



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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November 1, 2010

John T. Conway  
Senior Vice President and  
Chief Nuclear Officer  
Pacific Gas and Electric Company  
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Subject: DIABLO CANYON POWER PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000275/2010004 AND 05000323/2010004

Dear Mr. Conway:

On September 25, 2010, 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 22, 2010, 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.

This report documents five findings of very low safety significance (Green). Four of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violations or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the 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 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/**

Donald B. Allen, Chief  
Project Branch B  
Division of Reactor Projects

Docket: 50-275  
50-323  
License: DPR-80  
DPR-82

Enclosure:

NRC Inspection Report 05000/275/2010004 and 0500323/2010004  
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C:DRS/EB2	C:DRS/TSB	C:DRS/OB	C:DRP/B		
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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000275, 05000323

License: DPR-80, DPR-82

Report: 05000275/2010004  
05000323/2010004

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, 2010

Inspectors: M. Peck, Senior Resident Inspector  
M. Brown, Resident Inspector  
P. Elkmann, Senior Emergency Preparedness Inspector  
G. Guerra, CHP, Emergency Preparedness Inspector  
E. Schrader, Emergency Preparedness Specialist, NSIR

Approved By: D. Allen, Chief, Project Branch B  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000275/2010004, 05000323/2010004; 6/27/2010 – 9/25/2010; Diablo Canyon Power Plant, Integrated Resident and Regional Report; Fire Protection; Maintenance Risk Assessment and Emergent Work Control; Operability Evaluations.

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspection by regional based inspectors. Four Green noncited violations and one finding 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 the Diablo Canyon Facility Operating License Condition (5), "Fire Protection," after Pacific Gas and Electric failed to maintain the integrity of a fire door in the rated configuration. On August 19, 2010, the inspectors identified that Fire Door 223 was inoperable. Fire Door 223 was required to provide a 3-hour rated barrier between Fire Areas 5-A-4 and 5-B-4. A fire in either of these areas could have prevented operation of the auxiliary feedwater, auxiliary saltwater, or component cooling water pumps or steam generator level control from the remote shutdown panel. Equipment Control Guideline 18.7, "Fire Rated Assemblies," required the licensee to either maintain Fire Door 223 operable or implement compensatory actions within one hour. The inspectors concluded the most significant contributor to the finding was that licensee personnel did not identify and enter the degraded fire door into the Corrective Action Program. The licensee entered the performance deficiency associated with this finding into the corrective action program as Notification 50336901 and completed repairs to the door on August 23, 2010.

The inspectors concluded that the performance deficiency 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 determined that the inoperable door was a fire confinement category finding and that the fire barrier was moderately degraded because the door would not perform the rated fire barrier function. The inspectors concluded the finding was of very low safety significance because the degraded barrier would have provided a minimum of 20 minutes fire endurance protection and ignition sources and combustible materials were positioned that had a fire spread to secondary combustibles, the degraded barrier would not have been subject to direct flame impingement. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action

program component because the licensee did not implement a low threshold for identifying and entering issues into the Corrective Action Program [P.1(a)]. (Section 1R05)

- Green. The inspectors identified a finding after Pacific Gas and Electric failed to adequately manage risk during planned maintenance activity as required by Procedure AD7.DC6, "On-line Maintenance Risk Management." On April 5, 2010, work control personnel requested that plant operators simultaneously remove Auxiliary Saltwater Pump 2-2 and Component Cooling Water Heat Exchanger 2-2 from service for two scheduled maintenance activities. Plant operators identified that the combination of the auxiliary saltwater pump and component cooling water heat exchanger out of service at the same time would result in an elevated maintenance risk (Yellow). Procedure AD7.DC6, "On-line Maintenance Risk Management", Section 2.1, required that the licensee manage plant risk during on-line maintenance by minimizing the number of risk significant equipment simultaneously removed from service. The inspectors concluded that these two maintenance activities could have been performed in series rather than in parallel without affecting the duration either component was unavailable for maintenance. The licensee entered the performance deficiency into the corrective action program as Notification 50309451.

The inspectors determined that the performance deficiency is more than minor because the performance deficiency affected the Mitigating Systems Cornerstone attribute of human performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Also, the finding is similar to Example 7.e in Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," because the work scope unnecessarily placed the plant into a higher licensee-established risk category and required additional risk management actions. The inspectors concluded that the finding is of very low safety significance (Green) based on an actual incremental core damage probability deficit of less than  $1 \times 10^{-6}$  and an evaluation using Flowchart 1 of Appendix K of Inspection Manual Chapter 0609, "Maintenance Risk Assessment and Risk Management Significance Determination Process." This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee failed to implement adequate corrective actions to prevent unnecessarily entering elevated plant risk for the planned maintenance [P.1(d)]. (Section 1R13)

- Green. The inspectors identified a noncited violation of 10 CFR 50.65 after Pacific Gas and Electric failed to perform a risk assessment after plant conditions had changed. On July 13, 2010, Pacific Gas and Electric identified that station personnel failed to complete Technical Specification Surveillance Requirement 3.3.4.2, "Remote Shutdown System," within the specified frequency for both Units. As provided by Surveillance Requirement 3.0.3, the licensee performed a risk evaluation to extend the required surveillance completion time beyond twenty-four hours. The licensee initiated the missed surveillance tests and identified results were outside acceptance criteria. On July 26, 2010, Operations personnel declared several remote shutdown system functions inoperable because reasonable expectation no longer existed that remote

shutdown system could perform its safety function. Pacific Gas and Electric failed to reassess the effect on plant risk resulting from inoperable remote shutdown system functions before continuing with scheduled maintenance. A subsequent risk assessment concluded that plant risk was in a higher risk category due to planned maintenance activities conducted during this time frame. The licensee entered the performance deficiency into the corrective action program as Notification 50331841.

The inspectors determined that the performance deficiency is more than minor because the performance deficiency affected the Mitigating Systems Cornerstone attribute of human performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Also, the finding is similar to Example 7.e in Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," because the overall elevated plant risk would put the plant into a higher licensee-established risk category. The inspectors concluded that the finding is of very low safety significance (Green) based on an actual incremental core damage probability deficit of less than  $1 \times 10^{-6}$  and an evaluation using Flowchart 1 of Appendix K of Inspection Manual Chapter 0609, "Maintenance Risk Assessment and Risk Management Significance Determination Process." This finding had a crosscutting aspect in the area of human performance associated with the work practices component because the licensee failed to follow its maintenance risk procedure and reassess plant risk due to changing plant conditions [H.4(b)]. (Section 1R13)

- Green. The inspectors identified a noncited violation of 10 CFR 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," after Pacific Gas and Electric failed to promptly evaluate two nonconforming conditions for operability as required by Procedure OM7.ID12, "Operability Determination." The first example involved the failure of engineering personnel to promptly notify plant operations of the failure of the emergency diesel generators to meet licensing and design frequency and voltage recovery requirements. This issue was identified by the NRC on May 11, 2010 but not evaluated for the effect on diesel operability until September 9, 2010. The second example also involved the failure of engineering personnel to promptly notify plant operations to evaluate a nonconforming condition associated with a common cross-tie line that connected both auxiliary saltwater trains. This issue was identified by the NRC on July 22, 2010 but not evaluated for the effect on auxiliary saltwater operability until August 4, 2010. In both examples, engineering personnel failed to follow Procedure OM7.ID12, "Operability Determination," Section 5.1, which required any individual identifying a degraded or nonconforming condition that potentially impacts operability of a system, structure or component to ensure that operations shift management is informed. The licensee entered the performance deficiency associated with this finding into the corrective action program as Notifications 50340417 and 50335847.

The inspectors concluded that the performance deficiency is more than minor because the Mitigating Systems Cornerstone initial design control attribute and objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences were affected. The finding was of very low safety significance (Green) because neither of the



two examples was subsequently determined to result in the loss of operability or functionality. This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because Pacific Gas and Electric did not thoroughly evaluate the nonconforming conditions for operability [P.1(c)]. (Section 1R15)

- Green. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," involving the failure to maintain adequate design control measures associated with the auxiliary saltwater system. The inspectors identified that the auxiliary saltwater system design did not comply with the plant design bases as described in the Final Safety Analysis Report Update. Specifically, an auxiliary saltwater vent line did not meet the requirements established in General Design Criteria 1, "Quality Standards and Records," and Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants." The licensee entered the performance deficiency into the corrective action program as Notification 50328942.

This performance deficiency is greater than minor because the design control attribute of the mitigating systems cornerstone and the cornerstone's objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences were affected. Using the Significance Determination Process (SDP) Phase 1 Screening Worksheet for the Mitigating Systems Cornerstone, the inspectors concluded the finding was of very low significance (Green) because it was a design deficiency confirmed not to result in the loss of operability or functionality. The inspectors concluded that the finding does not have a crosscutting aspect since the performance deficiency is not reflective of current plant performance. (Section 1R15)

## REPORT DETAILS

### Summary of Plant Status

Pacific Gas and Electric Company operated Diablo Canyon Unit 1 and Unit 2 at full power for the duration of the inspection period.

#### 1. REACTOR SAFETY

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

#### 1R04 Equipment Alignments (71111.04)

##### Partial Equipment Walk-downs

##### a. Inspection Scope

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

- Unit 1, Auxiliary building ventilation, August 18, 2010
- Unit 1, Auxiliary feedwater system, September 1, 2010
- Unit 2, Safety injection system, September 2, 2010

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

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

##### b. Findings

No findings were identified.

## 1R05 Fire Protection (71111.05)

### Quarterly Fire Inspection Tours

#### a. Inspection Scope

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

- Fire Areas 30-A-3 and 30-A-4, Unit 2 auxiliary saltwater pump rooms, August 17, 2010
- Fire Area 30-A-5, Circulating water pump rooms, August 17, 2010
- Fire Areas 5-A-1, 5-A-2, 5-A-3, and 5-A-4 Unit 1 Vital 480 volt switchgear rooms, August 19, 2010
- Fire Areas 11-A-1, 11-A-2, 11-B-1, 11-B-2, 11-C-1, 11-C-2, 11-D, Unit 1 emergency diesel generator rooms, August 27, 2010
- Fire Areas 22-A-1, 22-A-2, 22-B-1, 22-B-2, 22-C-1, 22-C-2, 22-C, Unit 2 emergency diesel generator rooms, August 31, 2010

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

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

#### b. Findings

##### Failure to Identify a Degraded Fire Barrier

Introduction. The inspectors identified a Green noncited violation of Diablo Canyon Facility Operating License Condition (5), "Fire Protection," after Pacific Gas and Electric failed to maintain the integrity of Fire Door 223 in the rated condition.

Description. On August 19, 2010, the inspectors identified that Fire Door 223 was inoperable. Fire Door 223 was required to provide a 3-hour rated barrier between Fire Areas 5-A-4 and 5-B-4. A fire in either of these areas could have prevented the operation of the auxiliary feedwater, auxiliary saltwater, component cooling water pumps, or steam generator level control, from the remote shutdown panel. The fire door was inoperable because the latching mechanism had failed to engage. Engagement of the latch was required for the door to perform the three-hour fire barrier function. The inspectors were unable to re-latch the door after multiple attempts. Equipment Control Guideline 18.7, "Fire Rated Assemblies," required the licensee to either maintain Fire Door 223 operable or to implement compensatory actions within one hour. Also, Door 223 included clear signage requiring that the shift foreman be immediately notified if the door was inoperable. Door 223 is located within the path of operations and security daily rounds. The inspectors concluded the most significant contributor to the violation was that licensee personnel did not identify and enter the degraded door into the Corrective Action Program.

Analysis. The failure of Pacific Gas and Electric to ensure that Fire Door 223 was maintained in the rated configuration was a performance deficiency. This performance deficiency is more than minor and therefore a finding 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 door would not perform the barrier function as described in the Fire Hazards Analysis. The inspectors concluded the finding was of very low safety significance because the degraded barrier would have provided a minimum of 20 minutes fire endurance protection and fixed and in situ fire ignition sources and combustible materials were positioned that, had a fire spread to secondary combustibles, the degraded barrier would not have been subjected to direct flame impingement. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee did not implement a low threshold for identifying issues into the Corrective Action Program [P.1(a)].

Enforcement. Diablo Canyon Facility Operating License DPR-80, License Condition (5), "Fire Protection," required Pacific Gas and Electric to implement and maintain in effect all provisions of the approved fire protection plan as described by Final Safety Analysis Report Update. Final Safety Analysis Report Update, Appendix 9.5a, Fire Hazards Analysis, and Equipment Control Guideline 18.7, required that the licensee either maintain Fire Door 223 operable or implement compensatory actions within 1 hour. Contrary to the above, on August 19, 2010, the inspectors identified that plant personnel failed to maintain Fire Door 223 operable and had not implemented compensatory actions within 1 hour. Because this finding is of very low safety significance and was entered into the corrective action program as Notification 50336901, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000275; 323/201004-01, Failure to Identify a Degraded Fire Barrier.

## 1R06 Flood Protection Measures (71111.06)

### a. Inspection Scope

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

- Unit 2, Residual heat removal pump rooms, September 2, 2010

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

### b. Findings

No findings were identified.

## 1R07 Heat Sink Performance (71111.07)

### a. Inspection Scope

The inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the Unit 1 spent fuel pool heat exchanger. The inspectors verified that performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; the licensee utilized the periodic maintenance method outlined in EPRI Report NP 7552, "Heat Exchanger Performance Monitoring Guidelines;" the licensee properly utilized biofouling controls; the licensee's heat exchanger inspections adequately assessed the state of cleanliness of their tubes; and the heat exchanger was correctly categorized under 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one heat sink inspection sample as defined by Inspection Procedure 71111.07-05.

### b. Findings

No findings were identified.

## 1R11 Licensed Operator Requalification Program (71111.11)

### a. Inspection Scope

On August 24, 2010, 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 pre-established operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

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

### b. Findings

No findings were identified.

## 1R12 Maintenance Effectiveness (71111.12)

### a. Inspection Scope

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

- Unit 2 Safety injection system, Valve SI-2-8820 failure to close, DN50295651
- Carbon dioxide fire suppression system, Valve FCV-104, DN50086254
- Control Room ventilation, Radiation Monitors RE 15, DN50252768CO2

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and

independently verified the licensee's actions to address system performance or condition problems in terms of the following:

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

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

These activities constitute completion of three quarterly maintenance effectiveness samples as defined in 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:

- Unit 1, Missed remote shutdown technical specification surveillance, July 15, 2010
- Unit 1 and Unit 2, High resistance in remote shutdown circuits during surveillance testing, July 26, 2010

- Unit 1, Bypass of the spent fuel pool heat exchanger, September 13, 2010

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

These activities constitute completion of three maintenance risk assessments and emergent work control inspection sample as defined by Inspection Procedure 71111.13-05.

b. Findings

.1 Inadequate Risk Management during a Planned Auxiliary Saltwater Pump Outage

Introduction. The inspectors identified a Green finding after Pacific Gas and Electric failed to implement the risk management actions specified in Plant Procedure AD7.DC6, "Online Maintenance Risk Management," during planned maintenance activities.

Description. The inspectors identified that Pacific Gas and Electric failed to implement specified risk management actions during preventive maintenance activities. On April 5, 2010, work control personnel requested that plant operators remove Auxiliary Saltwater Pump 2-2 and Component Cooling Water Heat Exchanger 2-2 from service for two scheduled maintenance activities. Plant operators identified that the combination of the auxiliary saltwater pump and component cooling water heat exchanger out of service at the same time would result in an elevated maintenance risk (Yellow). Procedure AD7.DC6, "Online Maintenance Risk Management", Section 2.1, required that the licensee manage plant risk during online maintenance by minimizing the number of risk significant equipment simultaneously removed from service. The inspectors concluded that these two maintenance activities could have been performed in series rather than in parallel without affecting the duration either component was unavailable.

Procedure AD7.DC6, Section 2.1, specified that plant personnel use probabilistic risk assessment insights to avoid higher plant risk prior to removing equipment from service. The inspectors concluded that risk insights related to the simultaneous removal of an auxiliary saltwater pump and a component cooling water heat exchanger were well established. In 2007 (Action Request A0716454) and again in 2008 (Action Requests A0728874 and A0711061), the licensee documented the probabilistic risk assessment insights related to the unavailability of an auxiliary feedwater pump and a component cooling water heat exchanger. Pacific Gas and Electric's previous corrective actions included specifying that these two maintenance activities be performed in series rather than in parallel in the future to avoid entering the higher risk threshold. As past corrective action, the licensee added a step in Procedure AD7.DC6 requiring the Operations Manager's approval prior to entering elevated risk. However, on



April 5, 2010, the Operations Manager was unavailable and the individual in the acting role was unaware of the past problem related to the specific sequence of these two maintenance activities. The inspectors concluded that the licensee's failure to implement effective corrective action from the previous occurrences was the most significant contributor to the performance deficiency. The licensee entered the performance deficiency into the corrective action program as Notification 50309451.

Analysis. The inspectors determined that the licensee's failure to adequately manage risk associated with the planned maintenance activity was a performance deficiency. The inspectors determined that this performance deficiency is more than minor and therefore a finding because the performance deficiency affected the Mitigating Systems Cornerstone attribute of human performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Also, the finding is similar to Example 7.e in Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," because the work scope unnecessarily placed the plant into a higher licensee-established risk category and required additional risk management actions. The inspectors concluded that the finding is of very low safety significance (Green) based on an actual incremental core damage probability deficit of less than  $1 \times 10^{-6}$  and an evaluation using Flowchart 1 of Appendix K of Inspection Manual Chapter 0609, "Maintenance Risk Assessment and Risk Management Significance Determination Process." This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee failed to implement adequate corrective actions to prevent unnecessarily entering elevated plant risk for the planned maintenance [P.1(d)].

Enforcement. This finding does not involve enforcement action because no regulatory requirement violation was identified. Because this finding does not involve a violation and has very low safety significance, it is identified as FIN 05000323/2010004-02, "Inadequate Risk Management during a Planned Auxiliary Saltwater Pump Outage."

## .2 Inadequate Risk Assessment during Planned Maintenance Activities

Introduction. The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," after Pacific Gas and Electric failed to adequately assess risk during planned maintenance activities.

Description. The inspectors identified that Pacific Gas and Electric failed to update the plant risk assessment after changing plant conditions impacted the existing assessment. On July 13, 2010, Pacific Gas and Electric identified that Technical Specification Surveillance Requirement 3.3.4.2 had not been performed within the specified surveillance frequency for the remote shutdown system. The licensee performed a risk evaluation (Notification 50327386) to extend the time required to perform the surveillance tests beyond twenty-four hour period specified by Surveillance Requirement 3.0.3. The licensee subsequently initiated the surveillance and identified that the test acceptance criteria wasn't met. On July 26, 2010, operations personnel declared several remote shutdown system functions inoperable and entered Technical Specification Action 3.3.4, "Remote Shutdown System". The licensee continued with planned maintenance activities, including maintenance on Auxiliary Feedwater Pump 1-3 and Emergency Diesel Generator 2-1. The licensee exited Technical Specification 3.3.4

on July 29, 2010 after an engineering evaluation concluded that the remote shutdown system was capable of performing its safety function.

The inspectors identified that Pacific Gas and Electric had not assessed the plant maintenance risk after declaring remote shutdown system functions inoperable. The licensee subsequently revised the risk assessment and concluded that the combination of maintenance activities during the time that the remote shutdown system was inoperable would have placed both units into a higher risk threshold requiring additional risk management actions. The inspectors concluded that the most significant contributor to this performance deficiency was the failure of the licensee to follow Procedure AD7.DC6, "Online Maintenance Risk Management." Step 5.4.1 required that the shift foreman evaluate and manage the risk of all activities based on the current plant state as soon as possible when an emergent plant condition is discovered. The licensee entered the performance deficiency into the corrective action program as Notification 50331841.

Analysis. The inspectors determined that the licensee's failure to adequately assess risk during planned maintenance activities was a performance deficiency. The inspectors determined that this performance deficiency is more than minor and therefore a finding because the performance deficiency affected the Mitigating Systems Cornerstone attribute of human performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Also, the finding is similar to Example 7.e in Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," because the overall elevated plant risk would put the plant into a higher licensee-established risk category. The inspectors concluded that the finding is of very low safety significance (Green) based on an actual incremental core damage probability deficit of less than  $1 \times 10^{-6}$  and an evaluation using Flowchart 1 of Appendix K of Inspection Manual Chapter 0609, "Maintenance Risk Assessment and Risk Management Significance Determination Process." This finding had a crosscutting aspect in the area of human performance associated with the work practices component because the licensee failed to follow its maintenance risk procedure and reassess plant risk due to changing plant conditions [H.4(b)].

Enforcement. Title 10 CFR 50.65(a)(4) required the licensee assess and manage the increase in risk that may result from proposed maintenance activities prior to performing those activities. Contrary to the above, on July 26, 2010, the licensees failed to assess and manage the increase in risk that resulted from proposed maintenance activities prior to performing those activities. The licensee failed to include the risk contribution of inoperable remote shutdown functions in the overall risk assessment. Because this issue was of very low safety significance and was entered into the corrective action program as Notifications 50308251, this violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000275; 323/201004-03, "Inadequate Risk Assessment during Planned Maintenance Activities."

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

### **a. Inspection Scope**

The inspectors reviewed the following issues:

- July 6, 2010, Unit 1, Open code break valve in makeup water system
- July 21, 2010, Units 1 and 2, Open code break valve in the auxiliary saltwater system
- July 26, 2010, Units 1 and 2, High resistances during remote shutdown system surveillance testing
- August 18, 2010, Unit 2, Source range nuclear instrument degraded components
- August 25, 2010, Operability of 230 kV offsite power during high system loading
- August 25, 2010, Unit 1, Incorrect exhaust manifold gaskets installed on Emergency Diesel Generator 1-2

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 Safety Analysis Report Update to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of six operability evaluation inspection samples as defined in Inspection Procedure 71111.15-05

b. Findings

.1 Inadequate Operability Determinations

Introduction. The inspectors identified a violation of 10 CFR 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," after Pacific Gas and Electric failed to promptly evaluate two nonconforming conditions as required by Procedure OM7.ID12, "Operability Determination."

Description. The inspectors identified two examples of the failure of Pacific Gas and Electric personnel to promptly evaluate nonconforming conditions for the effect on the operability of Technical Specification required equipment. The first example involved the failure of the emergency diesel generators to meet design requirements. On March 4, 2010, the NRC identified that the licensee improperly relaxed the emergency diesel generator loading sequence frequency and voltage recovery requirements. This issue was subsequently dispositioned as noncited violation 05000323/2010007-02. Pacific Gas and Electric entered the nonconforming condition into the corrective action program on May 11, 2010, as Notification 50315377. The inspectors identified that

operations shift management had not reviewed the nonconforming condition for the effect on diesel generator operability. On July 20, 2010, plant operators concluded that the emergency diesel generators were operable because this was an “administrative problem” similar to other issues including that the total diesel loading was in excess of design limits (Notification 50315377). The inspectors concluded that this immediate operability evaluation did not address the specific nonconforming condition that the diesel generators may not be capable of meeting the specified safety function related to frequency and voltage recovery design requirements. At the NRC’s request, Pacific Gas and Electric readdressed the nonconforming condition on September 7, 2010 and concluded that four of the six emergency diesel generators were not capable of meeting the minimum design recovery requirements. The licensee reentered the condition into the corrective action program on September 9, 2010 as Notification 50340417 and subsequently completed an adequate technical evaluation supporting continued diesel generator operability as Notification 50340417, Task 3.

The second example involved a nonconforming condition on a common cross-tie line connecting both auxiliary saltwater trains. Downstream of the cross-tie was a design Code Class break (Class III/Seismic Class I and non-seismic). On July 22, 2010, the NRC License Renewal Inspection Team identified that the isolation valve on this cross-tie line between the Code Class break was open on both units. This open valve was contrary to the system design requirements specified in FSARU Section 3.2.2.3, “Design Class I, Quality/Code Class III Fluid Systems and Fluid System Components.” Licensee personnel entered this condition into the corrective action systems as Notification 50329651. On July 28, 2010, the licensee confirmed that the piping configuration did not meet the stations commitment to Regulatory Guide 1.26, “Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants.” On August 4, 2010, Plant Engineering assigned a task (due October 15, 2010) to seismically qualify the affected piping. However, the engineer did not request that the nonconforming condition be evaluated by the operations shift management for the affect on auxiliary saltwater operability.

Procedure OM7.ID12, “Operability Determination,” Section 5.1, required any individual, including the Notification initiator, identifying a degraded or nonconforming condition that potentially impacts operability of a system, structure or component to ensure that operations shift management is informed. Section 5.1 also specified that any individual responsible for problem resolution in accordance with the corrective action process who discovers a degraded or nonconforming condition shall ensure that the operations shift management is informed. The inspectors concluded the most significant contributor to the violation was that plant engineering personnel did not evaluate emergent issues to recognize the nonconforming conditions may affect the operability of Technical Specification required equipment.

Analysis. The inspectors concluded that the failure of the licensee personnel to promptly adequately evaluate nonconforming conditions for the effect on operability, in accordance with Procedure OM7.ID12, was a performance deficiency. This performance deficiency is more than minor and therefore a finding because the Mitigating Systems Cornerstone initial design control attribute and objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences were affected. The inspectors used Inspection Manual Chapter 609, Attachment 4, “Phase 1 - Initial Screening and Characterization of

Findings,” to analyze the finding because both examples involved a design or qualification deficiency. The inspectors concluded that the finding was of very low safety significance (Green) because neither of the two examples resulted in the loss of operability or functionality. This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because Pacific Gas and Electric did not thoroughly evaluate the nonconforming condition for operability and reportability [P.1(c)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criteria V, “Instructions, Procedures, and Drawings,” required that activities affecting quality be accomplished in accordance with instructions or procedures. Procedure OM7.ID12, Section 5.1, required that any individual, including the Notification initiator, identifying a degraded or nonconforming condition that potentially impacts operability of a system, structure or component to ensure that operations shift management is informed. Contrary to the above, on May 11, 2010 licensee personnel initiated Notification 50315377 describing a nonconforming condition related to emergency diesel generator design condition and on July 22, 2010, initiated Notification 5032951, describing nonconforming condition related to auxiliary saltwater piping design, and failed to ensure that operations shift management was informed. Because this finding is of very low safety significance and was entered into the corrective action program as Notifications 50340417 and 50335847, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000275; 323/201004-04, “Inadequate Operability Determination.”

## .2 Inadequate Design Control for the Auxiliary Saltwater System

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” involving the failure to maintain adequate design control measures associated with the auxiliary saltwater system. Specifically, a vent line in the auxiliary saltwater systems did not meet the design requirements established for the plant.

Description. The inspectors identified that auxiliary saltwater system did not meet the design requirements specified in the Final Safety Analysis Report Update. Final Safety Analysis Report Update, Revision 19, Table 17.1-1, “Current Regulatory Requirements and PG&E Commitments Pertaining to the Quality Assurance Program,” stated that PG&E complies with Regulatory Guide 1.26, Revision 3, “Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants.” Diablo Canyon Safety Evaluation Report, October 16, 1974, Section 3.2.2 stated:

*“The basis for acceptance in our review has been conformance of the applicant's designs, design criteria, and design bases for pressure retaining components such as pressure vessels, heat exchangers, storage tanks, pumps, piping and valves in fluid systems important to safety with: (1) the Commission's Regulations as set forth in AEC General Design Criterion No. 1; (2) the requirements of the Codes specified in Section 50.55a of 10 CFR Part 50; (3) the positions set forth in Regulatory Guide 1.26, "Quality Group Classifications and Standards"; and (4) industry standards.”*

Design Criteria 1 required, in part, that “structures, systems, and components important to safety be designed, fabricated, erected, and tested to quality standards

commensurate with the importance of the safety functions to be performed.” Regulatory Guide 1.26, Section C.2.a stated, in part, that systems required for emergency core cooling should be designed as quality Group C. Group C correlates to Pacific Gas and Electric Design Class I and Safety Class 3 in accordance with ANSI N18.2, “Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants.” Note 4 of Section C.2.a states, “the system boundary includes those portions of the system required to accomplish the specified safety function and connected piping up to and including the first valve (including a safety or relief valve) that is either normally closed or capable of automatic closure when the safety function is required.” The Standard Review Plan (NUREG-0800), Section 3.2.2, “System Quality Group Classification,” stated:

*“Changes in quality group classification are considered to be acceptable normally only at valve locations, with the valve assigned the higher classification. A change in quality group classification with no valve present is normally considered acceptable only when it can be demonstrated that the safety function of the system is not impaired by a failure on the lower-classification side of the boundary.”*

The inspectors identified that the auxiliary saltwater system vent piping in the piping was classified as Non-Nuclear Safety and Design Class II, and not classified as Group C. The isolation valve that separated the quality group classifications was normally open. The inspectors postulated that a failure of the piping could result in loss of cooling water to the component cooling water heat exchanger, which provides cooling to components of the emergency core cooling system. Also, the inspectors postulated that a failure could cause flooding of one auxiliary saltwater pump room in each unit, challenging the ability of the auxiliary saltwater pump to perform its safety function. The inspectors requested the evaluation demonstrating that a pipe failure did not impact the ability of the auxiliary saltwater system to perform its intended safety function, but PG&E was unable to retrieve any existing evaluation. The licensee entered this issue into the corrective action program as Notifications 50328942.

Analysis. The inspectors concluded that the failure of Pacific Gas and Electric to implement adequate design control measures for verifying the adequacy of design of the auxiliary saltwater system was a performance deficiency. This performance deficiency is more than minor and therefore a finding because the design control attribute of the mitigating systems cornerstone and the cornerstone’s objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences were affected. The inspectors used Inspection Manual Chapter 609, Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings,” to analyze the finding. The inspectors concluded the finding was of very low significance (Green) because it was a design deficiency confirmed not to result in the loss of operability or functionality. The inspectors concluded that the finding does not have a crosscutting aspect since the performance deficiency is not reflective of current plant performance.

Enforcement. Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion III, “Design Control,” requires measures be established to assure that applicable regulatory requirements and the design basis be correctly translated into specifications. Contrary to the above, from initial construction until July 21, 2010, Pacific Gas and Electric did not establish measures to assure that applicable regulatory

requirements and the design basis of the auxiliary saltwater system were translated into specifications. Because this finding is of very low safety significance and was entered into the corrective action program as Notification 50328942, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000275; 323/2010004-05 "Inadequate Design Control for the Auxiliary Saltwater System."

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

### Temporary Modifications

#### a. Inspection Scope

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

- Unit 1, Procedure Control Temporary Modification MP M-13-Hx.3, Bypass of the spent fuel pool cooling heat exchanger
- Temporary Modification 60027442, Units 1 and 2 vital area

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

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

#### 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:

- Unit 2, Auxiliary Building Exhaust Fan E-2, July 22, 2010

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 Final Safety Analysis Report Update, 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 post-maintenance 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 one postmaintenance testing inspection sample 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 Final Safety Analysis Report Update, procedure requirements, and technical specifications to ensure that the nine 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 21, 2010, Unit 1, Routine flux mapping
- July 26, Units 1 and 2, Continuity testing of remote shutdown control and transfer switches
- August 4, 2010, Unit 1, Vital bus undervoltage relay calibration
- August 17, 2010, Unit 1, Inservice test of Safety Injection Pump Valve SI-8821B
- August 18, 2010, Unit 2, Routine surveillance of the solid state protection set slave relay test for K609
- August 18, 2010, Unit 2, Inservice test of Auxiliary Feedwater Pump 22
- August 24, 2010, Unit 2, Verification of reactor coolant pump seal injection flow resistance
- September 14, 2010, Unit 1, Routine surveillance inspection of containment
- September 16, 2010, Unit 1, Reactor coolant system leakage surveillance

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

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

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**

## 1EP1 Exercise Evaluation (71114.01)

### a. Inspection Scope

The inspectors reviewed the objectives and scenario for the 2010 biennial emergency plan exercise to determine if the exercise would acceptably test major elements of the emergency plan. The scenario simulated a fire in the Diesel Generator Building, the failure of the reactor to trip following both an automatic signal and manual actions resulting in fuel damage (loss of the Fuel Barrier), a reactor coolant leak inside containment (loss of the Reactor Coolant System Barrier), and a radiological release to the environment via a failed containment penetration and Auxiliary Building ventilation (loss of the Containment Barrier), to demonstrate the licensee personnel's capability to implement their emergency plan.

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

- Technical Support Center
- Operations Support Center
- Emergency Operations Facility
- Joint Information Center, Emergency News Center

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

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

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

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

### b. Findings

No findings were identified.

#### 4. OTHER ACTIVITIES

##### 4OA1 Performance Indicator Verification (71151)

###### .1 Data Submission Issue

###### a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the second quarter 2010 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

###### 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 2009 through the second quarter 2010. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of the second quarter 2009 through the second quarter 2010 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

###### b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Residual Heat Removal System

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 2009 through the second quarter 2010. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports and NRC integrated inspection reports for the period of the second quarter 2009 through the second quarter 2010 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 by Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Cooling Water Systems

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 2009 through the second quarter 2010. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports and NRC integrated inspection reports for the period of the second quarter 2009 through the second quarter 2010 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 by 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, performance indicator for the period October 2009 through June 2010. 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. The specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one 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 October 2009 through June 2010. 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. The 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 (EP03)

a. Inspection Scope

The inspectors sampled licensee submittals for the Alert and Notification System performance indicator for the period October 2009 through June 2010. 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. The specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

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

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

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included: the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus,

and timeliness of corrective 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 Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized a corrective action item documenting:

- Notification 50337846, Adverse trend in SR 3.0.3 entries
- Notification 50301167, Failure to meet design requirements for the degraded voltage relays
- In-depth review of operator workarounds

These activities constitute completion of two in-depth problem identification and resolution and In-depth review of operator workarounds samples as defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified.

## 40A5 Other Activities

### .1 Temporary Instruction 2515/180, Inspection of Procedures and Processes for Managing Fatigue

#### a. Inspection Scope

The inspectors reviewed Pacific Gas and Electric procedures and policies to confirm that the Fitness for Duty program adequately implemented fatigue management requirements for individuals subject to 10 CFR Part 26, Subpart I. The inspectors confirmed that the licensee had procedures in place that described:

- The process to be followed after any individual makes a self-declaration that he or she is not fit to safely and competently perform his or her duties for any part of a working tour as a result of fatigue;
- The process for implementing the work hour controls;
- The process for conducting fatigue assessments, and
- Disciplinary actions that may be imposed on an individual following a fatigue assessment, and the conditions and considerations for taking those disciplinary actions.

The inspectors reviewed the licensee's training program to verify implementation and testing of specified knowledge and abilities specified in 10 CFR 26.203(c)(1) and (c)(2). The inspectors confirmed that the licensee's process for developing the annual Fitness for Duty report includes provisions for documenting the summary of instances where work hour controls were waived.

The inspectors also confirm that the licensee had a process in place to retain the following records for at least 3 years or until the completion of all related legal proceedings, whichever is later:

- Work hours for individuals who are subject to the work hour controls;
- Shift schedules and shift cycles of individuals who are subject to the work hour controls;
- Waivers and the bases for the waivers,
- Work hour reviews; and
- Fatigue assessments.

These activities constitute completion of Temporary Instruction 2515/180, Inspection of Procedures and Processes for Managing Fatigue.

#### b. Findings

No findings were identified.



.2 (Closed) Licensee Event Report 05000275/2010-004-00: Diablo Canyon Power Plant 230kV Historical Evaluation of Condition Prohibited by Technical Specification

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. The inspectors previously dispositioned this as noncited violation 05000275/2008005-03 and 05000323/2008005-03, "Operation of the 230 kV Offsite Power System Outside the Design Basis." 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 considered these as additional examples of noncited violation 05000275/2008005-03 and 05000323/2008005-03. No additional violations of NRC requirements were identified. This Licensee Event Report is closed.

b. Findings

No findings were identified.

**40A6 Meetings**

Exit Meeting Summary

On August 12, 2010, the inspectors presented the results of the onsite inspection of the licensee's biennial emergency preparedness exercise to Mr. J. Becker, Site Vice President, and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On September 22, 2010, the inspectors presented the inspection results to Mr. J. Becker, 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.

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

J. Becker, Site Vice President  
S. David, Director, Site Services  
T. Baldwin, Manager, Regulatory Services  
K. Peters, Station Director  
M. Somerville, Manager, Radiation Protection  
J. Nimick, Manager, Operations  
J. Welsch, Director, Operations Services

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

Opened

None

Opened and Closed

05000275; 05000323/2010004-01	NCV	Failure to Identify a Degraded Fire Barrier (Section 1R05)
05000323/2010004-02	FIN	Inadequate Risk Management during a Planned Auxiliary Saltwater Pump Outage (Section 1R13)
05000275; 05000323/2010004-03	NCV	Inadequate Risk Assessment during Planned Maintenance Activities (Section 1R13)
05000275; 05000323/2010004-04	NCV	Inadequate Operability Determination (Section 1R15)
05000275; 05000323/2010004-05	NCV	Inadequate Design Control for the Auxiliary Saltwater System (Section 1R15)

Closed

05000275/2010-004-00;	LER	Diablo Canyon Power Plant 230kV Historical Evaluation of Condition Prohibited by Technical Specification
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**LIST OF DOCUMENTS REVIEWED**

**Section 1R04: Equipment Alignments**

NOTIFICATIONS

50304379      50286889      50301987      50303133      50176889

50320375            50032504            50032962

**Section 1R05: Fire Protection**

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
111906-6	Unit 1 Turbine Building Elev. 85'	1
111906-11	Unit 2 Turbine Building Elev. 85'	2

NOTIFICATIONS

50338138

**Section 1R07: Heat Sink Performance**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
TP TO-10013	Spent Fuel Pool Heat Exchanger – Removal From Service and Return to Service	2
OP B-7	Spent Fuel Pool System	14
MP M-13-Hx.3	Backup Spent Fuel Pool Cooling System	1

NOTIFICATIONS

60025490

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

PROCEDURES/DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
R102S3	Lesson: Reactor Startup	1

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

PROCEDURES/DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
MA1.DC11	Risk Assessment	9
AD7.DC6	On-Line Maintenance Risk Management	16
MP M-13-Hx.3	Backup Spent Fuel Pool Cooling System	1
LCOTR# 1-TS-10-0433	Technical Specification Sheet	1

LCOTR# 1-TS-10- Technical Specification Sheet 0481	0
LCOTR# 2-TS-10- Technical Specification Sheet 0540	0
LCOTR# 2-TS-10- Technical Specification Sheet 0496	0
PRA SDP10-03 Remote Shutdown Panel Declared Inoperable	0

NOTIFICATIONS/ACTION REQUESTS

50327353	50331355	50331841	50327354	50327386
50327381	A0720643	50309451	A0741037	50243652
50291026	50042970	50044652	50228353	A0736955
A0731700	A0737406	A0738488	50308698	50308251
A0738833				

**Section 1R15: Operability Evaluations**

PROCEDURES/DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AD1.1D1	Nuclear Generation Procedure Writer's Manual	18
STP M-31	Vital Switchgear Appendix R Circuit Isolation Test	1A
DWG 102016-16	Make-up Water System	85
DWG 102016-18	Make-up Water System	83
DWG 102017-3B	Saltwater System	94

NOTIFICATIONS/ACTION REQUESTS

50252768	50086254	50324767	50327380	50330372
50330365	50330040	50330044	50330337	50330650
A0261635	50335300	50325955	50330967	50327449
50337405	50329651	50335981		

**Section 1R18: Plant Modifications**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
ECG 13.1 AD1.1D1 TS3.1D2	Spent Fuel Pool Cooling	9

**Section 1R18: Plant Modifications**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
CF4.1D7		
PSRC Meeting 2010-025	Backup to SFP Cooling System	August 9, 2010

**Section 1R19: Postmaintenance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
MP M-23.4	Preventive Maintenance of Plant Ventilation Fans, Associated Dampers and Filters	33
OP H-1:II	Auxiliary Building Safeguards Ventilation (ABVS) – Normal Operation	9

NOTIFICATIONS/ORDERS

64021273

**Section 1R22: Surveillance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
PEP R-3A	Use of Flux Mapping Equipment	7
TP TD-10003	Continuity Testing of Remote Shutdown Cont/Xfr Switches (4kV Pumps)	0
STP V-3L2B	Exercising Valve SI-8821B, Safety Injection Pump Discharge to Cold Legs	2
STP P-SIP-12	Routine Surveillance Test of Safety Injection Pump 1-2	21A
STP V-3L10B	Exercising valve SI-8923B, Safety Injection Pump 2 Suction Valve	5
STP P-AFW-22	Routine Surveillance test of Motor-Driven Auxiliary Feedwater Pump 2-2	15
STP M-16F	Operation of Train B Slave relays K609 K633	14
STP M-75	4 kV Vital Bus Undervoltage Calibration	30
X13.ID8	Surveillance Test Interval Control	0
STP M-54	Verification of RCP Seal Injection Flow Resistance	32
STP M-45B	Containment Inspection When Containment Integrity is	16

	Established	
STP R-10-C	Reactor Coolant System Inventory Balance	40

**Section 1EP1: Exercise Evaluation**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Emergency Plan Appendix D, Emergency Action Level Technical Bases Manual	4.01
EP-G-1	Emergency Classification and Emergency Plan Activation	40
EP-G-2	Interim Emergency Response Organization	34
EP-G-3	Emergency Notification of Off-Site Agencies	52A, 53, 53A
EP-RB-8	Instructions for Field Monitoring Teams	22
EP-RB-10	Protective Action Recommendations	15
EP-RB-14	Core Damage Assessment Procedure	8A
EP-EF-1	Activation and Operation of the Technical Support Center	37
EP-EF-2	Activation and Operation of the Operational Support Center	30
EP-EF-3	Activation and Operation of the Emergency Operations Facility	32
	Drill Evaluation Report, May 27, 2009, Full Scope Drill	
	Drill Evaluation Report, August 26, 2009, Full Scope Drill	
	Drill Evaluation Report, September 2, 2009, Reentry and Recovery Drill	
	Drill Evaluation Report, December 17, 2009, Unannounced Facility Activation Drill	
	Drill Evaluation Report, March 17, 2010, Full Scope Drill	
	Drill Evaluation Report, April 14, 2010, Full Scope Drill	

NOTIFICATIONS

50265856	50266154	50266168	50289616	50305579
50305629	50309760	50333871		

**Section 4OA1: Performance Indicator Verification**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AWP-EP-001	Emergency Preparedness Performance Indicators	14
EP-MT-43	Early Warning System Testing and Maintenance	9,10
OM4.ID15	Corrective Action Review Board	10

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Diablo Canyon Power Plant Emergency Plan	4
	MSPI Unavailability Data	

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

NOTIFICATIONS/ORDERS

50336921	50337619	50337146	50337074	50328013
50245278	50340070	50325155	50035560	50319489

**Section 40A5: Other Activities**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OM14.ID1	Fatigue Management Rule Program	17A
	General Employee Training, Instructor Lesson Guide Course No GFFD100, "Fitness For Duty"	0
	General Employee Training, Instructor Lesson Guide Course No GFFDCI, "Fitness For Duty Current Issues"	0
	General Employee Training, Instructor Lesson Guide Course No GFFDSUPFATR & TI, "Fatigue Management For Supervisors"	0