

U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-361/82-23
50-362/82-13

Docket No. 50-361; 50-362 License No. NPF-10 Construction Permit No. CPPR-98
Safeguards Group _____

Licensee: Southern California Edison (SCE) Company
P. O. Box 800
2244 Walnut Grove Avenue
Rosemead, California 91770

Facility Name: San Onofre - Unit 2 and Unit 3

Inspection at: San Onofre, California

Inspection conducted: May 24 through July 2, 1982

Inspectors: G.B. Swetzig for July 13, 1982
A. Chaffee, Senior Resident Inspector, Unit 2 Date Signed

G.B. Swetzig for July 13, 1982
M. Mendonca, Reactor Inspector Date Signed

G.B. Swetzig for July 13, 1982
G. Johnston, Reactor Inspector Date Signed

Approved By: G.B. Swetzig July 13, 1982
G. B. Swetzig, Chief, Reactor Projects Section 1 Date Signed
Reactor Operations Projects Branch

Summary: Inspection on May 24, 1982 through July 2, 1982 (Report Nos. 50-361/82-23 and 50-362/82-13)

Routine, unannounced inspection of the Unit 2 Startup Test Program including the following areas: Follow-up of previously identified items; surveillance; maintenance; Inspection During Long Term Shutdown; Post Core Hot Functional Startup Testing, and independent inspection effort. In addition, inspection of the Unit 3 Preoperational Test Program was conducted in the following areas: preoperational test witnessing, Precore Hot Functional Test Witnessing, plant tour, and independent inspection effort. This inspection involved 225 inspection hours by three NRC inspectors.

Results: Of the ten areas examined, no items of noncompliance or deviations were identified.

8207290329 820714
PDR ADOCK 05000361
Q PDR

DETAILS

1. Persons Contacted - Units 2 & 3

- *J. Iyer, Compliance Engineer
- *D. McCloskey, Manager, Station Emergency Preparedness
- *W. Marsh, NSSS Supervising Engineer
- *H. Morgan, Manager, Station Operations
- *P. Croy, Manager, Configuration Control and Compliance
- *D. Schone, Project Quality Assurance Supervisor
- *P. King, Unit 2/3 Operations Quality Assurance Supervisor
- *C. Kergis, Quality Assurance Engineer
- *C. Horton, Startup Quality Assurance Supervisor
- *B. Katz, Manager, Station Technical
- *H. Ray, Station Manager
- *J. Curran, Manager, Quality Assurance

The inspectors also interviewed and talked with other licensee employees during the course of the inspection; these included shift supervisors, control room operators, start-up engineers, and quality assurance personnel.

*Denotes those persons attending the exit interview on June 25, 1982.

2. Follow-up on Previously Identified Items - Unit 2 (OI-82-10-06) TMI Item II.E.3.1, "Emergency Power Supply for Pressurizer Heaters"/ Procedure Changes to Prevent Auto Re-energization to IE Bus on ESF Reset (Closed)

The inspector reviewed the following procedures:

- a. Emergency Operating Instruction S023-3-5.9, "Steam Line Rupture," Revision 6, dated April 1, 1982
- b. Emergency Operating Instruction S023-3-5.6, "Loss of Coolant Accident," Revision 5, dated March 30, 1982
- c. Emergency Operating Instruction S023-3-5.15, "Recovery from Inadvertent Safety Injection/Containment Isolation," Revision 6, dated March 30, 1982
- d. Emergency Operating Instruction S023-3-5.29, "Steam Generator Tube Rupture," Revision 5, dated April 1, 1982
- e. Emergency Operating Instruction S023-3-5.30, "Loss of Feedwater," Revision 5, dated March 30, 1982

Based on the above review and discussion with licensee personnel the inspector concluded that the licensee's procedures appear to have adequate provisions to preclude the unintentional automatic re-loading of pressurizer heaters onto Class 1E buses on Safety Injection Actuation System reset. This item is closed.

No items of noncompliance or deviations were identified.

3. Surveillance - Unit 2

The once-a-shift and the radiological monitoring surveillance tests were reviewed by the inspectors. Observations by the inspectors included verification that proper procedures were used, that test instrumentation was calibrated, and that the system or component being tested was properly removed from service as required by the test procedure. Following completion of the surveillance tests, the inspectors verified that the test results met the acceptance criteria of the technical specifications and were reviewed by the cognizant licensee personnel. The inspectors also verified that corrective action was initiated, if required, to determine the cause for any unacceptable test results and to restore the system or component to an operable status consistent with the technical specification requirements.

No items of noncompliance or deviations were identified.

4. Maintenance - Unit 2

Maintenance activities, reactor coolant pump seal replacement and Halon system preventive maintenance, were reviewed by the inspectors during the inspection period. Observations by the inspectors verified that requirements for approvals, system clearances, and tests of redundant equipment were satisfied, as appropriate, prior to maintenance of safety-related systems or components. The inspectors verified that qualified personnel performed the maintenance using appropriate maintenance procedures. Replacement parts were examined to determine the proper certification of materials, workmanship, and tests. During the actual performance of maintenance activities, the inspectors checked for proper fire protection controls and housekeeping, as appropriate. Upon completion of the maintenance activity, the inspectors verified that the component or system was properly tested prior to returning the system or component to service.

No items of noncompliance or deviations were identified.

5. Inspection During Long Term Shutdown - Unit 2

The inspectors observed Control Room operations frequently for proper shift manning, for adherence to procedures and limiting conditions for operation, and appropriate recorder and instrument indications.

In this regard, the inspector noted the following discrepancies on June 9, 1982:

- a. Operation Instruction S023-5-2.13, "ESF and Control Panel 56-B, Annunciator Response Procedure" was reviewed for windows 2,3,12,22,23,32,33; these are steam generator low pressure set point alarms. The following discrepancies were found in this procedure:

- (1) The procedure references other relevant procedures by title rather than number. This requires the operator to spend time identifying the number of the referenced procedure to permit its retrieval and use as required by the primary procedure.

In this case, the Core Protection Calculator (CPC) procedure was referenced as a guide to finding the CPC index point needed to allow verification of the annunciated S/G low pressure set point alarm. If the referenced procedure number or the CPC index point itself had been included in the primary procedure (S023-5-2.13), approximately ten minutes of operator search time would have been saved. The inspector notes such a change would probably also improve the operator's performance in verifying alarm conditions since it would make the process less cumbersome.

- (2) After 10 minutes searching of 20-30 pages of the CPC index, the operators (including the Watch Engineer) concluded that no CPC index point existed for S/G low pressure set point. Thus, it appears S023-5-2.13 is in error by referring the operator to the CPC procedure. Other setpoint indications are available on the control panel and from the plant protection system. The licensee is evaluating which indications should be used to verify the status of S/G low pressure set point values. (OI-82-23-01)
- (3) The operators stated that the above eight alarms annunciate each time reactor coolant temperature reaches Normal Operating Temperature for zero percent power. (Approximately 545 degrees F, 1003 psig.) Thus, during these periods, no annunciation of S/G low steam pressure setpoint failure is

available. The power level at which these annunciators become operable during subsequent power increases is being evaluated by the licensee. It appears this effect occurs because of the annunciator set point deviation limit of 300 psid (S/G pressure minus set point pressure) and variations in system performance at various power levels. For example, at 545 degrees F, S/G pressure is 1003 psia and the set point is 729 psia, which yields a setpoint deviation of 274 psid. This is less than the set point deviation limit of 300 psid and thus no annunciation should occur. However, instrument errors and conservatisms affecting these relationships are being reviewed by the licensee to determine the validity and acceptability of this observed behavior. (OI-82-23-02)

- (4) The licensee is reviewing the above comments for required corrective actions. These will be reviewed at a subsequent inspection.
- b. Operating Instruction S023-5-2.9, "ESF 57-Alarm Response Procedure," was reviewed for window 18, "Loop 2 Hot Leg Inject Check Valve Leakage Pressure HIGH".

The following discrepancies were noted:

- (1) The above annunciator procedure required the operator to reduce the pressure in the line downstream of check valve S-156-A-551 to 700 psig whenever pressure in this line exceeds 1000 psig (unless testing of the check valve is in progress). The inspector observed that the operator could not comply with this procedure since the drain valve could not be opened for a sufficiently short period of time to prevent depressurizing the line to 0 psig. Further review by the licensee determined that there was no basis for the 700 psig requirement and the procedure was revised by Temporary Change Notice (TCN #1) on June 11, 1982, to require depressurizing the line to 0 psig. This item is closed.
- (2) On June 9, 1982, the inspector observed that the above line would equalize with RCS pressure (2250 psig) and the annunciator would alarm approximately every 5-10 minutes. Operators interviewed stated that this condition had existed for several days. As a result, the operators were required by the annunciator procedure to depressurize this line every five to ten minutes. (Note: The check valve in question (S-156-A-551) is required by Technical

Specification 3.4.5.2e to have a leakage rate ≤ 1 gpm. Because of the small volume of the piping downstream of this valve a leakage rate of 1gpm would, per the annunciator procedure, require operator depressurization of this line about every 3 seconds.) This annunciation system and procedure therefore requires excessive operator attention well before the development of excessive check valve leakage.

Because TCN #1 to this procedure failed to relieve the operators of the requirement to depressurize the line downstream of this check valve upon receipt of the high pressure alarm, the licensee issued TCN #2 to this procedure on June 18, 1982. This TCN required the operators to stop depressurizing the line if the frequency of repressurization to the alarm set point became greater than once per four hours. In addition the operators were required to place a caution tag on the control switch drain valve (HS-9433-1) for this line. The TCN also provided that the caution tag was to state, "the line should remain pressurized, pending a scheduled outage to repair the check valve."

Because this method, however, precluded further use of the annunciator alarm to determine if check valve leakage exceeded 1gpm, the licensee's engineering group recommended by memorandum that the procedure be further revised to require that the line not be depressurized when the frequency of repressurization above 1,000 psi is greater than once a day but less than once per 30 seconds. During these periods the operators will perform a weekly gross check to determine if the repressurization frequency has increased to less than once per 30 seconds. When a once per 30 second frequency occurs, the procedure will require further corrective action to determine if the check valve leakage is greater than the 1 gpm Technical Specification limit. The licensee presently plans to incorporate these changes by July 7, 1982. (OI-02-23-03)

- (c) Both of the above examples of inadequate annunciator procedures were identified as a result of the NRC inspector questioning of operators. Also, in both cases, the annunciators had alarmed frequently during the days prior to inspector's involvement. The fact that these discrepancies were apparent, but corrective action was not initiated until inspector involvement, indicates a lack of adequate emphasis by the licensee

on the need for prompt corrective action when errors in procedures are noted. Since many procedures are being used for the first time during the start-up program identification of procedural errors should be more common. Hence, the licensee should allow adequate time for operator identification of errors and initiation of corrective action. In addition, the staffing of the operations procedure change group should be augmented to handle the greater than normal number of procedure changes which may be identified during this period. All of the above observations were given to the licensee, and the licensee is reviewing the matter for necessary corrective action. The inspector will review this corrective action at a subsequent inspection (OI-82-23-04).

The Control Operator's Log was reviewed frequently to obtain information on plant conditions, and to determine whether regulatory requirements had been met. The Watch Engineer's Log was also reviewed.

The Physical Security Plan appeared to be properly implemented. The inspector verified that selected security posts were properly manned, isolation zones were clear, personnel searches were performed when required, and personnel were badged and escorted, as necessary. Protected area barriers did not appear to be degraded.

During tours through the plant the inspectors noted several conditions in the tank farm area indicating that plant housekeeping was in need of improvement. The licensee's Quality Assurance Organization has issued a Corrective Action Request addressing this matter. The inspector will continue to monitor the licensee's corrective action with regard to housekeeping.

No items of noncompliance or deviations were identified during the inspection.

6. Post Core Hot Functional Startup Testing - Unit 2

The inspector witnessed various portions of the following procedures:

HB-316-01	Control Element Drive Mechanism (CEDM) Tests
HB-213-05	Reactor Coolant System Flow Measurements
HB-313-02	Pressurizer Safety Valve Test
HB-201-01	Steam Generator Feeding Integrity Test

The inspectors observed no inconsistencies with the licensee's startup test program during those portions of the test witnessed.

No items of noncompliance or deviations were identified.

7. Independent Inspection Effort - Unit 2

The inspector observed the pretest briefing on the Emergency Response Siren Test and witnessed the actual test. The test consisted of normal activation of all 40 sirens from the five control centers throughout the area. An observer was located at each siren to observe its performance. In addition, approximately 28 additional locations were manned to measure acoustical levels in several areas where deficient results had been obtained during the January test. Initial results as reported from the activation centers were as follows:

Siren No.

CP04 - Did not operate

SC04 - Did not operate

SC07 - Did not operate

CP08 - Operated for only 10 seconds of 4 minute run time

CP03 - Operated for only 1 minute of 4 minute run time

SC01 - Failed to stop after four minute run time

SC03 - Failed to stop after four minute run time

SC06 - Failed to stop after four minute run time

SJ01 - Failed to stop after four minute run time

OC04 - Failed to stop after four minute run time

According to the licensee, the above discrepancies were not located in areas where additional acoustical test data were required. Thus, a retest is not required to demonstrate adequate acoustic levels.

The inspector reviewed the method used by the licensee to evaluate the adequacy of siren acoustic levels. Based on the inspector's review, the method did not appear conservative and the matter was referred to the Federal Emergency Management Agency for resolution.

Except for the above matter, all deficiencies were reported by the licensee to have been corrected and necessary follow-up testing completed prior to the required completion date of June 1, 1982. This item is closed.

No items of noncompliance or deviations were identified.

b. Key Control

Based on several observations that it takes an unnecessarily long period of time to find keys when needed, the inspectors concluded that the organization of the keys inside the Watch Engineer's office appears inadequate. The licensee stated he will review this matter and make necessary improvements.

This item will be reviewed at a subsequent inspection.
(01-82-23-05)

c. Fire Door Open

The inspector noted at 9:40 a.m. on June 15, 1982, that fire door AR-312 located on the 37-foot level of the Radwaste building was being held open by a wire attached to the door handle. In addition, an electrical cable which would have prevented door closure was routed through the doorway, and no personnel were present in the area. The inspector notified the Control Room and the door was closed within a few minutes.

The licensee determined that the last time the door had been verified shut was at 4:00 p.m. on June 14, 1982. The licensee was unable to determine who opened the door or how long it was open. Technical Specification 3.7.9 requires stationing a continuous fire watch within one hour of placing a fire door into an inoperable condition or within one hour establishing an hourly fire patrol after the fire detectors have been verified operable on one side of door.

Since the time period the door was left open could not be determined, no item of noncompliance was issued. The licensee has taken the following corrective action resulting from this event.

- (1) All fire doors have been labeled with temporary tape stating "Technical Specification Fire Door Keep Closed At All Times."
- (2) Persons are being trained to contact the Control Room if a fire door must be left open. The Control Room is then required to contact the Fire Protection Group who will station a fire watch within the one hour time requirement.

- (3) The Fire Protection Group has informally instructed their existing Fire Barrier hourly patrol personnel to include in their hourly inspection of Fire Barriers an inspection of Fire Doors, as well.

The inspector will evaluate the adequacy of this corrective action based on future licensee performance in this area.
(OI-82-23-06)

8. Preoperational Test Witnessing - Unit 3

The inspectors observed selected portions of the following preoperational test.

Concentrated Boric Acid System 3PE-223-05

During the performance of the test, the inspectors verified, on a selected basis, by observation and discussion with licensee personnel that those portions of the test observed were conducted with an approved procedure, that the test equipment was properly calibrated, that the test data were collected and recorded, and that the test adequately demonstrated conformance with applicable acceptance criteria.

No items of noncompliance or deviations were identified.

9. Pre-Core Load Hot Functional Preoperational Test - Unit 3

The inspectors observed selected portions of the following tests:

Precore Hot Functional Test	3HA-210-01
Thermal Expansion Test	3HA-102-01
Instrument Correlation	3HA-317-01

During the performance of these tests the inspectors verified, on a selected basis, by observation and discussion with licensee personnel that those portions of the tests observed were conducted with an approved procedure, that the test equipment was properly calibrated, that the test data were collected and recorded, and that the test adequately demonstrated conformance with applicable acceptance criteria.

No items of noncompliance or deviations were identified during this inspection.

10. Plant Tour - Unit 3

The inspectors toured Unit 3 and observed that housekeeping was satisfactory and fire protection equipment appeared to be properly maintained and distributed. The inspector also spot-checked the adequacy of various testing activities in progress.

No items of noncompliance or deviations were identified.

11. Independent Inspection Effort

Body to Bonnet Leakage of Feedwater-Check Valve S3-1305-M4-129

This check valve was found to be leaking during plant pressurization and heatup for precore hot functional testing. Subsequently, during the precore hot functional test (at 545 degrees and 2250 psia) the bonnet moved vertically upward 1/2-inch to 3/4-inch. Subsequent visual inspection revealed that the holddown bolts were not properly torqued. In fact, the nuts were 1/2-inch to 3/4-inch above engagement with the flange. The licensee has subsequently concluded that this occurred due to uneven torquing of these bolts which resulted in a binding of the bonnet within the body. This resulted in an erroneous torque indication on the bolts and nuts which subsequently was released due to thermal expansion of the body which allowed the bonnet to move vertically upward. The licensee's corrective action consists of providing more detailed guidance in the maintenance procedures to ensure even torquing of the bolts, thus preventing body to bonnet binding in the future. The inspector questioned whether final thread engagement would be a valid means of verifying proper assembly. The licensee stated, however, that the additional guidance on even torquing was sufficient. This item is closed.

No items of noncompliance or deviation were identified.

12. Exit Interview - Units 2 & 3

The inspector met with licensee representatives (denoted in Paragraph 1) on June 25, 1982, and presented the results of the inspections.