



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005**

July 14, 2006

Richard M. Rosenblum
Senior Vice President and
Chief Nuclear Officer
Southern California Edison Company
San Onofre Nuclear Generating Station
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**SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION - NRC INTEGRATED
INSPECTION REPORT 05000361/2006003; 05000362/2006003**

Dear Mr. Rosenblum:

On June 24, 2006, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your San Onofre Nuclear Generating Station, Units 2 and 3 facility. The enclosed integrated report documents the inspection findings, which were discussed on April 10 and June 22, 2006, with Dr. R. Waldo and other members of your staff.

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

This report documents two self-revealing findings of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. Additionally, licensee identified violations which were determined to be of very low safety significance are listed in the report. However, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as noncited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; and the NRC Resident Inspector at San Onofre Generating Station, Units 2 and 3 facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Troy W. Pruett, Chief
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Division of Reactor Projects

Dockets: 50-361
50-362

Licenses: NPF-10
NPF-15

Enclosure:

NRC Inspection Report 05000361/2006003; 05000362/2006003
w/Attachment: Supplemental Information

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SUNSI Review Completed: TWP ADAMS: WYes ☐ No Initials: TWP
 W Publicly Available ☐ Non-Publicly Available ☐ Sensitive W Non-Sensitive

R:\ REACTORS\ SO23\2006\SO2006-03RP-CCO.wpd

RIV:DRP/PE/D	RI:DRP/D	SRI:DRP/D	SPE:DRP/D	C:DRS/PSB
CHYoung	MASitek	CCOsterholtz	GEWerner	MPShannon
N/A	E-MJSpivey	T-TWPruett	N/A	/RA/
07/ /06	07/11/06	07/13/06	07//06	07/14/06
C:DRS/OB	C:DRS/EB	C:DRS/PEB	C:DRP/D	
ATGody	JAClark	LJSmith	TWPruett	
RELantz for	/RA/	/RA/	/RA/	
07/12/06	07/11/06	07/12/06	07/14/06	

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 50-361, 50-362

Licenses: NPF-10, NPF-15

Report No.: 05000361/2006003 and 5000362/2006003

Licensee: Southern California Edison Co. (SCE)

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

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

Dates: March 26 through June 24, 2006

Inspectors: C. C. Osterholtz, Senior Resident Inspector, Project Branch D, DRP
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Approved By: Troy W. Pruett, Chief
Project Branch D
Division of Reactor Projects

SUMMARY OF FINDINGS

IR05000361/2006003, 05000362/2006003; 03/26/06 - 06/24/06; San Onofre Nuclear Generating Station, Units 2 & 3; Integrated Resident and Regional Report; Equipment Alignment and Maintenance Effectiveness

This report covered a 3-month period of inspection by resident inspectors and Regional office inspectors. The inspection identified two Green findings, both of which were noncited violations. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management's review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. A self revealing, noncited violation of Technical Specification 5.5.1.1 was identified for the failure of operations personnel to operate reactor coolant pump system vent valves with the use of approved procedures. This failure resulted in the inadvertent drainage of approximately 200 gallons of Unit 2 reactor coolant system water to the containment sump. This issue has been entered into the licensee's corrective action program as Action Request 060301125.

The finding was determined to be more than minor because, if left uncorrected, the inadvertent loss of reactor coolant would become a more significant safety concern, as it could compromise core cooling capability. The finding affected the initiating events cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process," the finding is determined to have very low safety significance because the finding did not result in a major loss of reactor coolant system inventory. The finding had crosscutting aspects in the area of human performance because the failure of operations personnel to ensure that plant equipment was properly operated in accordance with approved procedures contributed to the cause of the finding (Section 1R04).

Cornerstone: Mitigating Systems

- Green. A self-revealing, noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified for the failure to select an appropriate replacement gasket for the Units 2 and 3 safety injection tank manways. The inadequate gaskets buckled during installation and began to unravel. The Unit 2 safety injection Tank 2T008 discharge check Valve 2MU040 failed to fully close when an unraveled gasket wrapped itself around the valve internals. This issue has been entered into the licensee's corrective action program as Action Request 060301594.

The finding was determined to be more than minor because, if left uncorrected, it would become a more significant safety concern in that the inadequate gaskets would likely continue to unravel, possibly introducing foreign material into the safety injection tanks. The finding affected the mitigating systems cornerstone. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding is determined to have very low safety significance because the finding did not result in the actual loss of the safety function of either Units' emergency core cooling system (Section 1R12).

B. Licensee-Identified Violations

Violations of very low safety significance which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and their corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period in Mode 4 in its Cycle 14 refueling outage. Unit 2 remained in Mode 4 in order to repair safety injection Tank (SIT) 2T008 outlet check Valve 2MU040 which failed in-service testing. The SIT 2T008 manway gasket had unwound and dislodged in Valve 2MU040 preventing it from fully closing. The manway gaskets were replaced with an improved design on all four Unit 2 SITs and Unit 2 entered Mode 3 on April 1, 2006. Unit 2 returned to Mode 5 on April 5, 2006, in order to repair auxiliary feedwater check Valve 2MU124 after it failed in-service testing. Unit 2 entered Mode 1 on April 16, 2006, and reached approximately 98 percent reactor power on May 11, 2006. Unit 2 reduced power to approximately 81 percent on June 9, 2006, in order to replace a leaking manway gasket associated with the circulating water Pump 2P116 waterbox. Unit 2 returned to approximately 98 percent power on June 10, 2006, and reached approximately 99 percent power on June 17, 2006. Unit 2 remained at approximately 99 percent reactor power through the end of the inspection period because it was limited by the number of steam generator tubes that were plugged during the Cycle 14 refueling outage.

Unit 3 began the inspection period at approximately 100 percent reactor power. Unit 3 entered Technical Specification (TS) 3.0.3 and Mode 3 on March 29, 2006, for both trains of the emergency core cooling system (ECCS) being declared inoperable. The extent of condition review for the Unit 2 SIT manway gasket issue led the licensee to conclude that the Unit 3 SIT manway gaskets were potentially degraded. Unit 3 entered Mode 5 on March 30, 2006. The licensee elected to begin their planned maintenance outage of Unit 3 approximately one month early. During the outage, the licensee discovered that the mechanical nozzle seal assembly (MNSA) on Instrument 3TE101 had indications of minor leakage. The licensee performed Alloy 690 half nozzle repairs on all three Unit 3 pressurizer instruments that had been secured with MNSAs. Unit 3 entered Mode 1 on May 9, 2006, and reached approximately 100 percent reactor power on May 15, 2006. Unit 3 remained at approximately 100 percent reactor power through the end of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment (71111.04)

Partial System Walkdowns

a. Inspection Scope

The inspectors: (1) walked down portions of the four listed risk important systems and reviewed plant procedures and documents to verify that critical portions of the selected systems were correctly aligned; and (2) compared deficiencies identified during the walk down to the licensee's Updated Final Safety Analysis Report (UFSAR) and corrective action program (CAP) to ensure problems were being identified and corrected.

- C March 19, 2006, Unit 2 reactor coolant pump vent system before hand rotation prior to reactor startup
- C March 30, 2006, Unit 2 swing high pressure safety injection Pump 2P018 alignment following an extended outage of the high pressure safety injection system
- C May 8, 2006, Unit 3 Train B saltwater cooling system following alignment of the credited pump in Train B from Pump 3P114 (located in the Unit 2 intake) to Pump 3P113 (located in the Unit 3 intake)
- C May 18, 2006, Unit 3 120 VAC distribution Panel 3Q069 alignment to electrical Bus 3B012

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed four samples.

b. Findings

Introduction. A Green self-revealing noncited violation of TS 5.5.1.1 was identified for the failure of operations personnel to operate reactor coolant pump system vent valves with the use of approved procedures. This failure resulted in the inadvertent drainage of approximately 200 gallons of reactor coolant system water.

Description. On March 19, 2006, with Unit 2 in Mode 5, operations personnel prepared to hand rotate the Unit 2 reactor coolant pumps. During the pre-job brief performed by the Unit 2 control operator, a qualified non-licensed operator was directed to enter containment and verify reactor coolant pump vapor seal leakoff flow for the four reactor coolant pumps. However, during the pre-job brief, the non-licensed operator was provided incorrect guidance on the location of the vapor seal leakoffs. Instead of the reactor coolant pump vapor seal leakoff vents, the non-licensed operator was told to go to the area where the reactor coolant pump lower seal cavity vent valves were located.

Upon arriving at the directed area in containment, the non-licensed operator noted no flow through the reactor coolant pump lower seal cavity vent valves. The non-licensed operator then proceeded to open the lower seal cavity vent valves for each of the four reactor coolant pumps. The non-licensed operator then reported to the control room that reactor coolant pump seal flow had been "established." Several minutes later, operations personnel in the control room noted that Unit 2 pressurizer level was slowly decreasing. After a brief investigation, operations personnel determined that the non-licensed operator had opened the wrong reactor coolant pump vent valves. The non-licensed operator was directed to shut the reactor coolant pump lower cavity seal vent valves and the work activity was terminated. Approximately 200 gallons of reactor coolant system water was inadvertently drained to the containment sump. Unit 2 pressurizer level decreased from approximately 44.9 percent to 42.8 percent.

The inspectors noted that the non-licensed operator had manipulated plant equipment without the use of an approved procedure. Operations management indicated that no procedure should have been necessary in this circumstance, because the non-licensed operator was directed to merely verify an existing condition and was not given permission to manipulate any plant equipment. During the apparent cause evaluation performed by the licensee after the event, the non-licensed operator indicated that he was aware that he should not have manipulated plant equipment without the use of an approved procedure, but at the time thought he was on the correct equipment and felt his "skill of the craft" knowledge was adequate to perform the task. Operations management reiterated to operations personnel the need to use an approved procedure, and to notify the control room when manipulating plant equipment. The inspectors also noted that the apparent cause evaluation, although adequate, could have further pursued other causes that may have contributed to the event (see Section 4OA2.2).

Analysis. The failure of operations personnel to manipulate reactor coolant pump vent valves with an approved written procedure was determined to be a performance deficiency. The finding was determined to be more than minor because, if left uncorrected, the inadvertent loss of reactor coolant would become a more significant safety concern, as it could compromise core cooling capability. The finding affected the initiating events cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process," the finding is determined to have very low safety significance because the finding did not result in a major loss of reactor coolant system inventory. The finding had crosscutting aspects in the area of human performance because the failure of operations personnel to ensure that plant equipment was properly operated in accordance with approved procedures contributed to the cause of the finding.

Enforcement. Technical Specification 5.5.1.1 requires, in part, that written procedures be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, "Quality Assurance Program Requirements," Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Section 3, requires that instructions for draining the reactor coolant system be appropriately prepared. Contrary to this, on March 19, 2006, while Unit 2 was in Mode 5, operations personnel inadvertently drained approximately 200 gallons of reactor coolant system water due to the inappropriate operation of reactor coolant pump vent valves without a written approved procedure. Because the finding is of very low safety significance and has been entered into the licensee's corrective action program as Action Request (AR) 060301125, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy: NCV 05000361/2006003-01, "Inadvertent Reactor Coolant System Drainage while in Mode 5."

1R05 Fire Protection (71111.05)

a. Inspection Scope

Quarterly Inspection

The inspectors walked down the six listed plant areas to assess the material condition of active and passive fire protection features and their operational lineup and readiness. The inspectors: (1) verified that transient combustibles and hot work activities were controlled in accordance with plant procedures; (2) observed the condition of fire detection devices to verify they remained functional; (3) observed fire suppression systems to verify they remained functional and that access to manual actuators was unobstructed; (4) verified that fire extinguishers and hose stations were provided at their designated locations and that they were in a satisfactory condition; (5) verified that passive fire protection features (electrical raceway barriers, fire doors, fire dampers, steel fire proofing, penetration seals, and oil collection systems) were in a satisfactory material condition; (6) verified that adequate compensatory measures were established for degraded or inoperable fire protection features and that the compensatory measures were commensurate with the significance of the deficiency; and (7) reviewed the UFSAR to determine if the licensee identified and corrected fire protection problems.

C March 28, 2006, Unit 3, turbine building

C May 11, 2006, Unit 3, Train A emergency diesel generator room

C May 11, 2006, Unit 3, Train B emergency diesel generator room

C May 16, 2006, Unit 3, Train B 125 VDC battery room

C May 17, 2006, Unit 3, auxiliary feedwater pump room

C May 18, 2006, Unit 2, auxiliary feedwater pump room

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

The inspectors observed testing and training of senior reactor operators and reactor operators on June 15, 2006, to identify deficiencies and discrepancies in the training, to assess operator performance, and to assess the evaluator's critique. The training

scenarios involved a steam generator tube rupture and a loss of coolant accident. Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

Maintenance Effectiveness Baseline Review

a. Inspection Scope

The inspectors reviewed the two listed maintenance activities to: (1) verify the appropriate handling of structure, system, and component (SSC) performance or condition problems; (2) verify the appropriate handling of degraded SSC functional performance; (3) evaluate the role of work practices and common cause problems; and (4) evaluate the handling of SSC issues reviewed under the requirements of the maintenance rule, 10 CFR Part 50 Appendix B, and the TSs.

- March 28 - April 7, 2006, Units 2 and 3, SIT manway gasket buckling and replacement
- March 29 - April 28, 2006, Unit 3 MNSA analysis and replacement

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

Introduction. A Green self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified for the failure to select an appropriate replacement gasket for the Units 2 and 3 SIT manways. The inadequate gaskets buckled during installation and began to unravel.

Description. On March 25, 2006, the licensee was performing reactor coolant system pressure isolation valve testing on the Unit 2 SIT 2T008 discharge check Valve 2MU040. Unit 2 was in Mode 4 and at normal operating pressure of approximately 2250 psia. During the test, the licensee observed that the water level in SIT 2T008 was rising at approximately 7.5 gpm. This leak rate exceeded the 5 gpm leak rate operability limit for Valve 2MU040. The licensee depressurized SIT 2T008 and inspected Valve 2MU040. The licensee discovered that the manway gasket had unraveled and had lodged in Valve 2MU040. The unraveled gasket prevented Valve 2MU040 from fully closing. The licensee inspected the other three Unit 2 SIT manway gaskets and found that the gaskets had buckled and had begun to unravel. However, the other three SIT discharge check valves were not affected.

The same style SIT manway gaskets that were used on the Unit 2 SITs had been installed on the Unit 3 SITs. The licensee did not have reasonable assurance that the integrity of the Unit 3 gaskets was intact and declared both trains of the Unit 3 ECCS inoperable. This inoperability declaration placed Unit 3 in a TS 3.0.3 shutdown action statement on March 29, 2006. The licensee inspected all four of the Unit 3 SIT manway gaskets and discovered that they had buckled. However, the buckled gaskets had not unraveled and interfered with their respective discharge check valves.

The inspectors reviewed substitution equivalency Evaluation (SEE) 89-0200, Revision 1, dated October 31, 1989, and AR 030300798. SEE 89-0200 documented the results of a generic evaluation to replace spiral wound gaskets containing an asbestos filler with suitable equivalent gaskets containing different fillers. One of the replacements was determined to be a gasket manufactured by Flexitallic that contained graphite as a filler material. AR 030300798 was initiated in March 2003 and documented the need to replace all of the Units 2 and 3 SIT manway gaskets with a suitable replacement. The licensee used SEE 89-0200 to determine that the replacement gasket should be Flexitallic Style CG with a Graphoil filler. The licensee did not analyze the adequacy of using Flexitallic Style CG gaskets in the specific application as a SIT manway gasket. The Flexitallic gaskets were installed on Unit 2 in February 2004 and on Unit 3 in October 2004.

The licensee's preliminary assessment of the cause of the buckling was attributed to the unique design of the SIT manway flange and the lack of an adequate surface roughness on the SIT manway flanges. Combining these attributes with the Graphoil filler material resulted in reduced friction between the SIT flange and the gasket. The licensee replaced all of the SIT manway gaskets in Units 2 and 3 with solid metal core gaskets that are designed to mitigate unraveling.

The licensee analyzed the effect on the UFSAR Chapter 15 accident analysis of the SIT discharge check valves failing to fully close and determined that the Unit 3 ECCS had remained operable. As a result, the licensee retracted the March 29, 2006, event notification on May 30, 2006.

Analysis. The failure of engineering personnel to adequately analyze the adequacy of using Flexitallic Style CG gaskets in the specific application as a SIT manway gasket was determined to be a performance deficiency. The finding was determined to be more than minor because, if left uncorrected, it would become a more significant safety concern in that the Flexitallic gaskets would likely continue to unravel, possibly introducing foreign material into the SITs. The finding affected the mitigating systems cornerstone. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding is determined to have very low safety significance because the finding did not result in the actual loss of the safety function of either Units' ECCS.

Enforcement. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," require, in part, that measures be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of SSC's. Contrary to this requirement, on March 17, 2003, engineering personnel failed to adequately review the suitability of a part that is essential to the

safety-related function of a system. Specifically, Flexitallic Style CG spiral wound gaskets were installed as SIT manway gaskets in 2004, without having their suitability adequately analyzed in that application. Because the finding is of very low safety significance and has been entered into the licensee's CAP as AR 060301594, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy: NCV 05000361; 05000362/2006003-02, "Inadequate Safety Injection Tank Manway Gaskets."

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

.1 Risk Assessment and Management of Risk

a. Inspection Scope

The inspectors reviewed the listed assessment activities to verify: (1) performance of risk assessments when required by 10 CFR 50.65 (a)(4) and licensee procedures prior to changes in plant configuration for maintenance activities and plant operations; (2) the accuracy, adequacy, and completeness of the information considered in the risk assessment; (3) that the licensee recognizes, and/or enters as applicable, the appropriate licensee-established risk category according to the risk assessment results and licensee procedures; and (4) the licensee identified and corrected problems related to maintenance risk assessments.

- June 5-6, 2006, Unit 2 Train A emergency diesel Generator 2G002 planned maintenance during periods of peak demand in the off-site electrical grid

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Emergent Work Control

a. Inspection Scope

The inspectors: (1) verified that the licensee performed actions to minimize the probability of initiating events and maintained the functional capability of mitigating systems and barrier integrity systems; (2) verified that emergent work-related activities such as troubleshooting, work planning/scheduling, establishing plant conditions, aligning equipment, tagging, temporary modifications, and equipment restoration did not place the plant in an unacceptable configuration; and (3) reviewed the UFSAR to determine if the licensee identified and corrected risk assessment and emergent work control problems.

- April 5, 2006, Unit 3 degraded pressurizer heaters (AR 060400236)

- April 10, 2006, Unit 2 auxiliary feedwater check valve leak to the main feedwater header (AR 06040097)
- April 24, 2006, Unit 2 steam bypass control system pipe cracks (AR 060401260)
- May 5, 2006, Unit 3 shutdown cooling vent crack (AR 060500131)

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Non-Routine Evolutions and Events (71111.14)

a. Inspection Scope

The inspectors: (1) reviewed operator logs, plant computer data, and/or strip charts for the below listed evolutions to evaluate operator performance in coping with non-routine events and transients; (2) verified that operator actions were in accordance with the response required by plant procedures and training; and (3) verified that the licensee has identified and implemented appropriate corrective actions associated with personnel performance problems that occurred during the non-routine evolutions sampled.

- June 12, 2006, Unit 2 downpower to approximately 81 percent because of leaking manway gasket associated with circulating water Pump 2P116 waterbox

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors: (1) reviewed plants status documents such as operator shift logs, emergent work documentation, deferred modifications, and standing orders to determine if an operability evaluation was warranted for degraded components; (2) referred to the UFSAR and design basis documents to review the technical adequacy of licensee operability evaluations; (3) evaluated compensatory measures associated with operability evaluations; (4) determined degraded component impact on any TSSs; (5) used the

Significance Determination Process to evaluate the risk significance of degraded or inoperable equipment; and (6) verified that the licensee has identified and implemented appropriate corrective actions associated with degraded components.

- March 31, 2006, AR 060300931 - Unit 2 crack in concrete roof slab above saltwater cooling Pump 2P113
- April 4, 2006, AR 060400194 - Unit 2 Train A motor driven auxiliary feedwater Pump 2P141 clogged bearing drain lines
- April 14, 2006, AR 060400474 - Units 2 and 3 steam generator safety valves
- April 18, 2006, AR 050200357 - Unit 2 Train B motor driven auxiliary feedwater Pump 2P504 oil leakage from inboard bearing
- May 3, 2006, AR 060401140 - Units 2 and 3 degraded grid voltage relay settings
- May 12, 2006, AR 060501048 - Unit 2 core exit thermocouples

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the seven listed postmaintenance test activities of risk significant systems or components. For each item, the inspectors: (1) reviewed the applicable licensing basis and/or design-basis documents to determine the safety functions; (2) evaluated the safety functions that may have been affected by the maintenance activity; and (3) reviewed the test procedure to ensure it adequately tested the safety function that may have been affected. The inspectors either witnessed or reviewed test data to verify that acceptance criteria were met, plant impacts were evaluated, test equipment was calibrated, procedures were followed, jumpers were properly controlled, the test data results were complete and accurate, the test equipment was removed, the system was properly re-aligned, and deficiencies during testing were documented. The inspectors also reviewed the UFSAR to determine if the licensee identified and corrected problems related to postmaintenance testing.

- February 20, 2006, Unit 2, component cooling water critical Loop B return isolation Valve 2HV6522 postmaintenance test following corrective maintenance

- February 22, 2006, Unit 2, component cooling water critical Loop B supply isolation Valve 2HV6213 postmaintenance test following corrective maintenance
- March 31, 2006, Unit 2, SIT 2T-008 outlet check Valve 2MU040 postmaintenance test following corrective maintenance
- April 7, 2006, Unit 3, Trains A and B containment emergency sump level Transmitters 3LT9386-1 and 3LT9389-2 postmaintenance test following planned maintenance
- April 12, 2006, Unit 2, Train A auxiliary feedwater check Valve 2MU124 to main feedwater header postmaintenance test following corrective maintenance
- April 20, 2006, Unit 2, Train A steam generator feedwater bypass Valve 2HV1105 postmaintenance test following corrective maintenance
- May 7, 2006, Unit 3, SIT 3T-009 fill and drain Valve 3HV9362 postmaintenance test following corrective maintenance

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed seven samples.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the following risk significant outage items or activities during the Unit 2 Cycle 14 refueling outage and the Unit 3 Cycle 13 planned mid-cycle outage to verify defense in depth commensurate with the outage risk control plan, compliance with the TSS, and adherence to commitments in response to Generic Letter 88-17, "Loss of Decay Heat Removal:" (1) the risk control plan; (2) tagging/clearance activities; (3) reactor coolant system instrumentation; (4) electrical power; (5) decay heat removal; (6) spent fuel pool cooling; (7) inventory control; (8) reactivity control; (9) containment closure; (10) reduced inventory or midloop conditions; (11) refueling activities; (12) heatup and cooldown activities; (13) restart activities; and (14) licensee identification and implementation of appropriate corrective actions associated with refueling and outage activities. The inspectors' containment inspections included observations of the containment sump for damage and debris; and supports, braces, and snubbers for evidence of excessive stress, water hammer, or aging. Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the UFSAR, procedure requirements, and TSs to ensure that the five listed surveillance activities demonstrated that the SSC's tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the following significant surveillance test attributes were adequate: (1) preconditioning; (2) evaluation of testing impact on the plant; (3) acceptance criteria; (4) test equipment; (5) procedures; (6) jumper/lifted lead controls; (7) test data; (8) testing frequency and method demonstrated TS operability; (9) test equipment removal; (10) restoration of plant systems; (11) fulfillment of ASME Code requirements; (12) updating of performance indicator data; (13) engineering evaluations, root causes, and bases for returning tested SSC's not meeting the test acceptance criteria were correct; (14) reference setting data; and (15) annunciators and alarms setpoints. The inspectors also verified that the licensee identified and implemented any needed corrective actions associated with the surveillance testing.

- February 17, 2006, Unit 3, hydrazine to auxiliary feedwater Pump 3P140 check Valve 3MU497 inservice test
- April 25 and 30, 2006, Unit 3, containment Penetration 19 and containment purge isolation Valve 3HV9950 local leak rate test
- April 29, 2006, Unit 2, auxiliary feedwater pump Turbine 2K007 steam supply Valve 2HV8201 from steam Generator 2E088 inservice test
- May 15, 2006, Unit 3, refueling water storage Tank 3T005 outlet isolation Valve 3HV9300 quarterly inservice test
- May 19, 2006, Unit 3, reactor coolant system leak rate calculation

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert Notification System Testing (71114.02)

a. Inspection Scope

The inspector discussed with licensee staff the status of offsite siren and tone alert radio systems to determine the adequacy of licensee methods for testing the alert and notification system in accordance with 10 CFR Part 50 Appendix E. The licensee's alert and notification system testing program was compared with criteria in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, Federal Emergency Management Agency (FEMA) Report REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants," and the licensee's current FEMA-approved alert and notification system design report, "San Onofre Nuclear Generating Station Site Specific Offsite Radiological Emergency Preparedness Community Alert Siren System Quality Assurance Verification Report," December 1998. The inspector also reviewed Procedures SO123-VIII-0.302, "Onsite Emergency Siren System Test," Revision 4, and SO123-XVIII-10, "Siren Community Alert Siren System, System Description and Operational Guide," Revision 6. The inspectors completed one sample during this inspection. Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization Augmentation Testing (71114.03)

a. Inspection Scope

The inspector discussed with licensee staff the status of primary and backup systems for augmenting the on-shift emergency response to determine the adequacy of licensee methods for staffing emergency response facilities to determine the licensee's ability to staff emergency response facilities in accordance with the licensee emergency plan and the requirements of 10 CFR Part 50 Appendix E. The inspector reviewed procedure SO123-VIII-0.201, "Emergency Plan Equipment Surveillance Program," Attachment 7, "Emergency Recall System Surveillance," Revision 15, and the results of 13 emergency response organization pager and drive-in drills conducted between February 2005 and January 2006. The inspectors completed one sample during this inspection. Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspector reviewed the following documents related to the licensee's corrective action program to determine the licensee's ability to identify and correct problems in accordance with 10 CFR 50.47(b)(14) and 10 CFR Part 50, Appendix E. The licensee's corrective action program was compared to the requirements of Procedures SO123-XV-50, "Corrective Action Process," Revision 5, and SO123-XX-1, "Action Request/Maintenance Order Initiation and Processing," Revision 16.

- Audits SCES-013-04, Emergency Preparedness Program, November 23, 2004, and SCES0917095, Emergency Preparedness Program, November 18, 2005
- 6-Year Drill and Exercise Objective Status Matrix for 2004, 2005, and 2006
- Evaluation reports for eight drills and exercises conducted between August 2004 and October 2005 as listed in the Attachment
- Summaries of 617 corrective actions assigned to the emergency preparedness department between March 2004 and January 2006
- Details of 21 Action Requests as listed in the attachment

The inspectors completed one sample during this inspection. Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

For the listed drill and simulator-based training evolution contributing to Drill/Exercise Performance and Emergency Response Organization Performance Indicators, the inspectors: (1) observed the training evolution to identify any weaknesses and deficiencies in classification, notification, and Protective Action Requirements development activities; (2) compared the identified weaknesses and deficiencies against licensee identified findings to determine whether the licensee was properly identifying failures; and (3) determined whether licensee performance was in accordance with the guidance of the NEI 99-02, "Voluntary Submission of Performance Indicator Data," acceptance criteria.

- April 26, 2006, Unit 2 simulator, Emergency Operations Facility, and alternate Technical Support Center, steam generator tube rupture and stuck open main steam safety valve

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspector sampled licensee submittals for the performance indicators listed below for the period January through December 2005. The definitions and guidance of NEI 99-02, "Regulatory Assessment Indicator Guideline," Revisions 2 and 3, were used to verify the licensee's basis for reporting each data element in order to verify the accuracy of performance indicator data reported during the assessment period. The licensee's performance indicator data were also reviewed against the requirements of procedure SO123-VIII-0.401, "Emergency Preparedness Performance Indicators," Revision 1, and EP Desk Instruction, "Emergency Preparedness Performance Indicators," Revision 9.

Emergency Preparedness Cornerstone:

- Drill and Exercise Performance
- Emergency Response Organization Participation
- Alert and Notification System Reliability

The inspector reviewed a 100 percent sample of drill and exercise scenarios, licensed operator simulator training sessions, notification forms, and attendance and critique records associated with training sessions, drills, and exercises conducted during the verification period. The inspector reviewed a 100 percent sample of siren test and maintenance records and procedures. The inspector also interviewed licensee personnel accountable for collecting and evaluating the performance indicator data. The inspectors completed three samples during this inspection.

b. Findings and Observations

The inspector was unable to fully verify the licensee's reported siren reliability for the period March through December 2005, because the status of individual siren parameters used to determine the success or failure of siren tests were not recorded. The inspector determined the success criteria for siren tests per §6.3.8 of Procedure SO123-XVIII-10.1, "Facilities Management," Revision 5-1, was the computer flags for Siren Communications, Battery Voltage, Partial Amp, and Full Amp, all having a status of "Pass." The licensee made changes to its siren control system software in March 2005, which allowed status flag results for each siren parameter to be displayed on a telemetry

computer screen. Siren technicians reviewed this computer screen to determine whether individual sirens were operable or inoperable. The inspector reviewed summary sheets completed between March and December 2005 on which siren technicians indicated the success or failure of sirens during tests, and found them consistent with the licensee's reported results for the Alert and Notification System Reliability performance indicator. However, the inspector was unable to verify the accuracy of information on the summary sheets because siren technicians did not record the individual status of the flags they viewed on the computer screen, and the siren control software was incapable of printing a status flag report, even though the siren system manual stated that a report could be generated. Documents reviewed by the inspectors are listed in the attachment.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a daily screening of items entered into the licensee's corrective action program. This assessment was accomplished by reviewing maintenance orders, action requests, the management focus list, and attending corrective action review and work control meetings. The inspectors: (1) verified that equipment, human performance, and program issues were being identified by the licensee at an appropriate threshold and that the issues were entered into the corrective action program; (2) verified that corrective actions were commensurate with the significance of the issue; and (3) identified conditions that might warrant additional follow-up through other baseline inspection procedures.

b. Findings

No findings of significance were identified.

.2 Semiannual Trend Review

a. Inspection Scope

The inspectors completed a semi-annual trend review of repetitive or closely related issues that were documented in ARs 050500737 and 050801414 to identify trends that might indicate the existence of more safety significant issues, specifically in the areas of procedural compliance and human performance. The inspectors review consisted of the six month period from January 1, 2006, through June 24, 2006. When warranted, some of the samples expanded beyond those dates to fully assess the issue. The inspectors also reviewed corrective action program items associated with human performance improvement, and met with representatives from the San Onofre human performance improvement team at regular intervals. Corrective actions associated with a sample of the issues identified in the licensee's trend report were reviewed for adequacy.

b. Findings

No findings of significance were identified. However, the inspectors noted two instances where corrective action requests did not fully identify all of the contributing factors that led to problems in human performance. AR 060400194 was generated in May 2006 to document that bearing water leakoff through the Unit 2 auxiliary feedwater Pump 2P141 outboard packing had become plugged. The AR included a trend assignment to document the problem. The inspectors noted that the trend assignment did not address foreign material exclusion issues that probably occurred during the auxiliary feedwater Pump 2P141 packing replacement. It also did not document communication lapses regarding Pump 2P141's status between engineering and operations personnel, nor any communication deficiencies between non-licensed operators in the field and operations personnel in the control room. Although this problem did not represent an immediate condition adverse to safety, the inspectors concluded that additional information regarding human performance problems that occurred for this deficiency would have been helpful to the San Onofre human performance improvement team in determining what initiatives would be the most appropriate to implement.

AR 060301125 was generated in March 2006 to document inadvertent drainage of Unit 2 reactor coolant system water while in Mode 5 (see NCV 05000361/2006003-1 in Section 1R04 of this report). The licensee performed an apparent cause evaluation for this event, which did appropriately identify the most significant root cause, which was a non-licensed operator manipulating reactor coolant pump vent valves without a procedure. However, the inspectors noted that there were several other human performance contributors to the event. The non-licensed operator was on overtime and working on a weekend. During the pre-job brief, the operator was directed to proceed to the wrong location in containment. Also, communication deficiencies occurred between the non-licensed operator and operations personnel in the control room, as there was confusion in the difference of "verifying" flow and ensuring flow was "established." Again, the inspectors concluded that the additional deficiencies that contributed to this event, had they been captured in the apparent cause evaluation, would have been helpful in assisting the San Onofre human performance improvement team to develop an effective human performance improvement program.

.3 Emergency Preparedness

a. Inspection Scope

The inspector reviewed performance and facility problems documented in the licensee's corrective action program, audits, and drill reports between March 2004 and February 2006. The inspector selected 20 items to verify effective corrective action through direct observation.

b. Findings and Observations

No findings of significance were identified.

4OA3 Event Follow-up (71153)

- .1 (Closed) LER 05000362/2004-002-00 and 01, "Incomplete Postmaintenance Calibration of Logarithmic Power Level High Channel A Results in Technical Specification Violations"

The inspectors determined that a licensee-identified noncited violation occurred. This violation is documented in Section 4OA7.2 of this report.

The original revision of this LER attributed the cause to a misunderstanding on the part of maintenance technicians on the postmaintenance testing requirements for the logarithmic power level channel. After interviewing operations and maintenance personnel, and reviewing the postmaintenance testing requirements, the inspectors determined that the actual cause was interdepartmental communication deficiencies between operations and maintenance personnel during the logarithmic power level channel calibration and postmaintenance testing. The licensee issued Revision 1 to this LER on May 8, 2006, to ensure that the adequate causes and appropriate corrective actions were addressed. The inspectors reviewed the LER and concluded it captured the appropriate causes and corrective actions. This LER is closed.

- .2 (Closed) LER 05000361/2005-001-00, "Automatic Reactor Trip Due to Unit Auxiliary Transformer Differential Relay Trip"

On February 3, 2005, a Unit 2 Phase C differential current protection relay for the unit auxiliary Transformer 2XU1 tripped the main generator. An automatic turbine and reactor tripped followed as designed. At the time of the trip, maintenance technicians were testing the Unit 2 digital fault recorder. The licensee was not able to definitively determine the cause of the trip, but determined that the likely cause was an intermittent component failure associated with the digital fault recorder testing that introduced an invalid signal. The LER was reviewed by the inspectors and no findings of significance were identified and no violation of NRC requirements occurred. The licensee documented the issue in AR 050200281. This LER is closed.

- .3 (Closed) LER 05000362/2006-003-00, "Reactor Coolant System Pressure Boundary Leak Caused by Incomplete Compression of a Mechanical Nozzle Seal Assembly Grafoil Seal"

The inspectors determined that a licensee-identified noncited violation occurred. This issue is documented in Section 4OA7.3 of this report. This LER is closed.

4OA5 Other Activities

(Closed) Temporary Instruction (TI) 2515/165: Operational Readiness of Offsite Power and Impact on Plant Risk

- a. Inspection Scope

The inspectors collected data in the first quarter 2006 pursuant to TI 2515/165, "Operational Readiness of Offsite Power and Impact on Plant Risk." The objective of

TI 2515/165 was to gather information to support the assessment of nuclear power plant operational readiness of offsite power systems and impact on plant risk. During this inspection, the inspectors interviewed licensee personnel, reviewed licensee procedures, and gathered information for further evaluation by the Office of Nuclear Reactor Regulation. Documents reviewed for this TI are listed in the attachment.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On February 17, 2006, the emergency preparedness inspector presented preliminary inspection results to Dr. R. Waldo, Vice President Nuclear Generation, and other members of his staff who acknowledged the findings. The emergency preparedness inspector presented the final characterization of one issue to Mr. C. Williams, Manager, Compliance, and other members of the licensee's staff during a telephonic exit interview on April 10, 2006. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

On May 2, 2006, the licensee presented an assessment of their safety conscious work environment and nuclear safety culture to NRC Region IV management in Arlington, TX in a public meeting forum.

On May 16, 2006, the resident inspectors and regional management presented the results of the 2005 plant safety performance assessment to Mr. B. Katz, Vice President, Nuclear Oversight and Regulatory Affairs, and others at a public meeting in San Clemente, CA.

On June 22, 2006, the resident inspectors presented the inspection results to Dr. R. Waldo and others who acknowledged the findings. The inspectors confirmed that any proprietary information that was examined was not retained following the inspection.

4OA7 Licensee-Identified Violations

The following violations of very low significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a noncited violation.

- .1 The regulations in 10 CFR 50.54(q) require in part that licensees maintain and follow an emergency plan which meets the requirements of 10 CFR 50.47(b). 10 CFR 50.47(b)(2) requires adequate staffing to provide an initial facility response in key functional areas in the event of an emergency. The licensee's emergency plan and procedure MPG SO123-G-15, "Maintenance Division Back Shift and Weekend Turnover," Revision 4, required at least one self contained breathing apparatus (SCBA)-qualified Electrical Technician and Machinist on every shift. Contrary to the above, on September 11, 2005, no SCBA-qualified Electrical Technician or Machinist was present on two shifts, as identified in licensee Action Request 051100604. The

licensee identified a programmatic weakness in that since at least July 1996 SCBA qualifications of Electrical Technicians and Machinists were not reviewed when they were assigned to back shifts, allowing shift staffing which did not meet emergency plan requirements. This finding is of very low safety significance because the finding was a failure to comply with a regulatory requirements, was associated with a planning standard, was not associated with a risk significant planning standard, and was not a functional failure of the planning standard. A functional failure did not occur because although the licensee's onshift staffing process allowed more than two shifts during a 30-day period to go below emergency plan requirements, the craft personnel were present and could have carried out most of their required emergency plan functions.

- .2 Technical Specifications 3.3.1 and 3.3.2 require in part that with one logarithmic channel inoperable, the affected channel shall be placed in bypass within one hour and returned to operable status prior to entering Mode 2 following the next Mode 5 entry. Contrary to the above, on June 6, 2004, the licensee performed a plant startup of Unit 3 from Mode 5 with logarithmic power level Channel A inoperable and not in bypass. The licensee discovered the condition shortly after the plant startup and placed the affected channel in bypass. The licensee documented this issue in AR 040101660. The finding is of very low safety significance because the safety function of the high logarithmic power level reactor trip safety function had not been compromised.
- .3 Technical Specification 3.4.13 requires in part that there be no reactor coolant system pressure boundary leakage. Contrary to the above, on March 29, 2006, with Unit 3 in Mode 4, the licensee discovered boric acid crystals on a MNSA seal installed on the Unit 3 pressurizer resistance temperature Detector 3TE-0101 mechanical nozzle. The licensee inspected and removed the MNSA and confirmed reactor coolant system leakage past the MNSA seal. The licensee entered this issue into their corrective action program as AR 060301822. The licensee performed a half nozzle repair of the mechanical nozzle using Inconel 690 material. The finding is of very low safety significance because the reactor coolant system leakage was minimal, and the safety function of the MNSA to protect against nozzle ejection was not compromised.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Ashbrook, Manager, Emergency Planning
D. Breig, Station Manager
G. Broussuad, Assistant Manager, Security
J. Fee, Manager, Emergency Preparedness
B. Katz, Vice President, Nuclear Oversight and Regulatory Affairs
M. Love, Manager, Maintenance
C. McAndrews, Manager, Nuclear Oversight and Assessment
M. McBrearty, Technical Specialist, Nuclear Regulatory Affairs
N. Quigley, Manager, Mechanical/Nuclear Maintenance Engineering
D. Richards, Project Manager, Emergency Planning
A. Scherer, Manager, Nuclear Regulatory Affairs
J. Scott, Nuclear Regulatory Affairs
M. Short, Manager, Systems Engineering
T. Vogt, Manager, Operations
R. Waldo, Vice President, Nuclear Generation
D. Wilcockson, Manager, Plant Operations
C. Williams, Manager, Compliance
T. Yackle, Manager, Maintenance Engineering

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000361/2006003-01	NCV	Inadvertent Reactor Coolant System Drainage while in Mode 5 (Section 1R04)
05000361; 05000362/2006003-02	NCV	Inadequate Safety Injection Tank Manway Gaskets (Section 1R12)

Closed

05000362/2004-002-00 and 01	LER	Incomplete Postmaintenance Calibration of Logarithmic Power Level High Channel A Results in Technical Specification Violations (Section 4OA3)
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05000361/2005-001	LER	Automatic Reactor Trip Due to Unit Auxiliary Transformer Differential Relay Trip (Section 4OA3)
05000362/2006-003-00	LER	Reactor Coolant System Pressure Boundary Leak Caused by Incomplete Compression of a Mechanical Nozzle Seal Assembly Grafoil Seal (Section 4OA3)

Discussed

None

LIST OF DOCUMENTS REVIEWED

In addition to the documents called out in the inspection report, the following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings:

Section 1R04 : Equipment Alignment

Procedures

SO23-3-3.60.1	"High Pressure Safety Injection Pump Testing"	Revision 6
SO23-3-2.7	"Safety Injection System Operation"	Revision 21
SO23-3-2.7.2	"Safety Injection System Removal/Return to Service Operation"	Revision 21
SO23-2-8	"Saltwater Cooling System Operation"	Revision 25
SO23-3-3.60.4	"Saltwater Cooling Pump and Valve Testing"	Revision 7
SO23-6-17.1	"Non-1E UPS 120VAC Instrument and Control Power"	Revision 17

Drawings

40112A	"Safety Injection System No. 120"	Revision 28
40126ASO3	"Component Cooling Water System (Salt Water Pumps)"	Revision 19
40126BSO3	"Component Cooling Water System (Salt Water Pumps)"	Revision 25
32165	"Non-1E UPS System"	Revision 22

Action Requests

060500638 060500629 060301125

Maintenance Orders

06050974

Section 1R05: Fire Protection

Procedures

SO23-XV-57 "Fire Damper Inspection, Testing and Maintenance" Revision 9

Action Requests

060300822 060500619 060400583

Section 1R11: Licensed Operator Requalification

Procedures

SO23-12-1	"Standard Post Trip Actions"	Revision 20
SO23-12-3	"Loss of Coolant Accident"	Revision 19
SO23-12-4	"Steam Generator Tube Rupture"	Revision 20

Section 1R12: Maintenance Effectiveness

Drawings and Calculations

SO23-411-57-5 "Pressurizer RTD Mechanical Nozzle Seal Assembly" Revision 1

Action Requests

060301766 060301754 060301594 030300798 060301822 060400743

Maintenance Orders

03031331	03031332	03031334	03031335	03031336	03031337
03031338	03031517				

Miscellaneous

SEE 89-0200, Revision 1

Letter dated May 23, 2006, from Westinghouse titled, "Response to SCE Questions Regarding SONGS Units 2 and 3 SIT Outlet Check and RCS Loop Isolation Check Valves Failure to Close"

Section 1R13 : Maintenance Risk Assessments and Emergent Work Control

Procedures

SO23-I-4.16	"Pressurizer Heater Inspection and Replacement"	Revision 2
SO123-XX-10	"Maintenance Rule Risk Management Program Implementation"	Revision 3
SO23-2-13	"Diesel Generator Operation"	Revision 26
SO23-3-3.23	"Diesel Generator Monthly and Semi-annual Testing"	Revision 25

Drawings and Calculations

M-0011-068	"Minimum Quantity of Pressurizer Heaters for Plant Operation"	Revision 1
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Action Requests

060400236	060400255	060400256	060400257	060400258	060400259
060400261	060400262	060400263	060400264	060400265	050801538
971100322	060400097	060401260	060500131		

Section 1R14: Operator Performance During Non-Routine Evolutions and Events

Procedures

SO23-5-1.7	"Power Operations"	Revision 25
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Action Requests

060600508 060600510

Section 1R15 : Operability Evaluations

Procedures

SO123-XXIV-20.2	"Maintenance Rule for Structures"	Revision 3
SO123-XV-5.3	"Maintenance Rule Program"	Revision 9
SO2-II-11.1A-2	"Surveillance Requirement Unit 2 ESF Train A Channel (Online) Test of Loss of Voltage (LOVS), Degraded Voltage (SDVS, DGVSS), and Sequencing Relays and Circuits"	Revision 4
SO2-II-11.1B-2	"Surveillance Requirement Unit 2 ESF Train B Channel (Online) Test of Loss of Voltage (LOVS), Degraded Voltage (SDVS, DGVSS), and Sequencing Relays and Circuits"	Revision 4
SO3-II-11.1A-2	"Surveillance Requirement Unit 3 ESF Train A Channel (Online) Test of Loss of Voltage (LOVS), Degraded Voltage (SDVS, DGVSS), and Sequencing Relays and Circuits"	Revision 4
SO3-II-11.1B-2	"Surveillance Requirement Unit 3 ESF Train B Channel (Online) Test of Loss of Voltage (LOVS), Degraded Voltage (SDVS, DGVSS), and Sequencing Relays and Circuits"	Revision 5

Calculations

C-502-01.04	"Maintenance Rule - Intake Structure U2C12 Inspection Report"	Revision 0
S-02-C-001	"Maintenance Rule Concrete Crack Inspection and Evaluation"	Revision 0
E4C-130	"TLU Calc for Undervoltage Relay Circuits at Class 1E 4 KV Switchgear"	Revision 1
E4C-090	"Auxiliary System Voltage Regulation"	Revision 4

Action Requests

060300931	040500937	050200357	060400869	060400870	060400238
040400696	990900663	060400194	060400784	060401476	060401138
060401136	050800784	060401475	060400474	060400558	060501048

Maintenance Orders

06031354	06040029001	05020877	06040208	06040638
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Section 1R19: Postmaintenance Testing

Procedures

SO23-3-3-31.8	"Safety Injection Tank Valve Testing - Offline"	Revision 7
SO23-3-3.31.11	"RCS Pressure Isolation Valve Testing HPSI Pump Method - Offline"	Revision 5
SO23-I-6.300	"Air Operated Valve Diagnostic Testing"	Revision 7
SO123-I-6.16	"Valve Repacking and Initial Adjustment"	Revision 12
SO23-I-8.96	"Hammel-Dahl Pneumatic Control Globe Valve and Actuator Overhaul"	Revision 10
SO23-3-3.31.6	"Auxiliary Feedwater System Check Valve Test"	Revision 7

Action Requests

060400204	060400639	060500381	060400942
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Maintenance Orders

06040231	06040232	05051985	05120559	06050621	06041113
05021733	04111172				

Section 1R20: Refueling and Outage Activities

Procedures

SO23-5-1.4	"Plant Shutdown to Hot Standby"	Revision 12
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SO23-5-1.5	"Plant Shutdown from Hot Standby to Cold Shutdown"	Revision 25
SO23-5-1.8	"Shutdown Operations (Mode 5 and 6)"	Revision 23
SO23-V-8.15	"Boric Acid Leak Inspection"	Revision 1
SO23-5-1.3	"Plant Startup from Cold Shutdown to Hot Standby"	Revision 29
SO23-5-1.3.1	"Plant Startup from Hot Standby to Minimum Load"	Revision 24

Section 1R22: Surveillance Testing

Procedures

SO23-3-3.30.6	"Auxiliary Feedwater System Online Valve Test"	Revision 8
SO23-3-3.30.4	"Main Steam System Online Valve Test"	Revision 7
SO23-3-3.30	"Inservice Valve Testing Program"	Revision 17
SO23-3-3.51.1	"Containment Penetration Leak Rate Testing Containment Airlock, Purge and ILRT Penetrations"	Revision 10
SO23-V-8.18	"Reactor Coolant System (RCS) Leak Monitoring and Investigation Guide"	Revision 0
SO23-3-3.37	"Reactor Coolant System Water Inventory Balance"	Revision 21
SO23-3-3.30.1	"ECCS Online Valve Test"	Revision 7

Drawings and Calculations

Calculation M-0050-017	"BTP RSB 5-1 Condensate Inventory"	Revision 3
Calculation M-0050-018	"Evaluation of T-121 Volume Requirements"	Revision 0
Drawing 40141D	"Main Steam System"	Revision 44

Action Requests

060201045 060401395 060401674 060400489 060500766

Maintenance Orders

04121378 06040551

Section 1EP2: Alert Notification System Testing

Procedures

SO123-VIII-0.303	"Perimeter Public Address System Routine Test"	Revision 2
SO123-XVIII-10.4	"Siren Community Alert Siren System Response to a Report of an Inadvertent Siren Activation"	Revision 6
SO123-XVIII-10.6	"Siren Community Alert Siren System Inspection and Maintenance"	Revision 1

Miscellaneous

Document 0-157-01, "San Onofre Nuclear Generating Station Hardware System Design Description," Revision 0, SAFER Services Corporation, May 2004

San Onofre Nuclear Generating Station Site Specific Offsite Radiological Emergency Preparedness Prompt Alert and Notification System Evaluation Report, January 1984

Section 1EP3: Emergency Response Organization Augmentation Testing

Procedures

SO123-VIII-0.301	"Emergency Telecommunications Testing"	Revision 11
SO123-VIII-0.202	"Assignment of Emergency Response Personnel"	Revision 7

Evaluation Reports for Drills Conducted

December 14, 2004 (Backshift Recall Drill)
February 12, 2005
March 28, 2005
April 8, 2005
May 15, 2005
June 20, 2005
July 27, 2005
August 16, 2005
September 27, 2005
October 22, 2005
November 22, 2005
December 12, 2005
January 24, 2006

Section 1EP5: Correction of Emergency Preparedness Weaknesses and Deficiencies

Procedures

SO123-XV-50.39	"Cause Evaluation Standards, Methods, and Instructions"	Revision 5
SO123-VIII-0.200	"Emergency Plan Drills and Exercises"	Revision 9
SO123-PM-1	"Program Management"	Revision 1-2

Miscellaneous

Desk Instruction EPDI-01, "EP Program Non-Routine Activities Management," Revision 0

Evaluation Reports for Drills Conducted

August 25, 2004 (Environmental Sampling)
December 14, 2004 (Chemistry)
March 9, 2005 (Rehearsal Exercise)
April 13, 2005 (Evaluated Exercise)
May 4, 2005 (Environs)
June 1, 2005 (Contaminated Injured)
October 19, 2005 (Orange County Mobilization)
October 25, 2005 (Sampling and Analysis)

Other Documents

Matrix of Periodic Drill and Exercise Objectives, 2004
Matrix of Periodic Drill and Exercise Objectives, 2005
Matrix of Periodic Drill and Exercise Objectives, 2006

Action Requests

020100713-95	040700505	040800897	040801041	040801187
040901803	041000030	041100072	041100384	041101407
041220995	050301094	050301983	050400374	050400567
050401078	050401597	050600692	050601426	050700778
051001295-09				

Section 1EP6: Drill Evaluation

Procedures

SO123-VIII-0.200	"Emergency Plan Drills and Exercises"	Revision 9
SO123-VIII-1	"Recognition and Classification of Emergencies"	Revision 24
SO123-VIII-10	"Emergency Coordinator Duties"	Revision 22
SO123-VIII-10.1	"Station Emergency Director Duties"	Revision 17
SO123-VIII-10.2	"Corporate Emergency Director Duties"	Revision 13
SO123-VIII-10.3	"Protective Action Recommendations"	Revision 10
SO23-13-14	"Reactor Coolant Leak"	Revision 10
SO23-12-4	"Steam Generator Tube Rupture"	Revision 20

Section 4OA1: Performance Indicator Verification

Procedures

SO123-VIII-1	"Recognition and Classification of Emergencies"	Revisions 23 and 24
SO123-VIII-10.3	"Protective Action Recommendations"	Revision 10
SO123-VIII-30.7	"Emergency Notifications"	Revision 7
SSSPG- SO123-G-8	"Offsite Emergency Planning Alert and Notification System Performance Indicator"	Revision 2
SO123-XVIII-10.1	"Siren Community Alert Siren System Biweekly Test"	Revision 5-1
SO123-XVIII-10.3	"Siren Community Alert Siren System Quarterly Growl Test"	Revision 6
SO123-XVIII-10.5	"Siren Community Alert Siren System Annual Activation Test Procedure"	Revision 5

Other Documents

Site Emergency Preparedness, 2006 Drill and Exercise Schedule

Section 4OA3: Event Follow-up

Action Requests

050200281

Maintenance Orders

05021091 05020463

Section 4OA5: Other Activities

Procedures

SO123-XX-10	"Maintenance Rule Risk Management Program Implementation"	Revision 3
SO23-13-4	"Operation During Major System Disturbances"	Revision 7
SO123-XX-5	"Work Authorizations"	Revision 14
SO23-13-4	"Operation During Major System Disturbance"	Revision 7
OP-013	"GCC Operating Procedure: SONGS Voltage"	Revision dated July 6, 2005

Miscellaneous

San Onofre Nuclear Generating Station Emergency Plan, Revision 20

LIST OF ACRONYMS

AR	Action Request
CAP	Corrective Action Program
CFR	<i>Code of Federal Regulations</i>
ECCS	Emergency Core Cooling System
LER	Licensee Event Report
MNSA	Mechanical Nozzle Seal Assembly
NCV	Non-cited Violation
SEE	Substitution Equivalency Evaluation
SIT	Safety Injection Tank
SSC	Structure, System, and Component
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report