



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

ENCLOSURE 1

EXAMINATION REPORT - 50-395/OL-89-01

Facility Licensee: South Carolina Electric and Gas Company
P. O. Box 88
Jenkinsville, SC 29065

Facility Name: V. C. Summer Nuclear Station

Facility Docket No.: 50-395

Written Examinations and Operating Tests were administered at the V. C. Summer Nuclear Station near Jenkinsville, South Carolina.

Chief Examiner:

Charles A. Casto
James H. Moorman, III

5/24/89

Date Signed

Approved By:

Charles A. Casto
Charles A. Casto, Chief
Operator Licensing Section 1
Division of Reactor Safety

5/24/89

Date Signed

Summary:

Examinations were administered during the weeks of February 21, 1989, and February 27, 1989.

Written examinations and operating tests were administered to eight Reactor Operators (ROs) and sixteen Senior Reactor Operators (SROs). Of the eight ROs tested, seven passed the examinations. Of the 16 SROs tested, 14 passed the examinations.

REPORT DETAILS

1. Facility Employees Attending Exit Meeting:

O. S. Bradham, Vice President, Nuclear Operations
M. B. Williams, General Manager, Nuclear Services
J. L. Skolds, General Manager, Nuclear Plant Operations
G. G. Soutt, General Manager, Operations and Maintenance
G. J. Taylor, Manager, Operations
K. Woodward, Manager, Nuclear Operations Education and Training
A. R. Koon, Manager, Nuclear Licensing
T. L. Matlosz, Supervisor, Nuclear Operations Education and Training
W. R. Quick, Instructor

2. Examiners:

F. Jagger
R. Baldwin
*J. Moorman
M. Morgan
J. Munro

*Chief Examiner

3. Written Exam Comments

Additional answers to some of the written exam questions were proposed by the facility training staff after administration of the written exam. Some of the answers were allowed based on discussions with the facility training staff. Other answers required written justification to be considered by the NRC. The written justifications for those questions can be found in Enclosure 3. Some of the answers were allowed based on their technical merit and some of the answers were not allowed. NRC responses to facility comments and a summary of changes made to the exam are detailed below.

SS09-006 This question was deleted due to improper set-up and verification by the facility staff at the time of the exam.

SS09-009 This question was deleted due to improper set-up and verification by the facility staff at the time of the exam.

SS09-010 The additional answer was allowed based on operators answer to question SS09-003 to eliminate double jeopardy.

SS04-002 As a result of having two potential causes of a malfunction, an additional answer was allowed. The facility should ensure that conflicting information is excluded from future static simulator exams.

- SS04-003 Operators noted an additional response to this question that was not noted by the facility during their review. This additional response was allowed for full credit.
- SS04-016 The facility changed the answer to this question to allow "DNB protection" to be accepted for full credit as the basis of both trips. This was not allowed by the NRC since it does not represent the basis for the undervoltage trip. In this instance, the facility recommendation was not technically sound and based solely on responses of the operators.
- SS04-019 The NRC accepted 3 of the 4 additional responses recommended by the facility. The response 'breaker did not fully open' was not adequately supported by the information provided by the facility. This comment appeared to be motivated by operator's answers to the question.
- SS13-007 The static simulator was set up with conflicting information. The answer recommended by the facility will be accepted for .25 points only.
- SS13-009 The question was presented in such a form that it was confusing to the operators. The additional answer presented by the facility was accepted as an alternate.
- OR-0011 The additional answer recommended by the facility will be accepted. The facility should ensure that questions of this nature are thoroughly researched in the future to insure that multiple answers do not exist.
- OR-0032 The additional answer recommended by the facility will be accepted. The facility should ensure that questions of this nature are thoroughly researched in the future to insure that multiple answers do not exist.
- OR-0037 Additional answers were identified by the operators taking the exam. The facility should ensure that all possible answers are identified and the question thoroughly researched prior to using it on an exam.
- OR-0045 The weighting of points in the answer to this question has been redistributed to be more representative of operational importance. The facility did not supply sufficient justification to warrant deletion of the question. Instead, the facility's presentation appears to be a litany of problems that some operators indicated they had when answering the question. The remainder of the concerns were not justified by the facility but stated as accepted facts.

The original intent and complexity of this question was not changed as a result of the revisions made by the exam team. The question was changed from "would it be advisable and why" to "it is not advisable, state the detrimental effect and outline the sequence of events that caused it to occur." The initial conditions were not changed. Changing the question in this way allowed a more thorough evaluation of an operator's knowledge. It also provided assurance that, unlike the original question, a good test taker could not correctly guess the answer.

All information required to answer the question was provided by the question. There are three power supplies to APN-5901. The question states that two of these power supplies are unavailable. With the Unit at 100 percent power, power range channel N43 out of service, and inverters XIT-5901 and 5907 out of service, the ONLY assumption that a knowledgeable operator can make is that APN-5901 is being powered from APN-1FA.

The time allocated for the question did not change from that recommended by the facility's original validation. It is not reasonable to assume that the time would increase since the operator would be performing the same thought process to arrive at the correct answer. The only difference is that they would have to succinctly justify the end result. The facility indicated that it took operators too long to answer this question because the operators saved it for last, and one operator did not finish his answer. No other justification was provided. The original time of the overall exam was based on facility validity checks of questions with 30 minutes added to the total. For the exam which contained this question, an additional 10 minutes was added (for a total of 40 minutes) to the time to allow for possible errors in time validation. The extra time also insured consistency in the amount of time allowed for Part B of the written exam from week one to week two. Five of the twelve operators that took the exam answered the question correctly. The facility has not convincingly proven that ten minutes to answer this question is unreasonable, or that the psychometrics of the question were faulty. Answers that addressed administrative actions were graded on a case basis.

- OR-0049 The facility proposed that credit be allowed for information provided that was not a part of the question and was, in fact, a wrong answer. This appeared to be motivated solely by the operator's responses and not on technical inaccuracies in the original answer. This additional answer was not allowed by the NRC.
- OR-0059 Additional answers that were based on technical merit were accepted. However, the facility proposed two additional answers that were not based on technical information, but were based on operator's responses. Attempts to expand the answer key based on operator's responses tends to diminish the NRC's confidence in the ability of the facility evaluators to objectively evaluate responses to written exams. Two of the four additional answers recommended by the facility were accepted.

The amount of post-exam changes recommended, even if all were substantiated and valid, is excessive for an exam developed primarily with facility supplied resources and materials. If this rate continues on future exams, it could draw into question the effectiveness of the facility's requal program.

4. Exit Meeting

At the conclusion of the site visit, the examiners met with representatives of the plant staff and corporate management to discuss the results of the examinations.

Examination Development

NRC examiners met with members of the facility training staff on two separate occasions for the purpose of constructing the exam. As more experience was gained by the exam team, improvements to questions were made. Some changes made to the simulator scenarios used during the second week were made during the first week. In order to insure that future changes will be made in a more timely and agreeable manner, NRC will review progress made by the Summer training staff periodically even though no exams may be scheduled.

Plant Procedural Problems

Several procedural inadequacies were identified. Emergency Operating Procedure (EOP) 2.2, Transfer To Cold Leg Recirculation, Step 1b, contained incorrect instructions for shifting speed of the Component Cooling Water (CCW) pumps. Step 35 of EOP 6.0, Loss of all AC power, was unclear in that it caused confusion as to what should be done subsequent to the step, causing operators to delay implementation of further corrective action. SOP-306, Diesel Generator Operations, did not contain a procedure to shutdown the diesel after an emergency start that did not require it to tie onto the bus. Other procedural problems identified during the exam were brought to the attention of the facility but not mentioned at the exit meeting. Alternative Action Step 2a of EOP 6.1, Loss of All AC Power Recovery Without SI Required, should address resetting phase A isolation instead of phase B. AOP 117.1, Total Loss of Service Water, could be improved by requiring valve XVB-3121A(B) to be shut as a part of the required line-up for alternate service water instead of shutting it only after there is inadequate flow. It was noted that the exam process would identify more procedure problems as more test items were developed and the facility was encouraged to aggressively pursue procedure upgrades. The affected procedures are being changed by the licensee.

Examination Administration

The manner in which the facility evaluators conducted operating exams and arrived at pass/fail decisions was noted as a strong point of the program. The examiners suggested that the facility improve the quality of their video taping since it can be invaluable in making some pass fail decisions. The simulator was noted as having some modeling, and hardware problems. Details can be found in Enclosure 6.