



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

Report No.: 50-261/90-11

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

Inspection Conducted: April 11 - May 10, 1990

Inspectors:	<i>HC Dance / fa</i>	<i>6/6/90</i>
	L. W. Garrer, Senior Resident Inspector	Date Signed
	<i>HC Dance / fa</i>	<i>6/6/90</i>
	K. R. Jury, Resident Inspector	Date Signed
Approved by:	<i>HC Dance</i>	<i>6/6/90</i>
	H. C. Dance, Section Chief Division of Reactor Projects	Date Signed

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of operational safety verification; monthly surveillance observation; monthly maintenance observation; onsite followup of written reports of nonroutine events; action on previous inspection findings; and design, design changes, and modifications.

Results:

A similar violation was identified involving inadequate procedures for performing Technical Specification required surveillance tests. The procedure review which identified this item was considered a strength (paragraph 5).

The Corporate Nuclear Safety/plant support of the pre-outage "focus on safety" meeting was a reflection of the licensee's commitment to safety first (paragraph 2).

A weakness was identified in operation's utilization of temporary procedure changes (paragraph 3).

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A weakness was identified in the Onsite Nuclear Safety evaluation process for information notices and Part 21 reports. Steps were not always taken to ensure that all the previous vendor names associated with a component were researched when determining if a specific vendor's component was installed in a safety-related application (paragraph 5).

Discrepancies associated with the electrical distribution system design basis document were processed in accordance with approved procedures and with the proper emphasis on safety. A weakness was identified in that open items, those with less significance than discrepancies, were not being prioritized or tracked for resolution (paragraph 7).

REPORT DETAILS

1. Persons Contacted

- R. Barnett, Manager, Outage Management
- C. Baucom, Senior Specialist, Regulatory Compliance
- C. Bethea, Manager, Training
- R. Chambers, Engineering Supervisor, Plant Performance
- D. Crook, Senior Specialist, Regulatory Compliance
- J. Curley, Manager, Environmental and Radiation Control
- C. Dietz, Manager, Robinson Nuclear Project
- J. Eaddy, Supervisor, E & RC Support
- R. Femal, Shift Foreman, Operations
- S. Griggs, Technical Aide, Regulatory Compliance
- *E. Harris, Manager, Onsite Nuclear Safety
- *J. Kloosterman, Director, Regulatory Compliance
- D. Knight, Shift Foreman, Operations
- R. Moore, Shift Foreman, Operations
- *R. Morgan, Plant General Manager
- D. Nelson, Shift Outage Manager, Outage Management
- *M. Page, Manager, Technical Support
- D. Quick, Manager, Plant Support
- D. Seagle, Shift Foreman, Operations
- J. Sheppard, Manager, Operations
- *R. Smith, Manager, Maintenance
- R. Steele, Shift Foreman, Operations
- *H. Young, Director, Quality Assurance/Quality Control

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

*Attended exit interview on May 16, 1990.

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

2. Operational Safety Verification (71707)

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.

To verify equipment operability and compliance with TS, the inspectors reviewed shift logs, operation's records, data sheets, instrument traces, and records of equipment malfunctions. 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, was cognizant

of in-process surveillance and maintenance activities, and was 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 continued to be informal yet effective.

Plant tours and perimeter walkdowns 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.

Transformer Outage

The unit was removed from service on May 4, 1990, to upgrade the cooling capacity of the main transformer banks. The unit was scheduled to remain in hot shutdown during the outage and be returned to service on May 14. Major work on the main transformers included: replacement of the cooling coils; installation of new fans, pumps, and conservator tanks; addition of another bank of fans and pumps; drying of the windings; and replacement of the transformer oil. The work will lower the operating temperature and reduce water content in the windings; thereby, potentially extending the lifetime of the transformers. In addition, the following work was performed on the unit auxiliary transformer: the windings were dried, the oil was replaced, and a new conservator tank was installed.

With no capability to backfeed through the main transformer banks and being aware of the Vogtle loss of power event, steps were taken to ensure that power remained available to safety-related equipment. The area around the startup auxiliary transformer (normal power source during a shutdown) was roped off and all vehicular traffic in the switchyard was being controlled by spotters. Outage work around the offsite and onsite power distribution system was limited, closely monitored, and controlled. In addition, both the emergency diesel generators, the dedicated shutdown diesel generator, both safety-related battery systems, and both loops of motor driven AFW, SI, and RHR systems remained in service. Of the major safety-related equipment, only the D SW pump was removed from service (pump replacement). Work on secondary system components such as the overhaul of the A main feedwater pump and the B heater drain pump replacement did not have potential impact on safety-related systems.

On May 2, 1990, the inspectors attended a pre-outage "focus on safety" meeting sponsored by ONS. The purpose of the meeting was to review the defined work scope and ensure that measures would be implemented to

control evolutions such that undesirable interactions between simultaneous work activities would not result in unexpected safety system unavailability or transients. This concept was an extension of the pre-startup safety review meeting at CP&L's BSEP facility. The CNS/plant support of the pre-outage focus on safety meeting was a reflection of the licensee's commitment to safety first.

No violations or deviations were identified.

3. Monthly Surveillance Observation (61726)

The inspectors observed certain safety-related surveillance activities on systems and components to ascertain that these activities were conducted in accordance with license requirements. For the surveillance test procedures listed below, 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, 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. Specifically, the inspectors witnessed/reviewed portions of the following test activities:

EST-10 (revision 3)	Containment Personnel Airlock Leakage Test
MST-021 (revision 6)	Reactor Protection Logic Train B at Power
OST-202 (revision 21)	Steam Driven Auxiliary Feedwater System Component Test
OST-615 (revision 9)	Low Voltage Fire Detection and Actuation Systems, Zones 20, 21, and 22
OST-905 (revision 9)	Radiation Monitoring System
OST-910 (revision 11)	Dedicated Shutdown Diesel Generator

During the performance of OST-202, steps 7.2.7 and 7.2.8, the inspectors noted that neither condensate or vapor was observed from the SDAFW pump steam line drain to atmosphere when valve MS-159 was opened. The operators verified that the system was properly aligned. They then closed MS-156 and MS-158 in an unsuccessful attempt to observe vapor from the line. The system was re-aligned and the lack of condensate in the line was verified by observing proper operation of the steam trap and verification that the line was hot. Because the intent of the steps (demonstration of no water in the line) was met, steps 7.2.7 and 7.2.8

were signed-off as complete. The inspectors discussed with the cognizant operating personnel the desirability of using a temporary procedure change when a given methodology provided in a procedure does not provide the expected results. Not issuing a temporary procedure change under this circumstance was identified as a weakness in the operation's utilization of temporary procedure changes.

No violations or deviations were identified.

4. Monthly Maintenance Observation (62703)

The inspectors observed safety-related maintenance activities on systems and components to ascertain that these activities were conducted in accordance with TS and approved procedures. 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, and fire prevention controls were adhered to. In particular, the inspectors observed/reviewed the following maintenance activities:

CM-008 (revision 6) Steam Driven Auxiliary Feedwater Pump Overhaul

CM-010 (revision 3) Service Water Pump Overhaul

WR/JO 90-AASB1 Replacement of D SW Pump

WR/JO 90-AFHR1 Repair of SDAFW Pump Oil Leak

On April 30, 1990, the SDAFW pump was removed from service to repair an oil leak. Upon removal of the bearing cover on the pump end of the shaft, it was observed that heat shrink tubing around the thermocouple wires to the bearings was blocking the oil return port. A similar situation on the turbine end of the pump had been corrected in January 1990 (see IR 90-02). In January, it had been surmised that the piece of heat shrink on the pump side was shorter and if it had not swollen and blocked the return oil port at that time, then it would probably not do so.

The inspectors witnessed portions of the disassembly and re-assembly of the SDAFW pump. A damaged area, approximately one and one-half inches by three sixteenths of an inch, appeared to the inspectors to have changed since last observed during the Fall 1989 pump overhaul. The system engineer indicated that the area appeared as before. The area is only 2 - 3 mils deep and therefore represents no structural concern. Neither the licensee nor the pump vendor representative could definitely identify the mechanism of degradation. Since the mechanism of degradation is unknown, the inspectors discussed with plant management the feasibility of periodically inspecting this area. During the exit, the licensee indicated

that they would reinspect this area for changes during the Fall 1990 refueling outage. The licensee currently has on order a new impeller which they plan to install during the next pump overhaul.

On May 9, 1990, in accordance with the PM program, the D SW pump was replaced with a factory rebuilt spare. During testing, the rebuilt pump experienced approximately 10 percent greater shutoff head than expected and an acceptable yet higher than expected vibration. The old pump and motor was re-installed and successfully tested. The rebuilt pump will be returned to the vendor for inspection and correction of the deficiency.

No violations or deviations were identified.

5. Onsite Followup of Written Reports of Nonroutine Events (92700)

(Closed) P2189-01, Brown Boveri K-line, K-225 through K-2000 Circuit Breakers Delivered Prior to 1974 Need Rebound Spring Added to Slow Close Pin. The inspectors reviewed the Onsite Nuclear Safety OEF Evaluation Sheet dated February 9, 1989. The evaluation stated "HBR 2 does not use Brown Boveri breakers in any safety or non-safety system by design and by review of HBR 2's CMMS records and EDDBS listings." The inspectors observed that non-safety related 480 V switchgear bus no. 5 has Brown Boveri breakers. The ONS reviewer indicated that this meant no Brown Boveri K-line breakers. The inspectors had also observed that the breakers used for transfer of normal power to the dedicated shutdown diesel power bus for MCC-5 and D SW pump are K-600 breakers. The reviewer informed the inspectors that these breakers were no longer considered breakers but manually operated transfer switches since the trip function had been defeated. Thus, by walkdown of all safety-related switchgear, and discussions with cognizant personnel, the inspectors confirmed that no K-line breakers were installed in safety-related applications.

During the licensee's review of Brown Boveri supplied breakers, the K-line transfer switches had not been identified by the record review. This occurred because the transfer switches were listed under the original manufacturer's name, ITE Gould. No search had been performed using that name. The reviewer indicated that, routinely, no precautions have been taken to ensure all previous manufacturer's names were used when a specific vendor's component was being researched. Since ONS performs initial applicability screening for NRC Information Notices, as well as Part 21 reports, this is considered a programmatic weakness. This was brought to the attention of the ONS manager. Subsequently, the ONS manager has indicated that this item has been discussed with all the ONS reviewers. The weakness is being reviewed by ONS for additional required action.

(Closed) LER 89-05, Reactor Trip Due To Inadvertent Closure Of Main Steam Isolation Valve. The inspectors reviewed the scram report. All safety systems performed as expected. Corrective actions identified in the LER were the same as that provided in response to VIO 89-08-01, which is discussed in paragraph 6 of this report.

(Open) LER 90-005, Failure To Test RPS Logic Channels In Accordance With TS. The subject report identified that the power range high flux - low setpoint reactor trip and two-out-of-three loop low flow reactor trip logic channels were not completely tested monthly during power operations as required by TS Table 4.1-1 item 27. Test procedures were revised and these features were successfully tested on March 14 and 15, 1990. These items were identified by the licensee during procedure reviews. The licensee also identified that the source range high flux - low setpoint reactor trip and the intermediate range high flux reactor trips were not tested monthly. Neither the source range trip nor the intermediate range trip is assumed to mitigate any UFSAR Chapter 15 accident. The licensee developed a position that these were not required by TS, but determined it was prudent to implement procedures to test the source range trip prior to startup if not tested in the previous 7 days, and to test the intermediate range high flux trip monthly. Subsequent to the report period the licensee successfully performed testing on the trip functions prior to a restart on May 14, 1990. During a May 16, 1990 conference call with NRC Management, the licensee was informed that, as written, TS item 27 required monthly logic testing of the source and immediate range reactor trips. Though disagreeing that this testing is required by TS, the licensee committed to submit a waiver of compliance or exigent TS change request concerning the monthly source range high flux test prior to the end of the next monthly surveillance test interval.

The TS surveillance problem addressed above is repetitive, in that, on June 23, 1988, an NOV was issued regarding an inadequate procedure for testing TROTS as required by TS Table 4.1-1 item 28 (see IR 88-10 and LER 88-11). Accordingly, this is identified as a VIO: Failure To Take Adequate Corrective Action To Preclude Repetition Of Inadequate Procedures Involving TS Required Tests, 90-11-01.

A review for previous occurrences revealed the following:

- ° On March 7, 1986, the licensee identified that test procedures did not perform channel functional testing of the AFW automatic initiation during a station blackout as required by TS Table 4.8-1 (see LER 86-008).

On November 18, 1985, the licensee identified that the steam/feedwater flow mismatch with a low steam generator level reactor trip was not being tested as required by TS Table 4-1-1, Item 39.

An NOV was issued June 19, 1984, concerning an inadequate procedure to test SI initiation due to high steam line flow coincident with low steam line pressure or low RCS average temperature as required by TS Table 4.1-1 Item 27 (see IR 84-19).

- ° Corrective actions to the 1984 violation discussed above determined that procedures were not adequate for steam line isolation testing, and SI initiation on CV pressure (see LER 84-05).
- ° In response to NRC generic letter 83-20, the licensee discovered that the manual reactor trip function was not routinely tested.

In 1982, the licensee had conducted an independent review of TS surveillances as a result of the surveillance problems identified at CP&L's BSEP facility. As indicated above, there has been a weakness in being able to properly implement surveillance testing of TS required instrumentation.

One violation was identified.

6. Action on Previous Inspection Findings (92701, 92702)

(Closed) VIO 88-07-01, Failure To Declare An Unusual Event After Exceeding An RCS Leak Rate Of 10 GPM. The inspectors reviewed the August 12, 1988 supplemental response to the NOV. The following corrective actions contained in the supplemental response were verified to have been completed as committed:

Directed transitions from AOPs to PEPs were incorporated in AOPs. Procedures reviewed included:

- APP (revision 6) Radiation Monitoring System
- AOP-006 (revision 2) Turbine Vibration
- AOP-009 (revision 0) Accidental Release of Waste Gas
- AOP-016 (revision 5) Excessive Primary Plant Leakage
- AOP-019 (revision 1) Malfunction of RCS Pressure Control
- AOP-020 (revision 6) Loss of Residual Heat Removal
- AOP-021 (revision 3) Seismic Disturbances
- AOP-023 (revision 3) Loss of Containment Integrity

Operator Aid No. 89-01, Off Normal Event Notification, was issued as a single reference for determining required reports. This was subsequently cancelled March 9, 1990. NRC reporting requirements are now contained in AP-030, NRC Reporting Requirements.

Flowpath procedures EAL-1 and EAL-2 were issued to assist in emergency classification determinations. Per Collins to Eury letter dated December 1, 1989, the NRC has reviewed revision 22 to the emergency plan which contains these flowpaths.

Emergency Action Level Procedure User's Guide, OMM-031, was issued to prescribe rules of usage for the EAL flowpaths and PEPs.

Training procedure, TI-909, Simulator Conduct Of Operations And Instructor Qualifications, was revised to ensure that the instructors verify that PEP's are reviewed by operators to determine if they are applicable during any off-normal event.

The above actions provided additional measures and aids to assist personnel in the proper classification of an abnormal event. These actions should prevent future occurrences of the violation.

(Closed) VIO 88-28-02, Failure To Have A Program To Use Calibrated Stop Watches For Required TS And ASME Section XI Testing. The inspectors reviewed the December 9, 1988 response to the NOV. Procedure OMM-017, Calibration Control/Repair Program For Portable Test Equipment, was revised to require that calibration of stop watches shall not exceed twelve months. The inspectors reviewed a sample of OSTs to verify that calibrated stopwatches are required to be used when timing equipment associated with TS surveillances and ASME Section XI tests. The inspectors have routinely observed the use of calibrated stopwatches during OST performances.

(Closed) VIO 89-07-01, Initialing Procedure Step Prior To Performing Work. An improperly numbered sign-off step on the data sheet associated with CM-111, Limitorque Limit Switch and Torque Switch Maintenance, contributed to the event. The inspectors verified that CM-111 has been revised to correct the deficiency. The inspector discussed the lack of attention to detail with the Maintenance Manager. The Maintenance Manager indicated that maintenance personnel have been cautioned on attention to detail while using procedures.

(Closed) VIO 89-08-01, Failure To Follow OST-202 Results In A Reactor Scram. The inspectors reviewed the June 16, 1988 response to the NOV. The inspectors verified that EST-013, Auxiliary Feedwater Bearing Temperature Test, revision 8, and OST-202, Steam Driven System Component Test, revision 21, contain instructions on how to properly perform these tests simultaneously. As committed in the response, the A MSIV was inspected for damage. The evaluation of the inspection, attached to WR/JO 89-AEEF1, dated October 9, 1989, concluded that there was no physical damage to the valve internals which would preclude the valve from seating. The human factors review of the control board is being conducted as part of the control room upgrade project. The NRC is reviewing this latter item as a separate issue.

(Closed) VIO 89-09-01, Procedure Inadequately Addresses Potential Pump Runout With Only One SI Pump Injecting Into Two Hot Legs. The subject procedure was revised to incorporate the appropriate precaution. The inspectors verified that OMM-013, Emergency Operating Procedure Writer's Guide, revision 2, was issued to require that a system engineer participate in the verification of EOP changes. This corrective action, along with the EOP reviews being conducted as corrective action for deficiencies identified in IR 89-16, should ensure required precautions and limitations are contained in the EOPs.

(Closed) IFI 88-28-04, Review Visual And Eddy Current Testing Of HVH 1-4 During November 1988 Refueling Outage. The inspectors reviewed the results of the HVH-4 eddy current examination presented in the Echoram Technology, Inc. final report dated November 1988. Of the 108 tubes inspected, none were found with defects greater than 20 percent through-wall.

(Closed) IFI 88-03-02, Review Finalized Transition Document And Step Deviation Report. The subject documents were reviewed by the NRC during the EOP team inspection conducted September 18 - September 29, 1989. Results are documented in IR 89-16 and the associated licensee's response of December 8, 1989.

No violations or deviations were identified.

7. Design, Design Changes, and Modifications (37700)

On April 11 and 12, 1990, an inspection was performed in the corporate engineering office of the status and resolution of discrepancies identified through the preparation and validation of the Electrical Power Distribution System DBD (DBD/R 87038/SD16) revision 0, issued May 23, 1989. The inspectors determined that discrepancies were being processed in accordance with approved procedures and with the proper emphasis on safety. A significant weakness in the electric system documentation is the non-availability of supporting calculations. A table, denoted as CACL-MATRIX, has been developed which shows what calculations are available and unavailable for different plant operating conditions and electrical system configurations. At the time of the inspection, the licensee was in the process of determining which unavailable calculations would be generated. Most major calculations such as offsite AC power system response and EDG transient loading during a LOCA have been completed or should be completed this fall to support modifications scheduled for the 1990 refueling outage.

During the preparation and validation phases of the DBD process, a number of open items (less safety significant than a discrepancy) have been and are continuing to be found. The items may include errors or enhancement recommendations associated with drawings or procedures. Though open items

are captured and assigned a number, the task of determining how and if the items are to be resolved was not assigned to any individual. For those open items deemed beneficial or necessary to be implemented, there was no tracking system to ensure that they are properly resolved. The lack of a review and tracking systems for open items is considered a weakness. This was discussed with engineering supervision. The Technical Support Manager expects to have someone assigned the responsibility of overseeing the resolution of the DBD open items by June 30, 1990.

8. Exit Interview (30703)

The inspection scope and findings were summarized on May 16, 1990 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. During the exit, and discussed in paragraph 4, the licensee committed to reinspect the SDAFW pump's impeller during the Fall 1990 refueling outage. Dissenting comments were not received from the licensee. Proprietary information is not contained in this report.

<u>Item Number</u>	<u>Description/Reference Paragraph</u>
90-11-01	VIO - Failure To Take Adequate Corrective Action To Preclude Repetition of Inadequate Procedures Involving TS Required Tests (paragraph 5).

10. List of Acronyms and Initialisms

AC	Alternating Current
AP	Administrative Procedure
AOP	Abnormal Operating Procedure
ASME	American Society of Mechanical Engineers
BSEP	Brunswick Steam Electric Plant
CM	Corrective Maintenance
CMMS	Corporate Material Management System
CNS	Corporate Nuclear Safety
CP&L	Carolina Power & Light
DBD	Design Basis Document
E&RC	Environmental and Radiation Control
EAL	Emergency Action Level
EDBS	Equipment Data Base System
EDG	Emergency Diesel Generator
EOP	Emergency Operation Procedures
EST	Engineering Surveillance Test
GPM	Gallons Per Minute
HBR	H. B. Robinson
HVH	Heating Ventilation Handling
I&C	Instrumentation & Control
IFI	Inspector Followup Item
IR	Inspection Report
LCO	Limiting Condition for Operation

LER	Licensee Event Report
LOCA	Loss of Coolant Accident
MS	Main Stream
MSIV	Main Steam Isolation Valve
MST	Maintenance Surveillance Test
NOV	Notice of Violation
NRC	Nuclear Regulatory Commission
OEF	Operating Experience Feedback
OMM	Operations Management Manual
ONS	Onsite Nuclear Safety
OST	Operations Surveillance Test
PEP	Plant Emergency Procedure
PM	Preventative Maintenance
RCS	Reactor Coolant System
RPS	Reactor Protection System
SDAFW	System Driven Auxiliary Feedwater
SI	Safety Injection
SW	Service Water
TI	Training Instruction
TROTS	Turbine Redundant Overspeed Trip System
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
V	Volt
VIO	Violation
WR/JO	Work Request/Job Order