

**ENCLOSURE**

**U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV**

**Docket Nos.:** 50-361; 50-362  
**License Nos.:** NPF-10; NPF-15  
**Report No.:** 50-361/99-10; 50-362/99-10  
**Licensee:** Southern California Edison Co.  
**Facility:** San Onofre Nuclear Generating Station, Units 2 and 3  
**Location:** 5000 S. Pacific Coast Hwy.  
San Clemente, California  
**Dates:** November 29 through December 3, 1999  
**Inspector(s):** Stephen L. McCrory, Senior Reactor Engineer, Operations Branch  
John Kramer, Resident Inspector, Project Branch E  
**Approved By:** John L. Pellet, Chief, Operations Branch  
Division of Reactor Safety

**ATTACHMENT:** Supplemental Information

## EXECUTIVE SUMMARY

San Onofre Nuclear Generating Station, Units 2 and 3  
NRC Inspection Report No. 50-361/99-10; 50-362/99-10

This inspection assessed the licensed operators' requalification program to determine whether the program incorporated appropriate requirements for both evaluating operators' mastery of training objectives and revising the program in accordance with 10 CFR Part 55. The licensed operators' requalification program assessment included an evaluation of the program's controls to assure a systems approach to training, and evaluation of operating crew performance during annual requalification examinations. This included review of facility documents and the 1998 biennial written examination, observations of two control room crews during dynamic simulator scenarios and plant walkthroughs, and assessment of licensee evaluators' effectiveness in conducting examinations.

### Operations

- The San Onofre Licensed Operator Requalification Program continued to effectively satisfy the regulatory requirements of 10 CFR Part 55 for the exercise and renewal of licenses issued to San Onofre operators (Sections O4 and O5).
- The licensee developed written and operating examinations that adequately evaluated licensed operator knowledge and ability. However the excessive reuse of test questions in one instance indicated a performance weakness (Section O5.1).

Report Details

I. Operations

**O4 Operator Knowledge and Performance**

**04.1 Operator Performance on Annual Requalification Examinations**

**a. Inspection Scope (71001)**

The inspectors observed the performance of two control room crews during the dynamic simulator and job performance measure portions of the annual requalification examination. The inspectors compared this performance with that observed in the control room during normal operations.

**b. Observations and Findings**

The inspectors observed two control room crews in the dynamic simulator examination. Each crew contained two senior operator licensed individuals, three reactor operator licensed individuals, and a shift technical advisor.

Both crews responded promptly and effectively to abnormal and emergency events. The crews routinely referred to procedures while responding to various plant conditions. The crews performed well with regard to communication discipline, procedure use, self verification, peer checks, and supervisory oversight. The shift managers implemented the emergency plan, as appropriate to the scenario content, through the point of announcing the emergency classification. The shift managers used the correct emergency action levels to make timely and appropriate emergency classifications.

The inspectors conducted observations of crew performance in the dual unit control room as part of the inspection. The crews performed diverse activities that required procedure use, self verification, peer checking, alarm response, inter- and intra- control room communication, and supervisory oversight. The crews met the licensee's performance expectations in all of these areas and exhibited the requisite knowledge and ability to protect the public health and safety during normal operations.

**c. Conclusions**

Crews and individual licensed operators demonstrated good operational knowledge and ability to fulfill their licensed duties to protect public health and safety. The operators exhibited consistent performance among shift crews, staff crews, and on-shift operations.

## **O5 Operator Training and Qualification**

### **O5.1 Review of Requalification Examinations**

#### **a. Inspection Scope (71001)**

The inspectors reviewed the 1999 annual requalification operating tests and the 1998 biennial requalification written examinations to evaluate general quality, construction, and level of difficulty. The inspectors also reviewed the methodology for developing the requalification examinations and discussed various aspects of examination development and security with members of the licensee's training staff.

#### **b. Observations and Findings**

The inspectors determined that the 1998 written examinations adequately sampled the training provided in the 2-year requalification training cycle and contained test areas that were outside the 2-year cycle, consistent with the licensee's program requirements. The inspectors determined that the examinations were adequate with regard to the cognitive level of the questions (most were at the comprehension level or higher) and that the senior operator examinations contained adequate numbers of senior operator-level questions.

During the examination reviews, the inspectors observed that the senior operator examination for Crew C repeated 19 questions that were also in the Crew A examination. The 19 questions represented 54 percent (19 of 35) of the questions in the Crew C examination. Licensee Procedure SO123-XXI-8.4, "Licensed Operator Requalification Examination," Revision 8, Step 6.4.1.2, stated:

(The examination:) Shall have no more than 40 percent of the questions from the two previous examinations given during that cycle's operator requalification examinations.

When asked by the inspectors, the licensee interpreted the statement to mean that no more than 40 percent of the questions in the examination being developed may come from the two previous examinations.

The inspectors reviewed the times of administration of the written examination and determined that the examination administered to Crew C was in the second week following the administration of the examination to Crew A. Therefore, the examination administered to Crew C did not meet the licensee's expectations for question reuse. However, the referenced procedure was not one required by the facility license. Therefore, this was not a violation of regulatory requirements. The inspectors further reviewed the examination grading results for both crews and the licensee's controls over examinations during the examination cycle. The inspectors observed that the grades for the operators in Crew C were not significantly different from those in Crew A, and that there was at least one instance in which a Crew C operator scored lower. Additionally, the licensee demonstrated that there was a very low opportunity for members of the two

crews to interface due to their shift rotation schedules. Finally, the licensee maintained full security over all examination material until the end of the examination cycle and did not allow individuals to retain copies of the examination or review it without the accompaniment of a member of the training staff.

The inspectors concluded that there was no evidence of examination compromise and a very low likelihood of actual or attempted compromise. The inspectors reviewed additional question use history for the remainder of the 1998 biennial written examinations and observed that all other examinations satisfied the licensee's requirement for question reuse. The inspectors determined that this event represented a performance weakness by the licensee, but that it was not characteristic of overall performance regarding written examination development. The licensee initiated Action Request 991200056 to review the clarity of the program requirements against the licensee's intended interpretation.

The inspectors reviewed 18 simulator scenarios (9 scenario sets) used to administer the dynamic simulator portion of the annual operating examination for Weeks 1 through 3 of the examination cycle. The scenario sets conformed to the qualitative and quantitative guidelines in licensee Procedure SO123-XXI-8.4, which were similar to those in found in NUREG 1021, "Operator Licensing Examination Standards," Revision 8. Each set had multiple post-trip malfunctions that compounded the recovery and often required the use of functional recovery emergency operating procedures.

The inspectors pointed out to the licensee that none of the scenarios used in the first 3 weeks of the 1999 examination cycle used a major electrical transient, such as, loss-of-offsite power as the major event of the scenario. The licensee provided records that demonstrated that evaluated scenarios with major electrical transients had been used extensively during the 2-year requalification cycle.

The inspectors reviewed 12 job performance measures that were used to assess operator system operations ability and that were administered on October 18 and November 8, 1999. The inspectors concluded that the quality of the job performance measures was acceptable. Additionally, the inspectors reviewed the job performance measure outlines for the examination cycle. The inspectors determined that the breadth and depth of evaluation was adequate and that reuse of testing material was acceptable and within the licensee's program requirements.

c. Conclusions

The licensee developed written and operating examinations that adequately evaluated licensed operator knowledge and ability. However the excessive reuse of test questions in one instance indicated a performance weakness.

## **O5.2 Examination Administration**

### **a. Inspection Scope (71001)**

The inspectors observed the licensee's evaluators administer the dynamic simulator scenarios and plant walkthrough portions of the operating examination. The inspectors observed the licensee's post-examination evaluations of the scenarios and reviewed evaluator documentation of the plant walkthrough.

### **b. Observations and Findings**

The licensee evaluators exhibited high sensitivity toward maintaining examination security during the administration of the examinations. Evaluators or other security monitors maintained direct oversight of each examinee throughout the examinations. The pre-examination brief to the examinees directed them to not discuss any part of the examination with anyone else (outside their crew) until the examination cycle was completed.

At the end of the scenario set, the evaluation team met and reviewed the crew and individual performance. The evaluators used licensee developed crew and operator competency evaluation forms that retained the intent of those contained in the Examination Standard 600 Series of NUREG-1021. The evaluators thoroughly discussed and processed the performance of crew and individual for each scenario for all competencies. The evaluators provided justification for all performance grades below fully satisfactory. The licensee evaluators assessed both crews and all operators as passing, which the inspectors agreed with.

On October 18 and November 8, 1999, the inspectors observed 12 job performance measures administered to both operators and senior operators in the simulator and plant. The evaluators conducted the job performance measures professionally and provided appropriate cues when needed, with no inadvertent cuing. The inspectors discussed the results of the observed candidates' job performance measure performance with the evaluators and found that the evaluator's assessment was consistent with the inspectors' observations.

### **c. Conclusions**

The training staff maintained a high level of sensitivity toward examination security during examination administration. Further, evaluators processed operator performance results thoroughly and made appropriate pass-fail determinations.

## **O5.3 Review of Requalification Feedback Process**

### **a. Inspection Scope (71001)**

To determine feedback effectiveness, the inspectors interviewed licensee staff and reviewed training feedback information and self and third party assessments of the requalification training program.

b. Observations and Findings

During the interviews with a shift manager, reactor operator, training instructor, and training evaluator, the inspectors asked the interviewees about their experience or involvement with training feedback. All of the operators expressed a high level of satisfaction with the responsiveness of the training organization to crew and operator feedback. The training personnel interviewed indicated that they gave high priority to responding to feedback in a timely fashion.

The licensee provided a record of training feedback and response for the month of November 1999 that had occurred over the licensee's internal e-mail system. The dates and times on these communications demonstrated the training staff responded promptly to requests and suggestions. The content of the communications exhibited a good level of positive co-operative interaction between the operations and training staffs.

The licensee's Annual Program Evaluation Report, dated July 27, 1999, reported numerous training efforts that were the direct result of operator, plant performance, industry event, and industry group feedback. Examples included increased training allocation to theory and fundamentals and inclusion of risk significant industry events in classroom and simulator training.

A third-party assessment, conducted by an external organization using NRC Inspection Procedure 71001, "License Operator Requalification Program Evaluation," and a licensee self-assessment (draft) provided candid feedback on the performance of the licensed operator requalification training program. In addition to several enhancement recommendations, the external assessment cited the following strengths and weakness:

**Strengths:**

- Inclusion of fundamentals training in dynamic scenarios.
- Excellent system to ensure conformance with operator license conditions.

**Weaknesses:**

- Inconsistent security requirements for periodic and annual examinations.
- No formal feedback process for on-the-job training.
- Operator perception that feedback did not result in a worthwhile response.

The licensee entered the enhancement recommendations and weaknesses into their Action Request system.

As previously noted, the inspectors observed good response to operator feedback in the period following the external assessment. The licensee was still developing a feedback process for on-the-job training. The inspectors reviewed the examination security requirements in Procedure SO123-XXI-8.4, "Licensed Operator Requalification Examination," Revision 8, and determined that they were adequate.

c. Conclusions

The licensee had an adequate feedback process that effectively dealt with feedback for improvement and enhancement of the licensed operator requalification training program.

O5.4 Review of Requalification Remediation Process

a. Inspection Scope (71001)

The inspectors reviewed the licensee's remedial actions for licensed operators and discussed the program with training personnel and operators.

b. Observations and Findings

The inspectors reviewed Procedure SO123-XXI-1.11.7, "Licensed Operator Requalification Training Program Description," Revision 8, Section 6.5, and Attachment 2. The procedure described the licensee's process for remedial requalification. The inspectors reviewed the remedial documentation for the 1998 written examination failures. The licensee conducted remedial training as required by Procedure SO123-XXI-1.11.7. In the one instance where an operator failed the retest examination, the licensee convened the required academic review board to determine additional training requirements. The operator passed the subsequent remedial evaluation and was allowed to resume normal license duties.

The inspectors discussed the remedial training process with training personnel and operators. The inspectors concluded that the personnel were familiar with the remedial process.

c. Conclusions

The remedial training program was implemented in accordance with licensee procedures. Licensee personnel were familiar with the remedial process.

O5.5 Review of Maintenance of Licensed Conditions

a. Inspection Scope (71001)

The inspectors reviewed the licensee's program for maintaining active operator licenses, Procedures SO123-0-7, "Operator Training Responsibilities," Revision 7, and SO123-XXI-1.11.7, "Licensed Operator Requalification Training Program Description," Revision 8.



b. Observations and Findings

The inspectors reviewed the reactivation of operator licenses. The inspectors verified that the operators' training requirements (classroom and simulator) were current prior to activation. The inspectors reviewed Procedure SO123-XXI-1.11.7, Attachment 3, "Reactivation of Inactive NRC License," and observed that the documentation of hours to reactivate the licensee, in some cases, included hours that spanned calendar quarters.

The inspectors identified an instance in which the licensee activated the license of a senior operator who stood 40 hours under instruction on consecutive work days that crossed over the fourth calendar quarter of 1998 into the first calendar quarter of 1999. The inspectors determined that the regulatory requirement was that all under-instruction hours, specified in 10 CFR 55.53(f)(2), had to occur in the same calendar quarter. The requirement was clarified in the response to Question 277 in NUREG-1262, "Answers to Questions at Public Meetings Regarding Implementation of Title 10, Code of Federal Regulations, Part 55 on Operators' Licenses," published November 1987. The licensee had not incorporated the clarified requirements into their administrative procedures. The inspectors concluded that this event was a violation of minor significance and not subject to formal enforcement action.

The licensee initiated Action Request 991200108 to document and evaluate the event. The licensee planned to revise procedures to clearly indicate that the hour requirement to reactivate a licensee shall be performed in the same calendar quarter.

The inspectors reviewed the licensee's program for ensuring the medical fitness of the licensed operators and Procedure SO123-0-45, "Licensed Operator Biennial Examination Responsibilities," Revision 1. The review determined that the licensee appropriately tracked and performed the biennial physical requirements for the operators.

c. Conclusions

The licensee's process accurately tracked the maintenance of license conditions but contributed to a minor violation because NRC clarification of the regulations was not incorporated into the licensee's procedures.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on December 3, 1999. The licensee's management acknowledged the findings presented. No proprietary information was identified.

**ATTACHMENT**

**SUPPLEMENTAL INFORMATION**

**PARTIAL LIST OF PERSONS CONTACTED**

**Licensee**

D. Axline, Licensing Engineer  
T. Frey, Project Analyst  
R. Krieger, Vice President, Nuclear Generation  
W. Lyke, Supervisor, Operations Training  
D. Nunn, Vice President, Engineering and Technical Services  
R. Pate, Supervisor, Compliance  
R. Sandstrom, Manager, Nuclear Training Department  
R. Waldo, Manager, Operations

**INSPECTION PROCEDURE USED**

71001 Licensed Operator Requalification Program Evaluation

**DOCUMENTS REVIEWED**

**Procedures**

SO123-O-7, "Operator Training Responsibilities," Revision 7  
SO123-XXI-1.302, "Operator License Application," Revision 4  
SO123-XXI-8.4, "Licensed Operator Requalification Examination," Revision 8  
SO123-XXI-1.11.7, "Licensed Operator Requalification Training Program Description," Revision 8  
SO123-O-45, "Licensed Operator Biennial Medical Examination Responsibilities," Revision 1

**Miscellaneous**

Surveillance Report SOS-049-99, "Assessment of Operations Division Training Effectiveness,"  
July 13, 1999

Westrain Assessment, 71001 Inspection Audit of San Onofre Nuclear Generating Station  
Requalification Program, September 13-17, 1999

San Onofre Nuclear Generating Station Self Assessment (of training), October 4-8, 1999 Draft

Licensed Operator Requalification Training Annual Program Evaluation Report, July 27, 1999

Summary of Job Performance Measure results for 1999 Operating Examinations

Audit Report SCES-801-98, "Annual Training & Qualification of Unit Staff," October 1998

1998 Biennial written examinations

**1999 Operating Examination Scenario Sets for Crews C, D, and E**

**Procedure AR 991200056, "Excessive Reuse of Questions during the 1998 Biennial Written Examinations," December 1, 1999**

**Procedure AR 991200108, "Reactivation of a Senior Operator License relying on a combination of hours under instruction and proficiency watch standing hours," December 2, 1999**

**Job Performance Measures**

**J051S, Revision 1-6  
J015, Revision 1-7  
J016F1, Revision 1-7  
J053S, Revision 2-1  
J007S, Revision 1-4  
J064, Revision 1-5  
J020F, Revision 1-6  
J035S, Revision 1-7  
J093S, Revision 1-8  
J118S, Revision 0-3  
J099S, Revision 1-4**