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

Report No.: 50-261/95-25

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 Steam Electric Plant

Inspection Conducted: August 28 - September 1, 1995

Inspector: _____ 9/11/95
James H. Moorman, III Date Signed

Accompanying Personnel: D. Charles Payne

Approved by: _____ 9/12/95
Thomas A. Peebles, Chief Date Signed
Operations Branch
Division of Reactor Safety

SUMMARY

Scope:

This routine, announced inspection was conducted in the area of the licensed operator requalification program during the period August 28-September 1, 1995. The purpose of the inspection was to (1) verify that the licensee's requalification program for reactor operators (ROs) and senior reactor operators (SROs) ensures safe power plant operation by evaluating how well the individual operators and crews had mastered training objectives and (2) assess the licensee's effectiveness in ensuring that the individuals who are licensed to operate the facility, satisfy the conditions of their licenses as specified in 10 CFR 55.53.

Results:

The examination team concluded that (1) the licensee's requalification program for ROs and SROs was adequate to ensure safe power plant operations and (2) the facility licensee was effective in ensuring that individuals who are licensed to operate the facility, would satisfy the conditions of their licenses.

The inspectors identified one item for follow-up concerning various weaknesses in AOP-14, "Component Cooling Water System Malfunction" (paragraph 2.c.1).

Enclosure

REPORT DETAILS

1. Persons Contacted

Licensee Employees
*D. Gudger, Regulatory Affairs
*M. Herrell, Training Manager
*R. Krich, Manager, Regulatory Affairs
*B. Meyer, Operations Manager
*T. Natale, Operations Training Supervisor
*B. Steele, Assistant Operations Manager
*D. Young, Plant General Manager

Other licensee employees contacted included training department instructors, licensed operators, and office personnel.

NRC Personnel

*W. Orders, Senior Resident Inspector

*Attended exit interview

2. Licensed Operator Requalification Program Evaluation (71001)

a. Summary

The NRC conducted a routine, announced inspection of the H. B. Robinson Steam Electric Plant licensed operator requalification program during the period August 28 - September 1, 1995. The purpose of the inspection was to (1) verify that the licensee's requalification program for reactor operators (ROs) and senior reactor operators (SROs) ensures safe power plant operation by evaluating how well the individual operators and crews had mastered training objectives and (2) assess the licensee's effectiveness in ensuring that the individuals who are licensed to operate the facility, satisfy the conditions of their licenses as specified in 10 CFR 55.53. Based on a review of records and observation of examinations, those activities appeared to be satisfactorily conducted.

b. Examination Administration

The inspectors observed the training department evaluators and licensed operators during the administration of operating tests to determine if the tests were administered in accordance with the guidelines in NUREG-1021. The operating test consisted of an evaluation on the plant reference simulator and an evaluation using Job Performance Measures (JPMs), which tests an operator's ability to use procedures. The licensee evaluators administered the simulator examinations and JPMs in accordance with plant procedures. In addition to training department evaluators, the Operations Manager and Assistant Operations Manager conducted evaluations of operator performance during the simulator examinations. In addition to emphasizing the importance of training to the operators, Operations

Management can also provide feedback directly to the operators and training department personnel on management expectations for operator performance and in specific areas that may require interpretation. Of the two crews observed during the inspection, one crew exhibited performance that was not at the level of management expectations. While technically satisfactory, the crew did not approach their tasks in a manner commensurate with the responsibility conferred by their licenses. This crew was designated to receive remedial training prior to returning to shift.

No violations or deviations were identified.

c. Examination Development

The inspectors reviewed the licensee's requalification written and operating examinations by comparing them to guidelines provided in the licensee's procedures and NUREG-1021, "Operator Licensing Examiner Standards," Revision 7. The inspectors found that the licensee-developed examinations were adequate. A review of selected examinations indicated that test items were constructed to test to adequate knowledge and abilities levels. The examinations generally complied with the guidelines of NUREG 1021, "Operator Licensing Examiner Standards." A review of the examinations also revealed an adequate knowledge level and adequate difficulty separation between RO and SRO questions. Additionally, the examinations tested operator proficiency at performing tasks that were identified as important to risk by the H. B. Robinson probabilistic safety assessment.

No violations or deviations were identified

d. Plant Procedure Improvements

Examiners observed the walk-through portion of an operating test evaluation that included use of the following JPMs: JPM-IP-45, "Align Charging Pump Emergency Cooling IAW AOP-014, Attachment 1;" JPM-IP-019, "Operate PZR PORV PCV-456 at Local Control Station;" and JPM-IP-008, "Shed Non-Vital DC and AC Loads IAW EPP-1." The simulation of each task was successfully completed by the operator. However, within the boundaries of each task, there existed some impediment that could either delay or result in a failure to complete the task if performed under the conditions of an actual event.

(1) Abnormal Operating Procedure 14, "Component Cooling Water System Malfunction"

The H. B. Robinson probabilistic safety assessment states that a reactor coolant pump (RCP) seal loss of coolant accident (LOCA) contributes 38 percent to the overall core damage frequency. As initiating events, the loss of component cooling water (CCW) and loss of service water contribute 23 percent and 20 percent

respectively to the RCP seal LOCA core damage sequences. Reactor coolant pump seals require either CCW or seal injection from the chemical and volume control system (CVCS) for cooling. Component cooling water also supplies cooling water to the CVCS charging pump oil coolers.

Operator actions for loss of component cooling water are contained in AOP-14, "Component Cooling Water System Malfunction." To maintain RCP seal cooling during a loss of CCW event, Attachment 1 to AOP-14 provides direction to locally establish cooling water to the charging pump oil coolers. The inspectors observed operators simulate performance of the actions of AOP-14, Attachment 1 and noted some impediments to the timely completion of the procedure. Steps 4 and 9 direct the operator performing the task to notify the shift Fire Protection Technician and Chemistry Technician, respectively, of abnormal conditions that will result from the emergency alignment. Since this task is performed under emergency conditions, halting the procedure for these notifications causes an unnecessary delay in procedure completion.

Emergency cooling water to the charging pumps is routed from the emergency source to hoses and fittings that are stored in a special locker. The operator is provided direction on how to assemble the hoses and fittings in Attachment 1. The fittings are kept in a tray in the top of the locker for easy access, but they are not labeled in any way nor are they grouped according to location of eventual usage.

The inspectors questioned the sequence of performance of AOP-14 and the assumptions that were made concerning the length of time that a CVCS system charging pump would run without cooling water. The charging pump assembly consists of a single speed motor coupled to a positive displacement pump by a fluid drive that allows variable speed operation of the pump. The inspectors were provided with charging pump vendor information that stated that the charging pumps should not be run for longer than five minutes without cooling water. This limitation is considered in AOP-14 as the operators are directed to rotate the charging pumps on 5-minute intervals to ensure pump survivability until emergency cooling is aligned. The charging pumps were tested in 1992 to determine the length of time that they would run without cooling. The test determined that the pump would run for different times depending on the load on the pump. With a low load, the allowable run time is shorter since oil in the fluid drive absorbs the excess energy from the pump. The pump will fail when oil in the fluid drive overheats and is no longer able to lubricate the bearings. In a loss of CCW or service water scenario, the plant operators will be performing AOP-14 and the emergency operating procedures in parallel. With the many

requirements placed on the operator in emergency situations, it is possible that charging pumps will be run for longer than five minutes during the initial phases of accident mitigation. The licensee has determined that from the information available to them, the charging pumps will survive a loss of CCW accident until emergency cooling is established, but does not have a coping analysis specifically addressing the survivability of charging pumps.

The inspectors observed operators performing JPM-CR-066, "Respond to a loss of CCW to the RCP Motor Coolers." This JPM is evaluated in the simulator under real-time conditions. For a loss of CCW to all RCPs, AOP-14 directs the operator to trip the reactor and stop the RCPs. This procedure contains no immediate operator actions which would require the operator to take actions prior to referencing the procedure. The basis document for AOP-14 states that the RCPs should be tripped within two minutes of a loss of cooling. None of the operators observed performing this JPM tripped the RCPs within two minutes. Although the AOP-14 basis document states that the 2-minute trip requirement comes from the RCP technical manual, the responsible system engineers could not locate the source of the requirement and were unaware of it's existence. The above items are identified as Inspector Follow-up Item 50-261/95-25-01, "AOP-14 weaknesses."

(2) Dedicated Shutdown Procedure 12, "Pressurizer PORV Control/Power Repair Procedure"

Step 15 of this procedure directs the operator to adjust voltage using a voltage adjust potentiometer. One of the operators simulating performance of this procedure was momentarily delayed because the potentiometer was not labeled. The licensee installed a label prior to the inspectors leaving site.

Step 18 of this procedure states "Check Motive Force For PCV-456 - available." The operator performing the simulation of this task appeared confused by the step and completion of the task was significantly delayed while he attempted to perform the step. The valve, PCV-456, is an air operated valve with a back-up nitrogen supply.

(3) End Path Procedure 1, "Loss of all AC power"

Attachment 2, Load Shed Listing, provides the operators with direction for removing loads from the station batteries to increase the service time of the battery. The list provided in the procedure contains a breaker number and the noun name of the breaker (i.e., Breaker 7, "Startup Transformer Motor Operated Disconnects"). At the 125VDC MCC-A and Distribution Panel A, the labeling for the breakers contains only the noun name of the

breaker. The "B" panel is similar. The number 2, 7B, and 3 Instrument Bus breakers are labeled with only the breaker numbers. Inside each instrument bus cabinet is a page from a procedure with the breaker noun names on it. The page is folded and stored in a plastic pouch affixed to the back of the cabinet door. This procedure will be performed with only emergency lighting and an operator's flashlight available for illumination. Under these conditions, it is advantageous to provide the operator with labeling that is consistent with the procedure and that unambiguously identifies the component that is to be operated.

4. Exit Interview

At the conclusion of the site visit, the inspectors met with representatives of the plant staff listed in paragraph one to discuss the results of the inspection. The licensee did not identify as proprietary any material provided to, or reviewed by the inspectors. The inspectors further discussed in detail the inspection findings listed below. The licensee did not express any dissenting comments.

Item Number	Status	Description and Reference
IFI 50-261/95-25-01	Open	AOP-14 weaknesses.