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

February 11, 2010

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 05000361/2009005 and 05000362/2009005

Dear Mr. Ridenoure:

On December 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your San Onofre Nuclear Generating Station, Units 2 and 3 facilities. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 13, 2010, 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.

This report documents nine NRC identified findings and one self-revealing finding of very low safety significance (Green). Eight of these findings were determined to involve violations of NRC requirements. Additionally, three licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. 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 San Onofre Nuclear Generating Station. 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/

Ryan E. Lantz, Chief
Project Branch D
Division of Reactor Projects

Docket Nos. 50-361
50-362

License Nos. NPF-10 NPF-15

Enclosure:

NRC Inspection Report 05000361/2009005 and 05000362/2009005
w/Attachment: Supplemental Information

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See next page

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	50-361, 50-362
License:	NPF-10, NPF-15
Report:	05000361/2009005 and 05000362/2009005
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:	September 24, 2009 through December 31, 2009
Inspectors:	J. Adams, Reactor Inspector M. Bloodgood, Reactor Inspector P. Elkmann, Senior Emergency Preparedness Inspector A. Fairbanks, Reactor Inspector G. Guerra, CHP, Emergency Preparedness Inspector C. Osterholtz, Senior Operations Engineer C. Proctor, General Scientist J. Reynoso, Resident Inspector L. Ricketson, Senior Health Physicist R. Schmitt, Emergency Preparedness Specialist G. Warnick, Senior Resident Inspector
Approved By:	Ryan Lantz, Chief, Project Branch D Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000361/2009005, 05000362/2009005; 09/24/2009 – 12/31/2009; San Onofre Nuclear Generating Station, Units 2 & 3, Integrated Resident and Regional Report; Flood Prot. Meas., Maint. Effect., Operability Evaluations, Event Follow-up, & Other Activities.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by regional based inspectors. Eight noncited violations and two findings 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, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a finding for the failure of maintenance personnel to use the standards described in Procedure SO23-XV-2, "Troubleshooting Plant Equipment and Systems," in developing procedures and work plans to adequately perform, test, and communicate maintenance activities on Unit 2 circulating water gate 5. Specifically, from September 5 through September 13, 2009, maintenance personnel did not have adequate procedures in place to perform corrective maintenance on Unit 2 circulating water gate 5. The attempts to repair gate 5 were repeatedly unsuccessful due to inadequate planning, execution, postmaintenance testing, and communication. This finding was entered into the licensee's corrective action program as Nuclear Notifications NNs 200580999 and 200718204.

  The finding is greater than minor because the performance deficiency was a precursor to a significant event (reactor trip). 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 contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding has a crosscutting aspect in the area of human performance associated with work control because maintenance personnel failed to incorporate actions to address the need for work groups to communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance [H.3(b)] (Section 4OA3).

- Green. The inspectors identified a finding for the failure of operations personnel to perform an adequate pre-job brief in accordance with procedural requirements for a planned Unit 2 heat treat evolution. Specifically, on September 13, 2009, operations personnel failed to provide a thorough pre-job brief in preparation for the performance of the heat treat evolution which contributed to a delay in operator actions which ultimately resulted in a turbine and reactor trip on low condenser vacuum due to escalated circulating water temperatures. This finding was entered into the licensee's corrective action program as Nuclear Notification NN 200580999.

The finding is greater than minor because the performance deficiency was a precursor to a significant event (reactor trip). 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 contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding has a crosscutting aspect in the area of human performance associated with resources because the licensee failed to provide adequate procedural guidance to ensure that operations personnel could safely perform plant evolutions [H.2(c)] (Section 4OA3).

- Green. Three examples of a self-revealing noncited violation of Technical Specification 5.5.1.1.d, was identified for the failure of contractor personnel to properly implement the requirements of a fire protection procedure for the control of hot work activities. Specifically, between September 1 and 29, 2009, three examples were identified where contractor personnel failed to properly implement the requirements of Procedure SO123-XV-1.41, Steps 6.1.1 and 6.4.1.3, in that, combustible materials were not covered or stored at a distance of 35 feet from the ignition source or flame, and no evaluation was performed. This finding was entered into the licensee's corrective action program as Nuclear Notification NN 200604378.

  The finding is greater than minor because it is associated with the protection against external factors (fires) attribute of the Initiating Events Cornerstone and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Additionally, if left uncorrected, the practice of conducting hot work in a manner that results in unintended combustion of nearby materials would have the potential to lead to a more significant safety concern in that it could result in a fire in or near risk significant equipment. Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," was used since Appendix F, "Fire Protection Significance Determination Process," does not address the potential risk significance of shutdown fire protection findings, and Appendix G, "Shutdown Operations Significance Determination Process," does not address fire protection findings. The NRC management review was performed by using the Manual Chapter 0609, Appendix F, Phase 1 Worksheet, to establish a bounding analysis. Using the bounding analysis, the finding is determined to have very low safety significance because the finding represented a low degradation rating, in that, it did not have any significant effect on the likelihood that a fire might occur, or that a fire which does occur might not be promptly suppressed. This finding has a crosscutting aspect in the area of human performance associated with work practices because the licensee failed to ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety was supported [H.4(c)] (Section 4OA3).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings," for the failure of operations personnel to initiate a nuclear notification within the required timeframe. Specifically, on September 27, 2009, operations personnel failed to write a nuclear notification to document the problem with a flooded auxiliary feedwater vault prior to the end of their shift. This finding was entered into the licensee's corrective action program as Nuclear Notifications NN 200615922.

  The finding is greater than minor because the failure to follow procedures for writing nuclear notifications, if left uncorrected, would have the potential to lead to a more significant safety concern. The finding is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not result in an actual loss of safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program since the licensee failed to implement the corrective action program with an appropriate threshold for identified issues [P.1(a)] (Section 1R06).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure of engineering personnel to adequately identify for correction conditions adverse to quality between November 10 and December 1, 2009. Specifically, the inspection of potential degradation associated with the support welds and embedded wall plates for safety related seismic pipe restraints for emergency core cooling piping was inadequate, in that, standing water and corrosion product interference was not removed to enable an adequate inspection and evaluation of the structural material. This finding was entered into the licensee's corrective action program as Nuclear Notification NN 200743417.

  The finding is greater than minor because the failure to adequately identify for correction conditions adverse to quality on safety related equipment, if left uncorrected, would have the potential to lead to a more significant safety concern. Additionally, the finding is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the 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 it did not represent an actual loss of safety function, and did not 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 human performance associated with decision making because engineering personnel failed to use conservative assumptions for operability decision making when inspecting degraded and nonconforming conditions [H.1(b)] (Section 1R06).

- <u>Green</u>. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to take adequate corrective actions for conditions adverse to quality associated with Unit 3 emergency diesel generator train B. Specifically, in May 2009, corrective actions were inadequate following an unexpected fuse failure in the emergency diesel generator train B annunciator system. These inadequate corrective actions enabled the pre-existing ground condition to continue until it ultimately rendered the emergency diesel generator train B inoperable on December 11, 2009. This finding was entered into the licensee's corrective action program as Nuclear Notification NN 200722170.

  The finding is greater than minor because the failure to correct conditions adverse to quality for the emergency diesel generators is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not represent an actual loss of safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program since the licensee failed to thoroughly evaluate problems such that the resolutions address the causes and extent of conditions [P.1(c)] (Section 1R12).

- <u>Green</u>. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to take adequate corrective actions for conditions adverse to quality associated with Unit 3 emergency diesel generator train A. Specifically, on June 13, 2009, following an emergency diesel generator failure on June 6, 2009, immediate corrective actions were inadequately implemented when improperly configured annunciator power supplies were installed in the emergency diesel generator train A annunciator system. This configuration problem contributed to rapid capacitor degradation as a result of the increased heat from a resistor, which ultimately caused the emergency diesel generator failure to start on December 12, 2009. This finding was entered into the licensee's corrective action program as Nuclear Notification NN 200756001.

  The finding is greater than minor because the failure to correct conditions adverse to quality for the emergency diesel generators is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the inspectors determined that this finding represented an actual loss of safety function of emergency diesel generator train for greater than the technical specification allowed outage time. This required that a Phase 2 estimation be completed. Because the Phase 2 analysis concluded that the finding was potentially greater than green, a Phase 3 analysis was completed by a regional senior reactor analyst. The San Onofre SPAR model indicated that the delta core damage frequency for emergency diesel generator train A being non-functional was 2.0E-6/yr. For an exposure time of 7 days, this resulted in an incremental core damage frequency of 3.8E-8 for this finding, considering internal events only. The dominant sequence was a station blackout sequence with failure of the diesels, failure to cross-tie power from the other unit, failure to recover either onsite or offsite power, failure of batteries at 4 hours, and a failure to manually control the turbine-driven auxiliary feedwater pump after battery depletion. The senior reactor analyst determined qualitatively that the contribution of external events would not significantly add to this result; therefore, the finding is determined to be of very low safety significance. This finding has a crosscutting aspect in the area of human performance associated with resources because the licensee failed to provide adequate instructions to perform activities affecting quality [H.2(c)] (Section 1R12).

- Green. The inspectors identified three examples of a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the failure of operations and engineering personnel to follow procedures and adequately evaluate degraded conditions to support operability decision making. Specifically, on October 29, 2009, engineering personnel failed to adequately evaluate the operability of the Unit 3 containment emergency sump when an unanalyzed styrofoam material was identified, which had not been previously analyzed for impact to the containment emergency sump. Additionally, on November 17 and December 18, 2009, operations and engineering personnel failed to adequately evaluate the operability of emergency diesel generator train B when a lube oil leak was identified on a flexible hose for the dc auxiliary turbo pump. And finally, on December 19, 2009, operations and engineering personnel inappropriately applied Code Case N-513-2 to justify the operability of the emergency core cooling system train A, in that, the flaw geometry was only assumed and not characterized by volumetric inspection methods or by physical measurements. This finding was entered into the licensee's corrective action program as Nuclear Notifications NNs 200673198, 200699833, and 200718673.

  The finding is greater than minor because the failure to perform timely and adequate evaluations of degraded, nonconforming, and unanalyzed conditions for operability, if left uncorrected, would have the potential to lead to a more significant safety concern. The finding is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not result in a loss of safety function for greater than the technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program because operations and engineering personnel failed to thoroughly evaluate problems such that the resolutions addressed the cause and extent of condition. This includes properly classifying, prioritizing, and evaluating for operability conditions adverse to quality [P.1(c)] (Section 1R15).

- 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 and adequately implement identified compensatory measures. Specifically, on November 25 and 28, 2009, operations personnel did not follow requirements to establish a compensatory measure to substitute manual operator actions for automatic actions to support the operability of the functions provided by the refueling water storage tank to charging pump suction piping. This finding was entered into the licensee's corrective action program as Nuclear Notification NN 200689450.

  The finding is greater than minor because the inadequate implementation of compensatory measures, if left uncorrected, would have the potential to lead to a more significant safety concern. The finding is associated with the procedure quality attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not result in an actual loss of safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of human performance associated with decision making because operations personnel failed to make decisions using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained [H.1(a)] (Section 1R15).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," with thirteen examples that occurred between June 2005 and July 2008, for the failure of the licensee to ensure that appropriate measures were in place to assure that systems specified in the design basis were maintained in a configuration which provided a reasonable assurance of operability during design basis events. This finding was entered into the licensee's corrective action program as Action Requests ARs 050601315, 050601324, 060101159, 070200254, 200066209, and Nuclear Notifications NNs 200089167, 200058371, 200100730, and Corrective Action Order 800126624.

  The 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 to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with Manual Chapter 0609, Attachment 4, Table 4a, Question 5, a Phase 3 analysis was required because the finding screened as potentially risk significant due to a seismic, flooding, or severe weather initiating event. In accordance with Inspection Manual Chapter 0609, Appendix A, the analyst determined that the conditions documented in Table 1 of this inspection report should be evaluated as a single inspection finding because they resulted from a common cause. As a combined result of the evaluations performed in the Phase 3 analysis, the analyst determined that this finding was of very low safety significance. The finding has a crosscutting aspect in the area of human performance associated with resources for the failure to maintain complete, accurate, and up-to-date design documentation, procedures, and work packages [H.2(c)] (Section 4OA5).

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period at full power. On September 27, 2009, the unit was shutdown for a scheduled refueling outage (U2C16) and steam generator replacement.

Unit 3 began the inspection period at full power. On October 24, 2009, the unit reduced power to investigate an electrical ground on the high pressure intercept valves and during the troubleshooting activities a valve (UV2200E) inadvertently closed resulting in a power reduction to 88 percent. After repairs, the unit returned to full power on October 25, 2009. On December 12, 2009, the unit commenced a technical specification required shutdown due to both trains of emergency diesel generators being declared inoperable. The unit reduced power to 40 percent before recovery of one train of emergency diesel generators allowed the unit to exit the technical specification action and return to full power. The unit returned to full power on December 13, 2009, and remained there for the duration of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of the licensee's adverse weather procedures for seasonal extremes (e.g., extreme high temperatures, extreme low temperatures, or hurricane season preparations). The inspectors verified that weather-related equipment deficiencies identified during the previous year were corrected prior to the onset of seasonal extremes; and evaluated the implementation of the adverse weather preparation procedures and compensatory measures for the affected conditions before the onset of, and during, the adverse weather conditions.

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:

- December 7-8, 2009, Units 2 and 3, the inspectors completed a review of the licensee's readiness of the condensate storage tank and auxiliary feedwater system for extreme low temperatures

These activities constitute completion of one readiness for seasonal adverse weather sample as defined in IP 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:

- December 8, 2009, Unit 3, Class 1E 4 kV bus (3A04 and 3A06) supply breakers while emergency diesel generator train B was out of service for maintenance

- December 12, 2009, Unit 2, emergency diesel generator train A

- December 23, 2009, Unit 2, saltwater cooling system train B

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 IP 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete Walkdown

a. Inspection Scope

On October 16, 2009, the inspectors performed a complete system alignment inspection of the spent fuel pool cooling system 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 IP 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:

- October 1, 2009, Unit 2, containment building elevations 20 foot through 68 foot
- November 9, 2009, Unit 2, hot work activities in steam generator E088 cubicle
- December 4, 2009, Unit 2, saltwater cooling pump room and pipe tunnel
- December 8, 2009, Units 2 and 3, fire water pumps and storage tanks
- December 9-11, 2009, Units 2 and 3, auxiliary control building 9, 50, 70, and 85 feet elevations

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 five quarterly fire-protection inspection samples as defined by IP 71111.05-05.

b. Findings

No findings of significance were identified.

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 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.

- September 29, 2009, Units 2 and 3, auxiliary feedwater pump room lower vault room inspections
- November 11, 2009, Unit 2, auxiliary feedwater piping room tunnel to the safety equipment building
- December 9-11, 2009, Units 2 and 3, walkdown of emergency diesel generators and safety related equipment in the auxiliary control building

These activities constitute completion of one internal flooding and one review of cables located in underground bunkers/manholes inspection samples as defined by IP 71111.06-05.

b. Findings

1. Timely Initiation for Nuclear Notifications

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings," for the failure of operations personnel to initiate a nuclear notification within the required timeframe.

Description. On September 29, 2009, when Unit 2 was in Mode 5, the inspectors identified three inches of standing water in an electrical vault located on the southeast side of the auxiliary feedwater building. The inspectors observed the vault contained underground electrical conduit to safety related auxiliary feedwater pump 2P504. Operations control room personnel were immediately notified of the condition and Nuclear Notification NN 200602405 was initiated. Operations personnel identified that the flooded condition was identified two days earlier on September 27, 2009, by an equipment operator. However, no nuclear notification had been initiated as required by Procedure SO123-XV-50.CAP-1, "Writing Nuclear Notification for Problem Identification and Resolution," Revision 2. Procedure SO123-XV-50.CAP-1, Section 6.3, stated that all personnel identifying problems that have the potential to affect the ability of a structure, system, or component to perform its specified function will immediately notify the shift manager or designee, and write a nuclear notification prior to the end of their shift.

Engineering personnel inspected the vault and surrounding areas on September 29-30, 2009, to determine the source of the flooding. Adjacent to the auxiliary feedwater building, water was located in the berm surrounding the nuclear service water tanks and pumps. The reported source of the water was from a drain valve connected to the floor drain from the condensate storage tank T121 room. The water in the nuclear service water berm was found to be entering a degraded underground electrical conduit for a nuclear service water pump. The water entered into the conduit and traveled down to the cable tray located in the auxiliary feedwater vault.

The inspectors determined this degraded condition was not promptly entered into the correction action program until identified by the inspectors. The safety related equipment components associated with the vault were not immediately evaluated for operability when the condition was entered into the corrective action program on September 29, 2009, because the auxiliary feedwater system was not required to be operable in Mode 5. The inspectors concluded that, because of the failure to follow Procedure SO123-XV-50.CAP-1, an appropriate immediate operability determination of safety related equipment was not done, while in the applicable mode, since the degraded or flooded condition of the auxiliary feedwater vault was first discovered on September 27, 2009, while the unit was still in Mode 3.

Based on the inspectors prompting on October 8, 2009, the licensee initiated Nuclear Notification NN 200615922 to document the failure to write a nuclear notification for a degraded condition which required an immediate operability determination.

The inspectors reviewed an additional example identified by the licensee (See Section 4OA7.3) that occurred on November 20, 2009, when engineering personnel observed a white deposit on Unit 2 pipe S21219ML057, "T006 RWST Gravity Feed Outlet," during an inspection of the auxiliary feedwater line tunnel. The engineer initially thought that the pipe was part of the condensate system and did not warrant an immediate nuclear notification. The engineer noted the deficiency and took a picture which included the date and time.

On November 23, 2009, the original engineer showed the picture to another system engineer for evaluation. The second engineer routinely performed inspection for boric acid and discussed the possibility of the "white substance" as being boric acid with the original engineer. The discussion concluded that the substance was probably boric acid from an external source and that the piping was suspected to be part of the condensate system. Neither of the engineers identified the need to initiate a nuclear notification in accordance Procedure SO123-XV-50.CAP-1. Further, the engineers failed to recognize the condition as a problem that warranted a nuclear notification as required by Procedure SO23-XV-85, "Boric Acid Corrosion Control Program (BACCP)," Revision 4. Procedure SO23-XV-85 stated that, all boric acid leaks, including minor amounts of residue, require a nuclear notification be initiated. At this time the engineers arranged for another walk down which did not occur until November 25, 2009.

On November 25, 2009, both of the engineers performed an additional inspection of the auxiliary feedwater tunnel to identify the source of the white deposit. Due to suspecting that the substance was boric acid, prior to the inspection the engineers arranged for a sample of the white substance to be obtained and analyzed. Additionally, the engineers identified that the piping was associated with the refueling water storage tank and determined that the deposit was likely boric acid. Following the additional inspection, the engineers reported the condition to their supervisor who appropriately directed the engineers to immediately notify the operations shift manager and initiate a nuclear notification. The condition was documented on Nuclear Notification NN 200682817. During the discussion, the engineering supervisor was not informed that the boric acid leak was initially identified on November 20, 2009, which was five days earlier. Following shift manager notification, an extent of condition review was performed on Unit 3 which identified three additional boric acid leaks on similar piping, which resulted in the entry into a one hour technical specification shutdown action statement.

On November 27, 2009, the engineering supervisor observed the picture of the boric acid leak and noted that the picture was dated November 20, 2009. Noting the discrepancy between the time that the condition was identified and the time that the condition was entered into the corrective action program, the engineering supervisor identified that the requirements of Procedure SO123-XV-50.CAP-1 were not followed. The engineering supervisor initiated Nuclear Notification NN 200683697 to document the failure to promptly initiate a nuclear notification.

Analysis. The failure to initiate a nuclear notification in a timely manner following the identification of an equipment problem was a performance deficiency. The finding is greater than minor because the failure to follow procedures for writing nuclear notifications, if left uncorrected, would have the potential to lead to a more significant safety concern. The finding is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not result in an actual loss of safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program since the licensee failed to implement the corrective action program with an appropriate threshold for identified issues [P.1(a)].

Enforcement. Title 10 of the *Code of Federal Regulations*, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, 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-XV-

50.CAP-1, "Writing Nuclear Notifications for Problem Identification and Resolution," Revision 2, stated that all personnel identifying problems that have the potential to affect the ability of a structure, system, or component to perform its specified function will immediately notify the shift manager or designee, and write a nuclear notification prior to the end of their shift. Contrary to the above, on September 27, 2009, operations personnel failed to write a nuclear notification to document the problem with a flooded auxiliary feedwater vault prior to the end of their shift. As a result, an immediate operability determination, as required by Procedure SO123-XV-52, "Functionality Assessment and Operability Determinations," Revision 13, was not completed in a timely manner. Because this violation is of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification NN 200615922, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361/2009005-01, "Failure to Initiate a Notification in a Timely Manner."

2. Pipe Support Material Degradation

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure of engineering personnel to adequately identify for correction conditions adverse to quality between November 10 and December 1, 2009. Specifically, engineering personnel did not adequately inspect degraded safety related seismic pipe supports exposed to ground water in the Unit 2 auxiliary feedwater tunnel to identify all actions necessary to evaluate and correct the condition.

Description. Between November 10 and December 1, 2009, inspectors performed walkdowns of Unit 2 auxiliary feedwater piping underground tunnel. Degraded piping penetrations between the safety equipment building room and auxiliary feedwater tunnel areas was identified as a long standing issue by NRC inspectors (NCV 05000361/2009004-01). The degraded seal allowed ground water to leak into the safety equipment building for several years. Two trains of the emergency core cooling system piping pass through the auxiliary feedwater piping tunnel into the safety equipment building. The inspectors were informed that repairs to the penetration seals on the safety equipment building side had been completed. In order to verify the condition of the piping penetration on both sides, inspectors requested entry to the auxiliary feedwater piping tunnel. This was necessary to evaluate the general condition of the piping penetration seals in the tunnel and determine the impact water leakage had on safety related equipment in the auxiliary feedwater tunnel. Access was restricted to the piping tunnel by a locked door and required a radiation exposure permit before entry.

The inspectors noted that water was discovered in the tunnel by a health physics technician during a routine health physics survey on November 8, 2009. The technician generated Nuclear Notification NN 200659260, and according to the description, water was present in the tunnel during the previous surveillance and needed to be pumped down. The inspectors questioned the licensee regarding how often water had been found in the tunnel since the last health physic survey, but no recent documented occurrences were identified in the corrective action program.

During the piping tunnel inspection, the inspectors observed that the flooding was due to leaking seals from degraded wall penetrations between the safety equipment building and the auxiliary feedwater tunnel. The inspectors observed that the groundwater had affected emergency core cooling system pipe supports trains A and B as evidenced by heavy rust at the base of the supports. On November 17, 2009, the licensee documented the inspectors' observations in Nuclear Notification NN 200670710, which included the pipe support degradation concerns.

Since the piping supports are embedded in the tunnel floor, they have been repeatedly exposed to standing water for extended periods of time. On November 18, 2009, engineering personnel inspected the piping support welds and embedded wall plates for corrosion, to identify potential material degradation, as directed per Nuclear Notification NN 200670710. Engineering personnel concluded that the corrosion on the supports and welds appeared to be minor surface corrosion, such that the structural material was not impacted. Therefore, it was concluded that no further evaluation was required since the corrosion did not impact structural integrity of the supports. The corrective action identified was to clean and repaint the corroded pipe support areas to prevent further degradation.

On December 1, 2009, inspectors returned to the piping tunnel with engineering personnel and observed that the corroded pipe supports appeared to be in the same condition that was observed during their previous inspection. Further, the inspectors were informed that the pipe support inspection was performed by visual examination of the conditions that the inspectors' observed. The inspectors questioned engineering personnel how an adequate inspection of the condition was performed without the removal of standing water and corrosion, since the interference would obstruct an adequate view of the material surface that needed to be evaluated. In response to the inspectors' question, engineering personnel initiated action for additional pipe support inspections that would require removal of interference to adequately inspect the pipe support structural materials.

On December 18, 2009, the results of the additional inspection and evaluation were presented to the inspectors. The results confirmed the inspectors' concerns that some of the pipe support welds had sustained material degradation, which was more than minor surface corrosion. The engineering analyses to justify the degradation showed a loss of margin in various piping welds but the support strength remained within allowable design limits.

Analysis. The failure to adequately identify for correction conditions adverse to quality was a performance deficiency. The finding is greater than minor because the failure to adequately identify for correction conditions adverse to quality on safety related equipment, if left uncorrected, would have the potential to lead to a more significant safety concern. Additionally, the finding is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the 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 it did not represent an actual loss of safety function, and did not 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 human performance associated with decision making because engineering personnel failed to use conservative assumptions for operability decision making when inspecting degraded and nonconforming conditions [H.1(b)].

Enforcement. Title 10 of the *Code of Federal Regulations*, Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, 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. Contrary to the above, between November 10 and December 1, 2009, engineering personnel failed to adequately identify for correction a condition adverse to quality. Specifically, the inspection of potential degradation associated with the support welds and embedded wall plates for safety related seismic pipe restraints for emergency core cooling piping was inadequate, in that, standing water and corrosion product interference was not removed to enable an adequate inspection and evaluation of the structural material. Adequate inspection and evaluation is necessary, such that, the identified resolution addresses the causes and extent of conditions. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification NN 200743417, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361/2009005-02, "Failure to Adequately Identify Problems in Corrective Action Program."

1R08 In-service Inspection Activities (71111.08)

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

a. Inspection Scope

The inspector reviewed two types of nondestructive examination activities and two welds on the reactor coolant system pressure boundary. The inspector did not review examinations with relevant indications that had been accepted by licensee personnel for continued service because there were none.

The inspector directly observed the following nondestructive examinations:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Reactor Coolant System	02-008-002	Ultrasonic Testing
Safety Injection System	02-020-088	Penetrant Testing

The inspector reviewed records for the following nondestructive examinations:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Reactor Coolant System	02-006-010	Ultrasonic Testing
High Pressure	02-068-950	Penetrant Testing

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Safety Injection		
High Pressure Safety Injection	02-068-970	Penetrant Testing
Low Pressure Safety Injection	02-071-1510	Penetrant Testing
Low Pressure Safety Injection	02-071-1530	Penetrant Testing
High Pressure Safety Injection)	02-06-3640	Penetrant Testing
Low Pressure Safety Injection	02-071-1700	Penetrant Testing
High Pressure Safety Injection	02-070-2710	Penetrant Testing
High Pressure Safety Injection	02-068-990	Penetrant Testing
High Pressure Safety Injection	02-070-2860	Penetrant Testing
High Pressure Safety Injection	02-070-2370	Penetrant Testing
Low Pressure Safety Injection	02-062-031-01	Penetrant Testing
Low Pressure Safety Injection	02-072-137	Penetrant Testing
Shutdown Cooling	02-075-042	Penetrant Testing

During the review and observation of each examination, the inspector verified that activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspector also verified that the qualifications of all nondestructive examination technicians performing the inspections were current.

The inspector observed performance of one ASME Code, Section XI, repair and replacement weld and performed a record review of one additional weld. The weld that was observed was:

SYSTEM	IDENTIFICATION	ACTIVITY
High Pressure Safety Injection	S21204MU021	Weld installation

The weld for which a record review was performed was:

SYSTEM	IDENTIFICATION	ACTIVITY
Chemical Volume Control System	2TSH9205	Weld installation

The inspector verified, by review, that the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code, Section IX, requirements. The inspector also verified, through observation and 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.

These actions constitute completion of the requirements for Section 02.01.

b. Findings

No findings of significance were identified.

.2 Vessel Upper Head Penetration Inspection Activities (71111.08-02.02)

a. Inspection Scope

The inspector reviewed the results of licensee personnel's volumetric inspection of pressure-retaining components above the reactor pressure vessel head to verify that there were no flaws in the welds associated with these penetrations. The inspector observed data acquisition and/or analysis of five penetrations. The inspector verified that the personnel performing the inspections were current in their certification as Level II or Level III ultrasonic testing examiners. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.02.

b. Findings

No findings of significance were identified.

.3 Boric Acid Corrosion Control Inspection Activities (71111.08-02.03)

a. Inspection Scope

The inspector evaluated the implementation of the licensee's boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspector reviewed the documentation associated with the licensee's boric acid corrosion control walkdown as specified by Procedure SO23-XV-85, "Boric Acid Corrosion Control Program," Revision 4. The inspector also reviewed the visual records of the components and equipment. The inspector verified that the visual inspections emphasized locations where boric acid leaks could cause degradation of safety-significant components. The inspector also verified that the engineering evaluations for those components where boric acid was identified gave assurance that the ASME Code wall thickness limits were properly maintained. The inspector confirmed that the corrective actions performed for evidence of boric acid leaks were consistent with requirements of the ASME Code. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.03.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The licensee did not perform steam generator inspection activities this refueling outage. Consequently, the inspector did not perform any inspections in this area.

These actions constitute completion of the requirements of Section 02.04.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems (71111.08-02.05)

a. Inspection scope

The inspector reviewed nine condition reports which dealt with inservice inspection activities and found the corrective actions were appropriate. The specific condition reports reviewed are listed in the documents reviewed section. From this review the inspector concluded that the licensee has an appropriate threshold for entering issues into the corrective action program and has procedures that direct a root cause evaluation when necessary. The licensee also has an effective program for applying industry operating experience. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements of Section 02.05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Annual Inspection

The licensed operator requalification program involves two training cycles that are conducted over a two year period. In the first cycle, the annual cycle, the operators are administered an operating test consisting of job performance measures and simulator scenarios. In the second part of the training cycle, the biennial cycle, operators are administered an operating test and a comprehensive written examination.

a. Inspection Scope

The inspector conducted an in-office review of the annual requalification training program operating test results for 2009. The licensee examined 87 operators (41 reactor operators and 46 senior reactor operators) during this requalification cycle. In addition, 15 operating crews were examined on the facility's simulator. Thirteen of the operating crews passed the simulator scenarios and 84 operators passed the operating tests.

b. Findings

No findings of significance were identified.

.2 Quarterly Inspection

a. Inspection Scope

On December 17, 2009, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification training 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 IP 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:

- November 17, 2009, Units 2 and 3, review of the noise spikes on emergency diesel generator dc power bus
- December 8, 2009, Unit 3, emergency diesel generator train B
- December 12, 2009, Unit 3, emergency diesel generator train A annunciator power supply problems

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 three quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

The inspectors reviewed the events, and associated maintenance effectiveness that led to the periods of emergency diesel generator inoperability described in Section 4OA3.1, and identified two findings where the licensee failed to take adequate corrective actions for conditions adverse to quality associated with the Unit 3 emergency diesel generators. The inspectors determined that the underlying performance deficiencies that resulted in the emergency diesel generator inoperability declarations were a failure to implement corrective actions commensurate with the safety significance of the emergency diesel generators.

1. Emergency Diesel Generator Train B

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to take adequate corrective actions for a condition adverse to quality associated with Unit 3 emergency diesel generator train B.

Description. The inspectors reviewed the licensee's prompt investigation into the December 11, 2009, inadvertent grounding of a wire by a maintenance technician. The inadvertent grounding blew the emergency diesel generator train B annunciator system fuse. This investigation report was documented in Nuclear Notification NN 200704617 and indicated that a similar event caused the same fuse to blow in May 2009 during scheduled maintenance on emergency diesel generator train B per Maintenance Order MO 800295645. Following the event on December 11, engineering personnel determined that the annunciator system must have had a preexisting ground in order for the fuse to have been blown by either of these accidental groundings. The inspectors questioned maintenance personnel familiar with the May 2009 event and identified that the only corrective action taken at the time was to replace the blown fuse. The inspectors concluded the licensee failed to take adequate corrective actions to perform an evaluation of the failure, including the potential impact on operability and the need for further corrective actions. These inadequate corrective actions enabled the pre-existing ground condition to continue until it ultimately rendered the emergency diesel generator train B inoperable on December 11, 2009.

Analysis. The failure to take adequate corrective actions for conditions adverse to quality was a performance deficiency. The finding is greater than minor because the failure to correct conditions adverse to quality for the emergency diesel generators is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance because it did not represent an actual loss of safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program since the licensee failed to thoroughly evaluate problems such that the resolutions address the causes and extent of conditions [P.1(c)].

Enforcement. Title 10 of the *Code of Federal Regulations*, Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, 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. Contrary to the above, in May 2009, the licensee failed to take adequate corrective actions for conditions adverse to quality associated with emergency diesel generator train B. Specifically, corrective actions were inadequate following an unexpected fuse failure in the emergency diesel generator train B annunciator system. Because this finding was of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification NN 200722170, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000362/2009005-03, "Failure to Correct Problems with Emergency Diesel Generator Train B."

2. Emergency Diesel Generator Train A

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to take adequate corrective actions for a condition adverse to quality associated with Unit 3 emergency diesel generator train A.

Description. On June 6, 2009, the emergency diesel generator train A was declared inoperable after it failed to start during a monthly surveillance test. The cause was determined to be voltage noise from the annunciator power supplies that incorrectly closed contacts in the speed switch circuitry. As part of the immediate corrective actions, the licensee modified the annunciator power supply circuit boards obtained from the warehouse by replacing the capacitors with new capacitors, installed the power supplies on June 13, 2009, and initiated an apparent cause evaluation.

Following the emergency diesel generator train A failure on December 12, the licensee determined that the cause was the same cause as the failure on June 6, 2009. Further, the licensee's failure analysis concluded that both annunciator power supply circuit boards (replaced on June 13, 2009), had configuration problems, in that, a capacitor was in contact with an adjacent resistor. This configuration problem contributed to rapid capacitor degradation as a result of the increased heat from the resistor, which ultimately caused the emergency diesel generator failure to start on December 12. Emergency diesel generator train A was successfully started, and completed a surveillance test on November 23, 2009, then continued in a standby condition until the failure to start occurred on December 12, 2009.

Analysis. The failure to take adequate corrective actions for conditions adverse to quality was a performance deficiency. The finding is greater than minor because the failure to correct conditions adverse to quality for the emergency diesel generators is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the inspectors determined that this finding represented an actual loss of safety function of an emergency diesel generator train for greater than the technical specification allowed outage time. This required that a Phase 2 estimation be completed. Because the Phase 2 analysis concluded that the finding was potentially greater than green, a Phase 3 analysis was completed by a regional senior reactor analyst. The San Onofre SPAR model indicated that the delta-core damage frequency for emergency diesel generator train A being non-functional was 2.0E-6/yr. For an exposure time of 7 days, this resulted in an incremental core damage frequency of 3.8E-8 for this finding, considering internal events only. The dominant sequence was a station blackout sequence with failure of the diesels, failure to cross-tie power from the other unit, failure to recover either onsite or offsite power, failure of batteries at 4 hours, and a failure to manually control the turbine-driven auxiliary feedwater pump after battery depletion. The senior reactor analyst determined qualitatively that the contribution of external events would not significantly add to this result; therefore, the finding is determined to be of very low safety significance (Green). This finding has a crosscutting aspect in the area of human performance associated with resources because the licensee failed to provide adequate instructions to perform activities affecting quality [H.2(c)].

Enforcement. Title 10 of the *Code of Federal Regulations*, Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, 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. Contrary to the above, on June 13, 2009, the licensee failed to take adequate corrective actions for conditions adverse to quality associated with the emergency diesel generator train A. Specifically, the immediate corrective actions were inadequately implemented when improperly configured annunciator power supplies were installed in the emergency diesel generator train A annunciator system. Because this finding was of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification NN 200756001, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000362/2009005-04, "Failure to Correct Problems with Emergency Diesel Generator Train A."

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:

- October 6, 2009, Unit 2, reactor vessel head removal and storage
- October 22-26, 2009, Unit 2, steam generator replacement impacts to operating unit risk assessment

- October 23 through November 30, 2009, Unit 2, steam generator E088 temporary lift modifications to facilitate steam generator replacement

- November 2-3, 2009, Units 2 and 3, emergent work activities associated with atmospheric dump valves found with loose jam nut

- November 12-24, 2009, Unit 2, fire damper engineering change package on emergency cooling train A

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 five maintenance risk assessments and emergent work control inspection samples as defined by IP 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- November 10, 2009, Units 2 and 3, styrofoam material in containment impact to containment emergency sump

- December 3, 2009, Unit 2, through wall leak identified on piping from refueling water storage tank to charging pump suction

- December 3, 2009, Unit 3, through wall leaks identified on piping from refueling water storage tank to charging pump suction

- December 7, 2009, Unit 3, S32420MY719, flexible hose for the dc auxiliary turbo pump P496 on emergency diesel generator train B

- December 9, 2009, Units 2 and 3, operability impact of cracks identified on mounting flanges for bushings associated with Class 1E 4.16 kV breakers

- December 14, 2009, Unit 3, impact on operability of emergency diesel generator train B following annunciator power supply problems identified in train A

- December 22, 2009, Unit 3, boric acid deposits discovered on emergency core cooling system train A suction piping

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 seven operability evaluations inspection samples as defined in IP 71111.15-05.

b. Findings

1. Operability Determination Adequacy

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

Description. The first example is associated with issues discovered on October 27, 2009, when a fire was reported inside the Unit 2 containment at the 63 foot elevation. The fire started while workers were using an acetylene torch to remove a vertical floor support I-beam column, which was being removed to support steam generator replacement activities. Hot slag from the torching activity burned into caulking around the I-beam and ignited styrofoam material enclosed by the caulking. The styrofoam spacer and caulking were used during original construction and are an integral part of the containment floor design. The licensee documented this event in Nuclear Notification NN 200643134.

The inspectors reviewed the event on October 28, 2009, and became aware that engineering personnel were assigned tasks to determine the impact that styrofoam material had on the containment emergency sump. Further, the inspectors were informed the styrofoam material had not been analyzed as part of the licensee response to NRC Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors (PWRs)."

On October 29, 2009, the inspectors questioned engineering personnel regarding the status of the operability evaluation for Unit 3 and were told that there had been no task assigned in the nuclear notification. Additional questions determined that engineering personnel were only continuing their analysis of the impact that styrofoam material had on the containment emergency sump for Unit 2 as assigned by Nuclear Notification NN 200643134. Since this material was discovered in Unit 2, and was likely to exist in Unit 3 as well, the inspectors asked if the condition was being evaluated for operability since Unit 3 was in Mode 1. Specifically, the inspectors questioned whether an evaluation of the specific Unit 3 conditions needed to be assessed through the operability determination process as prescribed in Procedure SO123-XV-52, "Functionality Assessments and Operability Determinations," Revision 13. In addition, the inspectors questioned whether an evaluation was necessary to review the impact of the styrofoam on the fire loading analysis. Engineering personnel generated Nuclear Notification NN 200645996, as a result of the inspectors' questions, to perform an operability determination for the Unit 3 emergency containment sump.

On November 3, 2009, the immediate operability and prompt operability determinations were completed for Unit 3. The licensee determined that Unit 3 had a reasonable expectation of operability based on three factors: 1) material discovered in the containment was situated such that it was unlikely to become dislodged and free to become entrained in a flow of water; 2) material was of low density and would float and not likely to cause blockage at the emergency sump; and 3) material was not likely to be affected by temperatures expected during any anticipated operational occurrences.

On November 4, 2009, fire protection engineers completed a functional assessment for Unit 3, that evaluated styrofoam impact on the fire protection analysis. The evaluation concluded that the styrofoam material was isolated from other combustibles and ignition sources and therefore not an impact to safety related equipment inside containment.

The inspectors reviewed the operability determinations and functional assessments, and concluded that they were adequate.

The second example was associated with equipment issues first identified on November 17, 2009, when the licensee identified a lube oil leak from the Unit 3 emergency diesel generator train B. The leak was identified to be from the flexible hose for the dc auxiliary turbo pump P496 and leaking at a rate of seven drops per minute. The licensee initiated Nuclear Notification NN 200669151 to place the problems associated with the leaking hose into the corrective action program. Subsequently, the licensee, in accordance with Procedure SO123-XV-52, "Functionality Assessments and Operability Determinations," Revision 14, performed an immediate operability determination to ensure that the leak would not challenge the minimum required lube oil level stated in Technical Specification 3.8.3, "Diesel Lube Oil, Fuel Oil and Starting Air," and therefore meet the design basis seven day operation. The licensee determined, using engineering judgment, that the diesel generator would still remain operable due to the small leak rate. The licensee then performed a prompt operability determination, based on the use of engineering judgment in the immediate operability determination, which assumed that the leak rate would be proportional to the increase in pressure during generator operation and reach a limit of ten drops per minute. The resulting calculation determined that a total volume of oil that would be lost during the required seven day operation would be only 1.33 gallons. This calculation did not include any other unidentified leakage, which did not challenge the available ten percent margin (16.46 gallons) built into the seven day oil consumption value for the diesel generator. The licensee, due to the failure mechanism of the flex hose being unknown, commenced periodic inspection of the leak location and leak rate estimations to ensure that further degradation did not impact the 7 day mission time of the emergency diesel generator.

The licensee did not identify an upper limit for leakage in which the 7 day mission time would be challenged as part of the operability determination to provide guidance for the engineers inspecting the leak.

On December 8, 2009, during operation of emergency diesel generator train B, a leak was identified at a leak rate of 140 drops per minute from the degraded hose identified on November 17, 2009, in Nuclear Notification NN 200669151. The licensee declared emergency diesel generator train B inoperable following the identification of the lube oil leak due to the increased leak rate and potential future degradation of the flexible hose. The flexible hose was replaced as part of Maintenance Order NMO 800410821. The previous operability determination assumed a leak rate of 10 drops per minute during generator operation. Based on the observed leak rate, operations personnel determined that the operability of the generator should be reassessed and initiated Nuclear Notification NN 200695875. The licensee performed another prompt operability determination using values obtained from Procedure SO23-3-3.23, “Diesel Generator Monthly and Semiannual Testing,” Attachment 11, and assumptions used in the previous evaluation and concluded that the amount of available oil to cover the seven day loss due to the flex hose leakage was 18.74 gallons. The licensee determined that the 140 drop per minute leak rate from the flex hose corresponded to 18.64 gallons over the design basis required seven day operation which resulted in a margin of .1 gallons. This assumed that margin, 16.64 gallons, calculated into the total 181.1 gallons of oil required for the completion of the seven day mission time would be used by the current active leak and did not take into account additional leakage. During the December 8, 2009, diesel run, the licensee identified another lube oil leak and replaced two additional flexible hoses that showed evidence of seepage not accounted for in this assumption. The licensee determined, based on these assumptions, that the emergency diesel generator could meet the seven day mission time.

Procedure SO123-XV-52, defined a component operable if the structure, system, or component is capable of performing the functions specified by its design, within the required range of physical design conditions. Based on this, the inspectors questioned the adequacy of using the assumption that the leak rate was proportional to the change in pressure and that it did not take into account the changes in temperature (~100 degree change) and viscosity of the lube oil during diesel generator operations. In addition, the inspectors questioned the methodology used for determining the available oil and converting the drop per minute leak rate to total lube oil loss due to the licensee using a standard water drop to cubic centimeter ratio. The use of the standard ratio for water did not account for any differences in viscosity and temperature between oil and water. Following the inspectors’ questioning, the licensee conducted testing to determine the actual drop rate to cubic centimeter per hour corresponding to the diesel generator lube oil. The licensee determined that the more conservative value of ten drops per cubic centimeter should be used to calculate the amount of lube oil lost during the seven day operation instead of the initial value of twenty drops per cubic centimeter. This change in conversion factors resulted in a calculated loss of approximately 37 gallons of lube oil over a seven day period of operation instead of the 18.64 gallons previously assumed.

Following the inspectors’ questions about the methodology used in determining the amount of oil available and lost due to leakage, the licensee recalculated the amount of oil available above the minimum technical specification required level. The licensee determined that the diesel generator had a volume of approximately 42 gallons of oil between the technical specification minimum level and the Full Run mark.

The third example occurred on December 19, 2009, following the identification of boric acid deposits on the Unit 3 emergency core cooling system train A suction piping. The boric acid deposits were observed on the welds attaching a lug to the pipe at support S3-SI-001-H-030. Based on the deposits observed, the licensee determined that the boric acid leakage was from a through wall flaw located underneath the lug. Because of the leak location, the licensee was unable to characterize the flaw geometry. Instead, engineering personnel assumed the flaw characteristics based on operating experience and a determination that the critical crack length was greater than the size of the lug. Since the flaw was determined to be within the boundary of the lug, the licensee concluded that the flaw was less than the critical crack length. Based on the assumed characterization of the flaw, the licensee applied the provisions of Code Case N-513-2, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping," and determined that the emergency core cooling system train A suction piping was operable.

On December, 22, 2009, the inspectors reviewed the operability determination documented in Nuclear Notification NN 200714391 and Code Case N-513-2. The inspectors reviewed Code Case N-513-2 and noted that it was only applicable when the flaw geometry was characterized by volumetric inspection methods or by physical measurements. The inspectors determined that the method used to characterize the flaw to justify operability in the operability determination was not in accordance with the code case, in that, the flaw geometry was only assumed and not characterized by volumetric inspection methods or by physical measurements. Therefore, the inspectors concluded that engineering and operations personnel inappropriately applied Code Case N-513-2 to justify the operability of the emergency core cooling system train A.

The inspectors communicated their conclusion regarding the inadequate operability determination to operations and engineering personnel. Since the operability determination was inadequate, operations personnel declared the emergency core cooling system train A suction piping, and refueling water storage tank inoperable and entered applicable technical specifications and followed the requirements of the limiting conditions for operability. Refueling water storage tank outlet isolation valve 3HV-9300 was closed to isolate the leak from the refueling water storage tank, which restored operability of the tank. The emergency core cooling system train A remained inoperable.

The licensee removed the lugs necessary to complete the required inspections to properly characterize the flaw geometry. Following flaw characterization, the licensee appropriately applied Code Case N-513-2 to document an adequate basis for operability of the piping in a revised operability determination, declared the emergency core cooling system train A suction piping operable, and opened outlet isolation valve 3HV-9300 to return the system to service.

Analysis. The failure to perform an adequate operability determination was a performance deficiency. The finding is greater than minor because the failure to perform timely and adequate evaluations of degraded, nonconforming, and unanalyzed conditions for operability, if left uncorrected, would have the potential to lead to a more significant safety concern. The finding is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not result in a loss of safety function for greater than the technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program because operations and engineering personnel failed to thoroughly evaluate problems such that the resolutions addressed the cause and extent of condition. This includes properly classifying, prioritizing, and evaluating for operability conditions adverse to quality [P.1(c)].

Enforcement. Title 10 of the *Code of Federal Regulations,* Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” requires that activities affecting quality shall be prescribed by instructions, procedures, or drawings and shall be accomplished in accordance with those instructions, procedures, and drawings. The assessment of operability of safety related equipment needed to mitigate accidents was an activity affecting quality and was implemented by Procedure SO123-XV-52, “Functionality Assessments and Operability Determinations.” Procedure SO123-XV-52, Step 1.0, stated that the objective of the procedure was to provide guidelines and instructions for evaluating the operability of a structure, system, or component when a degraded, nonconforming, or unanalyzed condition was identified.

Contrary to the above, on October 29, 2009, engineering personnel failed to follow Procedure SO123-XV-52, Revision 13, to adequately evaluate the operability of an identified nonconforming and unanalyzed condition. Specifically, engineering personnel failed to adequately evaluate the operability of the Unit 3 containment emergency sump when an unanalyzed styrofoam material was identified, which had not been previously analyzed for impact to the containment emergency sump.

Contrary to the above, on November 17 and December 8, 2009, operations and engineering personnel failed to follow Procedure SO123-XV-52, Revision 14, to adequately evaluate the operability of the Unit 3 emergency diesel generator train B. Specifically, operations and engineering personnel failed to adequately evaluate the operability of emergency diesel generator train B when a lube oil leak was identified on a flexible hose for the dc auxiliary turbo pump.

Contrary to the above, on December 19, 2009, operations and engineering personnel failed to follow Procedure SO123-XV-52, Revision 14, to adequately evaluate the operability of the Unit 3 emergency core cooling system train A. Specifically, operations and engineering personnel inappropriately applied Code Case N-513-2 to justify the operability of the emergency core cooling system train A, in that, the flaw geometry was only assumed and not characterized by volumetric inspection methods or by physical measurements.

Because the finding is of very low safety significance and has been entered into the licensee’s corrective action program as Nuclear Notifications NNs 200673198, 200699833, and 200718673, this violation is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy: NCV 05000362/2009005-05, “Failure to Follow the Operability Determination Process.”

2. Compensatory Measures

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 procedures and adequately implement identified compensatory measures used to substitute manual operator actions for automatic actions to perform a required function.

Description. On November 25, 2009, through wall leaks were identified on piping from the refueling water storage tank to charging pump suction on Units 2 and 3. Unit 3 entered a one hour shutdown action per Technical Specification 3.5.4, Condition B, for an inoperable refueling water storage tank. Unit 3 exited the one hour action statement when block valves MU067 and MU054 were closed to isolate the leaks from the refueling water storage tank. Unit 2 was defueled when the through wall leaks were discovered. The Unit 2 shutdown defense in depth strategy credited the refueling water storage tank to charging pump suction line as a makeup source to control spent fuel pool inventory. Similar to actions taken in Unit 3, operations personnel in Unit 2 shut block valve MU067 to isolate a leak from the Unit 2 refueling water storage tank.

The refueling water storage tank to charging pump suction piping for Units 2 and 3 were preliminarily determined to be operable through application of Code Case N-513-2, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping." Subsequently, procedure modification permits were prepared per Procedure SO123-0-A3, "Procedure Use," Revision 8, for Unit 2 on November 25, and for Unit 3 on November 28, to open the block valves to support operability of the functions provided by the refueling water storage tank to charging pump suction piping. Specifically, Unit 2 initiated a procedure modification permit to modify Procedure SO23-3-2.11.1, "SFP Level Change and Purification Crosstie Operations," Revision 14, to open block valve MU067 and maintain the ability to makeup to the spent fuel pool using the refueling water storage tank and spent fuel pool pump. Unit 3 initiated a procedure modification permit to modify the abnormal operating instruction Procedure SO23-13-2, "Shutdown from Outside the Control Room," Revision 12, to open block valves MU067 and MU054 to maintain the boron flow path provided by the refueling water storage tank to charging pump suction pipe. The intention of the procedure modification permits was to replace the automatic opening of valves with the local manual opening of block valves.

On December 2, 2009, the inspectors reviewed the actions taken by operation personnel in response to the identification of the through wall leaks identified on Units 2 and 3. The inspectors noted that block valves remained closed on Units 2 and 3 and questioned operations personnel whether the refueling water storage tank to charging pump suction lines were considered operable. Operations personnel presented the procedure modification permits to the inspectors and explained that the procedure modifications were being used to support operability of the functions provided by the piping. The inspectors reviewed the procedure modification permit and noted that the actions were described as maintenance activities rather than compensatory measures used to substitute manual operator actions for automatic actions to perform a required function. Consequently, the required 10 CFR 50.59 screening was not performed. Further, the inspectors questioned whether the requirements of Procedure SO123-XV-52, "Functionality Assessments and Operability Determinations," Revision 14, Attachment 10, were followed for the use of compensatory measures to support operability/functionality. The inspectors reviewed Procedure SO123-XV-52, Attachment 10, and observed that Step 1.8, stated, in part, that “A compensatory measure is NOT a “maintenance activity”,” which was contrary to the descriptions on the procedure modification permits.

In conclusion, the inspectors determined that operations personnel did not follow the requirements of Procedure SO123-XV-52, Attachment 10, to perform a screening per 10 CFR 50.59 and review additional considerations necessary for the procedure modification permits that were implemented as compensatory measures. Operations personnel initiated Nuclear Notification NN 200689450 to document the failure to follow Procedure SO123-XV-52, and actions were taken to comply with the requirements.

<u>Analysis</u>. The failure to follow procedures and adequately implement identified compensatory measures to support operability/functionality was a performance deficiency. The finding is greater than minor because the inadequate implementation of compensatory measures, if left uncorrected, would have the potential to lead to a more significant safety concern. The finding is associated with the procedure quality attribute of the Mitigating Systems Cornerstone and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheets, the finding is determined to have very low safety significance because the finding did not result in an actual loss of safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of human performance associated with decision making because operations personnel failed to make decisions using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained [H.1(a)].

<u>Enforcement</u>. Title 10 of the *Code of Federal Regulations,* Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” requires that activities affecting quality shall be prescribed by instructions, procedures, or drawings and shall be accomplished in accordance with those instructions, procedures, and drawings. The use of compensatory measures to substitute manual operator actions for automatic actions to perform a required function needed to mitigate accidents was an activity affecting quality and was implemented by Procedure SO123-XV-52, “Functionality Assessments and Operability Determinations,” Revision 14, Attachment 10, “Guidance for Use of Compensatory Measures to Support Operability/Functionality.” Contrary to the above, on November 25 and November 28, 2009, operations personnel failed to follow Procedure SO123-XV-52. Specifically, operations personnel did not follow requirements to establish a compensatory measure to substitute manual operator actions for automatic actions to support the operability of the functions provided by the refueling water storage tank to charging pump suction piping. Because the finding is of very low safety significance and has been entered into the licensee’s corrective action program as Nuclear Notification NN 200689450, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361; 05000362/2009005-06, “Failure to Adequately Implement Compensatory Measures to Maintain Equipment Operable.”

1R18 Plant Modifications (71111.18)

.1 Temporary Modifications

a. Inspection Scope

To verify that the safety functions of important safety systems were not degraded, the inspectors reviewed the temporary modification identified as installation and testing of containment jib crane and heavy lift devices associated with Unit 2 steam generator replacement activities.

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 modification did not adversely affect the system operability/availability. The inspectors also verified that the installation and restoration were consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors verified that the temporary modification was 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.

These activities constitute completion of one sample for temporary plant modifications as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings of significance were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors reviewed key parameters associated with energy needs, materials, replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flow paths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the permanent modification associated with Unit 2 replacement steam generator skirt bolt hole enlargement and stud deletion.

The inspectors verified that modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; postmodification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur; systems, structures and components' performance characteristics still meet the design basis; the modification design assumptions were appropriate; the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample for permanent plant modifications as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings of significance were identified.

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:

- November 5, 2009, Unit 3, pressurizer level control valve 3LV0110B flow limiter adjustment
- November 9, 2009, Unit 2, spent fuel pool cooling pump 2P009 restoration to normal power supply
- November 26, 2009, Unit 3, return to service testing for pressurizer pressure instrument channel A
- December 4, 2009, Unit 2, 4.16 kV class 1E bus 2A06
- December 8, 2009, Unit 3, flexible hose for the dc auxiliary turbo pump for emergency diesel generator train B
- December 23, 2009, Unit 2, emergency cooling unit 2ME255 train A following thermal overload replacement

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 six postmaintenance testing inspection samples as defined in IP 71111.19-05.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 2 refueling outage (U2C16) and steam generator replacement that commenced on September 27, 2009, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. NRC Inspection Report 05000361/2009007 will document inspections and findings associated with steam generator replacement. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below.

- Configuration management, including maintenance of defense-in-depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service.
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing.
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error.
- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities.
- Monitoring of decay heat removal processes, systems, and components.
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system.
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.
- Controls over activities that could affect reactivity.
- Maintenance of secondary containment as required by the technical specifications.
- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage.

- Licensee identification and resolution of problems related to refueling outage activities.

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

Refueling outage U2C16 was still in progress at the end of this inspection period. Consequently, these activities constitute only partial completion of one refueling outage and other outage inspection sample as defined in IP 71111.20-05.

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 five 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.

- July 25, 2009, Unit 2, motor driven auxiliary feedwater pump MP504 comprehensive full flow surveillance test
- September 24, 2009, Unit 3, heat treatment of circulating water system
- October 7, 2009, Unit 2, emergency diesel generator train B
- October 8, 2009, Unit 3, containment spray pump 3MP-012 inservice test
- October 8, 2009, Unit 2, local leak rate test of penetration 21, service air to containment, to include the installed blind flanges

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

These activities constitute completion of five surveillance testing inspection samples as defined in IP 71111.22-05.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP1 Exercise Evaluation (71114.01)

a. Inspection Scope

The inspectors reviewed the objectives and scenario for the 2009 biennial emergency plan exercise to determine if the exercise would acceptably test major elements of the emergency plan. The scenario simulated a spill of contaminated material within the plant, a reactor pressure transient caused by a failed reactor coolant pump causing damage to reactor fuel cladding, a steam line break in containment, a fire on licensee property leading to a loss of offsite power for both reactor units, a diesel generator failure that resulted in station blackout conditions for Unit 2, and a radiological release to the environment via a steam generator tube leak, to demonstrate licensee personnel's capability to implement their emergency plan.

The inspectors evaluated exercise performance by focusing on the risk-significant activities of event classification, offsite notification, recognition of offsite dose consequences, and development of protective action recommendations, in the Control Room Simulator and the following dedicated emergency response facilities:

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

The inspectors also assessed recognition of, and response to, abnormal and emergency plant conditions, the transfer of decision making authority and emergency function responsibilities between facilities, onsite and offsite communications, protection of emergency workers, emergency repair evaluation and capability, and the overall implementation of the emergency plan to protect public health and safety and the environment. The inspectors reviewed the current revision of the facility emergency plan, emergency plan implementing procedures associated with operation of the licensee's emergency response facilities, procedures for the performance of associated emergency functions, and other documents as listed in the attachment to this report.

The inspectors compared the observed exercise performance with the requirements in the facility emergency plan, 10 CFR 50.47(b), 10 CFR Part 50, Appendix E, and with the guidance in the emergency plan implementing procedures and other federal guidance.

The inspectors attended the post-exercise critiques in each emergency response facility to evaluate the initial licensee self-assessment of exercise performance. The inspectors also attended a subsequent formal presentation of critique items to plant management. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.01-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspector performed in-office and on-site reviews of licensee changes to the San Onofre Nuclear Generating Station Emergency Plan, Revisions 25 and 26, both received June 23, 2009, emergency plan implementing procedure SO123-VIII-1, "Recognition and Classification of Emergencies," Revision 28, submitted August 28, 2009, and San Onofre Nuclear Generating Station Emergency Plan, Revision 27, implemented September 9, 2009. These revisions:

- Revised the licensees goal for staffing their emergency response facilities from sixty minutes to ninety minutes;
- Moved the primary dose assessment function from the Technical Support Center to the Emergency Operations Facility;
- Moved the Effluent Engineer and Administrative Leader positions from the Technical Support Center to the Emergency Operations Facility (EOF);
- Deleted the EOF Offsite Dose Assessment Liaison, and Medical Team positions from the emergency response organization;
- Deleted the Emergency Classification and Event Code Chart;

- Combined the positions of Emergency News Center Technical Liaison and Emergency News Center Communications Liaison;

- Clarified that Corporate Emergency Director is responsible for evacuating the site, and the Station Emergency Director is responsible for conducting site assembly and accountability;

- Added licensed Reactor Operators to the personnel qualified to fill the Control Room Emergency Notification System Communicator positions;

- Added offsite monitoring teams (four technicians) to the minimum staff positions required to be present to activate the Emergency Operations Facility;

- Added the EOF Health Physics Communicator position to the emergency response organization;

- Added the Electrical Technician, Instrument and Control Technician, and five Health Physics Technicians as required minimum staff positions to activate the Operations Support Center;

- Added description of the duties of the environmental monitoring teams;

- Added several emergency response organization positions to Table 5-2, “Emergency Response Organization Duties;”

- Added Table 5-5, “Emergency Response Organization Minimum Staff Positions;”

- Added directions for handling an inoperable plant vent stack radiation monitor to emergency action level A1;

- Added clarifying information to emergency action level B1 to identify that steam generator and chemical volume and control system leakage are included in the 25 gpm identified leakage criteria;

- Added clarifying information to emergency action level B3 to identify the alternative release paths to the environment to be considered, and specify that the calculation of release time begins when charging pump capacity is exceeded;

- Added clarifying information to emergency action level D3 to identify that the reactor has failed to manually trip when any combination of Manual Reactor Trip Pushbuttons are unsuccessful in tripping the reactor (initiating condition 5), and that a loss of normal or auxiliary feedwater applies to uncontrolled reactor coolant system temperature (initiating condition 7);

- Updated emergency response organization position titles;

- Updated titles of offsite emergency response organizations; and,

- Made minor editorial corrections.

The NRC approved the licensee’s proposal to change their timeliness goal for staffing their emergency response facilities from sixty minutes to ninety minutes in a Safety

Analysis Report dated November 28, 2008 (Agency Document and Management System Accession Numbers ML071700672, ML082740060, and ML0832306080).

These revisions were compared to their previous revision, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revision adequately implemented the requirements of 10 CFR 50.54(q). These reviews were not documented in safety evaluation reports and did not constitute approvals of licensee-generated changes; therefore, these revisions are subject to future inspection. The specific documents reviewed during this inspection are listed in the attachment.

The inspector also performed an in-office review of the licensee's emergency plan implementing procedure SO123-VIII-1, "Recognition and Classification of Emergencies," Revision 29, submitted October 14, 2009. This revision added a note describing the validation of a fire alarm to Emergency Action Level E1-1, "A Fire which is not declared extinguished by the Fire Incident Commander within 15 minutes of Control Room Notification or verification of a Control Room alarm…."

This revision was compared to its previous revision, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revision adequately implemented the requirements of 10 CFR 50.54(q). This review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection.

These activities constitute completion of five samples as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on November 18, 2009, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency preparedness mini drills to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill scenarios and other documents listed in the attachment.

These activities constitute completion of one sample as defined in IP 71114.06-05.

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:

- Performance indicator events and associated documentation packages reported by the licensee in the Occupational Radiation Safety Cornerstone
- Controls (surveys, posting, and barricades) of radiation, high radiation, or airborne radioactivity areas
- Radiation work permits, procedures, engineering controls, and air sampler locations
- Conformity of electronic personal dosimeter alarm set points with survey indications and plant policy; workers' knowledge of required actions when their electronic personnel dosimeter noticeably malfunctions or alarms
- Barrier integrity and performance of engineering controls in airborne radioactivity areas
- Physical and programmatic controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools
- Self-assessments, audits, licensee event reports, and special reports related to the access control program since the last inspection
- Corrective action documents related to access controls
- Licensee actions in cases of repetitive deficiencies or significant individual deficiencies
- Radiation work permit briefings and worker instructions

- Adequacy of radiological controls, such as required surveys, radiation protection job coverage, and contamination control during job performance

- Dosimetry placement in high radiation work areas with significant dose rate gradients

- Changes in licensee procedural controls of high dose rate - high radiation areas and very high radiation areas

- Controls for special areas that have the potential to become very high radiation areas during certain plant operations

- Posting and locking of entrances to all accessible high dose rate - high radiation areas and very high radiation areas

- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

Either because the conditions did not exist or an event had not occurred, no opportunities were available to review the following item:

- Adequacy of the licensee's internal dose assessment for any actual internal exposure greater than 50 millirem committed effective dose equivalent

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

These activities constitute completion of 21 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:

- Dose rate reduction activities in work planning

- Workers' use of the low dose waiting areas

- 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

- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas

- Declared pregnant workers during the current assessment period, monitoring controls, and the exposure results

- Self-assessments, audits, and special reports related to the ALARA program since the last inspection

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

These activities constitute completion of 4 of the required 15 samples and 2 of the optional samples as defined in Inspection Procedure 71121.02-05.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 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 Third 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 Safety System Functional Failures (MS05)

a. Inspection Scope

The inspectors sampled licensee submittals for the safety system functional failures performance indicators for Units 2 and 3 for the period from the 4th quarter 2008 through the 3rd quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73." The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports, and NRC integrated inspection reports for the period of October 2008 through September 2009, to validate the accuracy of the submittals. 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 safety system functional failures sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity performance indicator for Units 2 and 3 for the period from the 4th quarter 2008 through the 3rd quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors reviewed the licensee's reactor coolant system chemistry samples, technical specification requirements, issue reports, event reports, and NRC integrated inspection reports for the period of October 2008 through September 2009 to validate the accuracy of the submittals. 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. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two reactor coolant system specific activity sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.4 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Radiological Occurrences performance indicator for the period from the 2nd quarter 2009 through the 3rd 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 assessment of the performance indicator for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's performance indicator data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review, and the results of those reviews. The inspectors independently reviewed electronic dosimetry dose rate and accumulated dose alarm and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas.

These activities constitute completion of the occupational radiological occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.5 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences performance indicator for the period from the 2nd quarter 2009 through the 3rd 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 issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose.

These activities constitute completion of the radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

4OA2 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 actions. 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 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the six month period of July 2009 through December 2009, although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee’s trending reports were reviewed for adequacy.

These activities constitute completion of one semi-annual trend inspection sample as defined in IP 71152-05.

b. Observations and Findings

Based on the inspectors’ observation of an inadequate log keeping trend, Nuclear Notification NN 200614441 was initiated for operations personnel to perform a three month log review to determine whether entries satisfied the requirements of Procedure SO123-0-A1, “Conduct of Operations,” Revision 26.

The assessment confirmed the inspectors’ observations and concluded that operator logs were inconsistent and did not meet procedure intent for context, clarity, and closure. Although some entries included the elements as described in Procedure SO123-0-A1 for operable and inoperable, they were inconsistent with the standard. Consequently, it became difficult to determine the logic used for determining operability and inoperability. As a result of the assessment, Nuclear Notification NN 200685073 was initiated to review the issues through an apparent cause evaluation.

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee’s corrective action program, the inspectors recognized a corrective action item documenting the issue 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.

- December 10, 2009, Unit 3, pipe S31219ML057, “T006 Refueling Water Storage Tank Gravity Feed Outlet”

These activities constitute completion of one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Findings

No findings of significance were identified.

.5 In-depth Review of Operator Workarounds

a. Inspection Scope

The inspectors conducted a cumulative review of operator workarounds for Units 2 and 3 and assessed the effectiveness of the operator workaround program to verify that the licensee was: 1) identifying operator workaround problems at an appropriate threshold;

2) entering them into the corrective action program; and 3) identifying and implementing appropriate corrective actions. The review included walkdowns of the control room panels, interviews with licensed operators and reviews of the control room discrepancies list, the lit annunciators list, the operator burden list, and the operator workaround list.

These activities constitute completion of one in-depth review of operator workarounds sample as defined in IP 71152-05.

b. Findings

No findings of significance were identified.

.6 Hours charged for Focused Problem Identification and Resolution Inspection

Hours charged in this report include hours that were expended during the focused problem identification and resolution inspection, the results of which will be documented in NRC Inspection Report 05000361; 05000362/2009009.

4OA3 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.

- September 13, 2009, Unit 2, automatic turbine/reactor trip from approximately 94 percent power on low condenser vacuum as a result of a recirculation gate (gate 5) sticking partially open during a planned heat treat evolution
- September 29, 2009, Unit 2, inspectors’ follow-up of the fire declared in the tendon gallery during tendon removal activity
- October 25, 2009, Unit 3, power transient due to high pressure turbine stop valve UV2200E failure
- November 13, 2009, Unit 2, uncontrolled strand uncoiling and anchor head drop on outside lift system
- November 18, 2009, Unit 2, incorrectly wired 480 volt 3-phase power cord resulted in substation J loss of power
- December 12, 2009, Unit 3, notice of unusual event declared when unit shutdown commenced for inoperable emergency diesel generators
- December 23, 2009, Unit 3, unexpected flow degradation for salt water cooling train A which resulted in a loss of spent fuel pool cooling

Documents reviewed by the inspectors are listed in the attachment.

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

b. Findings

1. Deficiencies Associated with Circulating Water Gate Maintenance

Introduction. The inspectors identified a Green finding for the failure of maintenance personnel to use Procedure SO23-XV-2, "Troubleshooting Plant Equipment and Systems," in developing procedures and work plans to adequately perform, test, and communicate maintenance activities on Unit 2 circulating water gate 5.

Description. On September 5, 2009, circulating water gate 5 was manipulated in preparations for a heat treat of the Unit 2 intake. Gate 5 stuck open at 14 percent during closure from approximately 40 percent open. Operators in the area of gate 5 noted that the gate made a loud noise during closure. The licensee initiated Nuclear Notification NN 200572373. The heat treat was postponed due to higher than normal seawater temperatures. Maintenance personnel adjusted a stop nut at the south end of gate 5, and were able to successfully close it. Operations personnel then successfully jogged gate 5 approximately 10 percent open on two occasions and declared gate 5 functional.

On September 9, 2009, the heat treat was rescheduled to be performed. During the attempt to open gate 5, it stuck open at approximately 35 percent. Operations personnel effectively backed out of the evolution. As a result of operator interviews, the inspectors discovered that the operating crew performing the heat treat evolution on September 9, 2009, received no information from any source that there had been any previous problems associated with any of the Unit 2 circulating water gates.

Maintenance personnel indicated that they suspected actuator problems with gate 5 but lacked spare parts to perform the desired repairs. Maintenance personnel then decided to remove the necessary actuator parts from Unit 3 and install them on Unit 2. Operations personnel then successfully jogged Unit 2 gate 5 approximately 10 percent open and declared gate 5 functional at approximately 6:30 a.m. on September 13, 2009.

The heat treat was rescheduled to be performed during the day shift on September 13, 2009. During the attempt to open gate 5, it stuck open at approximately 45 percent. Operations personnel were unable to overcome the transient caused by increasing circulating water temperatures and the subsequent loss of condenser vacuum. The turbine automatically tripped on low condenser vacuum, which resulted in an automatic reactor trip. The inspectors noted that corrective maintenance procedures used to repair gate 5 were ineffective, and the postmaintenance testing performed on gate 5 was also ineffective in determining functionality.

Procedure SO23-XV-2, "Troubleshooting Plant Equipment and Systems," Revision 3, described the process for troubleshooting and fault analysis of installed plant equipment and provided the methodology and consistent approach for troubleshooting Critical A equipment. Circulating water gate 5 was rated as a Critical A component, since it has been classified as having an effect on nuclear safety, plant reliability, or power generation, in that its failure could result in a plant trip, as well as a 5 percent or greater full load power reduction. The inspectors concluded that maintenance personnel did not have adequate procedures in place, since the standards of Procedure SO23-XV-2 were not followed to perform corrective maintenance on Unit 2 circulating water gate 5. The attempts to repair gate 5 were repeatedly unsuccessful due to inadequate planning, execution, postmaintenance testing, and communication. The inspectors also concluded that removing parts from Unit 3 in an attempt to make Unit 2 functional was a poor practice and exhibited poor oversight by maintenance personnel to ensure adequate spare parts were available to ensure the functionality of plant equipment that could directly affect plant operations.

The inspectors noted that the root cause evaluation for Nuclear Notification NN 200580999 generated in response to the event addressed procedural deficiencies in the maintenance and postmaintenance testing of Unit 2 circulating water gate 5, but did not address the failure of maintenance personnel to adequately communicate their activities to other interested departments, particularly operations. The licensee generated a new notification (Nuclear Notification NN 200718204) to address this deficiency.

Analysis. The failure of maintenance personnel to have adequate procedures in place to perform maintenance activities on recirculating water gates is a performance deficiency. The finding is greater than minor because the performance deficiency was a precursor to a significant event (reactor trip). 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 contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding has a crosscutting aspect in the area of human performance associated with work control because maintenance personnel failed to incorporate actions to address the need for work groups to communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance [H.3(b)].

Enforcement. No violation of regulatory requirements occurred because the finding occurred on nonsafety, but risk significant secondary plant equipment. The licensee entered the finding into the corrective action program as Nuclear Notifications NNs 200580999 and 200718204: FIN 05000361/2009005-07, "Inadequate Circulating Water System Maintenance Procedures Contribute to Unit 2 Inadvertent Reactor Trip."

2. Deficiencies Associated with Circulating Water Gate Operation

Introduction. The inspectors identified a Green finding for the failure of operations personnel to perform an adequate pre-job brief in accordance with procedural requirements for a planned Unit 2 heat treat evolution.

Description. Unit 2 experienced an automatic turbine/reactor trip from approximately 94 percent power on low condenser vacuum on Sunday, September 13, 2009. The low vacuum was caused by increasing circulating water temperature as a result of a recirculation gate (gate 5) sticking partially open during a planned heat treat evolution. The heat treat evolution is normally performed at approximately six week intervals on each unit by realigning circulating water to increase temperature in the respective unit's intake to clear out unwanted marine life to prevent clogging of the intake structure and ultimately the salt water cooling/component cooling water heat exchanger.

This evolution had been attempted the previous Wednesday, September 9, 2009, and was successfully aborted without a significant plant transient when a similar problem occurred on gate 5.

During the event on September 13, 2009, gate 5 failed after it had opened 45 percent. Gates 4 and 6 were also being opened and gate 3 was being closed simultaneous to the operation of gate 5. When gate 5 failed at 45 percent open, gates 3 and 4 were 50 percent open and gate 6 was 60 percent open. The personnel operating the gates indicated that they were confused as to which procedural direction applied, since two gates were at 50 percent, one was less than 50 percent, and one was greater than 50 percent. The field operator suggested gate 5 be manually jogged to verify overload status. When gate 5 failed to move, and after an approximate three minute delay, direction was provided from the control room to close gate 3 and open gate 4. The inspectors determined that the delay in properly reacting to the failure of gate 5 contributed to the escalation of circulating water temperatures which contributed to the turbine/reactor trip.

The inspectors reviewed Procedure SO23-5.1.1, "Heat Treating the Circulating Water System," Revision 22, as part of their event follow-up and determined that the guidance for reacting to circulating water gate failures contributed to the turbine/reactor trip on Unit 2 on September 13, 2009. Specifically, Procedure SO23-5-1.1, Attachment 8, Step 2.4 stated:

If any gate stops moving mid-position, utilize the following strategy:

- If the gates have traveled <50 percent, all movement should be stopped and the functioning gates restored to their previous positions. The non-functioning gate should be repaired and restored to its previous position.

- If the gates have traveled >50 percent, allow gate movement to continue. The non-functioning gate should be repaired and placed in the intended position."

The inspectors considered the attempts to troubleshoot the cause of the gate failure, and determine overload status, to be contrary to the "Gate Failure Strategy" in Procedure SO23-5-1.1, Attachment 8, which repositions the functioning gates first and dictates no actions for attempting to troubleshoot or determine the problem with a non-functioning gate.

Through interviews of licensee personnel, the inspectors reconstructed the pre-job briefs which took place prior to the commencement of heat treat evolutions on September 9, 2009, and September 13, 2009, and compared them with the requirements of Procedure OSM-6, "Operations Department Human Performance Tools," Revision 8.

The inspectors noted that Procedure OSM-6, Step 3.7.10 stated, in part, to ensure elements of an effective Pre-job Brief are addressed if required. Under "Elements of an Effective Pre-job Brief," Procedure OSM-6 stated, in part, that the pre-job brief leader discusses Safety Concerns, Operating Experience, Potential Problems, Error-likely Situations, Back out Criteria, Communications. The inspectors noted that the September 9, 2009, pre-job brief included specific requirements to back out of the evolution should a problem with gate operation occur. The gate operator was explicitly told to immediately shut gate 3 and open gate 4 should gate 5 stick in place during opening without delaying to call the control room. Additionally, this back out criteria was reiterated when one of the equipment operators asked for clarification during the pre-job brief. The inspectors also noted that although potential problems with gate 5 operation were discussed, no such clarification on back out criteria took place during the September 13, 2009, pre-job brief. The inspectors concluded that the lack of specificity during the September 13, 2009, pre-job brief contributed to the delay in operator actions which ultimately resulted in a turbine/reactor trip on low condenser vacuum due to high circulating water temperatures. The inspectors therefore concluded that elements of an effective pre-job brief were not performed in accordance with procedural requirements on September 13, 2009.

The inspectors noted that the root cause evaluation for Nuclear Notification NN 200580999 generated in response to the event addressed this deficiency.

Analysis. The failure of operations personnel to follow procedural requirements for conducting an adequate pre-job brief was a performance deficiency. The finding is greater than minor because the performance deficiency was a precursor to a significant event (reactor trip). 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 contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding has a crosscutting aspect in the area of human performance associated with resources because the licensee failed to provide adequate procedural guidance to ensure that operations personnel could safely perform plant evolutions [H.2(c)].

Enforcement. No violation of regulatory requirements occurred because the finding occurred on nonsafety, but risk significant secondary plant equipment. The licensee entered the finding into the licensee's corrective action program as Nuclear Notification NN 200580999: FIN 05000361/2009005-08, "Unit 2 Heat Treat Pre-job Brief Not Performed in Accordance with Procedural Requirements."

3. Fires in Tendon Gallery

Introduction. Three examples of a self-revealing Green noncited violation of Technical Specification 5.5.1.1.d, were identified for the failure of contractor personnel to properly implement the requirements of a fire protection procedure for the control of hot work activities.

Description. The inspectors reviewed a series of hot work related events that were all associated with the Unit 2 Cycle 16 steam generator replacement outage during pre-outage and outage work activities. These events involved a failure to properly implement the hot work procedural requirements of Procedure SO123-XV-1.41, "Control of Ignition Sources," Revision 13. All of the events required fire department response.

On September 1, 2009, a fire was reported associated with hot work activities during replacement and welding of instrument air lines. The cause was determined to be a failure of contractor personnel to follow hot work procedural requirements, including poor housekeeping which allowed combustible material to be near the ignition source that resulted in a fire. This event was documented in Nuclear Notification NN 200567213.

The other two events were associated with hot work activities during containment tendon detensioning and removal. The containment tendons are designed as part of the Unit 2 containment structure and are comprised of a bundle of 55, 3/8-inch diameter steel strands. The bundle of strands are enclosed by a 6-inch diameter metal sheath and filled with grease. Each strand is anchored with a wedge to carry the tensile load. Detensioning and removal required the cutting of each tendon strand to access each anchor wedge. The process required that contractor personnel cut each individual strand with a hand grinder and then apply a hot flame to the exposed strand using an acetylene torch. This resulted in hot liquefied grease and slag which needed to be immediately collected into a sand filled metal drum to allow the hot materials to cool.

The licensee's fire protection procedure for hot work, Procedure SO123-XV-1.41, did not allow combustible materials within 35 feet of the ignition source or flame. Because of the containment tendon detensioning and removal process, and the hot liquefied grease and slag that was produced, it was not practical to maintain the combustible materials at the required distance from the ignition sources or flames. Therefore, a flame permit deviation assessment was required by fire protection engineering. Although a hot work permit was issued, the requirements of the hot work permit were not followed, in that, the appropriate fire protection engineering evaluation and deviation assessments were not completed.

The first event associated with containment tendon activities occurred on September 28, 2009, when a fire was reported in the tendon gallery. This event was documented in Nuclear Notification NN 200601793. Following the September 28 event, Nuclear Notification NN 200602213 documented observations where no fire watch was present to observe the sparks that were occurring during the tendon cutting process. The nuclear notification failed to identify that uncovered combustible materials were within 35 feet of the observed sparks, and the appropriate evaluations had not been performed. Further, the only immediate action taken, as documented in the nuclear notification, was to have the contractor personnel communicate the fire watch inadequacies to their supervisor. The second event associated with these activities occurred the next day, on September 29, when a fire event was declared in the tendon gallery. The fire was extinguished after several attempts, however, due to heat buildup, smoke continued to fill the tendon gallery area. Workers evacuated the area and the fire department was contacted. The fire department responded to the event and operations personnel implemented abnormal operating instruction Procedure SO123-13-21, "Fire," Revision 13. The fire was officially declared out within 8 minutes. This event was documented in Nuclear Notification NN 200602881.

The direct cause evaluation associated with Nuclear Notification NN 200602881, concluded that contractor personnel were not complying with the licensee's Fire Protection Program procedures, in that, outage related hot work was authorized even though the ignition source was in direct contact with combustible material (liquefied tendon grease) without an approved deviation as required by Procedure SO123-XV-1.41, "Control of Ignition Sources."

<u>Analysis</u>. The failure to properly implement the fire protection procedure was a performance deficiency. The finding is greater than minor because it is associated with the protection against external factors (fires) attribute of the Initiating Events Cornerstone and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Additionally, if left uncorrected, the practice of conducting hot work in a manner that results in unintended combustion of nearby materials would have the potential to lead to a more significant safety concern in that it could result in a fire in or

near risk significant equipment. Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," was used since Appendix F, "Fire Protection Significance Determination Process," does not address the potential risk significance of shutdown fire protection findings, and Appendix G, "Shutdown Operations Significance Determination Process," does not address fire protection findings. The NRC management review was performed by using the Manual Chapter 0609, Appendix F, Phase 1 Worksheet, to establish a bounding analysis. Using the bounding analysis, the finding is determined to have very low safety significance because the finding represented a low degradation rating, in that, it did not have any significant effect on the likelihood that a fire might occur, or that a fire which does occur might not be promptly suppressed. This finding has a crosscutting aspect in the area of human performance associated with work practices because the licensee failed to ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety was supported [H.4(c)].

Enforcement. Technical Specification 5.5.1.1.d requires that written procedures be established, implemented, and maintained covering Fire Protection Program implementation. The Fire Protection Program was implemented, in part, by Procedure SO123-XV-1.41, "Control of Ignition Sources," Revision 13. Procedure SO123-XV-1.41, Steps 6.1.1 and 6.4.1.3, required that combustible materials be covered or stored at a distance of 35 feet from the ignition sources or flames, or that an evaluation be performed and compensatory actions implemented if this was not practical. Contrary to the above, between September 1 and September 29, 2009, three examples were identified where contractor personnel failed to properly implement the requirements of Procedure SO123-XV-1.41, steps 6.1.1 and 6.4.1.3. Specifically, contractor personnel failed to ensure that combustible materials were covered or stored at a distance of 35 feet from the ignition source or flame, and no compensatory evaluation was performed. All three examples of this performance deficiency resulted in a fire. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Nuclear Notification NN 200604378, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361/2009005-09, "Failure to Implement Fire Protection Plan Requirements Related to Hot Work Activities."

4. Notice of Unusual Event

On December 7, 2009, emergency diesel generator train B was declared inoperable after a monthly surveillance run due to an excessive lube oil system leak (NCV 05000361; 05000362/2009005-05). After performing maintenance on the lube oil system, the monthly surveillance run was performed as a postmaintenance test on December 9. Nuclear Notification NN 200699513 documents that a low lube oil temperature alarm was received during this postmaintenance run. Following the temperature alarm, the emergency diesel generator train B run was stopped and the generator was declared inoperable but functional. Troubleshooting determined that the low lube oil temperature switch was sticking and the decision was made to repair the switch after the diesel generator was restored to operable status. On December 10, emergency diesel generator train B was declared operable after a satisfactory monthly surveillance run.

On December 11, 2009, work was conducted under Nuclear Maintenance Order NMO 800422054 to replace the low lube oil temperature switch for emergency diesel generator train B. During the switch replacement, a technician inadvertently grounded a wire that in turn blew the fuse on the annunciator alarm panel. The emergency diesel generator train B was immediately declared inoperable. After the fuse was replaced the emergency diesel generator train B remained inoperable because engineering personnel determined, due to system design, that the grounded wire by itself should not have caused the fuse to fail.

On December 12, 2009, operations personnel attempted to start emergency diesel generator train A in order to rule out a common cause failure in accordance with Technical Specification 3.8.1, Condition B.3.2. However, emergency diesel generator train A failed to start and was declared inoperable; this was documented in Nuclear Notification NN 200704606.

At 1:26 a.m. on December 12, the licensee declared a Notice of Unusual Event as operations personnel initiated a down power of Unit 3 in accordance with Technical Specification 3.8.1, Condition F.1, which required the unit to be in Mode 3 within six hours. At 5:11 a.m., the down power was suspended at 40 percent power after the emergency diesel generator train B was declared operable based on a successful operability run and a prompt operability determination. The licensee exited the Notice of Unusual Event at 6:45 a.m.

Troubleshooting on emergency diesel generator train A determined that voltage noise from a degraded annunciator power supply incorrectly closed contacts in the speed switch, which in turn prevented the generator from starting. The inspectors noted that the emergency diesel generator train A had potentially been inoperable since the last surveillance run on November 23, 2009. The annunciator power supplies were replaced and the emergency diesel generator train A was declared operable on December 15, 2009.

Findings associated with this event are documented in Section 1R12.

.2 Event Report Review

a. Inspection Scope

The inspectors reviewed the five 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. Observations and Findings

1. (Closed) Licensee Event Report 05000361; 05000362/2008-007-00, "Failure to Comply with TS Surveillance Requirement Completion Time"

On September 18, 2008, the licensee identified a practice that did not satisfy a technical specification condition requirement. Technical Specification 3.8.1, Condition B, requires Surveillance Requirement 3.8.1.1, AC Sources Verification, be performed within 1 hour after declaring an emergency diesel generator inoperable, and once per 8 hours thereafter. Contrary to this requirement, operations personnel performed Surveillance Requirement 3.8.1.1 within 1 hour prior to declaring an emergency diesel generator inoperable for planned periods of inoperability, and once per 8 hours thereafter. This practice was consistent with the original technical specification but not with the improved technical specification (implemented August 5, 1996). The implementing procedure for this surveillance was not revised at the time of implementing the new improved technical specification. This procedure has been corrected. This failure to comply with Surveillance Requirement 3.8.1.1 completion time constitutes a violation of minor significance that is not subject to enforcement action in accordance with the NRC's Enforcement Policy. This licensee event report is closed.

2. (Closed) Licensee Event Report 05000361/2008-005-00, "Missed Surveillance and Plant Mode Change Causes TS Violation"

   On June 9, 2008, Unit 2 entered Mode 2 from Mode 3 during plant startup. At about 1443 PDT, the control room supervisor recognized that the control element assembly alignment Surveillance Requirements 3.1.5.1 and 3.1.5.2 had not been completed prior to the mode change. Technical Specification 3.1.5 is applicable in Modes 1 and 2, but not in Mode 3. This was a violation of Surveillance Requirement 3.0.4 which prevents mode entry without completing all applicable surveillance requirements. Operations personnel completed the surveillances with satisfactory results. The procedure for the mode change was not clear and has been revised to specifically require that the surveillances are completed. This failure to comply with technical specification Surveillance Requirement 3.0.4 constitutes a violation of minor significance that is not subject to enforcement action in accordance with the NRC's Enforcement Policy. This licensee event report is closed.

3. (Closed) Licensee Event Report 05000361/2009-001-00, "Unit Trip on Low Vacuum Caused by Intake Circulating Water Gate"

   San Onofre Unit 2 experienced an automatic turbine/reactor trip from approximately 94 percent power on low condenser vacuum on September 13, 2009. The low vacuum was caused by increasing circulating water temperature as a result of a recirculation gate (gate 5) sticking partially open during a planned heat treat evolution. Findings associated with this event are described Section 4OA3 of this report. This licensee event report is closed.

4. (Closed) Licensee Event Report 05000361/2007-005-00, "Loose Electrical Connection Results in Inoperable Pump Room Cooler"

   On March 1, 2007, the Unit 2 spent fuel pool pump room emergency air conditioning fan was started for air flow measurement and tripped on thermal overload. The phase A connection to the thermal overload was found to be loose with evidence of arcing. The licensee determined the loose connection likely was caused by inadequate tightening of the connection during maintenance on October 27, 2006. Since the backup cooling for this room was operable and the room temperature did not exceed the design temperature, the spent fuel pool pump remained operable. Findings associated with this licensee event report review are described Section 4OA5.4 of this report. This licensee event report is closed.

5. (Closed) Licensee Event Reports 05000361; 05000362/2007-006-00 and 05000361; 05000362/2007-006-01, "Loose Electrical Connection Results in One Train of Emergency Chilled Water (ECW) System Inoperable"

On June 9, 2007, operations personnel found the control panel for emergency chiller E336 de-energized. Further investigation identified that the retaining screw anchoring the cable to the supply breaker in the power panel was stripped, preventing the cable from being secured tightly. The licensee concluded that the loose connection was most likely due to over tightening the terminal screw on June 28, 2005, when the breaker was replaced. Findings associated with this licensee event report review are described Section 4OA5.4 of this report. This licensee event report is closed.

4OA5 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 San Onofre Nuclear Generating Station security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

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

b. Findings

No findings of significance were identified.

.2 Temporary Instruction 2515-175, "Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review"

a. Inspection Scope

The inspector performed Temporary Instruction 2515-175, "Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review," ensured the completeness of Attachment 1 to the Instruction, and forwarded the data to NRC Headquarters.

b. Findings

No findings of significance were identified.

.3 Temporary Instruction 2515-172, "Reactor Coolant System Dissimilar Metal Butt Welds"

a. Inspection Scope

The reactor coolant system for this unit is carbon steel with stainless steel cladding and has the following dissimilar metal welds subject to the requirements of the Materials Reliability Program-139:

1. Two 12-inch pressurizer surge line nozzles were mitigated during a previous outage using a weld overlay process. Both welds were classified as Category F per material reliability program guidelines.

2. Three 6-inch pressurizer safety nozzles were mitigated during a previous outage using a weld overlay process. Both welds were classified as Category F per materials reliability program guidelines.

3. One 4-inch pressurizer spray nozzle was mitigated during a previous outage using a weld overlay process. The weld was classified as Category F per materials reliability program guidelines.

4. One 16-inch shutdown cooling nozzle was mitigated during a previous outage using a weld overlay process. The weld was classified as Category F per materials reliability program guidelines.

5. Four 12-inch emergency core cooling system injection nozzles were previously left unmitigated. The licensee performed a volumetric inspection of each nozzle during the current outage and classified the welds as Category I per materials reliability program guidelines.

6. Four 30-inch reactor coolant pump inlet nozzles (unmitigated as of this outage). The licensee performed a volumetric inspection of each nozzle during the current outage and classified the welds as Category I per materials reliability program guidelines.

7. Four 30-inch reactor coolant pump outlet nozzles (unmitigated as of this outage). The licensee performed a volumetric inspection of each nozzle during the current outage and classified the welds as Category I per materials reliability program guidelines.

All of the pressurizer and hot-leg-temperature welds have been mitigated, in previous outages, using a full-structural overlay weld. The cold-leg-temperature welds have not been mitigated as of this outage. The cold-leg welds have been, or will be, volumetrically inspected and any decision to mitigate these welds will be made on the basis of these inspections.

03.01 <u>Licensee's Implementation of the Materials Reliability Program-139 Baseline Inspections</u>

a. The inspector reviewed records of structural weld overlays and nondestructive examination activities associated with the licensee's pressurizer structural weld overlay mitigation effort. The inspector observed nondestructive examination activities associated with one cold leg weld that was not overlaid.

b. The licensee was not planning to take any deviations from the baseline inspection requirements of Materials Reliability Program-139, and all other applicable dissimilar metal butt welds were scheduled in accordance with Materials Reliability Program-139 guidelines.

03.02 Volumetric Examinations

a. The inspector observed the ultrasonic examination of one cold leg weld that was not scheduled to be overlaid. This examination was conducted in accordance with ASME Code, Section XI, Supplement VIII Performance Demonstration Initiative requirements regarding personnel, procedures, and equipment qualifications. No relevant conditions were identified during this examination.

b. The inspector reviewed records for the nondestructive evaluations performed on one pressurizer surge line weld overlay. Inspection coverage met the requirements of Materials Reliability Program-139 and no relevant conditions were identified.

c. The certification records of ultrasonic examination personnel were reviewed for those personnel that performed the examinations of the pressurizer and cold-leg welds. All personnel records showed that they were qualified under the EPRI Performance Demonstration Initiative.

d. No deficiencies were identified during the nondestructive examinations.

03.03 Weld Overlays

a. The inspector reviewed the welding activities associated with the weld overlay performed on the pressurizer surge line nozzle.

b. The licensee submitted and received NRC authorization for the use of relief request from the ASME code to apply weld overlays on their dissimilar metal butt welds. Using this, the licensee performed weld overlays on all of the dissimilar metal butt welds associated with pressurizer and hot leg temperatures. This welding took place in previous outages. The inspector reviewed the weld records for one of these welds to ensure the welding was performed in accordance with the ASME code, as modified by the approved relief requests.

c. Deficiencies have not been identified in the completed full structural weld overlays.

03.04 Mechanical Stress Improvement

This item was not applicable because the licensee did not have plans to employ a mechanical stress improvement process.

03.05 Inservice inspection program

The inspector reviewed the licensee’s risk informed inservice plan and verified that all dissimilar metal butt welds have been entered into the plan and will be examined on a schedule consistent with Materials Reliability Program-139.

b. Findings

No findings of significance were identified.

.4 (Closed) Unresolved Item 05000361; 05000362/2008013-07, "Degraded Electrical Connections"

a. Inspection Scope

The inspectors evaluated Unresolved Item 05000361; 05000362/2008013-07, "Degraded Electrical Connections."

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," with thirteen examples for the failure of the licensee to ensure that appropriate measures were in place to assure that systems specified in the design basis were maintained in a configuration which provided a reasonable assurance of operability during design basis events.

Description. Details associated with this unresolved item were described in Section 2.2.1 of NRC Inspection Report 05000361; 05000362/2008013 and are summarized in the table below.

Table 1: Identified Loose Electrical Connections			
Item	Equipment	Description	Condition
1	3A276	Emergency Diesel Generator 3G003 Building Supply Fan (3BH11)	Failed to start; Discovered June 2005
2	3A277	Emergency Diesel Generator 3G002 Building Supply Fan (3BH12)	2 loose connections; Discovered June 2005
3	E549	Emergency Diesel Generator 3G002 Radiator Fan (3BH07)	Discovered June 2005
4	2BY37	Fuel Handling Building Pump Room Emergency Air Conditioning Unit E441 Feeder Breaker	Failed to run; Discovered March 2007
5	2BJ06	Safety Injection Tank 2T008 to Reactor Coolant Loop 1A Valve 2HV9340	Documented January 2006
6	3BE06	Auxiliary Feedwater to Steam Generator Control Valve 3HV4713	3 loose connections; Discovered August 2005
7	2BY30	Component Cooling Water Building Pump Room Emergency AC Unit E453	Loose grounding wire in MCC bucket; Discovered July 2005
8	2BE11	Safety Injection Tank T009 to Reactor	3 loose connections; Discovered January

Table 1: Identified Loose Electrical Connections			
		Coolant Loop 2A Valve 2HV9360	2006
9	BS09	Control Building Control Room Emergency Air Supply Fan A206	Loose connection in indicator circuit; Discovered February 2006
10	2/3ME336	Emergency Chiller Supply Breaker E336	Instrumentation panel failed; Discovered June 2007
11	2B008	125 VDC Battery 2D2	Loose connection on bus bar; Discovered September 2007
12	3RY7870	Condenser Air Ejector Wide Range Radiation Monitor	Failed Surveillance; Discovered June 2008
13	3BD21	Diesel Radiator Fan 3E550 Feeder Breaker	Degraded connection; Discovered July 2008

Analysis. The failure to ensure the integrity of electrical connections in equipment which may be called upon during design basis events was a performance deficiency. The 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 to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with Manual Chapter 0609, Attachment 4, Table 4a, Question 5, a Phase 3 analysis was required because the finding screened as potentially risk significant due to a seismic, flooding, or severe weather initiating event. In accordance with Inspection Manual Chapter 0609, Appendix A, the analyst determined that the conditions documented in Table 1 of this inspection report should be evaluated as a single inspection finding because they resulted from a common cause.

Internal Initiators:

The analyst evaluated Conditions 2, 3, 5 through 9, 11, and 13 documented in Table 1. While the conditions of the fasteners were degraded, none of these components were found to be in a failed condition. Therefore, there was no impact to internal initiated risk. The remainder of the conditions documented on Table 1 was evaluated as discussed here:

Condition 1: This condition involved the failure of the building supply fan for emergency diesel generator 3G003 to start on demand in June, 2005. This fan was one of two redundant fans performing the same function. However, to bound the change in risk, the analyst conducted a Phase 3 analysis assuming the failure of emergency diesel generator 3G003, using the plant-specific SPAR model. The ΔCDF (Core Damage Frequency) for a failed diesel generator was 1.9×10^{-5}/year. The exact time of failure was unknown, but the fan had worked properly during a surveillance test approximately 30 days earlier. Therefore, the analyst assumed the diesel had been failed for 15 days. This resulted in a bounding ΔCDF of 7.8×10^{-7} over a 15-day period.

The analyst noted that this was a bounding evaluation of a specific postulated failure and was not appropriate to combine with the risk of other evaluations performed. The analyst determined qualitatively that this condition would not have greatly increased the overall risk of the finding.

Condition 4: This condition involved the failure of the fuel handling building pump room emergency air conditioning unit feeder breaker E441. The failure of this breaker potentially affected the functionality of its associated spent fuel pool cooling pump. Given the volume of water stored in the spent fuel pool, the low heat loading of fuel in the pool, the availability of makeup systems, and the other train of spent fuel pool cooling, the analyst determined that this condition did not greatly affect the core damage frequency.

Condition 10: This condition involved the inoperability of the train A emergency chilled water system chiller ME336 discovered on June 9, 2007 and reported by the licensee in LER 2-2007-006-001. The licensee's investigation of the cause of control panel (L177) for ME336 being found de-energized on June 9, 2007 revealed that a power cable was pulled out of the feeder breaker in a separate panel (Q033) supplying 120 VAC to the chiller control panel, L177. Information provided by the licensee established May 17, 2007 as the date of the last successful surveillance of emergency chilled water train A, representing a 23 day period that the performance deficiency potentially affected the plant.

The analysts agreed with the licensee assessment that the subject performance deficiency would result in the loss of the emergency chilled water train A from a postulated seismic event that also causes a loss of offsite power. Under such a scenario, the emergency chilled water system would be required to cool important loads such as the main control room and critical switchgear and distribution panel rooms on the 50 foot elevation in the auxiliary building. The inability to successfully dissipate the heat loads could ultimately result in control room abandonment and the added complexity of shutting down and cooling down from the remote shutdown panel. The aggregate of these factors would adversely affect the core damage frequency. To quantify the increase in core damage frequency (ΔCDF) caused by the condition, the analysts evaluated the added risk associated with the following circumstances: a) emergency chilled water system becoming unavailable due to a seismically induced loss of offsite power (8.0×10^{-7}/year); b) emergency chilled water system becoming unavailable due to internal event initiators (3.3×10^{-6}/year); and c) Loss of both emergency chilled water trains following a postulated loss of offsite power event causing temperature increases that would necessitate main control room abandonment (6.0×10^{-6}/year).

A one year exposure time was considered appropriate for the seismic event vulnerability whereas a 12-day (T/2 + repair time) exposure time was applied in the analysis of internal event initiators and main control room abandonment. Considering the total loss of emergency chilled water (train A loss due to the performance deficiency and nominal failure probability loss of train B) the change in core damage probability, assuming that the above postulated conditions occurred, was calculated as follows:

$$\Delta CDF = (8.0 \times 10^{-7}/yr * 1\ yr) + (3.3 \times 10^{-6}/yr * 12/365\ yrs) + (6.0 \times 10^{-6}/yr * 12/365\ yrs)$$

$$= 8.0 \times 10^{-7} + 1.1 \times 10^{-7} + 6.2 \times 10^{-8}$$

$$= 9.7 \times 10^{-7}$$

The analyst noted that the core damage sequences associated with this condition resulted in loss of equipment from overheating. Therefore, the risk associated with this condition was not considered additive to the bounding analyses conducted for the other conditions.

Condition 12: This condition involved the condenser air ejector wide range radiation monitor. The loose termination was discovered when recorder Point 9 was found out of specification during a required 92-day surveillance. This recorder point had been found high, but within the acceptable range, during the previous surveillance. Therefore, the analyst assumed the point drifted out of specification, purportedly because of the loose termination, at some time during the 92-day interval. The licensee stated that the monitor does not perform any automatic isolation, control or alarm function, nor is the monitor referenced in the decision logic for abnormal or emergency procedures. As such, failure would not directly affect the core damage frequency. Additionally, although the point was indicating high, it would have indicated a trend had a primary to secondary leak developed.

External Initiating Events:

Seismic

Using a method similar to that documented in Attachment 3 of NRC Inspection Report 05000361/2008013; 05000362/2008013, the analyst evaluated the impact of the Conditions 1 through 9 and 11 through 13 listed in Table 1 for their impact to risk during a seismic event. Assuming that the loose connections listed doubled the probability that the associated motor-control center would fail as a result of a seismic event, the analyst quantified the seismic impact. The frequency of a seismically induced failure occurring simultaneous with a nonrecoverable loss of offsite power was calculated to be 1.8×10^{-4}/year. Based on an evaluation of the equipment redundancy and safety function of each condition, the analyst determined that the worst case failure would be the loss of a single diesel generator. The conditional core damage probability for this was quantified as 2.0×10^{-3}. Therefore, the analyst estimated the worst case failure at a ΔCDF of 3.6×10^{-7}. The analyst determined that the probability of failure of more than one of the components in the correct combination to increase the core damage frequency significantly would be very low.

High Winds, Floods, and Other External Events

The analyst reviewed the IPEEE and determined that no other credible scenarios initiated by high winds, floods, fire, and other external events could initiate a loss of offsite power and directly cause the perturbation of the thirteen conditions associated with this finding. Therefore, the analyst concluded that external events other than seismic events were not significant contributors to risk for this finding.

Large Early Release Frequency

In accordance with the guidance in NRC Inspection Manual Chapter 0609, Appendix H, this finding would not involve a significant increase in risk of a large early release of radiation because San Onofre has a large, dry containment and the accident sequences contributing to a change in the core damage frequency did not involve either a steam generator tube rupture or an intersystem loss of coolant accident.

As a combined result of these evaluations, the analyst determined that this finding was of very low safety significance (Green).

The finding has a crosscutting aspect in the area of human performance associated with resources for the failure to maintain complete, accurate, and up-to-date design documentation, procedures, and work packages [H.2(c)].

Enforcement. Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion III, “Design Control,” states, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in § 50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into procedures and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents. Contrary to this requirement, between June 2005 and July 2008, the licensee failed to ensure that appropriate measures were in place to assure that systems specified in the design basis were maintained in a configuration which provided a reasonable assurance of operability during design basis events. Specifically, thirteen examples of safety-related equipment were identified with electrical connections that were not maintained in the required design configuration.

Because this finding is of very low safety significance and has been entered into the licensee’s corrective action program as Action Requests ARs 050601315, 050601324, 060101159, 070200254, 200066209, Nuclear Notifications NNs 200089167, 200058371, 200100730, and Corrective Action Order 800126624, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000361; 05000362/2009005-10, “Inadequate Design Control for Safety-Related Electrical Connections.”

4OA6 Meetings

Exit Meeting Summary

On September 25, 2009, the inspectors presented the results of the onsite inspection of the 2009 emergency preparedness exercise, and the inspection of licensee changes to their emergency plan and emergency action levels to Mr. R. Ridenoure, Senior Vice President and Chief Nuclear Officer, and other members of the licensee’s staff. The licensee acknowledged the issues presented.

On October 16, 2009, the inspector presented the in-service inspection results to Mr. D. Bauder, Plant Manager, and other members of the licensee staff. The licensee acknowledged the issues presented.

On October 29, 2009, the inspector conducted a telephonic exit meeting to present the results of the in-office inspection of changes to the licensee's emergency action levels to Mr. B. Ashbrook, Manager, Onsite Emergency Preparedness. The licensee acknowledged the issues presented.

On October 30, 2009, the inspectors presented the radiation safety inspection results to Mr. A. Hochevar, Station Manager, and other members of the licensee staff. The licensee acknowledged the issues presented.

On December 15, 2009, the inspector briefed Mr. Bill Arbour, Training Supervisor, of the results of the annual licensed operator requalification program inspection. The licensee acknowledged the issues presented.

On January 13, 2010, the inspectors presented the integrated 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 inspectors asked the licensee whether any materials examined during the inspections should be considered proprietary or sensitive. The inspectors returned or destroyed all proprietary information reviewed during the inspections and all identified sensitive information has been returned to the appropriate licensee custodian.

4OA7 Licensee-Identified Violations

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

.1 On August 8 and August 9, 2009, the licensee failed to follow their emergency plan in that during one full shift and 1 hour 46 minutes of another shift the emergency plan-required electrical maintenance position was not staffed. This finding is a failure to comply with an NRC requirement, is associated with a 50.47(b) Planning Standard, is not associated with a risk-signifcant Planning Standard, and is not a functional failure of the planning standard because processes for ensuring the staffing of required on-shift emergency response organization positions were generally effective. This finding has been entered into the licensee's corrective action program as Direct Cause Evaluation 200535198.

.2 Title 10 of the *Code of Federal Regulations* 50.65(a)(4), states in part, that before performing maintenance activities, the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, between September 30, 2009, and December 10, 2009, work control and operations personnel failed to adequately assess and manage the increase in risk associated with planned maintenance activities. Specifically, on September 30, errors were inadvertently introduced to the risk model, such that, the risk assessments for planned maintenance utilized a safety monitor with nonconservative allowed configuration time values until discovery of the error on December 10, 2009. This finding has been entered into the licensee's corrective action program as Nuclear Notification NN 200701778. The finding is of very low safety significance because the incremental core damage probability deficit and the incremental large early release probability deficit were of sufficiently low magnitudes.

.3 Title 10 of the *Code of Federal Regulations*, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, 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-XV- 50.CAP-1, "Writing Nuclear Notifications for Problem Identification and Resolution," Revision 2, stated that all personnel identifying problems that have the potential to affect the ability of a structure, system, or component to perform its specified function will immediately notify the shift manager or designee, and write a nuclear notification prior to the end of their shift. Contrary to the above, on November 20, 2009, engineering personnel failed to initiate a nuclear notification in a timely manner in accordance with their procedures. Specifically, engineering personnel failed to write a nuclear notification in accordance with Procedure SO123-XV-50.CAP-1, for a boric acid leak identified on Unit 2 pipe S21219ML057, "T006 RWST Gravity Feed Outlet." This finding has been entered into the licensee's corrective action program as Nuclear Notification NN 200683697. The finding is of very low safety significance because the finding did not result in an actual loss of safety function.

This licensee identified violation is another example of NCV 05000361/2009005-01, "Failure to Initiate a Notification in a Timely Manner," and is further discussed in Section 1R06.1 of this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

T. Adler, Manager, Maintenance/Systems Engineering
B. Arbour, Operator Continuing Training Supervisor
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, Manger, Performance Improvement
G. Cook, Manager, Compliance, Nuclear Regulatory Affairs
D. Deglopper, ALARA Planner, Health Physics
S. Deines, Technician, Health Physics
P. Elliot, Operations Supervisor, Health Physic Department
R. Elsasser, Manger, Training
M. Farmer, Radioactive Materials Control Supervisor, Health Physics
J. Fee, Manager, Site Emergency Preparedness
K. Gallion, ALARA Supervisor, Health Physics
S. Gardner, Electrical/System Engineering Manager
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
L. Kelly, Engineer, Nuclear Regulatory Affairs
D. Spires, Director, Work Control
J. Madigan, Manager, Health Physics
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, Plant Operations
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
R. Sherman, ALARA Planner, Health Physics
R. St. Onge, Director Nuclear Regulatory Affairs
J. Todd, Manager, Security
G. Vechinski, Inservice Inspection/Steam Generator Support Supervisor
D. Wilcockson, Manager of Operations Training
A. Williams, Technician, Health Physics

NRC Personnel

D. Loveless, Senior Reactor Analyst
E. Schrader, Emergency Preparedness Specialist

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000361/2009005-01	NCV	Failure to Initiate a Notification in a Timely Manner (Section 1R06)
05000361/2009005-02	NCV	Failure to Adequately Identify Problems in Corrective Action Program (Section 1R06)
05000362/2009005-03	NCV	Failure to Correct Problems with Emergency Diesel Generator Train B (Section 1R12)
05000362/2009005-04	NCV	Failure to Correct Problems with Emergency Diesel Generator Train A (Section 1R12)
05000362/2009005-05	NCV	Failure to Follow the Operability Determination Process (Section 1R15)
05000361/2009005-06 05000362/2009005-06	NCV	Failure to Adequately Implement Compensatory Measures to Maintain Equipment Operable (Section 1R15)
05000361/2009005-07	FIN	Inadequate Circulating Water System Maintenance Procedures Contribute to Unit 2 Inadvertent Reactor Trip (Section 4OA3)
05000361/2009005-08	FIN	Unit 2 Heat Treat Pre-job Brief Not Performed in Accordance with Procedural Requirements (Section 4OA3)
05000361/2009005-09	NCV	Failure to Implement Fire Protection Plan Requirements Related to Hot Work Activities (Section 4OA3)
05000361/2009005-10 05000362/2009005-10	NCV	Inadequate Design Control for Safety-Related Electrical Connections (Section 4OA5)

Closed

05000361/2008-007-00 05000362/2008-007-00	LER	Failure to Comply with TS Surveillance Requirement Completion Time (Section 4OA3)

Closed

05000361/2008-005-00	LER	Missed Surveillance and Plant Mode Change Causes TS Violation (Section 4OA3)
05000361/2009-001-00	LER	Unit Trip on Low Vacuum Caused by Intake Circulating Water Gate (Section 4OA3)
05000361/2007-005-00	LER	Loose Electrical Connection Results in Inoperable Pump Room Cooler (Section 4OA3)
05000361/2007-006-00 05000362/2007-006-00 05000361/2007-006-01 05000362/2007-006-01	LER	Loose Electrical Connection Results in One Train of Emergency Chilled Water (ECW) System Inoperable (Section 4OA3)
05000361/2008013-07 05000362/2008013-07	URI	Degraded Electrical Connections (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

NUMBER	TITLE	REVISION
SO23-13-8 ISS2	Severe Weather	7

Miscellaneous

NUMBER	TITLE	
UFSAR 2.3	Meteorology	NA
UFSAR 3.11	Environmental Design of Mechanical and Electrical Equipment	NA
UFSAR 9.2.6	Condensate Storage and Transfer System	NA

Section 1RO4: Equipment Alignment

Procedures

NUMBER	TITLE	REVISION
SO23-3-2.11	Spent Fuel Pool Operations	26
SO23-3-3.27.2	Surveillance Operating Instruction	19
SO23-2-8	Saltwater Cooling System Operation	32
SO23-2-8.1	Saltwater Cooling Removal and Returning to Service Evaluation	9
SO23-2-13.1	Diesel Generator Alignment	4

Nuclear Notifications

NUMBER
200657834

Drawings

NUMBER	TITLE	REVISION
40122A	Fuel Pool Cooling System	18
40122B	Fuel Pool Cooling System	25
40122C	Fuel Pool Cooling System	16
40122X	Fuel Pool Cooling System	5

Section 1RO5: Fire Protection

Procedures

NUMBER	TITLE	REVISION
SO23-XV-4.13	Control of Work and Storage Areas Within the Protected Area	5
SO23-XIII-4.13	Inspection for Control of Combustibles and Transient Fire Loads	1

Nuclear Notifications

NUMBER
200602405

Drawings

NUMBER	TITLE	REVISION
2-001A	Pre-Fire Plans	6
2-001	Pre-Fire Plans	4
2/3-019	Pre-Fire Plans	6
2/3-024	Pre-Fire Plans	6
2/3-020	Pre-Fire Plans	6
2/3-025	Pre-Fire Plans	5
2/3-023	Pre-Fire Plans	7

Section 1RO6: Flood Protection Measures

Procedures

NUMBER	TITLE	REVISION
SO23-V-8.3	External Corrosion and Aging Program	0

Miscellaneous

NUMBER	TITLE	NA
UFSAR 3.4	Water Level (Flood) Design	

Section 1RO8: In-service Inspection Activities

Procedures

NUMBER	TITLE	REVISION
SO23-XXXIII-8.16	Reactor Coolant System Alloy 600 Inspection	7
SO23-XXVII.3.5.1.1	IntraSpect Eddy Current Inspection of Vessel Head Penetration J-Welds and Tube OD Surfaces	7
SO23-XV-85	Boric Acid Corrosion Control Program (BACCP)	4
SO23-V-8.15	Containment Boric Acid Leak Inspection	2
SO123-IN-1	Inservice Inspection/Inservice Test Programs	8
S23-XVII-1.1	Inservice Inspection Program Maintenance	5
SO123-XV-50.CAP-2	SONGS Nuclear Notification Screening	3
PQS T4EN51	Non-RCS Alloy 600 Boric Acid Leakage Inspection and Evaluation	1
PQS T4EN52	RCS Alloy 600 Boric Acid Leakage Inspection and Evaluation	0
SO23-XXVII-20.48	Liquid Penetrant Examination	2
SO23-XXVII-33.14	Procedure for the Phased Array Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds	1
SO23-XXVII-30.9	Ultrasonic Examination of Dissimilar Metal Piping Welds	2

Section 1RO8: In-service Inspection Activities

PDI-UT-10	PDI Generic Procedure for the Ultrasonic Examination of Dissimilar Metal Welds	C

Nuclear Notifications

NUMBER				
200599549	200599604	200599688	200599422	200599618
200599623	200629478	200618073	200633298	

Action Requests

NUMBER		
071200751	071200830	080401360

Miscellaneous

NUMBER	TITLE	REVISION / DATE
Letter from R J. St. Onge (SCE) to USNRC	Docket Nos. 50-361 and 50-362 Revision 1 to Third Ten-Year Inservice Inspection (151) Interval Relief Request 151-3-29 Inspection of Reactor Vessel Head Control Element Drive Mechanism Nozzles San Onofre Nuclear Generating Station Units 2 and 3	October 2, 2009
Letter from R J. St. Onge (SCE) to USNRC	“Docket Nos. 50-361 and 50-362 Third Ten-Year Inservice Inspection (151) Interval Relief Request 151-3-30 Inspection of Reactor Vessel Head In-Core Instrument Nozzles San Onofre Nuclear Generating Station Units 2 and 3	October 2, 2009
Letter from J. Spanner (EPRI) to M. McDevitt (SC&E)	CRDM/CEDM Qualifications	October 2, 2009
Code Case N-729-1	Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds Section XI Division 1	March 28, 2006

Section 1RO8: In-service Inspection Activities

Code Case N-722-1	Additional Examinations for PWR Pressure Retaining Welds in Class 1 Components Fabricated With Alloy 600/82/182 Materials Section XI Division 1	July 5, 2005
MRP 2008-066	Letter from J. Hagan (EPRI) to MRP Technical Advisory Group Primary System Piping Butt Weld Inspection and Evaluation Guideline (MRP-139 Revision 1)	December 17, 2008
MRP 2009-031	Letter from J. Hagan (EPRI) to MRP Technical Advisory Group MRP-139 Revision 1 Interim Guidance on Reconciliation of BMV Requirements with Code Case N-722 (Mandatory Element)	June 8, 2009
WR2-08-203	Weld Record for S2-1208-ML-003 (2TSH9205)	0
PQR-68	Manual Welding of Austenitic Stainless Steel Materials	January 3, 1985
PQR-5	Manual Gas Tungsten Arc Welding of Stainless Steel Material	June 28, 1984
WPS 8-GT	Manual GTAW of P-Number 8 Austenitic Stainless Steel Alloys using IN308L/ER308L or IN316LI/ER316L Filler Metals	September 13, 1998
PQR 08-08-TS-001		0
PQR-08-08-TS-002		0
WPS 08-08-TS-001		4
107294-TR-253	WSI Traveler Replacement of Check Valve MU 021	0
Phased Array Ultrasonic Examination Record	SONGS U2 Hot Leg Surge	January 11, 2009
02-008-002	SONGS ISI Ultrasonic Calibration/Examination	October 6, 2009

Section 1RO8: In-service Inspection Activities

	Report Safe End to Elbow Weld	
209-16PT-001	Liquid Penetrant Examination Report	September 16, 2009
209-16PT-002	Liquid Penetrant Examination Report	September 16, 2009
209-16PT-003	Liquid Penetrant Examination Report	September 17, 2009
209-16PT-004	Liquid Penetrant Examination Report	September 17, 2009
209-16PT-005	Liquid Penetrant Examination Report	September 18, 2009
209-16PT-006	Liquid Penetrant Examination Report	September 18, 2009
209-16PT-007	Liquid Penetrant Examination Report	September 18, 2009
209-16PT-008	Liquid Penetrant Examination Report	September 18, 2009
209-16PT-009	Liquid Penetrant Examination Report	September 18, 2009
209-16PT-010	Liquid Penetrant Examination Report	September 21, 2009
209-16PT-011	Liquid Penetrant Examination Report	September 22, 2009
209-16PT-013	Liquid Penetrant Examination Report	October 20, 2009

Section 1R11: Licensed Operator Requalification Program

Procedures

NUMBER	TITLE	REVISION
SO23-3-2.22	Engineered Safety Features Actuation System Operation	18

Miscellaneous

NUMBER	TITLE	REVISION
RS09C7	2009 Cycle 7b Simulator Summary	0

Section 1R12: Maintenance Effectiveness

Procedures

NUMBER	TITLE	REVISION
SO123-XV-5.3	Maintenance Rule Program	11

Nuclear Notifications

NUMBER				
200457220	200463358	200458378	200704606	200457220
200669151	200695875	200696832	200692595	

Maintenance Orders

NUMBER			
800321529	800321436	800410821	800318576

Miscellaneous

NUMBER	TITLE	REVISION / DATE
3rd Quarter 2009	SONGS System Health Reports	0
AR 030500466	SONGS Operational Experience Reviews	May 9, 2003
EDGS	SONGS 3rd Quarter EDGS System Health Report	September 21, 2009
MJ7058	Personnel Qualification Standard – Advanced Soldering	2
MT7058	Lesson Plan – Advanced Soldering	2

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

Procedures

NUMBER	TITLE	REVISION
SO123-I-1.13	NUREG 0612 Cranes, Rigging and Lifting Controls	17
SO23-1-3.3	Reactor Vessel Head Removal and Storage	13
SO123-1-7.14	Maintenance and Inspection of Cranes	10

Nuclear Notifications

NUMBER				
200394201	200628904	200648805	200648807	200641130
200615912	200701778			

Maintenance Orders

NUMBER			
WCA 700002477	NMO 800251432	NECP 800175646	NECP 800072640
NECP 800130487			

Drawings

NUMBER	TITLE	REVISION
23156-3	Containment Interior Structure Inserts	0
21015	Underground Utilities Protection Plan and Sections	8
25211-002	Unit 2 Service Crane/Runway Erection and Load Drop Zones	0
716029 SH1	Unit 2 Safe Load Path	4

Calculations

NUMBER	TITLE	REVISION

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

25221-000-COC-7100-00011	Outside Lift System and Erection and Collapse Load Drop Effects	0

Miscellaneous

NUMBER	TITLE	REVISION
DID 4a	Defense in Depth Sheet 4a	1
R2C16	Probabilistic Risk Assessment Group Recommendations	0
Risk Matrix Analysis-PMP	480V transformer addition project	0
WCCP 15000	Reactor Head Lift	0

Section 1R15: Operability Evaluations

Procedures

NUMBER	TITLE	REVISION
SO123-XV-5	Nonconforming Materials, Parts, or Components	19
SO123-XV-52	Functionality Assessments and Operability Determinations	13
SO123-0-A3	Procedure Use	8
SO23-3-2.11.1	SFP Level Change and Purification Crosstie Operations	14
SO23-13-2	Shutdown from Outside the Control Room	12
SO123-XV-52	Functionality Assessments and Operability Determination	14
SO23-3-3.23	Diesel Generator Monthly and Semi-Annual Testing	43
SO123-XX-19	Operational Decision Making	4

Nuclear Notifications

NUMBER				
200645996	200643134	200695732	200692347	200691509
200682817	200689450	200683165	200683974	200689450
200683739	200704606	200457220	200702905	200695875
200696832	200669151	200700917		

Drawings

NUMBER	TITLE
835878	3000 Amp Jump Assembly
835879	Jump Assemblies 75 to 350 MVA

Calculations

NUMBER	TITLE	REVISION
J-KJA-012	Diesel Generator Low Lube Oil Level Alarm Setpoint	1

Maintenance Orders

NUMBER
800410821

Section 1R18: Plant Modifications

Procedures

NUMBER	TITLE	REVISION
P-2902-28	Hydraulic Life Device Load Test	0
P-2902-26	Temporary Handling Device Load Tet	0

Nuclear Notifications

NUMBER	
200638659	200634389

Maintenance Orders

NUMBER
NECP 800072651

Drawings

NUMBER	TITLE	REVISION
SO23-617-3B-D53	Temporary Handling Device	0
SO23-617-3B-D563	Load Test Hydraulic Lifter and Details	0

Calculations

NUMBER	TITLE	REVISION / DATE
SO23-617-1-C995	Evaluation for Replacement Steam Generator (RSG) Pedestal Skirt Bolt Hole Enlargement and Stud Deletion	0

Section 1R19: Postmaintenance Testing

Procedures

NUMBER	TITLE	REVISION
SO23-6-32	Electrical Bus Outages	16
SO23-6-2	Transferring of 4KV Buses	15
SO23-3-3.27.2	Weekly Electrical Bus Surveillance	19
SO23-3-3.23	Diesel Generator Monthly and Semi-Annual Testing	43

Nuclear Notifications

NUMBER				
200638791	200657834	200402124	200695875	200696832
200669151	200700917			

Maintenance Orders

NUMBER				
800397782	WCD 30003055	WCA 70002397	800256628	800410821
800429930	800430174	800130487	800404685	

Drawings

NUMBER	TITLE	REVISION
30162	480 Volt Motor Control Center 2BY	35
30216	Elementary Diagram Electrical Auxiliary 4.16KV Bus 2A06 Tie Breaker	21
30299 Sheet 2	Elementary Diagram Electrical Auxiliary 4.16KV Bus 2A06 Metering	20
30220 Sheet 1	Elementary Diagram Electrical Auxiliary 4.16KV Bus 2A06 Metering	15

Miscellaneous

NUMBER	TITLE	DATE
Letter From Gary Segich to Lou Bosch	Impact of U2 LOVS Relay Work on U3 Safety Busses	December 4, 2009

Section 1R20: Refueling and Other Outage Activities

Procedures

NUMBER	TITLE	REVISION / DATE
SO23-X-7	Refueling Operations	19
SO123-I-1.43	Maintenance Human Performance Application	9
25221-PP-63	Tendon Replacement Methodology Demonstration Program	0

Section 1R20: Refueling and Other Outage Activities

SO23-3-3.23 Attachment 8	AC Sources Verification (Modes 5, 6, and Defueled)	41
SO23-3-1.7	Aligning the Oil Lift Pump(s) and/or ARRD Pump(s) Power Supplies	35
P-2502-30	Runway and Outside Lift System Installation and Removal Program	
Specification 240	Steam Generator Skirt Flange Bolts- Preload Evaluation	September 30, 1980
SO123-XV-23.1	Housekeeping	4
SGRPP-SO123-G-1	Event Response Plan	1
SO23-X-7.2	Nuclear Fuel Management – Spent Fuel Pool	18
SO23-5-1.8.1	Shutdown Nuclear Safety	23
SO23-I-6.155	Containment Equipment Access Hatch Operation	9

Nuclear Notifications

NUMBER

200616238	200637174	200626409	2000633500	200616724
200620113	200611066	200606500	200613762	200619631

Maintenance Orders

NUMBER

800257416	800221379	800280086	800229724	800279989
800221369	800251355	800251357	800251354	800251435
800257416	8000313756			

Drawings

NUMBER	TITLE	REVISION
23056	Containment Structure Wall Liner and Installation	0
SO23-915-45	Steam Generator Support Installation	5
41276	Area CA10 drain 50' Elevation plans	8

Work Control Activities/Documents

NUMBER				
30003180	30003055	70001551	30002002	30002007
700002478	30002398	30001921	30003180	

Calculations

NUMBER	TITLE	REVISION / DATE
25221-PP-05	Bechtel Project Plan Containment Opening Plan	2
M-120.09	Flooding Analysis	April 20, 1977

Miscellaneous

NUMBER	TITLE	REVISION
WPIR WCN 25221-002-CON-3050-20114	Chipping and Cutting for the Containment Construction Hole	0
WPIR WCN 25221-002-COP-0058-00106	Preassembly Erection and Disassembly of inside runway	
WPIR WCN 25221-002-MOP-7057-0882	Steam Generator Replacement 89 Whip Restraint Removal	

Section 1R22: Surveillance Testing

Section 1R22: Surveillance Testing

Procedures

NUMBER	TITLE	REVISION
SO23-5-1.1	Heat Treating the Circulating Water System	23
SO23-13-10	Loss of Condenser Vacuum	8
SO23-V-3.4	Engineering Procedure Inservice tests	18
SO23-3-3.60.6	Surveillance Operating Instruction Inservice test	16
SO23-3-3.51	Containment Penetration Leak Rate Testing	7
SO23-3-3.51.8	Containment Penetration Leak Rate Testing Air System Penetrations	9
SO23-3-3.23	Diesel Generator Monthly Testing	41
SO123-0-A4	Diesel Generator Starts	12
SO23-3-3.60.7	Containment Spray Pump 3MP-012 Group B Inservice Test	12
2JQ203B	Local Leak Rate Testing (LLRT) Qualification Guide	1
2JQ101G	Inservice Pump Testing Qualification Guide	1

Nuclear Notifications

NUMBER		
200598566	200615026	200616518

Drawings

NUMBER	TITLE	REVISION
41061	AFW 2P504 Pump Curve	2

Miscellaneous

NUMBER	TITLE	DATE
Penetration 21	Test Data Sheet	October 8, 2009

Section 1EP1: Exercise Evaluation

Procedures

NUMBER	TITLE	REVISION
SO123-VIII-1	Recognition and Classification of Emergencies	28
SO123-VIII-10	Emergency Coordinator Duties	25-1
SO123-VIII-10.1	Station Emergency Director Duties	18-1
SO123-VIII-10.2	Corporate Emergency Director Duties	14-1
SO123-VIII-10.3	Protective Action Recommendations	12
SO123-VIII-30.3	OSC Operations Coordinator Duties	6
SO123-VIII-30.7	Emergency Notifications	11
SO123-VIII-40.100	Dose Assessment	13

Section 1EP6: Drill Evaluation

Miscellaneous

NUMBER	TITLE	REVISION
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	5

Section 2OS1: Access Controls to Radiologically Significant Areas

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

TITLE
HPD U2C16 Refuel Outage 30 Day Self-Assessment

Procedures

NUMBER	TITLE	REVISION
SO123-VII-20.6	External Occupational Exposure Monitoring	9
SO123-VII-20.9	Radiological Surveys	9
SO123-VII-20.10.2	Health Physics Pre-Job Briefings/Pre-job Meetings	5
SO123-VII-20.11	Access Control Program	12
SO123-VII-20.11.1	Radiological Posting	10

Nuclear Notifications

NUMBER			
200530881	200596501	200623393	200625730

Radiation Work Permits

NUMBER	TITLE
800211520	Perform ISI Inspections in U2C16 outage
800211882	Regenerative Heat Exchanger
A0216090013	2SGRP - RCS Piping Work
A0216090015	2SGRP – RCS Pipe End Decon

Section 2OS2: ALARA Planning and Controls

Procedures

NUMBER	TITLE	REVISION
SO123-VII-20.10	Radiological Work Planning and Controls	14

Section 2OS2: ALARA Planning and Controls

SO123-VII-20.4 ALARA Program

Miscellaneous

NUMBER	TITLE	REVISION
	R2C16 Outage ALARA Plan	0

Section 4OA1: Performance Indicator Verification

Procedures

NUMBER	TITLE	REVISION
SO123-VIII-1	Recognition and Classification of Emergencies	26, 27, 28
SO123-VIII-10.3	Protective Action Recommendations	11, 12
SO123-VII-30.7	Emergency Notifications	10, 11

Drills and Exercises

NUMBER	TITLE	DATE
0905	Emergency Plan Drill	August 19, 2009
0904	ERO Restructure	June 24, 2009
0903	Environmental	April 8, 2009
0902	Assembly	March 17, 2009
0901	Backshift	January 6-12, 2009
0812	Contaminated Injury	November 19, 2008

Section 4OA1: Performance Indicator Verification

0806	Environmental	October 8, 2008
0805	INPO Visit	September 17, 2008
0804	Proficiency	August 27, 2008
0803	Hostile Action Drill	May 7, 2008
0802	Hostile Action Table Top	April 23, 2008
0801	Mini-Drill	April 2, 2008
0702	Emergency Plan Exercise	April 18, 2007
0701	Emergency Plan Drill	March 14, 2007
0502	Emergency Plan Exercise	April 13, 2005
0501	Emergency Plan Drill	March 9, 2005

Miscellaneous

NUMBER	TITLE	REVISION
	San Onofre Nuclear Generating Station Emergency Plan	25, 26
SA-1	Self Assessment Program	5
VIII-0.202	Assignment of Emergency Response Personnel	10
XII-2.7	Reporting of Quality Trends	3-2
XV-50	Corrective Action Program	12
XV-50.CAP-2	SONGS Nuclear Notification Screening	2

Section 4OA1: Performance Indicator Verification

XV-50.CAP-3	Corrective Action Program Evaluations and Action Plans	1
SO123-XXI-1.11.3	Emergency Plan Training Program Description	20, 21

Section 4OA2: Identification and Resolution of Problems

Procedures

NUMBER	TITLE	REVISION / DATE
SO123-0-A1	Conduct of Operations	26
SO23-XVII-3.2.1	Class 2 System Leakage Test of the Chemical and Volume Control System	4

Nuclear Notifications

NUMBER

200685073	200614441	200683697	200683767	200683165
200682817	200687365	200120199	200129036	200175511
200007225	200211509	200231399	200252142	200253424
200278159	200226143	200278221	200278222	200027824
200278227	200336666	200345873	200352006	200356782
200357504	200370464	200417017	200444208	200444284
200456915	200459256	200462583	200498500	200501123
200535198	200544102	200552330	200597585	

Action requests

NUMBER		
011200984	950600074	

Drawings

S3-1219-ML-057	From RWT T006 to Line 007	10

Maintenance Orders

800415935	800415909	800416417

Miscellaneous

NUMBER	TITLE	REVISION / DATE
Document 90463	Unit 2 and 3 Schedule 10, Stainless Steel Piping Inspection and Repair Plan	0
RCE 92-018	Corrosion of Stainless Steel Piping in the FFCPD System Sluice Water Inlet Line	June 19, 1992
Failure Analysis Report 96-001	Failure Analysis of BAMU Line Cracking	February 1, 1996

Section 4OA3: Event Follow-Up

Procedures

NUMBER	TITLE	REVISION / DATE
LER 05000361/2007-005-00	Loose Electrical Connection Results in Inoperable Pump Room Cooler	October 16, 2008
LER 05000361/2008-005-00	Missed SR for Mode Change	July 30, 2008
LER 05000361;05000362/2008-007-00	Failed to Comply with Completion Time for SR 3.8.1.1	November 14, 2008
SO123-0-A4	Configuration Control	12

Section 4OA3: Event Follow-Up

SO123-XV-HU-1	Human Performance Program	3
SO123-0-A1	Conduct of Operations	25
SO23-6-33	Ground Isolation	6
SO23-5.1.1	Heat Treating the Circulating Water System	22
SO23-13-10	Loss of Condenser Vacuum	8
OSM-6	Operations Department Human Performance Tools	8
SO123-0-A1	Conduct of Operations	24
SO123-XV-HU-1	Human Performance Program	2
OSM-12	Operator Fundamentals	9
SO123-XV-1.41	Control of Ignition Sources	13
SO23-2-8	Saltwater Cooling System Operation	32
SO23-13-7	Loss of Cooling Water/Saltwater Cooling	14

Nuclear Notifications

NUMBER

200638837	200638791	200638786	200648875	200626763
200638641	200636533	200100730	200666537	20067114

Section 4OA3: Event Follow-Up

200704617	200580999	200718204	200572373	200601793
200602881	200619437	200602213	200614395	200618783
200602881	200617708			

Action Requests

NUMBER
070300033

Miscellaneous

NUMBER	TITLE
	Personnel Statements
	Control Room Logs
45564	Event Log