

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

REGION V

Report No. 50-361/80-24
50-362/80-13

Docket No. 50-361/362 License No. CPPR-97/98 Safeguards Group _____

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

Facility Name: San Onofre Unit 2 and 3

Inspection at: Construction Site, San Diego County, California

Inspection conducted: December 16-19, 1980

Inspectors: J. H. Eckhardt, Reactor Inspector 1/8/81
Date Signed
J. O. Elin, Reactor Inspector 1-8-81
Date Signed

Approved By: R. T. Dodds 1-8-81
Date Signed
R. T. Dodds, Section Chief, Engineering Support Section,
Reactor Construction and Engineering Support Branch

Summary:

Inspection on December 16-19, 1980 (Report No. 50-361/80-24 and 50-362/80-13)

Areas Inspected: Routine, unannounced inspection by regional based inspectors of construction activities involving licensee action on previous inspection findings and 50.55(e) reports. The inspection involved 46 onsite inspection hours by two NRC inspectors.

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

DETAILS

1. Individuals Contacted

a. Southern California Edison Company (SCE)

- *D. E. Nunn, Manager, Quality Assurance
- *P. A. Croy, Project QA Supervisor
- *T. O. Gray, Construction Lead QA Engineer
- F. Nandy, Electrical Engineer
- A. Chan, QA Engineer
- *D. R. Hoffman, Project Construction Engineer
- *E. Prabhu, Lead Site Engineer
- *L. A. Pfandler, QA Engineer Trainee
- H. B. Jones, Mechanical Engineer Site Representative

b. Bechtel Power Corporation (Bechtel)

- *J. E. Geiger, Project QA Manager
- *W. D. Nichols, Project Field Engineer
- *L. W. Hurst, Project QA Engineer
- H. Campos, Electrical Engineer

*Denotes those attending exit interview.

2. Licensee Action on Previous Inspection Findings

The inspector examined the action taken by the licensee on the following items.

a. (Open) Followup item (50-361/78-13): Containment shrinkage cracks.

An SCE report "Evaluation of Effect of Containment Shrinkage Cracks on Re-enforcement Steel Integrity, SONGS, Units 2 and 3", dated June 16, 1980, was reviewed and indicates that the maximum crack width in Unit 2 containment was 0.013 inches. The report also indicates that cracks up to 0.013 inches width are acceptable from a re-enforcing bar corrosion standpoint. These cracks were measured shortly after tendon tensioning. Review of the structural integrity test (SIT) data (completed December 5, 1980) indicates cracks in the containment dome of 0.050 inches both before and after the test. These cracks are in a different location than those previously measured. During discussion with the licensee and Bechtel, the licensee committed to analyze the SIT data, make further measurements of the cracks, survey the entire dome, and provide analysis of the new data. This item will remain open pending this study.

- b. (Closed) Followup item (50-361/79-10/02): Environmental qualification of splice connections on containment electrical penetrations

The licensee stated that environmental qualification of connections would be included in a report to NRC Environmental Qualification Branch scheduled for February, 1981. The licensee will show these splice connections to be qualified per NUREG 0588.

This item is closed.

- c. (Closed) Followup item (50-361/79-22/03): Exceeding the minimum bend radius during cable pull operations.

This item was addressed by the licensee at the time of the response to item of noncompliance 50-361/79-22/04 and discussed and closed in Inspection Report 50-361/79-30. The licensee has made appropriate changes to CS-E01, "Installation of Electric Cables in Conduit and Duct Banks" and CS-E02, "Installation of Electrical Cables in Cable Trays" to reflect requirements of minimum bend radius, use of rope "mare's tail", and proper cable pull calculations. Communications of cable pull instructions to pull crews concerning exit directions was improved.

This item is closed.

- d. (Closed) Followup item (50-361/79-22/02): Use of "mare's tail" in place of a pulling grip or a basket grip while pulling cable.

A change to CS-E01, "Installation of Electric Cables in Conduit and Duct Banks" was made to include provisions for use of a rope "mare's tail" either at the end or at an intermediate point in the cable.

This item is closed.

- e. (Closed) Followup item (50-361/79-10/01): Environmental qualification of Amphenol and Cannon connectors.

The licensee stated that environmental qualification of Amphenol and Cannon connectors would be included in a report to NRC Environmental Qualification Branch scheduled for February, 1981. The licensee will show that these connectors are qualified per NUREG 0588.

This item is closed.

- f. (Closed) Followup item 50-361/79-23/02): Short circuit testing of medium voltage penetrations.

The FSAR in Table 8.1-1 states that the 6,900 volt penetrations can withstand a fault current of 78,000 amps symmetrical for 0.5 seconds (30 cycles). This has recently been increased from 62,900 amps. The inspector discussed with the licensee a letter from Westinghouse, dated June 5, 1980, explaining the Westinghouse Test Report PEN-TR-76-29 which showed that a similar penetration with 500 MCM cable (1 conductor per phase) was demonstrated to perform satisfactorily at 33,544 amps short circuit current (Isc) symmetrical for 10 cycles. The penetrations installed utilize 750 MCM cable (2 conductors per phase). Each conductor is capable of 45,250 amps Isc symmetrical for 10 cycles. The 78,000 amps symmetrical for 0.5 seconds is based on ratings from IPCEA 32-382 (Insulated Power Cable Engineers Association Standard). The licensee stated that the penetrations were short circuit tested per FSAR table 3.11-3 on page 3.11-20.

This item is closed.

3. Licensee Action on 50.55(e) Items

- a. Taylor Forge Pipe Defects

Linear indications at the surface adjacent to longitudinal seam welds on carbon steel pipe from Taylor Forge were detected by Bechtel while radiographing a field circumferential weld in the main steam line. In a subsequent review, other pipe lengths were identified to contain surface defects. The licensee issued a 50.55(e) report January 23, 1979. This report was evaluated by the NRC IE Division of Reactor Construction.

This item is considered closed.

- b. Lubrication Problems with Square D NEMA Size 3 Starters and Contactors.

Tacky lubrication was reported on rubber bumpers on certain Square D NEMA size 3 starters and contactors. The licensee reported that these starter rubber bumpers were replaced at Unit 2 and 3 with new parts.

This item is closed.

c. Splices in GE and Rockbestos Cable

The licensee stated that all GE supplied 600 volt power cable with neoprene jacket and ethylene propylene rubber insulation (Neoprene/EPR) will be removed from safety related applications inside Unit 2 containment and replaced by GE "Vulkene Supreme" cable qualified to IEEE 323 of 1974. At the time of the inspection approximately 85% of the GE cable in Unit 2 had been replaced. Completion is scheduled for January 15, 1980 with specific cable runs documented on NCR 1565. The inspector observed some cable replacement activities in progress in Unit 2. No problems were noted.

The licensee stated that Rockbestos cable with manufactured splices would be qualified per IEEE 383. Initial LOCA testing has been performed. Additional LOCA and post LOCA tests are to be performed by April 15, 1981.

The environmental qualification of GE Vulkene Supreme Cable and the Rockbestos cable will be reported to the NRC Environmental Qualification Branch in February, 1981, to show compliance to NUREG 0588.

This item is closed.

d. Lack of "As-Received" Documentation for Measuring and Test Equipment Sent to Vendors for Recalibration

The final 50.55(e) report, submitted December 14, 1979, was reviewed. Documentation of the corrective action associated with this item was also reviewed and indicated five related nonconformance reports are still open pending completion of rework. The licensee's QA conducted an extensive audit of this area August 11-21, 1980 and the results of this audit were reviewed. The inspector had no further questions.

This item is considered closed.

4. Possible Submergence Problem with Electrical Class IE Equipment

During a site tour the inspector noted that two air operated valves (2HV9204 and 2TV0221) were located below the hypothetical loss of coolant accident submergence level in Unit 2 containment building. These valves are letdown system isolation valves. Mounted on these valves are electrical Class IE components which do not appear qualified for submerged operation. These components are identified as 2HY9204 and 2TY0221 (ASCO solenoid pilot valves controlling 2HV9204 and 2TV0221); and 2ZSH9204-2, 2ZSL9204-2, 2ZSH0221-1, and 2ZSL0221-1 (NAMCO EA180 series limit switches).

The licensee stated the qualification of these components for submerged operation will be addressed in the February 1981 submittal detailing environmental qualification of electrical components per NUREG 0588.

5. Management Interview

The inspectors met with licensee representatives (denoted in paragraph 1) on December 19, 1980. The scope of the inspection and the inspectors' findings as noted in this report were discussed.