UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

August 8, 2008

EA 08-055

Ross T. Ridenoure,
Senior Vice President and
Chief Nuclear Officer
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION – NRC INTEGRATED INSPECTION REPORT AND EXERCISE OF ENFORCEMENT DISCRETION, 05000361/2008003 AND 05000362/2008003

Dear Mr. Ridenoure:

On June 26, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated 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 July 2, 2008, with you and other members of your staff.

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

Based on the results of this inspection, three NRC identified and three self-revealing findings of very low safety significance (Green) were identified. The findings involved violations of NRC requirements. Additionally, one willful violation involving the failure to follow radiation exposure permit instructions was identified. Normally, this violation would be categorized at Severity Level IV, however, the NRC is exercising enforcement discretion to take no enforcement action based on the provisions of Section VII.B.4 of the Enforcement Policy being met. If you contest these noncited violations, 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, 612 East Lamar Blvd., Suite 400, Arlington, Texas 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; and the NRC Resident Inspector at the San Onofre Nuclear Generating Station.

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 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/

Michael C. Hay, Chief
Project Branch D
Division of Reactor Projects

Docket: 50-361
50-362

License: NPF-10
NPF 15

Enclosure:
NRC Inspection Report 05000361/2008003 and 05000362/2008003
w/Attachment: Supplemental Information

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SUNSI Review Completed: MCH ADAMS ☒ Yes ☐ No Initials: MCH
☒ Publicly Available ☐ Non-Publicly Available ☐ Sensitive ☒ Non-Sensitive
R:_REACTORS_SO\2008\SO 2008003RP-GGW.doc ML 082210730

RIV:RI:DRP/D	SRI:DRP/D	SPE:DRP/D	C:DRS/EB1	C:DRS/PSB
JPReynoso	GGWarnick	DBAllen	GEWerner	MPShannon
/RA electronic/	***/RAelectronic/***	***/RA/***	***/RA/***	***/RA/***
08/08/2008	08/08/2008	08/04/2008	08/06/2008	08/06/2008
C:DRS/EB2	C:DRS/OB	ACES	C:DRS/EB2	C:DRP/D
RELantz	RLBywater	MMVasquez	NO'Keefe	MCHay
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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Dockets:	50-361, 50-362
Licenses:	NPF-10, NPF-15
Report:	05000361/2008003 and 05000362/2008003
Licensee:	Southern California Edison Company (SCE)
Facility:	San Onofre Nuclear Generating Station, Units 2 and 3
Location:	5000 S. Pacific Coast Hwy San Clemente, California
Dates:	March 25 through June 26, 2008
Inspectors:	M. Baquera, Reactor Inspector, Project Branch D, DRP G. George, Reactor Inspector, Engineering Branch 1, DRS R. Kopriva, Senior Reactor Inspector, Engineering Branch 1, DRS S. Makor, Resident Inspector, Project Branch E, DRP C. Osterholtz, Senior Resident Inspector, Project Branch E, DRP J. Reynoso, Resident Inspector, Project Branch D, DRP G. Warnick, Senior Resident Inspector, Project Branch D, DRP
Approved By:	Michael C. Hay, Chief, Project Branch D Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000361/2008003, 05000362/2008003, 03/25/08 – 06/26/08; San Onofre Nuclear Generating Station, Units 2, and 3; Integrated Resident and Regional Report; Equip. Align.; Maint. Risk Assess. & Emerg. Work Eval.; Op. Eval.; Postmaint. Test, and Ident. & Res. of Prob.

This report covered a 3-month period of inspection by resident inspectors and regional inspectors. The inspection identified six 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 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. A self-revealing noncited violation of Technical Specification 5.5.1.1 was identified for the failure of maintenance personnel to have adequate procedures in place to ensure troubleshooting associated with proportional heater Bank 3E123 would not adversely impact plant stability. Specifically, on April 3, 2008, lifting of an electrical lead during the troubleshooting process caused the proportional heater bank to be energized, which resulted in a pressurizer pressure transient. This finding was entered into the licensee's corrective action program as Action Request 080400170.

  The finding is greater than minor because it affected the procedure quality attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown, as well as power operations. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not contribute to both the increased likelihood of a reactor trip and increased likelihood that mitigating systems will not be available. The finding has a crosscutting aspect in the area of human performance associated with work control because the licensee did not incorporate actions to address operational impact of work activities [H.3.(b)] (Section 1R13.1).

- Green. A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, (Procedures) was identified for the failure of operations personnel to understand, monitor and perform a Unit 2 reactivity manipulation in accordance with procedural requirements. This failure contributed to the overfeeding of both steam generators as well as the inadvertent addition of positive reactivity during a planned startup. Specifically, on June 3, 2008, operations personnel failed to follow Procedure SO123-0-A1, "Conduct of Operations," Revision 14, step 6.5.2.7, which requires, in part, that all reactivity manipulations are to be identified and fully understood and shall be closely monitored to verify the

expected magnitude, direction, and effects are realized. This finding was entered into the licensee's corrective action program as Action Request 0080600073.

The finding is greater than minor because it is associated with the human performance attribute of the Initiating Events Cornerstone and affects the cornerstone objective to limit the likelihood of events that upset plant stability. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available. The finding has a crosscutting aspect in the area of human performance associated with work practices because operations personnel proceeded in the face of uncertainty or unexpected circumstances [H.4(a)] (Section 1R13.2).

- Green. A self-revealing noncited violation of Technical Specification 5.5.1.1 was identified associated with the failure to implement procedural guidance to ensure a Unit 2 power reduction was properly performed. Lack of supervisory oversight resulted in an uncoordinated power reduction, resulting in a steam generator low pressure pre-trip annunciator. Specifically, on April 10, 2008, operations personnel failed to implement appropriate procedures to properly perform a power reduction from full power to 65 percent in support of a planned repair of a main feedwater pump. This finding was entered into the licensee's corrective action program as Action Request 80400544.

  The finding is greater than minor because it is associated with the human performance attribute of the Initiating Events Cornerstone and affects the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge the critical safety functions during shutdown as well as power operations. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available. The finding has a crosscutting aspect in the area of human performance associated with work practices because supervisory operations personnel did not ensure that the work activity was properly supervised to ensure the support of nuclear safety [H.4(c)] (Section 40A2).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of Technical Specification 5.5.1.1 for the failure of operations personnel to follow Procedure SO23-2-8.1,"Saltwater Cooling System Alignments," Revision 7. Specifically, on June 17, 2008, inspectors identified air equalizing supply Valve HV6200 not secured closed, contrary to procedural requirements. These valves were required to be secured closed as a corrective action to Apparent Cause Evaluation 060100377. This finding was entered into the licensee's corrective action program as Nuclear Notification 200038227.

  The finding is greater than minor because it would become a more significant safety concern if left uncorrected, in that air equalizing supply valves could be inadvertently opened rendering their associated air-operated valves unable to

perform their safety function. The finding affected the Mitigating Systems Cornerstone. Using Manual Chapter 0609 "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not result in the actual loss of system safety function. The finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program, because the licensee did not thoroughly evaluate problems such that resolutions address causes and extent of condition [P.1(c)] (Section 1R04).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the failure of operations and engineering personnel to follow procedures and adequately evaluate degraded, nonconforming, and unanalyzed conditions to support operability decision-making. Specifically, on June 3, 2008, operations and engineering personnel failed to adequately evaluate the operability of the Unit 2 component cooling water system Train A when unexpected, rapid heat exchanger fouling occurred during low tide conditions. This finding was entered into the licensee's corrective action program as Action Request 080600438.

  The finding is greater than minor because the degraded component cooling water heat exchanger is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not result in a loss of safety function of component cooling water Train A for greater than the Technical Specification allowed outage time. This finding has a crosscutting aspect in the area of human performance associated with decision-making because the licensee did not make safety-significant decisions using a systematic process when faced with uncertain and unexpected conditions [H.1(a)] (Section 1R15).

- Green. The inspectors identified a noncited violation of Technical Specification 5.5.1.1 for the failure of maintenance personnel to have adequate procedures in place to ensure maintenance associated with a saltwater cooling isolation butterfly valve would not adversely impact the availability or operability of the component cooling water heat exchanger. Specifically, on January 8, 2008, inadequate procedures resulted in the failure to properly install butterfly Valve 2HCV6510. Additionally, the postmaintenance testing procedure was not adequate to verify the proper function of the valve prior to its return to service. This finding was entered into the licensee's corrective action program as Action Request 0806000104.

  The finding is greater than minor because the degraded saltwater cooling valve is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not result

in a loss of safety function of component cooling water Train A for greater than the Technical Specification allowed outage time. This finding has a crosscutting aspect in the area of human performance associated with resources because the licensee did not have complete, accurate, and up-to-date procedures [H.2(c)] (Section 1R19).

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period at essentially full power. On April 10, 2008, power was reduced to 65 percent to troubleshoot main feedwater pump Turbine K006 then returned to essentially full power on April 14. The unit was shutdown on May 31 for main transformer insulator replacements. The unit was returned to essentially full power on June 3, and remained there until June 5, when the unit tripped during stator water low flow testing. The unit was returned to essentially full power on June 10 and remained there for the duration of the inspection period.

Unit 3 operated at essentially full power until April 16, 2008, when the unit was shutdown for a planned midcycle outage. The unit was returned to 80 percent power on May 13. On May 30, power was increased to essentially full power 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

Readiness for Seasonal Extreme Weather Conditions

The inspectors completed a review of the licensee's readiness of seasonal susceptibilities involving extreme high temperatures, high winds, and fires. 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 systems listed below 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.

- May 28, 2008, Units 2 and 3, electrical switchyard
- June 2, 2008, Units 2 and 3, saltwater cooling (SWC)

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial Walkdown

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

- April 9, 2008, Unit 2, emergency diesel generator (EDG) Train B (2G003)
- June 4, 2008, Unit 2, SWC Train B while Train A was in a reverse flow configuration
- June 17, 2008, Unit 2, SWC Train A during periods of low tide

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

Introduction. The inspectors identified a Green noncited violation (NCV) of TS 5.5.1.1 for the failure of operations personnel to follow Procedure SO23-2-8.1, "Saltwater Cooling System Alignments," Revision 7. Specifically, on June 17, 2008, inspectors found air equalizing supply Valve HV6200 unsecured, contrary to procedural requirements.

Description. On January 8, 2006, component cooling water (CCW) noncritical loop return Valve 2HV6219 failed to stroke closed during the transfer of the CCW water noncritical loop from Train B to Train A. Apparent Cause Evaluation (ACE) 060100377 concluded that this valve stroke failure was a result of air supply equalizing valves becoming inadvertently opened. If these air supply equalizing valves are inadvertently opened, they can cause their associated air-operated valves to fail to stroke and render them unable to perform their respective safety functions. The licensee identified multiple safety-related, air-operated valves that would not operate properly if not correctly aligned. The corrective actions, implemented in March 2006, to prevent a subsequent inadvertent opening, was to change procedures to secure the respective air supply equalizing valves closed with a tie wrap. Work authorization requests (WARs), maintenance procedures which can change the alignment of valves to work on a specific section of piping, were not under the scope of ACE 060100377 for procedure changes.

WARs were generated on SWC Train A to perform maintenance during Refueling Outage 15. WARs were not under the scope of ACE 060100377, thus the WARs did not require the air supply equalizing valves to be secured closed and did not return the plant to its required alignment per Procedure SO23-2-8.1. As a result, air equalizing supply Valve HV6200 was not returned to its proper secured closed position. The lack

of thoroughness in the corrective actions allowed these WARs to reflect an improper alignment of the air supply equalizing valve as defined in Procedure SO23-2-8.1.

On June 17, 2008, inspectors performed a partial equipment alignment walkdown of the SWC system Train A. During this evolution, inspectors identified that air equalizing supply Valve HV6200, associated with the air-operated SWC discharge valve, was not secured closed with a tie wrap as specified in Procedure SO23-2-8.1.

The valve misalignment was entered into the licensee's corrective actions program as Nuclear Notification (NN) 200038227. Pursuant to this NN, the licensee performed visual inspections of all other susceptible valves as dictated by ACE 060100377. Five other valves were found not to be secured closed with a tie wrap. All valves missing tie wraps were subsequently secured in accordance with procedure.

Analysis. The performance deficiency associated with this finding involved the failure of operations personnel to follow Procedure SO23-2-8.1. The finding is greater than minor because it would become a more significant safety concern if left uncorrected, in that air-equalizing supply valves could be inadvertently opened rendering their associated air operated valves unable to perform their safety function. The finding affected the Mitigating Systems Cornerstone. Using Manual Chapter 0609 "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not result with the actual loss of system safety function. The finding has a crosscutting aspect in the area problem identification and resolution associated with the CAP, because the licensee did not thoroughly evaluate problems such that resolutions address causes and extent of condition [P.1(c)].

Enforcement. TS 5.5.1.1 requires, in part, that written procedures be established, implemented, and maintained covering the activities specified in Appendix A, "Typical Procedures for Pressurized Water Reactors and Boiling Water Reactors," of Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operations)," dated February 1978. Appendix A, Section 3, requires procedures for startup, operation, and shutdown of safety-related systems. Procedure SO23-2-8.1, "Saltwater Cooling System Alignments," Revision 7, described the necessary equipment alignment for the SWC system to be operable during power operations. Contrary to this requirement, on June 17, 2008, the licensee did not follow Procedure SO23-2-8.1, "Saltwater Cooling System Alignments," Revision 7. Specifically, inspectors found air equalizing supply Valve HV6200 unsecured, contrary to procedural requirements. Because the finding is of very low safety significance and has been entered into the licensee's CAP as NN 200038227, this violation is being treated as a noncited violation (NCV), consistent with Section VI.A of the Enforcement Policy: NCV 05000361; 362/2008003-01, "Air Supply Equalizing Valve Not Secured Closed Due To Failure To Follow Procedure."

1R05 Fire Protection (71111.05)

a. Inspection Scope

Quarterly Inspection

The inspectors walked down the five below 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.

- June 13, 2008, Unit 2, safety equipment building Rooms 2-5 and 15-26
- June 17, 2008, Unit 3, safety equipment building Rooms 2-5 and 15-26
- June 13, 2008, Unit 2, EDGs 2G002/3 Rooms A/B
- June 13, 2008, Units 2 and 3, auxiliary control and turbine room, cable tray room
- June 14, 2008, Unit 3, EDGs 3G002/3 Rooms A/B

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors: (1) reviewed the UFSAR, the flooding analysis, and plant procedures to assess seasonal susceptibilities involving internal flooding; (2) reviewed the UFSAR and 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 two 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.

- May 9, 2008, Units 2 and 3, SWC piping tunnel
- May 14, 2008, Unit 2, auxiliary feedwater pump steam line trench drains

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors performed the annual review of licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the Unit 2 Train A CCW Heat Exchanger S21203ME001. The inspectors verified that: (1) performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; (2) the licensee utilized the periodic maintenance method outlined in EPRI NP-7552, "Heat Exchanger Performance Monitoring Guidelines"; (3) the licensee properly utilized biofouling controls; (4) the licensee's heat exchanger inspections adequately assessed the state of cleanliness of their tubes; and (5) the heat exchanger was correctly categorized under the Maintenance Rule.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one annual sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

Quarterly Inspection

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 inspectors reviewed operations personnel response to a security drill conducted on May 7, 2008, that included participation by offsite responders. The scenario involved a security event in which portions of the plant's mitigating systems were unavailable.

The inspectors also reviewed a training scenario on June 12, 2008, that was part of crew requalification week. The scenario involved a series of instrument failure starting with letdown backpressure valve failure and inadvertent safety injection actuation signal and reactor trip. The inspectors observed a detailed crew debrief of crew performance by the instructor and team participants.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

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 Part 50, Appendix B, and the TSs.

- February 27, 2008, Units 2 and 3, switchyard effectiveness in maintenance rule tracking
- March 30, 2008, Units 2 and 3, offsite power polymer insulator upgrades

Documents reviewed by the inspectors are listed in the attachment.

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

- June 3, 2008, Unit 2, risk assessment and management of CCW/SWC reverse flow degraded

- June 13, 2008, Unit 3, risk assessment and management during control room emergency air conditioning unit excessive air flow, delayed TS exit

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

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

- April 1, 2008, Unit 3, proportional heater bank ground troubleshooting per Maintenance Order 08040146000
- April 4, 2008, Unit 2 and 3, switchyard Position 11 overcurrent signal found not connected to separation trip system during circuit testing
- April 6, 2008, Units 2 and 3, Switchyard Breaker A0417 electrical ground
- April 21, 2008, Units 2 and 3, low pressure safety injection system venting
- April 23, 2008, Unit 2, improper switch manipulation during matrix testing
- June 3, 2008, Unit 2, inadvertent reactivity addition during reactor startup

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

b. Findings

.1 Pressurizer Pressure Unexpected Increase

Introduction. A self-revealing Green NCV of TS 5.5.1.1 was identified for the failure of maintenance personnel to have adequate procedures in place to ensure troubleshooting associated with proportional heater Bank 3E123 would not adversely impact plant stability. Specifically, on April 3, 2008, lifting of an electrical lead during the troubleshooting process caused the proportional heater bank to be energized which resulted in a pressurizer pressure transient.

Description. On April 1, 2008, control room personnel observed that load Center 3B08, containing pressurizer pressure controls, indicated a 25 percent ground. Maintenance Order 08040146000 was generated to investigate the cause of the proportional heater Bank 3E123 ground indication and perform troubleshooting on the component.

On April 3, 2008, during the troubleshooting of load Center 3B08, maintenance personnel removed the proportional heater controller for bench testing to perform additional diagnostics. The removal of this controller lifted a lead that affected the control of proportional heater Bank 3E122, causing the proportional heater bank to fully energize, which was not recognized by operations personnel. This error resulted in a pressurizer pressure increase exceeding TS 3.4.1, "RCS DNB (Pressure, Temperature, and Flow) Limits," limit of 2275 psia, as pressure peaked at 2278 psia. Operators initiated actions to restore pressure and returned it to normal operating pressure within 1 hour; the allowed technical specification action time is 2 hours. The inspectors concluded that the troubleshooting plan did not have adequate detail to identify consequences of actions implemented under the plan.

Analysis. The performance deficiency associated with this finding involved the failure of maintenance personnel to have adequately preplanned procedures in place to ensure troubleshooting activities would not adversely impact plant stability. The finding is greater than minor because it affected the procedure quality attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown, as well as power operations. Using Manual Chapter 0609 "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not contribute to both the increased likelihood of a reactor trip and increased likelihood that mitigating systems will not be available. The finding has a crosscutting aspect in the area of human performance associated with work control because the licensee did not incorporate actions to address operational impact of work activities [H.3(b)].

Enforcement. TS 5.5.1.1 requires, in part, that written procedures be established, implemented, and maintained covering the activities specified in Appendix A, "Typical Procedures for Pressurized Water Reactors and Boiling Water Reactors," of Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operations)," dated February 1978. Appendix A. Section 9.a requires that procedures for performing maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Procedure SO23-XV-2, "Troubleshooting Plant Equipment and Systems," Revision 2, provides instruction on how to properly develop and implement a troubleshooting plan. Contrary to this requirement, on April 3, 2008, maintenance personnel did not have adequate procedures in place to ensure troubleshooting associated with proportional heater Bank 3E123 would not adversely impact plant stability. Specifically, lifting of a lead during the troubleshooting process fully energized the subsequent proportional heater bank in the circuit, which resulted in a pressurizer pressure transient exceeding the TS 3.4.1 limit of 2275 psia. Because the finding is of very low safety significance and has been entered into the licensee's CAP as AR 080400170, this violation is being treated as an NCV, consistent with Section VI.A of the Enforcement Policy: NCV 05000362/2008003-02, "Pressurizer Pressure Transient due to Inadequate Maintenance Procedure."

.2 Inadvertent Reactivity Addition

Introduction. A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion V, (Procedures) was identified for the failure of operations personnel to understand, monitor and perform a Unit 2 reactivity manipulation in accordance with procedural requirements. This failure contributed to the overfeeding of both steam generators as well as the inadvertent addition of positive reactivity during a planned startup.

Description. On June 3, 2008, operations personnel were conducting a planned startup following corrective maintenance activities performed on the main transformer insulators and on main feedwater Pump 2K006. While transferring auxiliary feedwater flow to steam Generators 2E088 and 2E089 from the auxiliary flow bypass valves to the main auxiliary feedwater discharge flow control valves, two control room operators, dedicated to reactivity addition responsibilities, noted narrow range water levels in both steam generators were lowering. The dedicated reactivity control room operators increased auxiliary feedwater flow from 140 gallons per minute (gpm) to 780 gpm over an 8-minute period to attempt to compensate for the lowering steam generator water levels. The dedicated reactivity control room operators did not question the abnormally high auxiliary feedwater flow conditions and did not communicate the unusual flow conditions to supervisory personnel available in the control room. The operations shift manager and the Unit 2 control room supervisor were available for assistance at the time of the anomaly.

The addition of excessive cold feedwater to the steam generators caused a power transient that raised reactor power approximately 2.8 percent and increased water levels in both steam generators to the high level pretrip setpoints. The dedicated reactivity addition control room operators then began lowering auxiliary feedwater flow. The control room supervisor noted the overfeeding of the steam generators and directed the auxiliary feedwater valves be fully closed. This action stopped the steam generator level increases and steam generator levels subsequently returned to normal.

The inspectors noted that the dedicated reactivity addition control room operators performing the evolution demonstrated a misunderstanding of the response steam generator water levels have to feedwater density changes at low power levels. The inspectors, therefore, concluded that the dedicated reactivity control room operators overfed the Unit 2 steam generators on a false assumption that feedwater flow requirements directly corresponded to steam generator water levels when transferring auxiliary feedwater flow from the auxiliary flow bypass valves to the main auxiliary feedwater discharge flow control valves. The inspectors further concluded that ample resources were available to the dedicated reactivity control room operators to assist in resolving the apparent feedwater/steam generator water level mismatch rather than proceeding in the face of uncertainty.

Procedure SO123-0-A1, “Conduct of Operations,” Revision 14, step 6.5.2.7, requires that all reactivity manipulations are to be identified and fully understood and shall be closely monitored to verify the expected magnitude, direction, and effects are realized. The inspectors concluded that operator response to this event was in violation of this procedural requirement.

Analysis. The failure to properly understand, monitor, and perform a Unit 2 reactivity manipulation was considered a performance deficiency. The finding is greater than minor because it is associated with the human performance attribute of the initiating events cornerstone and affects the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge the critical safety functions during shutdown as well as power operations. The finding affected the initiating events cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions will not be available. The finding has a crosscutting aspect in the area of human performance associated with work practices because operations personnel proceeded in the face of uncertainty or unexpected circumstances [H.4(a)].

Enforcement. The regulations in 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," require that activities affecting quality shall be prescribed by documented procedures of a type appropriate to the circumstance and shall be accomplished in accordance with these procedures. Procedure SO123-0-A1, "Conduct of Operations," Revision 14, step 6.5.2.7, requires, in part, that all reactivity manipulations are to be identified and fully understood and shall be closely monitored to verify the expected magnitude, direction, and effects are realized. Contrary to the above, on June 3, 2008, operations personnel failed to ensure a reactivity manipulation was properly understood, monitored, and performed. Because the finding is of very low safety significance and has been entered into the licensee's CAP as AR 0080600073, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy: NCV 05000361/2008003-03, A Failure to Properly Monitor and Execute a Unit 2 Reactivity Manipulation."

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 night 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 TSs; (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 7, 2008, Unit 2, EDG 2G002, failure during a 24 hour surveillance run due to annunciator power supply failure
- April 25, 2008, Units 2 and 3, control room voltage frequency meter inoperability
- April 14, 2008, Unit 3, EDG 3G002 failure during surveillance testing
- May 14, 2008, Unit 3, spent fuel pool cooling Pump 3P010 thermal overload misalignment

- June 3 - 20, 2008, Unit 2, operability impact of increased rate of fouling for CCW heat exchanger Train A

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed five samples.

b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the failure of operations and engineering personnel to follow procedures and adequately evaluate degraded, nonconforming, and unanalyzed conditions to support operability decision-making.

Description. On June 3, 2008, during a low tide condition, unexpected rapid fouling of the CCW heat exchanger Train A occurred while being supplied from SWC Pump S21413MP112. Operations personnel declared CCW Train A inoperable since the differential pressure across the heat exchanger was rapidly trending toward the inoperability point of 15 psid. Operations personnel initiated AR 080600076 to document the unexpected inoperability of CCW Train A. Procedure SO23-2-8, "Saltwater Cooling System Operations," Revision 29, was used to clean the heat exchanger through reverse flow operations which reduced the differential pressure to 6.7 psid. Following the evolution, operations personnel closed AR 080600076 since the high differential pressure condition was corrected. No operability assessment (OA) was performed since the condition was corrected, even though the condition that caused the unexpected rapid fouling was not fully understood. Further, operations and engineering personnel failed to recognize the unexpected rapid fouling as a condition that could challenge the operability of the CCW system.

The inspectors reviewed plant trend data and noted that CCW heat exchanger Train A was cleaned per Procedure SO23-2-8 on May 31, June 3, June 5, and June 6, 2008, when unexpected fouling caused differential pressure to increase to levels that required operations personnel to take action to maintain system operability. The inspectors observed that this frequency of heat exchanger cleaning was much greater than the normal historical frequency. The inspectors questioned operations and engineering personnel regarding the cause of the unexpected rate of heat exchanger fouling, and whether there was a degraded condition associated with the SWC system that called into question the operability of CCW Train A. On June 11, the licensee reopened AR 080600076 and initiated AR 080600438 to assess the condition. Operations personnel concluded, in part, that, although unexpected fouling of a CCW heat exchanger is highly undesirable, the presence of debris in the SWC system is not a degraded, nonconforming, or unanalyzed condition. They further concluded that the cleaning operation using reverse flow was effective in maintaining system operability.

The inspectors maintained the concern regarding CCW system operability, despite the licensee's conclusions, since the cause of the fouling was not fully understood and continued at a higher frequency than previously observed by the licensee. The inspectors questioned engineering personnel regarding the rate of heat exchanger fouling and whether the system would continue to perform its safety function under accident conditions. Engineering continued to describe CCW Train A as operable since

there was no degraded, nonconforming, or unanalyzed condition since system operability was maintained through reverse flow cleaning when necessary, and within the operability criteria contained in Procedure SO23-2-8, Attachment 4. Through review of Calculation M-0021-023, "CCW/SWC Heat Exchanger Operability," Revision 0, which was used to develop the operability criteria and through discussions with engineering personnel, the inspectors observed that Procedure SO23-2-8, Attachment 4, assumed a maximum fouling rate of 2.04 percent for the heat exchanger to be considered operable. The inspectors requested engineering personnel to determine the fouling rate that occurred on June 3 since the trend appeared to exceed the fouling rate assumption used in Calculation M-0021-023. On June 20, engineering personnel determined that the heat exchanger fouling rate was 6 percent, which exceeded the assumptions used to evaluate the operability of the CCW heat exchanger per the operability criteria of Procedure SO23-2-8, Attachment 4, and constituted an unanalyzed condition.

On June 20, after considerable involvement by the inspectors, operations and engineering personnel performed an OA. The OA determined that the CCW system was operable based on heat exchanger flow conditions, sea water temperature data, and tide conditions with Pump S21413MP112 in service. They also determined that, although the short term fouling rates exceeded 2.04 percent on several occasions, the average sustained rate over 5 hours was below 2.04 percent and did not invalidate the operability criteria. Further, since the SWC system was vulnerable to increased fouling during low tide levels, inspections of the Pump S21413MP112 suction were planned prior to the next extreme low tide period. On June 24, the licensee identified, through inspection, the unexpected accumulation of sand and large muscle shells at the suction of Pump S21413MP112 which caused the unexpected rapid fouling of the CCW heat exchanger Train A while being supplied from SWC Pump S21413MP112 during periods of extreme low tide. The accumulation of debris at the suction of Pump S21413MP112 was cleaned on June 24.

Analysis. The failure to adequately implement the operability determination process was a performance deficiency. The finding is greater than minor because the degraded CCW heat exchanger is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not result in a loss of safety function of CCW Train A for greater than the TS allowed outage time. This finding has a crosscutting aspect in the area of human performance associated with decision-making because the licensee did not make safety-significant decisions using a systematic process when faced with uncertain and unexpected conditions [H.1(a)].

Enforcement. 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," requires that activities affecting quality shall be prescribed by instructions, procedures, or drawings and shall be accomplished in accordance with those instructions, procedures, and drawings. The assessment of operability of safety-related equipment needed to mitigate accidents was an activity affecting quality and was implemented by Procedure SO123-XV-52, "Functionality Assessments and Operability Determinations," Revision 7. Procedure SO123-XV-52, step 1.0, states that the objective of the procedure is to provide guidelines and instructions for evaluating the operability of an SSC when a degraded, nonconforming, or unanalyzed condition is

identified. Contrary to the above, between June 3 and June 20, 2008, operations and engineering personnel failed to enter the operability determination process upon discovery of degraded and unanalyzed conditions that called into question the operability of an SSC described in TSs. Specifically, operations and engineering personnel failed to adequately evaluate the operability of the Unit 2 CCW system Train A when unexpected, rapid heat exchanger fouling occurred during low tide conditions. Because the finding is of very low safety significance and has been entered into the CAP as AR 080600438, this violation is being treated as an NCV, consistent with Section VI.A of the Enforcement Policy: NCV 05000361/2008003-04, "Failure to Properly Implement the Operability Determination Process."

1R18 Plant Modifications (71111.18)

a. Inspection Scope

Temporary Modifications

The inspectors reviewed the UFSAR, plant drawings, procedure requirements, operator logs, and TSs to ensure that the below listed temporary modification was properly implemented. The inspectors verified that: (1) the modifications did not have an effect on system operability/availability; (2) the installation was consistent with modification documents; (3) the post-installation test results were satisfactory and that the impact of the temporary modifications on permanently installed SSCs were supported by the test; (4) the modifications were identified on control room drawings and that appropriate identification tags were placed on the affected drawings; (5) the licensee evaluated the combined effects of temporary modifications; and (6) there were no temporary modifications installed that have not been evaluated. The inspectors verified that the licensee identified and implemented any needed corrective actions associated with temporary modifications.

- May 17, 2008, Unit 3, main feedwater block Valve 3HV4047 hydraulic leak temporary repair

Documents reviewed by the inspectors are listed in the attachment.

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 four 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 UFSAR to determine if the licensee identified and corrected problems related to postmaintenance testing.

- May 26, 2008, Unit 2, EDG 2G003 postmaintenance test following corrective maintenance

- April 16, 2008, Units 2 and 3, main turbine generator digital control system megawatt demand target logic program

- June 3, 2008, Unit 2, repairs to first stage steam pressure tube leak on pressure Transmitter 2052B

- June 18, 2008, Unit 2, SWC isolation Valve 2HV6510 review of maintenance order 0702223800 refueling outage

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

Introduction. The inspectors identified a Green NCV of TS 5.5.1.1 for the failure of maintenance personnel to have adequate procedures in place to ensure maintenance associated with an SWC isolation butterfly valve would not adversely impact the availability or operability of the CCW heat exchanger. Specifically, during reverse flow conditions, the butterfly valve was not properly seated closed and permitted sufficient amount of bypass flow to the CCW heat exchanger which impacted its operability.

Description. On June 3, 2008, operations personnel declared CCW heat exchanger inoperable due to high differential pressure across the heat exchanger. This condition was a result of a rapid influx of debris associated with the SWC system Train A (See Section 1R15). The heat exchanger was aligned to provide reverse flow and back flush the heat exchanger per Procedure SO23-2-8, “Saltwater Cooling System Operations,” Revision 29. While in this reverse flow alignment, operations personnel also recognized that the SWC flow was degraded enough to prevent them from declaring the heat exchanger operable per Procedure SO23-2-8, Attachment 4. The inspectors accompanied the system engineer on a walk down of the SWC during the evaluation of the degraded SWC flow. The inspectors inquired about the valve position on inlet Valve 2HV6510 and why it appeared to be out of alignment. Further, the inspectors noted that scribe marks on the butterfly valve shaft appeared to be out of alignment. The scribe marks were compared to the equivalent butterfly valves in Unit 3, and it was apparent that the isolation valve was not fully closed. Action Request 0806000104 documented the as found condition of the SWC system and the degraded flow.

On June 4, 2008, maintenance personnel confirmed isolation Valve 2HCV6510 was not correctly positioned in the open or closed positions because of actuator misalignment. The valve allowed 10-15 percent flow when in the closed position. The degraded

condition impacted operability of the CCW heat exchanger during back flushing because SWC flow was 4000 gpm below expected.

The inspectors observed that SWC inlet Valve 2HCV6510 was replaced during the Unit 2 Refueling outage in December 2007, and returned to service January 8, 2008. The butterfly valve was replaced with a refurbished valve and during the actuator reinstallation the valve became misaligned. Maintenance workers marked out steps in the work instructions to check the alignment as "not applicable." Procedure SO123-I-1.7, "Maintenance Order Preparation and Processing," provided details on postmaintenance testing and stated in Attachment 3, "Maintenance Verification Testing Checklist," that "valve leak-thru" should be considered when developing work orders. However, the maintenance order did not provide postmaintenance test guidance as required by Procedure SO123-I-1.7 and as a result, no postmaintenance test was performed to verify that the valve was properly installed. Consequently, the CCW heat exchanger was not capable of performing its intended function, which caused the CCW heat exchanger to be inoperable, while in back flush operations on June 3, 2008.

SWC fouling of the CCW heat exchanger is considered a routine occurrence because of changes to seasonal ocean conditions and from January to May 2008 there were two occasions operators were required to reverse SWC flow to the CCW heat exchanger for back flushing. These reverse flow realignments occurred on April 17, 2008, and May 31, 2008, but the degraded SWC flow conditions were not recognized or documented.

The licensee's postmaintenance program and procedures allowed the degraded SWC valve to be returned to service without the appropriate verification of the valve function while in reverse flow operations. Procedure SO23-XV-1 "Post-maintenance Testing Guidelines," did not provide postmaintenance test guidance for SWC manual valves, because of an incorrect assumption that these valves are used only for maintenance purposes. The licensee performed a walkdown of similar manual operated valves to ensure they were aligned properly. Other corrective actions are being addressed in AR 0806000104.

Analysis. The failure to adequately implement the postmaintenance testing of critical valves important to safety was a performance deficiency. The finding is greater than minor because the degraded SWC valve is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not result in a loss of safety function of CCW Train A for greater than the TS allowed outage time. This finding has a crosscutting aspect in the area of human performance associated with resources because the licensee did not have complete, accurate, and up-to-date procedures [H.2(c)].

Enforcement. TS 5.5.1.1 requires, in part, that written procedures be established, implemented, and maintained covering the activities specified in Appendix A, "Typical Procedures for Pressurized Water Reactors and Boiling Water Reactors," of Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operations)," dated February 1978. Regulatory Guide 1.33, Appendix A, Section 9.a, requires that procedures for

performing maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Procedure SO123-I-1.7, "Maintenance Order Preparation and Processing," provided details on postmaintenance testing and stated in Attachment 3, "Maintenance Verification Testing Checklist," that "valve leak-thru" should be considered when developing work orders. Contrary to this requirement, on June 3, 2008, Maintenance Order 07022238000 did not consider verification of valve seat leakage following maintenance. Specifically, following replacement of the SWC Butterfly Valve 2HCV6510 postmaintenance testing was not done to verify the proper function of the valve prior to its return to service. Because the finding is of very low safety significance and has been entered into the licensee's CAP as AR 0806000104, this violation is being treated as an NCV consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000362/2008003-05, "CCW Heat Exchanger Not Operable Due to Inadequate Maintenance Procedure."

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the following risk significant refueling items or outage activities to verify defense in depth commensurate with the outage risk control plan, compliance with the TSs, and adherence to commitments in response to Generic Letter (GL) 88-17, "Loss of Decay Heat Removal": (1) the risk control plan, (2) tagging/clearance activities, (3) reactor coolant system instrumentation, (4) electrical power; (5) decay heat removal, (6) spent fuel pool cooling, (7) inventory control, (8) reactivity control, (9) containment closure, (10) reduced inventory or midloop conditions, (11) refueling activities, (12) heatup and cooldown activities, (13) restart activities, and (14) licensee identification and implementation of appropriate corrective actions associated with refueling and outage activities.

- April 16, 2008, Unit 3, shutdown to Mode 3, midcycle outage to conserve fuel and perform minor maintenance

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No other findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the UFSAR, procedure requirements, and TSs to ensure that the three below listed surveillance activities demonstrated that the SSCs 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 to demonstrate TS operability; (9) test equipment removal; (10) restoration of plant systems; (11) fulfillment of American Society of Mechanical Engineers Code requirements; (12) updating of performance indicator data; (13) engineering evaluations, root causes, and bases for returning tested SSCs 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.

- June 6, 2008, Unit 2, main generator stator water low flow test
- April 3, 2008, Units 2 and 3, Southern California Edison/San Diego Gas and Electric crosstie relay surveillance test
- April 11, 2008, Unit 3, auxiliary feedwater Pump 3P504 scheduled surveillance (Inservice Test)

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

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

- April 2, 2008, Units 2 and 3 simulator, reactor coolant Pump 2P001 seal failure

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1EP7 Force-on-Force (FOF) Exercise Evaluation (71114.07)

a. Inspection Scope

For the drill listed below, inspectors: (1) reviewed any emergency preparedness corrective actions identified during previous FOF exercises that would be demonstrated during the current FOF exercise; (2) observed the emergency preparedness portion of the FOF exercise to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation activities; and (3) compared the identified weaknesses and deficiencies against licensee identified findings to determine whether the licensee is properly identifying and correcting failures.

- April 16, 2008, emergency preparedness portion of the FOF evaluation

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

Cornerstone: Initiating Events

a. Inspection

The inspectors sampled licensee submittals for the three performance indicators listed below for the period July 2007 to March 2008, for Units 2 and 3. The definitions and guidance of NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used to verify the licensee's basis for reporting each data element in order to verify the accuracy of performance indicator data reported during the assessment period. The inspectors reviewed licensee event reports, monthly operating reports, and operating logs as part of the assessment.

- Unplanned Scrams per 7,000 Critical Hours
- Unplanned Scrams with Loss Of Normal Heat Removal
- Unplanned Power Changes per 7,000 Critical Hours

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

Cornerstone: Mitigating Systems

The inspectors sampled licensee data for the Mitigating Systems Performance Index (MSPI) listed below for the period from July 2007 through March 2008, for Units 2 and 3. The definitions and guidance of NEI 99-02, "Regulatory Assessment Performance Indicator Guidelines," Revision 5, were used to verify the licensee's basis for reporting unavailability and unreliability in order to verify the accuracy of performance indicator data. The inspectors reviewed operating logs, Limiting Condition for Operation logs, condition report/disposition requests, and the Maintenance Rule database to verify that the licensee properly accounted for planned and unplanned unavailability as part of the assessment. The inspectors sampled data to verify that the licensee: (1) accurately documented the actual unavailability hours for the MSPI system, and (2) accurately documented the actual unreliability information for the MSPI monitored component.

- High pressure safety injection system

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

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

.2 Selected Issue Follow-up Inspection

a. Inspection Scope

In addition to the routine review, the inspectors selected the below listed issue for a more in-depth review. The inspectors considered the following during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner, (2) evaluation and disposition of operability/reportability issues, (3) consideration of extent of condition, generic implications, common cause, and previous occurrences, (4) classification and prioritization of the resolution of the problem, (5) identification of root and contributing causes of the problem, (6) identification of corrective actions, and (7) completion of corrective actions in a timely manner.

- April 10, 2008, Unit 2, reactor power reduction to support main feedwater Pump K006 troubleshooting

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

Introduction. A self-revealing Green NCV of TS 5.5.1.1 was identified associated with the failure to implement procedural guidance to ensure a Unit 2 power reduction was properly performed. Lack of supervisory oversight resulted in an uncoordinated power reduction, resulting in a steam generator low pressure pretrip annunciator.

Description. On April 10, 2008, operations personnel reduced Unit 2 power to approximately 65 percent in support of repair of main feedwater Pump 2K006. Operations personnel injected approximately 80 gallons of boric acid to the charging pump suction. The acid injection caused a lowering of reactor coolant system temperature and steam generator pressure at a rate greater than expected by the two dedicated licensed operators assigned to the evolution. The operators did not act in a timely manner to reduce turbine load to match the reactor power reduction to maintain steam generator pressure above the low pressure pretrip setpoint of 781 psig. Actual pressure in Steam Generator 2EO88 reached 780.75 psig, and its associated steam generator low pressure pretrip annunciator alarmed. Procedure SO23-5-1.7, “Power Operations Limitations and Specifics,” Attachment 12, Revision 38, step 1.7, requires that plant parameters be maintained in their appropriate operating bands during a power reduction. The inspectors concluded that the procedural requirements were not met.

The inspectors further noted that the control room supervisor and shift manager were not directly involved with the reactivity manipulation. They were present at the prejob brief for the power change, but were not present during the reactivity change itself. Instead, both the shift manager and control room supervisor were focused on the performance of the main feedwater pumps during the Unit 2 downpower evolution. The inspectors concluded that the lack of supervisory oversight over the reactivity change contributed to the failure of operations personnel to perform the downpower evolution in accordance with procedural requirements.

The licensee indicated that emphasis would be placed on supervisory oversight during reactivity changes, and that procedural enhancements would be incorporated to provide enhanced guidance to operations personnel to prevent recurrence. The licensee also indicated that additional training on reactivity evolutions would be provided to operations personnel. The inspectors considered that these initiatives were appropriate.

Analysis. The failure to follow procedures to perform a power reduction was a performance deficiency. The finding is greater than minor because it is associated with the human performance attribute of the Initiating Events Cornerstone and affects the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge the critical safety functions during shutdown as well as power operations. Using Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheets, the finding was determined to have very low safety significance

because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available. The finding has a crosscutting aspect in the area of human performance associated with work practices because supervisory operations personnel did not ensure that the work activity was properly supervised to ensure the support of nuclear safety [H.4(c)].

Enforcement. TS 5.5.1.1 requires that written procedures be established, implemented, and maintained for activities specified in Appendix A, "Typical Procedures for Pressurized Water Reactors and Boiling Water Reactors," of Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operations), dated February 1978. Regulatory Guide 1.33, Appendix A, Section 2.f, recommends general operating procedures be established and implemented for plant load changes. Procedure SO23-5-1.7, "Power Operations Limitations and Specifics," Revision 38, contains the requirement to maintain plant parameters in their appropriate operating bands during a power reduction. Contrary to this requirement, on April 10, 2008, operations personnel failed to implement appropriate procedures to properly perform a power reduction from full power to 65 percent in support of a planned repair of a main feedwater pump. Because this violation is of very low safety significance and has been entered into the licensee's CAP as AR 080400544, it is being treated as an NCV consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361/2008003-06, "Failure to Implement Procedural Requirements for Planned Unit 2 Power Reduction."

.3 Semiannual Trend Review

a. Inspection Scope

The inspectors completed a semi-annual trend review of repetitive or closely related issues that were documented to identify trends that might indicate the existence of more safety significant issues, specifically in the areas of procedural compliance and human performance. The inspectors review consisted of the six month period from January 1, 2008, through June 26, 2008. When warranted, some of the samples expanded beyond those dates to fully assess the issue. The inspectors also reviewed CAP items associated with human performance improvement, and met with representatives from the San Onofre human performance improvement team at regular intervals. Corrective actions associated with a sample of the issues identified in the licensee's trend report were reviewed for adequacy.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified. However, the inspectors noted that the licensee continued to attempt to implement human performance initiatives to prevent personnel errors.

.4 Cross-References to Problem Identification and Resolution Observations and Findings Documented Elsewhere

Section 1R04 describes a finding where the licensee did not thoroughly evaluate problems such that resolutions address causes and extent of condition

4OA3 Followup of Events and Notices of Enforcement Discretion (71153)

.1 Event Follow Up

a. Inspection Scope

The inspectors reviewed the one below listed event for plant status and mitigating actions to: (1) provide input in determining the appropriate agency response in accordance with Management Directive 8.3, "NRC Incident Investigation Program"; (2) evaluate performance of mitigating systems and licensee actions; and (3) confirm that the licensee properly classified the event in accordance with emergency action level procedures and made timely notifications to NRC and state/governments, as required.

- June 6, 2008, Unit 2, turbine trip and subsequent reactor trip as a result of low cooling water flow to the main generator rectifier while performing stator water low flow testing

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Exercise of Enforcement Discretion for Willful Violation of Radiation Exposure Permit Instructions (EA 08-055)

On May 17, 2007, a roving firewatch failed to follow Procedure SO123-VII-20.11, "Access Control Program," Revision II, which required individuals to comply with radiation exposure permit instructions, postings, and health physics field instructions. Contrary to procedure requirements and two separate briefings by health physics technicians, the individual willfully exited the radiological controlled area at an unapproved location, by crossing under the rope boundary, and did not frisk. This willful violation was identified by licensee personnel and corrective actions were immediately taken including: (1) checking the individual for contamination, (2) denying the individual access to SONGS, and (3) terminating the individual's employment.

The Confirmatory Order, dated January 11, 2008, states, in part, that, for a period of 6 months following issuance of the Order, the NRC will grant enforcement discretion if the NRC concludes that the provisions of Section VII.B.4 of the Enforcement Policy have been met. The NRC has reviewed the five criteria and concluded that the violation meets all the criteria for enforcement discretion; therefore, the NRC is not taking enforcement action for this violation.

As part of the NRC Office of Investigations' review that began on January 9, 2007, and as documented in NRC Inspection Report 05000361/2007016; 5000362/2007016, the NRC identified five Severity Level IV violations involving willfulness. The licensee has taken substantial corrective actions to address the specific aspects of the violations as documented in the Confirmatory Order, including: (1) performing a common cause evaluation involving the willful events to determine the root and contributing causes for the collective issues, (2) corrective actions for the root and contributing causes were entered into the CAP, (3) conducting an independent safety culture assessment and incorporating the results into the CAP, (4) conducting ethics and integrity training for managers, supervisors and other employees, and (5) performing periodic sampling of repetitive rounds and log-keeping to deter and detect instances of noncompliance.

4OA5 Other Activities

.1 (Closed) Temporary Instruction 2515/166, "Pressurized Water Reactor Containment Sump Blockage," San Onofre Nuclear Generating Station, Units 2 and 3

a. Inspection Scope

The inspector completed an in-office review of the final commitments and submittals to GL 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors," for San Onofre Nuclear Generating Station, Units 2 and 3. The results of this final inspection are documented in this report. Initial inspection of physical modifications and programmatic controls were documented in NRC Inspection Report 05000361/2007005; 5000362/2007005. No concerns were identified.

The licensee installed new sump strainers in Unit 2 during the fall/winter 2007 refueling outage and in Unit 3 during the fall 2006 refueling outage. The resident inspectors observed final installation of the sump strainers for each unit during those refueling outage.

On December 31, 2007, the licensee requested an extension to February 29, 2008, to submit their final response to GL 2004-02. The extension allowed necessary internal review of documents associated with the head loss calculation, chemical effects evaluations, emergency core cooling pump margins, and downstream effects. The licensee submitted the final response to GL 2004-02, in a letter dated February 27, 2008, (ML 080600406). The NRC's Office of Nuclear Reactor Regulation will review the licensee's final response.

Temporary Instruction 2515/166 for San Onofre Nuclear Generating Station, Units 2 and 3, is closed.

Listed below are the commitments and actions taken by the licensee:

1. Design and procurement of replacement sump strainers

Actions Taken

Engineering Change Packet ECP 040301974-11 dated July 17, 2006, provides for the design changes of containment sump to address sump blockage concerns. This

engineering change packet has undergone NRC audit. Supplemental responses to the NRC open items were submitted in a letter dated February 27, 2008. Materials for the sump screens were installed in both units.

2. Resolution of potential susceptibility of emergency core cooling system and containment spray system pump mechanical seal to increased leakage due to debris mix passing through the seals.

Actions Taken

The licensee has completed calculations to evaluate seal leakage due to debris ingestion. This action has undergone NRC review and supplemental responses to the NRC open items were submitted in a letter dated February 27, 2008.

3. Resolution of potential susceptibility of emergency core cooling system and containment spray system pump mechanical seal cyclone separators to debris blockage.

Actions Taken

The licensee has completed testing and calculations to evaluate seal leakage due to debris ingestion. This action has undergone NRC review and supplemental responses to the NRC open items were submitted in a letter dated February 27, 2008.

4. Development of a reduced qualified protective coatings zone of influence

Actions Taken

Licensee Calculation ALION-CAL-SONGS2933-02, Revision 1 “San Onofre Units 2 and 3 GSI 191 Containment Recirculation Sump Evaluation: Debris Generation Calculation,” documents the assumptions and methodology that the licensee applied to determine the zone of influence and debris generated for each postulated break. This calculation has undergone NRC review. Supplemental responses to the NRC open items were submitted in a letter dated February 27, 2008.

5. Validation of the 8 percent head loss margin adjustment factor for chemical effects (San Onofre Nuclear Generating Station, Units 2 and 3, uses Trisodium Phosphate as a postloss of coolant pH buffering agent, and pertinent debris loads are primarily mineral wool fibrous insulation, making NRC's Integrated Chemical Effects Test 2 generally applicable, but the licensee stated that chemical effects values were subject to follow-up sump screen vendor testing, and Southern California Edison evaluations and walkdowns).

Actions Taken

Chemical effect tests were completed by Alion Science and Technology, and directly observed by the NRC, in Warrenville, Illinois on August 17 18, 2006. Open items from the NRC’s review were addressed and supplemental responses to the NRC were submitted on February 27, 2008.

6. Containment insulation configuration control to ensure the amounts and types of insulation remain within acceptable debris loading design margins.

Actions Taken

The licensee has removed microtherm insulation on four different piping segments in containment. This insulation is to be replaced by reflective metal insulation where appropriate. Mineral wool insulation on the steam generators is to be replaced with reflected metal installation during the steam generator replacement activities in 2009 and 2010. These actions have undergone NRC review and supplemental responses to the NRC were submitted on February 27, 2008.

7. Replace sump screens at San Onofre Nuclear Generating Station, Units 2 and 3.

Actions Taken

Work was completed for Unit 2 in January 2008 and Unit 3 in fall 2006. No concerns were identified.

8. Removal of microporous insulation on piping to be completed coincident with sump screen replacement.

Actions Taken

Work was completed for Unit 2 in January 2008 and Unit 3 in fall 2006. No concerns were identified.

9. Modification of steel grates at the entry to the bioshield to reduce the potential for debris blockage and resultant hold-up of recirculating water to be completed coincident with sump screen replacement.

Actions Taken

Work was completed for Unit 2 in January 2008 and Unit 3 in fall 2006. No concerns were identified.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

No findings of significance were identified.

.2 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with San Onofre Nuclear Generating Station security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

The inspectors presented the inspection results to Mr. Ross T. Ridenoure, Senior Vice President and Chief Nuclear Officer, and other members of the licensee's management staff at the conclusion of the inspection period on July 2, 2008. The licensee acknowledged the findings presented.

On June 18, 2008, the inspector presented the findings of the inspection per Temporary Instruction 2515/166 to Mr. D. Axline. The licensee acknowledged the inspection findings.

The inspectors noted that while proprietary information was reviewed, none would be included in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee

B. Ashbrook, Supervisor, Emergency Preparedness
D. Axline, Technical Specialist, Nuclear Regulatory Affairs
D. Breig, Manager, Engineering Standards and Excellence
B. Corbett, Manager, Health Physics
B. Culverhouse, Manager, Site Support Services/Offsite of Emergency Preparedness
J. Dahl, Operations Manager
D. Deglopper, Technical Specialist, Health Physics Planning
J. F. Fee, Manager, Emergency Preparedness
S. Genshaw, Manager, Maintenance/System Engineering
S. Gardner, Engineer, Nuclear Regulatory Affairs
J. Hirsch, Manager, Maintenance
K. Johnson, Manager, Design Engineering
M. Johnson, Manager, Support Services
R. Nielsen, Supervisor, Nuclear Oversight
M. McBrearty, Technical Specialist, Nuclear Regulatory Affairs
N. Quigley, Manager, Mechanical/Nuclear Maintenance Engineering
J. Reilly, Vice-President, Engineering and Technical Services
R. Richter, Engineering Supervisor, Fire Protection
A. Scherer, Manager, Nuclear Regulatory Affairs
R. St. Onge, Manager, Maintenance and Systems Engineering
K. K. Strand, Manager, Site Emergency Preparedness
T. Vogt, Manager, System Engineering
D. Wilcockson, Manager, Operations and Engineering Training
C. Williams, Manager, Compliance
T. Yackle, Manager, Operations

Nuclear Regulatory Commission

D. Loveless, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000361; 362 / 2008003-01	NCV	Air Supply Equalizing Valve Not Secured Closed Due To Failure To Follow Procedure (Section 1R04)
05000362/2008003-02	NCV	Pressurizer Pressure Transient due to Inadequate Maintenance Procedure (Section 1R13.1)
05000361/2008003-03	NCV	Failure to Properly Monitor and Execute a Unit 2 Reactivity Manipulation (Section 1R13.2)

05000361/2008003-04	NCV	Failure to Properly Implement the Operability Determination Process (Section 1R15)
05000362/2008003-05	NCV	CCW heat exchanger not operable due to Inadequate Maintenance Procedure (Section 1R19)
05000361/2008003-06	NCV	Failure to Implement Procedural Requirements for Planned Unit 2 Power Reduction (Section 4OA2)

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

Miscellaneous

LER 2008-002-00	Disturbance of the Pacific DC Intertie Cause Offsite Power Frequency to dip Below Operability Limits	May 20, 2008
LER 2008-003-00	Disturbance of the Pacific DC Intertie Cause Offsite Power Frequency to dip Below Operability Limits	May 29, 2008

Procedures

NUMBER	TITLE	REVISION
SO23-3-3.23	A.C. Sources Verification	7
SO23-13-4	Operation During Major System Disturbances	11

Section 1R04: Equipment Alignment

Procedures

NUMBER	TITLE	REVISION
SO23-2-8.1	Saltwater Cooling System Alignments	7
SO23-2-8.1	Saltwater Cooling System Alignments	3

Drawing

NUMBER	TITLE	REVISION
40126A	Component Cooling Water System (Saltwater Pumps)	28

Action Request

060100377

Section 1R05: Fire Protection

Drawings

NUMBER	TITLE	REVISION
8-15	Safety Equipment Bldg; Unit 2 El. -15' -6" and -5' -3"; Fire Protection Features	2
3-038	Safety Equipment Bldg; Unit 3 El. -5' -3"; Fire Protection Features	6
3-039	Safety Equipment Bldg; Unit 3 -15' -6"; Protection Features	4
2/3-020	Auxiliary Control and Turbine, El (-)5'-0" to 9'-0"	6
2-013	Diesel Generator and Diesel Fuel Transfer Pump Rooms, A&B Unit 2 El 20'-0" to 48'-9"	6
3-045	Diesel Generator and Diesel Fuel Transfer Pump Rooms A&B Unit 3 El 20'-0" to 48'-9"	6
83092	Diesel Gen. Bldg. & Tank Bldg. Unit 3 El 30'-6" Fire Protection Features	5
83077	Diesel Gen. Bldg. & Tank Bldg. Unit 2 El 30'-6" Fire Protection Features	6
2-011	AFW Pump Room, AFW Pipe Tunnel, Refueling Water and Condensate Storage Tanks Unit 2, (-)2'-6" to 30'-6"	5

Miscellaneous

NUMBER	TITLE	REVISION
	Pre-Fire Plan Strategies	11

Section 1R06: Flood Protection Measures

Procedures

NUMBER	TITLE	REVISION
SO23-2-4	Auxiliary Feedwater Operations	23
SO23-12-5	Excess Steam Demand Event	21

Drawings

NUMBER	TITLE	REVISION
2Y052	General Piping Arrangement Saltwater Cooling Piping (-) 9' Elevation	6
2Y0005	General Piping Arrangement Auxiliary Building	8

Action Request

080500286

Section 1R07: Heat Sink Performance

Procedures

NUMBER	TITLE	REVISION
SO23-5-1.1	Heat Treating the Circulating Water System	21
SO23-2-8	Saltwater Cooling System Operations	29
SO23-I-8.9	Component Cooling Water Heat Exchanger Cleaning	8

Drawings

NUMBER	TITLE	REVISION
SO23-507-2-1-403	Fisher Manual Actuator Assembly	1
40127C	CCW P&I Diagram	44

Action Requests

080600076 080600438

080600104

Maintenance Order

07022238000

Miscellaneous

NUMBER	TITLE	REVISION
M-0027-023	CCW/SWC Heat Exchanger Operability	TCN 10

Section 1R11: Licensed Operator Requalification Program

Procedures

NUMBER	TITLE	REVISION
SO23-13-17	Recovery From Inadvertent Safety Injection/Containment Isolation or Containment Spray	5
SO23-12-1	Standard Post Trip Actions	21
SO23-13-27	Pressurizer Pressure and level Malfunction	3
SO23-12-2	Reactor Trip Recovery	18
SO23-12-10	Safety Function Status Check, Att. SF-2	3
SO123-O-A7	Notification and Reporting of Significant Events	7
SO23-O-A8	Trip/Transient and Event Review	5

Miscellaneous

NUMBER	TITLE	REVISION
Emergency Plan Drill 0803	Offsite Agency Security Drill	0

Section 1R12: Maintenance Effectiveness

Action Requests

080400344 080301404

Miscellaneous

Risk Monitor Evaluation dated February 27, 2008

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

NUMBER	TITLE	REVISION
SO23-V-9	Ventilation Filter Test Program(VFTP)	3
SO23-3-3.20	Monthly CREACUS Test, Control RM Cooler Exercise Run and ECWS Minimum Operability Verification	21
SO23-3-3.18	Component Cooling/Saltwater System Tests	13
SO23-2-8	Saltwater Cooling System Operation	29

Drawings

NUMBER	TITLE	REVISION
40098	Air Flow Diagram – Train A Control Bldg _EL. 30'-0"	12
411-501	Plant Protection System Simplified Functional Diagram (matrix)	5

Action Requests

080400170	080400938	080600586
080400246	080600073	080600587
080400273	080600104	

Miscellaneous

NUMBER	TITLE	REVISION
UFSAR 2/3	9.2.1.2.2 Saltwater Cooling Pump Description	May 2007
DBD-SO23-410	Saltwater Cooling System Design Basis	Revision 8

Section 1R15: Operability Evaluations

NUMBER	TITLE	REVISION
SO123-XV-52	Functionality Assessments and Operability Determinations	7 (TCN-1)
M-0027-023	CCW/SWC Heat Exchanger Operability	0

Drawings

NUMBER	TITLE	REVISION
SO23-403-196	Unit 2 EDG 2G002/3 Annunciator Circuit	10

Action Requests

080600438 080600076 080400344 080201295

Maintenance Orders

08060954000 05070135000

Section 1R18: Plant Modifications

Drawings

NUMBER	TITLE	REVISION
40156ES03	P&I Diagram, High Pressure Feedwater System Electro-hydraulic valve (3HV4047)	14

Section 1R19: Postmaintenance Testing

Procedures

NUMBER	TITLE	REVISION
SO23-3-3.23	Diesel Generator Monthly Surveillance	33
SO123-I-1.7	Maintenance Order Preparation and Processing	14
SO23-XV-1	Post Maintenance Retest Guide	8
TQAM4-G	Test Controls	10
TQAM5-C	Maintenance Program	25
SO123-I-6.16	Valve Repacking and Initial Adjustment	12
SO23-3-3.23	Diesel Generator Monthly surveillance	33

Action Requests

070100020	080400782	080600104
080301772	080500859	080600130

Maintenance Orders

0860319000	080600104

Other

SD-S023-410 Saltwater cooling system description, revision 4

Drawings

50221 30” Type 7670 Valve Fisher Limitorque H3BC manual actuator, revision 2

Section 1R20: Refueling and Other Outage Activities

Procedures

NUMBER	TITLE	REVISION
SO23-10-2	Main Turbine Generator Shutdown	2
SO23-9-4	Steam Generator Blow Down Processing System Operations	18
SO23-5-1.4	Plant Shutdown to Hot Standby	15

Action Requests

080400782

Section 1R22: Surveillance Testing

Procedures

NUMBER	TITLE	REVISION
SO23-6-25	Generator Stator Cooling Water System Operation	19
SO23-3-3.60.6	Auxiliary Feedwater Pump 3P504 Test	14

Action Requests

080500430 080600212

Maintenance Order

05120731000

Section 1EP6: Drill Evaluation

Miscellaneous

Emergency Plan Drill 0801, dated April 2, 2008

Section 1EP7: Force-on-Force (FOF) Exercise Evaluation

Miscellaneous

Emergency Plan Drill, dated April 16, 2008

Procedures

NUMBER	TITLE	REVISION
SO123-EP-1	SONGS Emergency Plan Implementation	7
SO123-VIII-1	Recognition and Classification of Emergencies	27

SO123-VIII-10.6	Emergency Declared Security Event	1
SO123-VIII-0.200	Emergency Plan Drills and Exercises	10
SO23-13-25	Operator Actions During Security Events	11

Section 4OA2: Identification and Resolution of Problems

Procedures

NUMBER	TITLE	REVISION
SO23-5-1.7	Power Operations Limitations and Specifics	38

Action Requests

080401137 080401147 080401149

Miscellaneous

NUMBER	TITLE	REVISION
Policy Note 14	Human Performance Strategic Plan	November 9, 2007

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion

Procedures

NUMBER	TITLE	REVISION
SO23-XV-2	Troubleshooting Plant Equipment and Systems	2
SO23-934-M74	SONGS Feedwater Control System Application Software Test Procedure	0

Action Requests

080600212 080600219

Miscellaneous

Special On-site Review Committee Meeting Notes, dated June 07, 2008
EN-44273, Event Notification Worksheet

Section 4OA5: Other Activities

Miscellaneous

NUMBER	TITLE	REVISION

NUMBER	TITLE	REVISION
Letter from Ridenoure to NRC	Docket Nos. 50-361 and 50-362, NRC Generic Letter 2004-02, San Onofre Nuclear Generating Station, Units 2 and 3	February 27, 2008
RPA 02-0080	Quantification of Containment Latent Debris	1
ECP#04031974-74	Microtherm Insulation to RMI Change-out ECP; Unit 2	
ECP# 04031974-58	Microtherm Insulation to RMI Change-out ECP; Unit 3	
ECP# 04031974-12	Sump Screen Installation and Bioshield Gate Modification ECP; Unit 2	
ECP#04031974-11	Sump Screen Installation and Bioshield Gate Modification ECP; Unit 3	
Letter to NRC from SCE:	NRC Generic Letter 2004-02 Response To NRC Request For Information San Onofre Nuclear Generating Station Units 2 and 3	March 7, 2005
Letter to SCE from NRC:	San Onofre Nuclear Generating Station, Units 2 and 3,- Request For Additional Information (RAI) Related to Generic Letter 2004-02, "Potential Impact Of Debris Blockage On Emergency Sump Recirculation At Pressurized-Water Reactors" (TAC NOS. MC4714 and MC4715)	June 2, 2005
Letter to NRC from SCE:	NRC Generic Letter 2004-02 Response To NRC Request For Additional Information	July 5, 2005
Letter to NRC from SCE:	NRC Generic Letter 2004-02 San Onofre Nuclear Generating Station Units 2 and 3	September 1, 2005
Letter to SCE from NRC:	San Onofre Nuclear Generating Station, Units 2 and 3, Request For Additional Information RE: Response to Generic Letter 2004-02, "Potential Impact Of Debris Blockage On Emergency Sump Recirculation At Pressurized-Water Reactors" (TAC NOS. MC4714 and MC4715)	February 9, 2006
Letter to PWR Owners Group from NRC:	Alternative Approach for Responding to the Nuclear Regulatory Commission Request for Additional Information Letter RE: Generic Letter 2004-02 (TAC NOS. See Enclosure)	March 26, 2006
Letter to PWR Owners Group from NRC:	Alternative Approach for Responding to the Nuclear Regulatory Commission Request for Additional Information Letter RE: Generic Letter 2004-02 (TAC NOS. See Enclosure)	January 4, 2007

NUMBER	TITLE	REVISION
	San Onofre Nuclear Generating Station, Units 2 and 3-Report on Results of Staff Audit of Corrective Actions to Address Generic Letter 2004-02 (TAC NOS. MC4714 and MC4715)	May 16, 2007
Letter to NEI from NRC:	Plant-Specific Requests for Extension of Time to Complete One or More Corrective Actions for Generic Letter 2004-02, "Potential Impact Of Debris Blockage On Emergency Recirculation During Design Basis Accidents At Pressurized-Water Reactors"	November 8, 2007
Letter to NEI from NRC:	Supplemental Licensee Responses to Generic Letter 2004-02, "Potential Impact Of Debris Blockage On Emergency Recirculation During Design Basis Accidents At Pressurized-Water Reactors"	November 30, 2007

LIST OF ACRONYMS USED

ACE	apparent cause evaluation
CAP	corrective action program
CFR	*Code of Federal Regulations*
CCW	component cooling water
EDG	emergency diesel generator
FOF	force-o-force
GL	Generic Letter
MSPI	Mitigating Systems Performance Index
NCV	noncited violation
NEI	Nuclear Energy Institute
NN	Nuclear Notification
NRC	U.S. Nuclear Regulatory Commission
OA	operability assessment
RCS	reactor coolant system
SSC	systems, structures, and components
SWC	saltwater cooling
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WAR	work authorization request