



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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May 31, 2001

Harold B. Ray, Executive Vice President  
Southern California Edison Co.  
San Onofre Nuclear Generating Station  
P.O. Box 128  
San Clemente, California 92674-0128

**SUBJECT: San Onofre Nuclear Generating Station - NRC ROUTINE INSPECTION REPORT  
50-361/01-08; 50-362/01-08**

Dear Mr. Ray:

On May 12, 2001, the NRC completed an inspection at your San Onofre Nuclear Generating Station, Units 2 and 3. The enclosed report documents the inspection findings that were discussed on May 15, 2001, with Mr. R. Krieger and other members of your staff.

Circumstances affecting the financial viability of Southern California Edison Co. have continued to evolve during this inspection period. Actions have been initiated by the state of California and Southern California Edison Co. to address the impacts of these financial challenges. The NRC has exercised communications channels to better understand your planned and implemented actions, especially as they relate to your responsibility to safely operate the San Onofre reactors. NRC inspections, to date, have confirmed that you continue to operate these reactors safely and assure the health and safety of the public.

In response to these conditions of economic stress, there are two differences in how the Region communicates its inspection findings. First, we will continue the 6-week periodicity of our integrated inspection reports (the other reactors in Region IV transitioned to a quarterly report frequency, with the exception of Diablo Canyon). Second, the description of the scope of the individual inspection activities will be significantly more detailed. This is being done to keep the public more fully informed of the breadth and depth of the NRC's inspection and oversight activities.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

*/RA/*

Charles S. Marschall, Chief  
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Division of Reactor Projects

Dockets: 50-361  
50-362  
Licenses: NPF-10  
NPF-15

Enclosure:  
NRC Inspection Report  
50-361/01-08; 50-362/01-08

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Only inspection reports to the following:

- Scott Morris (**SAM1**)
- NRR Event Tracking System (**IPAS**)
- SONGS Site Secretary (**SFN1**)
- Dale Thatcher (**DFT**)

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5/16/01	5/16/01	5/31/01		

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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets: 50-361, 50-362

Licenses: NPF-10, NPF-15

Report: 50-361/01-08, 50-362/01-08

Licensee: Southern California Edison Co.

Facility: San Onofre Nuclear Generating Station, Units 2 and 3

Location: 5000 S. Pacific Coast Hwy.  
San Clemente, California

Dates: April 1 through May 12, 2001

Inspectors: J. G. Kramer, Senior Resident Inspector  
J. A. Sloan, Senior Resident Inspector

Approved By: C. S. Marschall, Chief, Project Branch C

## SUMMARY OF FINDINGS

San Onofre Nuclear Generating Station, Units 2 and 3  
NRC Inspection Report 50-361/01-08; 50-362/01-08

IR05000361-01-08, IR05000362-01-08; 04/01-05/12/2001; Southern California Edison; San Onofre Nuclear Generating Station, Units 2 & 3; Resident Report.

The inspection was conducted by resident inspectors. Based on the results of this inspection, no findings of significance were identified.

## Report Details

### Summary of Plant Status

Unit 2 operated at essentially 100 percent power throughout this inspection period.

Unit 3 was maintained in Mode 5 throughout this inspection period conducting repairs to nonsafety-related electrical and turbine systems damaged during a February 3, 2001, event (NRC Inspection Reports 50-361; 362/01-02 and 50-362/01-05).

#### 1. **REACTOR SAFETY**

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness

#### 1R04 Equipment Alignments (71111.04)

##### a. Inspection Scope

The inspectors performed a partial walkdown of the Unit 3 Train A shutdown cooling system to confirm its operability during an outage of the Train B Shutdown Cooling Heat Exchanger ME003. The inspectors verified critical portions of this redundant train to identify any discrepancies between the existing valve and electrical system alignments and the proper alignment as determined by system piping and instrumentation drawings and plant procedures. The inspectors also observed indications of redundant pump operability.

##### b. Findings

No findings of significance were identified.

#### 1R05 Fire Protection (71111.05)

##### a. Inspection Scope

The inspectors performed routine fire inspection tours, and reviewed relevant records, for the following plant areas important to reactor safety:

- Area 2AC-30-28, Cable Spreading Room (Unit 2)
- Area 2SE-30-142A, Cable Spreading Tunnel (Unit 2)
- Area 2CT-(-2)-142B, Cable Spreading Tunnel (Unit 2)

The inspectors observed the material condition of plant fire protection equipment, the control of transient combustibles, and the operational status of barriers. The inspectors compared in-plant observations with the commitments in the portions of the Updated Fire Hazards Analysis Report and reviewed Action Request (AR) 010401055 associated with the areas.

##### b. Findings

No findings of significance were identified.



1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

On April 25, 2001, the inspectors observed licensed operator requalification training. On May 3, 2001, the inspectors performed a comparison of simulator performance with that of the control room. The inspectors observed and evaluated the following areas:

- formality of communication
- prioritizing, interpreting, and verification of alarms
- procedure implementation
- control board operation and manipulation of controls
- oversight and direction provided by the shift manager
- evaluator's simulator critique

An emphasis was placed on high-risk licensed operator actions, operator activities associated with the emergency plan, and previous lessons learned items. These items were evaluated to ensure that operator performance was consistent with protection of the reactor core during postulated accidents.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)

a. Inspection Scope

The inspectors reviewed and discussed the effectiveness of risk assessment and risk management of the following activities with the shift technical advisor and/or the Probabilistic Risk Assessment manager:

- Train A Component Cooling Water Heat Exchanger 2ME001, Diesel-Driven Fire Pump MP220, and Train A Saltwater Cooling Pumps' Feeder Breakers 2A0410 and 2A0411 inoperable on April 20, 2001 (Unit 2)
- Unit 3 intake dewatered, Train B Saltwater Cooling Pumps 2P113 and 2P114 inoperable, with high impact switchyard maintenance on May 7, 2001 (Unit 2)

The inspectors verified the accuracy and completeness of assessment documents and that the licensee's program was being appropriately implemented. The inspectors also ensured that plant personnel were aware of the appropriate licensee-established risk category, according to the risk assessment results and licensee program procedures.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the operability evaluations documented in the following ARs to ensure that the operability determination was properly justified:

- Nonsafety-related breaker in safety-related location (3B0601) and the impact of this breaker on the opposite unit's second source of offsite power (AR 010400823) (Unit 2)
- The loss of power to all containment penetration and reactor cavity cooling fans and the affect on the containment concrete being exposed to elevated temperatures (AR 010400839) (Unit 3)

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors observed and/or reviewed postmaintenance testing for the following activities to verify that the test procedures and activities adequately demonstrated system operability:

- Installation of banana jack adapters at Breakers 2B0613 and 2B0617 for positive connection of monitoring equipment and jumpers during support of subgroup relay testing (Maintenance Order 99060794000) (Unit 2). The inspectors observed electricians perform voltage and resistance checks to verify proper installation of the adapters.
- Component Cooling Water Pump 2MP026 repairs (Unit 2). The inspectors reviewed Procedure SO23-3-3.60.3, "Component Cooling Water and Seismic Makeup Pump Test," Revision 3, Inservice Pump Test Record 2P026-05-01, and AR 010500354.

The inspectors determined that the effect of testing on the plant had been adequately addressed, that the test was adequate for the scope of the maintenance work performed, and that the acceptance criteria was clear and consistent with design and licensing basis documents.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

During the Unit 3 forced outage, the inspectors periodically monitored operational status of the shutdown cooling system and the vital and nonvital electrical power distribution systems and verified that the systems were aligned in accordance with plant operating procedures. The inspectors confirmed that the licensee's monitoring for the potential buildup of noncondensable gases in the reactor vessel head was adequate. The inspectors toured the containment to ensure that activities were being conducted as planned and in accordance with ALARA estimates.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed and/or reviewed documentation for the following surveillance tests to verify that the structures, systems, and components are capable of performing their intended safety functions, that the tests were conducted in accordance with approved procedures, and to assess their operational readiness:

- Battery Charger 3B003 performance test (Unit 3). The inspectors observed aspects of the surveillance test and discussed the testing with electrical technicians. The inspectors reviewed Maintenance Order 00101270000 and Procedure SO123-I-2.8, "Battery Charger Performance Test," Revision 0.
- Engineered Safety Features Subgroup Relay K-108B semiannual test (Unit 2). The inspectors observed the operator briefing, prior to the surveillance test, and operator performance of the test. The inspectors reviewed Procedure SO23-3-3.43.6, "ESF Subgroup Relays K-108A and K-108B Semiannual Test," Revision 6, and AR 010401219.
- Containment Spray Pump 2MP013 inservice test (Unit 2). The inspectors observed the operator briefing, prior to the inservice test, and operator performance of the test. The inspectors reviewed Procedure SO23-3-3.60.7, "Containment Spray Pump and Valve Testing," Revision 5, and the inservice pump test record upon completion of the test.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed an emergency preparedness drill from the emergency operations facility and two simulator-based training evolutions from the simulator to evaluate the drill conduct and the adequacy of the licensee's performance critique. The inspectors reviewed Procedures SO123-VIII-10.2, "Corporate Emergency Director Duties," Revision 5; SO123-VIII-10.3, "Protective Action Recommendations," Revision 4; and SO123-VIII-1, "Recognition and Classification of Emergencies," Revision 14. The inspectors discussed the performance of drill players with emergency preparedness personnel and reviewed AR 010500590. The inspectors observed the following drill scenarios:

- April 18, 2001 (site-wide drill)
- April 25, 2001 (simulator-based drill)
- May 2, 2001 (simulator-based drill)

b. Findings

No findings of significance were identified.

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed operator logs and verified the accuracy of the previous four quarters of data reported by the licensee for the following performance indicators:

- IE2 Scrams with Loss of Normal Heat Removal (Unit 2)
- IE2 Scrams with Loss of Normal Heat Removal (Unit 3)

b. Findings

No findings of significance were identified.

4OA3 Event Followup (71153)

.1 Ammonium Hydroxide Tank Leak (Unit 3)

a. Inspection Scope

On April 27, 2001, the inspectors observed Fire Department, Hazardous Materials, and Security department personnel performance during an ammonium hydroxide tank sight glass leak. Approximately 25 gallons of ammonium hydroxide leaked into a berm from the sight glass that was damaged during preservation preparations. The inspectors discussed the event with hazardous materials personnel and reviewed ARs 010401395, 010401436, and 010401531 associated with the event.

b. Findings

No findings of significance were identified.

- .2 (Closed) Licensee Event Report (LER) 50-362/2001-001-00: fire and system actuations caused by the failure of a Unit 3 nonsafety-related 4 kV circuit breaker. The LER describes the events associated with the fire and reactor protection system and engineered safety feature actuations associated with the failure of a Unit 3 nonsafety-related 4 kV circuit breaker on February 3, 2001. The events described by the LER have already been addressed in NRC Inspection Reports 50-361; 362/01-02 and 50-362/01-05. No new findings of significance were identified during the LER review. This LER is closed.
- .3 (Closed) LER 50-361; 362/2001-001-00: more conservative understanding of emergency diesel generator (EDG) automatic voltage regulator Technical Specification surveillance testing results in a Technical Specification violation. The inspectors identified that the licensee had not been appropriately testing the EDGs with respect to the automatic voltage regulators. The licensee selected and/or tested an automatic voltage regulator that passed all required surveillance tests to make the EDGs operable. On April 6, 2001, the licensee submitted a Technical Specification amendment to clarify the applicable surveillance requirements for ensuring automatic voltage regulator operability. The failure to appropriately test the EDG automatic voltage regulators was a violation of Technical Specification 3.8.1 surveillance requirements. This failure constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The issue is minor because, when tested, the automatic voltage regulators performed as designed. The licensee placed this issue in the corrective action program as AR 010201358. No findings of significance were identified during the LER review. This LER is closed.
- .4 (Closed) LER 50-361; 362/2001-002-00: incorrect Technical Specification surveillances on reactor protection system logic. The licensee identified that the test methodology used to implement Technical Specification Surveillance Requirements 3.3.4.2 and 3.3.4.4 was not adequate. This failure constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The issue is minor because, the components remained operable. The licensee documented this issue in the corrective action program as AR 010201704. No findings of significance were identified during the LER review. This LER is closed.

4OA5 Other

.1 Financial Status

The NRC exercised communications channels to better understand the licensee's planned and implemented actions, especially as they relate to safely operating the reactors. The inspectors specifically reviewed the following on a weekly basis:

- Staffing of on-shift operating personnel
- Corrective maintenance backlog

- Corrective action Level 1 backlog
- Reduction in safety or risk important outage activities
- Reduction in planned risk important modifications or enhancements
- Emergency Response Facility and siren availability
- Generator voltage loading
- Impact of rolling blackouts on the grid and offsite power availability
- Employee morale

NRC inspections and inspectors' observations, to date, have confirmed that the licensee operated the units safely and that public health and safety was assured.

#### 4OA6 Meetings

##### .1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. R. Krieger and other members of licensee management at an exit meeting on May 15, 2001. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether or not any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## ATTACHMENT

### SUPPLEMENTAL INFORMATION

#### PARTIAL LIST OF PERSONS CONTACTED

##### Licensee

C. Anderson, Manager, Site Emergency Preparedness  
D. Brieg, Manager, Station Technical  
J. Fee, Manager, Maintenance  
M. Goettel, Manager, Business Planning and Financial Services  
J. Hirsch, Manager, Chemistry  
R. Krieger, Vice President, Nuclear Generation  
J. Madigan, Manager, Health Physics  
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R. Richter, Supervisor, Fire Protection Engineering  
A. Scherer, Manager, Nuclear Oversight and Regulatory Affairs  
M. Short, Manager, Site Technical Support  
T. Vogt, Plant Superintendent, Units 2 and 3 Operations  
R. Waldo, Manager, Operations

#### ITEMS CLOSED

##### Previous Items Closed

50-362/2001-001-00	LER	fire and system actuations caused by the failure of a Unit 3 nonsafety-related 4 kV circuit breaker (Section 4OA3.2)
50-361; 362/2001-001-00	LER	more conservative understanding of EDG automatic voltage regulator Technical Specification surveillance testing results in a Technical Specification violation (Section 4OA3.3).
50-361; 362/2001-002-00	LER	incorrect Technical Specification surveillances on reactor protection system logic (Section 4OA3.4).

#### LIST OF ACRONYMS USED

AR	action request
CFR	Code of Federal Regulations
EDG	emergency diesel generator
LER	licensee event report
NRC	Nuclear Regulatory Commission