

U. S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 50-206/80-12

Docket No. 50-206 License No. DPR-13 Safeguards Group \_\_\_\_\_

Licensee: Southern California Edison Company  
2244 Walnut Grove Avenue  
Rosemead, California 91770

Facility Name: San Onofre Unit 1

Inspection at: San Onofre

Inspection conducted: April 5 - May 2, 1980

Inspectors: B. H. Faulkenberry / L. Miller, Resident Inspector 5/28/80  
Date Signed

Date Signed

Date Signed

Approved By: B. H. Faulkenberry 5/28/80  
B. H. Faulkenberry, Chief, Reactor Projects Section 2,  
Reactor Operations and Nuclear Support Branch Date Signed

Summary:

Inspection on April 5 - May 2, 1980 (Report No. 50-206/80-12)

Areas Inspected: Routine, resident inspection of plant operations as related to long term shutdown, monthly maintenance observations, long term shutdown activities, small break loss of coolant (SBLOCA) procedures, follow-up on licensee event reports, follow-up on a licensee's response to IE Bulletin 79-15 and IE Circular 80-02. The inspection involved 67 inspector-hours by one NRC inspector.

Results: In the monthly maintenance observation area, two items of noncompliance were identified concerning nuclear instrument detector replacements (failure to follow procedure - Infraction, 80-12-01; failure to retain records - Deficiency, 80-12-02). In the plant operations area, one item of noncompliance was identified (failure to implement fully the 10 CFR 20 posting requirements for a radiation area - Infraction, 80-12-03).

RV Form 219 (2)

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## DETAILS

### 1. Persons Contacted

R. R. Brunet, San Onofre Unit 1 Superintendent  
D. E. Nunn, Manager Quality Assurance  
B. L. Curtis, Station Supervising Engineer  
M. A. Wharton, Unit 1 Supervising Engineer  
G. Beetz, Unit 1 Supervisor of Plant Maintenance  
G. W. McDonald, Quality Assurance/Quality Control Supervisor

The inspector also interviewed other licensee employees during the inspection, including several licensed operators.

### 2. Monthly Maintenance Observations

The inspector observed licensee personnel as they replaced source range nuclear instrument detectors on several occasions from April 14-25, 1980. The licensee's procedure for this replacement is S-II.1.11, "Nuclear Instrumentation System Detector Replacement." On April 16, 1980, the inspector observed that licensee personnel were not referencing the procedure as they worked. Subsequently, the inspector interviewed those personnel to determine whether or not they were aware of the existence of the procedure, and whether or not they had used it in this instance. The personnel questioned were not familiar with the requirements of the procedure, and they had substantially deviated from its requirements. Specifically, the procedure required step-by-step records of the replacement effort, resistance and capacitance test data, and a plot of the detector high voltage plateau curve. None of this was obtained, according to the personnel who performed the work.

Shortly thereafter, all three source range detectors became erratic and were replaced. This time licensee personnel maintained most of the records required by S-II.1.11 for the replacement. The only omission observed by the inspector was that high voltage plateau curves were not prepared as required by Step R of the procedure. The inspector also determined that the personnel performing the replacement did not consider that the installed detector was required by the procedure to meet the manufacturer's specifications as an acceptance standard, contrary to Steps K and O of the procedure, and the definition of the acceptance standards in Paragraph IV of the procedure.

Technical Specification 6.8.1 requires that written procedures and administrative policies shall be established, implemented and maintained that meet or exceed the requirements and recommendations of Appendix A of USNRC Regulatory Guide 1.33, Rev. 1.

Appendix A of USNRC Regulatory Guide 1.33, Rev. 1, Paragraph 9.c.(7), recommends that procedures for the "Replacement of Neutron Detectors" shall be prepared.

San Onofre Nuclear Generating Station Instrument and Test Procedure S-II.1.11, Rev. 2, provides instructions for testing and replacing neutron detectors, including source range nuclear detectors.

Contrary to the above requirements, during the period of April 14-25, 1980, the source range detectors were on several occasions replaced without implementing the requirements of Procedure S-II-1.11. This is an infraction.  
(80-12-01)

The inspector continued his review in this area. It was determined that on February 4, 1980, the replacement of the power range neutron detectors on nuclear instrument channel 1205 had been completed. The licensee was requested to retrieve the completed copies of Procedure S-II.1.11 which should have been used for this replacement. At the time of this inspection, these records could not be retrieved by the licensee.

Technical Specification 6.10.1b requires that records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety shall be retained for at least five years.

Procedure S-II.1.11, "Nuclear Instrument System Detector Replacement," Step III.A, requires that "This procedure shall be used as a data record..." for testing and replacing neutron detectors.

Contrary to the above, the replacement of the power range detectors for nuclear instrument channel number 1205 was completed on February 4, 1980, and the required record for this replacement was apparently not retained. This is a deficiency. (80-12-02)

### 3. Inspection During Long Term Shutdown

- a. On a daily basis, the inspector observed control room operations for proper shift manning, for adherence to procedures and limiting conditions for operation, and for appropriate recorder and instrument indications.
- b. Logs and operating records were regularly reviewed.
- c. Radiation controlled area access points were inspected frequently.
- d. The equipment clearance system was checked repeatedly. On one of these checks, for clearance 38138, a tag was observed to be hung on the drain valve of a feedwater heater that was still draining. A licensed senior operator indicated that it was a common practice to issue clearances on equipment that was known to be draining with the caution to the worker holding the clearance that "The equipment was still draining." The inspector did not witness this practice; however, the practice would have been contrary to Division Order D-A-14, "Work

Authorizations," a procedure required to be implemented by the Technical Specifications. Licensee representatives indicated that it was not an approved practice to issue a clearance on undrained equipment that was still draining, and a memorandum to operating personnel was promulgated reemphasizing that position. The inspector stated that this action was adequate.

- e. Frequent discussions with control room operators were held by the inspector to discuss the reasons for existing instrument indications and plant conditions.
- f. Most areas of the facility were regularly toured by the inspector. It was observed that no obvious fire hazards existed, although there were numerous areas with partially obstructed access due to scaffolding which would potentially reduce the effectiveness of a fire-fighting team in reaching and extinguishing a fire. The inspector noted that the licensee appeared cognizant of this potential and was diligent in minimizing the risk to the greatest extent possible. For example, scaffolding not in use was promptly removed and work areas were regularly cleaned of debris. This area will continue to be closely monitored by the inspector to ensure that construction project-related fire hazards do not develop.
- g. The implementation of the physical security plan was observed daily by the inspector. The inspector observed, at various times, that manning, protected area barriers, isolation zones, vital area access controls, search procedures, personnel identification, and compensatory measures procedures were all adequate.
- h. The licensee's radiation program came under scrutiny during this month as a result of numerous incidents of personnel contamination on April 12-13 1980, and allegations by a contractor employee on April 21-22, 1980. Two separate investigations by the NRC regional office were made to investigate these occurrences. They are the subject of separate reports. In addition to the findings resulting from these investigations, the inspector noted on April 17, 1980, that a temporary radiation area existed around the spent resin cask prepared for shipment by the licensee and temporarily stored in the northeast corner of the Unit 1 protected area. The posted west perimeter of the radiation area was surveyed by the inspector in company with a licensee radiation protection technician using the licensee's calibrated "Cutie-Pie" survey meter. For a distance of approximately 15 feet along the posted boundary, the licensee's calibrated "Cutie-Pie" detector indicated radiation levels as high as 8 mr/hr. Personnel were observed continuously passing through the area and they were unaware that it was in fact a radiation area.

Although the cask was surrounded by a posted radiation area barrier, the barrier was not positioned properly and did not circumscribe the actual radiation area.

10 CFR Part 20.202 defines a "radiation area" as any area, accessible to personnel, in which there exists radiation, originating in whole or in part within licensed material, at such levels that a major position of the body could receive in any one hour a dose in excess of 5 millirem, or in any 5 consecutive days a dose in excess of 100 millirems. 10 CFR Part 20.203b requires that each radiation area shall be conspicuously posted with a sign or signs bearing the radiation symbol and the words: "Caution, RADIATION AREA."

Contrary to these requirements, on April 17, 1980, an area accessible to personnel, in which radiation levels existed such that a major portion of the body could receive in one hour a dose rate in excess of 5 millirem was not posted as required. This area was located on the west side of the temporary spent resin cask storage site at the northeast corner of the facility protected area. This is an infraction. (80-12-03)

- i. In other areas of radiation protection at the facility, the inspector noted that a significant increase in radiation protection measures was made by the licensee during the month. In particular, an elaborate, two stage control point on the turbine deck sphere access area was constructed to limit the possible spread of contamination to other parts of the controlled area.

#### 4. Review of Small Break LOCA Procedures (TI 2515/32)

The inspector reviewed the licensee's procedures, training and systems to determine to what degree that small break loss of coolant accident (SBLOCA) procedures had been modified to reflect the NRC staff reviews of the Three Mile Island accident.

##### a. Procedure Implementation

The inspector determined that the licensee's procedures substantially incorporated that Westinghouse guidelines, with two significant exceptions. The licensee's Procedure S-3.5.5, "Loss of Coolant," did not provide a diagnostic chart based on the guidelines to clarify symptoms nor were all of the guideline's immediate actions incorporated as immediate actions in the licensee's procedures. Licensee personnel stated that they believed that a diagnostic chart similar to that in the guidelines was of little value, and the guideline's immediate actions were too extensive for all to require immediate attention. The inspector stated that these exceptions appeared significant and would require further NRC review. Licensee personnel stated that

the guidelines seemed poorly written for use as an operating procedure in that the actions statements were sometimes in precaution statements and procedural notes, thus marking the procedure unwieldy. This item remains open pending further NRC review. (80-12-04)

b. Training Requirements

The inspector verified that each licensed operator, except the Unit 1 Superintendent and the Plant Manager, had attended a formal classroom lecture on Procedure S-3-5.5 and had received or given a walkthrough of the procedure in the control room. The inspector stated that based on their review of the procedure, while serving on the On Site Review Committee, the Unit 1 Superintendent and the Plant Manager had appeared to receive equivalent training to that provided to the other licensed operators. He further stated that the licensee's training for the procedure appeared adequate. (Item closed.)

c. Operator Interview

The inspector interviewed six licensed operators, including personnel of all levels of responsibility in the facilities Operations Department. All of the personnel interviewed had memorized the immediate actions of S-3-5.5. As noted above, these immediate actions are fewer than those contained within the Westinghouse guidelines (OI 80-12-04). All of the personnel demonstrated excellent knowledge of the procedure. Some of the operators, however, were not aware of the correct value for adequate subcooling for the facility nor of the expected value of pressurizer relief valve tail pipe temperatures in the event of a stuck open pressurizer relief valve. The inspector discussed these deficiencies in training with licensee representatives. The licensee agreed to reemphasize this aspect of training to each operator by written memorandum. The inspector verified that operators had received this reinstruction. (Item closed.)

d. Systems Considerations (80-12-05)

The inspector reviewed Procedure S-3-5.5 in the control room, both with several licensed operators, and separately to access to what extent systems considerations would effect the execution of the procedure.

- (1) The inspector noted that only one value at a time, of the hot leg reactor coolant system temperature, could be read from the front of the control room panels, namely the reading on the single saturation temperature 3-pen recorder.

This item is open pending NRC resolution of the adequacy of a single leg temperature indicator within the control room.

- (2) The inspector verified that operators were aware of the position indicators for the power operated relief valves and of their possible importance in a SBLOCA. (Item closed.)
- (3) The inspector determined that upon receipt of a safety injection signal, the licensee's procedure required that the Safety Injection System be "blocked" before safety injection is verified to have occurred. This action prevents additional safety injection signals from reactivating the Safety Injection System. If offsite power were to be lost after a valid safety injection signal had been blocked, automatic resequencing of safety injection loads onto the safeguards busses reportedly would not occur. The procedure has a caution to this effect several steps into the procedure's subsequent actions, but operators were not aware that this caution applied as soon as safety injection was blocked (an immediate action of the procedure) since the caution appears somewhat later in the procedure, after safety injection is reset.

This item is open pending NRC review of the acceptability of this premature blocking of safety injection.

- (4) The licensee considered that there would be sufficient water in the RWST at all times to preclude failure of those pumps drawing water from the RWST. The licensee did not have a detailed time sequence table of procedure steps and water remaining in the RWST, as a function of time during a SBLOCA, available for this inspection. The inspector could not verify at the time of the inspection that sufficient water would be available. This item is open pending further review by the inspector.
- (5) The licensee stated that the feedwater pumps and the charging pump, in the safety injection mode, would be cooled sufficiently to protect the safety injection system. (Item closed.)

No items of noncompliance or deviations were identified. The licensee's procedures and systems for the SBLOCA appear adequate pending further review and acceptability of items 4.a, 4.d.(1), 4.d.(3) and 4.d.(4).

## 5. Bulletins and Circulars

### Circular 80-02 (Nuclear Power Plant Staff Work Hours)

The inspector reviewed the hours worked by operating shift personnel during the period from March 10 - April 6, 1980, a period of nearly continuous full power operation with no plant startups or shutdowns. During this period, none of the circular's recommended guidelines were completely observed. There were four instances of

operators working longer than 12 hours continuously, 33 instances of operators returning to work with less than a 12-hour break between work periods, three instances of operators working in excess of 72 hours in any 7-day periods, and every operator worked more than 14 consecutive days without two consecutive days off. A licensee representative stated that the circular's guidelines were inappropriate and would be difficult to implement given the constraints of required training and labor contracts. The inspector acknowledged these comments, and stated that the licensee's present capacity to meet the working hour guidelines would be referred to IE Headquarters for their review (01 80-12-06).

This item is open pending further NRC review.

#### Bulletin 79-15 (Deep Draft Pump Deficiencies)

The inspector reviewed the licensee's reponse and the package of drawings, maintenance history, testing information and design specification for the licensee's deep draft pumps. The inspector stated that the licensee's response appeared adequate.

No items of noncompliance or deviations wre identified.

#### 6. Licensee Event Reports

The inspector reviewed the licensee's event reports 79-21, 79-26, 80-03 and 80-04. The inspector reviewed these reports with licensee representatives, verified the conditions observed had been properly reported, and discussed the licensee's completed and in progress corrective actions.

No items of noncompliance or deviations were identified, and these items are closed.

#### 7. Exit Interview

An exit interview (Paragraph 1) was held on April 25, 1980, to summarize the scope and findings of this inspection.