

U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos: 50-206/85-01, 50-361/85-01, 50-362/85-01
Docket Nos: 50-206, 50-361, 50-362
License Nos: DPR-13, NPF-10, NPF-15
Licensee: Southern California Edison Company
P. O. Box 800, 2244 Walnut Grove Avenue
Rosemead, California 91770
Facility Name: San Onofre Units 1, 2, and 3
Inspection at: San Onofre Site, San Clemente, California
Inspection conducted: December 16, 1984 through January 19, 1985

Inspectors: *P.H. Johnson* 2/15/85
for F. R. Huey, Senior Resident Inspector Date Signed
Units 1, 2 and 3
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Reactor Projects Section 3

Summary:

Inspection on December 16, 1984 through January 19, 1985
(Report Nos. 50-206/85-01, 50-361/85-01, 50-362/85-01)

Areas Inspected: Routine resident inspection of Units 1, 2 and 3 Operations Program including the following areas: operational safety verification, licensee event report review, monthly surveillance activities, monthly maintenance activities, engineered safety feature walkdown, refueling activities, independent inspection, and followup of previously identified items. This involved 149 inspection hours on Unit 1, 182 inspection hours on Unit 2 and 111 inspection hours on Unit 3 for a total of 442 inspection hours by four NRC inspectors.

Results: Of the eight areas inspected, no violations of NRC requirements were identified.

DETAILS

1. Persons Contacted

H. Ray, Vice President, Site Manager
*J. Haynes, Station Manager
M. Speer, Compliance Engineer
B. Katz, Operations and Maintenance Support Manager
J. Reilly, Station Technical Manager
D. Peacor, Manager, Emergency Preparedness
*R. Santosuosso, Instrumentation and Control Supervisor
P. Croy, Compliance Manager
G. Gibson, Compliance Supervising Engineer
P. King, Quality Assurance Engineer
*C. Kergis, Lead Quality Assurance Engineer
*J. Wambold, Station Maintenance Manager
D. Stonecipher, Quality Control Manager
D. Schone, Quality Assurance Manager
S. Stilwagon, Refueling Maintenance Engineer
J. Reeder, Operations Manager, Unit 1
*G. Talley, Manager Administration Support
*W. Whaley, Foreign Materials Exclusion (FME) Supervisor
*H. Morgan, Operations Manager
*T. Mackey, Compliance Supervising Engineer
*J. Pfefferle, Compliance Engineer
*L. Mayweather, Compliance Engineer
*D. Schull, Maintenance Manager
*R. Krieger, Deputy Station Manager

The inspectors also interviewed and talked with other licensee employees during the course of the inspection. These included operations shift superintendents, control room supervisors, control room operators, QA and QC engineers, compliance engineers, maintenance craftsmen, and health physics engineers and technicians.

*Denotes those attending the exit interview.

2. Operational Safety Verification (Units 1, 2 and 3)

a. Plant Tours

The inspectors performed several plant tours and verified the operability of selected emergency systems, reviewed the Tag Out log and verified proper return to service of affected components. Particular attention was given to examination for potential fire hazards, fluid leaks, excessive vibration and verification that maintenance requests had been initiated for equipment in need of maintenance.

During a routine tour of the Unit 2 Containment on January 15, 1985, the inspectors observed, at the lower level of containment, a fire watch with his eyes closed. The licensee was notified of the event and took immediate corrective action by terminating the fire watch's employment at the San Onofre Station, and reemphasized to all fire

watches that such actions by a fire watch requires immediate termination of employment. The inspectors determined that the licensee's corrective actions were adequate and this item is closed.

In general, housekeeping on site has been improving; however, during the ESF walkdown of the Shutdown Cooling System on Unit 2, several housekeeping deficiencies were identified. These deficiencies were located in areas where modifications and repairs had been in progress. These areas included the Unit 2 Safety Equipment Building Room No. 18 (Shutdown Cooling Heat Exchanger E-004 Room), the Unit 2 Piping Penetration area (Rooms 207 and 209), and the Unit 2 Containment. Housekeeping in these areas appeared to be inadequate. These conditions were identified to the licensee, who took immediate corrective action.

b. Declaration of Unusual Event on Unit 1

On January 2, 1985, San Onofre Unit 1 declared an Unusual Event at approximately 12:15 p.m. while the Unit was in Mode 1 at 92% power. The Unusual Event was declared because of a failed monthly surveillance test on the No. 1 Safeguards Load Sequencer which required the plant to be in hot standby within 6 hours in accordance with technical specifications.

The licensee commenced a load reduction at 12:10 p.m. due to action statement 3.5.5-1 having been entered for the Safeguards Load Sequencer. At 1:03 p.m., the licensee satisfactorily completed the surveillance on the sequencer and declared it operable and secured from the Unusual Event.

Investigation by the licensee had determined that the Safeguards Load Sequencer failed its surveillance due to the neon ready status lights failing to illuminate during the performance of the surveillance on the sequencer. Failure of the neon lights to illuminate was determined to be due to the lights aging, and their re-fire voltage consequently being higher than the DC bus voltage supplying the neon lights at the time. Therefore, the licensee's corrective action was to replace all 16 ready status lights on the sequencer. In addition to the neon lights, the licensee had also discovered a degraded No. 1 DC bus voltage. The No. 1 bus voltage is normally maintained at 132 volts. At the time of the event, No. 1 DC bus voltage was measured at 124.4 volts. The degraded No. 1 DC bus voltage and the higher re-fire voltage of the neon status lights were the cause of the No. 1 Safeguards Load Sequencer failing its surveillance. Careful examination by the licensee of the sequencer determined that the sequencer had no mechanical or electrical problems other than the neon lights failing to re-fire and a slightly degraded DC bus voltage.

The No. 1 DC bus voltage is maintained by a battery charger on the bus. This charger both maintains the battery float voltage and, with offsite power available, supplies all loads on the No. 1 DC bus. The No. 1 DC bus system has two chargers for both charging and supplying loads. These chargers are rotated periodically for equipment rotation purposes. Two days earlier, on January 1, the

charger was rotated. The rotated charger which had just been brought on line apparently had its voltage setpoint set at approximately 124.4 volts and was attempting to maintain this voltage. The surveillance voltage for this bus is specified in the Technical Specifications as 129 volts. Apparently the charger which was placed in service on January 1 had experienced a setpoint drift from 132 volts to approximately 124.4 volts.

No. 1 DC bus voltage is not indicated in the Control Room. However, an annunciator window is available in the Control Room with a setpoint of 105 volts. Analysis by the licensee has determined that a battery voltage of 124.4 is sufficient to maintain all ESF equipment operable on the bus and also would ensure sufficient battery capacity for ESF loads. The licensee also performed a calculation to determine the minimum battery voltage to ensure sufficient capacity of the battery to sustain all ESF loads. This minimum voltage was determined to be approximately 119.5 volts. The licensee is currently considering raising the annunciator window in the Control Room to a setpoint higher than 105 volts. Should a similar incident occur wherein No. 1 DC bus voltage would degrade, indication would then be provided to the operator before sufficient battery capacity was lost.

No violations or deviations were identified.

3. Maintenance

a. HPSI Pump P-017 (Unit 2)

During this inspection period, the inboard and outboard pump bearings on High Pressure Safety Injection (HPSI) Pump P-017 were replaced because they exhibited excessive vibration during in-service testing. The inspector examined the applicable Work Authorization (#2-38046) and Maintenance Order (#83708744) and identified the following deficiencies:

- o The prerequisites of the work procedure were not signed off as required by Paragraph 3.8 of the Work Procedure (S023-I-5.8).
- o The alignment check required by Paragraph 4 of the maintenance order did not appear to be documented. The procedure appeared to have been completed through Paragraph 6 of the maintenance order.

Upon examination of the work area, the inspector found a can of Never-Seez Pure Nickel Special Anti-Seize and Lubrication Compound on the bedplate of HPSI pump P-017. Although this material was not identified for use in Paragraph 3.3 of procedure S023-I-5.8, its use was found to be authorized by the Master Consumables List. The inspector identified the above concerns to the licensee for resolution and corrective action. This is an Unresolved Item (50-361/85-01-01).

b. Mechanical Snubbers (Units 2 and 3)

The inspector observed the testing of a mechanical snubber on the Saltwater Cooling System, which the inspectors had requested to be tested during the previous inspection period (paragraph 3 of report 50-361/84-35). The licensee also notified the inspector that 19 percent of the snubbers tested during the routine 18-month surveillance test had failed the test. The licensee replaced all the inoperable snubbers. The inspectors will review the failure data upon the issuance of the LER on January 28, 1985.

c. Other Maintenance

The inspectors observed the following station maintenance activities on safety related components and systems.

Unit 2

- ° Shutdown Cooling (SDC) System Modification
- ° Steam Generator Tube Eddy Current Testing
- ° 2G002 Diesel Generator Maintenance & Local Instrument Rack Relocation
- ° Saltwater Cooling System Backflushing Modification

The inspectors noted that the above activities, except for the deficiencies identified on the HPSI pump P-017 bearing maintenance, were being performed in accordance with the approved procedures, and that equipment control requirements were in conformance with regulatory guides and the plant technical specifications.

No violations or deviations were identified.

4. Monthly Surveillance Observations (Unit 2)

The inspector reviewed Maintenance Order #84081575 and Work Authorization #2-37285 for conducting the 18 month calibration of HPSI Flow Transmitter FT-0331. Work was being accomplished in accordance with Procedures S023-II-9.543 and S023-II-8.10. The following concerns were identified by the inspector:

- ° The inspector observed the last transmitter being restored to service after calibration without a copy of the maintenance order or work procedure at the job location.
- ° The maintenance order actually called for calibration of several Unit 2 High Pressure Safety Injection flow transmitters and flow indicators. Work was started on December 8, 1984, and proceeded through January 18, 1985. During record review, the inspector discovered that calibration data had not been recorded on official documents for any of the instruments. Notes taken by the technician were sufficient to allow complete recovery of the required

calibration data, but did not contain all trending data and verifications normally included by the licensee.

Because immediate action was taken by the licensee to resolve the inspector's concerns and because this appeared to be an isolated case, enforcement action was not considered to be warranted.

On several occasions during this inspection period, the inspector verified that the requirement to monitor water level in the Unit 2 refueling cavity was being accomplished as required by Paragraph 4.9.10 of the Technical Specifications. Surveillance of the water level was being accomplished satisfactorily and documented in accordance with Procedures S023-5-1.8 and S023-3-3.26.1.

No violations or deviations were identified.

5. Licensee Event Reports (LER) Followup (Units 1, 2 and 3)

Through direct observations, discussions with licensee personnel, or review of records, the following LER's were closed. Each LER was reviewed to determine that immediate corrective action was accomplished and that corrective action to prevent recurrence had been accomplished or initiated.

Unit 2

LER 85-07, Containment Purge Isolation System Train "B" Actuations

LER 84-81, ESF Actuation System Train "A" Actuations

LER 84-76, Containment Purge Isolation System Train "A" Spurious Actuations

LER 84-75, Delinquent Establishment of Fire Suppression System Alternate Fire Pump

LER 84-74, Spurious Fuel Handling Isolation System (FHIS) Train "A" Actuation

LER 84-73, Spurious Control Room Isolation System (CRIS) Train "B" Actuation

Unit 3

LER 84-36, Steam Generator Wide Range Level Channel Inoperable

LER 84-42, Safety Injection Tank Delinquent Surveillance

No violations or deviations were identified.

6. ESF Walkdown

During the inspection period, the inspector walked down the Unit 2 Shutdown Cooling System and checked for valve alignment and system operation against the requirements of Procedure S02-3-2.6, Shutdown

Cooling System Operation - Unit 2, and Paragraph 3/4.9.8 of Unit 2 Technical Specifications. As noted in Inspection Report No. 84-35, the Unit 2 Shutdown Cooling System has undergone extensive modifications as required by DCP-29N, and these modifications were also examined during this ESF walkdown. System configuration, operation and valve alignment were found to be in accordance with the licensee's procedures and technical specification requirements.

No violations or deviations were identified.

7. Refueling Activities - Unit 2

a. Foreign Material Exclusion Controls

The resident inspector continued to follow the licensee's Foreign Material Exclusion Control Program on the Unit 2 refueling. During this period, licensee personnel dropped a 50-foot power cord and light into the vessel after completing a verification that no foreign materials remained in the vessel. A deficiency was noted in the Foreign Material Exclusion program, in that the light had been dropped into the reactor vessel on January 14, sixteen hours before it was observed in the vessel on January 15, 1985. After discussions with the licensee on January 15, 1985, the licensee agreed to perform a Foreign Material Exclusion Inventory every eight hours and to evaluate additional actions which are warranted. This item (50-361/84-35-03) remains open.

b. Fuel Module Damaged During Inspection

The inspectors observed the freeing of a jammed fuel bundle from the fuel inspection stand. The fuel bundle was jammed into the stand on December 11, 1984 (Report 50-361/84-35). The inspectors had previously attended the Onsite Review Committee (OSRC) meetings addressing the freeing of the bundle and noted that the activity was well planned and supervised.

c. Stuck Fuel Bundle Reconstitution

The inspectors attended the OSRC meeting on the reconstitution of the damaged fuel bundle and observed portions of the activities in the Unit 2 Fuel Building.

No violations or deviations were identified.

8. Independent Inspection Effort

During tours of the Unit 2 Safety Equipment Building and the Piping Penetration Building (into the Unit 2 Containment), an inspector identified several valves with locking devices which appeared to be inadequate, in that it appeared that the valves could be operated without unlocking or removing the locking device. The inspector noted that the valves were in the correct position as required by the licensee's procedures and that Unit 2 was shut down for refueling, and therefore, the deficiency was not immediately significant. The licensee indicated

that the locking mechanisms for safety related valves, required by the technical specifications to be locked in position, were being replaced with new locking devices. Approximately 250 valves on Unit 2 are required to be locked. The licensee indicated that 160 of these new locking devices were to be installed on the valves prior to Unit 2 returning to service. The inspector noted that the licensee should evaluate the remaining 90 valves for proper locking feature operability prior to Unit 2 returning to operation. The valves that the inspector identified as appearing to be inadequately locked were 1201-MU-321, 1203-MU-254, 1203-MU-256, 1208-MU-091 and 1208-MU-130. This is an open item (50-361/85-01-02).

The inspector identified that the Unit 3 Mechanical Governor load limit settings on the engines of the Unit 3 Diesel Generator 3G003 were different. The inspector raised the concern with the licensee that it appeared that the lower limit settings of the two were inconsistent and further questioned whether this setting, if incorrect, would affect the operation of the diesel generator. In addition, the inspector addressed the following three concerns with the licensee:

- ° Should the load limit be set at the maximum setting?
- ° Should locking paint be used on the load limit dial?
- ° Should a surveillance be required to verify that the load limit setting is in the correct position?

The licensee initiated corrective action to reset the load limit setting to the correct maximum position and noted that locking paint to maintain the proper position of the dial is required by the maintenance order which adjusts the dial. The licensee stated that there is no requirement to verify the load limit setting, but that the station staff would evaluate whether to include a verification in the 31 day surveillance test of the Diesel Generator.

Prior to the licensee correcting the load limiter setting, the Diesel Generator was declared inoperable during a routine monthly surveillance test by an operator when an electronic load limiter limited the 3G003 diesel generator output to 4700 KW (100 percent). The licensee's investigation confirmed that the load limit setting was incorrect as previously identified by the resident inspector and promptly corrected the load limit setting. The licensee's investigation could not positively determine how the load limiter setting was changed to the incorrect position. This item remains open (50-362/85-01-01) pending the licensee's action to place the requirement to verify limiter setting in the monthly surveillance test procedure. This item did not represent a violation, since the diesel generator was still capable of providing rated output.

No violations or deviations were identified.

9. Followup of Previously Identified ItemsItem 206/84-10-01 - Welding Undercut Violation - (Closed)

During a construction inspection of Unit 1 for return-to-service, weld undercut had been identified on a number of structural welds throughout the plant. Additional investigation had determined that QC had not been documenting weld undercut on structural connections. The licensee has responded to the notice of violation and presented a program for reinspection.

The licensee has established a program requiring 100% reinspection of all accessible welds in the structural and pipe support area for Unit 1. Inspection was conducted by the licensee and any weld deficiencies per AWS were identified, documented and if required, dispositioned or repaired. The licensee's program, as conducted, is considered to be adequate. This item is considered closed.

Item 206/83-28-01 - RHR Outage - (Closed)

The licensee had a need to perform maintenance work activities on the common portion of the RHR System. This work activity was carefully planned and scheduled by the licensee, who additionally informed Region V of their intent to remove the RHR system from service. The Unit 1 Technical Specifications at the time had no requirement to maintain RHR operable at all times.

Technical Specifications, however, had a requirement to maintain RCS temperature below 200 degrees F. The licensee conducted a test program before RHR maintenance work was commenced to determine that with removal of the RHR system from service, RCS temperature could be maintained below 200 degrees F. The licensee's test had revealed that with the RCS filled and vented and a steam generator operable, RCS temperature was maintained at approximately 192 degrees for an extended period. Therefore, the licensee had commenced a careful program for RHR maintenance on its common portions. This work activity appears to have been well controlled with no violations identified. This item is considered closed.

Item 206/83-28-03, Operability of Valve FCV-1115E (Closed)

This Open Item dealt with a concern by an individual that Valve FCV 1115E may not have been operable after maintenance activities were conducted. This item was examined in a previous Inspection Report (50-206/83-28) by the inspector and the remaining Open Item had ensued. The item concerned the fact that during the test that was performed on FCV 1115E and discussed in IE Inspection Report 83-28, the valve had failed to completely close against the charging pump discharge pressure.

The charging pump pressure is approximately 2735 psig, and refueling water pump discharge pressure is approximately 250 psig. The test which was conducted and described in IE Inspection Report 83-28 was therefore conservative in that the valve was expected to shut against full charging pump discharge pressure; however, for safety-related applications, the

valve would only have to close against refueling water pump pressure which is an order of magnitude lower.

Valve FCV-1115E passed a post maintenance test conducted on September 30, 1984 and was declared operable. The question of the valve functionality is considered closed.

Item 206/84-08-01, Sulfates in the RCS - (Closed)

This item discussed the introduction of sulfates into the RCS during steam generator tube inspection work. The sulfates were introduced by a temporary vent duct which had been added during the steam generator tube inspection work for ventilation purposes. The licensee conducted a cleanup program of the RCS and in addition, has been monitoring chemistry within the the RCS during the entire power ascension program. During this period, no significant increases in sulfates were identified (during the return-to-service of Unit 1). This item is considered closed.

No violations or deviations were identified.

10. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during the inspection are discussed in Paragraph (3).

111. Exit Meeting

On January 21, 1985, an exit meeting was conducted with the licensee representatives identified in Paragraph 1. The inspectors summarized the inspection scope and findings as described in this report.