

# Diablo Canyon 1

## 1Q/2007 Plant Inspection Findings

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### Initiating Events

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### Mitigating Systems

**Significance:**  Feb 16, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Update 480 V Switchgear Heat Dissipation Calculaiton**

An NRC-identified, noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was determined for the failure of engineering personnel to appropriately update the heat dissipation calculation for vital 480 V switchgear rooms. Since 1994, Calculation 90-DC, "Heat Dissipation of Electrical Equipment – 480 V Switchgear," Revision 4, had not been updated with changes in analyzed bus electrical loading. The calculation was input to other ventilation calculations to determine air flow balancing to 480 V switchgear and inverter rooms. This issue was entered into Pacific Gas and Electric Company's corrective action program as Action Requests A0688992 and A0689527.

The finding is greater than minor because it is associated with the Mitigating Systems Cornerstone attribute of procedure quality and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance since it did not represent a loss of system safety function, an actual loss of safety function of a single train for greater than its Technical Specifications allowed outage time, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event.

Inspection Report# : [2007002](#) (*pdf*)

**Significance:**  Oct 15, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Temporary Modification to a Vital Battery**

An NRC-identified, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," was identified for the failure to promptly correct a condition adverse to quality. Specifically, on October 15, 2006, Pacific Gas and Electric Company implemented a temporary modification to Vital Battery 1-1 contrary to ANSI/IEEE Standard 450-1987, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations." Additionally, surveillance tests to monitor the condition of the degraded battery cell were adversely affected by the installed temporary modification. This issue was entered into Pacific Gas and Electric Company's corrective action program as Action Request A0678820.

The finding is greater than minor because it is associated with the Mitigating Systems Cornerstone attribute of equipment performance and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the inspectors determined that this finding is of very low safety significance because it did not represent an actual loss of safety function of a single train for greater than its Technical Specification allowed outage time. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program in that engineering staff did not thoroughly assess the operability of the battery and correct a condition adverse to quality in a timely manner.

Inspection Report# : [2006005](#) (*pdf*)

**G****Significance:** Sep 25, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Include Floor Drains Credited in the Flood Analysis Into the Maintenance Rule Program**

An NRC-identified, noncited violation of 10 CFR 50.65(b) was determined for the failure of engineering staff to include the auxiliary feedwater pump room floor drains within the scope of Pacific Gas and Electric Company's program for monitoring the effectiveness of maintenance at the Diablo Canyon Power Plant. Specifically, Calculation 76060, "Flooding Analysis G Area and Auxiliary Building," Revision 1, assumes that at least two of the three floor drains in the auxiliary feedwater pump rooms would be able to remove up to 316 gpm of water in the event of a flood. Despite their credited function in the flood analysis, engineering staff did not scope them into their monitoring program. This issue was entered into Pacific Gas and Electric Company's corrective action program as Action Request A0678658.

The finding is greater than minor because it is associated with the Mitigating Systems cornerstone attribute of protection against external factors and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the inspectors determined that this finding is of very low safety significance because the condition did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its Technical Specification allowed outage time, did not represent an actual loss of one or more risk-significant non-Technical Specification trains of equipment for greater than 24 hours, and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding has a cross-cutting aspect in the area of problem identification and resolution associated with operating experience because engineering personnel did not effectively incorporate pertinent industry operating experience into their program for evaluating the effectiveness of maintenance performed on AFW pump room floor drains.

Inspection Report# : [2006004](#) (*pdf*)**G****Significance:** Aug 23, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Promptly Identify that the Correct Equipment Necessary for Implementing EOP for Inadequate Core Cooling Was Not Pre-staged**

An NRC-identified, noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to promptly identify a condition adverse to quality. Specifically, Pacific Gas and Electric Company failed to promptly identify that it had prestaged the wrong equipment (a flange hose connection with the wrong tread pattern) necessary to cross-connect the fire main water system to the auxiliary feedwater system during a loss of core cooling event. This performance deficiency was entered into Pacific Gas and Electric Company's corrective action program as Action Request A0676729.

The finding is greater than minor because it is associated with the Mitigating Systems Cornerstone attribute of procedure quality and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the inspectors determined that this finding is of very low safety significance because the condition did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its TS allowed outage time, did not represent an actual loss of one or more risk-significant non-TS trains of equipment for greater than 24 hours, and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding has a crosscutting aspect in the area of human performance associated with resources because the licensee did not ensure that equipment needed to perform an EOP was available and adequate to assure nuclear safety.

Inspection Report# : [2006004](#) (*pdf*)**G****Significance:** Jun 12, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to prevent recurrence of limitorque model SMB-000 failures**

An NRC-identified, non-cited violation of 10 CFR Part 50, Criterion XVI, "Corrective Actions" was determined for the failure to prevent recurrence of a similar failures of Limitorque SMB-000 actuators in the auxiliary feedwater system.

Pacific Gas and Electric Company (PG&E) staff failed to adequately troubleshoot and provide for timely corrective actions regarding auxiliary feedwater control valves that failed due to high actuator torque switch resistance. This finding was entered into PG&E's corrective action program as Nonconformance Report N0002205.

The finding is greater than minor because it is associated with the Mitigating Systems Cornerstone attribute of equipment performance and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to be of very low safety significance because it did not represent an actual loss of safety function, represent an actual loss of safety function for a single train for greater than the Technical Specification allowed outage time, or screen as potentially risk significant due to seismic, fire, flooding, or severe weather initiating events. The finding had a cross-cutting aspect in the area of problem identification and resolution since PG&E staff failed to adequately trend, assess, and troubleshoot previous Limitorque SMB-000 actuator failures.

Inspection Report# : [2006003](#) (*pdf*)

**Significance:**  May 24, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to promptly identify voiding in accumulator discharge line**

A self-revealing, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI was determined for the failure of operations personnel to promptly identify a condition adverse to quality. Specifically, on November 27, 2005, operators failed to document, in the corrective action program, an unexpected level drop in Accumulator 1-3. Failure to enter the occurrence into the corrective action program precluded actions that would have addressed similar conditions that resulted in a subsequent event involving an unexpected level drop and water hammer associated with Accumulator 2-3, which occurred on May 21, 2006. This issue was entered into Pacific Gas and Electric Company's corrective action program as Action Request A0669468.

The finding is greater than minor because it is associated with the Mitigating Systems Cornerstone attribute of configuration control and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to be of very low safety significance because the finding did not represent a loss of safety function, an actual loss of a safety-related train for greater than its Technical Specification allowed outage time, or screen as potentially risk-significant due to seismic, fire, flooding, or severe weather initiating events. The finding had a cross-cutting aspect in the area of problem identification and resolution because operations personnel failed to promptly identify, in the corrective action program, the unexpected level drop in Accumulator 1-3.

Inspection Report# : [2006003](#) (*pdf*)

**Significance:**  Feb 09, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Change to Auxiliary Saltwater Pump Routine Surveillance Test Acceptance Criteria Inadequate Change to Auxiliary Saltwater Pump Routine Surveillance Test Acceptance Criteria**

GREEN. An NRC-identified, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was determined for the failure of engineering personnel to apply adequate design control measures. Specifically, on February 9, 2006, engineering personnel changed the acceptance criteria in the auxiliary saltwater pump surveillance test from greater than zero packing leak-off to zero packing leak-off with packing gland temperature less than 120°F. The acceptance criteria change was based on engineering judgment even though vendor documentation called for greater than zero packing leak-off to prevent packing and pump shaft damage. This issue was entered into Pacific Gas and Electric Company's corrective action program as Action Request A0684631.

The finding is greater than minor because it is associated with the Mitigating Systems Cornerstone attribute of procedure quality and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance

Determination Process,” Phase 1 Worksheet, the finding is determined to be of very low safety significance because it did not represent an actual loss of system safety function, did not represent an actual loss of a single train for greater than its Technical Specification allowed outage time, and the finding did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of human performance because engineering personnel failed to provide up-to-date design documentation to support a design change in surveillance test acceptance criteria.

Inspection Report# : [2006005](#) (*pdf*)

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## Barrier Integrity

**Significance:**  Sep 29, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Adequately Evaluate Operability of Auxiliary Building Ventilation Control Panels**

An NRC-identified, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Actions,” was determined for the failure of engineering and operations personnel to promptly identify and correct a condition adverse to quality. On two occasions between September 29 and November 9, 2006, operations and engineering personnel (1) failed to address operability when using manual actions in place of automatic actions associated with the auxiliary building ventilation system and (2) failed to fully address the impact of debris between the circuit card and the panel connections of the auxiliary building ventilation system. This issue was entered into Pacific Gas and Electric Company’s corrective action program as Action Request A0678429.

The finding is greater than minor because it is associated with the Barrier Integrity Cornerstone attribute of structure, system, and component and barrier performance and affects the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radio-nuclide releases caused by accidents or events. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because the finding only represents a degradation of the radiological barrier function provided for the auxiliary building. This finding has a cross-cutting aspect in the area of problem identification and resolution because operations and engineering personnel did not adequately evaluate operability of the auxiliary building ventilation system due to the failure to fully encompass all aspects of the degraded conditions and corresponding compensatory measures.

Inspection Report# : [2006005](#) (*pdf*)

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## Emergency Preparedness

**Significance:** N/A Apr 06, 2006

Identified By: NRC

Item Type: FIN Finding

### **Acceptable performance in addressing performance indicator monitoring and accuracy**

The U.S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection to assess the licensee’s evaluation associated with the failure to provide complete and accurate performance indicator data to the NRC. This performance issue was previously characterized as having low to moderate risk significance (White) in NRC Inspection Report 05000275, 05000323/2006005. During this supplemental inspection, performed in accordance with Inspection Procedure 95001, the inspector determined that the licensee conducted comprehensive evaluations of the missed performance indicator data and the failure to submit complete and accurate performance indicator information to the NRC. The licensee’s evaluations identified the primary root cause of the performance issue to be inconsistent standards, procedures, and policies which hindered implementation of the emergency plan, limited and inequitable emergency planning training, and the use of inexperienced emergency planning personnel. To determine the scope of the performance indicator issue, the licensee had a panel of subject matter experts review programs to identify similar error precursors. These experts identified programs that met the criteria. These programs were entered into the licensee's corrective action program and required that self-assessments be performed. The licensee also issued Action Requests to other performance

indicator monitors to determine if other performance indicators were not meeting station goals or have a high potential or risk of not meeting them. In addition, procedures were revised to clarify procedure details. Given the licensee's acceptable performance in addressing the performance indicator data monitoring and accuracy, the white finding associated with this issue will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in Inspection Manual Chapter 0305, "Operating Reactor Assessment Program." Implementation of the licensee's corrective actions will be reviewed during a future inspection.

Inspection Report# : [2006010](#) (*pdf*)

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## Occupational Radiation Safety

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### Public Radiation Safety

**Significance:**  Aug 29, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Survey Material Unconditionally Released**

The team reviewed a self-revealing, non-cited violation of 10 CFR 20.1501(a) that resulted in an unconditional release of radioactive material from the radiologically controlled area. Specifically, the contents of a vehicle cab were not removed and surveyed, resulting in the release of a contaminated safety harness from the radiologically controlled area. The safety harness remained in the protected area. The licensee determined the inadequate survey of the vehicle and its contents was caused by inadequate procedural guidance. As corrective action, the licensee plans to revise Procedure RCP D-614, "Release of Solid Materials from Radiologically Controlled Areas," Revision 9, to include instructions for the removal of such items from vehicles and the survey to detect contamination.

The failure to adequately survey a contaminated item to prevent its release from the radiologically controlled area is a performance deficiency. This finding is greater than minor because it was associated with a Public Radiation Safety cornerstone attribute (material release) and it affected the associated cornerstone objective in that the failure to control radioactive material decreases the licensee's assurance that the public will not receive unnecessary dose. Using the Public Radiation Safety Significance Determination Process, the team determined that the finding had very low safety significance because: (1) the finding was a radioactive material control finding, (2) it was not a transportation finding, (3) it did not result in public dose greater than 0.005 rem, and (4) radioactive material was not released from the protected area more than five times. Additionally, this finding has a cross-cutting aspect in the area of human performance associated with resources because the licensee did not have complete procedures, in that, the procedures did not provide sufficiently detailed guidance to ensure the surveying of vehicle contents prior to removal of the vehicle from the radiologically controlled area.

Inspection Report# : [2006013](#) (*pdf*)

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## Physical Protection

[Physical Protection](#) information not publicly available.

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## Miscellaneous

**Significance:** N/A Jun 22, 2006

Identified By: NRC

Item Type: FIN Finding

## **Biennial problem identification and resolution assessment for 2006**

The team reviewed approximately 280 action requests, apparent cause evaluations, and root cause analyses, as well as supporting documents to assess problem identification and resolution activities. In general, the corrective action program procedures and processes were effective, thresholds for identifying issues were low, and corrective actions were adequate to address conditions adverse to quality. Notwithstanding the above, a number of self-revealing and NRC identified findings in each of these attributes of your problem identification and resolution program were noted over the past two years. Many of these findings were related to equipment deficiencies, some of which resulted in inoperable safety-related equipment. The team noted improvement in all three areas when comparing the results of this and more recent inspections when compared to inspections two years ago.

Based on the interviews conducted, the team concluded that a positive safety conscious work environment existed at Diablo Canyon Power Plant. The team determined that employees felt free to raise safety concerns to station managers and supervisors, the employee concerns program, and the NRC. However, the team noted two isolated incidents regarding the environment that did not foster openly raising safety concerns. The licensee had already taken actions to address the concerns. All the interviewees believed that potential safety issues were being addressed.

Inspection Report# : [2006012](#) (*pdf*)

Last modified : June 01, 2007