



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30325

Report No.: 50-400/90-25

Licensee: Carolina Power and Light Company  
P.O. Box 1551  
Raleigh, NC 27602

Docket No.: 50-400

License No.: NPF-63

Facility Name: Shearon Harris

Inspection Conducted: December 17 through December 19, 1990

Inspector: *James L. Mellen*  
for L. Mellen

*1/16/91*  
Date Signed

*James L. Baldwin*  
for R. Baldwin

*1/16/91*  
Date Signed

Approved by: *L. Watson*  
L. Watson, Chief  
Operational Programs Section  
Division of Reactor Safety

*1/16/91*  
Date Signed

### SUMMARY

#### Scope:

This was a special unannounced inspection in the area of simulator examination techniques, as used in the licensed operator training program. The inspection's purpose was to verify that the Shearon Harris Licensed Operator Regualification Examination techniques met requirements of the NRC and the licensee's approved program.

#### Results:

Regualification examination techniques were found to be technically adequate and found to meet NRC requirements. The overall assessment was the licensee needed to improve their practices in three areas. The specific areas that needed improvement were: dissemination of significant procedural issues (paragraph 2), the number of available simulator scenarios (paragraph 4), and the use of simulator examination scenarios for licensed instructors (paragraph 6).

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*J. Boska, Manager - License Training
- \*J. Collins, Manager - Operations
- \*L. Martin, Manager - Nuclear Training
- \*C. Olexik, Manager - Regulatory Compliance
- \*W. Powell, Manager - Training
- \*N. Smith, Senior Specialist Operator Training

Other licensee employees contacted included operators, trainers, and office personnel.

#### NRC Resident Inspectors

- \*J. Tedrow, Senior Resident Inspector
- \*M. Shannon, Resident Inspector

\*Attended exit interview on December 19, 1990.

### 2. Individual Simulator Critical Tasks for the Regualification Program

The inspectors met with training and operations management and reviewed the records of the last NRC required, annual licensee administered, operator regualification examination. These examinations were administered in October and November of 1990.

Several simulator scenarios were reviewed as administered.

Simulator Scenario 17.07 consisted of a pressurizer steam break loss of coolant accident. During Emergency Operating Procedure useage in this scenario two of three crews evaluated tripped the Reactor Coolant Pumps in accordance with the Foldout A for Path 1 criteria; however, this was not in accordance with the intent of the procedure as described in the Westinghouse Owners Group background document. The third crew acted in accordance with the intent of the procedure; however, their actions were not in accordance with the procedure. Foldout A for Path 1 stated "CSIP - AT LEAST ONE RUNNING", this terminology was not consistently interpreted between operating crews. It was evident from the actions of the three crews that not all crews would have performed the required action. The intent of this step was to ensure the core had adequate safety injection flow prior to stopping the Reactor Coolant Pumps. Only the crews involved received remedial training after the simulator examination was completed.

This problem in procedural interpretation was initially identified by the licensee on July 7, 1989, in Operations Feedback Report 1528. However, the updating of this procedure was not scheduled on a priority basis and was to be included in the next Emergency Operating Procedure revision that will be completed by mid-1991. The training department issued an additional Operations Feedback Report following their annual regualification examinations. During the inspection, Operations Management stated that this procedural interpretation would be included in real time training of all shifts and would be accomplished by January 11, 1991. This would ensure that indication of Safety Injection flow will be required to meet Reactor Coolant Pump tripping criteria.

Some discussion occurred as to whether the step requiring the tripping of the RCPs should have been designated an Individual Simulator Critical Task due to the way the scenario unfolded. The inspectors agreed with the licensee that this step was not, and should not have been, designated as an ISCT in the scenario, as there was no evidence the plant was degraded by not having Reactor Coolant Pump flow without Charging and Safety Injection Pump flow. The licensee had evaluated this step prior to the examinations and determined the appropriate Individual Simulator Critical Task was the establishment of Alternate Safety Injection flow.

The inspectors questioned the timeliness of the dissemination of significant procedural issues identified by the training department. The licensee committed to review this practice and make the appropriate changes.

### 3. Simulator Examination Security

#### a. Crew Separation During Annual Simulator Regualification Examinations.

During simulator examinations the same scenarios were used for each of the crews that were examined in a single day. Each crew of examinees received a briefing prior to their examination. The simulator examination briefing check list contained a requirement that stated: "No aspects of this examination should be discussed with any other examinees until the conclusion of the examination." The crews were cautioned during the simulator briefing, "as a minimum the exams would have to be repeated based on even the appearance of compromise." However, on days when more than two crews were examined, the first crew received their examination while the second crew was sequestered. Once the first crew was examined and had been released from the examination process, the second crew entered the simulator for testing, thus maintaining

crew separation. The remaining crews were not sequestered. This provided potential examination compromise, in that the first crew could have conceivably interacted with the third and/or fourth crews, allowing information about the scenario to be exchanged. The crews were not required to sign examination security agreements. There were no instructions to the operators to preclude the discussion of their individual examinations with operators of subsequent weeks.

When NRC administers examinations, NRC requests that the released personnel do not discuss the examination with others who have not taken the examination and that they depart the site for the day.

b. Prior Knowledge of Simulator Scenarios During Annual Regualification Examinations.

The inspectors determined there were three cases of licensed instructors evaluating a specific scenario, and subsequently being evaluated on the same scenario. This was caused by a limited number of scenarios and a lack of prudent scheduling of licensed instructors' examinations. The ramifications of the limited number of scenarios are addressed in paragraph 4, and the licensed instructor examinations in paragraph 6.

The simulator area and booth were closed to all future examinees during the annual examination process. The annual simulator regualification examinations were viewed by operations management; however, they were not viewed by any other operators. Therefore, there was no evidence of compromise caused by prior witnessing of the annual simulator examinations.

c. Prior Knowledge of Simulator Scenarios During Weekly Training Evaluations.

The licensee's regualification program requires weekly training evaluations and were reviewed.

The simulator area and booth were not closed to all future examinees during the weekly evaluation process. This aspect of examination security primarily concerned management representatives that acted as the Operations Management Representative. Shift Foremen were tasked to fulfill the position of Operations Management Representatives in the observation of weekly simulator training as well as weekly simulator evaluations. This had the potential for Shift Foremen to witness performance of specific scenarios prior to their



evaluation on these scenarios. This practice was in accordance with program guidance; however, it could lead to non-representative evaluations, in that the Shift Foremen could have witnessed the evaluation scenario prior to being tested on that scenario. A contributing factor was that the same simulator evaluation was used for all the weekly evaluations for the particular segment being conducted. A review of the available information indicated that Shift Foremen did not observe the evaluation scenario prior to their weekly evaluations.

The licensee stated that the instructions to Operations Management Representatives designees will be revised to preclude the possibility of future compromise.

d. Shift Technical Advisor Prior Exposure to Simulator Examination Scenarios

A different Shift Technical Advisor was not available for each crew for the annual examination. This resulted in Shift Technical Advisors performing their duties for some scenarios more than once with different operating crews. During the simulator portion of the regualification examination given between October 16 and November 13, 1990, two Shift Technical Advisors repeated four scenarios with different crews. One of the Shift Technical Advisors performed the same scenario with three different crews. In all cases the Shift Technical Advisors were instructed to provide only specific information to the operating crew. The instructions further stated the Shift Technical Advisor should provide other information only if specifically directed. Without a fully participating Shift Technical Advisor, the operating crew was not evaluated as a complete team, in that the normal flow of information from the Shift Technical Advisor was not given and therefore the crews use of this information was not evaluated. Since the annual regualification examinations were completed, two additional Shift Technical Advisors have been added to the staff. This should minimize the limitations imposed on the operating crew by a restricted Shift Technical Advisor.

4. Available Simulator Scenarios

There were a total of 15 simulator scenarios in the examination bank. The licensee stated that five simulator scenarios required additional work before they were considered acceptable for use as regualification examinations, and one modified scenario was used for a practice examination. Therefore, only nine simulator scenarios were available for use during the annual regualification examination, and per the

Examiner Standards this did not meet the criteria for making them public. The licensee has not released the simulator examination scenarios. Due to the limited quantity of scenarios, licensed instructors who evaluated the performance of a crew of operators were subsequently examined on the identical scenario three weeks later. This practice had the potential to reduce the effectiveness of the examination process in that it may not have thoroughly evaluated those licensed instructors who had prior knowledge of the scenarios. This is further discussed in paragraph 6.

The use of only nine simulator scenarios in the examination process led to some repetition of scenarios. The reduced number of scenarios resulted from the implementation of NUREG-1021, Revision 6. The licensee decided to implement Revision 6 for the October 15, 1990, annual requalification examinations.

Extensive modifications were required to the simulator scenarios due to NUREG-1021, Revision 6 clarification of the definition of Individual Simulator Critical Tasks. The licensee determined that only ten of the fifteen existing simulator scenarios could be upgraded by the October 15, 1990, annual requalification examinations.

The licensee was continuing the simulator scenario upgrade program. By the July 1991 annual requalification examination there will be twenty NUREG-1021, Revision 6 scenarios ready for use. The licensee does not release the simulator examination scenarios to the operators. A licensee procedure for examination security (TI-905) required at least a 40% change in examinations given on successive weeks. The inspectors confirmed this requirement was met.

The licensee has implemented the drafting of a CP&L Administrative Instruction that will include not using the same scenario on multiple weeks during future annual examinations. This Administrative Instruction will apply to the three CP&L Nuclear Plants.

#### 5. Simulator Examination Objectivity

Licensed instructors were tasked to evaluate crews that contained other licensed instructors. These examinees would subsequently evaluate a crew that contained licensed instructors that had been their evaluators. A compromise of objectivity could have arisen if the examiner and the examinee exchanged places. The inspectors reviewed this area and found that licensed instructors were not reciprocal evaluators.

#### 6. Simulator Examination for Licensed Instructors

The inspectors reviewed scenarios given to all licensed instructors during the past requalification examination cycle. It was determined that in three cases licensed instructors received a simulator examination scenario, for their annual requalification examination, they had used to evaluate other licensed operators during previous weeks of the requalification examination schedule. In all cases the period from which a licensed instructor acted as an examiner to the time the licensed instructor acted as an examinee was at least three weeks. The licensed instructors received a total of three simulator scenario examinations, one of which they had previously evaluated. Upon review of the crew complement for the three scenarios, it was noted that two of the three licensed instructors stood the Senior Control Operator position during the scenario they had previously evaluated, this was the position for which they hold a license and must be thoroughly evaluated annually.

The licensed instructors have access to the entire examination bank and have had access to all scenarios prior to being evaluated on the scenarios. The licensed instructors table-topped the simulator scenarios prior to administering the examinations. The training organization considered this to be appropriate because the licensed instructors were unaware of the specific scenarios that would be included in their examination.

The requirements of 10 CFR 55 paragraph 55.59 (a)(2) require licensed personnel to participate in requalification and to participate in the annual examinations. Additionally, NUREG-1262, Question 345 (pg 94) states, in part "...will the SRO who writes the performance exam, and is thus exempt from taking the exam for that year, comply with this [55.59(a)(2)] requirement?" Answer, "it is the Commission's intent that all licensed operators be enrolled in the requalification program and take the requalification exams; further, an individual must take an exam that he did not write or review."

After the licensee reviewed the inspectors' findings, the licensee determined that this was not a suitable practice. The licensee committed to review this practice and make changes that were appropriate. Additionally, the licensee committed to prevent the three licensed instructors from standing watch until this situation was evaluated.

## 7. Exit Interview

The inspection scope and findings were summarized on December 19, 1990, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection findings. No proprietary material is contained in this report. No dissenting comments were received from the licensee.