 on Auxiliary Feedwater Control Valves was reviewed completely. Personnel from all groups handling the package were interviewed to determine their level of awareness of procedures and controls involved in processing the modification. Modification 767 was also compared to the licensee MOD series procedures to determine completeness.

No violations or deviations were identified during this modification package review.

#### 9. Onsite Nuclear Safety (ONS)

The inspector reviewed those activities, conducted by the ONS staff during the steam generator replacement outage, which focused on readiness for operation. Although ONS did not conduct a specific "readiness for operation" review, it did conduct other reviews during the outage that could be used, pieced together, to form an almost complete picture of the unit status. In that ONS is not required to formally document all the activities it performs, much of the information reviewed by the inspector was in the form of ledger sheets, notes and other documentation, not meeting the strict definition of a quality assurance record or document and thus is given less credibility than a formal documentation.

ONS and QA/QC have combined forces to conduct a "ONS/QA Prestartup Readiness Evaluation Program (PREP)." At present all of this "Program" is informal and not procedurally specified. The PREP reviews are conducted mainly by ONS. The one important PREP review conducted by QA/QC is valve lineup verification and is discussed in paragraph 10. The review conducted by ONS, plant modifications, surveillance testing, reactor-turbine generator board (RTGB) checklist and clearances/temporary alterations. There were other reviews that were orally explained to the inspector such as system walkdowns, modification training, and Technical Specification changes, but no objective evidence (even informal) was produced to support the activities.

For plant modifications conducted during the outage ONS reviewed the weekly Plant Modification Turnover Exception List memo which lists modifications status with procedures and drawings to be changed. ONS maintains an informal ledger on plant modifications, on which is annotated that ONS has verified procedure changes and drawings have been completed. Control room drawings changes are also annotated for verification. ONS stated that modification training reviews were also conducted. Although ONS had on-hand training schedules and lesson plans, no informal documentation of the reviews was available.

ONS maintains a "Checklist for Jumper and Wire Removals" on which informal tracking of temporary alterations is documented. Also a log book titled "Local Clearance Test Request Review" is maintained, in which informal tracking of clearance posting/closing is maintained.

The RTGB checklist is a status list on control room RTGB indicators, where indicator normal status is checked against actual status during various plant evaluations. Discrepancies between expected and actual status are documented and resolved during this review. An actual checklist was reviewed by the inspector, but no formal disposition of the results was apparent.

Although the preceding ONS reviews were informal in nature, interviews and document reviews by the inspector revealed that ONS appears to conduct a significant review mission, relating to operations readiness. The inspector was unable to verify, though, due to this informal method, the adequacy of the reviews or the corrective action when discrepancies are identified, that do not result in nonconformance reports being generated. Although documentation of the individual PREP reviews is not formal, a formal report describing this program is planned to be generated after plant startup. The inspector stated that the issuance of this report before startup would have more impact on readiness verification but ONS stated the intent of the report was for readiness and actual startup, that individual reviews would continue through startup and this the report would be issued after startup.

## 10. Quality Assurance Staff Activities

The inspector reviewed three activities conducted by the QA staff which impacted on the verification of operations readiness. The QA audit program was not reviewed in detail in that the audit program and schedule was not altered to conduct any specific audits related to the steam generator replacement outage.

The value lineup verification program, mentioned in paragraph 9 as part of the PREP, was conducted informally by the QA staff. Basically, this program requires a 100% valve position verification of all safety related major flow path valves and instrument root isolation valves. Vent and drain valves are not included. This program is conducted during various plant conditions and is independent of plant staff valve operations and verification. Although informal at present, QA plans to formalize this program procedurally. The inspector review several checklists used for this program and found it quite comprehensive. The program was determined to be an excellent verification program, with the only reservation being the possible negative impact of a 100% "QA Surveillance" on the plant staff's initial responsibility to have the valves positioned correctly.

QA surveillances conducted during the outage were reviewed by the inspector. An outage surveillance team was established to focus specifically on outage work and recovery from the outage. Specific outage surveillances reviewed are the following:

QASR 84-73	QASR 84-202
QASR 84-103	QASR 84-203
QASR 84-154	QASR 84-204
QASR 84-201	QASR 84-205

The inspector reviewed the surveillance to verify that they were consistent with procedure QAP-201, Surveillance Program, Revision 6 and that they covered outage activities and that they did, in fact, document conditions adverse to quality. There surveillance generated ten nonconformance reports (NCRs). The qualifications of this team was reviewed to verify ability to conducted outage oriented inspections in several disciplines. QA and ONS are working jointly on the PREP and, as such, additional special surveillance for startup are not planned.

The inspector reviewed the NCR program to verify that NCRs generated during the outage were corrected in a timely manner and that QA verified that startup related NCR's were tracked to insure completion prior to appropriate plant evaluations. Several NCR's, including those from the outage surveillances were reviewed, for compliance with procedure QAP-204, Nonconformance Control, Revision 8. The program appeared to operate satisfactory. A discrepancy was noted, however in QAP 204, not related to startup verification. QAP 204 requires the concurrence of the QA/QC Director before a proposed NCR is given a number and this becomes an official NCR. This

action can result in NCR's being "unofficially" dispositioned. The licensee was informed that assigning a number prior to the QA/QC Director review would not detract from the authority of the director to disposition away invalid NCR's, but would ensure that this disposition is documented on the QA record NCR as an activity affecting quality. Review of the NCR documentation process is identified as inspector followup item 261/84-52-04.

The overall effort by the onsite QA staff appears to be attuned to the outage and its impact on plant startup. QA and ONS appear to be working in concert on the PREP, and the activities should have a positive impact on startup reliability.

11. Licensee Action on Previously Identified Inspection Findings

a. (Closed) IFI 261/84-02-02, Value Lineup Deficiencies.

The subject deficiencies were identified by the resident inspector during a review of plant operating procedure in order to close a previous violation (261/82-20-03). The licensee corrected the deficiencies as outlined in inspection report 261/84-02 and the inspector verified the corrective actions. The inspector also reviewed additional valve lineup procedures and determined that the licensee's corrective action was adequate. During this inspection, no additional deficiencies were identified.

b. (Closed) Inspector Followup Item #261/84-41-01, Review Retest Documentation Associated With Blackout/ESF Surveillance Testing.

During the performance of OST-162 and OST-163 (Blackout/ESF Surveillance Testing), several problems were identified which resulted in unsatisfactory completion of the tests (See Inspection Report No. 50-261/84-41). The inspector reviewed all maintenance and retest documentation associated with the failed components and considers the licensee's actions for this item satisfactory. This item is closed.