

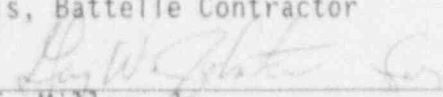
ENCLOSURE 1

Examination Report No.: 50-361/362-OL-92-01
Facility: San Onofre Nuclear Generating Station Units 2
and 3
Docket Nos.: 50-361/362
Examinations administered at San Onofre Nuclear Generating Station, San
Clemente, California.

Chief Examiner: G. Johnston, Operator Licensing Examiner

Accompanying
Personnel: B. Gruel, Battelle Contractor
K. Faris, Battelle Contractor

Approved:


Lewis F. Miller, Jr.
Chief, Operations Section

2/24/92
Date Signed

Summary:

Examinations on January 27 - 30, 1992 (Report No. 50-361/362-OL-92-01)

The examinations included two Senior Reactor Operators and six Reactor Operators who required examination prior to the expiration of their six year license terms. Four other Senior Reactor Operators and three other Reactor Operators participated as crew members during the simulator examinations. The two Senior Reactor Operators and six Reactor Operators successfully passed all portions of the examinations. The results of these examinations will be combined with the next facility evaluation, since the minimum evaluation size is twelve operators.

Safety Significant Issues:

No safety significant issues were identified.

Requalification Program Issues:

During the simulator examinations the NRC examination team observed significant variations in crew communication practices. The NRC examiners saw only occasional efforts to acknowledge communications between crew members. Further, the crews exhibited no consistent formality of communication. The apparent cause of this inconsistency appears to be a lack of performance standards set by management.

The coordination of crew activity by the Senior Reactor Operators demonstrated weak command and control skills development. This was apparent in the division of activity between the Shift Superintendent and Control Room Supervisor.

REPORT DETAILS

1. Examiners

G. Johnston, RV (Chief Examiner)
B. Gruel, Battelle Contractor
K. Faris, Battelle Contractor

2. Persons Attending the Exit Meeting

NRC

G. Johnston, Chief Examiner
B. Gruel, Battelle Contractor
K. Faris, Battelle Contractor
C. Caldwell, Senior Resident Inspector
D. Solario, Resident Inspector
D. Kirsch, Chief, Reactor Safety Branch

Southern California Edison

R. Krieger, Station Manager
R. Waldo, Station Operations Manager
V. Fisher, Units 2/3 Plant Superintendent
C. Elliot, Units 2/3 Assistant Plant Superintendent
J. Reeder, Nuclear Training Manager
R. Sandstrom, Operations Training Supervisor
T. James, Simulator Supervisor
J. Vandebroek, Compliance Supervisor
D. Brevig, Onsite Nuclear Licensing (ONL) Supervisor
J. Jamerson, ONL Lead Engineer
J. Sutton, ONL Engineer
R. Clement, Nuclear Training Instructor
R. Grabo, Nuclear Training Instructor
W. Lyke, Nuclear Training Instructor
K. Rauch, Units 2/3 Operations Training Supervisor

3. Written Examination

The facility prepared written examination material met the requirements for administration as described in ES-602, "Requalification Written Examination." The Chief Examiner requested some changes and substitutions for questions that did not meet ES-601, "Administration of NRC Requalification Program Evaluations." Attachment 1 Table 1 of ES-601 specifies that "items that require only memorization or recall are not permitted on open reference examinations." Some minor changes were necessary because of this requirement.

During the review of the written examination bank, the examiners identified some questions that did not relate to the proper portion of the exam bank. In these cases, a question belonging to the Limits and Controls (Part B) part of the written examination bank would be in the Plant Systems (Part A) part. The licensee representative in charge of

the exam bank material acknowledged the need to revise the exam bank in this regard. The licensee representative agreed to assure that questions in an inappropriate part of the examination bank were placed in the proper part of the bank.

The facility grading was conservative and did not differ in overall results with the grading of the NRC examiners. There were no failures of the written examination.

4. Job Performance Measures Examination

The examiners found that the Job Performance Measures (JPMs) provided by the facility were adequate for administration. The facility staff had maintained an addition rate to the bank of JPMs above the recommendations in the Examiner Standards.

The Chief Examiner informed the facility staff that ES-603, "Requalification Walk-Through Examination," C.1.a(4) recommends "Old JPMs should be maintained or modified as appropriate." ES-603 C.1.a(5) recommends "Questions should continue to be developed to be in congruence with the number of knowledge items associated with the particular task, as stated in the JTA or NUREG 1122/1123." This implies that the questions associated with each task should have all pertinent knowledge items addressed. The facility's program did not fully address the intent of these recommendations, in that most of the JPMs had only two questions.

Also, the JPM questions did not consistently require responses that met ES-603 C.1.a(7), which recommends that JPM questions should typically take several sentences to answer. The majority of the questions provided in the JPMs did not require more than a short sentence to answer the question.

None of the JPMs in the JPM bank were identified as time critical. The Chief Examiner discussed this concern with the Operations Training Supervisor. The Chief Examiner observed that there were several JPMs that were potentially time critical. The Operations Training Supervisor indicated that a review for more potential time critical JPMs would be conducted.

The facility staff had prepared JPMs that had alternative success paths. The Chief Examiner observed that these "faulted" JPMs had utilized procedural actions as recommended. The "faulted" JPMs utilized during the examinations appeared to work well. The Chief Examiner concluded from this observation that the validation by the facility staff of the "faulted" JPMs was well done.

During the performance of dynamic JPMs on the simulator the following problems occurred:

- The output breaker of the Diesel Generators would not close when the synchronization procedure was properly performed. Post examination validation of the JPM indicated that the simulator would only allow synchronization at a very slow rate (one revolution per 20 seconds or more) vice the procedure recommended rate of one revolution every 10 seconds.
- During the performance of a Main Feedwater Pump shutdown the simulator would not allow manual operation of the Feedwater Control System. This prevented the operator from performing the actions required to shutdown the pump dynamically on the simulator.

The conduct of the JPMs by the facility staff was done professionally with no inadvertent cueing of examinees by evaluators. The coordination of the JPMs in packages assured that groups in the simulator could perform some JPM tasks concurrently. The NRC and facility evaluators agreed that all of the examinees passed the JPM portion of the examination.

5. Simulator Examinations

The NRC examiners reviewed simulator scenarios supplied by the facility prior to the administration of the examinations. The scenarios met the minimum requirements as described in ES-604 "Requalification Dynamic Simulator Examination." The facility training staff requested several early meetings with the Chief Examiner to go over their efforts to review the scenario bank. This early effort on the part of the facility resulted in fewer required changes to the scenarios during later preparation of the examination.

The facility bank contained scenarios that were simplistic in that they did not require significant transitions in the EOPs and did not involve multiple casualties. Some scenarios contained unique lead-in events that could cue the examinees to the major event in a specific scenario. The Chief Examiner encouraged the facility staff to modify some of the scenarios to provide novelty such that the operators could not anticipate the events.

The facility had developed new scenarios since the last requalification examinations that required operator entry to the functional recovery procedures. These new scenarios presented more challenges to the operators and indicated that the facility staff had gained the ability to produce these more challenging scenarios. The Chief Examiner discussed the progress the facility staff had made in preparing these new scenarios with the Operations Training Supervisor. During the discussion the Chief Examiner stated that there were still some improvements to be made, as noted earlier. The examination team

selected four scenarios that met the Examiner Standards, and provided adequate evaluation standards for the operators. The NRC examiners made the following observations of crew performance during the simulator examinations:

- The communications of the crews appeared uncoordinated at times. The NRC examiners saw no clear effort by crew members to consistently acknowledge communications with two of the three crews. Further, none of the crews exhibited consistent formality of communication. The lack of formal communication practices caused problems for two crews. This was most apparent between crew members when a failure to relay important information resulted in poor coordination of crew actions. The coordination problems resulted in late implementation of some actions in the Emergency Operating Instructions (EOIs). The apparent cause of this inconsistency appeared to be a lack of performance standards set by management.
- The Senior Reactor Operators demonstrated weak command and control skills in their coordination of crew activity. This was apparent in the division of activity between the Shift Superintendent (SS) and Control Room Supervisor (CRS). The examiners observed several occasions where the SS was directing actions of a board operator without conveying to the CRS what actions were done. The examiners' concern from this observation was that since the CRS was the focus of all procedural actions during an event, whenever board manipulations occurred it was important that the CRS be informed about those actions. Also, the SS and CRS would often caucus privately and not inform the crew of their deliberations. This had the effect of excluding input from the board operators during that decision making. This appears to be another symptom of a lack of clear performance standards.
- The examiners observed that Scenario No. 28 had a previously identified Individual Simulator Critical Task (ISCT) that did not meet the Examiner Standards. This ISCT involved tripping two Reactor Coolant Pumps (RCPs) when Reactor Coolant System pressure decayed below 1430 psia. During the scenario the operator involved with this task did not trip two RCPs until pressure had decayed to 635 psia. During a post examination validation of the task the Chief Examiner determined that the task had no safety significance. The reason was that there appeared to be no significant safety consequences whether the pumps were tripped at 1430 psia or 635 psia. The Chief Examiner, therefore, invalidated the ISCT.

The observations of the examiners were discussed with the Training Manager and the Operations Training Supervisor. They acknowledged the observations and indicated that they would be conveyed to the Operations Department.

The simulator experienced two significant problems during the administration of the simulator examinations. During the examination of the second group of operators on January 28, 1992, the simulator locked up. This was corrected. However, the scenario in progress had to be altered to allow its continuation. The facility staff indicated that the simulator had been recently experiencing these episodes. The lead evaluator indicated that the simulator group was troubleshooting the cause of the episodes, and it had not yet been identified.

The second simulator problem was a modeling error that was not identified during the validation of the examination scenarios. Scenario No. 28 had as one event a break of the charging line downstream of the pump discharge isolation valve. During the simulator examination of the third group of operators on January 29, 1992, the Chief Examiner and the facility lead evaluator allowed the operators to align charging discharge to the High Pressure Injection header. This alignment was not validated prior to the examination. The simulator did not model this configuration accurately. A flow rate was produced in the HPSI header from the charging alignment. However, during the subsequent scenario event (an excess steam demand), the system did not accurately model charging and HPSI flow or the indication of flow to the Reactor Coolant system. The operators were confronted with conflicting indications of rising pressurizer level and no indicated HPSI flow.

The three crews were evaluated as satisfactory by the facility evaluators and the NRC examiners. All of the operators were passed by the facility evaluators and the NRC examiners.

5. Simulator Performance and Fidelity

The Chief Examiner observed that the simulator experienced a higher number of operating problems than previous examinations. The problems noted in previous paragraphs about the performance of the simulator raised the concern that the simulator was not performing properly. The NRC examination process should not present a significant challenge to the simulator capabilities. This is particularly true when facility prepared evaluation scenarios are utilized. The NRC is concerned that maintenance of the simulator needs improvement to assure that the simulator is maintained as a viable examination and evaluation tool.

6. Exit Meeting

The NRC representatives met with the persons identified in Paragraph 2 on September 20, 1991. The Chief Examiner summarized the preliminary results of the examinations to date. He also stated that the results would await the final grading of the written examinations by the facility evaluators and the NRC examiners. The discussion went over the findings identified in Paragraphs 3, 4, and 5. Particular emphasis was placed on the observations of crew performance weaknesses which had been made during the simulator examinations. The Chief Examiner pointed out that good communications were equally important for both normal plant operations and emergency operations. The Chief Examiner stated that the

importance of good communications was to avoid exacerbating events or causing significant problems in mitigation strategy during an emergency. The Chief Examiner noted that this meant that good communications practices should involve all operations in the plant, normal and emergency.

SIMULATION FACILITY REPORT

Facility Licensee: Southern California Edison Company

Facility Docket No.: 50-361/362

Operating Tests Administered on: January 28 - 30, 1992

This form is to be used only to report observations. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of non-compliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required in response to these observations.

During the conduct of the simulator portion of the operating tests, the following items were observed (if none, so state):

ITEM	DESCRIPTION
Simulator Locked-up during exam.	The simulator locked-up during a simulator scenario. The examiners had to restart the scenario after a short break to re-initialize the simulator.
CVCS aligned to HPSI header.	The simulator did not model the CVCS to HPSI cross connection. The nodal modeling apparently established a pressure of 2250 psia at the node. The HPSI system was then initiated sometime later and would not indicate flow. However, flow was occurring such that the operators had to initiate HPSI throttle/stop.
Emergency Diesel Generator Synchronization.	While performing an Emergency Diesel Generator JPM for synchronization and examinee could not close the output breaker despite meeting all the prerequisites for the task. Post examination validation revealed that the procedural direction to maintain the synchroscope rotating clockwise at one revolution every 10 seconds would not allow synchronization. Even at a lower rotation speed the output breaker would only occasionally close.
Main Feedwater Pump/Feedwater Control System	On several occasions the FWCS would not allow manual operation and control of the Main Feedwater Pumps during a JPM requiring shutdown of a Main Feedwater Pump.