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

July 15, 2005

Harold B. Ray, Executive Vice President
San Onofre, Units 2 and 3
Southern California Edison Co.
P.O. Box 128, Mail Stop D-3-F
San Clemente, CA 92674-0128

SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION - NRC INTEGRATED INSPECTION REPORT 05000361/2005003; 050000362/2005003

Dear Mr. Ray:

On June 26, 2005, 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 15 and June 24, 2005, 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 NRC identified findings of very low safety significance (Green). One of these findings was determined to involve a violation of NRC requirements; however, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating this finding as a noncited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy. If you contest this noncited violation, 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 Nuclear 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
Project Branch D
Division of Reactor Projects

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

Enclosure:
NRC Inspection Report 05000361/2005003; 05000362/2005003
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	50-361, 50-362
Licenses:	NPF-10, NPF-15
Report No.:	05000361/2005003 and 5000362/2005003
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:	April 8 through June 26, 2005
Inspectors:	C. J. Araguas, General Engineer, NRR T. W. Jackson, Senior Resident Inspector, Project Branch B, DRP R. E. Lantz, Senior Emergency Preparedness Inspector C. C. Osterholtz, Senior Resident Inspector, Project Branch D, DRP M. A. Sitek, Resident Inspector, Project Branch D, DRP T. F. Stetka, Senior Operations Engineer
Approved By:	Troy W. Pruett, Chief, Project Branch D Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000361/2005003, 05000362/2005003; 04/08/05 - 06/26/05; San Onofre Nuclear Generating Station, Units 2 & 3; Integrated Resident and Regional Report; Maintenance Effectiveness and Temporary Plant Modifications

This report covered a 3-month period of inspection by three resident inspectors, two regional office inspectors, and one headquarters inspector. The inspection identified one noncited violation and one finding. 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. The inspectors identified a finding for the failure to develop an adequate plan to identify hydraulic leakage on Main Feedwater Block Valve 3HV4051. This issue involved human performance crosscutting aspects associated with operators failing to identify the leak on shiftly rounds. This issue was entered into the licensee's corrective action program as Action Requests 050401214 and 050401222.

  The finding is determined to be greater than minor because it was associated with the human performance attribute of the initiating events cornerstone and affects the cornerstone objective of limiting the likelihood of those events that upset plant stability. Furthermore, if left uncorrected, the finding would have become a more significant safety concern in that continued hydraulic fluid leakage from Valve 3HV4051 could result in a plant transient. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance because the hydraulic fluid leakage had not increased to the point where it would contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available (Section 1R23).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR 50.65 (a)(1) for the failure to include component deficiencies of a system important to safety in the maintenance rule program. Specifically, the licensee did not incorporate piping header failures of the Unit 2 and Unit 3 steam bypass control system into the maintenance rule program to ensure appropriate monitoring and goal setting activities were established. This issue was entered into the corrective action program as AR 050200923.

The finding was determined to be greater than minor because it affected the equipment performance attribute of the mitigating systems cornerstone and affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the steam bypass control system did not experience a loss of function (Section 1R12).

B. Licensee-Identified Violations

- None.

REPORT DETAILS

Summary of Plant Status

Unit 2 operated at approximately 99 percent reactor power until April 16, 2005, when the unit was shutdown to repair an internal hydraulic leak on main feedwater isolation Valve 2HV4052. The unit returned to approximately 99 percent power on April 19 and remained there for the duration of the inspection period.

Unit 3 operated at approximately 100 percent reactor power until May 4, 2005, when the unit was shutdown to repair cracks in the steam bypass system header piping and to repair an external hydraulic leak from main feedwater block Valve 3HV4051. The unit returned to approximately 100 percent reactor power on May 12 and remained there for the duration of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

The inspectors completed a review of the licensee's readiness for impending adverse weather involving the effects of a tsunami that may be generated from an off shore earthquake. The inspectors (1) reviewed plant procedures, the Updated Final Safety Analysis Report, and Technical Specifications to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portions of the below listed systems to ensure that adverse weather features were sufficient to support operability, including the ability to perform safe shutdown functions; (3) reviewed maintenance records to determine that applicable surveillance requirements were current if an anticipated tsunami developed; and (4) reviewed plant modifications, procedure revisions, and operator work arounds to determine if recent facility changes challenged plant operation.

- June 12, 2005, Unit 2 and 3 saltwater cooling system and emergency diesel generators

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

Partial System Walkdowns

a. Inspection Scope

The inspectors: (1) walked down portions of the two 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 corrective action program to ensure problems were being identified and corrected.

- On May 3, 2005, the inspectors walked down the Unit 3 Train A high pressure safety injection system while Train B of the same system was being used to fill safety injection Tank T-008

- On May 9, 2005 the inspectors walked down the Units 2 and 3 control room emergency air cleanup system while maintenance was being performed on the Units 2 and 3 toxic gas isolation system

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

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; (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 (7) reviewed the corrective action program to determine if the licensee identified and corrected fire protection problems.

- May 18, 2005, Unit 2 Train A engineered safety feature (ESF) switchgear room
- May 18, 2005, Unit 2 Train B ESF switchgear room
- June 14, 2005, Unit 2 auxiliary feedwater (AFW) room, all accessible elevations
- June 16, 2005, Unit 3 Train A ESF switchgear room
- June 16, 2005, Unit 3 Train B ESF switchgear room
- June 17, 2005, Unit 3 AFW room, all accessible elevations

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

On June 21, 2005, the inspectors observed testing and training of senior reactor operators and reactor operators to identify deficiencies and discrepancies in the training, to assess operator performance, and to assess the evaluator's critique. The training scenario involved a steam generator tube rupture and loss of offsite power.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the two below 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 50 Appendix B, and the Technical Specifications.

- April 8 - June 26, 2005, Units 2 and 3 inspections of 480 VAC ABB breakers following a failure of the Unit 3 Holdup Tank Pump 3P741 480 VAC ABB breaker

- April 8 - May 31, 2005, Units 2 and 3 steam bypass control system (SBCS) evaluation under the requirements of the maintenance rule

The inspectors completed two samples.

b. Findings

Introduction. The inspectors identified a Green noncited violation (NCV) of 10 CFR 50.65(a)(1) for the failure to include Units 2 and 3 SBCS deficiencies in the maintenance rule program. This caused a lapse in the determination of appropriate system monitoring and goal setting to maintain system reliability.

Description.

On February 14, 2005, the licensee identified that a small amount of air was leaking into the Unit 3 main condenser due to a decrease in condenser vacuum. The source of the air intrusion was determined to be a through-wall crack of approximately 14 inches in the north piping header of the SBCS between the SBCS control valves and the Unit 3 main condenser. The SBCS consists of two piping headers. Each header is designed to remove heat to the main condenser at the equivalent of approximately 30 percent reactor power. The affected portion of the SBCS was isolated, and the SBCS remained operable with the south header still available. On February 21 the licensee inspected the Unit 2 north SBCS header and discovered that cracks were developing at a similar location to that observed on Unit 3. The Unit 2 north header was also isolated. The south headers of the SBCS for both Units 2 and 3 had undergone an upgrade in 1986 and neither showed any signs of degradation.

The licensee's analysis of the degraded piping concluded that a combination of weld defects, residual stresses, and high frequency vibrations contributed to the degradation. The repairs to the SBCS headers included upgrades to minimize vibration and residual stresses.

The inspectors discovered that the licensee had not captured the SBCS deficiencies in their maintenance rule program for monitoring or goal setting. The inspectors determined that the through-wall cracking rendered the SBCS inherently unreliable in accordance with NUMARC 93-01, "Nuclear Energy Institute Industry Guideline for Monitoring the Effectiveness of Maintenance of Nuclear Power Plants," Revision 2. Specifically, Section 9.3.3 of NUMARC 93-01 indicated that, ". . . an inherently reliable structure, system, or component (SSC) is one that, without preventive maintenance, has high reliability. The need to place an SSC under (a)(1) and establish goals may arise if the inherently reliable SSC has experienced a failure. In such cases, the SSC cannot be considered inherently reliable." The inspectors concluded that the SBCS failures should have been tracked for monitoring and goal setting in the licensee's maintenance rule program.

Analysis

The performance deficiency associated with this finding was the failure to recognize the applicability of the maintenance rule for a failure of the SBCS. This finding was associated with the mitigating systems cornerstone. The finding was determined to be greater than minor because it affected the equipment performance attribute of the mitigating systems cornerstone and affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the SBCS did not actually experience a loss of function.

Enforcement

10 CFR 50.65(a)(1) requires, in part, that the licensee monitor the performance or condition of SSC's against licensee established goals, in a manner sufficient to provide reasonable assurance that such SSC's are capable of fulfilling their intended function. Contrary to the above, the licensee did not establish goals to provide a reasonable assurance that the Units 2 and 3 SBCS's were capable of fulfilling their intended function. Because the finding is of very low safety significance and has been entered into the licensee's corrective action program as AR 050200923, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy: NCV 05000361; 05000362/2005003-01, "Failure to Properly Implement Maintenance Rule Requirements for SBCS Header Cracks."

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

a. Inspection Scope

Emergent Work Control

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 corrective action program to determine if the licensee identified and corrected risk assessment and emergent work control problems.

- April 8, 2005, Unit 2 main feedwater isolation Valve 2HV4052 hydraulic fluid leak (AR 050301752)

- May 1, 2005, Unit 3 safety injection Tank T-008 leakage through low pressure safety injection Loop 1A Check Valve 3MU072 (AR 050500027)

- May 2, 2005, Unit 3 pressurizer level error Bistable 3110BX failure (AR 050500031)

- May 13, 2005, Unit 2 reactor coolant Pump 3P001 speed input failure to core protection calculator Channel B (AR 050500561)

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions (71111.14, 71153)

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 nonroutine events and transients; (2) verified that the operator response was 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 nonroutine evolutions sampled.

- On April 28, 2005, Unit 2 second point main feedwater Heater E038 steam extraction Valve 2HV8808 closed because of level oscillations in the first and second point feedwater heaters. Operator action was required to compensate for the approximately 0.5 percent reactor power increase that occurred when Valve 2HV8808 automatically closed.

- On May 4-5, 2005, operators began reducing power on Unit 3 to Mode 3 in order to support repairs to the hydraulic system associated with main feedwater block Valve 3HV4051.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors: (1) reviewed plant 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 Updated Final Safety Analysis Report 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 Technical Specifications; (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.

- April 8, 2005, AR 050400354 - Unit 3 refueling water storage tank to charging pump suction Valve 3LV0227C relay failure

- April 21, 2005, AR 050301800 - effect on the Unit 2 component cooling water (CCW) system as a result of missing taper pins from CCW return isolation valve 2HV6500 from the Train B shutdown cooling heat exchanger

- May 12, 2005, AR 050500710 - Unit 2 cask handling crane modifications not completed before return to service

- May 13, 2005, AR 050500795 - Unit 2 missing seismic restraints from the Train A and B emergency diesel generator air start system piping

- June 1, 2005, AR 050301091 - Units 2 and 3 potentially degraded offsite grid voltage

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16)

a. Inspection Scope

The inspectors reviewed the one below listed operator workaround to: (1) determine if the functional capability of the system or human reliability in responding to an initiating event is affected; (2) evaluate the effect of the operator workaround on the operator's ability to implement abnormal or emergency operating procedures; and (3) verify that the licensee has identified and implemented appropriate corrective actions associated with operator workarounds.

- May 30, 2005, Unit 3 safety injection Tank T009 Fill/Drain Valve 3HV9362 leakby

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the five below 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 corrective action program to determine if the licensee identified and corrected problems related to postmaintenance testing.

- August 16, 2004, WAR 2-0401391 - Unit 2 Train B emergency diesel generator 2G003 governor upgrade
- April 13, 2005, WAR 2-0500287 - Unit 2 AFW Pump 2P141 planned maintenance
- April 16, 2005, WAR 2-0500339 - Unit 2 Train B CCW Pump 2P026 discharge check Valve 2MU102 replacement
- April 18, 2005, WAR 2-D3H4052 - Unit 2 main feedwater isolation Valve 2HV4052 hydraulic fluid leak repair
- April 20, 2005, MO 04111321000 - Unit 2 AFW Pump 2P504 packing adjustments

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

For the listed outage, the inspectors reviewed the following risk significant outage activities to verify defense in depth commensurate with the outage risk control plan and compliance with the Technical Specifications: (1) the risk control plan; (2) tagging/clearance activities; (3) reactor coolant system instrumentation; (4) electrical power; (5) decay heat removal; (6) reactivity control; (7) containment closure; (8) heatup and coldown activities; and (9) licensee identification and implementation of appropriate corrective actions associated with outage activities.

- May 4, 2005, Unit 3 planned outage to repair cracks in the steam bypass header piping and to repair an external hydraulic leak from main feedwater block Valve 3HV4051

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, procedure requirements, and Technical Specifications to ensure that the six below 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 Technical Specification 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.

- April 12, 2005, Unit 2 safety injection Tank 2T-009 surveillance per Procedure SO123-III-1.1.23, "Units 2 and 3 Chemical Control of Primary Plant and Related Systems," Revision 43

- May 5-6, 2005, Unit 3 pressurizer spray Valves 3PV100A and 3PV100B performance tests per Procedure SO23-I-6.300, “Air Operated Valve Diagnostic Testing,” Revision 7

- May 13, 2005, Unit 3 CCW Pump 3P026 inservice test per Procedure SO23-3-3.60.3, “Component Cooling Water and Seismic Makeup Pump Test,” Revision 5

- May 26, 2005, Unit 2 AFW Pump 2P140 inservice test per Procedure SO23-3-3.60.6, “Auxiliary Feedwater Pump and Valve Testing,” Revision 10

- June 1, 2005, Unit 3 AFW Pump 3P504 inservice test per Procedure SO23-3-3.60.6, “Auxiliary Feedwater Pump and Valve Testing,” Revision 10

- June 16, 2005, Units 2 and 3 sound powered phone system check per Procedure SO23-6-31, “Communication System Operation,” Revision 4

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, plant drawings, procedure requirements, and Technical Specifications to ensure that the one listed temporary modification was properly implemented. The inspectors: (1) verified that the modification did not have an effect on system operability and availability; (2) verified that the installation was consistent with the modification documents; (3) ensured that the post-installation test results were satisfactory and that the impact of the temporary modification on permanently installed SSC’s were supported by the test; (4) verified that the modifications were identified on control room drawings and that appropriate identification tags were placed on the affected drawings; and (5) verified that appropriate safety evaluations were completed. The inspectors verified that the licensee identified and implemented any needed corrective actions associated with the temporary modification.

- April 20, 2005, Unit 3 main feedwater block Valve 3HV4051 to Steam Generator E089 Fermanite repair

The inspectors completed one sample.

b. Findings

Introduction. The inspectors identified a Green finding for the failure to develop an adequate monitoring plan to identify a hydraulic fluid leak on main feedwater block Valve 3HV4051.

Description. On January 20, 2005, the licensee identified that Unit 3 main feedwater block Valve 3HV4051 had an approximate one drop per second hydraulic fluid leak. On January 27 the licensee successfully stopped the leak by installing a Furmanite rig around a leaking fitting on the hydraulic supply piping to the valve.

On April 20 the inspectors walked down portions of the Unit 3 main feedwater system in order to evaluate the condition of the Furmanite rig that had been installed on Valve 3HV4051. The inspectors observed that the Furmanite rig was leaking hydraulic fluid at the rate of approximately ten drops per minute. Furthermore, the inspectors observed that the leak collection system revealed enough hydraulic fluid to demonstrate that the leak had been active for more than one operations shift. Specifically, the catch basin was full of hydraulic fluid and the tygon tubing that was leading into the 55 gallon drum had an approximate eight inch section that was full of hydraulic fluid. The inspectors informed the Unit 3 control room supervisor of the degraded condition of Valve 3HV4051 and the licensee reinjected additional Furmanite the following day to stop the leak.

Valve 3HV4051 serves as a backup to main feedwater isolation Valve 3HV4052, but it is not currently credited in the Updated Final Safety Analysis Report as a containment isolation valve. The hydraulic system of Valve 3HV4051 serves to keep the valve open against high pressure nitrogen and its subsequent loss would result in the valve closing. The closing of the valve would likely result in the loss of main feedwater and a reactor trip.

The inspectors interviewed operations personnel that were on shift the three days prior to the Furmanite rig leaking on April 20, 2005. The interviews consisted of three field operators that performed rounds on Valve 3HV4051 and their shift manager. The inspectors determined that all three operators and the shift manager had a different understanding of the status of the valve and were either provided incomplete or no instructions on how to monitor the status of the Furmanite rig on the valve. The inspectors determined that a monitoring plan had not been established despite the licensee's assessment that the Furmanite rig was susceptible to leakage. The licensee indicated that operators were expected to monitor the condition of the valve as part of their normal shifty rounds, which included checking equipment for fluid leakage as described in Procedure OSM-5, "Operator Rounds." The licensee subsequently developed a monitoring plan to ensure that Valve 3HV4051 would be inspected twice per shift. The value of the monitoring plan was demonstrated when a three to four drop per minute leak through the Furmainte rig was identified by the licensee on May 2. The licensee elected not to reinject the valve, but instead permanently repaired it during a planned shutdown on May 4.

Analysis. The performance deficiency associated with this finding was the failure to develop an adequate monitoring plan to identify a hydraulic fluid leak from Valve 3HV4051. This finding was associated with the initiating events cornerstone. The finding was determined to be greater than minor because it was associated with the human performance attribute of the initiating events cornerstone and affects the cornerstone objective of limiting the likelihood of those events that upset plant stability. Furthermore, if left uncorrected, the finding would have become a more significant safety concern in that it continued hydraulic fluid leakage on Valve 3HV4051 could result in a plant transient. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance because the hydraulic fluid leak had not increased to the point where it contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions were not available. This issue involved personnel human performance crosscutting aspects associated with the failure to identify the hydraulic leak during operator rounds.

Enforcement. No violation of regulatory requirements occurred. The inspectors determined that the finding did not represent a noncompliance because Valve 3HV4051 is not subject to the requirements of 10 CFR Part 50, Appendix B. While Valve 3HV4051 serves as a backup to a containment isolation valve, it is not currently credited in the Updated Final Safety Analysis Report as a containment isolation valve. This finding had been entered into the licensee's corrective action program as AR 050401214 and AR 050401222. This finding is identified as FIN 05000362/2005003-02, "Failure to Identify Hydraulic Leak on Main Feedwater Block Valve 3HV4051."

Cornerstone: Emergency Preparedness

1EP1 Exercise Evaluation (71114.01)

a. Inspection Scope

The inspectors reviewed the objectives and scenario for the 2005 Biennial Emergency Preparedness Exercise to determine if the exercise would acceptably test major elements of the emergency plan. The scenario included a loss of electrical power to all of the main control room alarms, a seized reactor coolant pump, a main steam line break into the primary containment, and a helicopter crash into the main switchyard which resulted in a loss of offsite power. The scenario continued with a station blackout due to failures of the emergency diesel generators, and a steam generator tube rupture and fuel cladding failure, resulting in an ongoing radioactive steam release to the environment. The licensee activated all of their emergency facilities to demonstrate their capability to implement the emergency plan.

The inspectors evaluated exercise performance by focusing on the risk-significant activities of classification, notification, protective action recommendations, and assessment of offsite dose consequences in the simulator control room and the following emergency response facilities:

- Technical Support Center
- Operations Support Center
- Emergency Operations Facility

The inspectors also assessed personnel recognition of abnormal plant conditions, the transfer of emergency responsibilities between facilities, communications, protection of emergency workers, emergency repair capabilities, and the overall implementation of the emergency plan to verify compliance with the requirements of 10 CFR 50.47(b), 10 CFR 50.54(q), and Appendix E to 10 CFR Part 50.

The inspectors attended the post-exercise critiques in each of the above emergency response facilities to evaluate the initial licensee self-assessment of exercise performance. The inspectors also attended the formal presentation of critique items to plant management. The inspectors also reviewed emergency facility logs, emergency notification forms, dose assessment records, and emergency news center press releases to assess license performance during the exercise.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the San Onofre Emergency Plan, Revisions 18 and 19, submitted in November 2004 and April 2005 respectively. Revision 18 deleted two Unit 1 emergency response positions and assigned their functions to Units 2 and 3 emergency response personnel, updated emergency action levels associated with security events, and added the position of Emergency Operations Facility Security Director to the licensee's emergency response organization. Revision 19 removed two Unit 1 radiation monitors from listed emergency plan equipment, consistent with License Amendment 163 to Unit 1 Technical Specifications.

The inspectors reviewed the emergency plan implementing Procedure SO123 VIII-1, "Recognition and Classification of Emergencies," Revisions 22 and 23, submitted in November 2004 and April 2005 respectively. Revision 22 removed two security related emergency action levels and added six additional emergency action level initiating conditions associated with security events, consistent with the safeguards contingency plan and the security order from the Commission that implemented Nuclear Energy Institute 03-12, "Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, [and Independent Spent Fuel Storage Installation Security Program]." The revision also removed reference to the Unit 1 Fuel Storage Building and associated radiation monitors from the emergency action levels due to

removal of all fuel from the building. Revision 23 made changes to equipment references to be consistent with Revision 19 of the Emergency Plan.

The revisions were compared to the previous revisions, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the requirements of 10 CFR 50.47(b) to determine if the licensee adequately implemented the emergency plan change process described in 10 CFR 50.54(q).

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

For the below listed 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 is properly identifying failures; and (3) determined whether licensee performance is in accordance with the guidance of the NEI 99-02, "Reulatory Assessment Indicator Guidelines," acceptance criteria.

- June 21, 2005, Unit 2 simulator, seismic event followed by a loss of coolant accident

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 inspectors sampled submittals for the performance indicators listed below for the period July 1 through December 31, 2004. The definitions and guidance of Nuclear

Engineering Institute 99-02, “Regulatory Assessment Indicator Guideline,” 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.

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

The inspectors 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 inspectors reviewed the qualification, training, and drill participation records for a sample of 10 emergency responders. The inspectors reviewed alert and notification system maintenance records and procedures, and a 100 percent sample of siren test results. The inspectors also interviewed licensee personnel that were responsible for collecting and evaluating the performance indicator data.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Daily Reviews

In order to help identify repetitive equipment failures or specific human performance issues for followup, the inspectors performed a daily screening of items entered into the licensee’s corrective action program. This review was accomplished by reviewing daily action request (AR) summary reports and attending AR review meetings.

.2 Annual Sample Review

The inspectors selected AR 050200369 for more in depth review to verify that licensee personnel had taken corrective actions commensurate with the significance of the issue. The AR was written to address a service advisory from Engine Systems Incorporated to alert licensees that fuel injectors used in emergency diesel generators should be pop tested if the injector had been stored for more than one year. The AR was reviewed to ensure that the full extent of the issues were identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors evaluated the licensee’s actions against the requirements of the licensee’s corrective action program as delineated in Procedure SO123-XV-50, “Corrective Action

Process," Revision 4. The inspectors determined that AR 050200369 was closed without any corrective actions identified or documented in appropriate AR assignments. The licensee subsequently reopened AR 050200369 in order to update the appropriate emergency diesel generator procedures.

.3 Semiannual Review

a. Inspection Scope

The inspectors performed a semiannual review of licensee internal documents, reports, audits, and PIs to identify trends that might indicate the existence of more significant safety issues. The inspectors reviewed the following:

- ARs generated during the previous six months
- station performance reports
- weekly production performance reviews
- corrective maintenance backlog
- quality assurance audit executive summaries
- system health reports
- performance indicators

b. Findings and Observations

No findings of significance were identified. However, during the review the inspectors noted the following trends where performance deficiencies have recurred:

- On several occasions the inspectors have identified plant deficiencies that were not identified as operator workarounds per licensee program requirements (ARs 050400215, 050201018, 050600134). Through interviews and periodic program reviews, the inspectors determined that on shift operators have little ownership in the operator workaround program. The licensee's philosophy that the operator workaround program is only a management tool and not a tool for shift operators may be a contributing factor to this deficiency.

- The inspectors noted at the end of the inspection period that Unit 2 safety injection Tank 8 had developed a small leak of approximately 0.5 gallons per hour through safety injection system check valves. Although minor, check valve leakage in the safety injection system has been a chronic problem (ARs 050500027, 030400450; also see IR 05000361;362/2003003 Section 1R13). The licensee indicated that an effort to benchmark other utilities to better identify effective corrective actions would be performed.

- The inspectors noted that hydraulic leaks in main feedwater block valves and main feedwater isolation valves have occurred three times within the last six months (ARs 050500705, 050101113, and 041201554). The licensee was in the process of evaluating the deficiencies for possible equipment aging issues

and generic weaknesses at the end of the inspection period.

- The inspectors have previously identified multiple instances where ARs have been closed with no corrective action taken or they did not identify or correct deficiencies with interdepartmental communication and coordination that contributed to complications in the resolution of problems (see IR 05000361; 362/2003003 Section 4OA2.1). The licensee initiated a task force to implement more effective corrective actions to improve AR documentation and interdepartmental communications (ARs 050500741 and 050500737, respectively).

4OA3 Event Followup (71153)

(Closed) Licensee Event Report (LER) 05000361/2005002-00, “Missing Taper Pins on CCW Valve Cause Technical Specification Required Shutdown”

On February 14, 2005, the licensee manually shut down Unit 2 in response to a failure of the component cooling water outlet isolation Valve 2HV6500 to the Train B shutdown cooling heat exchanger. The licensee discovered that 2HV6500 had been rendered inoperable because the two taper pins that held the valve disc to its stem were both missing. The licensee was issued a noncited violation for this failure (see IR 05000361;362/2005002, Section 1R13.1). This Licensee Event Report is closed.

4OA4 Crosscutting Aspects of Findings

Cross-References to Human Performance Findings Documented Elsewhere

Section 1R23 describes a finding where operations personnel failed to identify a hydraulic fluid leak from main feedwater block Valve 3HV4051.

4OA5 Other Activities

Temporary Instruction (TI) 2515/163: Operational Readiness of Offsite Power

The inspectors collected data pursuant to TI 2515/163, "Operational Readiness of Offsite Power." The inspectors reviewed the licensee's procedures related to General Design Criteria 17, "Electric Power Systems;" 10 CFR 50.63, "Loss of All Alternating Current Power;" 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants;" and the Technical Specifications for the offsite power system. The data was provided to the Office of Nuclear Reactor Regulation for further review. Documents reviewed for this TI are listed in the attachment.

4OA6 Meetings, Including Exit

On April 15, 2005, the senior emergency preparedness inspector discussed the inspection findings with Mr. D. Nunn, Vice President, and other members of the licensee's staff. The inspector verified that no proprietary information was provided during the inspection.

On June 24, 2005, the resident inspectors presented the inspection results to Dr. R. Waldo and others who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

C. Anderson, Manager, Site Emergency Preparedness
B. Ashbrook, Manager, Emergency Planning
D. Breig, Station Manager
D. Cleavenger, Project Analyst, Offsite Emergency Planning
B. Culverhouse, Manager, Offsite Emergency Planning
B. Katz, Vice President, Nuclear Oversight and Regulatory Affairs
R. Garcia, Technical Specialist, Offsite Emergency Planning
S. Giannell, Technical Specialist, Emergency Planning
M. Love, Manager, Maintenance
J. Madigan, Manager, Health Physics
C. McAndrews, Manager, Nuclear Oversight and Assessment
M. McBrearty, Technical Specialist, Nuclear Regulatory Affairs
D. Nunn, Vice President, Engineering and Technical Services
N. Quigley, Manager, Mechanical/Nuclear Maintenance Engineering
D. Richards, Project Manager, Emergency Planning
A. Scherer, Manager, Nuclear Regulatory Affairs
J. Scott, Technical Specialist, Emergency Planning
M. Short, Manager, Systems Engineering
T. Vogt, Manager, Operations
R. Waldo, Vice President, Nuclear Generation
D. Wilcockson, Manager, Plant Operations
T. Yackle, Manager, Design Engineering

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000361; 05000362/2005003-01	NCV	Failure to Properly Implement Maintenance Rule Requirements for SBCS Header Cracks (Section 1R12)
05000362/2005003-02	FIN	Failure to Identify Hydraulic Leak on Main Feedwater Block Valve 3HV4051 (Section 1R23)

Closed

05000361/2005-002-00	LER	Missing Taper Pins on CCW Valve Cause Technical Specification Required Shutdown (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 1R01: Adverse Weather Protection

Procedures

Abnormal Operating Instruction SO23-13-3, “Earthquake,” Revision 8

Abnormal Operating Instruction SO23-13.8, “Severe Weather,” Revision 8, Attachment 4, “Post Severe Weather/Tsunami Inspections,” and Attachment 5, “Tsunami Warning”

ARs

050600633
050600890

Section 1R04: Equipment Alignment

Procedures

SO23-3-2.7.1, “SIT Fill/Loop Recirculation Using a HPSI Pump,” Revision 12

SO23-3-2.27, “Control Room Isolation and Emergency Ventilation System,” Revision 15

Section 1R12: Maintenance Implementation

ARs

050100972
050200923

Section 1R15: Operability Evaluations

Procedures

SO123-209-1-M505, “Single Failure Proof Trolley Project,” Revision 0

SONGS Priority 2 Reading 2-2526, “Switchyard Voltage”

California ISO Procedure OPE-508, “Electrical System Emergency,” Revision 4.1

Western Electricity Coordinating Council Reliability Criteria dated December 2004

ARs

050401269
030600403

Section 1R16: Operator Workarounds

SO123-XX-6, “Operator Work Around Program,” Revision 3

Section 1R19: Postmaintenance Testing

Procedures

SO23-II-11.156, “Diesel Generator G002/G003 Electric Governor Test and Calibration,” Revision 2.

SO23-II-11.152, “Diesel Generator Governor and Overspeed Trip Adjustment,” Revision 1

SO23-3-3.60.6, “Auxiliary Feedwater Pump and Valve Testing,” Revision 10

SO23-3-3.31.3, “Component Cooling Water Valve Testing - Offline,” Revision 10

SO23-3-3.31.6, “Main and Auxiliary Feedwater Valve Testing - Offline or Long Interval,” Revision 6

SO23-3-3.30, “Inservice Valve Testing Program,” Revision 16

AR

050301752

Section 1R20: Refueling and Outage Activities

Procedures

SO23-5-1.4, “Plant Shutdown to Hot Standby,” Revision 11

SO23-V-8.15, “Boric Acid Leak Inspection,” Revision 0

SO23-5-1.3.1, “Plant Startup from Hot Standby to Minimum Load,” Revision 23

Section 1EP1: Exercise Evaluation

Procedures

SO123-VIII-10, “Emergency Coordinator Duties,” Revision 21

SO123-VIII-10.1, “Station Emergency Director Duties,” Revision 16

SO123-VIII-10.2, “Corporate Emergency Director Duties,” Revision 12

SO123-VIII-10.3, “Protective Action Recommendations,” Revision 9

SO123-VIII-30, “Units 2/3 Operations Leader Duties,” Revision 10

SO123-VIII-30.1, “Emergency Planning Coordinator Duties,” Revision 20

SO123-VIII-30.3, “OSC Operations Coordinator Duties,” Revision 5

SO123-VIII-40.100, “Dose Assessment,” Revision 12

SO123-VIII-50, “TSC Technical Leader Duties,” Revision 12

SO123-VIII-50.2, “EOF Technical Leader Duties,” Revision 5

SO123-VIII-80, “Emergency Group Leader Duties,” Revision 12

SO123-XVIII-10.5, “Facilities Management,” Revision 4, TCN 4-2

Exercise and Drill Critiques: April 28, 2004; May 5, 2005; June 23, 2004; June 30, 2004; March 9, 2005

Exercise Press Releases

> Edison Declares "Alert" at San Onofre Nuclear Plant; "Site Area Emergency" Declared at San Onofre; Four Fatally Injured Aboard U.S. Coast Guard Helicopter That Crashed at San Onofre; Evaluations Underway at San Onofre Generating Station; Edison Declares "General Emergency" at San Onofre Nuclear Plant; Field Monitoring Teams Taking Radiation Readings; Radioactive Material Release from San Onofre Nuclear Generating Station Continues

Section 4OA1: Performance Indicator Verification

SO123-VIII-0.401, “Emergency Preparedness Performance Indicators,” Revision 0

SSSPG-SO123-G-8, “Offsite Emergency Planning Alert Notification System Performance Indicators,” Revision 1

SO123-XXI-1.11.3, “Emergency Plan Training Program Description,” Revision 13

SO123-XVIII-10.1, “Siren - Community Alert Siren System - Biweekly Silent Test,” Revision 5, TCN 5-1

SO123-XVIII-10.3, “Siren - Community Alert Siren System - Quarterly Growl Test,” Revision 6

SO 23-XV-24, “Quarterly NRC Performance Indicator Process,“ Revision 1

Section 4OA2: Identification and Resolution of Problems

Procedures

SO23-I-8.76, “Emergency Diesel Generator Overhaul,” Revision 4

SO23-I-8.61, “Emergency Diesel Generator Power Pack Replacement,” Revision 0

SO23-I-8.62, “Emergency Diesel Generator Fuel Injector Replacement,” Revision 0

SO23-I-8.74, “Emergency Diesel Generator and Components Overhaul,” Revision 7

Maintenance Orders

01110787000
01121258000

ARs

020300958

Section 4OA5: Other

Procedures

SO23-13-4, "Operation During Major System Disturbances," Revision 6

SO123-0-A7, "Notification and Reporting of Significant Events," Revision 2

SO123-XX-10, "Maintenance Rule Risk Management Program Implementation," Revision 1

SO123-XX-5, "Work Authorizations," Revision 13

SO23-12-8, "Station Blackout," Revision 18

GCC Operating Procedure OP-013: SONGS Voltage

SO23-12-11 ISS 2, "EOI Supporting Attachments," Revision 2

SO23-14-8, "Station Blackout Bases and Deviations Justification," Revision 6

ARs

050501735
050600016

LIST OF ACRONYMS

AFW	auxiliary feedwater
AR	action request
CFR	*Code of Federal Regulations*
CCW	component cooling water
ESF	engineered safety feature
NCV	noncited violation
SBCS	steam bypass control system
SSC	structure, system, and component