



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

October 20, 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 05000361/2005004; 050000362/2005004**

Dear Mr. Ray:

On September 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 September 23, 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 one NRC identified and two self-revealing findings of very low safety significance (Green). These findings were determined to involve violations of NRC requirements; however, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these finds as noncited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy. If you contest these NCVs, 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/ by G. E. Werner (acting)

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 05000361/2005004; 05000362/2005004
w/Attachment: Supplemental Information

cc w/enclosure:
Chairman, Board of Supervisors
County of San Diego
1600 Pacific Highway, Room 335
San Diego, CA 92101

Gary L. Nolff
Power Projects/Contracts Manager
Riverside Public Utilities
2911 Adams Street
Riverside, CA 92504

Eileen M. Teichert, Esq.
Supervising Deputy City Attorney
City of Riverside
3900 Main Street
Riverside, CA 92522

Raymond Waldo, Vice President,
Nuclear Generation
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

Southern California Edison Co.

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David Spath, Chief
Division of Drinking Water and
Environmental Management
California Department of Health Services
P.O. Box 942732
Sacramento, CA 94234-7320

Michael R. Olson
San Onofre Liaison
San Diego Gas & Electric Company
P.O. Box 1831
San Diego, CA 92112-4150

Ed Bailey, Chief
Radiologic Health Branch
State Department of Health Services
P.O. Box 997414 (MS 7610)
Sacramento, CA 95899-7414

Mayor
City of San Clemente
100 Avenida Presidio
San Clemente, CA 92672

James D. Boyd, Commissioner
California Energy Commission
1516 Ninth Street (MS 34)
Sacramento, CA 95814

Douglas K. Porter, Esq.
Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, CA 91770

James T. Reilly
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

Daniel P. Breig, Station Manager
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

Southern California Edison Co.

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A. Edward Scherer
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

Brian Katz, Vice President, Nuclear
Oversight and Regulatory Affairs
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

Electronic distribution by RIV:
 Regional Administrator (**BSM1**)
 DRP Director (**ATH**)
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 Senior Resident Inspector (**CCO1**)
 Branch Chief, DRP/D (**TWP**)
 Senior Project Engineer, DRP/D (**GEW**)
 Team Leader, DRP/TSS (**RLN1**)
 RITS Coordinator (**KEG**)

Only inspection reports to the following:

DRS STA (**DAP**)
 V. Dricks, PAO (**VLD**)
 J. Dixon-Herrity, OEDO RIV Coordinator (**JLD**)
RidsNrrDipmlipb
 Site Secretary (**WLH**)

SISP Review Completed: TWP ADAMS: WYes No Initials: TWP
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R:\ REACTORS\ SO23\2005\SO2005-04RP-CCO.wpd

RIV:RI:DRP/D	SRI:DRP/D	SPE:DRP/D	C:DRS/PSB	C:DRS/OB
MASitek	CCOsterholtz	GEWerner	MPShannon	RLantz
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10/17/05	10/17/05	10/15/05	10/13/05	10/13/05
C:DRS/EB	C:DRS/PEB	C:DRP/D		
NFOkeefe	LJSmith	TWPruett		
<i>/RA/</i>	<i>/RA/</i>	<i>/RA/</i>		
10/13/05	10/12/05	10/15/05		

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 50-361, 50-362

Licenses: NPF-10, NPF-15

Report No.: 05000361/2005004 and 05000362/2005004

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: June 27 through September 26, 2005

Inspectors: C. C. Osterholtz, Senior Resident Inspector, San Onofre
M. A. Sitek, Resident Inspector, San Onofre
G. Warnick, Senior Resident Inspector, Palo Verde

Approved By: Troy W. Pruett, Chief
Project Branch D
Division of Reactor Projects

SUMMARY OF FINDINGS

IR05000361/2005004, 05000362/2005004; 06/27/05 - 09/26/05; San Onofre Nuclear Generating Station, Units 2 & 3; Resident Report; Risk Assessments and Emergent Work Evaluations; Operability Evaluations; and Surveillance Testing

This report covered a 3-month period of inspection by resident inspectors. The inspection identified three findings. 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 to follow procedural requirements during surveillance testing of the Unit 3 steam generator blowdown processing system. This failure resulted in the blowdown flow control valve going to the full open position and an inadvertent reactivity addition to Unit 3. The finding had crosscutting aspects in the area of human performance because the failure of instrumentation and control technicians to follow the procedure directly contributed to the cause of the finding. This issue was entered into the licensee's corrective action program as Action Requests 050800099 and 050800114.

The finding was determined to be more than minor because it was associated with the human performance attribute of the initiating events cornerstone. It also affected the cornerstone objective of limiting the likelihood of events that upset plant stability. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available (Section 1R22).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the failure to provide procedures that incorporated requirements and acceptance limits for inservice testing. The licensee's use of an inappropriate computer software program resulted in an incorrect determination of acceptability for 14 of 28 surveillance tests. For example, on August 15, 2005, an alert limit was exceeded on charging Pump 3P191 and the issue was not identified until 8 hours after completing the surveillance test. The finding had crosscutting aspects in the area of human

Enclosure

performance because the use of the faulty software program by maintenance engineering personnel directly contributed to the cause of the finding. Additionally, this issue had problem identification and resolution crosscutting aspects in that maintenance engineering personnel did not implement timely corrective actions to resolve the software issues. This issue was entered into the licensee's corrective action program as Action Request 050800238.

The finding was determined to be more than minor because it was associated with the human performance attribute of the mitigating systems cornerstone. It also affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Additionally, if left uncorrected, this issue could have resulted in equipment being considered operable even though testing may have demonstrated the equipment was inoperable. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the finding did not represent an actual loss of a single train of a safety system for greater than its Technical Specification allowed outage time (Section 1R15).

Cornerstone: Barrier Integrity

- Green. A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure to follow the instructions in a maintenance order for the movement of equipment in the Unit 2 spent fuel pool. A four finger control element assembly was dropped in the cask area of the spent fuel pool because it had not been properly grappled. This issue involved human performance crosscutting aspects associated with maintenance engineering personnel failing to follow the instructions in a maintenance order. This issue was entered into the licensee's corrective action program as Action Request 050801264.

The finding is determined to be greater than minor because if left uncorrected it could become a more significant safety concern in that failing to follow instructions could impact the safe movement of components in the spent fuel pool, and increase the probability of a fuel handling accident. This finding cannot be evaluated by the significance determination process because Manual Chapter 0609; "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," and Appendix G; "Shutdown Operations Significance Determination Process," do not apply to the spent fuel pool. This finding affects the barrier integrity cornerstone and is determined to be of very low safety significance by NRC management review because it was a deficiency that did not result in the actual degradation of the spent fuel pool or any of its components (Section 1R13).

B. Licensee-Identified Violations

- None.

REPORT DETAILS

Summary of Plant Status

Unit 2 operated at approximately 99 percent power for the entire inspection period.

Unit 3 operated at approximately 100 percent power for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

Readiness For Seasonal Susceptibilities

a. Inspection Scope

The inspectors completed a review of the licensee's readiness of seasonal susceptibilities involving brush fires that are likely to occur during high temperatures and high winds. The inspectors: (1) reviewed plant procedures, the Updated Final Safety Analysis Report (UFSAR), and Technical Specifications (TS) to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portions of the below listed three systems to ensure that adverse weather protection features were sufficient to support operability, including the ability to perform safe shutdown functions; (3) evaluated operator staffing levels to ensure the licensee could maintain the readiness of essential systems required by plant procedures; and (4) reviewed the corrective action program (CAP) to determine if the licensee identified and corrected problems related to adverse weather conditions.

- July 14, 2005, Units 2 and 3, emergency diesel generator Trains A and B
- July 14, 2005, Units 2 and 3, electrical switchyard
- July 15, 2005, Units 2 and 3, auxiliary feedwater system Trains A and B

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial System Walkdowns

.1 The inspectors: (1) walked down portions of the three 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 CAP to ensure problems were being identified and corrected.

- On July 19, 2005, the inspectors walked down the Unit 2 Train A high pressure safety injection system prior to a scheduled surveillance test that renders Train B of the same system inoperable
- On July 28, 2005, the inspectors walked down the Unit 2/3 Train A emergency chilled water system while Train B of the same system was out of service for planned maintenance
- On August 22, 2005, the inspectors walked down the Unit 3 Train A emergency diesel generator while Train B of the same system was out of service for planned maintenance

The inspectors completed three 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 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 CAP to determine if the licensee identified and corrected fire protection problems.

- C July 7, 2005, Unit 2, 2B010 battery room
- C July 7, 2005, Unit 3, 3B010 battery room
- C July 7, 2005, Unit 2/3, control building 9' elevation
- C August 19, 2005, Unit 2, inverter rooms
- C August 19, 2005, Unit 3, inverter rooms
- C August 19, 2005, Unit 2/3 Train A emergency chilled water room

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

Semi-annual Internal Flooding

The inspectors: (1) reviewed the UFSAR, the flooding analysis, and plant procedures to assess seasonal susceptibilities involving internal flooding; (2) reviewed the CAP to determine if the licensee identified and corrected flooding problems; (3) inspected underground bunkers/manholes to verify the adequacy of (a) sump pumps, (b) level alarm circuits, (c) cable splices subject to submergence, and (d) drainage for bunkers/manholes; (4) verified that operator actions for coping with flooding can reasonably achieve the desired outcomes; and (5) walked down the below listed areas to verify the adequacy of: (a) equipment seals located below the floodline, (b) floor and wall penetration seals, (c) watertight door seals, (d) common drain lines and sumps, (e) sump pumps, level alarms, and control circuits, and (f) temporary or removable flood barriers.

- August 23, 2005, Unit 2, auxiliary feedwater pump room

The inspectors completed one sample.

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 August 15, 2005, to identify deficiencies and discrepancies in the training, to assess operator performance, and to assess the evaluator's critique. The training scenario involved responding to one faulted steam generator with the remaining steam generator experiencing a steam generator tube rupture.

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 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 TS.

- August 3 and 4, 2005, Units 2 and 3, long term plan for inspecting and staking taper pins associated with Fisher butterfly valves
- July 28 and August 11, 2005, Units 2 and 3, Reactivity Management Program improvements, emphasizing interdepartmental involvement between operations, engineering, and maintenance

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

Risk Assessment and Management of Risk

The inspectors reviewed the listed assessment activity 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.

- August 17, 2005, Unit 3, Train B emergency diesel Generator 3G003 12-year overhaul during periods of peak demand on the off-site electrical grid

The inspectors completed one sample.

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 CAP to determine if the licensee identified and corrected risk assessment and emergent work control problems.

- June 25, 2005, Unit 3, emergency diesel Generator 3G003 room cooler Fan 3A276 failure to start (Action Request (AR) 050601315)
- August 1, 2005, Unit 2, auxiliary feedwater vent Valve 2MR284 leak inside containment (AR 050700472)
- August 8, 2005, Unit 2, Train B engineered safety features actuation system Cabinet L035 electrical ground (AR 050501003)
- August 31, 2005, Unit 2, four finger control element Assembly S2180 dropped during cutting in the spent fuel pool (AR 050801264)
- September 9, 2005, Unit 3, control element drive Mechanism 3ME404 limit switch failure (AR 050900518)

The inspectors completed five samples.

b. Findings

Introduction. A Green self-revealing noncited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, was identified for the failure of maintenance engineering personnel to follow instructions for the movement of a control element assembly in the Unit 2 spent fuel pool.

Description. During the week of August 22, 2005, the licensee was in the process of consolidating the four finger control element assemblies (CEA) in the Unit 2 spent fuel pool. The consolidation project consisted of moving eight CEAs from individual spent fuel pool storage rack cells into one storage container by cutting off the fingers from each CEA. The process consisted of moving the CEAs out of the spent fuel pool storage racks and into the cask pool area of the spent fuel pool where the fingers were cut and placed into the consolidation container. The spent fuel handling machine was used with a special grappling tool to move the CEAs within the spent fuel pool. The tool is approximately 33 feet long and connects directly to the hub of the CEA.

On August 23, 2005, a maintenance engineering supervisor was tasked with moving CEA S2180 to the cask pool for cutting. The supervisor grappled the CEA and moved it from the rack area into the cask area. The first finger of the CEA was successfully cut and placed into the consolidation container. Prior to cutting the second finger, the CEA became dislodged from the grappling tool and fell to the bottom of the cask area striking a one inch steel plate that lines the pool. The steel plate was examined and was not damaged.

The licensee determined that the grappling tool had been incorrectly connected to the CEA. The supervisor had made two unsuccessful attempts to grapple the CEA, when he decided to rotate the tool 90 degrees and try again. The tool had two slots of different dimensions where one slot fits over the CEA hub and the other over the carrier container for the CEA. The supervisor indicated that he had rotated the tool 90 degrees because he believed that he may have been trying to grapple the CEA with the incorrect slot alignment. The supervisor indicated that he believed that he had successfully locked onto the CEA on the third attempt because the load cell indicated the expected weight for a grappled CEA. The tool had not been properly locked onto the CEA, but instead it had been jammed onto the hub of the CEA with the slot that fits over the CEA carrier container. The friction force between the slot and the CEA hub was sufficient to hold the CEA on the tool up to the point where it became dislodged in the cask pool.

The inspectors reviewed maintenance Order (MO) 05081318000 which contained the steps for grappling and moving the CEAs. The MO contained a note that read "Comparison of the hoist counter indication with the expected indication could indicate that the tool is not fully seated." The supervisor indicated that he did not compare the hoist counter indication with the expected position for a properly grappled CEA. If the supervisor would have made that comparison, he would have seen that the indicated position did not match the expected position. The licensee indicated that the operators of the grappling tool are trained to make this position comparison. The inspectors noted that the instructions for the MO were extracted from Procedure SO23-X-7.2, "Nuclear

Fuel Movement - Spent Fuel Pool," Revision 9. The inspectors also noted that not all of the information in that procedure related to moving CEAs was transferred into the MO. A diagram that showed the proper orientation for grappling the CEA was omitted. Furthermore, the MO did not reference Procedure SO23-X-7.2 as the source document for the instructions in the MO. The licensee indicated that an apparent cause evaluation would be performed for this event as part of their corrective actions.

Analysis. The performance deficiency associated with this finding was the failure of maintenance engineering personnel to follow instructions in an MO. The finding is determined to be greater than minor because if left uncorrected it could become a more significant safety concern in that failing to follow instructions could impact the safe movement of components in the spent fuel pool, and increase the probability of a fuel handling accident. This finding cannot be evaluated by the significance determination process because Manual Chapter 0609, "Significance Determination Process," Appendix A; "Significance Determination of Reactor Inspection Findings for At-Power Situations," and Appendix G; "Shutdown Operations Significance Determination Process," do not apply to the spent fuel pool. This finding affects the barrier integrity cornerstone and is determined to be of very low safety significance by NRC management review because it was a deficiency that did not result in the actual degradation of the spent fuel pool or any of its components. This issue involved human performance crosscutting aspects associated with maintenance engineering personnel failing to follow the instructions in an MO.

Enforcement. The regulations in 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Maintenance Order 05081318000 required that a comparison of the hoist counter indication with the expected indication be performed. Contrary to this, on August 23, 2005, a maintenance engineering supervisor did not compare the hoist counter indication with the expected position for a properly grappled CEA. Because the finding is of very low safety significance and has been entered into the licensee's CAP as AR 050801264, this violation is being treated as an NCV consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361/2005004-01, "Failure to Follow Maintenance Order for the Movement of a Control Element Assembly."

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 non-routine 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 non-routine evolutions sampled.

- September 12, 2005, Units 2 and 3, operator response to minor grid perturbations resulting from a transmission line failure in the state of Oregon

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 TS; (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.

- July 29, 2005, AR 050701074 - Unit 2/3 Train A emergency chilled water system makeup check Valve MU138 inoperable
- August 1, 2005, AR 050701479 - Units 2 and 3 charging pumps following degradation of the secondary packing for charging Pump 2P192
- August 17, 2005, AR 050800238 - Unit 3 motor driven auxiliary feedwater pump inoperable

The inspectors completed three samples.

b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the failure to provide procedures that incorporated requirements and acceptance limits for inservice testing (IST).

Description. On July 28, 2005, maintenance engineering personnel implemented an upgrade to their computer program for the performance of surveillance tests in their IST program. The new computer program exhibited an unanticipated problem of comparing accurate as found test data against incorrect references on a random basis. In some cases this problem resulted in the computer program flagging alert limits when unnecessary, and in other cases not flagging alarm and/or alert limits when it would

have been appropriate to do so. Maintenance engineering personnel indicated that they felt that the problem was a minor computer program glitch, and continued to use the computer program while troubleshooting efforts to correct the computer program problem were still in progress. Maintenance engineering personnel indicated that they felt any discrepancies would be caught during their post testing reviews, and did not share their decision with senior licensee management.

On August 17, 2005, a routine surveillance test was performed on Unit 3 motor driven auxiliary feedwater Pump 3P141. The initial test results indicated that the pump had reached a differential pressure alarm limit, prompting operations personnel to enter a 72 hour shutdown action statement per TS 3.7.5. Maintenance engineering personnel determined that the pump actually performed satisfactorily, and that the computer program had incorrectly flagged the alarm limit. Operations personnel exited the 72 hour shutdown action statement after approximately two hours. The inspectors noted that the pre-job briefing for the surveillance test did not include any discussion on the possible consequences of using the faulty computer program.

The inspectors reviewed IST data over the period the faulty program was used, and determined that the program performed successfully on 14 occasions, inappropriately flagged alarm limit changes on 11 occasions, inappropriately flagged an alert when no alert limit was exceeded on 2 occasions, and inappropriately indicated a successful test when an alert limit was actually exceeded on one occasion. The inspectors determined that the one occasion where an alert limit was exceeded but not immediately identified was for Unit 3 charging Pump 3P191 on a surveillance test performed on August 15, 2005. In this instance, the inspectors determined that maintenance engineering personnel discovered the discrepancy approximately 8 hours after the surveillance test was performed, and that the deficiency did not involve a TS limiting condition for operation.

The IST computer program deficiencies were successfully resolved, and the computer program was returned to service on September 6, 2005.

Licensee management indicated the use of the faulty computer program in their IST program was inappropriate and did not meet expectations. The licensee generated an apparent cause assessment as part of their corrective actions.

Analysis. The failure of the licensee to properly perform IST surveillances using a database which incorporated the appropriate requirements and acceptance criteria was determined to be a performance deficiency. The finding was determined to be more than minor because it was associated with the human performance attribute of the mitigating systems cornerstone. It also affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Additionally, if left uncorrected, this issue could have resulted in equipment being considered operable even though testing may have demonstrated the equipment was inoperable. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the finding did not represent an actual loss of a single train of a safety system for greater than its TS allowed outage time.

The finding had crosscutting aspects in the area of human performance because the use of the faulty IST software program by maintenance engineering personnel directly contributed to the cause of the finding. Additionally, this issue had problem identification and resolution crosscutting aspects in that maintenance engineering personnel did not implement timely corrective actions to resolve the software issues.

Enforcement. 10 CFR Part 50, Appendix B, Criterion XI, requires, in part, that a test program be established to assure that all testing required to demonstrate that SSCs will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. Contrary to this, between July 28, 2005, and September 6, 2005, the licensee failed to provide procedures which incorporated the requirements and acceptance limits contained in applicable design documents. Specifically, the IST computer program utilized by the licensee compared test data to incorrect references on a random basis resulting in an incorrect determination of acceptability following 14 of 28 surveillance tests. For example: on August 15, 2005, an alert limit was exceeded on charging Pump 3P191 and the pump was not declared inoperable. Because the finding is of very low safety significance and has been entered into the licensee's CAP as AR 050800238, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy: NCV 05000361; 05000362/2005004-02, "Improper Acceptance Limits for Surveillance Testing."

1R16 Operator Work-Arounds (71111.16)

a. Inspection Scope

Cumulative Review of the Effects of Operator Workarounds

The inspectors reviewed the cumulative effects of operator workarounds to determine: (1) the reliability, availability, and potential for misoperation of a system; (2) if multiple mitigating systems could be affected; (3) the ability of operators to respond in a correct and timely manner to plant transients and accidents; and (4) if the licensee has identified and implemented appropriate corrective actions associated with operator workarounds.

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 three 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 CAP to determine if the licensee identified and corrected problems related to post-maintenance testing.

- May 26, 2005, MOs 05050330 and 05050359 - Unit 2 replacement of control power transfer associated with Breaker 2BH09 for the Train B emergency diesel generator fuel transfer Pump 2P094
- July 6, 2005, MO 05051102 - Unit 2 degraded grid voltage Relay 127D-1 replacement
- July 6, 2005, MO 05051103 - Unit 2 degraded grid voltage Relay 127D-2 replacement

The inspectors completed three 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 TS to ensure that the four 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.

- July 6, 2005, Unit 3, auxiliary feedwater Pump 3P140 inservice test per Procedure SO23-3-3.60.6, "Auxiliary Feedwater Pump and Valve Testing," Revision 10
- July 14, 2005, Units 2 and 3, motor driven fire water Pump MP-221 inservice test per Procedure SO23-3-3.36.1, "Firewater Pump MP-221 Operability Verification," Revision 18
- July 19, 2005, Unit 2, refueling water storage Tank 2T006 outlet isolation Valve 2HV9301 quarterly inservice test per Procedure SO23-3-3.30.1, "ECCS Online Valve Test," Revision 6
- August 2, 2005, Unit 3, blowdown processing system inservice test per Procedure SO23-II-9.712, "Surveillance Requirement Steam Generator E088 and E089 Blowdown Bypass Flow Channel Functional Test," Revision 5

The inspectors completed four samples.

b. Findings

Introduction. A Green self-revealing NCV of TS 5.5.1.1 was identified for the failure to follow procedural requirements during surveillance testing of the Unit 3 steam generator blowdown processing system. This failure resulted in the blowdown flow control valve going to the full open position and an inadvertent reactivity addition to Unit 3.

Description. On August 2, 2005, instrumentation and control technicians were performing a quarterly surveillance test of the Unit 3 steam generator blowdown flow totalizers in accordance with Procedure SO23-II-9.712, "Surveillance Requirement Steam Generator E088 and E089 Blowdown Bypass Flow Channel Functional Test," Revision 5. Step 6.2.2 of Procedure SO23-II-9.712 required that, "On FY4077 (Steam Generator E088), disconnect input lead 9 from the (+) terminal and input lead 10 from the (-) terminal." The technicians indicated that they did not see the leads specified in step 6.2.2 and at the time believed that the leads were not easily accessible. The technicians therefore decided to disconnect the leads upstream in the circuit at input leads 7 and 8 on terminal Board 101. The technicians indicated that, at the time, they believed that removing input leads 7 and 8 would be electrically equivalent to removing leads 9 and 10. However, removing the leads at this location removed a resistor from the circuit. This action resulted in a loss of power to the current flow loop, which in turn caused a loss of steam generator blowdown flow indication, which resulted in a full open signal to the blowdown flow control valve. The technicians then performed a calibration check, and replaced the lifted leads. Blowdown flow control then returned to normal for Steam Generator E088. The technicians continued with the surveillance test, and performed the same error on Steam Generator E089.

The failure of the instrumentation and control technicians to follow the requirements of Procedure SO23-II-9.712 also resulted in a minor reactivity addition. The momentary full opening of the steam generator blowdown flow control valves resulted in a small increase in heat removal from the primary plant, which resulted in a momentary power increase. Maximum peak power was later determined to be 100.005 percent.

The inspectors noted that Procedure SO123-I-1.3, "Work Control Guidelines," Revision 12, required that if procedural steps cannot be performed as written, the technicians should contact supervision for assistance and resolution. The inspectors concluded that the technicians' actions did not meet this procedural requirement. Licensee management agreed that the surveillance was not performed in accordance with established expectations, and generated an apparent cause assessment as part of their corrective actions.

Analysis. The failure of the instrumentation and control technicians to follow procedural steps was determined to be a performance deficiency. The finding was determined to be more than minor because it was associated with the human performance attribute of the initiating events cornerstone. It also affected the cornerstone objective of limiting the likelihood of events that upset plant stability. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding had crosscutting aspects in the area of human performance because the failure of instrumentation and control technicians to follow the procedure directly 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 9, requires procedures for performing maintenance. Procedure SO23-II-9.712, "Surveillance Requirement Steam Generator E088 and E089 Blowdown Bypass Flow Channel Functional Test," Revision 5, step 6.2.2 of SO23-II-9.712 required that technicians disconnect input lead 9 from the (+) terminal and input lead 10 from the (-) terminal. Contrary to this, on August 2, 2005, technicians removed leads 7 and 8 which resulted in a full open signal to the blowdown flow control valve and an inadvertent reactivity addition. Because the finding is of very low safety significance and has been entered into the licensee's CAP as ARs 050800099 and 050800114, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy: NCV 05000362/2005004-03, "Failure to Follow Surveillance Procedure Results in Inadvertent Reactivity Addition."

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the UFSAR, plant drawings, procedure requirements, and TS to ensure that the two listed temporary modifications were properly implemented. The

inspectors: (1) verified that the modification did not have an effect on system operability/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 licensee identified and implemented any needed corrective actions associated with temporary modifications.

- June 30, 2005, Unit 2, pressurizer backup Heater S21201ME614 temporarily bypassed per AR 050201025, assignment 5
- July 25, 2005, Unit 2, engineered safety feature actuation system Cabinet 2L035 ground monitoring instrumentation per AR 050501003, assignment 13

The inspectors completed two samples.

b. Findings

No findings of significance was identified.

Cornerstone: Emergency Preparedness

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 recommendation 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 Nuclear Energy Institute 99-02, "Regulatory Assessment Indicator Guidelines," document's acceptance criteria.

- August 15, 2005, Unit 2 simulator, one faulted and one ruptured steam generator

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (71152)

1. Annual Sample Review

a. Inspection Scope

The inspectors selected AR 050700634 for a detailed review. This 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 AR 050700634 against the requirements of the licensee's corrective action procedure as delineated in Procedure SO123-XV-50, "Corrective Action Process," Revision 4.

b. Findings and Observations

On July 14, 2005, a routine monthly surveillance test was performed on east motor driven fire Pump MP221 per Procedure SO23-3-3.36.1, "Firewater Pump MP-221 Operability Verification," Revision 18. Pump MP221 did not automatically start at the designated pressure identified in the surveillance procedure and was declared inoperable. The licensee generated AR 050700634 on July 14 to document the issue.

On July 18, 2005, during a review of operations logs, the inspectors noted that a second surveillance test had been performed on Pump MP221 on July 14, 2005, and had been returned to operable status the same day. The July 14 operations log indicated that the first July 14 surveillance test for Pump MP221 had not used the proper testing methodology, and that Pump MP221 was never actually inoperable. The inspectors noted that AR 050700634, generated to address the first July 14 surveillance test failure, had been closed with no corrective actions identified or documented.

The inspectors reviewed the July 14, 2005, surveillance tests performed on MP221, and concluded that surveillance test Procedure SO23-3-3.36.1 was deficient. The proper sequencing for determining the actual discharge pressure for an automatic start was not specified (the starting of the stop watch should occur after the mercury switch has made contact), and the acceptance criteria for pump start pressure was too narrow for the circumstances (the procedure allowed for a 4 psig band for operability when a wider band was actually available).

Following discussions with the inspectors, the licensee generated AR 050800116 on August 2, 2005, to make procedural changes to the surveillance tests for all three station firewater pumps prior to the performance of the next test. The inspectors determined that AR 050700634 had been inadvertently closed following the second successful July 14, 2005, surveillance test because the licensee's AR computer program automatically closes ARs once all assignments to that particular AR are completed. On July 14, 2005, the maintenance order assignment generated for AR 050700634 was completed after the second surveillance adequately demonstrated pump operability. The closure of the maintenance order assignment for AR 050700634 automatically

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closed AR 050700634. The inspectors concluded that the computer program allowing for the automatic closure of ARs after their respective assignments are closed impeded the identification and resolution of problems associated with Procedure SO23-3-3.36.1. The licensee indicated that they would evaluate the deficiency as part of their ongoing evaluation to improve the documentation and completeness of ARs per AR 050500741.

2. Quarterly Review of Corrective Action Documents

a. Inspection Scope

The inspectors reviewed a selection of ARs written during this period to determine if the licensee was entering conditions adverse to quality into the CAP at an appropriate threshold, to determine if the ARs were appropriately categorized and dispositioned in accordance with the licensee's procedures, and in the case of conditions significantly adverse to quality, to determine if the licensee's root cause determination and extent of condition evaluation were accurate and of sufficient depth to prevent recurrence of the condition.

No findings of significance were identified.

4OA4 Crosscutting Aspects of Findings

Section 1R13 describes a finding with human performance crosscutting aspects involving a maintenance engineering supervisor's failure to follow instructions in a maintenance order which led to the dropping of a CEA in the Unit 2 spent fuel pool cask area.

Section 1R15 describes a finding with human performance crosscutting aspects involving maintenance engineering personnel using a faulty computer software program to perform inservice testing. This issue also had problem identification and resolution crosscutting aspects involving timely corrective actions.

Section 1R22 describes a finding with human performance crosscutting aspects involving an instrumentation and control technician's failure to follow procedural requirements during testing of the Unit 3 blowdown processing system.

4OA6 Meetings, Including Exit

On September 23, 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

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SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

C. Anderson, Manager, Site Emergency Preparedness
R. Ashe-Everest, Supervisor, Maintenance Engineering
D. Breig, Station Manager
B. Katz, Vice President, Nuclear Oversight and Regulatory Affairs
M. Love, Manager, Maintenance
C. McAndrews, Manager, Nuclear Oversight and Assessment
N. Quigley, Manager, Mechanical/Nuclear Maintenance Engineering
R. Richter, Fire Protection Engineer
A. Scherer, Manager, Nuclear Regulatory Affairs
M. Short, Manager, Systems Engineering
T. Vogt, Manager, Operations
R. Waldo, Vice President, Nuclear Generation
D. Wilcockson, Manager, Plant Operations
T. Yackle, Manager, Maintenance Engineering

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000361/2005004-01	NCV	Failure to Follow Maintenance Order for the Movement of a Control Element Assembly (Section 1R13)
05000361; 05000362/ 2005004-02	NCV	Improper Acceptance Limits For Surveillance Test (Section 1R15)
05000362/2005004-03	NCV	Failure to Follow Surveillance Procedure Results in Inadvertent Reactivity Addition (Section 1R22)

Closed

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

Procedure SO23-13-8, "Severe Weather," Revision 5

Procedure SO123-XIII-4.10.7, "Fire Department Offsite Response Procedure," Revision 3

Section 1R04: Equipment Alignment

Procedures

SO23-XVII-8.1.1, "Visual Inspection of High Pressure Safety Injection System," Revision 4

SO23-3-2.7.2, "Safety Injection System Removal/Return to Service Operation," Revision 11

SO23-1-3.1, "Emergency Chilled Water System Operation," Revision 16

SO23-3-3.30.10, "Miscellaneous Systems Online Valve Test," Revision 9

SO23-3-3.23, "Diesel Generator Monthly and Semi-Annual Testing," Revision 24

SO23-2-13, "Diesel Generator Operation," Revision 26

Drawings

Piping and Instrument Diagram 40112A, "Safety Injection System," Revision 28

Piping and Instrument Diagram 40179A, "Aux. Bldg. Emergency Chilled Water System No. 1513 Loop A," Revision 29

Action Requests (ARs)

001001799

020400871

020600869

050601238

040401261

010500490

050701074

Section 1R06: Flood Protection Measures

SONGS 2/3 Internal Flood Analysis

Section 1R12: Maintenance Effectiveness

Miscellaneous

R2C14 Taper Pin Evaluation

Document No. 2346, "Technical Support for the Loss of Taper Pins in Fisher 9200 Butterfly Valves at SONGS"

SONGS Unit 2 Butterfly Valve Leak Test Status

SONGS Unit 3 Butterfly Valve Leak Test Status

AR 040401649

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

SO123-XX-10, "Maintenance Rule Risk Management Program Implementation," Revision 2

Miscellaneous

Calculation 0050-017, "BTP RSB 5-1 Condensate Inventory," Revision 0

MO 05071684000

1R16: Operator Workarounds

Procedures

SO123-XX-6, "Operator Work Around Program," Revision 4

SO123-0-A1, "Conduct of Operations," Revision 2

SO23-2-4, "Auxiliary Feedwater System Operation," Revision 20

Section 1R19: Postmaintenance Testing

ARs

050301091-43

050500255-36

050301091-47

Section 1R22: Surveillance Testing

Procedures

SO23-V-3.4, "Inservice Testing of Pumps Program," Revision 15

SO23-V-3.5, "Inservice Testing of Valves Program," Revision 27

LIST OF ACRONYMS

AR	action request
CAP	corrective action program
CEA	control element assembly
CFR	<i>Code of Federal Regulations</i>
IST	inservice test
MO	maintenance order
NCV	noncited violation
SSC	structure, system, and component
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report