U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-206/82-15

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

Licensee: Southern California Edison Company

P. O. Box 800

Rosemead, California 91770

Facility Name: San Onofre Unit 1

Inspection at: San Onofre, California

Inspection conducted: April 1 - 30, 1982

Inspectors: PH Johnson for L. Miller, Senior Resident Inspector, Unit I — 5/19/82 Date Signed

Date Signed

Date Signed

Approved By: PH Johnson for G. B. Zwetzig, Chief, Reactor Projects Section I — 5/19/82 Date Signed
Reactor Operations Project Branch

Summary:

Inspection on April 1 - 30, 1982 (Report No. 50-206/82-15)

Areas Inspected: Routine, resident inspection of plant operations during long-term shutdown; requalification program review; monthly maintenance and surveillance activities; On-Site Review Committee activities; follow-up on Licensee Event Reports and Special Reports, Notice of Violation, and Information Notice 82-06; review of core power distribution limits; and independent inspection. This inspection involved 91 inspection-hours on-site by one NRC inspector.

Results: In the ten areas inspected, two violations were identified (failure to perform sprinkler/spray system surveillance - Paragraph 4, and inadequate core power distribution limits surveillance procedures - Paragraph 3).

DETAILS

1. Persons Contacted

*H. Ray, Station Manager
*W. Moody, Deputy Station Manager
*P. Croy, Manager, Compliance and Configuration Control
*H. Morgan, Station Operations Manager
*B. Katz, Station Technical Manager
*D. McCloskey, Manager, Emergency Preparedness
*D. Nelson, Project Manager, Unit 1
*G. McDonald, Quality Assurance/Control Supervisor, Unit 1
*M. Kirby, Nuclear Training Administrator, Unit 1
*J. Dunn, Project Quality Assurance Supervisor, Unit 1
*R. Waldo, Reactor Engineer

The inspector also interviewed other licensee and contractor personnel during this inspection.

*Denotes those attending the exit interview on April 30, 1982.

2. Inspection of Plant Operations During Long-Term Outage

The inspector observed Control Room operation on several occasions to ascertain compliance with requirements for shift manning, adherence to procedures and limiting conditions for operation, and appropriate recorder and instrument indications. The inspector discussed the status of annunciators with Control Room operators to determine the reasons for abnormal indications and to determine the operators' awareness of plant status.

The Control Operator's log was reviewed to obtain information on plant conditions, and to determine whether requlatory requirements had been met. Other logs, including the Watch Engineer's Log, were also reviewed several times. The equipment clearance records were audited, and clearance tags for the cold shutdown plant status were verified to have been hung in the Control Room. Selected Maintenance Orders and Nonconformance Reports for the current month were reviewed. The licensee's system for identifying equipment deficiencies appeared to be functioning adequately.

The inspector frequently toured the accessible areas of the facility to assess equipment condition, radiological controls, security, and safety.

The inspector's tours indicated that Radiation Controlled Area access points were generally safe and clean. Surveys and packaging of low specific activity material were observed

in spot checks of garbage containers. Selected radiation measuring instruments in use appeared operable and in calibration. Several Radiation Exposure Permits were reviewed for completeness. Plant housekeeping appeared adequate. No fire hazards due to stored combustibles were observed.

The inspector witnessed the licensee's response to a report of fire in the Ventilation Fan Room on April 14, 1982. No fire was discovered, but there was considerable smoke, apparently from roofing material heated by conduction from steel beams which were being modified by welding near the building roof. The response of emergency personnel to this report was timely and effective. Manning of security posts, integrity of protected area barriers and isolation zones, conduct of search procedures, and personnel identification measures were all observed at intervals by the inspector. The inspector also noted some extraordinary graffiti of recent origin inside the containment and the auxiliary building. On the pressurizer, the inspector noted the words, in large letters, "I enjoy Cocaine" and, on several walls in the auxiliary building area, in foot high fluorescent orange paint, abusive comments. The inspector discussed the potential safety and security aspects of this situation. At the exit interview, licensee representatives agreed to investigate this issue further and to take appropriate corrective action. This item is closed.

No items of noncompliance or deviations were identified.

3. Surveillance of Core Power Distribution Limits

The inspector reviewed the licensee's methods for core flux mapping by examination of the following documents and discussions with cognizant licensee personnel:

SO1-V-1.6, "Incore Flux Mapping"
SO1-12.9-4, "Excore Axial Offset"
S-V-1.16, "Axial Offset Correlation Procedure"
SO(1)388 - "Incore Flux Map Data Sheet"
SO(1)389 - "Incore Flux Map Run Report"

In addition, flux maps which were taken on January 27, 1982, were reviewed. The inspector noted that the incore flux mapping procedure, SO1-V-1.6, was inadequate in that it gave instructions for input data formatting based on the superseded computer program INCORE. Licensee personnel stated that flux maps made since June 1981 have used a different program, INCORE3. The inspector determined that SO1-V-1.6 did not describe how to provide data to INCORE3, nor did the licensee have any approved procedure to accomplish this function.

Moreover, on six flux maps, made from December 10, 1981 through January 27, 1982, the INCORE3 program was used with an inaccurate and unapproved detector normalization method. WCAP-8492, "The Incore 3 Program," explains that to normalize the output of the incore detectors to one another, it is necessary only to send each detector through a common path. Licensee personnel were unaware of this program capability when interviewed by the inspector. Thus, when the path normally used to normalize detectors, the so-called CALIBRATE path, became blocked to the 'A' detector, in December 1981, a different normalization method was invented. The integrated detector outputs through a common path (not the CALIBRATE path) were compared for the 'A' and 'B' detectors. For the December 10, 1981 map, the integrated outputs were equal to three significant places. Therefore, the licensee assumed a normalization factor of unity for this map and those that followed. For five subsequent maps, however, the detector integrated outputs became progressively unequal, until they differed by 4 percent on one January 27, 1982 map. The licensee erred in these subsequent maps by not using the correct normalization factor.

At the exit interview, a licensee representative stated the six maps in question would be rerun using an approved and technically adequate procedure to verify that power distribution limits were not exceeded. The inspector noted that Technical Specification 3.10 requires monthly flux maps, but allows their suspension if the equipment is inoperable and the facility is operated at less than 90 percent power. However, the flux map equipment was operable and Unit 1 was operated at less than 90 percent power due to other considerations throughout this period. The inspector stated that Technical Specification 6.8.1 requires that written procedures be implemented that meet or exceed the requirements and recommendations of Appendix "A" of USNRC Regulatory Guide 1.33, Rev. 1. That Appendix (Paragraph 8(z) requires a specific procedure for axial and radial flux pattern determinations. The failure to have an approved, technically adequate procedure appears to be a violation of Technical Specification Paragraph 6.8.1. (50-206/82-15-01).

4. Follow-up on Licensee Event Reports and Special Reports

a. Special Report of April 23, 1982

The inspector reviewed this report, which concerned a past failure to perform functional testing of the fire spray/sprinkler system as required by Technical Specification Paragraph 4.15 B(2). The report stated that the performance of this testing could not be established for the surveillances which were due on April 30, 1980. Audit No. SO1-12-82, addressing Technical Specification compliance in 1981, performed on February 4, 1982, had

identified a related discrepancy. Follow-up on this audit led to the Special Report investigation, which showed that no records of the April 30, 1980 surveillances existed.

The inspector discussed this report with licensee personnel, and reviewed the licensee's annual technical specification compliance audits for 1980 and 1981. The inspector noted that Item 22 of the Audit Report for 1980, No. SO1-52-81 dated September 4, 1981, also addressed compliance with Technical Specification Paragraph 4.15 B(2) in 1980. The Audit found that no records existed for the same April 30, 1980 required surveillance, later reidentified by the Special Report. Thus, the licensee had discovered in the audit of September, 1981 that Technical Specification Paragraph 4.15 B(2) had been violated. Corrective Action Request (CAR) No. SO1-P-431 was written in September 1981 to correct this violation. The CAR concluded that the records did exist. The request, referring to the required April 30, 1980 surveillances, stated that, as of September 2, 1981, documentation pertaining to the Spray/Sprinkler System testing required by Technical Specification Paragraph 4.15 B(2) is now available through the CDM system. Licensee representatives could not explain why this documentation could not be retreived in 1982.

At the exit interview, the inspector discussed the violation of Technical Specification 4.15 B(2) and the licensee's failure to effect corrective action in September 1981, when originally discovered. The inspector explained that the violation in 1980 should have been corrected when originally discovered in 1981, if the violation was to be categorized as a licensee identified item. The failure to functionally test the fire spray/sprinkler system by April 30, 1980, appears to be a violation of Technical Specification Paragraph 4.15 B(2). (50-206/82-15-02)

b. (CLOSED) LER 82-05: SV-702C Failure

The inspector reviewed this report and discussed it with licensee personnel. The inspector concluded that the failure of SV-702C to close was an isolated occurrence. The inspection did not determine a cause of the failure, due to insufficient evidence. The licensee's explanation and corrective action reported for the mispositioning of SV-702 A, B, C, and D was adequate. This LER is closed.

c. (CLOSED) Special Report of April 16, 1982

The inspector reviewed this report and discussed it with licensee personnel. The inspector noted that the fire detection and sprinkler systems removed from service were considered part of the fire protection system in the Safety Evaluation Report dated July 19, 1979. The corrective action reported by the licensee was adequate. This report is closed.

d. (CLOSED) LER 82-09: Weld Failures on Feedwater Pipe Supports

The inspector reviewed the report and discussed it with licensee personnel. Steam generator water hammer was suggested by licensee personnel as a possible failure mechanism. The inspector stated that repair of the failed supports was adequate corrective action for this LER but noted that the LER appeared related to LER 81-08, which reported feedwater feedring and thermal sleeve damage (if the 1979 water hammer event was the common cause). That report remains open, pending NRR analysis. This report is closed.

e. (CLOSED) LER 82-08: Safety Injection System Load Sequencer Failure

The inspector reviewed the report and discussed it with licensee personnel. As discussed in Inspection Report 50-206/82-10, the reliability of the load sequencers is under review by the licensee. The inspector stated that this sequencer failure should be included in that review. A licensee representative agreed that it would be included, and agreed to clarify the LERs discussion of diesel generator capacity. This report is closed.

5. (CLOSED) Follow-up on Notice of Violation 81-40-05: Nitrogen Bottle Pressure Control Procedures

The inspector verified that Engineering Procedure SO123-V-4.15, "Structure and Equipment System Turnover," had been revised as stated in the licensee's response to the violation. This item is closed.

6. (CLOSED) Follow-up on Information Notice 82-06: Steam Generator Manway Bolt Cracking

The inspector reviewed the nondestructive testing record for the steam generator manway bolts. Using the magnetic particle

method, one 1/4-inch indication was found near the shank of one hot leg manway bolt. This was the only discrepant bolt found. The discrepant bolt was replaced.

7. Review of Onsite Committee Activities

The inspector continued the review begun in Inspection Report 50-206/82-10. The minutes for the regular monthly meeting in March as well as the meeting attended by the inspector were examined. In addition, licensee personnel stated that a large number of the delinquent meeting minutes for 1981 had been issued. This item 50-206/82-10-05 is closed.

8. Review of Requalification Training (at the Surry Nuclear Training Center)

The inspector observed the requalification training of three licensed operators at the Surry Nuclear Training Center in Surry, Virginia, on April 20-22, 1982. The training was conducted by one licensee and one contractor employee, both of whom held senior reactor operator licenses. The training consisted of two hours of lectures and six hours of simulator training per day, as part of a seven-day curriculum. The second, third, and fourth days of training were observed.

The inspector noted that the training closely followed the detailed retraining syllabus, Training Memorandum 8-81, Rev. 1. Simulated startups, shutdowns, control rod malfunctions, large and small loss of coolant accidents, and steam generator tube ruptures were observed. The trainee response to these events was adequate in all cases, and the instructor's critique of trainee performance was thorough and effective.

The inspector noted that the trainees used current copies of the licensee's procedures, but without writing on them, as they would do in actual practice. This detracted from the simulation and resulted in some steps in the procedure being omitted. For example, on a reactor startup, no announcement of reactor startup was made, and on a steam generator tube rupture, no emergency notifications were simulated. Licensee personnel stated that appropriate written checklists would be used at the simulator in the future.

The inspector commented that the use of a non-specific simulator such as Surry had detracted from the realism of the exercise, but not unacceptably due to the functional comparability of the simulator with San Onofre Unit 1. The most negative effect of this nonspecificity was the necessity for instructors to remain in the control room during many exercises to assist operators

with unfamiliar equipment location or functional details. The instructor's presence in the control room, while unavoidable, provided a strong cue to the trainee that he was in a simulator, reducing the realism and training effectiveness.

At the exit interview the inspector discussed these observations and commended the licensee for a well planned and executed simulator training exercise.

9. (CLOSED) Follow-up Item 50-206/82-10-01: Charging Pump Oil Pressure Gauges

The inspector verified that the charging pump oil pressure gauges had been replaced with standard gauges and securely mounted. The inspector concluded, after discussions with licensee personnel, that the drawings for this system would be updated as part of the drawing verification program which is in progress and monitored by open item 50-206/81-42-01. This item is closed.

10. Monthly Surveillance Observations

The inspector witnessed portions of the following surveillances:

Battery Service Test (SO1-I-2.7) for #2 Diesel Generator Battery
Shutdown Margin Computer Calibration Check (SO1-II-L.4)

The inspector verified that the procedures used were consistent with applicable Limiting Conditions for Operation, test instrumentation used had been calibrated, and test results were acceptable. The systems tested were properly removed from and returned to service. Pretest briefings of test personnel were held as appropriate. The inspector noted that the shutdown margin procedure used a curve of reactor coolant Delta T (T(hot) - T(cold)) versus power which had not been updated to reflect the higher Delta Ts experienced following steam generator tube sleeving. This error resulted in more conservative shutdown margin limits than necessary. At the exit interview, a licensee representative stated that the procedure would be revised to reflect the current plant status, and a Quality Assurance representative stated that a similar discrepancy had been identified and was being followed by Quality Assurance personnel. This item is closed.

In addition, the inspector reviewed the results of main steam relief valve testing performed on February 27, 1982. The inspector determined that the licensee Procedure SO1-I-2.4 (Main Steam Safety Valve Pressure Setpoint Check) implemented the surveillance requirement of Technical Specification Table

4.1.2. The facility has ten of these valves with a total capacity of 7.6×10^6 lb/hr, as compared to a required capacity of 5.7×10^6 lb/hr. The inspector determined that four of ten valves had not lifted at the required setpoint when tested. The pressure at which they did lift was not measured. Instead, the valve was adjusted until the valve lifted at the proper setpoint. All valve adjustments were recorded but apparently no quantitative correlation between the adjustments and changes in valve lift pressure exist. The inspector expressed concern that the format of the as-found data taken was therefore inadequate to determine the as-found lift setpoint of the valves. Also, the licensee had not considered the surveillance result anomalies until the inspector expressed such concerns. At the exit interview, a licensee representative stated that a program to measure as-found lift pressure would begin at the next scheduled shut-down of sufficient duration. This data would be evaluated to determine whether or not a potential safety hazard exists in this area. This item remains open pending collection and analysis of this data. (50-206/82-15-03)

No items of noncompliance or deviations were identified.

11. Monthly Maintenance and Modification Observations

The inspector witnessed portions of the following maintenance and modification activities:

Turbine building seismic upgrade excavation, foundation preparation, and concrete placement.
No. 1 and 2 Diesel Generator inspection and overhaul.
Silicone sealant pours on 4160 Volt switchgear cabinets.
Installation and testing of temporary 1 MW diesel generators.

The activities observed did not violate limiting conditions for operation, clearances were obtained where necessary for protection of equipment and personnel, and necessary tools were properly calibrated and used in performing work on Nos. 1 and 2 Diesel Generators.

Some sealant spillage occurred while performing Item c, above, but licensee personnel immediately observed and recorded this deficiency. No equipment damage occurred since all the affected components had been deenergized as a precaution.

No items of noncompliance or deviations were identified.

12. Independent Inspection

The inspector reviewed the list of licensed operators qualified to wear portable respirators. As of April 1, 1982, all Watch Engineers were qualified, but 12 of 27 other licensed and auxiliary operators were not qualified. The inspector determined from discussions with the Unit 1 Superintendent and Deputy Station Manager that no policy existed to ensure that personnel were available on every shift to respond to high radiation alarms or fires which might require respiratory protection. At the exit interview, a licensee representative agreed to formulate a plan to achieve this capability. This item remains open. (50-206/82-15-04).

13. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) on April 30, 1982, to summarize the scope and findings of this inspection. The inspector presented a preliminary list of return to power issues for licensee consideration. The licensee acknowledged the apparent violations identified in this report, paragraphs 3 and 4.