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

Report No.: 50-261/96-05

Licensee: Carolina Power & 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: April 14 - May 25, 1996

Inspector: G. R. Wiseman for W. T. Orders, Senior Resident Inspector 6/24/96 Date Signed

J. Zeiler, Resident Inspector
P. Byron, Resident Inspector, Brunswick
R. Baldwin, Region II Inspector, Paragraph 2.3 and 2.4
J. Lenahan, Region II Inspector, Paragraph 4.1
N. Merriweather, Region II Inspector, Paragraph 4.1

Approved by: M B Shymlock 6-24-96
Milton B. Shymlock, Chief
Reactor Projects Branch 4
Division of Reactor Projects
Date Signed

SUMMARY

Scope:

Inspections were conducted by resident and regional inspectors in the areas of plant operations which included plant status, effectiveness of licensee controls in identifying, resolving, and preventing problems, operator requalification program, and close out of open items; maintenance which included maintenance observations, "A" Emergency Diesel Generator preventive maintenance, non-qualified mechanic assigned to perform required qualified task, and surveillance observations; engineering which included conduct of engineering, coil case cracking of Westinghouse NBFD relays, degraded insulation in main transformer control panel wiring, air leak in tubing to MSIV operator, and close out of open items; plant support which included physical security program, radiological protection program, and fire protection program, and notification of unusual event for fire in the E&RC building, and review of Updated Final Safety Analysis Report commitments.

Enclosure

Results:

Plant Operations

The inspector concluded that during the May 16, 1996, Plant Nuclear Safety Committee meeting, discussions concerning software validation and necessary instrument calibration changes for implementing a new computer program for an automatic steam flow based calorimetric calculation were especially thorough (paragraph 2.2).

Overall, the operator requalification program was determined to be effective. Simulator training sessions were conducted effectively, however, crew critical tasks could be improved in certain areas. Not using follow-up questions immediately following simulator scenarios and the practice of providing training feedback during simulator evaluations detracted from training effectiveness. Shift crew communications were adequate, but, could be improved. Greater realism to actual plant conditions in the usage of the Shift Technical Advisor and hand held radio equipment could enhance training effectiveness. Graded examination packages were adequate, however, improvements could be made in the level of documentation detail (paragraph 2.3).

Maintenance

Overall preventive maintenance activities associated with the A Emergency Diesel Generator were well planned and coordinated. Work was performed with quality workmanship, however, a weaknesses was identified in controls for ensuring that work performed by "non-qualified" personnel was adequately supervised (paragraph 3.1.1). Associated with this, a Non-Cited Violation (50-261/96-05-01) was identified for allowing a non-qualified mechanic to perform "qualified" maintenance work without direct supervision (paragraph 3.1.2).

The inspector evaluated certain surveillance activities to determine if these activities were conducted in accordance with licensee requirements. No discrepancies were identified (paragraph 3.2).

Engineering

Adequate controls were demonstrated to ensure effective implementation of design changes. Overall, the quality of modification packages was good, however, a few minor discrepancies were identified. 10 CFR 50.59 operability evaluations were completed in accordance with NRC and licensee requirements; however, some examples were identified where references to the UFSAR were inadequate, or where answers to the screening questions were incomplete or inadequate. An effective training and certification program for plant engineers has been established; however, only 20 percent of the plant engineers have completed certification. Progress was noted in the reduction of engineering backlogs. Engineering self-assessments were effective in identifying engineering performance deficiencies. Corrective actions in response to a self-assessment on the 10 CFR 50.59 process was identified as a strength (paragraph 4.1).

The licensee's response to a problem involving cracks in relay coil casings was considered thorough, however, several previous opportunities for identifying this problem were missed due to lack of rigor (paragraph 4.2).

Actions to address degraded wire insulation identified in the main transformer control panel and an air leak in the tubing to the C Main Steam Isolation Valve operator were considered adequate (paragraphs 4.3 and 4.4).

A Non-Cited Violation (50-261/96-05-02) was identified for lack of adequate corrective actions to address repeated failures of bellows in the steam generator blowdown containment penetrations. A bellows failure in July 1995 resulted in the need for requesting NRC enforcement discretion (paragraph 4.5).

Plant Support

An Unresolved Item (50-261/96-05-03) was identified for issues identified in the licensee's radiological survey program (paragraph 5.2.1).

The inspector periodically reviewed aspects of the licensee's fire protection program. No discrepancies were identified (paragraph 5.3) .

A NOUE was declared due to a fire reported in the mechanical equipment room on the second floor of the E&RC Building. The inspector reviewed the licensee's fire report and verified that the fire brigade response was adequate and was comprised of the required number of qualified personnel (paragraph 5.3.1).

REPORT DETAILS

Acronyms used in this report are defined in paragraph 8.

1.0 PERSONS CONTACTED

Licensee Employees

*Clark, B., Manager, Maintenance
*Clements, J., Manager, Site Support Services
*Crook, D., Senior Specialist, Licensing/Regulatory Compliance
Hinnant C., Vice President, Robinson Nuclear Plant
*Keenan, J., Director, Site Operations
*Krich, R., Manager, Regulatory Affairs
Meyer, B., Manager, Operations
*Miller, G., Manager, Robinson Engineering Support Services
Moore, R., Manager, Outage Management
*Moyer, J., Manager, Nuclear Assessment Section
Natale, T., Supervisor, Operations Training
Stoddard, D., Manager, Operating Experience Assessment
Wilkerson, T., Manager, Environmental Control
*Young, D., General Manager, Robinson Plant

Other licensee employees contacted included office, operations, engineering, maintenance, and chemistry/radiation personnel.

2.0 PLANT OPERATIONS (40500, 71001 and 71707)

The inspector evaluated licensee activities to determine if the facility was being operated safely and in conformance with regulatory requirements. These activities were assessed through direct observation of ongoing activities, facility tours, control room observations, discussions with licensee personnel, evaluation of equipment status, and review of facility records. The inspector evaluated the operating staff to determine if they were knowledgeable of plant conditions, responded properly to alarms, and adhered to procedures and applicable administrative controls. Selected shift changes were observed to determine that system status continuity was maintained and that proper control room staffing existed. Routine plant tours were conducted to evaluate equipment operability and to assess the general condition of plant equipment.

2.1 Plant Status

The unit operated at or near full power for the entire report period with no major problems.

2.2 Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems

The inspector evaluated certain activities of the Plant Nuclear Safety Committee to determine whether the onsite review functions were conducted in accordance with TS and other regulatory requirements. In particular, the inspectors attended the May 16 meeting. It was

ascertained that provisions of the TS dealing with membership, review process, frequency, and qualifications were satisfied. At this meeting, the committee reviewed the upcoming implementation of a new computer program for an automatic steam flow based calorimetric calculation. The inspector noted that discussions concerning software validation and necessary instrument calibration changes were especially thorough.

2.3 Operator Requalification Program

The inspector used Inspection Procedure 71001 to review and evaluate the licensee's operator requalification program in the areas of simulator training, simulator evaluation, and Job Performance Measures evaluation.

2.3.1 Simulator Training

The inspector observed portions of licensed operator requalification training that were conducted during the inspection period. This included simulator training directed by the training department. The simulator session provided training and practice for the crew on a number of different scenarios in order to prepare them for the annual operating examinations administered at the end of the week. The instructor emphasized closed loop communications, conservative decision making, and correct event classification issues to the crew relating their importance to plant safety. The inspector noted that proper closed loop communications was rarely used. The staff crew's progression through procedures was slowed due to the method of communications. The instructor pointed out to the crew that they did not use crew briefs to their advantage and that major plant equipment starts were not announced as expected by operations management and by procedure.

The inspector attended a crew debrief with the instructor in which the operators self-critiqued their performance. This method was beneficial to both the operators conducting the brief as well as the instructor, in that, they came to a common agreement on areas necessitating remediation or improvement.

The inspector concluded that the overall observed training sessions were conducted effectively.

2.3.2 Simulator Scenario Evaluation Tools

The inspector reviewed dynamic simulator scenarios and noted that CCTs and crew competencies were used to evaluate crew performance. Individual performance was evaluated using individual competencies. It should be noted that CCTs are not required by regulation to evaluate crew performance. The inspector determined that CCTs were not based on specific plant parameters but on generic Westinghouse critical tasks, which are coupled to procedural anchors.

The inspector concluded that CCTs could be improved to encompass more objective performance measures that contain measurable performance

indicators. Objective performance measures allow a common ground for evaluators to objectively evaluate operator performance. The inspector concluded that CCTs, as written, may fail to identify less than satisfactory performance. This would require the use of individual or crew competencies. If the training department has to fall back on competencies to determine crew or individual failures, the CCTs may not be providing sufficient practical guidance in evaluating crew performance.

2.3.3 Evaluator Use of Follow-up Questions

The inspector noted that the facility evaluators did not ask on the spot questioning concerning operator performance immediately following simulator scenarios. The inspector also did not observe discussions between evaluators following the scenarios to determine common questions that should be asked to different examinees.

The inspector also observed that evaluators did not question the validity of the CCTs following the scenario to determine if all CCTs identified, applied to the scenario, based upon crew actions.

The inspector concluded that by not using follow-up questions immediately following the scenarios, the evaluators are loosing a tool for determining crew weaknesses/misunderstandings. Not asking follow-up questions could lead to not understanding crew actions or individual performance. Follow-up questions should be used to determine generic weaknesses, which should be incorporated into the requalification program.

In addition, evaluators may not be identifying when CCTs need modification or are no longer valid based upon crew actions or inactions.

2.3.4 Evaluator Discussions Between Scenarios

During the evaluation, the inspector observed discussions by the evaluators to the examinees of the first scenario's performance prior to administration of the second scenario. Typically, the operators were provided information concerning level of performance during the first scenario. This included, but was not limited to, the satisfactory completion of crew critical tasks, and communication problems. The two scenario set was used to evaluate crew, as well as individual performance. If specific information concerning individual or crew weaknesses were provided to the operators being evaluated, the crew would have a second chance to correct areas discussed during the debrief.

The inspector viewed this practice of providing feedback to the operators during an evaluation as undesirable, in that, it lends itself to more of a training mode rather than that of an evaluation mode. Attention is needed in this area to prevent evaluators from providing training during evaluation exercises.

2.3.5 Evaluators As Examination Participants

The inspector observed the use of an evaluator as a participant during the dynamic scenarios functioning as the emergency communicator. This practice takes the evaluator out of the evaluation mode and places him in a participation mode during the annual examinations. The inspector noted that the position of the emergency communicator is normally performed by a auxiliary operator during an event.

The inspector concluded that the use of the evaluators as participants in the examination was not a good practice. Using this methodology, the evaluator was required to conform with plant procedures, i.e., proper communications. This would dilute the evaluative process and could possibly prevent objective evaluation of the operator.

2.3.6 Crew Communications/Operator Performance

During the evaluation, the inspector observed two crews, one staff and one shift. While both crews exhibited communications problems, the shift crew's communications was more in accordance with plant procedure OMM-001-4, Communications. Proper three way communications was not used as required. There were many instances when a "yes" or "no" answer was provided. The inspector also noted that plant announcements were not done consistently between the two different crews, as well as within the same crew. The crews did not consistently broadcast the immediate operator actions as required by OMM-001-4. The CRSS's did not provide consistent crew briefings during the scenarios. Additionally, the crews were inconsistent in announcing the starting of major plant equipment.

The inspector concluded that while communications, in general, was in accordance with the requirements and expectations of the licensee, improvements could be made.

2.3.7 Use of STA During Simulator Scenarios & Simulator Radio Usage

The inspector observed during the administration of the dynamic simulator scenarios that the STA was present during the scenario, start to finish. The inspector determined that the normal station of the STA was in the work control area, away from the control room. However, the STA was present during the initial part of the scenario receiving initial conditions associated with that scenario. In practice the STA would be required by procedure to be within 10 minutes of the control room if summoned to the control room by the control room operators. The facility does not evaluate the STA in the same way as he performs his job. In most cases the STA would not be in the control room during the onset of an event. The STA would arrive 10 minutes into an event and would be trailing the crew concerning initial conditions as well as current plant conditions.

The inspector observed that portable hand held radios were used during plant operations. The inspector noted that during simulator scenarios, hand held radios are not used in any circumstances, training or evaluation.

The inspector concluded that allowing the STA access to the control room prior to an event when their normal work area outside of the control room adds an artificial element into the amount of knowledge the STA would have during an event. Evaluation of the STA should encompass areas and situations which the STA could experience.

The inspector concluded that using hand held radio equipment during simulator evaluations or training could add to an element of negative training.

2.3.8 Graded Package Reviews

The inspector reviewed final graded packages for one operator that failed and one crew that passed with remediation. The crew that passed with remediation contained one operator that failed the simulator portion of the examination. In general, the packages contained pertinent information concerning examination performance, however, evaluators inconsistently documented crew and individual operator performance. The package which contained the crew pass with an individual failure did not contain information concerning the modification of a CCT or identified that during this scenario the crew had accomplished the CCT. Through discussion with the licensee the inspector determined that the CCT was modified and was accomplished by the crew.

The inspector concluded that the licensee adequately documented team and individual reviews, however, improvements could be made concerning traceability of scenario and CCT modifications and decisions.

2.4 Close Out Item

(Closed) VIO 50-261/96-300-01: Inadequate Corrective Action to Correct a Deficiency Previously Identified by the Facility

This violation involved inadequate corrective action to correct a potential procedure deficiency previously identified by the facility on July 16, 1995, and August 24, 1995, in Abnormal Operating Procedure 14, Component Cooling Water System Malfunction. This deficiency concerned failure to adequately implement corrective action processes established for identification, tracking, and dispositioning concerns identified with operations procedures. Since the previous inspection, the licensee has changed the governing procedure to address this inadequacy. The inspector reviewed CR 96-00388 which addressed this item and verified that licensee corrective actions were adequate.

3.0 MAINTENANCE (61726 and 62703)

3.1 Maintenance Observations

The inspector observed safety-related maintenance activities on systems and components to determine if the activities were conducted in accordance with regulatory requirements, approved procedures, and appropriate industry codes and standards. The inspector reviewed associated administrative, material, testing, and radiological control requirements to determine licensee compliance. The inspector witnessed and/or reviewed portions of the following maintenance activities.

3.1.1 "A" Emergency Diesel Generator Preventive Maintenance

Between April 22 and 25, the inspector observed portions of licensee performance of PM-008, Emergency Diesel Generator Inspection Number 2, rev. 26, and PM-009, Emergency Diesel Generator Inspection Number 3, rev. 12. These procedures involved the 18 month and 3 year preventive maintenance and inspection of the A EDG.

Overall, the inspector determined that the maintenance was well planned and coordinated. The inspector verified that the procedures contained adequate precautions and instructions to perform the work. Material deficiencies identified by the licensee were properly identified for correction. Through work observations and discussions with maintenance personnel, the inspector noted that work was performed with quality workmanship. However, the inspector observed one instance where a mechanic was assigned and performed work without being "qualified" to perform the task. This issue is discussed in more detail in paragraph 3.1.2. The inspector also noted weaknesses in the direct supervision of "non-qualified" mechanics, i.e., mechanics who did not have full diesel engine training qualifications completed.

There are currently only four individuals in the maintenance organization who have full diesel engine qualifications. The licensee planned the maintenance work so that two qualified individuals were assigned as the lead mechanic on each 12-hour work shift. The inspector observed multiple tasks ongoing with non-qualified mechanics involved, both at the engine, as well as in the mechanical shop area. In many instances, a single lead mechanic had to coordinate and supervise these multiple activities. The inspector did not consider these situations indicative of good direct supervision of non-qualified personnel.

Based on discussions with one of the qualified lead mechanics, the individual had an understanding that the lead mechanic was responsible for ensuring that all work was performed correctly, including activities performed by the non-qualified individuals. However, it was not clear to the inspector that the lead mechanics understood the limitations and responsibilities for directly supervising the non-qualified individuals. The inspector subsequently determined that administrative procedures failed to provide adequate guidance on the responsibilities of lead mechanics, failed to define "direct supervision," and failed to describe

the limitations of non-qualified individuals on a particular work activity.

As a result of these concerns, the licensee initiated CR 96-1102 and maintenance management issued a memo to all maintenance personnel defining "direct supervision" and clarifying the roles of qualified and non-qualified personnel. The inspector considered the licensee's corrective actions adequate to address this issue.

3.1.2 Non-Qualified Mechanic Assigned to Perform Required Qualified Task

On April 23, the inspector witnessed discharge pressure testing of the A EDG fuel injection nozzles associated with PM-039, Emergency Diesel Generator A and B Injection Nozzles, rev. 5. Testing was performed by a mechanic (not a lead mechanic) in the maintenance shop after the fuel injectors were removed from the engine. The test involved verifying the opening setpoint of each injector using a test pump apparatus. During testing, the inspector questioned the mechanic's supervisor, as to whether the mechanic was qualified (by formal training certification completion) to perform the test. The inspector was told that the mechanic was qualified, by virtue of having training and qualifications completed on relief valves. Testing was completed without incident and no pressure setpoint adjustment was found necessary to any of the injectors.

The inspector later determined that there was a separate training task certification for testing the fuel injectors. The mechanic's supervisor had not been aware of this training task qualification requirement. The mechanic had not completed this training, therefore, was not qualified to perform this task. Based on observation of the fuel injector testing, the inspector determined that the quality of the work was satisfactory. In addition, a QC inspector was present and witnessed the entire test activity which provided added assurance that the work was completed satisfactorily. Based on satisfactory performance of testing, the inspector determined that this incident had no actual safety consequence, but indicated that greater attention to the training qualifications of personnel performing work was needed.

MMM-003, Maintenance Work Requests, rev. 49, Step 5.5.6, requires maintenance supervisors to ensure that qualified personnel are assigned to work activities. The supervisor should have been aware of the training qualification requirement for the fuel injectors before allowing the mechanic to perform the activity without direct supervision. The inspector considered this issue to be a violation of TS 6.5.1.1.1 for failure to follow MMM-003. This failure constitutes a violation of minor significance and is being treated as a Non-Cited Violation, consistent with Section IV of the NRC Enforcement Policy. This item will be identified as NCV 50-261/96-05-01: Failure to Follow Procedures for Assigning Qualified Personnel to Perform Maintenance.

3.2 Surveillance Observations

The inspector evaluated certain surveillance activities to determine if these activities was conducted in accordance with license requirements. For the surveillance reviewed, the inspectors determined that precautions and LCOs were adhered to, 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, tests were completed at the required frequency, and the tests conformed to TS requirements. Upon test completion, the inspector verified that the recorded test data was complete, accurate, and met TS requirements, test discrepancies were properly documented and rectified, and the systems were properly returned to service. No discrepancies were identified.

4.0 ENGINEERING (37550 and 37551)

4.1 Conduct of Engineering

4.1.1 Design Change Control Processes

The inspector reviewed the licensee's procedures which control the design change program. The inspector reviewed the current revisions of the procedures listed below which control design changes and verified that the design control measures were consistent with 10 CFR 50, Appendix B, Criterion III and 10 CFR 50.59. The following procedures were reviewed:

MOD-002, Design Calculations; MOD-010, Design Verification; PLP-032, 10 CFR 50.59 Reviews of Changes, Tests, and Experiments; and PLP-064, Engineering Service Requests.

From review of the above procedures, the inspector concluded that the following attributes were adequately addressed: design processes, design inputs, interface controls, design verification, document control, post-modification testing, control of field changes, and 10 CFR 50.59 safety evaluations. The inspector concluded that adequate controls were in place to ensure effective implementation of design changes.

4.1.2 Review of Design Changes and Modification Packages

The inspector reviewed the design change and modification packages in order to: 1) determine the adequacy of the safety evaluation screening and the 10 CFR 50.59 safety evaluations; 2) verify that the modifications were reviewed and approved in accordance with TSs and applicable administrative controls; 3) verify that applicable design bases were included; 4) verify that UFSAR requirements were met; and, 5) verify that both installation testing and post modification testing requirements were specified and that adequate testing was performed.

The inspector reviewed the following design change and modification packages:

ESR-9500686 - Over-riding Feedwater Isolation with Reactor Trip Breakers Open

ESR-9500906 - Auxiliary Relay Room Temperature Averaging Device Replacement

ESR-9500186 - Replace Primary Water Flow Transmitter FT-114

The above design change and modification packages are scheduled to be implemented during the next refueling outage (Refueling Outage 17). The inspector found that the modification packages had been reviewed and approved in accordance with the licensee's design control procedures and that the format and content of the modification packages was consistent with the design control procedure. The quality of the modification packages were good overall with only a few minor discrepancies being noted in two of the packages. None of the noted discrepancies would have prevented successful implementation of the modification or resulted in an inadequate modification package. The scope of each modification was found to be consistent with the problem resolution outlined in the Engineering Service Request. The 10 CFR 50.59 Safety Evaluations were found to be adequate. The installation and test instructions were considered adequate to implement the modification and verify that it performed in accordance with design. The inspector also verified that the UFSAR and other documents, e.g., drawings and procedures, had been identified in the modification packages for revision.

The modification packages provided a reasonable solution to the problems identified in the Engineering Service Requests. In general, the modification packages were judged to be of good quality and would not degrade plant performance, safety, or reliability. The modification packages contained sufficient specifications, drawings and procedures to be properly installed and tested.

4.1.3 Review of 10 CFR 50.59 Operability Evaluations

The inspector reviewed the design change and modification packages listed below to determine the adequacy of the 10 CFR 50.59 safety evaluation screening and unreviewed safety question determinations. Packages reviewed were as follows:

ESR numbers 94-520, 94-668, 95-220, 95-464, 95-632, 95-633, 95-863, 95-870, 95-872, 95-906, 95-993, 95-1094, 95-1116, and 95-1374.

Modifications M-1105, M-1111, M-1139; RNP-M/Mech-1595, -1599, -1609, -1611, -1612, -1615, and -1618; RNP-C/Elec-1221, -1224, and -1231.

Overall, the inspector concluded that the 50.59 screening evaluations were completed in accordance with the licensee's procedures and NRC requirements. However, some examples were identified where references to the UFSAR were inadequate, or where the answers to the screening questions were incomplete or inadequate. There were no instances of these discrepancies resulting in an incorrect determination of an unreviewed safety question. These findings were similar to those in Self-assessment 96-02, discussed in paragraph 4.1.6.

4.1.4 Training and Qualification of System Engineers

The inspector reviewed the current revisions of the following procedures which specify the requirements for qualification of plant (system) engineers:

- Training Program Procedure TPP-213, Engineering Support Personnel Training Program

- Technical Support Management Manual TMM-105, System Engineer Certification Procedure

These procedures establish the guidelines for training and certification of plant (system) engineers. The inspector also reviewed a sample of the 21 training guides for self-study in individual disciplines, e.g., Environmental Qualification, Motor Operated Valves, Instrumentation and Control, Inservice Inspection, fire protection, etc. The training guides are required to be completed prior to certification of a plant engineer. The licensee is presently transitioning from the system engineer concept into a plant engineering program. Approximately 20 percent of the plant engineers are certified. The inspector reviewed the schedule for completion of the certification process for remaining plant engineers on the remaining systems. The schedule shows that the majority of the primary system engineers will be fully certified on their systems by the end of 1996. Individual training schedules have been developed for all plant engineers which document required training and the scheduled completion dates for the training. The inspector concluded that the licensee's program for training and qualification of plant engineers met NRC requirements.

4.1.5 Engineering Backlog

The inspector reviewed the backlog of open items in the RESS. The backlog of items in the RESS include ESRs which include modifications, temporary modifications, drawing changes, other engineering documents with outstanding changes, and other engineering items, including open condition reports and engineering commitments. The licensee's performance report for the week ending May 10, 1996, showed approximately 475 open engineering work items. The licensee is making progress in reduction of the engineering

work backlog. The year-end goal is to reduce the total number of open items in RESS to less than 200.

The inspector concluded that the licensee has made progress in reduction of the backlog of engineering work in RESS.

4.1.6 Quality Assurance Assessment and Oversight

The inspector reviewed self-assessments performed within the RESS. Self-assessments are part of the overall CP&L quality assurance program at Robinson. The results of these assessments are categorized as strengths, or findings. The self-assessments reviewed by the inspector were RESS 96-02, PLP-032, Safety Reviews; RESS 96-04, Station Blackout Program; RESS 96-07, ESP Continuing Training; and RESS 96-22, Identification and Updating Affected Design Documents. Several findings were identified in Assessment 96-04. Two of the findings involved potential compliance issues. These were documented in CRs 96-00071 and 96-00100. Five findings involved design/technical issues and two involved program implementation issues. However, the overall conclusion of the assessment was that Robinson could cope with a station blackout event.

One strength and six findings were identified in Assessment 96-07. The findings primarily concerned documentation of training and other administrative issues. The continuing training program was found to be acceptable.

Three findings and two strengths were identified in Assessment 96-22. The findings concerned failure to update design documents in a timely manner, however, improvements were noted since the last assessment in this area.

Two strengths and six findings were identified in Assessment 96-02. The findings concerned the need to improve training of RESS personnel on 50.59 safety evaluations and weaknesses in the administrative and technical aspects of the 50.59 reviews. Several discrepancies were identified in inadequate/incomplete answers to the 50.59 screening questions. No instances were identified where the discrepancies resulted in incorrect screening or unreviewed safety question determination. These findings were consistent with the results of the inspector's review of the 50.59 process. Based on the results of Assessment 96-02, the licensee decided to perform a site wide assessment of the 50.59 process, and implement a training program to improve the 50.59 process.

The inspector concluded that the self-assessments performed by RESS were effective in identifying engineering performance deficiencies and were useful in providing oversight to management. Corrective action in response to the self-assessment on the 10 CFR 50.59 process was identified as a strength.

4.2 Coil Case Cracking of Westinghouse NBFD Relays

On April 16, during a visual inspection of the RPS relay racks, the licensee found an accumulation of fine reddish particles below several of the A and B train RPS relays. One of these relays was removed and replaced. At this time, a crack was found in the molded casing surrounding the relay coil housing. The licensee suspected that the particles found below the relays were the silica based potting material located inside the coil casing. Based on concerns that these particles could lodge between the coil and plunger and impede the operation of the relay coil, the relay was tested and then disassembled. The inspector witnessed portions of this activity which included dropout time response testing. The inspector noted that these activities were well controlled. Repeated dropout time testing yielded results typical for these relays. When the relay was disassembled and inspected, none of the reddish particles were found in the area of the air gap that could possibly prevent the plunger from moving within the relay coil. Further, based on the internal construction of the relay which includes an inner sleeve that surrounds the air gap area, the chance that the particles could enter this area was remote. The licensee determined that the relay was capable of operating properly with the cracked coil casing. The inspector agreed with this conclusion.

On April 18, after obtaining sufficient quantities of replacement Westinghouse relays (NBFD65NR), the remaining 19 RPS relays (NBFD31S) were replaced. Each of the relays removed were found to have cracked coil casings of varying magnitudes. Dropout time tests were performed on each of the relays removed. All relays had acceptable response times and were considered operable.

The licensee subsequently inspected all remaining NBFD/BFD relays in the reactor protection and safeguards cabinets. Five additional relays in the reactor protection cabinets, and one relay in the safeguards cabinets, were found with cracks. Another five relays in the reactor protection cabinet were suspect as having cracks, however, positive verification was hampered by visual difficulties. The licensee planned to replace all of the relays that were cracked or suspected of being cracked.

The relays in the RPS racks were installed in a densely packed arrangement. Subsequent laboratory analysis of two of the relays removed determined that the coil casing of each was thermally degraded, resulting in cracks that allowed the silica potting material to leak out. The licensee concluded that elevated operating temperatures and the densely packed configuration of the relays contributed to the thermal degradation and the eventual cracking of the coil casing.

The inspector reviewed the licensee's response to NRC Information Notice 91-45, Supplement 1, dated July 29, 1994. This Notice described several problems associated with Westinghouse NBFD relays, including the unexplained high number of RPS relays that had experienced coil cracks at several other utilities. The licensee assumed that only Westinghouse

relays of style NBFD65NR could be affected by this phenomena, and thus, only inspected eight relays of this style for cracking. None of these eight relays were installed in the RPS cabinets. The inspector concluded that the licensee's actions in response to this Notice had been too narrow in scope.

The inspector also noted that an additional opportunity to identify the cracks in the relays occurred in October 1995, when the licensee performed infrared thermography measurements of the RPS relays. These measurements were performed to detect relay temperatures in excess of 160°F in order to meet Westinghouse's recommendation that the coil temperature be maintained below 165°F. Temperatures were identified as high as 206°F. A Westinghouse representative was contacted, and verbally indicated that temperatures in excess of 200°F were not unusual on normally energized NBFD relays. Based on the vendor's verbal information, no further action was determined necessary by the licensee. The inspector considered that in lieu of the root cause of the coil cracks, the licensee relied too heavily on the vendor's verbal information. The inspector concluded that the licensee's evaluation of identified excessive relay temperatures lacked rigor and resulted in a missed opportunity to discover this problem earlier.

4.3 Degraded Insulation in Main Transformer Control Panel Wiring

During the report period, the licensee identified the presence of a green oily substance on the wiring and terminal connections inside the control panels for the non-Class 1E (non-safety-related) 22 Kilovolt Main Transformers. The substance was determined to be similar to that originally found in several safety-related MCC compartments during 1991.

The inspector reviewed ESR 95-00733 which addressed this previously identified problem. The previous investigation determined that the substance was leaching from inside the wire insulation and moved along the copper wires onto the wire terminals. The green liquid was identified by chemical analysis to be a vegetable oil derivative plasticizer, which had been blended in the manufacturing of the wiring's polyvinyl chloride insulation. Excessive heat inside the MCC compartments was attributed to the cause of the insulation breaking down. The degradation of polyvinyl chloride wiring insulation identified at H. B. Robinson, as well as several other plants, was the subject of NRC Information Notices 91-20 and 94-78. The licensee's corrective actions initially involved replacing all affected Class 1E MCC wiring. Later, the scope of corrective actions were expanded to address the presence of the substance on non-safety related MCCs, as well as other electrical panels and relays.

The inspector with engineering and transmission personnel inspected the three control panels for each phase of the main transformers. The panels are mounted next to the transformers and are exposed to direct sunlight. Leaching from the wire insulation is known to be accelerated by heat. While small amounts of the green substance was found on wiring and terminal connections that provide transformer indication status, the

ground fault relays, which were the only electrical equipment that could jeopardize the transformer operation, were unaffected. Based on this, the licensee determined that the affected wiring would be cleaned or replaced during the upcoming refueling outage in September 1996. The inspector questioned whether periodic monitoring of the cabinets was warranted to assure that conditions in the cabinet did not degrade. The licensee indicated that this would be considered. The inspector concluded that to date, the licensee's actions to address this problem were appropriate for the circumstances.

4.4 Air Leak in Tubing to MSIV Operator

On April 17, during the conduct of routine rounds, an auxiliary operator identified a pin-hole air leak in the tubing on the C MSIV air accumulator tubing. The leak was downstream of the MSIV accumulators and upstream of the air operated solenoid valves.

The inspector reviewed OD 96-008 which was initiated by the licensee to evaluate the impact of the leak on the operability of the MSIVs. The MSIV's are required to close within 5 seconds with instrument air to the accumulators isolated for a Main Steam Line Break Accident. They are also required to close within 30 minutes after a Steam Generator Tube Rupture with instrument air isolated. The licensee determined that the MSIVs were still operable and able to perform their intended safety function. The most limiting condition evaluated was whether there was sufficient pressure (at least 58 psig) in the accumulators to assure that the MSIVs close 30 minutes after initiation of a Steam Generator Tube Rupture Accident. Based on field observations on the size of the leak and pressure loss calculations, the licensee determined that the leak was small enough to maintain the necessary pressure. While the inspector determined that this was a reasonable technical approach for evaluating the impact of the air leak on the operability of the MSIVs, details to support the licensee's conclusions were not included in the Expert Operability Analysis associated with OD 96-008. The inspector was later supplied with details of the pressure loss calculations and associated assumptions used in the analysis. After reviewing this information, the inspector concluded that it provided adequate justification for the licensee's conclusions.

In conjunction with OD 96-008, Temporary Modification 96-253 was developed and implemented on April 18 to stop the leak by attaching a rubber patch over the hole with hose clamps. The inspector reviewed the modification package and inspected the installed patch. The modification was adequately prepared and included the appropriate reviews for considering the impact of the repair on the instrument air system and MSIV function.

The licensee also constructed a test apparatus to simulate the size of the hole and leakage from the accumulator. The results of this simulation indicated that the accumulator would remain pressurized above the required amount for closing the MSIV's for a Steam Generator Tube Rupture Accident. The licensee planned to monitor for any leakage from

the installed patch on a periodic basis to assure its integrity. The damaged tubing was to be replaced during the upcoming refueling outage and to prove past operability, the actual damaged section of tubing was to be pressure tested to determine the actual leakage.

The licensee determined that the leak was caused by the tube rubbing on an adjacent instrument air pipe. The tube appeared to have been bent to the point of contacting the pipe as a result of someone stepping on or pulling the tubing downward. All site personnel were made aware of the damaged tubing and management expectations that personnel adhere to plant stepping/climbing rules and to report damage observed to plant equipment.

The inspector determined that licensee evaluations and actions to address this issue were appropriate to the circumstances. The adequacy of the Expert Operability Analysis did not contain sufficient information/ details to support the engineering/evaluation conclusions.

4.5 Close Out Items

(Closed) URI 50-261/95-23-03: Notice of Enforcement Discretion - PPS Exceeded the Allowable Limit,

(Closed) LER 95-05-00: TS 3.0 Entry Due to Excessive Penetration Pressurization System Leakage, and,

(Closed) LER 95-05-01: TS 3.0 Entry Due to Excessive Penetration Pressurization System Leakage

On July 20, 1995, the licensee entered TS 3.0 as a result of the combined leakage from the PPS exceeding the allowable TS limit of 1.57 scfm required to meet containment integrity. TS 3.0 required the plant to be placed in hot shutdown within 8 hours and in cold shutdown within the next 30 hours. The licensee determined that, most likely, the source of the leakage was from a crack in the outside containment penetration expansion bellows of the C SG blowdown penetration. The licensee was unable to positively measure the leakage from the crack until the penetration cooled which required greater than the 8 hours allowed by TS 3.0. The licensee requested that the NRC exercise enforcement discretion, allowing an additional 12 hours beyond the TS 3.0 allowed outage time in order to confirm that containment integrity existed. The NRC granted verbal enforcement discretion on July 21, which was documented by NRC letter dated July 24, 1995. Eight hours and four minutes after entering TS 3.0, the licensee confirmed that the penetration leakage was from the expansion bellows; therefore, containment integrity had not been breached. The licensee submitted voluntary LER 95-05-000 and Supplement LER 95-05-001 for entering TS 3.0.

The inspector reviewed LERs 95-05-000 and 95-05-001, and the circumstances which resulted in leakage from the penetration expansion bellows. The licensee's inspection of the bellows following cooldown revealed a crack approximately one to two inches long which allowed the PPS leakage. A new bellows was obtained and installed on July 31. The

failure mechanism was later determined to be TGSCC as a result of the interaction of chlorides present in the insulation installed in the penetration sleeve area. The chlorides were apparently transported from the insulation to the bellows lining by moisture that was present in the PPS supply air. The source of the moisture in the PPS was from the instrument air system.

In October 1995, the SG Blowdown penetrations (S-24, S-26, and S-30) were re-evaluated and re-classified from 10 CFR 50, Appendix J, "Type B" penetrations to "Type A" penetrations. The inspector reviewed Modifications ESR 96-00886 and 96-01020 which documented the licensee's re-classification of these penetrations. The sleeve design for these penetrations consists of a solid welded cap inside containment. This cap is welded to the sleeve and to the blowdown piping. The licensee determined that the welds met the same ASME specifications of the containment steel liner installation. The inspector verified that the aforementioned welds were equivalent ASME classification as the containment liner by review of field installation drawing B-190178.

In order to limit the PPS moisture carryover to containment penetrations, the licensee began blowing down the PPS receiver tanks on a monthly basis. The inspector verified that this had been initiated by reviewing completed work requests for this activity. With regard to permanent resolution of the moisture problem, the licensee planned to install an air dryer in the PPS system.

The root cause of this incident was lack of adequate corrective action to address recurring bellows failures that had occurred in all three SG blowdown penetrations. The first failure occurred in 1986 involving the C SG. The analysis conducted, found that the failure mechanism was TGSCC due to the presence of chlorides. In 1990, all three SG blowdown penetration bellows were replaced due to the detection of cracks. The failures were again attributed to TGSCC and further analysis of the insulation for the A SG blowdown penetration identified the presence of chlorides. At this time the bellows for the C SG blowdown penetration was removed, a chloride-free insulation was installed, and a new bellows was installed. However, the insulation for the remaining two penetrations was not replaced. In August 1993, leakage was detected from the C SG penetration sleeve to which the bellows is welded. A weld repair was performed and the penetration was returned to service. In May 1995, the C SG bellows was patched using sealant as a result of a leak.

The inspector determined that the licensee's failure to adequately address the degraded penetration condition was a violation of 10 CFR 50, Appendix B, Criterion XVI, for inadequate corrective actions. However, this licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy, and is identified as NCV 50-261/96-05-02: Inadequate Corrective Actions for Containment Penetration Bellows Failures.

on or by April 16. The inspector subsequently observed that eight other auxiliary building areas with quarterly or semi-annual survey frequencies were not completed within their specified frequencies. The inspector reviewed HPP-001, Radiologically Controlled Area Surveillance Program, rev. 16. The procedure stated that as a general practice, periodic surveys should be completed as early as possible in their respective time frames, i.e., daily, weekly, monthly, quarterly, etc. However, due to ALARA considerations and the coordination of other scheduled work activities, the procedure allowed these surveys to be performed at any time during their respective time frames. This allowed a survey with, for example, a quarterly frequency that was performed at the beginning of one quarter to be done at the end of the next quarter. The inspector was concerned that this allowed considerable flexibility and potential for survey frequencies that may not be reasonable for the changing radiological conditions and personnel entry frequency for certain areas such as the RHR Pump Room. The inspector determined that further review of the licensee's controls for periodic surveys and past survey frequency data was necessary to resolve this issue.

The inspector also reviewed all RHR Pump Room surveys performed since the January 16 quarterly survey. Six surveys had been performed to support planned maintenance work conducted in the room. However, following maintenance, the survey map posted at the door to the room had not been updated with the latest survey results. The inspector was concerned that personnel entering the room would be utilizing outdated and potentially non-conservative survey data results. The inspector was not concerned that had the radiological conditions changed dramatically, the licensee would not have updated the survey posting. However, the licensee's threshold for updating the surveys was unclear since administrative procedures did not address this aspect.

The inspector determined that further review of the licensee's periodic survey program was warranted to resolve the three issues addressed in the aforementioned paragraphs. These issues were identified as URI 261/96-05-03: Followup on Radiological Survey and Posting Issues.

5.3 Fire Protection Program

The inspectors periodically reviewed aspects of the licensee's fire protection program including fire brigade staffing controls, flammable materials storage, housekeeping, control of hazardous chemicals, and maintenance of fire protection equipment. No discrepancies were identified.

5.3.1 Notification of Unusual Event for Fire in E&RC Building

On May 14, at 7:00 p.m., a NOUE was declared after a fire lasting potentially greater than ten minutes was reported in the mechanical equipment room on the second floor of the E&RC Building. The chemistry and radiation control offices are located in this building. While the building is located inside the protected area fence, it is not connected or part of the Auxiliary Building and Power Block.

5.0 PLANT SUPPORT (71707, 71750, 83750, and 92904)

5.1 Physical Security Program

The inspectors toured the protected area and observed the protected area fence, including the barbed wire, to ensure that the fence was intact and not in need of repair. Isolation zones were maintained and clear of objects which could shield or conceal personnel. Personnel and packages entering the protected area were searched by detection devices or by hand for firearms, explosive devices, and other contraband. Vehicles were searched, escorted, and secured as required. No discrepancies were identified in this area.

5.2 Radiological Protection Program

The inspector reviewed radiation protection control activities to verify that these activities were in conformance with facilities policies and procedures, and in compliance with regulatory requirements. The inspector periodically verified that selected doors which controlled access to very high radiation areas were appropriately locked, radiological postings were adequate, and radiological equipment located inside the Auxiliary Building were properly calibrated.

5.2.1 Radiological Survey and Posting Issues

During the report period, the inspector reviewed various aspects of the licensee's radiological survey and posting program. 10 CFR 20.1501(a) requires each licensee to make or cause to be made such surveys as (1) may be necessary for the licensee to comply with the regulations and (2) are reasonable under the circumstances to evaluate the extent of radioactive hazards that may be present. The licensee conducts periodic radiological surveys of selected areas of the RCA which provide both surface contamination and general dose rate levels.

The inspector noted that several areas of the RCA were not being surveyed at any periodic frequency. These included such areas as the auxiliary building ventilation inlet and exhaust fan rooms, EDG inlet fan room, and auxiliary building stairwells. While the inspector recognized that these areas were not expected to be contaminated since they did not contain equipment or systems that could create radiological hazards, these rooms were part of the RCA and access to them was not controlled or restricted. In response to the inspector's concerns, the licensee surveyed several of the rooms. While some contamination was detected, it was relatively low. At the end of the report period, the licensee was still in the process of providing the inspector with data to justify not including these areas in the periodic radiological survey program.

On May 16, the inspector noted that the radiological survey map for the RHR Pump Room was dated January 16, 1996. Survey maps are posted at the entry points to areas periodically surveyed. The frequency for periodically surveying the RHR Pump Room was specified on the survey as quarterly. Based on this frequency, the survey appeared to have been due

The fire was discovered at 6:48 p.m., when the local building alarm sounded. The fire brigade was summoned, but upon arrival to the scene, the fire had already been extinguished by the building automatic sprinkler system. The fire damage was contained to an air compressor that was located in the equipment room. The fire was extinguished by a single fusable sprinkler head that actuated directly above the compressor. The NOUE was exited at 7:06 p.m., following confirmation that the fire was extinguished.

The licensee's preliminary investigation into the cause of the fire determined that cooling to the operating compressor may have been lost and the compressor overheated. The plastic casing that enclosed the cooling fan was the source of the combustible material that burned.

The inspector reviewed the licensee's fire report and verified that the fire brigade response was adequate and was comprised of the required number of qualified personnel. No discrepancies were identified.

6.0 Review of Updated Final Safety Analysis Report Commitments

A recent discovery of a licensee operating their facility in a manner contrary to the to the UFSAR description highlighted the need for a special focused review that compares plant practices, procedures and/or parameters to the UFSAR descriptions. While performing the inspection discussed in this report, the inspectors reviewed selected portions of the UFSAR that related to the areas inspected. The inspectors verified that for the select portions of the UFSAR reviewed, the UFSAR wording was consistent with the observed plant practices, procedures and/or parameters.

7.0 EXIT

The inspection scope and findings were summarized on May 31, 1996, by John Zeiler with those persons indicated by an asterisk in paragraph 1. Interim exits were conducted on May 17 and May 23, 1996. The inspector described the areas inspected and discussed in detail the inspection results. A listing of inspection findings is provided. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

Type/Item Number	Status	Description and Reference
VIO 96-300-01	Closed	Inadequate Corrective Action to Correct a Deficiency Previously Identified by the Facility (paragraph 2.4).
NCV 96-05-01	Open/Closed	Failure to Follow Procedures for Assigning Qualified Personnel to Perform Maintenance (paragraph 3.1.2).

URI 95-23-03	Closed	Notice of Enforcement Discretion - PPS Exceeded the Allowable Limit (paragraph 4.5).
LER 95-05-00	Closed	TS 3.0 Entry Due to Excessive Penetration Pressurization System Leakage (paragraph 4.5).
LER 95-05-01	Closed	TS 3.0 Entry Due to Excessive Penetration Pressurization System Leakage (paragraph 4.5).
NCV 96-05-02	Open/Closed	Inadequate Corrective Actions for Containment Penetration Bellows Failures (paragraph 4.5).
URI 96-05-03	Open	Followup on Radiological Survey and Posting Issues (paragraph 5.2.1).

8.0 ACRONYMS

ALARA - As Low As Reasonably Achievable
ASME - American Society of Mechanical Engineers
CCT - Crew Critical Tasks
CFR - Code of Federal Regulations
CR - Condition Report
CRSS - Control Room Shift Supervisor
CP&L - Carolina Power & Light Company
CR - Condition Report
E&RC - Environmental and Radiological Control
EDG - Emergency Diesel Generator
ESR - Engineering Service Request
LCOs - Limiting Condition for Operations
LER - Licensee Event Report
MCC - Motor Control Center
MMM - Maintenance Management Manual
MOD - Modification
MSIV - Main Steam Isolation Valve
NCV - Non-Cited Violation
NOUE - Notification of Unusual Event
OD - Operability Determination
OMM - Operations Management Manual
PLP - Plant Program
PPS - Penetration Pressurization System
QC - Quality Control
RCA - Radiation Control Area
RESS - Robinson Engineering Support Section
RHR - Residual Heat Removal System
rev. - Revision
RPS - Reactor Protection System
SCFM - Standard Cubic Feet Per Minute

SG	-	Steam Generator
STA	-	Shift Technical Advisor
TGSCC	-	Transgranular Stress Corrosion Cracking
TS	-	Technical Specifications
UFSAR	-	Updated Final Safety Analysis Report
URI	-	Unresolved Item
VIO	-	Violation