

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Number: 50-206/92-21  
Docket Number: 50-206  
License Number: DPR-13  
Licensee: Southern California Edison Company  
Irvine Operations Center  
23 Parker Street  
Irvine, California 92718  
Facility Name: San Onofre Nuclear Generating Station  
Unit 1

Inspection Conducted: June 10-12, 1992

Inspectors: J. Russell, Lead Inspector, RV  
J. Munro, Senior Reactor Engineer, NRR/LOLB

Approved by:

*[Signature]*  
A. Meadows, Acting Chief  
Operations Section

*7/3/92*  
Date

Inspection Summary:

Inspection during the period of June 10 through June 12, 1992 (Report Number 50-206/92-21).

Areas Inspected:

The inspectors conducted a routine, announced inspection to evaluate the effectiveness of the simulator portion of Unit 1 licensed operator requalification training. The inspection evaluated the effectiveness of the program in terms of training effectiveness, evaluator effectiveness, crew performance, and reference material.

Results:

No significant concerns were identified with the simulator training program. One concern was inadequate validation of certain training and evaluation scenarios.

Significant Safety Matters: None

Summary of Violations and Deviations: None

## Report Details

### 1. Persons Contacted

- \*J. Schramm, Plant Superintendent, Unit 1
- \*R. Sandstrom, Supervisor Operations Training
- \*T. Straw, Instructor, Nuclear Training Division
- \*M. Kirby, Simulator Project Manager
- \*S. Cooley, SCE Contractor
- \*K. Collins, SCE Contractor
- \*B. Hajek, SCE Contractor

\* The asterisk denotes those who attended the exit meeting on June 12, 1992.

The inspectors also held discussions with other licensee personnel during the inspection.

### 2. Introduction

The purpose of this inspection was to evaluate the effectiveness of San Onofre Nuclear Generating Station Unit 1 (SONGS 1) licensed operator requalification program to maintain the competency and currency of operators. This included only portions of the program observed during the plant referenced simulator training conducted the week of June 8, 1992 at Montreal, Canada. This limited evaluation was not intended to meet the requirements of the dynamic simulator portion of a program evaluation, although the objective was similar. The inspectors observed classroom training, simulator training, and simulator evaluation for six licensed operators and two shift technical assistants (STAs) during the three days of inspection activity. Based on this limited evaluation, the inspectors identified no significant concerns with the simulator training program.

### 3. Program observation

#### 3.1 Training Effectiveness

The inspectors observed classroom and simulator training conducted Wednesday, June 10 and Thursday, June 11. The classroom training was monitored directly. The simulator training was also monitored directly and consisted of a preshift brief, a training scenario, and a post scenario critique. The six week simulator training schedule and various lesson plans were reviewed. The licensee split the six licensed operators and two STAs in training the week of this inspection into two groups of three operators and one STA. These groups separately received a training scenario and classroom instruction each day. A scenario incorporating five of these operators and one of the STAs was also run each day. The inspectors confirmed that all licensed operators were scheduled for training.

The inspectors observed that the classroom training was conducted in a seminar format. The objective was to train on a particular Emergency Operating Instruction (EOI). Members of the crew participated in discussions of the procedural steps. The inspectors felt that this format worked well, and, with

the amount of interaction and questioning observed, achieved its objective.

The seminars were facilitated well by the instructor. The inspectors also observed, however, that potential problem areas with the procedure under discussion were not recorded. The lesson plans used direct the instructor to point out potential problems with the procedure. These problems were not stipulated, via any attachment to the lesson plan.

Training scenarios were observed. While the inspectors concluded the scenarios were effective as training material, problems were noted which indicated inadequate validation of some scenarios. Examples of these problems were:

- During a scenario that disabled Safety Injection during a medium break Loss of Coolant Accident (LOCA), no success path was available to the operators. The crew accomplished all critical tasks in a reasonable time while still unavoidably violating Emergency Core Cooling System (ECCS) acceptance criteria. Damage to the fuel clad most probably occurred, and excessive hydrogen generation did occur.
- One of the objectives of a scenario that involved a single loop loss of flow was to train on the operator response with power less than the P-8 permissive. At this power level, the reactor would not automatically trip. Often the initial conditions of the scenario were such that the turbine first stage pressure signal that feeds P-8 was high enough to cause an automatic reactor trip, when this scenario was run. This was the case during the scenario the inspectors observed. The objective was trained verbally post-scenario, however this was done in lieu of actual operator action.
- Another scenario involved a feedline break in the common header to all three steam generators, and a loss of auxiliary feedwater. The intent was to have the operators enter the loss of secondary heat sink procedure. However, the steam generator low level required to enter this EOI, with the scenario as written, would have taken an excessive time to develop. Consequently, manual control of indicated level was taken by the simulator operator and level was lowered faster than it would have otherwise decreased. The operators were not informed of this, as it was happening. As operators form expectations of actual plant response from the response they observe in the simulator, this could lead to misconceptions on their part. The operators were informed of the manipulation after the scenario terminated.
- One scenario involving a station blackout was initially validated with an event classification of alert. Both SROs evaluated using this scenario classified the event as a site area emergency (SAE). Post scenario review by the evaluators and operations personnel resulted in a change of the prescribed classification to an SAE.

The inspectors concluded that the problems mentioned could have been foreseen and eliminated with a more thorough scenario validation.

The inspectors also observed critiques conducted after each scenario. These

critiques were not of uniform quality. The critiques were deficient in the following respects:

- The lesson plan called for the crew to initially conduct a self critique. Any negative points the crew did not discuss were to be brought out by the instructor. At times the crew was not allowed to self critique at the onset of the critique. At other times, the instructor was not aggressive enough in making negative comments. While it is recognized that too many negative comments in any one critique may serve to desensitize the crew to these comments, the inspectors felt that more aggressive instructor participation was warranted in this case.
- The inspectors observed some operator actions that should have been commented on in the critiques, but were not. Examples are:
  - In one instance, a control operator gave direction to an assistant control operator. Both were licensed reactor operators (ROs). The inspectors recognized that during plant operations ROs might read procedures to each other, check each other, and coordinate activities with each other. In this instance, however, one RO gave direction, to perform an action, to another. Only Senior Licensed Operators have the authority to direct other licensed operators.
  - Containment spray flow was reported to the Control Room Supervisor (CRS) as 25 gpm greater than a maximum required in an EOI. The CRS accepted this greater value as meeting the procedural step without questioning it.
  - An RO was confused as to the response of the auxiliary feed system if outlet throttle valves are taken from the mid position to full open (i.e. flow should increase).
  - In certain instances crew communications were weak, in that members failed to completely respond to information from others.

The inspectors concluded that the critiques observed were adequate, but not of uniform quality. It was also noted that active participation from operations management improved the quality of the critiques.

### 3.2 Evaluator Effectiveness

The inspectors observed a simulator evaluation conducted Friday, June 12. Two facility instructors in conjunction with two contract personnel evaluated the operators in training. The inspectors evaluated the scenarios used, they were found to be of average quality. Parallel crew evaluation by the NRC, per NUREG-1021, was not performed. The facility evaluators were effective.

The inspectors noted no sample plan had been utilized to coordinate the evaluation scenarios into the overall requalification examination. The inspectors were told that a sample plan would be developed to ensure the overall examination tested the items taught over the requalification cycle, and was valid.

### 3.2.1 Critical Tasks

The scenarios, when compared with scenarios run at other sites, were of average quality and discriminatory value. Changes to the scenarios to improve discriminatory value would include the addition of safety significant malfunctions after major event initiation. Also, in some instances, the threshold in terms of safety significance for the critical tasks identified was too low. Examples are as follows:

- In one scenario, a critical task was identified that required manual control of the Chemical and Volume Control System (CVCS) pressure control valve, PCV-1105, when it failed shut. This failure caused the CVCS safety relief valves to open, as they are upstream of PCV-1105. As pressurizer level drops the letdown line will automatically isolate, alleviating the loss of coolant via the CVCS relief valves. In this instance an automatic action will negate any safety consequence, or alteration of mitigation strategy, if the operator does not take manual control of the valve.
- In another scenario, a rod drops and the critical task identified is to take manual control of the Rod Control System and match Tav<sub>g</sub> to Tref. The inspectors noted, however, that FSAR analysis shows there is no danger of exceeding thermal limits, with no operator action, in this instance. Since the unit has been operating at a reduced Tav<sub>g</sub>, the flux profile after a single dropped rod was acceptable. Thus, the safety consequence of these operator actions was minimal.

### 3.2.2 Methodology

The methodology used by the licensee evaluators to evaluate the SROs' ability to classify events resulted in an unclear understanding of the operators' decision making process and potential weaknesses. The facility evaluators had the SRO classify the event, at its highest level, after scenario completion. The makeup of the crew, with a single SRO and two ROs, provided for multiple operator actions to evaluate. This facilitated evaluation of these operators in many aspects. However it also negated the possibility of real time event classification. The SRO was forced to rely on memory to reconstitute the scenario in efforts to provide a classification. The inspectors observed this interfered with a determination of the SROs' ability to classify events.

### 3.3 Crew Performance

The inspectors observed crew performance in the dynamic simulator examination conducted Friday, June 12. Based on this limited evaluation, the inspectors concluded the operators performed satisfactorily. One training weakness was identified.

The inspectors noted that during the previous two weeks four crews had been evaluated with one crew and one operator failing. Both the crew and the individual were remediated, reevaluated, and placed back on shift. The inspectors observed the facility evaluation of two crews during this inspection with one individual failing.

The inspectors identified a training weakness in implementation of the Emergency Plan Implementing Procedures (EPIP). Specifically, a weakness in classifying events involving a loss of AC power. This was evidenced by the performance of both SROs during their evaluation. Both classified a particular scenario as an SAE, but used differing logic. Initial validation of the scenario yielded an alert classification. The differences resulted from a nonuniformity of EPIP usage. The facility training staff agreed to schedule additional training in this area.

### 3.4 Reference Material

During the course of the inspection operating procedures, abnormal operating procedures, and EOIs were used by the operators. The following procedural deficiencies were identified:

- Steps 21(a) and 16(a) of S01-1.2-1, "Response to Inadequate Core Cooling," use a negative logic that proved confusing to the operators both in the classroom and in the simulator. The use of negative logic is generally discouraged in writing EOIs. The facility agreed to evaluate rewording these step.
- Step 6.4.10 of S01-4-34, "Reactor Plant Instrumentation Operation," had the operator reset the dropped rod stop at the Nuclear Instrument Cabinet. This step would not work as written. The facility agreed to evaluate changing this step.

### 4. Exit Meeting

The inspectors conducted an exit meeting on June 12, 1992 with members of the licensee staff as identified in section 1. During the exit meeting the inspectors summarized the scope of the inspection activities and the findings as detailed in this report. The licensee acknowledged the concerns identified and agreed to emphasize those areas of weakness noted in the report.