



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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October 31, 2000

Harold B. Ray, Executive Vice President
Southern California Edison Co.
San Onofre Nuclear Generating Station
P.O. Box 128
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**SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION - NRC INSPECTION
REPORT NO. 50-361/00-13; 50-362/00-13**

Dear Mr. Ray:

On October 14, 2000, the NRC completed an inspection at your San Onofre Units 2 and 3 facility. The enclosed report documents the inspection findings which were discussed on September 29 and October 17, 2000, with Mr. R. Krieger and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the inspectors identified one issue of very low safety significance (Green). This issue was determined to involve a violation of NRC requirements. However, because of its low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a noncited violation, in accordance with Section VI.A of the Enforcement Policy. If you deny this noncited violation, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at San Onofre Nuclear Generating Station, Units 2 and 3, facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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).

Sincerely,

/RA/

Charles S. Marschall, Chief
Project Branch C
Division of Reactor Projects

Docket Nos.: 50-361
50-362
License Nos.: NPF-10
NPF-15

Enclosure:
NRC Inspection Report No.
50-361/00-13; 50-362/00-13

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Only inspection reports to the following:
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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.: 50-361
50-362

License Nos.: NPF-10
NPF-15

Report No.: 50-361/00-13
50-362/00-13

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: August 27 through October 14, 2000

Inspectors: J. A. Sloan, Senior Resident Inspector
J. J. Russell, Resident Inspector
J. G. Kramer, Resident Inspector
D. L. Proulx, Senior Resident Inspector
P. J. Elkman, Emergency Preparedness inspector
W. A. Maier, Senior Emergency Preparedness Inspector

Approved By: C. S. Marschall, Chief
Branch C, Division of Reactor Projects

ATTACHMENTS:

Attachment 1: Supplemental Information

Attachment 2: NRC's Revised Reactor Oversight Process

SUMMARY OF FINDINGS

Inspection Period: August 27-October 14, 2000

IR05000361-00-13, IR05000362-00-13: 8/27-10/14/2000; Southern California Edison; San Onofre Nuclear Generating Station, Units 2 & 3; Integrated Resident & Regional Report; Pers. Perf. During Nonroutine Evol. & Events.

The inspection was conducted by resident inspectors and regional emergency preparedness inspectors. The inspection identified one green finding, which was a noncited violation. The significance of the finding is indicated by its color (green, white, yellow, red) using IMC 0609, "Significance Determination Process."

- Green. The licensee determined that air in-leakage into the control room emergency air cleanup system was outside the design basis. The condensate drain lines to both normal air conditioner units and several tears in an expansion boot provided a pathway for unfiltered air. The licensee determined that both conditions existed for several years, and that the aggregate unfiltered air in-leakage exceeded the limit assumed in the Updated Final Safety Analysis Report. This was a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." This violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Action Request 000400061.

The licensee determined that the radiological consequences to control room occupants would meet the 10 CFR Part 50, Appendix A, Criterion 19, control room habitability dose limits during a design basis event. Using the significance determination process, the inspectors determined that the issue was of very low safety significance (green) because the dose to control room occupants would not have exceeded general design criterion limits (Section 1R14.2).

REPORT DETAILS

Summary of Plant Status:

Unit 2 operated at essentially 100 percent power until September 26, 2000, when a power coastdown began because of fuel depletion. On October 7 operators shut down the reactor to begin the Cycle 11 refueling outage and on October 8 completed a cooldown of the reactor coolant system to Mode 5. Midloop operations were conducted on October 9-10 and Mode 6 was entered on October 11. The inspection period ended with Unit 2 operating in Mode 6.

Unit 3 operated at essentially 100 percent power throughout this inspection period.

1. **REACTOR SAFETY**

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

1R05 Fire Protection (71111.05)

.1 Routine Fire Inspection Tours - Units 2 and 3

a. Inspection Scope

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

- Auxiliary feedwater pump room (Unit 2)

The inspectors observed the material condition of plant fire protection equipment, the control of transient combustibles, and the operational status of barriers.

b. Findings

There were no findings identified.

.2 Annual Fire Drill Observation - Units 2 and 3

a. Inspection Scope

On September 24, 2000, the inspectors performed the annual observation of a fire brigade drill. The drill consisted of an unannounced backshift fire drill of Unit 3 Reserve Auxiliary Transformer 3XR2. The inspectors evaluated the readiness of licensee personnel to fight fires. The inspectors evaluated the following aspects: proper donning of protective clothing, fire hose lines capable of reaching all necessary fire locations without flow constrictions, the fire area entered in a controlled manner, sufficient firefighting equipment brought to the scene, the fire brigade leader's firefighting directions, and radio communications. The inspectors reviewed Procedure SO123-XIII-21, "Fire Department Drills," Revision 6; Pre-Fire Plan 3-044; and Drill Scenario 2000-010. The inspectors reviewed the following action requests (ARs) generated as a result of the drill: 000901311, 001000594, 001000598, and 001000602.

b. Findings

There were no findings identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

The inspectors observed licensed operator requalification training activities, including the licensed operators' performance and evaluators' critique, and comparison of performance in the simulator on September 13 with performance in the control room on October 10, 2000.

b. Findings

There were no findings identified.

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

a. Inspection Scope

The inspectors reviewed the effectiveness of risk assessment and risk management for the following activities:

- Auxiliary Feedwater Pump 2P504 outage (Unit 2)
- Auxiliary Feedwater Pump 2P140 outage (Unit 2)
- Auxiliary Feedwater Pump 3P141 outage (Unit 3)

b. Findings

There were no findings identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions (71111.14)

.1 Nonroutine Plant Evolutions - Units 2 and 3

a. Inspection Scope

- The inspectors reviewed the licensee's response to a sulfuric acid leak and reviewed ARs 000900917, 000901106, and 000901248 (Units 2 and 3).
- The inspectors observed personnel performance during the reactor shutdown and cooldown to Mode 4 to begin the refueling outage (Unit 2).

b. Findings

There were no findings identified.

.2 Licensee Event Report (LER) Evaluations

a. Inspection Scope

The inspectors reviewed LERs to determine the extent to which human errors contributed to the events and to evaluate the safety significance of the events.

b. Findings

- b.1 (Closed) LER 361; 362/2000-004-00: emergency core cooling system rooms outside design basis due to missing piping insulation. This issue was discussed in NRC Inspection Report 50-361; 362/00-03. No new issues were revealed by the LER.
- b.2 (Closed) LER 361; 362/2000-009-00: missed Technical Specification surveillances on loss of voltage signal relays. This issue was discussed in NRC Inspection Report 50-361; 362/00-10. No new issues were revealed by the LER.
- b.3 (Closed) LER 361; 362/2000-003-00: control room emergency air cleanup system boundary in-leakage outside the design basis.

On April 3, 2000, during a visual inspection of the normal and emergency air conditioning units, the licensee discovered that the condensate drain lines to both normal air conditioning units were taking a suction on the air in the room. The open drain lines provided a pathway for unfiltered air to enter the control room envelope during emergency conditions. Upon discovery, the licensee capped the drain lines until a permanent corrective fix was completed. The licensee believed that the drain lines have been uncapped since the initial startup of Unit 2.

On April 5, 2000, the licensee removed insulation from the normal air conditioning units and discovered several tears in an expansion boot. The tears in the expansion boot also provided a pathway for unfiltered air to enter the control room envelope. Based on the failure mechanism of the expansion boot, the licensee concluded that the boot tears may have existed for several years.

Based on engineering judgement, the licensee concluded that the combined leakage from the uncapped drain lines and the expansion boots could have caused the aggregate unfiltered air in-leakage into the control room to exceed the 10 standard cubic feet per minute assumed in the Updated Final Safety Analysis Report (UFSAR). Therefore, the licensee concluded that this condition was outside the design basis of the plant. In the LER, the licensee confirmed that the radiological consequences to control room occupants would meet the 10 CFR Part 50, Appendix A, General Design Criterion 19, control room habitability dose limits during a loss-of-coolant accident event.

10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that measures shall be established to assure that the design basis for systems is correctly translated into specifications, procedures, and instructions. UFSAR Appendix 15B, "Dose Models Used to Evaluate the Environmental Consequences of Accidents," Table 15B-5, provides the control room emergency ventilation system parameters. The assumed unfiltered in-leakage in Table 15-B is 10 standard cubic feet per minute.

Contrary to the above, the control room unfiltered in-leakage exceeded the UFSAR assumptions. This violation of 10 CFR Part 50, Appendix B, Criterion III, is being treated as a noncited violation (NCV 50-361; 362/2000013-01), consistent with Section VI.A of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as AR 000400061. Using the significance determination process, the inspectors determined that the issue was of very low safety significance (green) because the dose to control room occupants would not have exceed general design criterion limits.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the operability evaluation documented in the following AR to ensure the operability was properly justified:

- Degraded oil in swing Component Cooling Water Pump 3P025 (AR 000901134) (Unit 3)

b. Findings

There were no findings 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:

- Saltwater Cooling Pump 3P114 replacement (Unit 3)
- Containment Spray Pump 2P012 nonbreach work (Unit 2)
- High Pressure Safety Injection Pump 3P018 discharge Check Valve 3MU016 (Unit 3)

b. Findings

There were no findings identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors performed aspects of the Unit 2 Cycle 11 refueling outage that began on October 7, 2000. The inspectors periodically verified that: (1) tags were properly hung and that associated equipment was appropriately configured to support the function of

the clearance, (2) the status and configurations of electrical systems met Technical Specification requirements and the licensee's outage risk control plan, (3) switchyard activities were controlled commensurate with safety and were consistent with the outage risk control plan assumptions, (4) shutdown cooling parameters met system requirements, and (5) the defense-in-depth planning sheet guidance was implemented. Specific activities inspected included the following:

- reviewed the licensee's risk assessment of the planned outage, based on the Revision 0 outage schedule.
- observed the power decrease and reactor trip from approximately 14 percent power on October 7.
- observed the plant conditions and controls in effect during the "higher risk evolution" of replacing the low temperature overpressure relief valve while in Mode 3.
- observed the reactor coolant system cooldown on October 7-8.
- observed the preparations for and performance of the drain to midloop conditions on October 9-10; verified that the flow paths, configurations, and alternative means for inventory addition were available; and verified reactor coolant system time-to-boil during draining to and at midloop conditions. Also verified that plant conditions and control room decorum were appropriately maintained while in a midloop configuration.
- observed the prejob briefing prior to refilling the reactor coolant system to exit reduced inventory conditions on October 10.

b. Findings

There were no findings 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 and to assess their operational readiness:

- Fire Pump 2/3P221 inservice test (Common)
- Engineered safety features testing, Trains A and B (Unit 2)
- Safety injection system monthly verification of charged piping (Unit 2)

b. Findings

There were no findings identified.

1EP2 Alert and Notification System Testing (71114.02)

a. Inspection Scope

The inspectors reviewed the licensee's emergency plan and the initial siren evaluation report to determine licensee siren testing commitments. The licensee's description of the offsite siren system and procedures for siren testing were also reviewed. The inspector also reviewed the results of a recently completed licensee self-assessment that discussed offsite siren testing as well as several licensee action reports that discussed siren testing failures and issues.

b. Findings

There were no findings identified.

1EP3 Emergency Response Organization Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors reviewed the design of the emergency response organization notification system by discussing the system design with the licensee. The results of several pager tests conducted during calendar year 2000 were reviewed as well as drill critiques for two report-in drills conducted in 1998 and 1999. The inspector observed the conduct of an after-hours pager test. Two shift communicators responsible for making emergency response organization notifications were interviewed to determine their knowledge of their duties. Finally, the inspector reviewed a sample of emergency responder respirator qualifications to determine the licensee's readiness to respond to adverse radiological conditions during emergencies.

b. Findings

There were no findings identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspector reviewed Emergency Plan Revision 10 and engineering calculations related to SO123-VIII-1, "Recognition and Classification of Emergencies," Revisions 10 through 13. The inspector and the licensee also discussed how an emergency plan change involving 10 CFR 50.54(t) audits would be implemented (frequency extended to 24 months).

b. Findings

There were no findings identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspector reviewed the following documents related to the corrective action program:

- Procedures listed in Attachment 1
- Summary list of ARs from September 18, 1998, to September 22, 2000
- 20 ARs
- After-action reports for three emergency classifications occurring in 1999
- Calendar year 1999 10 CFR 50.54(t) audit results
- Calendar year 2000 emergency preparedness self-assessment results

b. Findings

There were no findings identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Drill and Exercise Performance

a. Inspection Scope

The inspector reviewed the emergency preparedness desk guide for collecting and reporting performance indicator data. The inspector also reviewed drill and exercise performance records for the first and second calendar quarters of 2000 (e.g., scenario data, worksheets, and evaluation forms and logs).

b. Findings

There were no findings identified.

.2 Emergency Response Organization Drill Participation

a. Inspection Scope

The inspector reviewed emergency response organization participation summaries for the first and second calendar quarters of 2000. The inspector validated the recorded participation of 10 emergency response organization members using drill attendance records.

b. Findings

There were no findings identified.

.3 Alert and Notification System Reliability

a. Inspection Scope

The inspector reviewed siren test results for the last three quarters of 1999 and first two quarters of 2000 to verify the accuracy of the licensee's reported performance indicator data.

b. Findings

There were no findings identified.

4OA6 Meetings

.1 Exit Meeting Summary

The inspector presented the emergency preparedness inspection results to Mr. R. Krieger, Vice President, Nuclear Generation, and other members of licensee management at the conclusion of the inspection on September 29, 2000. The licensee acknowledged the findings presented.

Additionally, the inspectors presented the remaining inspection results to Mr. R. Krieger and other members of licensee management at an exit meeting on October 17, 2000. 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 1

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

C. Anderson, Manager, Site Emergency Preparedness
D. Brieg, Manager, Station Technical
G. Cook, Supervisor, Nuclear Oversight and Regulatory Affairs
J. Fee, Manager, Maintenance
P. Handley, Supervisor, Offsite Emergency Preparedness
M. Hug, Supervisor, Emergency Preparedness
R. Krieger, Vice President, Nuclear Generation
D. Nunn, Vice President, Engineering and Technical Services
R. Richter, Supervisor, Fire Protection Engineering
A. Scherer, Manager, Nuclear Oversight and Regulatory Affairs
T. Vogt, Plant Superintendent, Units 2 and 3
R. Waldo, Manager, Operations
J. Wallace, Manager, Security

ITEMS OPENED AND CLOSED

Opened and Closed During this Inspection

| | | |
|---------------------|-----|---|
| 361; 362/2000013-01 | NCV | control room emergency air cleanup system boundary in-leakage outside the design basis (Section 1R14.2) |
|---------------------|-----|---|

Previous Items Closed

| | | |
|----------------------|-----|--|
| 361; 362/2000-004-00 | LER | emergency core cooling system rooms outside design basis due to missing pipe insulation (Section 1R14.2) |
| 361; 362/2000-009-00 | LER | missed Technical Specification surveillances on loss of voltage signal relays (Section 1R14.2) |
| 361; 362/2000-003-00 | LER | control room emergency air cleanup system boundary in-leakage outside the design basis (Section 1R14.2) |

DOCUMENTS REVIEWED

San Onofre Nuclear Generating Station Site Emergency Plan Revision 10

Emergency Plan Implementing Procedures:

| | | |
|-------------------|--|-------------|
| SO123-0-14 | Notification and Reporting of Significant Events | Revision 6 |
| SO123-CA-1 | Corrective Action Program | Revision 3 |
| SO123-XVIII-10 | Siren-Community Alert Siren System-System Description | Revision 4 |
| SO123-XVIII-10.1 | Siren-Community Alert Siren System-Bi-weekly Silent Test | Revision 4 |
| SO123-XVIII-10.3 | Siren-Community Alert Siren System-Quarterly Growl Test | Revision 4 |
| SO123-XVIII-10.4 | Siren-Community Alert Siren System-Response to a Report of an Inadvertent Siren Activation | Revision 3 |
| SO123-XVIII-10.5 | Siren-Community Alert Siren System-Annual Activation Test Procedures | Revision 3 |
| SO123-XVIII-30.5 | Shift Communicator Duties | Revision 9 |
| SO123-XVIII-0.201 | Emergency Plan Equipment Surveillance Program | Revision 8 |
| SO123-XVIII-0.202 | Assignment of Emergency Response Personnel | Revision 6 |
| SO123-XX-1, ISS2 | Action Request/Maintenance Order Initiation and Processing | Revision 13 |
| SO123-XXI-1.11.3 | Emergency Plan Training Program Description | Revision 11 |

Miscellaneous:

- Personnel Qualification Standard for Shift Communicator
- Lesson Plan 710000, General EP Overview Computer-Based Training, Revision 0-1
- Emergency Planning Self-Assessment, dated September 15, 2000
- Setpoint Transmittal, Units 2 and 3 Gas Monitors, dated December 20, 1999
- Setpoint Transmittal, Units 2 and 3 Liquid Monitors, dated March 20, 2000
- Audit SCES-912-99, 1999 Emergency Preparedness

- Emergency Preparedness Desk Instruction, Emergency Preparedness Performance Indicators, Revision 2
- Report SOS-061-99, NRC Performance Indicators, dated December 22, 1999
- Report SOS-015-00, EP Participation Performance Indicators, dated April 11, 2000
- March 5, 1999, Station Alert Critique Report, dated March 24, 1999
- Memorandum for File, Evaluation of SONGS Emergency Plan Implementation during Unusual Event at SONGS Unit 2, February 1, 1999
- Memorandum for File, Evaluation of SONGS Emergency Plan Implementation during Unusual Event at SONGS Units 2/3, October 16, 1999

ATTACHMENT 2

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

Radiation Safety

- Occupational
- Public

Safeguards

- Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.