



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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ARLINGTON, TEXAS 76011-4125

November 18, 2011

John T. Conway
Senior Vice President and
Chief Nuclear Officer
Pacific Gas and Electric Company
77 Beale Street, B32
San Francisco, CA 94105

Subject: DIABLO CANYON POWER PLANT - NRC INTEGRATED INSPECTION
REPORT 05000275/2011004 AND 05000323/2011004

Dear Mr. Conway:

On September 25, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Diablo Canyon Power Plant. The enclosed integrated inspection report documents the inspection findings, which were discussed on September 23, 2011, with Mr. James Becker, Site Vice President 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.

Based on the results of this inspection, the NRC has identified five issues that were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has determined that violations are associated with these issues. Additionally, two 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 were entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section 2.3.2 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 Diablo Canyon Power Plant. In addition, if you disagree with the crosscutting aspect assigned to 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

Pacific Gas and Electric Company - 2 -

disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at the Diablo Canyon Power Plant.

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/

Geoffrey B. Miller, Chief
Project Branch B
Division of Reactor Projects

Docket: 50-0275
50-0323

License: DPR-80
DPR-82

Enclosure:

NRC Inspection Report 05000275/2011004 and 05000323/2011004
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000275, 05000323

License: DPR-80, DPR-82

Report: 05000275/2011004
05000323/2011004

Licensee: Pacific Gas and Electric Company

Facility: Diablo Canyon Power Plant, Units 1 and 2

Location: 7 ½ miles NW of Avila Beach
Avila Beach, California

Dates: June 27 through September 25, 2011

Inspectors: M. Peck, Senior Resident Inspector
L. Micewski, Resident Inspector
C. Osterholtz, Senior Operations Engineer
E. Ruesch, Reactor Engineer
D. Reinert, Reactor Inspector
G. Guerra, Certified Health Physicist, Emergency Preparedness Inspector

Approved By: G. B Miller, Chief, Project Branch B
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000275/2011004, 05000323/2011004; 6/27/2011 – 9/25/2011; Diablo Canyon Power Plant, Integrated Resident and Regional Report; Fire Protection; Equipment Alignments; Event Follow-up; Identification and Resolution of Problems; Emergency Plan.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by regional based inspectors. Five Green noncited violations of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The crosscutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Crosscutting Areas." 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: Mitigating Systems

- Green. The inspectors identified a noncited violation of Diablo Canyon Facility Operating License Condition 2.C (4), "Fire Protection," after the licensee failed to maintain the integrity of a fire barrier. On July 21, 2011, the inspectors identified that Fire Door B43-2, entrance to the Residual Heat Removal Pump Room 2-2, was inoperable. Equipment Control Guideline 18.7, "Fire Rated Assemblies," required the licensee to maintain the fire barrier in the rated configuration or establish prescribed compensatory actions. The door was held open due to Auxiliary Building ventilation flow balance problems. The ventilation problems had affected the fire door since January 12, 2011. The inspectors performed an extent of condition evaluation and identified eight additional fire doors impacted by the flow balance problems. The licensee took immediate action to restore the fire door to the rated condition and entered the problem into the corrective action programs as Notification 50416374.

The inspectors concluded that the failure of the licensee to maintain a fire door in the rated configuration was a performance deficiency. This finding was more than minor because the degraded fire barrier affected the Mitigating Systems Cornerstone external factors attribute objective to prevent undesirable consequences due to fire. The inspectors concluded that the finding was of very low safety significance (Green) because the licensee had maintained an automatic full area water-based fire suppression system in the exposed fire area. This finding had a crosscutting aspect in the area of problem identification and resolution, associated with the corrective action program component, because the licensee did not take timely corrective actions to correct Auxiliary Building ventilation flow balance issues [P.1(d)]. (Section 1R05)

- Green. The inspectors identified a noncited violation of Diablo Canyon Facility Operating License Condition 2.C (4), "Fire Protection," after the licensee failed to identify and correct the failure to perform required surveillance testing on fire-

rated assemblies. On August 16, 2011, the inspectors identified that the licensee had not performed Equipment Control Guideline 18.7, "Fire Rated Assemblies," surveillance testing on Fire Door 329-2, entrance to the 125VDC Battery 2-1 Room, and Fire Door 332-2, entrance to the 125VDC Battery 2-2 Room, within the required frequency. The inspectors also identified that both fire doors were degraded and did not meet the surveillance acceptance criteria. The licensee implemented the required compensatory actions for both fire doors and entered this finding into the corrective action program as Notification 50409975.

The inspectors concluded that the failure of the licensee to perform required surveillance tests on fire-rated assemblies was a performance deficiency. This finding was more than minor because the degraded fire barrier affected the Mitigating Systems Cornerstone external factors attribute objective to prevent undesirable consequences due to fire. The inspectors concluded that the finding was of very low safety significance (Green) because the exposed fire areas did not contain any potential damage targets unique from those in the exposing fire area. This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee did not adequately prioritize and perform an extent of condition review of previous problems associated with excluding fire barriers from the Equipment Control Guideline requirements [P.1(c)]. (Section 1R05)

Cornerstone: Barrier Integrity

- Green. The inspectors identified a Green noncited violation of Technical Specification 5.5.19, "Control Room Envelope Habitability Program," after the licensee failed to maintain the Unit 1 control room ventilation train in the design configuration. The inspectors identified that Unit 1 control room ventilation system was in a degraded/non-conforming condition on August 31, 2011. The inspectors observed airflow bypassing the control room inlet header through disconnected ductwork. Technical Specification 5.5.19 required the licensee to maintain the habitability system in the most limited configuration used during the tracer gas in-leakage test. The disconnected ductwork was a more limiting condition than the tested configuration. The licensee took corrective action to declare the control room envelope inoperable and entered the finding into the corrective action program as Notification 50425114.

The inspectors determined that the failure of the licensee to maintain the control room habitability system in the design configuration was a performance deficiency. This finding was more than minor because it was associated with the configuration control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance for the control room physical design to protect from radionuclide releases caused by accidents or events. The inspectors concluded that the finding was of very low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the control room. This finding had a crosscutting aspect in the area of human performance associated with work control in that the licensee failed to appropriately plan work activities consistent with nuclear safety [H.3(a)]. (Section 1R04)

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Procedures," after operations personnel conducted a reactivity manipulation during shift turnover. Procedure OP1.ID3, "Reactivity Management Program," required plant operators to suspend reactivity manipulations during shift turnover. On March 27, 2011, plant operators conducted a continuous dilution during shift turnover. The licensee entered this condition into the corrective action program as Notification 50407054.

The inspectors concluded that the failure of operations personnel to follow Procedure OP1.ID3 was a performance deficiency. The finding was more than minor because the performance deficiency was associated with the procedure adherence area of the human performance attribute of the barrier integrity cornerstone and affected the objective to provide reasonable assurance that design barriers will protect the public from radionuclide releases. The inspectors concluded that the finding was of very low safety significance (Green) because only the fuel barrier was affected by the performance deficiency. The finding has a crosscutting aspect in the area of human performance, associated with work practices component, because the licensee failed to define and effectively communicate expectations regarding procedural compliance [H.4(b)]. (Section 4OA2)

Cornerstone: Emergency Preparedness

- Green. A noncited violation of 10 CFR 50.47(b)(10) was identified for the licensee's failure to ensure a range of protective actions is available for emergency workers during emergencies. Specifically, an operator filled an on-shift emergency response organization watch position with expired self-contained breathing apparatus respiratory protection qualifications. The licensee has entered this issue into the corrective action program as Notification 50420127.

The failure to ensure that an emergency response organization on-shift watch stander was respiratory protection qualified is a performance deficiency. This finding is greater than minor because it affects the emergency response organization readiness attribute of the emergency preparedness cornerstone to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The finding is of very low safety significance because it was not a loss of a planning standard function. The finding had a human performance crosscutting aspect of conservative assumptions under the decision making component because the licensee did not ensure that personnel filling the minimum shift staffing emergency response organization positions were qualified to take the watch [H.1(b)]. (Section 1EP5)

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 corrective action tracking numbers are listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

Diablo Canyon Units 1 and 2 were both operating at full power at the beginning of the inspection period. Plant operators reduced both units to 50 percent power on September 2, 2011 after ocean debris fouled the condenser cooling system. The licensee cleared the debris affecting Unit 2 and returned the unit to full power on September 3, 2011. The licensee subsequently cleared the debris affecting Unit 1 and returned the unit to full power on September 7, 2011. The licensee operated both units at power full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R04 Equipment Alignments (71111.04)

Partial Walkdown

a. Inspection Scope

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

- Unit 1, Component Cooling Water Train 1-2, July 7, 2011
- Unit 2, Control Room ventilation train, July 12, 2011
- Unit 1, Auxiliary Feedwater Train 1-3, July 14, 2011
- Unit 1, Vital Battery Charger 1-2, August 8, 2011
- Unit 1, Control Room ventilation train, August 30, 2011
- Unit 1, Containment Spray Train 1-2, September 20, 2011

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, Facility Safety Analysis Report Update (FSARU), 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 inspected 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 six partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

(1) Failure to Maintain the Control Room Habitability System in the Design Configuration

Introduction. The inspectors identified a green noncited violation of Technical Specification 5.5.19, "Control Room Envelope Habitability Program," after the licensee failed to maintain the Unit 1 control room ventilation system in the design configuration.

Description. On August 30, 2011, the inspectors observed that the discharge ductwork connecting Supply Fan S-36 to the control room discharge header was physically removed. The supply fan inlet and discharge dampers were closed and the licensee had placed sheet metal covers over the open ductwork. Each cover was held in place with temporary spring loaded clamping devices. The inspectors observed airflow from the operating supply fan bypassing the control room discharge header around gaps in the covers. The bypass flow potentially affected the ventilation flow balance and the capability of the system to pressurize the control room envelope. Pressurization of the envelope was required for the system ability to perform the specified safety function to limit post-accident operator radiation exposure to less than 5 rem equivalent.

The inspectors identified that the basis for Technical Specification 3.7.10, "Control Room Ventilation System," stated that each ventilation train is operable when the ductwork is operable and when unfiltered air into the envelope will not exceed the in-leakage assumed in the licensing basis dose analysis. The safety analysis assumed each ventilation train was capable of pressurizing the control room envelope to 0.125 inches water gauge, preventing any in-leakage of radiological material into envelope (except through temporarily open doors). Technical Specification 5.5.19 required that the licensee test each ventilation train in accordance with Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0. Regulatory Guide 1.197 required the licensee to have performed integrity testing in the configuration that resulted in the greatest consequence to the operators. The inspectors determined that the licensee had not performed integrity testing with the supply fan ductwork removed and flow bypassing the control room discharge header. Technical Specification 5.5.19 required the licensee to maintain the control room envelope in the design configuration used during the Regulatory Guide 1.197 testing.

Analysis. The inspectors determined that the failure of the licensee to maintain the control room habitability system in the design configuration was a performance deficiency. This performance deficiency was more than minor because it was associated with the configuration control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance for the control room physical design to protect from radionuclide releases caused by accidents or events. Using the Inspection Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors concluded that the finding was of very low safety significance because the finding only represented a degradation of the radiological barrier function provided for the control room. This finding had a

crosscutting aspect in the area of human performance associated with work control in that the licensee failed to appropriately plan work activities consistent with nuclear safety [H.3(a)].

Enforcement. Technical Specification 5.5.19, "Control Room Envelope Habitability Program," required Pacific Gas and Electric to maintain the control room envelope boundary in its design condition, including configuration control and preventative maintenance. Contrary to the above, the licensee failed to maintain the control room envelope boundary in its design condition between August 20, 2011 and September 13, 2011. Because this finding is of very low safety significance and was entered into the corrective action program as Notification 50425114, this violation is being treated as a noncited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV, 05000275; 323/2011004-01, "Failure to Maintain the Control Room Habitability System in the Design Configuration."

(2) Inconsistent Control Room In-Leakage Tests Results Reported to the NRC

Introduction. The inspectors identified that control room in-leakage tests results submitted by Pacific Gas and Electric in response to NRC Generic Letter 2003-01, "Control Room Habitability," were inconsistent with plant testing records.

Description. The inspectors identified that Pacific Gas and Electric provided the NRC control room envelope in-leakage test results that were inconsistent with plant testing records. Generic Letter 2003-01, "Control Room Habitability," requested that the licensee verify that the most limiting unfiltered in-leakage into the control room envelope was no more than the value assumed in the design basis radiological analyses. The Diablo Canyon radiological analyses assumed zero in-leakage into the envelope and concluded that operators would receive the 5 rem equivalent regulatory limit established by General Design Criteria 19, "Control Room." In response to the Generic Letter, the licensee performed "Control Room Habitability Tracer Gas Leak Testing of the Diablo Canyon Power Plant," in January 2005. The licensee reported to the NRC that the test resulted in no unfiltered in-leakage (Pacific Gas and Electric Letter DCL-05-042, April 22, 2005, "Control Room Envelope In-Leakage Test Results Relative to Generic Letter 2003-01, Control Room Habitability"); however, the available documentation of the actual test results did not provide a valid technical basis for this conclusion.

On December 26, 2007, Pacific Gas and Electric submitted License Amendment Request 07-03 (Letter DCL-07-144, "Revision to Technical Specification 3.7.10, Control Room Ventilation System") to the NRC for approval. The licensee's technical justification included the successful tracer gas test conducted in January 2005. On December 23, 2008, the NRC approved the request as Licensee Amendments 201 and 202. These amendments established License Condition C.12 for control room ventilation, Technical Specification 5.5.19, "Control Room Envelope Habitability Program," and modified Technical Specification 3.7.10, "Control Room Ventilation System." NRC approval was based, in part, on the licensee's statement that measured unfiltered air in-leakage was less than or equal to the in-leakage value assumed in the control room dose analysis.

On September 12, 2011, the licensee declared the control room envelope inoperable. The licensee plans to re-perform the in-leakage tracer gas test in November 2011. This issue is unresolved pending additional NRC review of the control room in-leakage test results: Unresolved Item 05000275; 05000323/2011004-02, "Inconsistent Control Room In-Leakage Tests Results Reported to the NRC."

1R05 Fire Protection (71111.05)

.1 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:

- Fire Area 3-Q-1, Unit 1 Turbine Drive Auxiliary Feedwater Pump 1-1, July 14, 2011
- Fire Area 3-D-1, Unit 2, Residual Heat Removal Pump and Heater Room, July 21 and July 26, 2011
- Fire Area 7-A, Unit 1, Cable Spreading Room, July 28, 2011
- Fire Areas 6-B-1, 6-B-2 and 6-B-3, Unit 2 Battery, Inverter, and DC Switchgear Rooms, August 9, 2011

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 four quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

(1) Failure to Maintain a Fire Barrier

Introduction. The inspectors identified a Green noncited violation of Diablo Canyon Unit 2 Facility Operating License Condition 2.C (4), "Fire Protection," after the licensee failed to maintain the fire door to the Unit 2 residual heat removal pump 2-2 room in the rated condition.

Description. The inspectors identified that Fire Door B43-2, Residual Heat Removal Pump Room 2-2, was inoperable on July 21, 2011. Equipment Control Guideline 18.7, "Fire Rated Assemblies," required the licensee to maintain the fire door in a configuration that would provide a 1½-hour rated barrier or establish compensatory actions. The inspectors identified that the door was prevented from self latching in the fully closed position due to differential air pressure from the ventilation system. Engagement of the latch was required to hold the door closed to meet the fire barrier requirements. The door was posted that the latch must be engaged manually due to ventilation flow balance problems. The door had been impaired by ventilation problems since January 12, 2011. The inspectors performed an extent of condition evaluation and identified that Fire Doors B20, B19, B28, B20-2, B19-2, 175, 182-2, and B-39-2 were also impacted by Auxiliary Building ventilation flow balance problems. The licensee entered the problem into the corrective action program as Notification 50416374 and took immediate action to restore Fire Door B43-2 to the rated condition. The inspectors concluded the most significant contributor to the finding was the failure of the licensee to take timely corrective action to correct the Auxiliary Building ventilation flow balance problems.

Analysis. The failure of the licensee to maintain Fire Door B43-2 in the rated configuration was a performance deficiency. This finding was more than minor because the degraded fire barrier affected the Mitigating Systems Cornerstone external factors attribute objective to prevent undesirable consequences due to fire. The inspectors used the Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," to analyze this finding. The inspectors determined that the inoperable door was a fire confinement category finding and that the fire barrier was moderately degraded because the unlatched door would not perform the rated function. The inspectors concluded that the finding was of very low safety significance (Green) because a non-degraded automatic full area water-based fire suppression system was in the exposed fire area. This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee did not take timely corrective actions after identifying the door was degraded by the Auxiliary Building ventilation problems [P.1(d)].

Enforcement. Diablo Canyon Unit 2 Facility Operating License Condition 2.C.(4), "Fire Protection," required Pacific Gas and Electric to implement and maintain all provisions of the approved fire protection plan as described by the FSARU. FSARU, Appendix 9.5a, "Fire Hazards Analysis," and Equipment Control Guideline 18.7, required that the licensee maintain Fire Door B43-2 as an operable fire area barrier or to implement compensatory actions. Contrary to the above, on July 21, 2011, the inspectors identified that plant personnel failed to maintain Door B43-2 as an operable fire barrier or to

implement compensatory actions. Because this finding was of very low safety significance and was entered into the corrective action program as Notification 50416374, this violation is being treated as a noncited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000323/2011004-03, "Failure to Maintain a Fire Barrier."

(2) Failure to Perform Required Fire Barrier Surveillance Testing

Introduction. The inspectors identified a Green noncited violation of Diablo Canyon Unit 2 Facility Operating License Condition 2.C (4), "Fire Protection," after the licensee failed to identify and correct the failure to perform required surveillance testing on all fire rated assemblies.

Description. On August 16, 2011, the inspectors identified that the licensee failed to perform surveillance testing on Fire Door 329-2, entrance to the 125 VDC Battery 2-1 Room, and Fire Door 332-2, entrance to the 125VDC Battery 2-2 Room, as required by Equipment Control Guideline 18.7 "Fire Rated Assemblies." The inspectors identified that neither of these fire doors met surveillance acceptance criteria. Fire Door 329 was unlatched and Fire Door 332-2 had a degraded self-closing mechanism. The licensee only performed Equipment Control Guideline surveillance testing on doors needed to support the 10 CFR Part 50, Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," safe shutdown analysis. However, FSARU, Appendix 9.5A, "Fire Hazards Analysis," and Appendix 9.5H, "Inspection and Testing Requirements and Program Administration," required the Equipment Control Guideline surveillances also be performed on all fire doors needed to ensure that fires would be confined to or prevented from spreading to adjacent fire areas/zones and that safety-related equipment is protected from high fire hazards as stated in Branch Technical Position 9.5-1, Appendix A. On August 29, 2011, the licensee concluded that several categories of fire doors were excluded from the Equipment Control Guidelines Surveillance Program. The licensee performed the fire-rated assembly surveillance tests on all 228 plant fire doors that had not been previously designated as Appendix R doors. The licensee identified that 18 of these doors did not meet the acceptance criteria and 12 of these doors had been modified from the original rated configuration. The licensee implemented Equipment Control Guideline compensatory actions for those doors that did not meet the surveillance acceptance criteria. The licensee entered this finding into the corrective action program and continues to evaluate which fire doors are required to be included into the Equipment Control Guidelines Surveillance Program.

The inspectors concluded that a less than adequate extent of condition review of a previous problem was the most significant contributor to the finding. The inspectors previously identified that the licensee had improperly excluded the safety injection pump room doors (Fire Doors 175 and 182-2) from the Equipment Control Guideline requirements (discussed as NCV 05000275; 05000323/2011003-01, "Inadequate Fire Hazard Evaluations"). In May 2011, the licensee entered this condition into the corrective action program as Notification 50409975. The licensee planned to complete a review of the problem by the end of 2011. However, the inspectors concluded that the licensee did not adequately prioritize the review of this problem based on the one hour Equipment Control Guideline Action time to establish compensatory measures for a degraded fire barrier. The inspectors performed an extent

of condition review of the previous problem by comparing the last completed Equipment Control Guideline fire door surveillance with the testing scope defined in the FSARU, Appendices 9.5A and 9.5H.

Analysis. The failure of the licensee to perform required Equipment Control Guideline surveillance tests on fire-rated assemblies was a performance deficiency. This finding is more than minor because the degraded fire barrier affected the Mitigating Systems Cornerstone external factors attribute objective to prevent undesirable consequences due to fire. The inspectors used the Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," to analyze this finding. The inspectors determined that the inoperable doors resulted in a fire confinement category finding and that the fire barriers were moderately degraded because the door would not perform the rated function. The inspectors concluded that the finding was of very low safety significance (Green) because the exposed fire area contained no potential damage targets that are unique from those in the exposing fire area. This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee did not adequately prioritize and perform an extent of condition review following identification of missed surveillances on Doors 175 and 182-2 [P.1(c)].

Enforcement. Diablo Canyon Unit 2 Facility Operating License Condition C.(4), "Fire Protection," required Pacific Gas and Electric to implement and maintain all provisions of the approved fire protection plan as described by the FSARU. FSARU, Appendix 9.5B, requires, in part, that compliance to Guideline 8, "Corrective Action," in Appendix A to Branch Technical Position (BTP) APCSB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976," is met as committed. Branch Technical Position APCSB 9.5-1 C, Guideline 8, "Corrective Action," required, in part, that measures be established to assure that conditions adverse to fire protection, such as failures, malfunctions, deficiencies, deviations, defective components, uncontrolled combustible material, and nonconformances are promptly identified, reported, and corrected. Contrary to the above, from May 5 to August 29, 2011, the measures established by the licensee failed to assure that a condition adverse to fire protection was promptly identified, reported and corrected. Specifically, the licensee failed to identify and correct the failure to perform the required surveillance testing on Fire Doors 329-2 and 332-2. Because this finding was of very low safety significance and was entered into the corrective action program as Notification 50424061, this violation is being treated as a noncited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000323/2011004-04, "Failure to Perform Surveillances on Fire Barriers."

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On September 12, 2011, the inspectors observed fire brigade activation for a simulated inverter fire in the turbine building. The observation evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were (1) proper wearing of

turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of preplanned strategies; (9) adherence to the preplanned drill scenario; and (10) drill objectives.

These activities constitute completion of one annual fire-protection inspection sample as defined in Inspection Procedure 71111.05A-02.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

Quarterly Review

a. Inspection Scope

On August 2, 2011, the inspectors observed a crew of licensed operators in the plant's simulator 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 preestablished operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- Units 1 and 2, Containment fan cooling units
- Unit 1, Diesel generator fire protection

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

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

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

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

b. Findings

No findings were identified.

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:

- Emergency Diesel Generator 1-2 planned maintenance work window, July 25, 2011
- Risk Assessment 11-10, Revision 0, Work Week 1115 Special Evaluation for Testing Diesel Generators Outside of Technical Specification Required Parameter
- Risk Assessment 11-14, Assessment of Single Component MOW Configuration with an Elevated Bases Risk Due to Unit 1/Unit 2 PORV, Revision 0
- Risk Assessment SR30311-01, SR 0.3 Acceptable Delay Time for Missed Fire Barrier Surveillances, August 31, 2011
- Special risk assessment for Auxiliary Saltwater Pump 1-1 out of service on August 6, 2011

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 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 four maintenance risk assessments and one emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

.1 Routine Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- Notification 50407050, Auxiliary Feedwater Pump 2-1 “as found” speed out of band during testing, July 21, 2011
- Notification 50419581, Component Cooling Water Pump 1-2 small fragments of material in motor bearing oiler, August 8, 2011
- Notification 50419592, Auxiliary Feedwater Pump 1-1 bearing oiler has water contamination, August 9, 2011

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 FSARU with the licensee personnel’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 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 three operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04.

b. Findings

No findings 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:

- Preventive maintenance of Residual Heat Removal Pump 2-2, Unit 2, July 19, 2011

- Preventive and corrective maintenance of Emergency Diesel Generator 1-1, Unit 1, July 20 2011
- Preventive and corrective maintenance of Train B, Auxiliary Building Ventilation, Unit 2, July 21, 2011
- Rebuild of Auxiliary Building Exhaust Damper VAC-2-M-8A, Unit 2, July 22, 2011

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 FSARU, 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 four postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the FSARU, procedure requirements, and technical specifications to ensure that the 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 7, 2011, Unit 1, Routine surveillance test of Component Cooling Water Pump 1-1
- July 11, 2011, Routine surveillance test of the spent fuel storage cooling vents
- July 19, 2011, Unit 1, Routine surveillance test of Diesel Generator 1-1
- July 22, 2011, Units 1 and 2, Routine surveillance test of the auxiliary building ventilation
- July 23, 2011, Unit 2, Inservice test of Containment Isolation Valves FCV-662 and FCV-663
- August 17, 2011, Unit 2, Inservice test of Safety Injection Pump 2-2

- September 14, 2011, Units 1 and 2, Routine surveillance test of reactor coolant system leakage

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

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

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert Notification System Testing (71114.02)

a. Inspection Scope

The inspectors discussed with licensee staff the operability of offsite siren emergency warning system to determine the adequacy of licensee methods for testing the alert and notification system in accordance with 10 CFR Part 50, Appendix E. The licensee's alert and notification system testing program was compared with criteria in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1; FEMA Report REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants"; and the licensee's current FEMA-approved alert and notification system design report dated August 13, 2010, Revision 0. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.02-05.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors discussed with licensee staff the operability of primary and backup systems for augmenting the on-shift emergency response staff to determine the adequacy of licensee methods for staffing emergency response facilities in accordance with the emergency plan. The inspectors reviewed the documents and references listed in the attachment to this report, to evaluate the licensee's ability to staff the emergency response facilities in accordance with the licensee's emergency plan and the requirements of 10 CFR Part 50, Appendix E. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.03-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors performed an on-site review of Emergency Procedure EP G-1, "Accident Classification and Emergency Plan Activation," Revision 9. This revision implemented the removal of the gross failed fuel detector from the approved emergency action level scheme on June 17, 1988. The licensee's evaluation for the removal of the detector determined that it did not constitute an unreviewed safety question. The removal of this detector is currently acceptable because the NRC approved the licensee's current Emergency Action Level scheme on December 31, 2007. On December 31, 2007, the licensee received an SER approving the implementation of the Nuclear Energy Institute Report 99-01, "Emergency Action Level Methodology," Revision 4. Under this approval the gross failed fuel detector was no longer included for the detection of failed fuel and sampling is the approved method of detection. No event occurred between June 17, 1988 and December 31, 2007, requiring the gross failed fuel detector.

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

These activities constitute completion of one sample as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program requirements in Procedure OM7.ID1, "Problem Identification and Resolution," Revision 38. The inspectors reviewed summaries of corrective action program documents assigned to the emergency preparedness department and emergency response organization between December 2009 and July 2011, and selected 32 for detailed review against the program

requirements. The inspectors evaluated the response to the corrective action requests to determine the licensee's ability to identify, evaluate, and correct problems in accordance with the licensee program requirements, planning standard 10 CFR 50.47(b)(14), and 10 CFR Part 50, Appendix E. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.05-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR 50.47(b)(10) for the licensee's failure to ensure a range of protective actions is available for emergency workers during emergencies. Specifically, an operator filled an on-shift emergency response organization watch position with expired self-contained breathing apparatus respiratory protection qualifications.

Description. On August 7 through 9, 2011, an operator filled an on-shift emergency response organization position for three consecutive shifts with expired self-contained breathing apparatus respiratory protection qualifications. The licensee did not ensure the operator obtained the proper requalification training, an action that did not provide the emergency worker the full range of available protective actions as specified in 10 CFR 50.47(b)(10). Although the licensee was aware that the operator's respiratory qualification had expired, the operator's supervisor determined that the licensee met its Technical Specification minimum complement of qualified operators and considered that the minimum emergency response organization complement did not require respiratory qualification. The Diablo Canyon Technical Specification required number of operators is less than the Emergency Plan required number of operators. The licensee's determination was in error because the required minimum of emergency response organization on-shift staff personnel is required in order to respond to all emergencies and therefore requires that staffed positions be fully qualified for their response functions. The licensee has entered this issue into the corrective action system as Notification 50420127.

Analysis. The failure to ensure that an emergency response organization on-shift watch stander was respiratory protection qualified is a performance deficiency. This finding is greater than minor because it affects the emergency response organization readiness attribute of the emergency preparedness cornerstone to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. This finding was evaluated using the Emergency Preparedness Significance Determination Process and was determined to be of very low safety significance (Green) because it was not a loss of a planning standard function. The finding had a human performance crosscutting aspect of conservative assumptions under the decision making component because the licensee did not ensure that personnel filling the minimum shift staffing emergency response organization positions were qualified to take the watch [H.1(b)].

Enforcement. 10 CFR 50.47(b)(10) states in part, that a range of protective actions has been developed for emergency workers. Contrary to the above, on August 7 through 9,

the range of protective actions available to emergency workers was reduced. Specifically, a reactor operator filled an on-shift emergency response organization position with expired respiratory qualifications. Because this failure is of very low safety significance and has been entered into the licensee's corrective action program as Notification 50420127, this violation is being treated as a noncited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000275; 05000323/2011004-05, "Failure to Ensure Emergency Response Organization Qualifications."

4. OTHER ACTIVITIES

40A1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the second quarter 2011 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 were identified.

.2 Mitigating Systems Performance Index - Heat Removal System (MS08)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - heat removal system performance indicator for Diablo Canyon Units 1 and 2 for the period from the second quarter 2010 through the second quarter 2011. 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 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of July 2010 through June 2011 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Residual Heat Removal System (MS09)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - residual heat removal system performance indicator for Diablo Canyon Units 1 and 2 for the period from the second quarter 2010 through the second quarter 2011. 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 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 2010 through June 2011 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Cooling Water Systems (MS10)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - cooling water systems performance indicator for Diablo Canyon Units 1 and 2 for the period from the second quarter 2010 through the second quarter 2011. 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 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 2010 through June 2011 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous

inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

.5 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill and Exercise performance indicator for the period from the 3rd quarter 2010 through the 2nd quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator; assessments of performance indicator opportunities during predesignated control room simulator training sessions, performance during the 2010 biennial exercise, and performance during other drills. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the drill/exercise performance sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.6 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspectors sampled licensee submittals for the Emergency Response Organization Drill Participation performance indicator for the period from the 3rd quarter 2010 through the 2nd quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately

reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator, rosters of personnel assigned to key emergency response organization positions, and exercise participation records. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the emergency response organization drill participation sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.7 Alert and Notification System

a. Inspection Scope

The inspectors sampled licensee submittals for the Alert and Notification System performance indicator for the period from the third quarter 2010 through the second quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator and the results of periodic alert notification system operability tests. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the alert and notification system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings 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 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 were identified.

.3 Selected Issue Follow-up Inspections

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors selected four corrective action items for review:

- Notification 50403597, Residual Heat Removal Snubber 74-29SL was bound
- Notification 50424714, Unit 1 control room ventilation system in an unanalyzed condition

- Notification 50426278, Self-Declaration of Fatigue Per Fitness For Duty Rule
- Notification 50407345, Reactivity Manipulations During Turnover

The inspectors considered the following, as applicable, 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; (6) identification of corrective action; and (7) completion of corrective actions in a timely manner.

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

b. Findings

Failure to Follow a Procedural Requirement for Reactivity Manipulation

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, after operations personnel conducted a reactivity manipulation during shift turnover.

Description. Reactor operators conducted a continuous reactor coolant system boron dilution during shift turnover on March 27, 2011. Procedure OP1.ID3, "Reactivity Management Program," Revision 8, Section 5.2, required plant operators to suspend reactivity manipulations during shift turnover. This requirement minimized activities that may distract the operator at the controls during reactivity manipulations. The licensee entered this condition into the corrective action program as Notification 50407054. The inspectors concluded that the failure of the Operations Department to effectively communicate expectations regarding procedural compliance and personnel following procedures was the most significant contributor to the finding.

Analysis. The inspectors concluded that the failure to follow Procedure OP1.ID3 during a reactivity manipulation was a performance deficiency. The finding was more than minor because it was associated with the procedure adherence area of the human performance attribute of the barrier integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that fuel cladding physical barrier would protect the public from radionuclide releases by accidents or events. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheets, the finding was of very low safety significance (Green) because it only affected the fuel barrier under the barrier integrity cornerstone. The finding had a crosscutting aspect in the area of human performance associated with work practices because the licensee did not define and effectively communicate expectations regarding procedural compliance and personnel did not follow procedures [H.4(b)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," required that activities affecting quality be accomplished in accordance with written procedures. Procedure OP1.ID3, Section 5.2.9 required that watch station

turnover of the operator at the controls shall be suspended if reactivity manipulation is required during the turnover. Contrary to the above, watch station turnover of the operator at the controls was not suspended while reactivity manipulation was performed during the turnover on March 27, 2011. Because the finding was of very low safety significance and has been entered into the licensee's corrective action program as Notification 50407345, this violation is being treated as a noncited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000323/2011004-06, "Failure to Follow a Procedural Requirement for Reactivity Manipulation."

.4 Focused Review of the Substantive Crosscutting Issue in Problem Identification and Resolution

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 the substantive crosscutting issue associated with the licensee's ability to thoroughly evaluate problems such that the resolutions address causes and extent of conditions, P.1.(c) (see Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas," dated February 23, 2010, Section 06.02). Additionally, the inspectors assessed safety culture, reviewed the licensee's safety culture improvement plan, and conducted focus group interviews with 35 plant personnel. The safety culture inspection was conducted in accordance with NRC Inspection Procedure 40100, "Independent Safety Culture Inspection Follow-up," dated April 5, 2011. The inspectors discussed performance improvement initiatives with licensee representatives, and performed an in-depth review of two root cause analyses and four apparent cause analyses. The inspectors also reviewed multiple plant procedures and documents listed in an attachment to this report.

These activities constitute completion of one in-depth problem identification and resolution sample as defined in Inspection Procedure 71152-01.05.

b. Observations and Findings

No findings were identified. Overall, the licensee's recovery plan appeared to address the appropriate deficiencies necessary for performance improvement. However, the inspectors noted that many of the plan's initiatives had not been in place for a sufficient time to ensure that their intended goals would be met. Also, the inspectors noted that a gap existed in the implementation of the licensee's corrective actions to address deficiencies they identified in their root cause analysis. Specifically, the inspectors could identify no corrective actions addressing the portion of the root cause statement associated with the extended leadership team effectively demonstrating or reinforcing behaviors among the staff. This observation was supported by the results of the most recent safety culture survey administered by the licensee and by the results of the focus group interviews conducted by the inspectors. The licensee acknowledged this gap and, entered it into the corrective action program as Notification 50414913.

During focus group interviews, the majority of personnel participating indicated that communications between senior management and staff could be improved, and that increased management visibility in the plant would be helpful. Most individuals that were

interviewed also indicated that supplemental training on the computer program used to generate nuclear notifications, Systems Application and Products (SAP), would be helpful. A majority of personnel indicated that they were disappointed that no formal feedback mechanism exists in the corrective action program to let them know the status of their nuclear safety concern (how it was being dispositioned and the decision making process behind the dispositioning). Additionally, most personnel interviewed felt that while they were aware of the Employee Concerns Program (ECP), they did not feel it was an entirely successful tool in fully evaluating individual nuclear safety concerns. An overwhelming majority of personnel interviewed indicated that they felt they could raise nuclear safety concerns without the fear of retaliation or intimidation. All personnel interviewed indicated that they remembered taking safety culture surveys, but only a small minority indicated they remembered receiving feedback on the results of the surveys or how the results were going to be addressed. The licensee entered the concerns identified during the focus group interviews in the corrective action program as Notifications 50414886 (management communications), 50414910 (SAP supplemental training), 50414889 (notification feedback), 50414887 (ECP concerns), and 50414888 (survey results).

4OA3 Event Follow-up (71153)

.1 (Closed) Licensee Event Report 05000275; 323/2010-002-02: Potential Loss of Safety-Related Pumps due to Degraded Voltage During Postulated Accidents

a. Inspection Scope

On March 9, 2010, Pacific Gas and Electric engineers identified that degraded voltage setpoints, specified by Technical Specification 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation," were inadequate to assure plant safety. Plant engineers determined that operating engineered safety feature pump motors were not adequately protected from overcurrent conditions by the degraded voltage protection scheme. On March 12, 2010, the licensee implemented administrative controls, as discussed in NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications that are Insufficient to Assure Plant Safety," to raise the first level degraded voltage set-points. The licensee provided this licensee event report supplement to incorporate the results of the apparent cause evaluation and to expand on the assessment of safety consequences and planned corrective actions.

The inspectors concluded that the condition resulted in a violation of NRC requirements because the degraded voltage protection scheme and operating engineering safety feature pumps were inoperable for a period greater than permitted by plant technical specifications. This violation was dispositioned as NCV 05000323/2010007-06, "Second Level Undervoltage Relay Time Delay to Initiate Load Shed and Sequencing Upon the Diesel Generator is Adequate to Assure Plant Safety." The inspectors did not identify any additional violations associated with this Licensee Event Report. This Licensee Event Report is closed.

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report 05000275; 323/2010-003-01: Supplement to Diablo Canyon Power Plant 230kV Historical Evaluation of Condition Prohibited by Technical Specifications

a. Inspection Scope

On June 7, 2010, the licensee concluded that the preferred offsite power system was operated in a condition prohibited by technical specification between November 3 and November 7, 2008. As part of the extent of condition review, the licensee also identified that that 72-hour allowed technical specification outage time was exceeded between July 16 and July 27, 2007 and again between September 10 and September 15, 2007. The inspectors previously dispositioned these three events as noncited violation 05000275/2008005-03 and 05000323/2008005-03, "Operation of the 230 kV Offsite Power System Outside the Design Basis." This supplemental Licensee Event Report documents the licensee review of archived plant operating logs from 2005 to present, with no additional violations of NRC requirements were identified. This Licensee Event Report is closed.

b. Findings

No findings were identified.

.3 (Closed) Licensee Event Report 05000275/2011-004-00: Emergency Diesel Generators Actuated Upon 230 kV Isolation Due to Maintenance Activities on Relay Panel

a. Inspection Scope

On May 17, 2011, Diablo Canyon Power Plant Unit 1 lost the preferred source of offsite power when 230 kV startup power was inadvertently isolated due to modification activities. Pacific Gas and Electric was performing a modification that involved cutting an opening on the startup bus control panel using a reciprocating saw. The resulting mechanical vibration caused Unit 1 phase differential protection relay actuation and separated the startup bus from preferred offsite power. All three emergency diesel generators automatically started after offsite power was lost to the plant vital loads.

The inspectors concluded that the failure to adequately evaluate the impact of cutting activity in the vicinity of energized plant equipment was a performance deficiency. This issue was entered into the licensee's corrective action program as Notification 50402706. The inspectors dispositioned the issue as FIN 05000275/2011003, "Unplanned Loss of Preferred Offsite Power Due to Less than Adequate Work Planning." No violations of NRC requirements were identified. This Licensee Event Report is closed.

b. Findings

No findings were identified.

.4 (Closed) Licensee Event Report 05000275/2011-005-00: Emergency Diesel Generator Actuations Upon Loss of 230 kV Startup Due to Electrical Maintenance Testing Activities

a. Inspection Scope

On May 26 and 27, 2011, Diablo Canyon Power Plant Unit 1 lost 230 kV after technicians incorrectly installed test equipment on startup bus control circuitry during post-modification testing of Unit 2 230 kV electrical protection equipment. The Unit 1 phase differential protection relay actuated and separated the startup bus from preferred offsite power after the technician energized the test circuit. All three emergency diesel generators automatically started after offsite power was lost to the plant vital loads. Following these events, the licensee briefed employees on human performance tools to prevent recurrences, and implemented direct management oversight for the completion of the testing. The inspectors concluded that the failure of the plant technicians to follow post-modification testing work instructions was a performance deficiency. This finding was dispositioned as FIN 05000275/2011003-03; "Unplanned Loss of Preferred Offsite Power Due to the Failure to Follow Work Instructions". No violations of NRC requirements were identified. This Licensee Event Report is closed.

b. Findings

No findings were identified.

.5 (Closed) Licensee Event Report 05000275; 323/2011-002-00: Diablo Canyon Power Plant Units 1 and 2 Auxiliary Building Ventilation System Single Failure Vulnerability and Loss of Unit 2 Auxiliary Building Ventilation System

a. Inspection Scope

On January 11, 2011, Pacific Gas and Electric entered Technical Specification Limiting Condition of Operation 3.0.3 when both trains of auxiliary building ventilation system became inoperable following failure of a single damper in Train "A". The licensee was performing planned maintenance that caused the ventilation to automatically realign to different operational modes. During a mode transition, when damper M-4A failed to open on demand, the control logic tripped both exhaust fans, and remained faulted until it was reset by the operators. Prior to reset, the control logic would have prevented both exhaust fans from starting and would not have responded to an engineering safety features pump start or safety injection signal. The logic controllers were programmed and installed in November 2010 for Unit 1 and November 2009 for Unit 2. The failure of an auxiliary building ventilation damper was a safety system functional failure for both auxiliary building ventilation trains.

The inspectors concluded that the licensee performed a less than adequate review to identify the single point vulnerability during the modification review process. This issue was entered into the licensee's corrective action program as Notification 50370698. This violation was dispositioned as NCV 05000275/2011002-04 and 05000323/2011002-04, "Inadequate Design Control for the Auxiliary Building Ventilation System Control Panel Modification." No additional violations were identified. This Licensee Event Report is closed.

b. Findings

No findings were identified.

.6 (Closed) Licensee Event Report 05000323/2011-001-00: Unit 2 Reactor Trip From Loss of Main Feedwater Pump 2-1

a. Inspection Scope

On March 26, 2011, plant operators manually initiated a Unit 2 reactor trip following the loss of a main feedwater pump. The main feedwater pump tripped automatically after its control console was sprayed by water leakage from a nearby feedwater heater relief valve. Pacific Gas and Electric determined the cause of the event to be a failed gasket for the relief valve due to inadequate bolt torquing practices for fasteners using sheet-type gasket material. As a result, flange gasket preload had been inconsistently applied. The licensee took corrective action to revise the bolt torquing procedure to provide bolt torquing specifications for bolted connections. The Unit 2 shutdown was normal and as expected following the manual reactor trip. The reactor trip breakers opened and all control rods and shutdown rods inserted as designed. The post trip transient response was as expected.

The inspectors did not identify any violations of NRC requirements. This Licensee Event Report is closed.

b. Findings

No findings were identified.

.7 Loss of Control Room Habitability Envelope Integrity Due to a Maintenance Error

a. Inspection Scope

The inspectors used Inspection Procedure 71153, "Followup of Events and Notices of Enforcement Discretion," to review personnel performance following the unplanned loss of the control room habitability envelope on August 29, 2011.

b. Findings

A licensee identified violation associated with this event is documented in Section 40A7 of this report.

40A5 Other Activities

.1 NRC Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter 2008-01)"

a. Inspection Scope

The inspectors evaluated whether the licensee maintained documents, installed system hardware, and implemented actions that were consistent with the information provided in response to NRC Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems." Specifically, the inspectors verified that the licensee has implemented or was in the process of

implementing the commitments, modifications, and programmatically controlled actions described in the response to Generic Letter 2008-01. The inspectors conducted their review in accordance with Temporary Instruction 2515/177 and considered the site-specific supplemental information provided by the Office of Nuclear Reactor Regulation to the inspectors.

b. Inspection Documentation

The inspectors reviewed the licensing basis, design, testing, and corrective actions as specified in the temporary instruction. The specific items reviewed and any resulting observations are documented below.

Licensing Basis. The inspectors reviewed selected portions of licensing basis documents to verify that they were consistent with the NRR assessment report and that the licensee properly processed any required changes. The inspectors reviewed selected portions of technical specifications, technical specification bases, and the updated final safety analysis report. The inspectors also verified that applicable documents that described the plant and plant operation, such as calculations, piping and instrumentation diagrams, procedures, and corrective action program documents addressed the areas of concern and were changed, if needed, following plant changes. The inspectors confirmed that the licensee performed surveillance tests at the frequency required by the technical specifications. The inspectors verified that the licensee tracked the commitment to evaluate and implement any changes that will be contained in the technical specification task force traveler.

Design. The inspectors reviewed selected design documents, performed system walkdowns, and interviewed plant personnel to verify that the licensee addressed design and operating characteristics. Specifically:

- The inspectors verified that the licensee had identified the applicable gas intrusion mechanisms for their plant.
- The inspectors verified that the licensee had established void acceptance criteria consistent with the void acceptance criteria identified by the Office of Nuclear Reactor Regulation. The inspectors also confirmed that the range of flow conditions evaluated by the licensee was consistent with the full range of design basis events and expected flow rates for various break sizes and locations.
- The inspectors selectively reviewed applicable documents, including calculations and engineering evaluations, with respect to gas accumulation in the emergency core cooling systems, decay heat removal, and containment spray systems. Specifically, the inspectors verified that these documents addressed venting requirements, aspects where pipes were normally voided such as some containment spray piping inside containment, void control during maintenance activities, and the potential for vortex effects that could ingest gas into the systems during design basis events.
- The inspectors conducted a walkdown of selected regions of the emergency core cooling systems in sufficient detail to assess the licensee's walkdowns. The

inspectors completed a full system alignment inspection of the Unit 2 containment spray system in an earlier inspection period. This additional activity counted towards the completion of this temporary instruction and was documented in Inspection Report 05000275/2011003; 05000323/2011003. The inspectors also verified that the information obtained during the licensee's walkdown was consistent with the items identified during the inspectors' independent walkdown. The inspectors will be conducting a similar system alignment inspection during the next Unit 1 refueling outage.

- The inspectors verified that piping and instrumentation diagrams and isometric drawings that describe the residual heat removal and safety injection system configurations. The review of the selected portions of isometric drawings considered the following:
 - (1) High point vents were identified.
 - (2) High points without vents were recognizable.
 - (3) Other areas where gas could accumulate and potentially impact operability, such as at orifices in horizontal pipes, isolated branch lines, heat exchangers, improperly sloped piping, and under closed valves, were described in the drawings or in referenced documentation.
 - (4) Horizontal pipe centerline elevation deviations and pipe slopes in nominally horizontal lines that exceed specified criteria were identified.
 - (5) All pipes and fittings were clearly shown.
 - (6) The drawings were up-to-date with respect to recent hardware changes, and that any discrepancies between as-built configurations and the drawings were documented and entered into the corrective action program for resolution.

- The inspectors verified that the licensee had completed the walkdowns and selectively verified that the licensee identified discrepant conditions in the corrective action program and appropriately modified affected procedures and training documents.

Testing. The inspectors reviewed selected surveillance, post-modification test, and post-maintenance test procedures and results implemented during power and shutdown operations to verify that the licensee had approved and was using the procedures that appropriately addressed gas accumulation and/or intrusion into the subject systems. This review included the verification of procedures used for conducting surveillances and determination of void volumes to ensure that the void criteria were satisfied and will be reasonably ensure to be satisfied until the next scheduled void surveillance. Also, the inspectors reviewed procedures used for filling and venting following conditions that may have introduced voids into the subject systems to verify that the procedures addressed testing for such voids and provided processes for the reduction or elimination. The inspectors reviewed the performance of the Unit 2 emergency core cooling system void

surveillance in an earlier inspection period. This additional activity counted towards the completion of this temporary instruction and was documented in Inspection Report 05000275/2011003; 05000323/2011003. The inspectors will be conducting a similar inspection of the licensee's surveillance procedures for managing gas accumulation during the next Unit 1 refueling outage.

Corrective Actions. The inspectors reviewed the selected actions from the February 2011 assessment review and sampled other corrective action program documents to assess how effectively the licensee addressed the issues in the corrective action program associated with Generic Letter 2008-01. In addition, the inspectors verified that the licensee implemented appropriate corrective actions for selected issues identified in the nine-month and supplemental responses. The inspectors determined that the licensee had effectively implemented the actions required by Generic Letter 2008-01.

Based on this review, the inspectors concluded that there is reasonable assurance that the licensee will complete all outstanding items and incorporate this information into the design basis and operational practices. This temporary instruction will remain open pending the completion of the additional inspection activities described above during the next Unit 1 refueling outage and will be closed in a later inspection report.

c. Findings

No findings were identified.

40A6 Meetings

Exit Meeting Summary

On June 30, 2011, the inspectors presented the inspection results on NRC Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter 2008-01)" to Mr. K. Peters, Vice President, Engineering and Projects, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

On July 15, 2011, the inspectors presented the problem identification and resolution focused baseline inspection results to Mr. J. Becker, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On August 11 and September 15, 2011, the inspectors presented the onsite emergency preparedness inspection results to Mr. J. Becker, and other members of the licensee's staff. The licensee's management acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On September 22, 2011, the inspectors presented the inspection results to Mr. J. Becker, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

40A7 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.

Failure to Maintain the Control Room Ventilation System in Design Configuration

Diablo Canyon Power Plant Technical Specification 3.7.10, "Control Room Ventilation System (CRVS)", required two CRVS trains to be operable. Contrary to this, the licensee failed to maintain the control room ventilation system in the design configuration. On August 29, 2011 plant operators identified that the integrity of the control room habitability envelope had been lost after maintenance personnel erroneously removed a blank flange supporting maintenance on the Unit 2 ventilation system inlet isolation dampers. This condition could have prevented fulfillment of the control room to meet the safety function to provide adequate radiation protection to prevent the occupants from exceeding 5 rem whole body (equivalent) radiation exposure for the duration of an accident. The operators identified that the boundary was inoperable and entered Technical Specification 3.7.10-B.1 and took corrective action to reinstall the blank flange to restore integrity of the control room envelope. The performance deficiency was more than minor because it was similar to example 4.a, in Manual Chapter 0612, Appendix E, "Examples of Minor Issues," because the inspectors concluded that the removal of the blank flange adversely affected safety-related equipment. The inspectors used Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," to analyze the finding. The inspectors concluded that the failure to maintain the operability of the control room ventilation system in accordance with Technical Specification 3.7.10, was a finding of very low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the control room. Pacific Gas and Electric entered the issue into the corrective action program as Notification 50427567 and 50428115.

Failure to Make a Required NRC Notification

Title 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," required the licensee to notify the NRC Operations Center within 8 hours after discovery of a non-emergency event as described in Paragraph (b)(3)(v). Paragraph (b)(3)(v) included any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident. Contrary to the above, the licensee failed to notify the NRC Operations Center within 8 hours after discovery of a condition that could have prevented the fulfillment of the safety function of structures and systems that are needed to mitigate the consequences of an accident. Specifically, on August 29, 2011 plant operators identified

that the integrity of the control room habitability envelope had been lost. The integrity of the envelope was lost earlier in the day after maintenance personnel erroneously removed a blank flange supporting maintenance on a ventilation system inlet isolation damper. The loss of envelope integrity could have prevented the system from meeting the safety function to limit radiation exposure to control room operators to less than 5 rem (dose equivalent) following an accident. The violation was screened as very low safety significance (Green) because the finding was not a design or qualification deficiency confirmed not to result in loss of operability or functionality, did not represent a loss of system safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The licensee entered the condition into the corrective action program as Notification 50424433 and made the required notification on August 30, 2011.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Becker, Site Vice President
K. Peters, Vice President, Engineering and Projects
J. Welsch, Station Director
J. Nimick, Director, Operations Services
S. David, Director, Site Services
T. Baldwin, Manager, Regulatory Services
P. Gerfen, Manager, Operations
M C. Harbor, Director, Maintenance
L. Walker, Director, Training
J. Summy, Director, Engineering
R. Burnside, Employee Concerns Program
M. Ginn, Manager, Emergency Preparedness

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000275; 05000323/2011004-02	URI	Inconsistent Control Room In-Leakage Test Results Reported to NRC (Section 1R04)
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Opened and Closed

05000275; 05000323/2011004-01	NCV	Failure to Maintain the Control Room Habitability System in the Design Configuration (Section 1R04)
05000323/2011004-03	NCV	Failure to Maintain a Fire Barrier (Section 1R05)
05000323/2011004-04	NCV	Failure to Perform Surveillances on Fire Barriers (Section 1R05)
05000275; 05000323/2011004-05	NCV	Failure to Ensure Emergency Response Organization Qualifications (Section 1EP5)
05000275; 05000323/2011004-06	NCV	Failure to Follow a Procedural Requirement for Reactivity Manipulation (Section 4OA2)

Closed

05000275/2010-002-02	LER	Potential Loss of Safety-Related Pumps due to Degraded Voltage During Postulated Accidents (Section 4OA3)
05000275/2010-003-01	LER	Supplement to Diablo Canyon Power Plant 230kV Historical Evaluation of Condition Prohibited by Technical Specifications (Section 4OA3)
05000275/2011-004-00	LER	Emergency Diesel Generators Actuated Upon 230 kV Isolation Due to Maintenance Activities on Relay Panel (Section 4OA3)
05000275/2011-005-00	LER	Emergency Diesel Generator Actuations Upon Loss of 230 kV Startup Due to Electrical Maintenance Testing Activities (Section 4OA3)
05000275; 05000323/2011-002-00	LER	Diablo Canyon Power Plant Units 1 & 2 Auxiliary Building Ventilation System Single Failure Vulnerability and Loss of Unit 2 Auxiliary Building Ventilation System
05000323/2011-001-00	LER	Unit 2 Reactor Trip From Loss of Main Feedwater Pump 2-1

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
DCM S-23F	Control Room HVAC System	17
	A-2	Attachment

DCM S-3B	Auxiliary Feedwater System	16
STP P-AFW-AM	Performance Test of Motor-driven Auxiliary Feed Pumps	

DRAWINGS

501184	Logic Diagram, Control Room Pressurization System, Unit 2, Train H	
501185	Logic Diagram, Control Room Pressurization System, Unit 2, Dampers & Fans	
102003/108003	Feedwater System	
102014	Component Cooling Water System	64
102023	Piping Schematic, Ventilation and Air Conditioning System Units 1 & 2	

Section 1R05: Fire Protection

NOTIFICATIONS

50416374	50420216	50420217	50424061
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DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
111906	Fire Protection Auxiliary Building El. 54' & 64'	1

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
INPOEOP2	Simulator Evaluation Guide, Large Break LOCA	July 2011

Section 1R12: Maintenance Effectiveness

NOTIFICATIONS

50369577	50344855	502777252
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DOCUMENTS

Maintenance Rule Expert Panel Meeting Minutes Meeting#176	7/21/2011
2011 Maintenance Rule Periodic Assessment	
Plant Health Committee Meeting Minutes, August 10, 2011	

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

NOTIFICATIONS

50419120

OTHER DOCUMENTS

1-TS-11-0524 Technical Specification Tracking Sheet, EDG 1-2 MOW 0

Section 1R15: Operability Evaluations

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STP P-AFW-PS21	Preservice Testing of Turbine-Driven Auxiliary Feedwater Pump 2-1	3
STP P-AFW-21	Routine Surveillance Test of Turbine-driven Auxiliary Feedwater Pump 2-1	23

NOTIFICATIONS

50407050 50419581 50419592

OTHER DOCUMENTS

Independent Assessment of the Diablo Canyon Power Plant Seismic Licensing Basis, Nuclear Safety Oversight Committee, May 20, 2011

Section 1R19: Postmaintenance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
MP E-57.10B	Generic 115 VAC and 480 VAC Motor Preventive Maintenance	15
STP P-RHR-22	Routine Surveillance Test of RHR Pump 2-2	21
STP M-9A	Diesel Engine Generator Routine Surveillance Test	88
STP M-4	Routine Surveillance Test of the Auxiliary Building Safeguards Air Filtration System	38
MP M-51.5	Testing and Maintenance of Safety/Relief Valves	24
MIP I-2.0 A 8.1	Instrument Tubing Inspection Report	2/22/05
MP M-56.23	Inspection Checklist – Gear Type Coupling	4/17/03
MP E-50.61	Basler Type BE1-27 Medium Inverse Undervoltage relay Maintenance	

MP E-50.62	Basler BE1-GPS100 Relay Maintenance	5
STP M-75H	Vital Bus H Undervoltage Relay Calibration	1
MP M-23.4	Corrective Maintenance of Plant ventilation Fans, associated Dampers and Filters	34
MP M-51.5	Testing and Maintenance of Safety/Relief valves	24
STP M-9E	Diesel Generator Trip Circuitry Bypass Verification	10
MP E-50.1	Testing of Individual Overload Relays	43
MP E-53.1B	Replacement Motor Inspection and Storage Requirements	2
MP M-21.10	Diesel Engine Precirc Lube Oil Pump Maintenance	10
MP E-53.1A	Generic Motor Swap	1
MP E-57.16	Transducer Recorder Sheet, Order 64023372	7/19/2011

NOTIFICATIONS

64041901	64040320	64040308	64040320	64040315
64023080	64008879	64047379	60038664	64040621
64040620	64040620	64040620	64044334	64070387
6400886	64023372	64041693	64040623	64017054
60033844	64018943	60029942	64062091	64008881
64039756	60031959	64016761	64016985	64016964
64016965	50416158			

Section 1R22: Surveillance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STP P-CCW-21	Inservice Testing of Component Cooling Water Pump 1-1	17
STP M-9A	Diesel Engine Generator Routine Surveillance Test	88
STP M-4	Routine Surveillance Test of the Auxiliary Building Safeguards Air Filtration System	38
STP P-SIP-22	Routine Surveillance Test of Safety Injection Pump 2-2	29
STP V-3T6	Exercising Containment Isolation Valves FCV-662 and FCV-664	13
STP M-236	Independent Spent Fuel Storage Cast Cooling Vents	2

Section 1EP2: Alert Notification System TestingPROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EP MT-43	Early Warning System Testing and Maintenance	11
	Diablo Canyon Alert and Notification System Design Report	8/13/2010
STP I-29	Emergency Signals and Communications Systems Function Test	40

Section 1EP3: Emergency Response Organization Augmentation TestingPROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EP G-2	Interim Emergency Response Organization	35
OM10.DC2	Emergency Response Organization On-Call	5
OM10.ID4	Emergency Response Organization Management	11

Section 1EP4: Emergency Action Level and Emergency Plan ChangesPROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
OM10.ID1	Maintaining Emergency Preparedness	9
EP G-1	Accident Classification and Emergency Plan Activation	8
EP G-1	Accident Classification and Emergency Plan Activation	9
DCL-89-287	Removal of the Gross Failed Fuel Detector System From Service	11/15/1989

Section 1EP5: Correction of Emergency Preparedness Weaknesses and DeficienciesPROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
SAPN 50419935	Diablo Canyon Pre-Inspection Readiness Assessment Report	
	Emergency Preparedness Program Assessment	4/15/2010
	Emergency Preparedness Program Assessment	5/23/2011

OM7.ID1 Problem Identification and Resolution 38

REPORTS

Quality Performance Assessment Reports

First Period 2010; Second Period 2010; Third Period 2010

First Period 2011; Second Period 2011

NOTIFICATIONS

50320497	50320635	50321351	50322557	50323122
50323306	50323311	50323799	50323805	50323853
50323885	50323903	50326473	50326492	50326493
50334783	50352155	50361145	50378480	50380222
50380505	50381259	50382399	50390216	50390230
50390744	50391765	50398156	50414231	50419397
50420427	50420534			

Section 4OA1: Performance Indicator Verification

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AWP EP-001	Emergency Preparedness Indicators	14

Section 4OA2: Identification and Resolution of Problems

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STP M-87	Operational Leak Inventory of ECCS Systems	17
OM7.ID1	Problem Identification and Resolution	39

Section 4OA3: Event Follow-up

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
MP M 55.3	PSA Functional Test data Evaluation Sheet	02/14/06
NDE VT 3-1	Visual examination of Components and Piping Support	2
STP M-78A	Snubber Visual Inspection	19

Section 4OA5: Other Activities

Temporary Instruction 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter 2008-01)"

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
STA-142	Allowable Void Volume at STP M-89 Vent Valve Locations	1
STA-278	RHR Pump Suction Void Header Sizing	0
STA-281	ECCS Injection Line Pressure Pulsation Evaluation	0
STA-089	Determination of Allowable ECCS Gas Void Volumes	3
STA-108	ECCS Pump Suction Void Criteria	1
DC 663216-66-1	Vortex Suppression and Vortex Potential of the Refueling, Condensate, and Fire Water Storage Tanks	June 1980

NOTIFICATIONS

50382184	50382446	50331732	50381356	50082312
50382482	50330618	50309040	50209045	50209047
50232853	50286011	50289916	50330618	50381356
50382184	50389441	50032542	A0463533	50032541
50032542	50038321	50038970	50040929	50042530
50042531	50072581	50080514	50082312	50082744
50082746	50119387	50126686	50411750	50411846
50037662	50400100	50271684	50323893	50311497
50304693				

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
224742	Residual Heat Removal System RHR Cross-Tie to Letdown Heat Exchanger	4
233032	ECCS Suction Void Header	1
446500	Residual Heat Removal Loop 4	8
446540	Containment Spray Suction and Discharge Header	16
446541	Residual Heat Removal Pumps Suction	26

446546	Safety Injection System Suction and Discharge	13
108012	Containment Spray System	27
108010	Residual Heat Removal System	28
102009	Safety Injection System	67

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ER1.ID3	Gas Intrusion Program	1
NDE UT-21	Ultrasonic Examination Procedure for Liquid Level Measurement	1
STP M-89	ECCS System Venting	45
PEP M-248	Unit 2 Ultrasonic Testing of ECCS Piping	7
OP AP-24	Shutdown LOCA	10
EOP E-1.3	Transfer to Cold Leg Recirculation	29
OP1.ID5	Verifications and Checks	4
OP2.ID1	Clearances	24
AD7.DC8	Work Control	36
OM7.ID1	Problem Identification and Resolution	38
OP B-2:XI	Dynamic Venting of the RHR Heat Exchangers	2
OP B-2:VII	Residual Heat Removal System – Fill and Vent	12
OP B-2:VII	Core Offload Window Systems Restoration	27
OP B-3A:1I	Safety Injection System – Make Pumps Available	13
MP I-2.8-1	DPU Instrument Valve Manipulation During Calibration and Sensing Line Filling	6
OP A-2:III	Reactor Vessel – Draining to Half Loop/Half Loop Operations with Fuel in Vessel	45

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
DCL-09-090	Nine-Month Response to NRC Generic Letter 2008-01, “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems”	10/14/2008
	STARS Gas Accumulation Self Assessment Action Plan	February 2011