

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

REGION V

Report No. 50-361/81-09

Docket No. 50-361 License No. CPPR-97 Safeguards Group \_\_\_\_\_

Licensee: Southern California Edison Company

2244 Walnut Grove Avenue

Rosemead, California 91770

Facility Name: San Onofre Unit 2

Inspection at: San Diego County, California

Inspection conducted: March 13 to April 14, 1981

Inspectors: T. Young Jr. for. 6/16/81  
R. J. Pate, Senior Resident Inspector Date Signed

L. Miller, Resident Inspector 6/16/81  
L. Miller, Resident Inspector Date Signed

Approved By: T. Young Jr. 6/16/81  
T. Young, Acting Chief, Reactor Projects Section 2, Date Signed  
Reactor Operations Projects Branch

Summary:

Inspection on March 13 to April 14, 1981 (Report No. 50-361/81-09)

Areas Inspected: Routine, unannounced inspection of licensee's preoperational test program and procedures, observation of test, and independent inspection effort. The inspection involved 73 inspector-hours on-site by two NRC inspectors.

Results: Of the four areas inspected, one item of noncompliance was identified (Paragraph 3).

## DETAILS

### 1. Persons Contacted

#### a. Southern California Edison Company (SCE)

- +A. Sistos, Engineer
- \*T. D. Garvin, Quality Assurance Engineer
- \*K. A. Slagel, Startup Management Supervisor
- \*\*J. J. Pantaleo, Startup Quality Assurance Engineer
- \*\*G. A. Chavez, Project Startup Supervisor
- \*\*P. A. Croy, Site Project Quality Assurance Supervisor
- \*B. J. Sanano, Quality Assurance Engineer
- \*R. M. Rosenblum, Startup Engineering Supervisor
- +\*J. R. Tate, Unit 2 Station Superintendent
- +D. Stonecipher, Operations Quality Assurance Supervisor
- +\*C. R. Horton, Startup Quality Assurance Supervisor
- +E. Prabhu, Engineer
- +T. O. Gray, Quality Assurance Engineer

#### b. Bechtel Corporation

- +D. W. Strolman, Startup Quality Assurance Supervisor

#### c. Combustion Engineering (CE)

- \*R. M. Bockhorst, Startup Site Manager

In addition, construction and maintenance craftsmen, engineers and foremen were contacted during the inspection.

- \*Denotes attendees at Management Meeting on March 26, 1981.
- +Denotes attendees at Management Meeting on April 9, 1981.

### 2. Plant Status

The licensee reported Unit 2 construction to be 98 percent complete as of April 15, 1981.

### 3. Low Pressure Safety Injection Pump Suction Valves

On March 24, 1981 the Low Pressure Safety Injection (LPSI) pump (P-016) operated for an indeterminate time, estimated at 5 to 20 minutes without water supply to the pump suction. The condition was discovered by a Control Room operator who observed that the pump was running with motor current lower than normal. The incident appears to have occurred as a result of the following:

- a. On March 21, the reactor was being cooled down due component problems encountered during the Hot Functional Test. Facility Operating Procedure S023-3-2.6 states that for plant shutdown the four valves in the suction line to the LPSI shall be opened. These valves are the series combinations HV-9337 and HV-9339 which are connected in parallel with the series combination HV-9377 and HV-9378. Because of problems with the interlock controlling power operation of these

valves, electrical power was removed from HV-9337 and HV-9339 and they were opened manually - thus providing one suction path to the LPSI pump. The valves in the parallel path (HV-9377 and HV-9378), however, were left closed.

- b. This departure from the operating procedure (only two valves open,) was not recorded in the Control Room Log Book.
- c. When power was removed from HV-9339 and the valve was manually opened, the associated hand switch in the Control Room was not moved to the corresponding "Open" position. Instead, it was subsequently found to be in the "Closed" position. In Addition, although a "Caution" tag was placed on the open circuit breaker for HV-9337, a similar tag was not placed on the circuit breaker for HV-9339.
- d. On March 24, the plant was preparing to resume the Hot Functional Test. As part of this preparation a plant operator was performing Operating Procedure S023-3-1.4, "Fill and Vent," which required, among other actions, the closing of the circuit breaker to HV-9339. With the Control Room hand switch for HV-9339 in the "Closed" position and with no "Caution" tag to alert the plant operator to this condition, closing the circuit breaker for HV-9339 caused this valve to close. This action, combined with the fact that the LPSI pump was operating and that the series valves HV-9377 and HV-9378 in the parallel path were closed, resulted in the pump operating for an unknown length of time without a supply of water to the pump suction. Operation in such a manner can be mechanically harmful to a pump.

Since Criterion V of Appendix B to 10 CFR 50 requires that activities affecting quality shall be accomplished in accordance with documented procedures, and because Operating Procedure S023-3-2.6 requires that for plant shutdown the four valves in the suction line to the LPSI be opened, failure to open valves HV-9377 and HV-9378 on the above occasion is an item of apparent noncompliance (50-361/81-09/01).

It is noted that subsequent to the above occurrence, the LPSI pump was examined by SCE maintenance personnel but no damage was detected.

#### 4. Instrument Calibration

The Resident Inspector discussed with SCE Startup personnel the possibility that permanently installed plant instruments used to obtain acceptance data for startup tests could be out of calibration for the test. This discussion was based on the possibility that such instruments, (e.g. flow, pressure and level detection systems) can have a "zero" shift or become non linear, due to being exposed to a construction environment. These changes in turn, could affect the test results. Methods discussed to preclude or minimize such effects on these instruments are listed below:

- a. Use a separate test instrument.

- b. Perform a calibration check (three point, 0,50,100%) immediately prior to running the test.
- c. Establish an administrative procedure to re-evaluate any test acceptance data that was taken by an instrument found to be out of calibration at the presently established recalibration date. This assumes all instruments used for test acceptance data will be re-calibrated prior to fuel load. Also, any data determined to be unacceptable would require a system re-test.

SCE Startup management personnel stated that they recognized the inspector's concern and planned to take action to address the concern. However, they had not decided which action would be most appropriate. This will be reviewed at a future inspection. (50-361/81-09/02)

No items of noncompliance or deviations were identified.

5. Review of Maintenance

The maintenance procedure for repacking the pressurizer spray valves was reviewed. The procedure appeared to be technically adequate to accomplish the task.

The inspector also discussed with management personnel the need to have an operations maintenance program implemented prior to fuel load. The project Startup Supervisor stated that the operations maintenance program would be implemented for Unit 2, ninety days prior to fuel load.

No items of noncompliance or deviations were identified.

6. Followup on Bulletins

The licensee's response to Bulletin 79-12 was reviewed by the Resident Inspector and reported in Inspection Report 50-361/79-28. In that report it was stated that SCE had reviewed the bulletin for application to Unit 2 and Planned to ensure that the operating procedures included the necessary steps to prevent errors in estimating the critical position. The Resident Inspector verified that the procedure, S023-3-1.1, "Reactor Startup," contained precautions against going critical prior to or after the estimated critical rod position (Boron Concentration). The procedure appears to satisfactorily address the concern expressed in Bulletin 79-12.

7. Preoperational Test Procedure Observation

The inspectors witnessed selected portions of each of the following test procedures.

- a. Steady State Vibration - 2HA-102-02 Rev.0

- b. Component Cooling Water, Heat Rejection - 2HA-299-02
- c. Auxiliary Feedwater System - 2PE-235-01
- d. Control Element Drive Mechanism (CEDM) - 2HA-315-01
- e. Instrument Correlation - 2HA-317-01

For each of the above procedures the inspectors observed that the personnel conducting the tests were using the latest revision of the test procedure and that the procedure was being followed. Also, the inspectors verified that the required data were collected and that the taking of the data was properly coordinated.

The inspector stated that the review of these tests could not be completed until the approved test results records were reviewed. The results records will be reviewed in a future inspection.

The inspectors had comments on some of the tests witnessed. These are listed by test title.

#### Component Cooling Water, Heat Rejection

Preliminary calculation of the performance of Component Cooling Water Exchanger, E001 (A), indicates the acceptance criteria were not met. SCE has not yet determined what corrective action, if any, is required. (50-361/81-09/03)

#### Auxiliary Feedwater System

The inspector observed that the test acceptance criteria for the steam-driven auxiliary feedwater pump had been relaxed to require the pump to attain rated flow at 115 psig steam pressure rather than the specified 60 psig. The inspector stated that this change would be reviewed with the final approved results records for the test.

Prior to the test the inspector also observed that the Test Engineer was prepared to begin the test with one of the required flow indicators, 2FI-47202, auxiliary feedwater to steam generator, E-088, reading erroneously. A licensee quality assurance engineer questioned the intention of the Test Engineer and the test procedure was revised to require an operable flow indicator prior to initiating the test.

In addition, while the test was being performed, an auxiliary feedwater stop valve 2HV-4716, was opened locally according to the test procedure without the knowledge or direction of the Control Operator, who was responsible for controlling the valve operations for the test. The Control Operator stated that he had not expected the valve to be opened and ordered it closed to reestablish the control of the system from the Control Room.

In both of the above instances, the inspector concluded that the licensee's overall test control was adequate. This conclusion is based on the fact that although errors were made, the licensee recognized and voluntarily corrected them. At the Management Meeting on April 19, 1981, the inspector stated that under different conditions, such errors might have been more significant. The inspector encouraged the licensee to emphasize procedural compliance to all operating and test personnel. A licensee management representative acknowledged the inspectors concerns.

No items of noncompliance or deviations were identified.

8. Plant Tour

The inspector toured Unit 2 several times during the report period. Particular attention was directed to observing housekeeping, equipment preservation, maintenance activities and work on completed systems.

9. Management Interview

On March 26, and April 9, 1981, the inspectors met with the licensee representatives, identified in Paragraph 1, to discuss the scope and findings of the inspection. The licensee made the comment described in Paragraph 5.