



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION IV  
612 EAST LAMAR BLVD, SUITE 400  
ARLINGTON, TEXAS 76011-4125

July 31, 2009

Mr. 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 05000361/2009003 and 05000362/2009003

Dear Mr. Ridenoure:

On June 23, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your San Onofre Nuclear Generating Station (SONGS), Units 2 and 3 facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on June 24, 2009, with you, and other members of your staff.

The inspections 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.

The inspectors also reviewed the corrective actions associated with the Confirmatory Order, dated January 11, 2008, (ADAMS Reference ML080110380). The inspectors reviewed associated corrective actions to assess and evaluate the effectiveness of your performance improvement initiatives. The inspectors determined that SONGS has demonstrated sufficient progress for closure of Items 2a, 2b, 2g, and 2h. For Items 2c and 2l, the inspectors were unable to review these items since the actions were not complete; therefore, these items will remain open. Your staff responded to the open items in a letter titled, "Response to Confirmatory Order EA 07- 232 and Notice of Violation EA 07-141," dated November 14, 2008, to define and establish success criteria for closure of each of the Confirmatory Order Items. Your staff also submitted a status report in a letter titled, "Response to Confirmatory Order EA 07-232 and Notice of Violation EA 07-141," dated January 14, 2009, discussing completion of each individual Confirmatory Order Item. When the actions for Items 2c and 2l are complete, the NRC plans to perform additional inspections to review these open items.

The inspectors also reviewed your progress associated with the open substantive crosscutting issues in human performance and problem identification and resolution. The Annual Assessment Letter dated March 4, 2009, was the third cycle where substantive crosscutting issues were identified in human performance and problem identification and resolution. Your staff responded to the open substantive crosscutting issues in a letter titled, "Response to Annual Assessment Letter Inspection Report 05000361/2009001, 05000362/2009001," dated April 21, 2009, with the status of corrective actions planned to address the human performance

and problem identification and resolution crosscutting issues, including schedules, milestones, and performance monitoring metrics. The inspectors reviewed the recently revised human performance and problem identification and resolution improvement plans. The inspections concluded that the root cause evaluations were adequately defined and understood, and the corrective actions resulting from the evaluations appeared reasonable. However, the inspectors could not assess and evaluate the effectiveness of the corrective actions because you were in the early stages of implementation of the improvement plans.

This report documents eight NRC identified findings and one self-revealing finding of very low safety significance (Green). All of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violations or the significance of the 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, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the San Onofre Nuclear Generating Station facility. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at the San Onofre Nuclear Generating Station, Units 2 and 3 facility. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records 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/*

Anton Vegel  
Deputy Director  
Division of Reactor Projects

Docket: 50-361; 50-362  
License: NPF-10; NPF-15

Enclosure:  
NRC Inspection Report 05000361/2009003 and 05000362/2009003  
w/Attachment: Supplemental Information

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RIV:RI:DRP	SRI:DRP/D	C:DRS/PSB2	C:DRS/PSB1	C:DRS/EB1	
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7/30/09	7/29/09	7/27/09	7/27/09	7/21/09	
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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 50-361, 50-362

License: NPF-10, NPF-15

Report: 05000361/2009003 and 05000362/2009003

Licensee: Southern California Edison Co. (SCE)

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

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

Dates: March 25 through June 23, 2009

Inspectors: T. Buchanan, Project Engineer  
M. Catts, Resident Inspector  
B. Correll, Reactor Inspector  
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Approved By: Anton Vogel, Deputy Director  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000361/2009003, 05000362/2009003; 03/25/2009 – 06/23/2009; San Onofre Nuclear Generating Station, Units 2 and 3, Integrated Resident & Regional Report; Fire Prot.; Maint. Effect.; Maint. Risk; Oper. Eval.; Plant Mod.; Ident. & Res. of Problems.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by regional based inspectors. Nine Green noncited violations of significance were identified. 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 review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, Revision 4, "Reactor Oversight Process," dated December 2006.

### A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a noncited violation of 10 CFR 50.65(a)(4) for the failure of work control and operations personnel to include maintenance activities in or near the electrical switchyard and offsite power components in the on-line risk assessment. This finding was entered into the licensee's corrective action program as Nuclear Notification 200402733.

This finding is greater than minor because the licensee's risk assessment failed to consider maintenance activities that could increase the likelihood of initiating events such as work in or associated with offsite power sources and the electrical switchyard. This finding is associated with the Initiating Events Cornerstone. In accordance with Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," step 4.1.1, the inspectors had the licensee reperform the assessment, correcting the errors that rendered the original risk assessment inadequate. The finding is determined to have very low safety significance because the incremental core damage probability deficit and the incremental large early release probability deficit, used to evaluate the magnitude of the error in the licensee's inadequate risk assessment, were less than 1E-6 and 1E-7, respectively. This finding has a crosscutting aspect in the area of human performance associated with resources because the licensee did not ensure that procedures and processes were adequate to properly assess and manage the risk associated with on-line maintenance [H.2(c)] (Section 1R13).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of License Condition 2.C.(14), "Fire Protection," for the failure of licensee personnel to evaluate scaffolding for its impact on fire protection systems. Specifically, the licensee failed either (1) to demonstrate that obstructed sprinkler heads in the

Unit 2 emergency diesel generator building train B, the Unit 3 emergency diesel generator building train A, and the Unit 2 saltwater cooling pump room were operable; or (2) to generate a fire protection impairment and establish an hourly firewatch for inoperable sprinkler heads in the Unit 2 emergency diesel generator building train B, the Unit 3 emergency diesel generator building train A, and the Unit 2 saltwater cooling pump room. This finding was entered into the licensee's corrective action program as Nuclear Notification 200449046.

This finding is greater than minor because the identified programmatic deficiencies could lead to a more significant safety concern if left uncorrected. This finding is associated with the Mitigating Systems Cornerstone. Using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Attachment 2, this finding was determined to have a LOW degradation rating because fewer than 10 percent of the sprinkler heads were nonfunctional, there was a functional sprinkler head within 10 feet of the combustibles of concern, and the system was nominally code compliant. Therefore, this finding was determined to be of very low safety significance. This finding has a crosscutting aspect in area of human performance associated with work practices because the licensee failed to ensure personnel work practices support human performance. Specifically, the licensee failed to effectively communicate human error prevention techniques such as proper documentation of activities and failed to ensure personnel do not proceed in the face of uncertainty [H.4(a)] (Section 1R05).

- Green. A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the failure to implement timely corrective actions to preclude repetition of a significant condition adverse to quality involving the failure of a safety-related 480 volt circuit breaker. Specifically, the licensee did not properly evaluate the extent of condition for other risk significant breakers and promptly implement corrective actions following a previous failure of a safety-related 480 volt circuit breaker in March 2005 to preclude repetition of another safety-related 480 volt circuit breaker failure on March 28, 2009. This finding was entered into the licensee's corrective action program as Nuclear Notification 200378783.

This finding is greater than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Significance Determination Process Phase 1 Screening Worksheet for the Initiating Events, Mitigating Systems, and Barriers Cornerstones provided in Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined that this finding represented a loss of safety function of a single train for greater than its technical specification allowed outage time. This required that a Phase 2 estimate be completed using Manual Chapter 0609, "Significance Determination Process," Appendix A, "Determining the Significance of Reactor Inspection Findings for At Power Situations," and the Phase 2 Worksheets for San Onofre Nuclear Generation Station. The inspectors assumed that the performance

deficiency affected the risk of operating the plant from March 11, 2009, when the last successful surveillance was completed through April 1, 2009, when the breaker was restored to a functional status. As a result, in accordance with Appendix A, Attachment 1, step 2.1.2, "Determine the Appropriate Exposure Time," the inspectors selected an exposure period of 3-30 days. Using the Risk-Informed Inspection Notebook for SONGS Units 2 and 3, Revision 2.1a, the inspectors selected "One Containment Fan Cooling Unit," as the appropriate target for the subject finding in the presolved table. Based on the results of the Phase 2 analysis, the finding is determined to have very low safety significance. This finding has a crosscutting aspect in the area of human performance associated with decision-making because safety-significant decisions were not reviewed to verify the validity of the underlying assumptions and identify possible unintended consequences [H.1(b)] (Section 1R12).

- Green. The inspectors identified a noncited violation of 10 CFR 50.65(a)(4) involving the failure of work control and operations personnel to assess and manage the increase in risk associated with planned maintenance activities. Specifically, the risk assessment for planned maintenance on emergency chiller ME336 was performed using risk assessment tools that had known errors that had the potential to change the outcome of the assessment. This finding was entered into the licensee's corrective action program as Nuclear Notification 200389219.

This finding is greater than minor because the risk assessment had known errors that had the potential to change the outcome of the assessment. This finding is associated with the Mitigating Systems Cornerstone. In accordance with Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," step 4.1.1, the inspectors had the licensee reperform the assessment, correcting the errors that rendered the original risk assessment inadequate. The finding is determined to have very low safety significance because the incremental core damage probability deficit and the incremental large early release probability deficit, used to evaluate the magnitude of the error in the licensee's inadequate risk assessment, were less than 1E-6 and 1E-7, respectively. The finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because engineering personnel failed to take appropriate corrective actions to address identified errors in the risk assessment tools in a timely manner [P.1(d)] (Section 1R13).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of maintenance planning personnel to provide adequate work instructions to control the connection of electrical monitoring devices on operable plant equipment. Specifically, the work instructions failed to require verification and functional testing after installation and removal, compliance with seismic requirements, and controls to ensure removal within the allowed time limit for a temporary installation. This finding was entered into the licensee's corrective action program as Nuclear Notification 200396106.



The finding is greater than minor because the improper controls for installation of test equipment is associated with the design control attribute of the Mitigating Systems Cornerstone and adversely 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 affect both trains of any single mitigating system or represent an actual loss of a safety function. The finding has a crosscutting aspect in the area of human performance associated with work practices because maintenance planning personnel failed to follow procedures to develop adequate work instructions for safety-related maintenance [H.4(b)] (Section 1R18).

- Green. The inspectors identified two examples of a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of contract maintenance personnel to follow procedures while performing safety-related painting activities. Specifically, in October 2008, maintenance personnel failed to use appropriate test equipment and failed to detect defects in disc coatings on two valves. Additionally, on November 4, 2008, maintenance personnel failed to adequately perform Maintenance Order 800077484 and left 17 blasting plugs in heat exchanger 3ME001 for approximately 7 months. This finding was entered into the licensee's corrective action program as Nuclear Notifications 200185228 and 200454875.

The finding is greater than minor because the failure to follow procedures when performing activities affecting quality, if left uncorrected, would have the potential to lead to a more significant safety concern. The finding is associated with the Mitigating Systems Cornerstone. 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 affect both trains of any single mitigating system or represent an actual loss of a safety function. The finding has a crosscutting aspect in the area of human performance associated with work practices because the licensee failed to ensure supervisory oversight of work activities, including contractors, such that nuclear safety is supported [H.4(c)] (Section 4OA2).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of engineering personnel to establish adequate procedures for scaffolding erection in safety-related areas. Specifically, Procedure SO123-I-1.34 required a minimum separation distance of 1 inch from safety-related equipment which only considered the seismic displacements of scaffolding and not other movements, such as thermal expansion of piping, equipment vibrations, or component operation. Insufficient scaffolding to component separation could result in interactions that adversely affect the safety functions of safety-related equipment. This finding was entered into the licensee's corrective action program as Nuclear Notification 200366460.

The finding is greater than minor because, if left uncorrected, it would have the potential to lead to a more significant safety concern. The inspectors concluded this finding was associated with the Mitigating Systems Cornerstone. 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 affect both trains of any single mitigating system or represent an actual loss of a safety function. A crosscutting aspect is not assigned since the cause of the performance deficiency is not indicative of current performance (Section 4OA2).

- Green. The inspectors identified 54 examples of a noncited violation of Technical Specification 5.5.1, "Procedures," for the failure of operations and maintenance personnel to maintain written procedures covered in Regulatory Guide 1.33. Specifically, from plant startup to June 2009, no process requirement or procedure existed to suspend or put an administrative hold on a procedure or work order when a technical change is required for the procedure. This resulted in 54 uncontrolled procedures and work instructions available to use on safety-related systems without flagging the required changes. This finding was entered into the licensee's corrective action program as Nuclear Notification 200453351.

The finding is greater than minor because, if left uncorrected, the failure to maintain and control operations and maintenance procedures could lead to a more significant safety concern by having technically inaccurate procedures being used on safety-related systems. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because problems were not thoroughly evaluated such that the resolutions addressed the causes and extent of conditions. This includes properly classifying and prioritizing conditions adverse to quality [P.1(c)] (Section 4OA2).

Cornerstone: Barrier Integrity

- 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 personnel to follow procedures to evaluate the operability of an identified nonconforming condition associated with containment structural tendon H-14. Specifically, contaminated grease was placed in the tendon sheathing for containment structural tendon H-14, which constituted a nonconforming condition. However, operations personnel and notification screening processes failed to identify the nonconforming condition as a condition that needed to be evaluated in accordance with Procedure SO123-XV-52, "Functionality Assessments and Operability Determinations," Revision 11. This

finding was entered into the licensee's corrective action program as Nuclear Notification 200417206.

The finding is greater than minor because the failure to perform timely evaluations of nonconforming conditions for operability, if left uncorrected, would have a potential to lead to a more significant safety concern. The finding is associated with the design control attribute of the Containment Barrier Integrity Cornerstone and affects the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radio nuclide releases caused by accidents or events. 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 represent a degradation of the radiological barrier function provided for the control room or auxiliary building, and did not represent an actual open pathway in the physical integrity of reactor containment and heat removal components. This finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program because licensee personnel failed to properly classify, prioritize, and evaluate for operability conditions adverse to quality [P.1(c)] (Section 1R15).

**B. Licensee-Identified Violations**

None

## REPORT DETAILS

### Summary of Plant Status

Unit 2 remained at essentially full power for the entire inspection period.

Unit 3 remained at essentially full power for the entire inspection period.

### 1. REACTOR SAFETY

#### Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01)

##### Summer Readiness for Offsite and Alternate-AC Power

##### a. Inspection Scope

The inspectors performed a review of the licensee's preparations for summer weather for selected systems, including conditions that could lead to loss-of-offsite power and conditions that could result from high temperatures. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator and the plant to verify that the appropriate information was being exchanged when issues arose that could affect the offsite power system. Examples of aspects considered in the inspectors' review included:

- The coordination between the transmission system operator and the plant during off-normal or emergency events
- The explanations for the events
- The estimates of when the offsite power system would be returned to a normal state
- The notifications from the transmission system operator to the plant when the offsite power system was returned to normal

During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- June 11, 2009, Units 2 and 3, the inspectors completed a review of the licensee's readiness of offsite and onsite ac power systems for the high grid loading season

These activities constitute completion of one readiness for summer weather affect on offsite and alternate ac power sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings of significance were identified.

**1R04 Equipment Alignments (71111.04)**

.1 Partial Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- April 21, 2009, Unit 2, emergency diesel generator train B air start system
- May 5, 2009, Unit 3, emergency diesel generator train A fuel oil and air start systems
- June 23, 2009, Unit 3, high pressure safety injection train A alignment

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three partial system walkdown samples as defined by Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete Walkdown

a. Inspection Scope

On April 18, 2009, the inspectors performed a complete system alignment inspection of the Unit 3 emergency diesel generator system train B to verify the functional capability of the system. The inspectors selected this system because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one complete system walkdown sample as defined by Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

**1R05 Fire Protection (71111.05)**

Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- April 20, 2009, Unit 2, auxiliary building elevations 9 foot through 85 foot
- April 20, 2009, Units 2 and 3, auxiliary control and turbine building elevations 30 foot through 39 foot
- April 23, 2009, Unit 3, main steam isolation valve area
- April 28, 2009, Units 2 and 3, auxiliary control building elevation 50 foot
- May 11, 2009, Unit 2, main steam isolation valve area
- June 2, 2009, Unit 2, emergency diesel generator building trains A and B

- June 18, 2009, Units 2 and 3, auxiliary feed water pump rooms
- June 18, 2009, Unit 3, safety equipment building rooms 2, 5, and 15

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of eight quarterly fire-protection inspection samples as defined by Inspection Procedure 71111.05-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of License Condition 2.C.(14), "Fire Protection," for the failure of licensee personnel to evaluate scaffolding for its impact on fire protection systems.

Description. On June 2, 2009, inspectors identified temporary scaffolding installed in the Unit 2 emergency diesel generator building train B which interfered with the intended spray pattern of fire protection sprinklers. Licensee Controlled Specification Surveillance Requirement 3.7.103.1.d.3 specifies that required spray and/or sprinkler systems shall be demonstrated operable, in part, by a visual inspection of each spray/sprinkler head to verify the spray pattern is not obstructed. For inoperable sprinklers in an area outside containment that does not contain redundant safe shutdown systems or components, Licensee Controlled Specification 3.7.103 requires that the licensee establish an hourly firewatch. Further, Maintenance Procedure SO123-I-1.34, "Scaffolding Erection," Revision 25, required a fire protection review of all scaffolding in areas where the scaffolding may affect unobstructed access to fire protection system components such as nozzles, emergency lights, fire hose stations, fire extinguishers, etc. The licensee was unable to provide any documentation that such an evaluation had been performed.

The licensee initiated an extent of condition review which identified several other scaffolds which interfered with the operation of installed fire protection equipment. Specifically:

- Three of four installed scaffolds in the Unit 2 emergency diesel generator building train B partially blocked fire protection sprinklers. The licensee initiated Nuclear Notification 200449046 to document and evaluate this interference. The licensee generated Fire Impairment 09060010 and, pending evaluation, implemented an hourly firewatch as required by Licensee Controlled Specification 3.7.103.
- Similar scaffolding under construction identified in the Unit 3 emergency diesel generator building train A would partially block fire sprinklers when complete. The licensee initiated Nuclear Notification 200449686 to document and evaluate this interference. The licensee generated Fire Impairment 09060011 and, pending evaluation, implemented an hourly firewatch as required by Licensee Controlled Specification 3.7.103.
- On June 3, 2009, a scaffold platform was identified above the intake structure normal and emergency fan S21505MA372 that would potentially block fire sprinkler flow to the fan from two of three sprinkler heads installed above the fan. The licensee initiated Nuclear Notification 200450118 to document and evaluate this interference. However, pending the completion of a functional assessment, the licensee failed to take appropriate compensatory measures per Licensee Controlled Specification 3.7.103 for an inoperable spray and/or sprinkler system. A functional assessment completed on June 9, 2009, determined the system to be functional in its as-found configuration.
- During walkdown by operations personnel on June 3, 2009, a scaffold was identified installed over a fire hose station on the 85-foot elevation. This was evaluated by the individual conducting the walkdown as having no impact on use of the fire hose; no evaluation was performed by fire protection as is required by Procedure SO123-I-1.34, "Scaffolding Erection." After this was questioned by the inspectors, the licensee added a task to Nuclear Notification 200450118 for fire protection to perform an evaluation.

The scaffolds identified by the inspectors in the Unit 2 emergency diesel generator building train B had been erected from May 11-15, 2009, using Maintenance Order 800084618. The licensee reviewed this maintenance order and determined that the order had not been processed through fire protection and contained no administrative barriers to prevent blocking of fire protection systems. During the licensee's error investigation, the foreman responsible for the scaffolding construction indicated that he had contacted fire protection engineering personnel, but could not recall if he spoke directly with a fire protection engineer or left a telephone message; his standard practice was to assume an impairment was not required if he did not hear back from a fire protection engineer.

Analysis. The failure to evaluate the impact of temporary scaffolding on installed fire protection systems was a performance deficiency. This finding is greater than minor because the identified programmatic deficiencies could lead to a more significant safety concern if left uncorrected. This finding is associated with the Mitigating Systems Cornerstone. Using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Attachment 2, this finding was determined to have a LOW degradation rating because fewer than 10 percent of the sprinkler heads were



nonfunctional, there was a functional sprinkler head within 10 feet of the combustibles of concern, and the system was nominally code compliant. Therefore, this finding was determined to be of very low safety significance. This finding has a crosscutting aspect in the area of human performance associated with work practices because the licensee failed to ensure personnel work practices support human performance. Specifically, the licensee failed to effectively communicate human error prevention techniques such as proper documentation of activities and failed to ensure personnel do not proceed in the face of uncertainty [H.4(a)].

Enforcement. San Onofre License Condition 2.C.(14), "Fire Protection," requires, in part, that SCE shall implement and maintain in effect all provisions of the approved fire protection program. This program shall be (1) as described in the Updated Fire Hazards Analysis through Revision 3 as revised by letters to the NRC dated May 31, July 22, and November 20, 1987, and January 21, February 22, and April 21, 1988; and (2) as approved in the NRC staff's Safety Evaluation Report (SER)(NUREG 0712) dated February 1981; Supplements 4 and 5 to the Safety Evaluation Report, dated January 1982 and February 1982, respectively; and the safety evaluation dated November 15, 1982; as supplemented and amended by the Updated Fire Hazards Analysis Evaluation for San Onofre 2 and 3, Revision 1, dated June 29, 1988.

The approved fire protection program included Fire Protection Procedure SO123-XIII-4.600, "Fire Protection Impairment," Revision 9, which required that a fire protection impairment be generated to document and track inoperable fire protection systems, components, and equipment. Licensee Controlled Specification Surveillance Requirement 3.7.103.1.d.3 specifies that required spray and/or sprinkler systems shall be demonstrated operable, in part, by a visual inspection of each spray/sprinkler head to verify the spray pattern is not obstructed. Licensee Controlled Specification 3.7.103 requires that, with one or more of the required spray and/or sprinkler systems inoperable, an hourly firewatch be established for areas outside of containment in which no redundant systems or components could be damaged.

Contrary to the above, prior to June 2, 2009, Southern California Edison failed either (1) to demonstrate that obstructed sprinkler heads in the Unit 2 emergency diesel generator building train B, the Unit 3 emergency diesel generator building train A, and the Unit 2 saltwater cooling pump room were operable; or (2) to generate a fire protection impairment and establish an hourly firewatch for inoperable sprinkler heads in the Unit 2 emergency diesel generator building train B, the Unit 3 emergency diesel generator building train A, and the Unit 2 saltwater cooling pump room. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification 200449046, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361/2009003-01; 05000362/2009003-01, "Failure to Evaluate the Impact of Temporary Scaffolding on Installed Fire Protection Systems."

## **1R06 Flood Protection Measures (71111.06)**

### a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, the flooding analysis, and plant procedures to assess seasonal susceptibilities involving internal flooding;

reviewed the Updated Final Safety Analysis Report and corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; verified that operator actions for coping with flooding can reasonably achieve the desired outcomes; and walked down the five areas listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- April 24, 2009, Units 2 and 3, review of Operating Experience Smart Sample (OpESS) FY2007-02, related to Information Notice 2005-30, "Safe Shutdown Potentially Challenged by Unanalyzed Internal Flooding Events and Inadequate Design," and issues associated with conduit / hydrostatic seal issues; areas of walkdown included component cooling water rooms located in the Units 2 and 3 safety equipment building along with Units 2 and 3 saltwater cooling rooms and tunnel.

These activities constitute completion of one flood protection measures inspection sample as defined by Inspection Procedure 71111.06-05.

b. Findings

No findings of significance were identified.

**1R07 Heat Sink Performance (71111.07)**

Triennial Review

a. Inspection Scope

The inspector reviewed design documents (e.g., calculations and performance specifications), program documents, test and maintenance procedures, and corrective action documents for the inspection samples selected. The inspector also interviewed chemistry, maintenance, and engineering personnel.

The inspector selected heat exchangers that ranked high in the plant specific risk assessment and were directly connected to the safety-related service water system. The inspector selected the following systems and heat exchangers:

- Salt water cooling system
- Component cooling water heat exchanger

For heat exchangers directly connected to the safety-related service water system, the inspector verified whether testing, inspection and maintenance, or the biotic fouling monitoring program provided sufficient controls to ensure proper heat transfer. Specifically, the inspector reviewed (1) heat exchanger test methods and test results from performance testing, (2) chemical treatments for micro fouling and controls for

macro fouling, and (3) whether test results appropriately considered differences between testing conditions and design conditions.

For heat exchangers directly connected to the safety-related service water system, the inspector verified the licensee (1) performed condition monitoring and operation consistent with design assumptions in the heat transfer calculations, and (2) instituted appropriate chemistry controls for the heat exchangers.

For the ultimate heat sink and its subcomponents, the inspector verified the licensee established appropriate controls for macro fouling and biological fouling. A system walkdown of the salt water cooling system was performed to verify the licensee: (1) ensures structural integrity of component mounts have not degraded due to excessive corrosion, (2) performs periodic monitoring and maintenance for sediment build-up, and (3) ensures proper functioning of the traveling screens.

Documents reviewed by the inspector are listed in the attachment.

These activities constitute completion of two samples as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings of significance were identified.

**1R08 In-service Inspection Activities (71111.08)**

.1 Inspection Activities Other Than Steam Generator Tube Inspection, Pressurized Water Reactor Vessel Upper Head Penetration Inspections, Boric Acid Corrosion Control (71111.08-02.01)

a. Inspection Scope

The inspection procedure requires review of two or three types of nondestructive examination activities.

The inspectors reviewed records for the following nondestructive examinations:

System	Identification	Examination Type
Unit 2 Steam Generator Vessel Weld	MHI-U2PSI-UT-001	Ultrasonic Test
Unit 2 Steam Generator Vessel Weld	MHI-U2PSI-UT-002	Ultrasonic Test
Unit 2 Steam Generator Vessel Weld	MHI-U2PSI-UT-003	Ultrasonic Test
Unit 2 Steam Generator Vessel Weld	MHI-U2PSI-UT-004	Ultrasonic Test
Unit 2 Steam Generator Vessel Weld	MHI-U2PSI-UT-005	Ultrasonic Test
Unit 2 Steam Generator Vessel Weld	MHI-U2PSI-UT-006	Ultrasonic Test
Unit 2 Steam Generator Vessel Weld	MHI-U2PSI-UT-007	Ultrasonic Test
Unit 2 Steam Generator Vessel Weld	MHI-U2PSI-UT-008	Ultrasonic Test
Unit 2 Steam Generator Vessel Weld	MHI-U2PSI-MT-004	Magnetic Particle Test
Unit 2 Steam Generator Vessel Weld	MHI-U2PSI-MT-005	Magnetic Particle Test

During the review of each examination, the inspectors verified that activities were performed in accordance with ASME Boiler and Pressure Vessel Code requirements and applicable procedures. Indications were dispositioned in accordance with ASME Code and approved procedures. The qualifications of all nondestructive examination technicians performing the inspections were verified to be current.

None of the above nondestructive examinations identified any relevant indications.

The inspectors verified, by review, that the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code, Section IX, requirements. The inspectors also verified, through record review, that essential variables for the welding process were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications. Specific documents reviewed during this inspection are listed in the attachment. As part of this review, the inspectors reviewed test and examinations associated with the Unit 2 steam generator replacement. Credit for this review may be taken for part of NRC Inspection Procedure 50001, "Steam Generator Replacement."

b. Findings

No findings of significance were identified.

.2 Steam Generator Tube Inspection Activities (71111.08-02.04)

a. Inspection Scope

The inspection procedure specified a review and confirmation that the steam generator examination scope and expansion criteria meet technical specifications requirements, EPRI guidelines, and commitments made to the NRC. The inspectors reviewed the steam generator preservice eddy current examinations for Unit 2 replacement steam generators 88 and 89. As part of this review, the inspectors reviewed modification packages and safety evaluations associated with the Unit 2 steam generator replacement. Credit for this review may be taken for part of NRC Inspection Procedure 50001, "Steam Generator Replacement."

As mentioned above, the preservice inspection scope included:

Unit 2 Steam generators 88 and 89:

- Bobbin:

Full length (Rows 4-142)	9465 tubes
Hot leg candy cane (Rows 1-3)	262 tubes
Cold leg straight (Rows 1-3)	262 tubes
  
- Hot leg tubesheet:

Tube end to tube sheet + 3 inches	9727 tubes
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- Cold leg tubesheet:
 

Tube end to tube sheet + 3 inches	9727 tubes
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- U-bend rotating pancake coil:
 

100 percent (Rows 1-15, 07H – 07C)	1314 tubes
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Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71111.08-05.

b. Findings

No findings of significance were identified.

**1R11 Licensed Operator Requalification Program (71111.11)**

a. Inspection Scope

On June 17, 2009, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator evaluations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one quarterly licensed-operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

**1R12 Maintenance Effectiveness (71111.12)**

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- March 28, 2009, Unit 2, emergency cooling unit 2ME399 480 volt air circuit supply breaker failure to close on demand
- June 4, 2009, Unit 2, emergency diesel generator train A load adjustment problems as documented in Nuclear Notification 200452262

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or (a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

Introduction. A Green self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the failure to implement timely corrective actions to preclude repetition of a significant condition adverse to quality involving the failure of a safety-related 480 volt circuit breaker.

Description. On January 23, 2006, the licensee reported a condition to the NRC for exceeding the allowed outage time for Technical Specification 3.4.9, "Pressurizer," due to intermittent failures of pressurizer heater supply breaker 2B0602 that occurred in December 2005 (Licensee Event Report 05000361/2005-005-00). The inspectors documented the finding as NCV 05000361/2006002-02, "Pressurizer Backup Heater Bank Inoperable for Greater than its Technical Specification Allowed Outage Time."

Following the failures, maintenance personnel performed an initial investigation of the breaker 2B0602 failure and discovered two mechanisms that could have contributed to the failure. While installing the breaker in the cubicle, the breaker contact support plates were observed interfering with bolts in the rear of the cubicle that hold the secondary carrier to the cubicle. The interference contributed to reducing contact pressure between the secondary contacts. Also, the breaker cradle in the cubicle was slightly misaligned. The breaker cubicle for breaker 2B0602 was originally designed to accommodate a 1600 ampere breaker. However, the rails in the cubicle were inset to accommodate the 600 ampere breaker 2B0602. Apparent Cause Evaluation 051200151-3 determined that the breaker support plates were interfering with the hexagonal head bolts at the rear of the cubicle that hold the secondary contact carrier to the cubicle. The interference contributed to reducing contact pressure between the secondary contacts on the breaker and the stab connection on the cubicle. Replacement round head bolts were identified to provide the additional clearances to prevent the interference. In early 2006, breaker cubicle 2B0602 was repaired by replacing the hexagonal head bolts with round head bolts. Maintenance engineering personnel noted that hexagonal head bolts were found in the majority of the other 480 volt bus 2B06 cubicles; however, a maintenance engineer decided that the remaining hexagonal head bolts in other safety-related locations did not represent a degraded or nonconforming condition that could impact equipment operability. Further, the maintenance engineer determined that the hexagonal head bolt replacement was an improvement item and decided that the bolts did not need to be replaced until a future bus outage.

In March 2006 maintenance engineering personnel were informed by the vendor that factory drawings showed the bolts that hold the stationary contact carrier plate to the cubicle should contain round head bolts with star washers rather than the hexagonal head bolts with lock washers. Maintenance engineering personnel failed to recognize the nonconforming bolt condition and the potential impact to equipment operability. Consequently, corrective actions were developed to revise Procedure SO123-I-9.11, "480V Load Center and Transformer Inspection and Cleaning," to replace hexagonal head bolts with round head bolts if found during routine outage inspections of the

480 volt buses to eliminate the interference. These actions were untimely since Procedure SO123-I-9.11 only had a frequency of every third refueling outage.

Because the bolt condition was not recognized as a nonconforming condition, and the resultant lack of prioritization, no hexagonal head bolts were replaced during the Unit 3 refueling outage in Fall 2006, since there were no scheduled 480 volt bus outages. In Fall 2007, during the Unit 2 refueling outage, a bus outage was scheduled for 480 volt bus 2B04; however, per Procedure SO123-I-9.11 steps to replace the hexagonal head bolts were bypassed by maintenance personnel since the proper type of fasteners (round head bolts) were not available. Maintenance personnel documented that hexagonal head bolts were found in 480 volt bus 2B04, but not replaced, in Action Request 071201161. Neither maintenance nor operations personnel were aware that replacement of the hexagonal head bolts were part of a corrective action program assignment. Consequently, the personnel involved in the decision-making did not use conservative assumptions and improperly classified the modification to change the bolts as an enhancement and not a corrective action. The correct parts were procured for 480 volt bus 3B04 inspection during the Unit 3 refueling outage in Fall 2008, and all hexagonal head bolts were replaced.

On March 28, 2009, the containment emergency cooling unit 480 volt supply breaker 2B0410 failed to close from the control room during surveillance testing. Operation personnel declared the breaker inoperable and maintenance personnel removed the breaker to have it bench tested and inspected. The bench test was completed satisfactorily. During inspection of the breaker and cubicle, maintenance engineering personnel observed evidence of metal-to-metal contact on the corners of the breaker frame and the top of the hexagonal head bolts. Maintenance engineers noted the type of damage was similar to previous breaker failures experienced in December of 2005. Because of the previous common cause breaker failure, timely corrective actions were taken to replace all remaining hexagonal head bolts with round head bolts in the Units 2 and 3 safety-related 480 volt buses. The nonconforming condition was corrected for all safety-related 480 volt buses by April 4, 2009. Based on the failure analysis, the licensee concluded that breaker 2B0410 was inoperable between March 11, 2009, and April 1, 2009. The breaker failure event was reported to the NRC as a condition prohibited by the technical specifications in Licensee Event Report 05000361/2009-002-00.

Root Cause Evaluation 800275473 was performed to evaluate and correct the causes for the untimely implementation of corrective actions from the previous December 2005 breaker failure. The evaluation concluded that the root cause involved organizational performance that permitted inadequate standards/enforcement for (1) corrective action program implementation; (2) electrical maintenance and maintenance planning; and (3) system and maintenance engineering. The evaluation further concluded that Apparent Cause Evaluation 051200151-3 for the December 2005 event was limited in scope and changes to corrective action scope were not being properly evaluated.

Analysis. The failure to take adequate corrective actions to preclude repetition of 480 volt breaker failure was a performance deficiency. This finding is greater than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective of ensuring the



availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Significance Determination Process Phase 1 Screening Worksheet for the Initiating Events, Mitigating Systems, and Barriers Cornerstones provided in Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined that this finding represented a loss of safety function of a single train for greater than its technical specification allowed outage time. This required that a Phase 2 estimate be completed using Appendix A, "Determining the Significance of Reactor Inspection Findings for At Power Situations," of Manual Chapter 0609, "Significance Determination Process," and the Phase 2 Worksheets for San Onofre Nuclear Generation Station. The inspectors assumed that the performance deficiency affected the risk of operating the plant from March 11, 2009, when the last successful surveillance was completed through April 1, 2009, when the breaker was restored to a functional status. As a result, in accordance with Appendix A, Attachment 1, step 2.1.2, "Determine the Appropriate Exposure Time," the inspectors selected an exposure period of 3-30 days. Using the Risk-Informed Inspection Notebook for SONGSs Units 2 and 3, Revision 2.1a, the inspectors selected "One Containment Fan Cooling Unit," as the appropriate target for the subject finding in the presolved table. Based on the results of the Phase 2 analysis, the finding is determined to have very low safety significance.

This finding has a crosscutting aspect in the area of human performance associated with decision-making because safety-significant decisions were not reviewed to verify the validity of the underlying assumptions and identify possible unintended consequences [H.1(b)].

Enforcement. 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective actions taken to preclude repetition. Contrary to the above, between December 2005 and March 11, 2009, the licensee failed to implement timely corrective action to preclude repetition of an additional safety-related 480 volt breaker failure. Specifically, the licensee did not properly evaluate the extent of condition for other risk significant breakers and promptly implement corrective actions following a previous failure of a safety-related 480 volt K-line breaker in March 2005. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification 200378783, this violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000361/2009003-02; 05000362/2009003-02, "Failure to Implement Corrective Actions to Prevent Repeat Safety-related 480V Breaker Failures."

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

#### **a. Inspection Scope**

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and

safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- March 28, 2009, Unit 2, emergency cooler unit E339 fail to start
- April 10, 2009, Units 2 and 3, improper implementation of licensee amendment and technical specification changes
- April 13, 2009, Units 2 and 3, emergency chilled water train A removed from service for planned maintenance
- April 15, 2009, Unit 2, tendon gallery and containment mobilization activities near safety-related reserve transformers
- June 1, 2009, Unit 2, emergency diesel generator train A load adjustment circuit problem
- June 9, 2009, Unit 3, emergency diesel generator train A fail to start

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of six maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

1. Emergency Chiller Maintenance Risk Assessment

Introduction. The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(4) involving the failure of work control and operations personnel to assess and manage the increase in risk associated with planned maintenance activities.

Description. On March 24, 2009, Nuclear Notification 200366054 was initiated to report a discovered condition where the computer code used for calculations that support the current modeling of heating, ventilation, and air conditioning dependencies in the safety monitor produced nonconservative results. The safety monitor is the tool used to assess and manage on-line risk before maintenance activities. Design engineering personnel initiated corrective actions to address the nonconservative calculations and revise the

safety monitor to produce accurate results. However, the corrective actions did not identify interim measures to assess ongoing risk associated with on-line maintenance activities during the period that the safety monitor was being corrected.

On April 13, 2009, the inspectors observed that emergency chiller ME336 was removed from service for a planned maintenance outage that was scheduled to last several days. The inspectors also noted that the safety monitor risk assessment determined that the maintenance outage had no impact to risk, such that, normal risk controls were implemented and no additional risk management actions were required. The inspectors were concerned that the safety monitor results were inappropriate based on the preliminary evaluation of the nonconservative results produced by the erroneous computer code. The inspectors were aware that the preliminary evaluation determined that the emergency chiller system may have a higher dependency and risk impact than previously understood.

The inspectors contacted the operations shift technical advisor to determine whether the identified nonconservative errors associated with the safety monitor had been factored into the risk assessment for the emergency chiller planned maintenance outage. The inspectors identified that work control and operations personnel were still using the safety monitor risk assessment tools that contained the nonconservative errors identified in Nuclear Notification 200366054. Further, the inspectors identified that the risk assessment performed for the emergency chiller maintenance outage used the on-line risk monitor software that had known deficiencies that had the potential to change the outcome of the assessment. The inspectors contacted the engineering group responsible for maintaining the risk assessment tools to determine status of corrective actions associated with Nuclear Notification 200366054. The Probabilistic Risk Assessment Group said that they were in the process of determining the impact to the risk model, but it was very complicated and would take some time. However, they did not think to address the impact to the risk assessment for ongoing on-line work. The inspectors communicated to the engineering group that interim actions should have been identified to conservatively bound ongoing assessments that could be impacted by the nonconservative risk model deficiencies. Based on the inspectors' observations, Nuclear Notification 200389219 was initiated to identify interim measures to account for the nonconservative errors associated with the safety monitor.

On April 13, 2009, interim measures were implemented for the emergency chiller maintenance outage risk assessment to compensate for the potential risk impact associated with the equipment out-of-service time. Further, on April 16, 2009, a temporary solution was incorporated into the safety monitor until the affected heating, ventilation, and air conditioning components were correctly modeled in the plant probabilistic risk assessment and safety monitor. The inspectors reviewed the work plan for the emergency chiller ME336 maintenance outage and toured plant areas that contained redundant equipment to determine whether risk management actions had been incorporated that may have mitigated the unknown risk increase associated with the maintenance outage. The inspectors observed that Procedure SO23-1-3.1, "Emergency Chilled Water System Operation," Revision 22, had been implemented prior to removing emergency Chiller ME336 from service for the maintenance outage. Procedure SO23-1-3.1, "Site Work Control Policy During Emergency Chiller AOT," Section 6.11, required risk management actions when removing an emergency chilled

water train from service. Although these actions had been taken, they were independent of any risk management actions that may be required by the safety monitor risk assessment results.

Analysis. The failure to adequately assess the risk increase associated with planned maintenance activities was a performance deficiency. This finding is greater than minor because the risk assessment had known errors that had the potential to change the outcome of the assessment. This finding is associated with the Mitigating Systems Cornerstone. In accordance with Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," step 4.1.1, the inspectors had the licensee reperform the assessment, correcting the errors that rendered the original risk assessment inadequate. The finding is determined to have very low safety significance because the incremental core damage probability deficit and the incremental large early release probability deficit, used to evaluate the magnitude of the error in the licensee's inadequate risk assessment, were less than 1E-6 and 1E-7, respectively. The finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program because engineering personnel failed to take appropriate corrective actions to address identified errors in the risk assessment tools in a timely manner [P.1(d)].

Enforcement. 10 CFR 50.65(a)(4), states in part, that before performing maintenance activities (including but not limited to surveillances, postmaintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on April 13, 2009, work control and operations personnel failed to adequately assess and manage the increase in risk associated with planned maintenance activities. Specifically, the risk assessment for planned maintenance on emergency chiller ME336 was performed using risk assessment tools that had known errors that had the potential to change the outcome of the assessment. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification 200389219, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361/2009003-03; 05000362/2009003-03, "Risk Assessment Performed Using Risk Assessment Tools with Known Errors."

## 2. Risk Assessment for Potential Offsite Power Supply Impacting Activities

Introduction. The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(4) for the failure work control and operations personnel to include maintenance activities in or near the electrical switchyard and offsite power components in the on-line risk assessment.

Description. Between March 26 and April 15, 2009, the inspectors observed contract personnel performing steam generator replacement preparation activities, which involved crane operations and moving large equipment in the vicinity of the Unit 2 reserve auxiliary transformers. The reserve auxiliary transformers are components associated with the offsite power supply to safety-related electrical buses. The work activity was in the area of the east road which borders the electrical switchyard. The crane was under the main transformer and reserve auxiliary transformer power lines.

The inspectors questioned whether these maintenance activities that could increase the likelihood of initiating events were considered in the Unit 2 on-line risk assessment. The inspectors determined that the risk impacting maintenance activities were not specifically included in the risk assessment. The inspectors were informed that steam generator replacement project personnel had implemented some compensatory actions, such as, reducing the crane's boom height and adding shields to protect transformers from debris. These compensatory actions were taken because the project personnel recognized the increased risk of their activities; however, the activities were not considered in the overall on-line plant risk assessment in accordance with Procedures SO123-XX-10, "Maintenance Rule Risk Management Program Implementation"; Revision 4, and SO23-XX-8, "Critical Activities Work Process Manual," Revision 2.

Between April 14 and April 16, 2009, the inspectors observed maintenance personnel performing painting activities using a man-lift that was based inside the protected area on the east road adjacent to the electrical switchyard. The maintenance personnel had extended the man-lift over the security fence to reach into the switchyard area to work on switchyard components. The inspectors questioned whether these painting activities were considered as high impact switchyard maintenance activities as described in Procedure SO123-XX-10, such that, the maintenance activities were included in the overall on-line plant risk assessment. Procedure SO123-XX-10, Attachment 2, "General Guidance," defined high impact switchyard maintenance activities to include the presence of a crane or lift in the switchyard. The inspectors determined that the painting activities in the switchyard were not considered in the on-line risk assessment because operations personnel were not aware that the man-lift was in the switchyard area.

Work control personnel initiated Nuclear Notification 200402733, based on the inspectors' observations, to evaluate why work activities in or near the switchyard that could influence plant risk were not consistently evaluated, controlled, and coordinated. The evaluation concluded the following:

"Work process procedures, including Procedures SO123-XX-10 and SO23-XX-8, and interfacing procedures do not adequately describe ownership, roles, responsibilities, accountabilities, criteria, methods, and techniques for performing qualitative risk assessments as part of the work management process. In particular, the work process procedures do not contain adequate guidance for recognizing work activities and plant conditions that do not directly involve, but that could affect the availability of, plant structures, systems, and components modeled in the San Onofre Nuclear Generation Station probabilistic risk assessment. The conditions prone to being missed by these procedures generally involve work activities that have the potential to adversely affect structures, systems, and components modeled in the San Onofre Nuclear Generation Station probabilistic risk assessment and are important to safety. These conditions in conjunction with the operating experience indicate that procedures for assessing and managing risk of maintenance activities do not consistently drive performance to current industry best practices for 10 CFR 50.65(a)(4)."

Nuclear Notification 200402733 identified corrective actions that included changes to the risk assessment and management program for control of maintenance activities to

achieve performance consistent with industry best practices for complying with the requirements of 10 CFR 50.65(a)(4).

Analysis. The failure to include maintenance activities in or near the electrical switchyard and offsite power components in the on-line risk assessment was a performance deficiency. This finding is greater than minor because the licensee's risk assessment failed to consider maintenance activities that could increase the likelihood of initiating events such as work in or associated with offsite power sources and the electrical switchyard. This finding is associated with the Initiating Events Cornerstone. In accordance with Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," step 4.1.1, the inspectors had the licensee reperform the assessment, correcting the errors that rendered the original risk assessment inadequate. The finding is determined to have very low safety significance because the incremental core damage probability deficit and the incremental large early release probability deficit, used to evaluate the magnitude of the error in the licensee's inadequate risk assessment, were less than 1E-6 and 1E-7, respectively. This finding has a crosscutting aspect in the area of human performance associated with resources because the licensee did not ensure that procedures and processes were adequate to properly assess and manage the risk associated with on-line maintenance [H.2(c)].

Enforcement. 10 CFR 50.65(a)(4), states in part, that before performing maintenance activities (including but not limited to surveillance, postmaintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, between March 26, 2009, and April 16, 2009, work control and operations personnel failed to adequately assess and manage the increase in risk associated with maintenance activities. Specifically, maintenance activities in or near the electrical switchyard and offsite power components were not included in the on-line risk assessment. Because the finding was of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification 200402733, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361/2009003-04; 05000362/2009003-04, "Failure to Assess and Manage Risk for Electrical Switchyard Impacting Maintenance."

## **1R15 Operability Evaluations (71111.15)**

### **a. Inspection Scope**

The inspectors reviewed the following issues:

- February 20, 2009, Unit 3, qualification of coating used on pipe support near pressurizer safety valve 3PSV0201 as described in Nuclear Notification 00306258
- February 23, 2009, Units 2 and 3, environmental qualification of expired coatings used in containment as described in Nuclear Notifications 200306258 and 200337044

- April 1, 2009, Units 2 and 3, nonconforming fasteners located in 480 volt circuit breakers as described in Nuclear Notification 200371229
- April 10, 2009, Units 2 and 3, improper implementation of licensee amendment and technical specification changes
- April 30, 2009, Unit 2, restoration of tendon H-14 using grease from 55-gallon storage drums with discolored interior epoxy coatings caused by exterior mounted electric drum heaters
- May 11, 2009, Unit 3, component cooling water heat exchanger train B leakage as described in Nuclear Notification 200353518
- May 13, 2009, Unit 2, turbine-driven auxiliary feedwater pump 2P140 speed trace profile evaluation
- May 15, 2009, Unit 3, component cooling water heat exchanger train A fouling rate as described in Nuclear Notification 200422038
- June 12, 2009, Unit 2, emergency diesel generator train A dc voltage spikes observed in cabinet 2L160 dc power supply
- June 15, 2009, Unit 2, reviewed emergency diesel generator train A annunciator power supply dc rippling
- June 17, 2009, Unit 2, pressurizer potential vapor space leakage as described in Nuclear Notification 200462211

The inspectors selected these potential operability issues based on the risk-significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Updated Safety Analysis Report to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of 11 operability evaluations inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of operations personnel to follow Procedure SO123-XV-52, "Functionality Assessments and Operability Determinations," Revision 11, to evaluate the operability of an identified nonconforming condition associated with containment structural tendon H-14.

Description. The containment tendons are described in the final safety analysis report and contribute to the ability of the containment structure to withstand accident conditions. A filler material, or grease, that provides corrosion protection of the tendon cable is also described in the final safety analysis report. This grease must be free of contaminants which could lead to degradation and eventual tendon failure.

The Steam Generator Replacement Project Group outage planning for the Unit 2 containment opening preparations included a tendon removal and restoration demonstration project. This included the removal and replacement of approximately 300 gallons of tendon filler material or grease from the tendon sheath. Part of this demonstration project included the heating and pumping of the tendon grease filler material back into the tendon sheath after the tendon cable was prestressed and placed back in service.

On February 17, 2009, horizontal tendon H-14 was removed by contractor personnel, and the tendon sheath was cleaned and inspected. On March 16, 2009, contractor personnel replaced tendon H-14. Since Specification SO23-617-03, Revision 2, allowed up to 30 days between tendon tensioning and filling the sheath with filler material, tendon H-14 was returned to service and reported as operational. On April 14, 2009, the grease filler material was replaced in tendon H-14.

On April 30, 2009, in a routine briefing with the Steam Generator Replacement Project Group management, the inspectors asked questions regarding the process of tendon restoration and how the grease, which is delivered in 55-gallon drums, is pumped back into the tendon sheath. The inspectors also requested information on the process used to heat the tendon filler material or grease which allows the grease to be pumped into the operable tendon sheath directly from the 55-gallon drum. The process consisted of upper and lower strapped on electric-type heaters, which were controlled to a maximum temperature of about 250°F. The inspectors expressed a concern with potential grease contamination caused by the direct heating process since the 55-gallon drums normally have interior coatings and this coating could break down due to high temperatures and contaminate the grease. The inspectors were informed that the drums did not have any interior coating, and therefore, contamination from overheating could not be an issue. The inspectors requested to inspect the drums to verify the heating process did not impact the barrel interior coating such that it would become a potential source of grease contamination.

On May 12, 2009, the inspectors reviewed Nuclear Notification 200417206, which was written on May 6, to report the identification of discolored empty grease drums used during the tendon restoration. The notification also stated that the internal epoxy liners for the drums were discolored, such that the quality and purity of the grease could have been impacted. The notification reported that Nonconformance



Report 25221-002-G61-GCX-00022, a contractor document, was generated on May 5, 2009, to track the resolution of the condition. The inspectors observed, through review of Nuclear Notification 200417206 and the associated nonconformance report, their concerns related to potential grease contamination had been validated, contrary to what had been communicated on April 30, 2009. Nuclear Notification 200429735 was initiated to report the communication problems that occurred between the Steam Generator Replacement Project Group management and the NRC inspectors.

The inspectors further reviewed Nuclear Notification 200417206 and observed that the reported condition had not been evaluated for operability as required by Procedure SO123-XV-52, "Functionality Assessments and Operability Determinations," Revision 11. The inspectors also observed that the condition description in the notification was inadequate and only described "discolored empty grease drums." Further, the equipment identification or "Function Location (FLOC)" contained only a default value indicating the equipment was at the San Onofre Nuclear Generation Station, and not specific to safety-related plant equipment (an in-service Unit 2 containment structural tendon). As a result, operations personnel and notification screening processes failed to properly assign actions to perform the required immediate operability determination. In addition, a peer check of the notification was not completed as required by the plant station manager in an email dated April 29, 2009.

On May 14, 2009, based on prompting by the inspectors, an immediate operability determination was performed to evaluate the nonconforming condition associated with grease contamination in tendon H-14. The immediate operability determination provided reasonable assurance that tendon H-14 was operable since the grease primarily provides long term corrosion protection. Laboratory chemical analysis and extensive engineering evaluations were performed to support the prompt operability determination. On May 21, 2009, it was concluded that chemical leaching into the grease from the drum internal liner would likely be contained within a layer of grease residue that would form near hot metal areas. Thus, the operability evaluation concluded that tendon H-14 could be used as is.

The licensee initiated Nuclear Notification 200442871, based on the inspectors' observations, to evaluate and correct the adverse condition where nuclear notifications may not be promptly initiated to ensure that conditions reported in the contractor's nonconformance reports were processed in accordance with the licensee's corrective action program requirements.

Analysis. The failure to perform the required operability determination was a performance deficiency. The finding is greater than minor because the failure to perform timely evaluations of nonconforming conditions for operability, if left uncorrected, would have a potential to lead to a more significant safety concern. The finding is associated with the design control attribute of the Containment Barrier Integrity Cornerstone and affects the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radio nuclide releases caused by accidents or events. 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 represent a degradation of the radiological barrier function provided for the control room or auxiliary building, and did not represent

an actual open pathway in the physical integrity of reactor containment and heat removal components. This finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program because licensee personnel failed to properly classify, prioritize, and evaluate for operability conditions adverse to quality [P.1(c)].

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. Procedure SO123-XV-52, "Functionality Assessments and Operability Determinations," Revision 11, required that an evaluation be completed to assess the operability of a system, structure, or component when a degraded, nonconforming or unanalyzed condition is identified. Contrary to the above, on May 6, 2009, operations personnel failed to follow Procedure SO123-XV-52 to evaluate the operability of an identified nonconforming condition until prompted by the inspectors on May 14. Specifically, contaminated grease was placed in the tendon sheathing for containment structural tendon H-14, which constituted a nonconforming condition. However, operations personnel and notification screening processes failed to identify the nonconforming condition as a condition that needed to be evaluated in accordance with Procedure SO123-XV-52. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification 200417206, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361/2009003-05, "Failure to Perform Operability Determination in a Timely Manner on Safety-Related Equipment."

## **1R18 Plant Modifications (71111.18)**

### **a. Inspection Scope**

The inspectors reviewed the following temporary modifications to verify that the safety functions of important safety systems were not degraded:

- April 16, 2009, Unit 3, test equipment on ac lube oil circulating pump breaker 3BH25 installed per Maintenance Order 800231624
- June 4, 2009, Unit 2, containment opening modification to support the steam generator replacement project per Engineering Change Package 800072665

The inspectors reviewed the temporary modifications and the associated safety evaluation screening against the system design bases documentation, including the Updated Final Safety Analysis Report and the technical specifications, and verified that the modifications did not adversely affect the system operability/availability. The inspectors also verified that the installation and restoration was consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors verified that the temporary modifications were identified on control room drawings, appropriate tags were placed on the affected equipment, and licensee personnel evaluated the combined effects on mitigating systems and the integrity of radiological barriers. As part of this review, the inspectors reviewed modification

packages and safety evaluations associated with the Unit 2 steam generator replacement. Credit for this review may be taken for part of NRC Inspection Procedure 50001, "Steam Generator Replacement."

These activities constitute completion of two samples for temporary plant modifications as defined in Inspection Procedure 71111.18-05

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of maintenance planning personnel to provide adequate work instructions to control the connection of electrical monitoring devices on operable plant equipment.

Description. On April 16, 2009, during a plant status tour, the inspectors observed electrical cables coming out of the breaker cover for lube oil circulating pump breaker 3BH25, associated with emergency diesel generator train B. The inspectors observed that the cables were routed to an electrical monitoring device located on a cart behind the motor control center. The cart was tied off to a safety-related cable pull box. An equipment status tag stated the test equipment was installed in January and would remain in place for a 2-week period. Based on the configuration of the breaker cover and the observed installation of the test equipment, the inspectors were concerned that the seismic and environmental qualification of the associated structures, systems, and components may be affected by the installation. The inspectors questioned the operations shift manager about the controls used to install the test equipment due to concerns with seismic and environmental qualification. The shift manager informed the inspectors that the equipment was installed per Maintenance Order 800231624.

On April 17, the inspectors reviewed Maintenance Order 800231624 and noted that no procedures or design modification controls were used to control the test equipment installation. Instead, the maintenance order had only one step to connect each of the three leads for the recorder to breaker 3BH25. The inspectors reviewed the procedure requirements to develop an adequate maintenance order to properly control the type of installation observed. The inspectors observed that Procedure SO123-I-1.7, "Maintenance Order Preparation and Processing," Revision 19, step 9, contained the requirements for maintenance orders prepared to install electrical monitoring devices on operable/operating plant equipment. Procedure SO123-I-1.7, step 9, required that the maintenance planning personnel plan the work according to Procedure SO123-II-1.10.1, "Connection of Electrical Monitoring Devices on Operable/Operating Plant Equipment." Procedure SO123-I-1.7, step 9, also required that (1) the work plan shall require dual verification of alterations made for device installation, and removal; (2) the work plan shall require a functional test after the installation of the devices, and again after the devices are removed and the circuit is restored; (3) include a work step requiring the installation maintenance order be returned to planning at the conclusion of the installation to arrange the schedule date for the removal maintenance order; and (4) the removal maintenance order shall have a schedule date which removes the monitoring devices within the time allowed by Procedure SO123-II-1.10.1. The time allowed by Procedure SO123-II-1.10.1, Revision 3, was 90 days. In addition to providing the requirements for the connection of electrical monitoring devices on operable/operating

plant equipment, Procedure SO123-II-1.10.1, Revision 3, also ensured that the installation met the requirements of Procedures SO123-II-15.3, "Temporary System Alteration and Restoration Form," SO123-I-1.36, "Installation of Temporary Cables," SO123-I-1.20, "Seismic Controls," and SO123-XV-5.1, "Temporary Modification Control."

The inspectors concluded that Maintenance Order 800231624 did not contain any of the steps to control the installation as required by the above listed procedures. Consequently, the inspectors returned to the emergency diesel generator building train B to inspect the test arrangement more closely to accurately describe the observed condition to the operations shift manager. Upon entering the building, the inspectors observed maintenance personnel exiting the opposite door with the equipment. Further, the inspectors observed that the breaker was restored. The inspectors questioned the technicians about the reason for the equipment removal and were told that they had been directed to remove the equipment by their supervisor that morning. The inspectors discussed the issue with the shift manager and confirmed that the equipment was removed based on validation of the inspectors' concerns that the test equipment was installed without the proper controls to ensure that the test equipment would not adversely affect the ability of the equipment to perform its intended safety function.

Analysis. The failure to use adequate work instruction for the installation of electrical monitoring devices was a performance deficiency. The finding is greater than minor because the improper controls for installation of test equipment is associated with the design control attribute of the Mitigating Systems Cornerstone and adversely 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 affect both trains of any single mitigating system or represent an actual loss of a safety function. The finding has a crosscutting aspect in the area of human performance associated with work practices because maintenance planning personnel failed to follow procedures to develop adequate work instructions for safety-related maintenance [H.4(b)].

Enforcement. 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Maintenance Order 800231624 provided work instructions to install and remove an electrical monitoring device at lube oil circulating pump breaker 3BH25, associated with emergency diesel generator train B, and was an activity affecting quality. Contrary to the above, on January 20, 2009, an electrical monitoring device was installed at lube oil circulating pump breaker 3BH25 per Maintenance Order 800231624 that contained work instructions that were not appropriate to the circumstances. Specifically, the work instructions failed to provide adequate instructions to ensure compliance with Procedures SO123-II-1.10.1, "Connection of Electrical Monitoring Devices on Operable/Operating Plant Equipment," Revision 3, and SO123-I-1.20, "Seismic Controls," Revision 7, which contain the requirements, and provide instructions for the connection of electrical monitoring devices on plant systems which are intended to remain operable/operating. The electrical monitoring device was

removed on April 17, 2009, after the inspectors identified the inadequate installation. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification 200396106, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000362/2009003-06, "Improper Controls for Electrical Test Equipment."

## **1R19 Postmaintenance Testing (71111.19)**

### **a. Inspection Scope**

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- April 22, 2009, Unit 2, core protection calculator channel B troubleshooting
- May 1, 2009, Unit 2, saltwater cooling pump P112 return to service following impeller lift
- June 12, 2009, Unit 3, emergency diesel generator train A retest following replacement of speed switch 3HSE947 and 3L160 power supplies PS1 and PS2

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following (as applicable):

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed
- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Updated Final Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance were identified.

**1R22 Surveillance Testing (71111.22)**

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, procedure requirements, and technical specifications to ensure that the six surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints.

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- April 10, 2009, Unit 2, low pressure safety injection loop 2A charged piping

- April 16, 2009, Unit 3, safety injection actuation system relay test per Procedure SO23-3-3.43.13, "ESF Subgroup Relays K-308A, K-403A, K-308B and K-403B Semiannual Test," Revision 5
- April 24, 2009, Unit 3, saltwater cooling pump 3P114 in-service testing per Procedure SO23-3-3.60.4, "Saltwater Cooling Pump and Valve Testing," Revision 11
- April 27, 2009, Unit 3, containment emergency airlock penetration C230 door interlock testing
- May 29, 2009, Unit 2, plant protection test channel C
- June 16, 2009, Unit 3, component cooling water noncritical loop to radwaste supply and return block valve 3HV6465 linestarter inspection

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of six surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

**2OS1 Access Control to Radiologically Significant Areas (71121.01)**

a. Inspection Scope

This area was inspected to assess licensee personnel's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas, and worker adherence to these controls. The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed independent radiation dose rate measurements and reviewed the following items:

- Controls (surveys, posting, and barricades) of radiation, high radiation, or airborne radioactivity areas
- Corrective action documents related to access controls

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of 4 of the required 21 samples as defined in Inspection Procedure 71121.01-05.

b. Findings

No findings of significance were identified.

**2OS2 ALARA Planning and Controls (71121.02)**

a. Inspection Scope

The inspectors assessed licensee personnel's performance with respect to maintaining individual and collective radiation exposures as low as is reasonably achievable. The inspectors used the requirements in 10 CFR Part 20 and the licensee's procedures required by technical specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed the following:

- Current 3-year rolling average collective exposure
- Site-specific trends in collective exposures, plant historical data, and source-term measurements
- Site-specific ALARA procedures
- Seven work activities of highest exposure significance completed during the last outage
- ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements
- Intended versus actual work activity doses and the reasons for any inconsistencies
- Person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements
- Dose rate reduction activities in work planning
- Postjob (work activity) reviews
- Assumptions and basis for the current annual collective exposure estimate, the methodology for estimating work activity exposures, the intended dose outcome, and the accuracy of dose rate and man-hour estimates
- Method for adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work were encountered



- Use of engineering controls to achieve dose reductions and dose reduction benefits afforded by shielding
- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry
- Declared pregnant workers during the current assessment period, monitoring controls, and the exposure results
- Resolution through the corrective action process of problems identified through postjob reviews and postoutage ALARA report critiques
- Corrective action documents related to the ALARA program and follow-up activities, such as initial problem identification, characterization, and tracking
- Effectiveness of self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of 12 of the required 15 samples and 5 of the optional samples as defined in Inspection Procedure 71121.02-05.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

**40A1 Performance Indicator Verification (71151)**

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the 3rd quarter 2008 through the 2nd quarter 2009 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

.2 Mitigating Systems Performance Index - Emergency AC Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Emergency AC Power System performance indicator for Units 2 and 3 for the period from the 3rd quarter 2008 through the 2nd quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, mitigating systems performance index derivation reports, issue reports, event reports, and NRC integrated inspection reports for the period of July 1, 2008 through June 23, 2009, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two mitigating systems performance index emergency ac power system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index - High Pressure Injection Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - High Pressure Injection Systems performance indicator for Units 2 and 3 for the period from the 3rd quarter 2008 through the 2nd quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 1, 2008, through June 23, 2009, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two mitigating systems performance index high pressure infection system samples as defined by Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.4 Mitigating Systems Performance Index - Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Heat Removal System performance indicator for Units 2 and 3 for the period from the 3rd quarter 2008 through the 2nd quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of July 1, 2008, through June 23, 2009, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two mitigating systems performance index heat removal system samples as defined by Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

**40A2 Identification and Resolution of Problems (71152)**

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection**

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and

addressed. The inspectors reviewed attributes that included: the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized corrective action items documenting the issues listed below. 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.

- May 25 through June 5, 2009, Unit 3, coating deficiencies on saltwater cooling butterfly valves as described in Apparent Cause Evaluation 800183273

- May 29, 2009, Unit 2, inadvertent over-boration of reactor coolant system caused by boric acid flowmeter 2FT020Y calibration concern
- June 8, 2009, Units 2 and 3, bases for separation criteria between scaffolding and safety-related equipment as required by Procedure SO123-I-1.34, "Scaffolding Erection," Revision 25, evaluated by Nuclear Notification 200366460

These activities constitute completion of three in-depth problem identification and resolution samples as defined in Inspection Procedure 71152-05.

b. Findings

.1 Quality Affecting Coating Activities

Introduction. The inspectors identified two examples of a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of contract maintenance personnel to follow procedures while performing safety-related painting activities.

Description. The inspectors became aware of the first example on October 21, 2008, which involved a potentially degraded condition associated with the safety-related coating of saltwater cooling system valve discs. In response to NRC questions, the licensee wrote Nuclear Notification 200185228 to evaluate the adequacy of "Holiday" testing on saltwater cooling system valve disc coatings.

The subject valves were 30-inch butterfly valves which were being prepared for installation in the saltwater cooling system during a refueling outage in October 2008. High performance polymer composite materials are routinely applied to the valve discs to enhance their service life and minimize erosion. After achieving the appropriate surface profile, the valve discs are coated and inspected at the Mesa Paint Shop. Coating inspections are required in accordance with Section 6.8 of Procedure SO123-I-1.11.3, "Site Coating Procedure for Level 3 Coatings for Immersion Service Outside Containment," Revision 1, which included performing "Holiday" testing on the coating systems to identify any potential defects. A low voltage tester was used for coating systems applied up to 20 mils thick and a high voltage tester, at 100 volts per mil, was required for coating systems applied more than 20 mils thick.

Apparent Cause Evaluation 800183273 evaluated the adequacy of "Holiday" testing on the aforementioned valves and concluded that a low voltage tester, instead of a high voltage tester, was used on disc coating patches on valves with serial numbers 12674566 and BF 228745, even though the specified coating system applied a total dry film thickness of 24-30 mils. Subsequent inspections performed by the licensee using a high voltage tester found defects in the disc coating patches on the valves, which resulted in the required rework of the affected coating patches. The licensee further concluded that, although the supervisor frequently communicated his expectations for procedural compliance at periodic staff meetings, the supervisor rarely monitored the physical work performed at the Mesa Paint Shop.

The second example occurred in November 2008 when Maintenance Order 800077484, "CCW HX 3ME001 Cleaning and Inspection," was being performed during a refueling

outage. The maintenance order contained a step to establish/maintain the interior of heat exchanger as a foreign material exclusion area per Procedure SO123-I-1.18, "Foreign Material Exclusion (FME) Control," Revision 12. Maintenance personnel prepared the interior surfaces requiring coating as specified in Procedure SO123-I-1.11.3, step 6.2.1, which directed the installation of blasting plugs and required that positive measures (candling or tube sheet maps) be used to ensure all plugs were removed. The maintenance order continued with the following steps: step (5) if blasting plugs were utilized, remove plugs prior to coating applications; step (9) "candle" the tube sheet and/or utilize the latest tube sheet map(s) to ensure tube plugs have been removed; and step (11) perform final foreign material exclusion for all painter-associated materials in the heat exchanger inlet and outlet. On November 4, 2008, the painter supervisor debriefed maintenance personnel to verify that the work had been satisfactorily completed, step 11 was signed by supervisor as completed, and the heat exchanger endbell man way was closed.

On November 4, during a supervisor review of the paperwork for Maintenance Order 800077484, it was identified that step 9 was not signed as being completed. The maintenance order directed the workers (step 9) to "candle" the tube sheet and/or utilize the latest tube sheet maps to ensure any temporary tube plugs have been removed. This step had a verification signature block for completion of the candling or map verification process, but was not signed as complete. Additionally, steps 11.1 and 11.2 had signature blocks for performing the final foreign material exclusion for all painter-associated materials in the heat exchanger inlet (signature required), and outlet (signature required). This step was signed as completed at the time of the heat exchanger closeout, indicating that no foreign material (including temporary blasting plugs) remained in the heat exchanger.

The contract maintenance personnel involved were questioned and it was determined that the candling was not performed. Nuclear Notification 200203386 was generated to report the condition. As part of the description in the nuclear notification, an evaluation described a justification that it was unlikely that any tube plugs remained in the heat exchanger. Direct Cause Evaluation 800191486 was performed to further evaluate the missed maintenance order step. The evaluation stated that prior to closure of the man ways, a visual inspection of the inlet and outlet tube sheets was performed by painter supervisory personnel and found no evidence of any temporary blast plugs left in place. The evaluation also stated, that 'a couple of days into the coating repairs, a work-scope increase was made to coat the inside of the tubes (a short distance), and this work became Critical-Path.' The work was completed on the night shift, during the early hours of November 4, 2008, and the painter supervisors were struggling to keep up with the paperwork because the job was progressing so quickly. The evaluation again stated that 'prior to closure of the man ways, the tube sheets were visually inspected by painter supervisory personnel. The inspection found no evidence of any temporary blast plugs left in place.' Based on the conclusions of the evaluation, the corrective actions taken were to (1) coach/counsel the individuals involved, and (2) review the lessons learned with the Painter Groups.

On June 7, 2009, during mid-cycle heat exchanger cleaning activities, 17 plugs were found installed in the inlet side of the heat exchanger tube sheet from previous maintenance activities. The last maintenance activities associated with component

cooling water heat exchanger 3ME001 was the clean and inspect performed per Maintenance Order 800077484 in November 2008. This discovery revealed that the evaluation and conclusions determined in Direct Cause Evaluation 800191486 were in error, and consequently, the associated corrective actions were inadequate. The inspectors reviewed the plugged tubes maps which indicated 123 existing/permanently-plugged tubes. With these 17 plugged tubes, the total number of tubes plugged was 140. This equates to 4.74 percent of the 2956 total tubes, which did not impact operability of the heat exchanger. The plugs were removed and the heat exchanger was returned to service. The licensee included this issue in an apparent cause evaluation for foreign material exclusion issues identified in Nuclear Notification 200454549.

Analysis. The failure to follow procedures to perform safety-related painting activities was a performance deficiency. The finding is greater than minor because the failure to follow procedures when performing activities affecting quality, if left uncorrected, would have the potential to lead to a more significant safety concern. The finding is associated with the Mitigating Systems Cornerstone. 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 affect both trains of any single mitigating system or represent an actual loss of a safety function. The finding has a crosscutting aspect in the area of human performance associated with work practices because the licensee failed to ensure supervisory oversight of work activities, including contractors, such that nuclear safety is supported [H.4(c)].

Enforcement. In accordance with 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, or drawings.

The inspection of safety-related coatings on equipment needed to mitigate accidents was an activity affecting quality and was implemented by Procedure SO123-I-1.11.3, "Site Coating Procedure for Level 3 Coatings for Immersion Service Outside Containment, Revision 1. Procedure SO123-I-1.11.3, step 6.8.2, required "Holiday" testing to be performed on coating systems applied over conductive surfaces. A low voltage tester was to be used for coating systems applied up to 20 mils thick and a high voltage tester, at 100 volts per mil, was required for coating systems applied more than 20 mils thick. Contrary to the above, during October 2008 contract maintenance personnel failed to use a high voltage tester while inspecting coating systems applied more than 20 mils thick on saltwater cooling valve discs. Consequently, defects in disc coating patches on valves with serial numbers 12674566 and BF 228745 were not detected during the initial coating inspection.

Procedure SO123-I-1.11.3, "Site Coating Procedure," Revision 1, step 6.2.1, required that any time blasting plugs are installed to protect the tubes from abrasive blasting operations, positive measures are required to ensure that the plugs are removed from the tube sheet. The procedure step goes on to state, "acceptable methods include candle the tube sheet or refer to the latest tube sheet map(s) to ensure all temporary plugs are removed." Maintenance Order 800077484 contained the steps, including signature blocks, to ensure that the requirements of Procedure SO123-I-1.11.3 were

performed. Contrary to the above, on November 4, 2008, contract maintenance personnel failed to adequately perform the steps of Maintenance Order 800077484 to ensure that the requirements of Procedure SO123-I-1.11.3 were performed. Consequently, 17 blasting plugs were left installed in the inlet side of the tube sheet for heat exchanger 3ME001 for approximately 7 months.

Because the finding is of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notifications 200185228 and 200454875, this violation is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy: NCV 05000362/2009003-07, "Failure to Follow Procedures for Safety-Related Painting Activities."

## .2 Adequacy of Procedures for Scaffolding Erection

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of engineering personnel to establish adequate procedures for scaffolding erection in safety-related areas. The calculations to determine procedural requirements for separation distances between scaffolding and safety-related structures, systems, and components, only considered the seismic displacements of scaffolding and not other movements.

Description. On March 17, 2009, the inspectors identified NCV 05000361/2009002-03; 05000362/2009002-03, "Failure to Properly Inspect Scaffolding in Safety-Related Areas," for the failure of maintenance personnel to ensure that scaffolding was constructed in accordance with documented procedures. Specifically, four scaffolds built within 1 inch of safety-related components did not have approved engineering evaluations to justify the deviation. During the inspectors' review of this issue, they questioned the adequacy of the minimum separation distance of 1 inch from safety-related equipment required by step 6.6.3.2 of Procedure SO123-I-1.34, "Scaffolding Erection," Revision 24. Further, the inspectors questioned the basis for the 1 inch separation distance and identified that the criteria only considered the seismic displacements of scaffolding and not other movements, such as thermal expansion of piping, equipment vibrations, or component operation. Civil calculations C-271-02 and C-271-03, which provided the basis for the separation criteria required by procedure, were confirmed to only contain seismic displacement analysis results and did not specifically address the separation distance for tied-off type scaffolding. Furthermore, other conditions causing component movements were not considered in the calculations. The inspectors communicated their concern that insufficient scaffolding to component separation could result in interactions that adversely affect the safety functions of safety-related equipment. Engineering personnel initiated Nuclear Notification 200366460 to report the inspectors' concerns related to the potential inadequate procedural requirements for separation distance between scaffolding and safety-related structures, systems, and components.

Because of the four scaffolding erections built within 1 inch of safety-related components identified by the inspectors, and the concerns related to the inadequate separation criteria, on March 28, 2009, the licensee revised Procedure SO123-I-1.34 to increase the minimum separation distance to 2 inches as an interim corrective action. Apparent



Cause Evaluation 800275520 was performed to evaluate and identify corrective actions for the inadequate procedure issue. The evaluation determined that calculations need to be prepared to determine the appropriate separation clearances for scaffolding and include other relevant movements, such as thermal expansion of piping and equipment vibrations. The calculations will be used to confirm that the revised separation distance required in Procedure SO123-I-1.34 was adequate.

Analysis. The failure to properly establish adequate procedures for scaffolding erection in safety-related areas was a performance deficiency. The finding is greater than minor because, if left uncorrected, it would have the potential to lead to a more significant safety concern. The inspectors concluded this finding was associated with the Mitigating Systems Cornerstone. 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 affect both trains of any single mitigating system or represent an actual loss of a safety function. The calculations which provided the basis for the separation criteria were performed more than 4 years ago, and there was not a reasonable opportunity to identify the deficiency. Since the cause of the performance deficiency is not indicative of current performance, no crosscutting aspect is assigned.

Enforcement. 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Procedure SO123-I-1.34, "Scaffolding Erection," Revision 24, contained the requirements for scaffolding erection in safety-related areas, which included requirements for separation distances between scaffolding and safety-related structures, systems, and components. Contrary to the above, prior to March 28, 2009, engineering personnel failed to establish adequate procedures for scaffolding erection in safety-related areas. Specifically, Procedure SO123-I-1.34 required a minimum separation distance of 1 inch from safety-related equipment which only considered the seismic displacements of scaffolding and not other movements, such as thermal expansion of piping, equipment vibrations, or component operation. Insufficient scaffolding to component separation could result in interactions that adversely affect the safety functions of safety-related equipment. Because this violation was of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification 200366460, this violation is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000361/2009003-08; 05000362/2009003-08, "Failure to Establish Adequate Scaffolding Erection Procedures."

### .3 Review of Loose Electrical Connection Problems

#### a. Inspection Scope

The inspectors conducted a partial review of licensee actions taken in response to Violation 05000361/2008013-05, "Failure to Establish Appropriate Instructions," as documented in NRC Special Inspection Report 05000361/2008013; 05000362/2008013. The inspectors conducted their observations concurrently with the component cooling

water linestarter preventative maintenance documented in Section 1R22 of this report. The inspectors (1) verified that applicable procedures contained steps to identify and address loose electrical connections; (2) verified that proper training to identify and address loose electrical connections had been implemented by the licensee; and (3) reviewed web-based training (CBT 3LUSCON) designed specifically to inform applicable personnel of the importance of verifying electrical connections, as well as how to identify and address loose electrical connections.

b. Assessment and Observations

The inspectors verified that procedures in use during the component cooling water linestarter preventative maintenance contained sections specifically written to have workers check for, and, if necessary, troubleshoot loose electrical connections. In preparation for the component cooling water linestarter preventative maintenance, the inspectors reviewed the CBT 3LUSCON training with a licensee electrical systems engineer. The training adequately addressed the background of loose electrical connections at the plant, as well as how to properly identify and troubleshoot loose electrical connections found during future work. However, when questioned by inspectors during the preventative maintenance observation, contractors from the Maintenance Support Group were unaware of this training. The inspectors brought this to the attention of licensee electrical systems supervisors and the licensee subsequently entered this issue into their corrective action program. Nuclear Notification 200466891 was created to recommend that the CBT 3LUSCON training be required of all electrical workers. The inspectors concluded that the licensee response to this observation was appropriate and timely.

.4 Substantive Crosscutting Issues

In the 2007 Annual Assessment Letter for SONGS, dated March 3, 2008, (ADAMS ML080630244) the NRC identified substantive crosscutting issues associated with human performance involving procedure adequacy and problem identification and resolution involving the licensee's failure to thoroughly evaluate problems such that resolutions address causes and extent of conditions.

In the 2008 Annual Assessment Letter, dated March 4, 2009, (ADAMS ML090640307) the NRC documented that this was the third cycle where substantive crosscutting issues were identified in human performance and problem identification and resolution. Additionally, during the 2008 assessment period, the NRC identified an additional substantive crosscutting issue in the area of human performance involving ineffective use of human error prevention techniques. The licensee responded to the open substantive crosscutting issues in a letter titled, "Response to Annual Assessment Letter Inspection Report 05000361/2009001; 05000362/2009001," dated April 21, 2009, with the status of corrective actions planned to address the human performance and problem identification and resolution crosscutting issues, including schedules, milestones, and performance monitoring metrics.

a. Inspection Scope

The inspectors reviewed the progress associated with the open substantive crosscutting issues in human performance and problem identification and resolution. The inspectors

considered the following during the review of the licensee's actions: (1) the root cause evaluations, (2) the substantive crosscutting issues improvement plans, (3) that the planned corrective actions address the root causes, (4) the metrics and measures for improved performance, (5) the schedules and milestones, and (6) the effectiveness reviews.

b. Findings

1. Improvement Plans

The inspectors reviewed the scope of information considered in the root cause evaluations, the details of the evaluations, and the planned corrective actions. These reviews included assessment of the scope and progress of the licensee's procedure improvement efforts and cause evaluation improvement efforts. These root cause evaluations were recently developed since the previous root cause evaluations did not include appropriate information and detail to identify the reasons for the insufficient progress in addressing the substantive crosscutting issues. The inspectors reviewed the recently developed revised human performance and problem identification and resolution improvement plans. The inspections concluded that the root cause evaluations were adequately defined and understood, and the corrective actions resulting from the evaluations appeared reasonable to address the identified causes and extent of condition. However, the inspectors could not assess and evaluate the effectiveness of the corrective actions because the licensee was in the early stages of implementation of their improvement plans.

2. Metrics and Measures to Monitor Improvement

During the inspection, the licensee was still in the process of finalizing and implementing the metrics to monitor improvement. The licensee established 6 metrics to monitor the effectiveness of the corrective actions addressing the human performance substantive crosscutting issue. These metrics include: Station Event Rate, Division Event Rate, Procedural Quality and Use Error Rate, Leadership Engagements, Industrial Safety Accident Rate, and Recordable Injury Rates. The licensee established 10 metrics to monitor the effectiveness of the corrective actions addressing the problem identification and resolution substantive crosscutting issue. These metrics include: Notifications Generated and Open, Corrective Actions to Prevent Recurrence Open and Average Age, Cause Evaluation Corrective Actions Open and Percent Overdue, Corrective Actions Open and Percent Overdue, Root Cause Evaluations Average Time to Perform, Apparent Cause Evaluations Average Time to Perform, Cause Evaluation Quality, Notifications and Work Orders Open Greater Than 2 Years, Quality of Corrective Action Implementation, and Operability Determination Quality. The inspectors reviewed a sample of these metrics and determined that most of the indicators appeared appropriate and should provide useful information. However, the inspectors determined that not all metrics had been fully implemented, and that not enough time had passed to assess trends or determine the appropriateness of the goals and thresholds.

.5 Failure to Maintain Written Procedures Covered in Regulatory Guide 1.33

Introduction. The inspectors identified a Green noncited violation of Technical Specification 5.5.1.1 for the failure of operations and maintenance personnel to maintain

written procedures covered in Regulatory Guide 1.33, which resulted in 54 uncontrolled procedures and work instructions available to use on safety-related systems without flagging the required changes.

Description. In December 2008, during a root cause investigation, the licensee identified the backlog of procedure changes required by each department. The licensee identified 1000 operations procedures and 450 maintenance procedures needing revisions. On June 3, 2009, the inspectors were reviewing the metrics associated with working off the backlog of required procedure changes. The inspectors questioned which procedures were currently being used in the plant, but required changes that could affect plant safety.

The licensee immediately reviewed the backlog of procedure changes for operations and maintenance. For operations procedures, Guide OPG-1, "Operations Procedure Writer Guide," Revision 19, and for maintenance procedures, Procedure SO123-I-I.10, "Method for Screening and Prioritizing Procedure Change Requests," Revision 10, defined the "TEAM" approach to classifying procedure changes as technical, enhancement, administrative correction, or modification. Technical changes were defined for plant impacting procedures, or procedures that must be issued the next business day, as changes that could place a structure, system, or component in an unevaluated condition; could cause a plant trip; could cause a loss of megawatts; could degrade nuclear safety; could cause unexpected reactivity changes; or could cause an immediate personnel safety issue.

The inspectors questioned if operations and maintenance should be using uncontrolled procedures for work in the plant without the necessary technical changes. Due to the inspectors' questions, the licensee identified 14 operations procedures and 40 maintenance procedures that required technical changes and were still active for use in the plant.

The licensee reviewed the procedures that required technical changes for any immediate impact on the plant, stopped any work using those procedures, and developed a process to place those procedures on hold until the technical changes could be made. The licensee wrote Nuclear Notification 200453351 to address these programmatic procedure change issues and to perform an apparent cause evaluation. The licensee is reviewing past use of the 54 affected procedures to ensure there has been no impact on safety-related systems. The licensee is also reviewing the procedure change backlog for other affected departments in Nuclear Notification 200461070.

The inspectors identified there were no programmatic controls for maintaining procedures or work orders by placing them on administrative hold until required technical changes were complete. The corrective action program computer system did not include a way to flag procedures requiring technical changes, resulting in procedures and work orders being used without knowledge of the required changes. The inspectors determined that the licensee took appropriate corrective actions to identify the backlog of procedure changes in December 2008; however, the licensee did not take appropriate corrective actions to identify which procedures needed technical revisions, and place those procedures on administrative hold until the technical changes were made. The

licensee wrote Nuclear Notification 200463613 to address the untimely corrective actions from December 2008.

Analysis. The failure to maintain operations and maintenance procedures covered by Regulatory Guide 1.33 was a performance deficiency. The finding is greater than minor because, if left uncorrected, the failure to maintain and control operations and maintenance procedures could lead to a more significant safety concern by having technically inaccurate procedures being used on safety-related systems. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its technical specification allowed outage time, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because problems were not thoroughly evaluated such that the resolutions addressed the causes and extent of conditions. This includes properly classifying and prioritizing conditions adverse to quality [P.1(c)].

Enforcement. Technical Specification 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, describes safety-related activities that should be covered by procedures. Contrary to the above, from plant startup through June 2009, operations and maintenance personnel failed to maintain procedures covered by Regulatory Guide 1.33. No process requirement or procedure existed to suspend or put an administrative hold on a procedure or work order when a technical change is required for the procedure. This resulted in 54 uncontrolled procedures and work instructions available to use on safety-related systems without flagging the required changes. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification 200453351, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361/2009003-09; 05000362/2009003-09, "Failure to Maintain Written Procedures Covered in Regulatory Guide 1.33."

#### **40A3 Event Follow-up (71153)**

##### **.1 Event Follow Up**

##### **a. Inspection Scope**

The inspectors reviewed the below listed events 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.

- March 28, 2009, Unit 2, failure of emergency cooling unit 2ME399 supply breaker to close on demand as a result of interference between the breaker frame and the mounting bolts for the stationary secondary disconnects
- June 9, 2009, inspectors follow up on the loss of Unit 2 refueling water storage tank foreign material exclusion controls
- June 9, 2009, Unit 3, emergency diesel generator train A fail to start due to dc voltage spikes caused by failed annunciator power supplies

Documents reviewed by the inspectors are listed in the attachment.

These activities constitute completion of three inspection samples as defined in Inspection Procedure 71153-05.

b. Findings

See Section 1R12 for findings associated with the March 28, 2009, event.

.2 Event Report Review

a. Inspection Scope

The inspectors reviewed the four below listed licensee event reports and related documents to assess: (1) the accuracy of the licensee event report, (2) the appropriateness of corrective actions, (3) violations of requirements, and (4) generic issues.

b. Findings

.1 (Closed) Licensee Event Report 05000361/2008-002-00; 05000362/2008-002-00, "Disturbance on the Pacific DC Intertie Causes Offsite Power Frequency to Dip Below Operability Limits"

On May 20, 2008, offsite power frequency dropped below the technical specification minimum of 59.7 Hz for approximately 10 seconds due to a grid disturbance on the Pacific DC intertie line in Oregon. The lowest frequency recorded during the drop in frequency was 59.6 Hz. The inspectors consider operator response to the event appropriate, and the momentary dip in frequency did not disturb plant operation. The licensee event report was reviewed by the inspectors and no findings of significance were identified and no violation of NRC requirements occurred. The licensee documented this occurrence for tracking in their corrective action program. This licensee event report is closed.

.2 (Closed) Licensee Event Report 05000361/2008-003-00; 05000362/2008-003-00, "Disturbance on the Pacific DC Intertie Causes Offsite Power Frequency to Dip Below Operability Limits"

On May 29, 2008, offsite power frequency dropped below the technical specification minimum of 59.7 Hz for approximately 10 seconds due to a grid disturbance on the

Pacific DC intertie line in Oregon. The lowest frequency recorded during the drop in frequency was 59.69 Hz. The inspectors consider operator response to the event appropriate, and the momentary dip in frequency did not disturb plant operation. The licensee event report was reviewed by the inspectors and no findings of significance were identified and no violation of NRC requirements occurred. The licensee documented this occurrence in their corrective action program alongside the occurrence described in Licensee Event Report 05000361/2008-002-00; 05000362/2008-002-00. This licensee event report is closed.

.3 (Closed) Licensee Event Report 05000362/2007-001-00, "Failure to Declare Emergency Diesel Generator Inoperable and Enter TS Action"

An NRC special inspection was completed on April 24, 2008, to review this event. No new findings were identified in the inspectors' review. Results of the special inspection, including associated findings and observations, were documented in NRC Special Inspection Report 05000361/2008006; 05000362/2008006. This licensee event report is closed.

.4 (Closed) Licensee Event Report 05000361/2009-002-00, "Inoperable 1E Breaker Causes Containment Chiller to Become Inoperable"

The inspectors reviewed this event and related root cause evaluation. Findings associated with this event are documented in Section 1R12 of this report. This licensee event report is closed.

#### **40A5 Other Activities**

.1 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 SONGS 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.

.2 Confirmatory Order Follow-up for EA-07-232 [NRC INSPECTION REPORT 05000361/2007016; 05000362/2007016, AND OFFICE OF INVESTIGATIONS REPORT 4-2007-016]

a. Inspection Scope

By letter dated January 11, 2008, (ADAMS reference ML080110380), the NRC issued a Confirmatory Order to the licensee as part of a settlement agreement through the NRC's alternative dispute resolution process. The settlement was in regards to the falsification, by a contract fire protection specialist, of firewatch certification sheets on numerous occasions from April 2001 to December 2006 at SONGS. On December 3, 2008, NRC Inspection Report 05000361/2008012; 05000362/2008012 documented closure of Items 1, 2d, 2e, 2f, 2i, 2j, 2k, and 3 of the Confirmatory Order. Items 2a, 2b, 2c, 2g, 2h, and 2l remained open as an Unresolved Item (URI 05000361/2008012-04; 05000362/2008012-04).

On November 14, 2009, Southern California Edison (SCE) submitted a letter to the NRC titled, "Response to Confirmatory Order EA 07-232 and Notice of Violation EA 07-141," in which the licensee defined and established success criteria for closure of each of the Confirmatory Order Items. On January 14, 2009, the licensee submitted a second letter to the NRC, also titled "Response to Confirmatory Order EA 07-232 and Notice of Violation EA 07-141," which included a report on the status of each Confirmatory Order Item. In this letter, the licensee stated that all items with the exception of Item 2c and Item 2l were closed or ready to close.

During the week of June 1-5, 2009, a team of two inspectors performed an on-site inspection of the status of the remaining open Confirmatory Order Items. The inspectors used Inspection Procedures 92702 and 71152 to assess the licensee's completion of these items, reviewed information available about the licensee's progress on the open items, and interviewed site personnel regarding related training and communications received.

b. Observations and Findings

Based on the information provided by the licensee, the inspectors determined that the licensee demonstrated sufficient progress for closure of Items 2a, 2b, 2g, and 2h of the Confirmatory Order.

- Item 2a of the Confirmatory Order states, "[By February 29, 2008, SCE will provide the NRC with a Corrective Action Plan that includes the results of Item 1 and provides the following key elements:] A monitoring program to determine the effectiveness of the Corrective Action Plan developed pursuant to this Item 2."

On December 3, 2008, Inspection Report 05000361/2008012; 05000362/2008012 noted that, while the monitoring plan developed for Item 2a identified the components needed to observe the effectiveness of the corrective action plan, the plan did not include specific measures that established success criteria such as site and/or departmental metrics or performance indicators;



therefore, the plan transmitted to the NRC on February 28, 2008, was not sufficient to close this item.

On January 14, 2009, SCE provided by letter a revised monitoring program and indicated that this item was ready to close. However, the corrective action plan and revised monitoring program provided to the inspectors the week of June 1-5, 2009, did not contain specific measures that established success criteria for all parts of the plan. Subsequent to this inspection, SCE provided the NRC an updated plan which included specific measures establishing success criteria. Based on this revision of the corrective action plan, the inspectors determined that as of June 19, 2009, the licensee had demonstrated adequate progress to close Item 2a.

The failure to meet the due date requirements of Confirmatory Order Item 2a by February 29, 2008, is a violation of the Confirmatory Order. However, following management review, this violation is of minor significance and is not subject to enforcement action in accordance with Section IV of the NRC Enforcement Policy.

- Item 2b of the Confirmatory Order states, "By June 30, 2008, SCE will conduct multi-day interventions that reinforce fundamental company values. SONGS will ensure that this effort includes the elements of a strong nuclear safety culture to prevent deliberate violations. The intent of the interventions will be to focus leaders and managers on the importance of balancing accountability and encouraging workers to self-report errors and the importance of communicating this to their workers."

SCE initially identified 292 personnel as the target audience for this training using corporate records. As of July 1, 2008, 95 percent of this "baseline target audience" had attended the required training.

Inspection Report 05000361/2008012; 05000362/2008012 noted that the team was unable to close Item 2b because SCE failed to provide an adequate means for the team to understand whom SCE identified as leaders or managers and who attended the interventions. Subsequent to the inspection documented in the above report, while developing documentation of who had been identified as leaders and managers, SCE identified 118 additional individuals who should have been included in the original target audience but had not been identified by corporate records. As of December 4, 2008, 95 percent of this "expanded target audience" had attended the required training.

The failure to meet the due date requirements of Confirmatory Order Item 2b by June 30, 2008, is a violation of the Confirmatory Order. However, following management review, this violation is of minor significance and is not subject to enforcement action in accordance with Section IV of the NRC Enforcement Policy.

- Item 2g of the Confirmatory Order states, "By April 1, 2008, SCE will enhance its existing disciplinary process to provide more detailed guidance in cases involving

a deliberate misconduct-related violation. This process will communicate to the workforce specific escalating disciplinary actions that may be taken in response to initial and/or repeat deliberate misconduct by individual contributors and supervisors/managers. Communication of process enhancements will focus personnel on the importance of balancing accountability and encouraging workers to self-report errors and the importance of communicating this with their workers.”

On December 3, 2008, Inspection Report 05000361/2008012; 05000362/2008012 noted that while SCE had enhanced their procedures to include specific disciplinary guidance standards and communicated this to the workforce at all-hands meetings, SCE had failed to ensure the message conveyed the importance of balancing accountability and encouraging workers to self-report errors, the importance of communicating this with their workers, and specific escalating disciplinary actions that may be taken in response to initial and/or repeat deliberate misconduct by individuals.

In February 2009, SCE added language to its “Human Performance Tools Handbook for All Workers,” required to be carried by all personnel on site, which conveyed the importance of balancing accountability and encouraging workers to self-report errors. Further, in February 2009 and May 2009 during all-hands and all-leaders meetings, SCE presented the specific escalating disciplinary actions that may be taken in response to initial and/or repeat deliberate misconduct by individual contributors and supervisors/managers. However, based on the data provided during the week of June 1-5, the inspectors determined that these meetings were only attended by approximately half of the workforce. Therefore, the inspectors were unable to determine that the specific escalating disciplinary actions had been effectively communicated to all site personnel.

Subsequently, on June 9, 2009, SCE distributed required reading to all employees and contract workers which consisted of a five-slide presentation outlining the enhanced disciplinary policy. Each worker was required to acknowledge that he or she had received and reviewed this information. The inspectors reviewed the content of this presentation and the completion records for the required reading. They determined that while the presentation did not explicitly include the specific escalating disciplinary actions that may be taken in response to initial and/or repeat deliberate misconduct by individual contributors and supervisors/managers, it adequately summarized these actions and provided a reference to the enhanced guidance. The inspectors determined that as of June 19, 2009, 95 percent of the target audience had received the required communication.

- Item 2h of the Confirmatory Order states, “By April 1, 2008, SCE will revise the SONGS training lesson for on-the-job trainers and provide this training to all on-the-job trainers and trainees. The revised on-the-job training will reinforce the responsibilities of the trainer and the trainees. Emphasis will be placed on the expectations of a trainer while his/her trainee is performing work during an on-the-job session.”

SCE established a computer-based training module for all on-the-job trainers and trainees. Additionally, SCE revised the on-the-job training procedure to establish emphasis on the expectations of the on-the-job trainer while his/her trainee is performing work during on-the-job training. By April 1, 2008, all on-the-job trainers and trainees either completed the training module or had their qualifications suspended pending completion.

Based on the information provided by the licensee, the inspection team was unable to determine that sufficient actions had been taken for closure of Items 2c and 2l as described below:

- Item 2c of the Confirmatory Order states, "SCE will expand the Corporate Ethics Program to encompass long-term (i.e., greater than 90 days) managers and supervisors of independent contractor workers at SONGS, who will be required to take the integrity training in 2008. SCE will conduct Corporate Ethics Training for SONGS managers and supervisors in 2008 and other SONGS employees in 2009."

As noted in Inspection Report 05000361/2008012; 05000362/2008012, SCE expanded the Corporate Ethics Program to encompass long-term (i.e., greater than 90 days) managers and supervisors of independent contractor workers at SONGS and had begun training for SONGS managers, supervisors, and employees. Because this training is ongoing through December 2009, Item 2c will remain open pending completion of this training and subsequent NRC inspection.

- Item 2l of the Confirmatory Order states, "Upon completion of the terms of the Confirmatory Order, SCE will provide the NRC with a letter discussing its basis for concluding the Order has been satisfied."

Because all the items of the Confirmatory Order have not been completed, SCE has not provided the NRC with a letter. Therefore, Item 2l will remain open.

At the end of the inspection period, the licensee continued to implement actions related to the open items of the Confirmatory Order.

The Confirmatory Order open items will remain an unresolved item pending licensee completion of the remaining actions and NRC inspection of the adequacy and effectiveness of those actions: URI 05000361/200812-04; 05000362/200812-04, "Open Confirmatory Order Items."

#### **40A6 Meetings**

##### Exit Meeting Summary

On April 9, 2009, the inspector presented the results of the radiation safety inspection to Mr. A. Hochevar, Station Manager, and other members of the licensee staff. The licensee acknowledged the issues presented.

On June 5, 2009, a preliminary debrief was conducted with the results of the Confirmatory Order and substantive crosscutting issues follow-up inspection. The results of the inspection were discussed with Mr. A. Hochevar, Station Manager, and other members of the staff. The licensee acknowledged the issues presented.

On June 5, 2009, the inspectors debriefed the inspection results to Mr. G. Cook, Compliance Manager, and other members of the licensee staff. The licensee acknowledged the issues presented.

On June 18, 2009, the inspector presented the triennial heat sink performance inspection results to Mr. A. Hochevar, Station Manager, and other members of licensee management. Licensee management acknowledged the inspection findings.

On June 24, 2009, the inspectors presented the inspection results to Mr. R. Ridenoure, Senior Vice President and Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented.

The inspector asked the licensee whether any materials examined during these inspections should be considered proprietary. The licensee confirmed that all proprietary information was returned or destroyed during these inspections.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

J. Armas, Supervisor, Maintenance Engineering Fluid Process  
B. Ashbrook, Manager, Emergency Preparedness  
D. Axline, Technical Specialist, Nuclear Regulatory Affairs  
D. Bauder, Plant Manager  
P. Blakeslee, Supervisor, Mechanical Auxiliary Systems  
J. Carey, Technician, Health Physics  
S. Chun, Supervisor, Electrical/I&C Systems  
B. Corbett, Manager, Performance Improvement  
G. Cook, Manager, Nuclear Regulatory Affairs  
D. Deglopper, ALARA Planner, Health Physics  
S. Deines, Technician, Health Physics  
R. Elsasser, Manager, Training  
M. Farmer, Radioactive Materials Control Supervisor, Health Physics  
J. Fee, Manager, Site Emergency Preparedness  
D. Fredianelli, Supervisor, Production Support  
K. Gallion, ALARA Supervisor, Health Physics  
S. Gardner, Engineer, Nuclear Regulatory Affairs  
S. Genshaw, Manager, Maintenance Engineering Electrical/Controls  
M. Graham, Manager, Plant Operations  
A. Hochevar, Station Manager, Plant Operations  
E. Hubley, Director, Maintenance/Construction  
G. Johnson, Jr., Senior Nuclear Engineer, Maintenance/Systems Engineering  
K. Johnson, Manager, Design Engineering  
M. Johnson, Manager, Support Services  
L. Kelly, Engineer, Nuclear Regulatory Affairs  
D. Legere, Director, Work Control  
J. Madigan, Manager, Health Physics  
M. Martin, Supervisor, Maintenance  
A. Matheny, System Engineer  
J. McGaw, Engineering Supervisor  
A. Meichler, Mechanical/System Engineering Supervisor  
M. Mihalik, Areva Project Manager, Steam Generator Replacement Project  
M. Miranda, Technician, Health Physics  
R. Nielsen, Supervisor, Nuclear Oversight  
B. MacKissock, Director Operations  
A. Meichler, Supervisor, American Society of Mechanical Engineers Programs  
L. Pepple, ALARA Planner, Health Physics  
N. Quigley, Manager, Maintenance/System Engineering  
R. Richter, Engineering Supervisor, Fire Protection  
M. Russell, Technical Specialist, Health Physics  
C. Ryan, Manager, Maintenance & Construction Services  
T. Sarette, Technical Specialist, Chemistry Division  
A. Scherer, Director Nuclear Regulatory Affairs

P. Schofield, Supervisor, Maintenance Engineering  
 R. Sherman, ALARA Planner, Health Physics  
 M. Short, Vice President, Engineering and Technical Services  
 R. St. Onge, Director Maintenance, Maintenance and Systems Engineering  
 Q. Tran, Engineer, Maintenance Engineering  
 J. Todd, Manager, Security  
 D. Vanburskirk, Engineer, Design Engineering  
 G. Vechinski, Inservice Inspection/Steam Generator Support Supervisor  
 D. Wilcockson, Manager of Operations Training  
 A. Williams, Technician, Health Physics  
 C. Williams, Manager, Project/Product

NRC Personnel

D. Loveless, Senior Reactor

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened and Closed

05000361/2009003-01 05000362/2009003-01	NCV	Failure to Evaluate the Impact of Temporary Scaffolding on Installed Fire Protection Systems (Section 1R05)
05000361/2009003-02 05000362/2009003-02	NCV	Failure to Implement Corrective Actions to Prevent Repeat Safety-related 480V Breaker Failures (Section 1R12)
05000361/2009003-03 05000362/2009003-03	NCV	Risk Assessment Performed Using Risk Assessment Tools with Known Errors (Section 1R13)
05000361/2009003-04 05000362/2009003-04	NCV	Failure to Assess and Manage Risk for Electrical Switchyard Impacting Maintenance (Section 1R13)
05000361/2009003-05	NCV	Failure to Perform Operability Determination in a Timely Manner on Safety-related Equipment (Section 1R15)
05000362/2009003-06	NCV	Improper Controls for Electrical Test Equipment (Section 1R18)
05000362/2009003-07	NCV	Failure to Follow Procedures for Safety-Related Painting Activities (Section 4OA2)
05000361/2009003-08 05000362/2009003-08	NCV	Failure to Establish Adequate Scaffolding Erection Procedures (Section 4OA2)
05000361/2009003-09 05000362/2009003-09	NCV	Failure to Maintain Written Procedures Covered in Regulatory Guide 1.33 (Section 4OA2)

Closed

05000361/2008-002-00 05000362/2008-002-00	LER	Disturbance on the Pacific DC Intertie Causes Offsite Power Frequency to Dip Below Operability Limits (Section 4OA3)
05000361/2008-003-00 05000362/2008-003-00	LER	Disturbance on the Pacific DC Intertie Causes Offsite Power Frequency to Dip Below Operability Limits (Section 4OA3)
05000362/2007-001-00	LER	Failure to Declare Emergency Diesel Generator Inoperable and Enter TS Action (Section 4OA3)
05000361/2009-002-00	LER	Inoperable 1E Breaker Causes Containment Chiller to Become Inoperable (Section 4OA3)

Discussed

05000361/2008012-04 05000362/2008012-04	URI	Open Confirmatory Order Items (Section 4OA5)
05000361/2008013-05	VIO	Failure to Establish Appropriate Instructions (Section 4OA2.3)

**LIST OF DOCUMENTS REVIEWED**

**Section 1R01: Adverse Weather Protection**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
OP-013	GCC Operating Procedure: SONGS Voltage	October 22, 2008
SO23-13-4	Operation During Major System Disturbances	14
SO23-13-8	Severe Weather Procedure	6

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
Transmission Control Agreement	SONGS 2&3 Requirements for Offsite Power Supply Operability	October 10, 2008

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Response to Request for Additional Information Regarding Generic Letter 2006-002 "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power"	January 31, 2007

**Section 1R04: Equipment Alignment**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO23-5-1.9	System Alignment Requirements for Plant Startup	6
SO23-2-13	Emergency Diesel Generator Alignment	3
SO23-2-13	Diesel Generator Operations	37
SO23-2-13.1	Emergency Diesel Generator Alignments	3
SO23-3-2.7.2	Safety Injection System Removal/Return to Service Operation	19

NUCLEAR NOTIFICATIONS

200368052      200450315      200450401

**Section 1R05: Fire Protection**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
Tab 2/3-020	Unit:2/3 building: Auxiliary control and Turbine Elevation 9'-0"	6
Tab 2/3-025	Unit:2/3 building: Auxiliary control Elevation 85'-0"	5
Tab 2/3-023	Unit:2/3 building: Auxiliary Control Elevation 50'-0"	7
Tab 2/3-024	Unit:2/3 building: Auxiliary control Elevation 70'-0"	6
Tab 2/3-021	Unit:2/3 building: Auxiliary control Elevation 30'-0"	7
Tab 2/3-022	Unit:2/3 building: Auxiliary control Elevation 39'-2"	5
SO23-XV-4.500	Control of SONGS 2 and 3 Barriers	8
2-009	Pre-Fire Plans	5
3-041	Pre-Fire Plans	7
SO123-I-1.34	Maintenance Procedure Scaffolding Erection	25



<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Updated Fire Hazards Analysis	15
SO123-FP-1	Fire Protection Program	8
SO123-I-1.34	Scaffolding Erection	25
SO123-XIII-4.600	Fire Protection Impairment	9
SO23-XIII-4.400	Units 2 And 3 Fire Detection Instrumentation and Fire Suppression Systems Impairment Scope Identification	22

NUCLEAR NOTIFICATIONS

200410823	200462417	200415248	200448789	200449686
200449046	200450118	200450205	200450314	200452331

MAINTENANCE ORDER

800076130

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
2/3-023	Pre-fire Plans Auxiliary Control Building 50' elevation	7
83077	Diesel Generator Building and Tank Building Unit 2 El. 30'-6"	6
83092	Diesel Generator Building and Tank Building Unit 3 El. 30'-6"	5
83082	Safety Equipment Building Unit 3 El. -15'-6" & -5'-3"	1

CALCULATION

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
90041BC	Determination of the Basis of Acceptability of Fire Area Boundaries	3

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
IPE-MR-000	SONGS 2/3 PRA Living Report	0
Pre-Fire Plan	2-011	5
Pre-Fire Plan	3-043	5
Pre-Fire Plan	3-038	6
Pre-Fire Plan	3-039	4
SONGS-TQAM	SONGS Topical Quality Assurance Manual, Chapter 8-A, "Quality Assurance Program Requirements for the Fire Protection Program and Station Blackout Mitigation"	23
UFHA	Updated Fire Hazards Analysis, San Onofre Units 2 & 3, Amended	May 2007
LCS 3.7.103	Licensee Controlled Specifications, "Spray and/or Sprinkler Systems"	7

**Section 1R06: Flood Protection Measures**

NUCLEAR NOTIFICATION

200153831

ACTION REQUEST

051100580

**Section 1R07: Heat Sink Performance**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO23-V-2.11	Generic Letter 89-13 Commitments	1
SO123-III-2	Closed Cooling Water System Chemistry Control Program	9
SO123-XV- 50.CAP-2	SONGS Nuclear Notification Screening	0
SO123-I-1.11.3	Site Coating Procedure for Level 3 Coatings for Immersion Service Outside the Containment	5

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-0027-023	CCW/SCW Heat Exchanger Operability	CCN-10
M-0027-029	CCW/SCW Heat Exchanger Performance Tests	CCN-D9989
M-0027-029	CCW/SCW Heat Exchanger Performance Tests	CCN-1
M-0027-029	CCW/SCW Heat Exchanger Performance Tests	CCN-3
M-0027-029	CCW/SCW Heat Exchanger Performance Tests	CCN-4

MAINTENANCE DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
800077484 U3C15	Heat Exchanger Cleaning and Inspection	

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/</u> <u>DATE</u>
Letter	Response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment"	January 26, 1990
Letter	Response to Generic Letter 89-13	December 18, 1991
Letter	Response to Generic Letter 89-13	April 24, 1992
Letter	Response to Generic Letter 89-13	June 23, 2000
	SO23-404-12 CCW HX Specification Sheet 5, 6, 7	
	SO23-404-12-M30-1 CCW HX Information Sheet, Data Sheet DS-2596-1	2
	SO23-404-12-M31-1 CCW HX Information Sheet, Data Sheet DS-2596-2	2
	SO23-404-12-M32-0 CCW HX Information Sheet, Data Sheet DS-2596-3	1
	System Health Report 1 <sup>st</sup> Quarter 2009 – Salt Water Cooling System	
	System Health Report 1 <sup>st</sup> Quarter 2009 – Component Cooling Water System	

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
	System Health Report 1 <sup>st</sup> Quarter 2009 – Normal and Emergency Chilled Water System	
	DNA History Plot – PD6484 CCW HX Delta-P	November 4-8, 2008
	DNA History Plot – PD6484 CCW HX Delta-P	July 6, 2008 - June 17, 2009
	DNA History Plot – PD6484 CCW HX Delta-P	April 1, 2008 - June 17, 2009
	Painter Desktop Guide – Component Cooling Water Heat Exchanger, Section 14.2.1	
	SO123-WV Potential Deliberate Noncompliance Review	1

#### CONDITION REPORTS

071000587	200203386	200454875	800077484	800191486
071101227	200454549			

#### **Section 1R08: Inservice Inspection Activities**

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
51-9108065-00	SONGS Unit 2 Pre-service Steam Generator Eddy Current Inspection Plan	0
5023-617-1-M806	Pre-Service Inspection Plan	4
UGS-L5-060101	Pre-service Inspection Plan	3
UGS-20071403	Ultrasonic Examination Procedure for Class 1 &2 Vessel Welds	1
UGS-20071404	Ultrasonic Examination Procedure (UT-2) for Nozzle Inside Radius	1
UGS-20071405	Ultrasonic Examination Procedure (UT-3) for Inlet and Outlet Nozzle Tip Welds	2
UGS-20071406	Procedure for Ultrasonic Trough Wall Sizing of Pipe Welds (UT-4) for Inlet and Outlet Nozzle Tip Welds	1
UGS-20071407	Magnetic Particle Examination Procedure (MT-1) (Yoke Technique)	1

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
UGS-20071408	Visual Examination Procedure (VT-1)	1
UGS-20071409	Visual Examination Procedure (VT-2)	1
SO23-XXVII-23.4	Eddy Current Examination of Steam Generator Tubing for San Onofre Nuclear Generating Station (SONGS) Unit 2 & 3	0
SO23-617-01	Post Weld Heat Treat Procedure	3

CORRECTIVE ACTION REPORTS

CAR-SON-04-003	CAR-SON-05-006	CAR-SON-06-015A	CAR-SON-06-015B
CAR-SON-05-002	CAR-SON-06-013		

NONCONFORMANCE REPORTS

UGNR-SON2-RSG-053 R0	UGNR-SON2-RSG-071 R0	UGNR-SON2-RSG-100 R0
UGNR-SON2-RSG-058 R3	UGNR-SON2-RSG-077	UGNR-SON2-RSG-104
UGNR-SON2-RSG-059 R0	UGNR-SON2-RSG-087	UGNR-SON2-RSG-113
UGNR-SON2-RSG-061 R0	UGNR-SON2-RSG-088	UGNR-SON2-RSG-114
UGNR-SON2-RSG-064 R0	UGNR-SON2-RSG-100	

NONDESTRUCTIVE EXAMINATION REPORTS

MHI-U2PSI-UT-001	MHI-U2PSI-UT-004	MHI-U2PSI-UT-007
MHI-U2PSI-UT-002	MHI-U2PSI-UT-005	MHI-U2PSI-UT-008
MHI-U2PSI-UT-003	MHI-U2PSI-UT-006	

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
800072651	Reactor Coolant System Tie-in for the Replacement Steam Generators in Unit 2 (ECP 061200406-28)	0

**Section 1R11: Licensed Operator Requalification Program**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO23-12-11	EOI Supporting Attachments	6
SO123.I-9.11	480 volt Load Center and Transformer Inspection	11

**Section 1R12: Maintenance Effectiveness**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO123-I-9.11	480v Load Center and Transformer Inspection and Cleaning	8
SO123-I-1.28	Grounding Low and High Voltage Power Systems	9
SO123-I-4.7	Molded Case Circuit Breakers	7

NUCLEAR NOTIFICATIONS

200371229

ACTION REQUESTS

060200377      070600180      071201161

MAINTENANCE ORDERS

800275500      800275473      800277251

**Section 1R13: Maintenance Risk Assessment and Emergent Work Controls**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO23-3-3.13	Containment Cooling/Spray Monthly Tests	13
SO123-XX-10	Maintenance Rule Risk Management Program Implementation	4
SO23-1-3.1	Emergency Chilled Water System Operation	22
SO23-2-13	Diesel Generator Operation	37
SO23-3.3-23	Diesel generator monthly and semi-annual testing	39

NUCLEAR NOTIFICATIONS

200032362	200387392	200401944	200403640	200457220
200366054	200389219	200402733	200405046	200458378
200371229	200394388			

ACTION REQUEST

051200151

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	SONGS Plant Daily Brief	April 13, 2009

**Section 1R15: Operability Evaluations**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO23-2-4	Auxiliary Feedwater System Operations	25
SO23-I-1.11.1	Site Painting Procedure for Systems, Structures and Components Inside Containment	4
SO23-I-1.11.1	Site Painting Procedure for Systems, Structures and Components Inside Containment	7
SO123-XV-52	Functionality Assessments and Operability Determinations	10
SO23-V-8.18	Reactor Coolant System Leak Monitoring and Investigation Guide	1

NUCLEAR NOTIFICATIONS

080101116	200326867	200420936	200462211
200306258	200326905	200423071	200462577
200310686	200326985	200427230	200463358
200319472	200337044	200457220	200463460

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-0027-023	CCX/SWC Heat Exchanger Operability	0

MAINTENANCE ORDERS

04091770000      800319452      800321436

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Amercoat 861 Product Data Sheet	
	Amerlock 400 Product Data Sheet	
RSO-1583-07-00	Certificate of Analysis	RSO-1583-07-00
RSO-2351-05	Certificate of Analysis	RSO-2351-05

**Section 1R18: Plant Modifications**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO123-I-1.7	Maintenance Order Preparation and Processing	19
SO123-II-15.3	Temporary System Alteration and Restoration Form	16
SO123-XV-5.1	Temporary Modification Control	9
SO123-II-1.10.1	Connection of Electrical Monitoring Devices on Operable/Operating Plant Equipment	3
SO123-I-1.36	Installation of Temporary Cables	3

NUCLEAR NOTIFICATION

200396106

MAINTENANCE ORDERS

800231624      800231546



ENGINEERING CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
800072665	SGR Unit 2 Containment Opening Analysis	0
800071722	Unit 2 Steam Blowdown Piping Modification	0
800071702	Steam Generator Replacement – Unit 2	0

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
DBD-SO23-750	Design Bases Document - Emergency Diesel Generators	3

**Section 1R19: Postmaintenance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO23-V-12.2.21	Trouble Shooting Guide to CPC/CEAC Problems	9
SO23-3-3.25	Once a Shift Surveillance	29
SO23-V-12.2.1	CPC Functional Test	38
SO23-2-8	Saltwater Water System Operations	30
SO23-3-3.60.4	Saltwater Cooling Pump and Valve Testing	11
SO23-XV-2	Troubleshooting Plant Equipment and Systems	3
SO123-XVI-24	Electrical Safe Work Practices	7
SO123-II-15.3	Temporary System Alteration and Restoration Form	17
SO23-3-3.23	Diesel Generator Monthly and Semi-Annual Testing	39
SO23-2-13	Diesel Generator Operation	39

NUCLEAR NOTIFICATIONS

200396755      200427700      200457220      800232035      800287737  
200396895

MAINTENANCE ORDERS

70002106      800052665      800138004      800318576      800317683

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/ DATE</u>
SO23-XXXVII-4.7	Unit 2 CPC addressable constant Log	2
Fluke 5500A	C2-1801	September 12, 2009
	Operator Logs	April 19 and 20, 2009

**Section 1R22: Surveillance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO23-3-3.8	Safety Injection Monthly Tests	23
SO23-3-3.5.51.1	Containment Penetration Leak Rate Testing	10
SO23-II-5.3	Core Protection Calculator	12
SO123-I-4.59	Wire / Cable Inspections	9
SO123-I-9.13	480V Linestarter Inspection	11

NUCLEAR NOTIFICATIONS

200404868      200406215      200266977

MAINTENANCE ORDER

800068356      800223808

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
30157	One Line Diagram 480V Motor Control Center BT	33
32744	Elementary Diagram Reactor Aux- Component Cooling Water to Non-Critical Loop HV66465	6
31801	Wiring Diagram Radwaste Building MCC BT	5

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
S31413MP114 (PSF)	Inservice Pump Test Records	April 24, 2009

**Section 20S1: Access Controls to Radiologically Significant Areas**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO123-VII-20.11	Access Control Program	12

NUCLEAR NOTIFICATIONS

200208501	200243504	200280460	200284747	200288482
200213210	200262019			
200220338	200275695			

**Section 20S2: ALARA Planning and Controls**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO123-VII.20.4	ALARA Program	5
SO123-VII.20.4.3	ALARA Job Reviews	4
SO123-VII.20..15	Radiation Protection for Unborn Children	2

NUCLEAR NOTIFICATIONS

200189925	200213284	200302820
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RADIATION WORK PERMITS/ALARA PROEJCTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M2C15	CEA 22 Repair (Motor replacement and associated work)	
M2C15	Hotleg Weld Overlay	
R3C15	Refueling Activities/Maintenance	
R3C15	Scaffold Support	

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
R3C15	Steam Generator Primary Inspection	
R3C15	All Reactor Head Inspection and Repair Work	
R3C15	Install Permanent Cavity Seal Ring	

ALARA COMMITTEE MEETING MINUTES

July 21, 2008      August 25, 2008      September 15, 2008      December 17, 2008

**Section 40A1: Performance Indicator Verification**

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO23-XV-24	Quarterly NRC Performance Indicator Process	6

NUCLEAR NOTIFICATIONS

200000319	200030314	200146196	200175640	200192691
200004875	200098583	200160667	200182925	200229944
200026853	200127398			

MAINTENANCE ORDERS

800070643	800140469	800163745	800181944	800191466
800071544	800155493	800179195	800185358	800202550
800083181				

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CDE 3.0	MSPI Derivation Report	June 2009
	SONGS System Health Report: EDGS - Emergency Diesel Generators	April 30, 2009
	Operator Logs	June 23, 2008 - June 22, 2009
	Equipment Logs	June 24, 2008 - June 23, 2009

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	SONGS System Health Report: HPSI - High Pressure Safety Injection System	April 17, 2009

## **Section 40A2: Identification and Resolution of Problems**

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO123-XV-50.CAP-3	Corrective Action Program Evaluations and Action Plans	0
SO123-XV-50	Corrective Action Program	12
SO123-XV-50.CAP-5	Corrective Action Effectiveness	0
SO123-XV-50.CAP-4	Implementing Corrective Actions	0
SO123-I-1.11.3	Site Coating Procedure for Level 3 Coatings for Immersion Service Outside Containment	1
SO123-I-1.11.4	Site Coating Procedure for Level 2 and Level 4 Coatings	8
SO123-I-1.7	Work Order Preparation and Processing	27
SO123-I-1.10.1	Procedure Evaluation	1
SO123-I-1.10	Developing M&CS Procedures	9
OPG-1	Operations Procedure Writers Guide	19
SO123-0-A3	Procedure Use	8
SO123-XV-50.CAP-2	SONGS Nuclear Notification Screening	0
SO123-XV-50.CAP-1	Writing Nuclear Notifications For Problem Identification and Resolution	0
SO123-XV-52	Functional Assessments and Operability Determinations	11
SPPG-SO123-G-1	Closure Review Process	0
SO123-I-9.13	480 VAC Linestarter Inspection	11
SO123-I-4.59	Wire / Cable Inspections	9

### NUCLEAR NOTIFICATIONS

200001636	200182924	200345504	200448178	200450724
200001767	200188921	200362249	200448180	200452070
200002370	200191625	200362251	200448251	200452163
200003018	200198992	200391287	200449002	200452331

200003300	200213530	200399610	200449024	200452346
200003922	200221018	200406266	200449046	200452347
200005030	200235452	200409731	200449634	200453351
200005170	200264716	200411299	200449666	200453359
200140810	200286912	200414100	200449686	200466891
200148051	200311905	200440634	200450118	
200157908	200312960	200444330	200450557	
200179373	200314449	200446811	200450714	

MAINTENANCE ORDERS

70800313	800078068	800175526	800195258	800257053
800073513	800079881	800175530		

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Metalclad CeramAlloy Product Data Sheets	
800189078	Non-Conformance Report	
PI&R Performance Metrics Management Review Meeting		June 1, 2009 May 26, 2009
Human Performance Improvement Plan		May 28, 2009
Problem Identification and Resolution Improvement Plan		June 1, 2009
Common Cause Evaluation for 2007 PI&R Substantive Crosscutting Issue		September 28, 2008
Annual Assessment Letter		March 4, 2009
SCE Response to Annual Assessment Letter		April 21, 2009
SCE Response to Annual Assessment Letter Errata and Clarifications to April 21, 2009, Submittal		May 29, 2009
Technical Specification 5.5.1	Procedures	Amendment 116
CBT 3LUSCON	Loose Electrical Connection Awareness	

### Section 4OA3: Event Follow-Up

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO123-I-1.18	Foreign Material Exclusions Control	14

#### NUCLEAR NOTIFICATIONS

200006092	200366460	200371229	800253787	800254349
200361562	200367043			

#### DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SO23-403-12-300	Annunciator 4700kw, 4360V, 3 phase, 60 Hz, emergency Diesel Generator	2
32342	Elementary Diagram Diesel Generator 3G002 DC system	12
32328	Elementary Diagram Electrical Auxiliary 4.18kv bus 3A04 Diesel Generator 3G002 Breaker	25

#### CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
C-271-02	SONGS 1, 2, 3, Scaffolding Evaluation	1

#### MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
50-250/2006-007-00	Licensee Event Report -Turkey Point	May 3, 2006

### Section 4OA5: Other Activities

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SPPG-SO123-G-1	Closure Review Process	0
SO123-XV-27	On-the-Job Training and Task Performance Evaluation Program	10
SO123-XV-27	On-the-Job Training and Task Performance Evaluation Program	11

## NUCLEAR NOTIFICATIONS

200238969

200322234

## MISCELLANEOUS

Letter from R. T. Ridenoure to NRC dated January 14, 2009

Letter from A. E. Scherer to NRC dated November 14, 2009

Letter from J. T. Reilly to NRC dated February 28, 2008

September 2008 All Leaders Meeting Presentation

Video of SONGS All Leaders Meeting, September 26, 2008

September 2008 All Hands Meeting Presentation

Video of SONGS All Hands Meeting, September 2008

October 2008 Contractor Presentation for R3C15 Refueling Outage

Video of SONGS Contractors Meeting, October 2008

February 11, 2009, All Leader Meeting Presentation

Video of SONGS All Leaders Meeting, February 11, 2009

2009 All Leaders Meeting Attendance Report

February 18-19, 2009 All Hands Meeting Presentation

Video of SONGS All Hands Meeting, February 19, 2009

Attendance Lists for All Hands Meeting, February 19, 2009

May 12-13, 2009 All Hands Meeting Presentation

"SONGS Human Performance Tools Handbook for All Workers," 2009

SONGS Disciplinary Guidance Standards

SCE Corporate Policy 302, "Employee Discipline," Revised September 5, 2008

Outline of Leading the Way Training Program (multi-day intervention and one-day formats) with SONGS Supplemental Module Training Slides [Confirmatory Order Item 2b]

Training History Report for the Leading the Way Willful Violation Training supplemental module (encode 3LTWV08), dated May 6, 2009



Training History Report for Leading the Way Executive Training (encode 3LTW001), dated May 6, 2009

Training History Report for Leading the Way Manager/Supervisor Training (encode 3LTW002), dated May 6, 2009

Training History Report for Leading the Way Employee Training (encode 3LTW003), dated May 7, 2009

SONGS Organization Chart dated April 30, 2008

Matrix – List of Baseline Target Audience and Added Population to Receive Training (including dates of training completion), dated May 6, 2009 [Confirmatory Order Item 2b]

Training Module C08RTT, “Responsibilities of OJT/TPE Trainers and Trainees,” dated February 4, 2008

Matrix – List of Baseline Target Audience for Training Module C08RTT (including Completion Rates as of April 30, 2009)

Training History Report M\$\$\$02\_08 for Module 3C08RTT, as of April 30, 2009

Training Module OJTTRN, “Initial Instructor Training – On the Job Training,” dated February 1, 2008.

Training Module TPETRN, “Initial Instructor Training – Task Performance Evaluation,” dated February 1, 2008