

# Diablo Canyon 1

## 1Q/2006 Plant Inspection Findings

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### Initiating Events

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### Mitigating Systems

**Significance:**  Dec 31, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to Adequately Assess and Manage Risk Associated With Startup Transformer 1-1 Maintenance**

A self-revealing, non-cited violation of 10 CFR 50.65(a)(4) was identified for the failure of maintenance personnel to adequately assess and manage the risk associated with maintenance on Startup Transformer 1-1. On November 19, 2005, when maintenance personnel were performing work on Startup Transformer 1-1, they failed to conduct a circuit isolation plan which was a risk management action required by Procedures AD7.DC8, "Work Control," Revision 20 and MA1.DC11, "Risk Assessment," Revision 5A. The circuit isolation plan would have provided an opportunity to identify the potential of disrupting startup power to Unit 2, which occurred as a result of the maintenance activities. This issue was entered into Pacific Gas and Electric Company's corrective action program as Action Request A0652421.

The finding was greater than minor because it is related to Inspection Manual Chapter 0612, Appendix B, Section 3(5)(i), in that maintenance personnel failed to fully implement Procedures AD7.DC8 and MA1.DC11, which called for a circuit isolation plan for medium- to high-risk maintenance activities as a risk management action. The finding affected the Mitigating Systems Cornerstone. Using Inspection Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process, Flowchart 2 - Assessment of Risk Management Actions, the incremental core damage probability was less than 1E-6 and the incremental large early release frequency was less than 1E-7. The finding was assessed as having very low safety significance. The cause of the finding is related to the cross-cutting element of human performance in that maintenance personnel failed to follow procedures. The cause of the finding is also related to the cross-cutting element of problem identification and resolution in that corrective actions were not effective. Specifically, NRC Inspection Report 05000275; 323/2005004 addressed a similar issue involving work on Startup Transformer 2-1 and the failure to conduct a circuit isolation plan according to procedures. Although training and re-enforcement of standards was provided to personnel, the problem reoccurred.

Inspection Report# : [2005005\(pdf\)](#)

**Significance:**  Nov 29, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Promptly Correct Emergency Core Cooling System Check Valve Back-Leakage**

An NRC-identified non-cited violation of 10 CFR Part 50, Criterion XVI, was identified for the failure to promptly correct Emergency Core Cooling System (ECCS) check valve back-leakage. Since 2000, Units 1 and 2 have experienced ECCS check valve back-leakage. Pacific Gas and Electric Company (PG&E) has failed to adequately take into consideration industry experience and provide for timely corrective actions regarding ECCS check valve back-leakage and its potential to cause gas-binding of ECCS pumps and/or water hammer of ECCS piping. This issue was entered into PG&E's corrective action program as Action Requests A0526037 and A0610421.

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 have 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 cause of the finding is related to the cross-cutting element of problem identification and resolution in that PG&E did not adequately evaluate and implement timely corrective actions to ECCS check valve back-leakage.

Inspection Report# : [2005005\(pdf\)](#)

**Significance:**  Nov 27, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Properly Implement Procedure for Safety Injection System Operation**

A self-revealing, non-cited violation of Technical Specification 5.4.1.a was identified for the failure of operations personnel to properly implement Procedure OP B-3B:I, "Accumulators - Fill and Pressurize," Revision 23. On November 27, 2005, operators failed to correctly align valves according to Procedure OP B-3B:I in order to fill Safety Injection Accumulator 1-3. As a result, the safety injection pumps injected into the reactor coolant system causing the pressurizer cooldown rate to be exceeded and contributing to safety injection discharge header pressurization due to perturbation of check Valve SI-1-8948B. This violation was entered into Pacific Gas and Electric Company's corrective action program as Action Request A0653564.

The finding is greater than minor because it is associated with the Mitigating System 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," Appendix G, Checklist 4, the findings did not require quantitative screening. Therefore, the finding was assessed as having very low safety significance. The cause of the finding is related to the crosscutting element of human performance in that operations personnel did not follow procedures.

Inspection Report# : [2005005\(pdf\)](#)

**G**

**Significance:** Jul 20, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Assure That Appropriate Quality Standards Are Specified and Included in Design Documents and That Deviations are Controlled**

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to assure that appropriate quality standards are specified and included in the design documents and that deviations from such standards are controlled. Specifically, Pacific Gas and Electric Company failed to control the quality of work performed by contractors to ensure adequate cable bend radius for the newly installed vital battery chargers. Pacific Gas and Electric Company subsequently reworked to restore the proper bend radius. The quality control documents for cable terminations and installation have been modified to ensure that cable bend radius is assessed.

This finding impacted the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. It is more than minor since it is similar to Inspection Manual Chapter 0612, Appendix E, Example 3.a, in that all vital battery chargers must have their connections and cables reworked for long term reliability. Using the Significance Determination Process Phase 1 Screening Worksheet in Appendix A of Inspection Manual Chapter 0609, the inspectors determined that there was no loss of an actual safety function, no loss of a safety-related train for greater than the Technical Specification allowed outage time, and the finding is not potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event. Therefore, the finding was determined to be of very low safety significance. The cause of the finding is related to the crosscutting element of human performance in that maintenance personnel failed to ensure the adequate cable bend radius for vital battery chargers.

Inspection Report# : [2005004\(pdf\)](#)

**G**

**Significance:** Jul 13, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Adequately Assess and Manage Risk Associated with Startup Transformer 2-1 Maintenance**

A self-revealing, noncited violation was identified for the failure to adequately assess and manage the risk associated with maintenance on startup Transformer 2-1, as required by 10 CFR 50.65(a)(4). Specifically, Pacific Gas and Electric Company failed to adequately evaluate the scope of startup Transformer 2-1 relay maintenance and its impact on startup Transformer 1-1. As a result, the protective relay for startup Transformer 1-1 was challenged but not to a sufficient magnitude to trip the power supply to the transformer. Corrective actions included reinforcement to staff on maintenance risk assessments for non-routine work and a caution note in the applicable work orders regarding the wiring configuration of the startup transformer relays. This finding had crosscutting aspects in the area of human performance for the failure to adequately assess and manage the risk associated with protective relay maintenance.

The finding impacted the Mitigating Systems Cornerstone and was determined to be more than minor using Inspection Manual Chapter 0612, Appendix E, Example 7.f. Specifically, Pacific Gas and Electric Company staff failed to appropriately implement Procedures AD7.DC8 and MA1.DC11 which called for a circuit isolation plan to identify any actions that may impact in-service equipment for medium risk maintenance activities. Using Inspection Manual Chapter 0609, Appendix K, Maintenance Risk Assessment and Risk Management Significance Determination Process, Flowchart 1- Assessment of Risk Deficit, the delta incremental core damage probability deficit was less than 1E-6 and the delta incremental large early release probability deficit was less than 1E-7 since the amount of voltage applied to startup Transformer 1-1 Protective Relay 86SU would not have caused a loss of startup power to either unit. The finding was assessed as having very low safety significance.

Inspection Report# : [2005004\(pdf\)](#)

**G**

**Significance:** Jun 17, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Identify Non-conservative Containment Recirculation Sump Valve Differential Pressure**

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to promptly identify a condition

adverse to quality. Specifically, Pacific Gas and Electric Company initially screened industry operating experience regarding the potential for containment recirculation sump valves failing to open following certain small-break loss-of-coolant accidents as not being applicable to Diablo Canyon Power Plant. Upon questioning from the inspectors, the industry operating experience was found to be applicable and the calculation concerning containment recirculation sump valves were determined to be nonconforming but the valves remained operable. Additionally, the inspectors questioned Pacific Gas and Electric Company regarding the need for a prompt operability assessment for the valves. For corrective actions, Pacific Gas and Electric Company planned to revise the calculation associated with the differential pressure across the containment recirculation sump valves and base future testing of the valves from the new calculation.

The finding impacted the Mitigating Systems Cornerstone and was determined to be more than minor since it impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding affected the cornerstone attribute of design control, and the failure to recognize the applicability of the industry operating experience would allow the non-conservative design and testing of the containment recirculation sump valves to continue to exist. Using the Significance Determination Process Phase 1 Screening Worksheet of Inspection Manual Chapter 0609, the finding was determined to be of very low safety significance since the finding is a design or qualification deficiency confirmed not to result in loss of function per Generic Letter 91-18, Revision 1. This finding had cross-cutting aspects in the area of problem identification and resolution.  
Inspection Report# : [2005004\(pdf\)](#)

**G****Significance:** May 29, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Promptly Identify and Correct Diesel Engine Generator Lube Oil Carbonization**

A self-revealing NCV was identified for the failure to correct a condition adverse to quality, in accordance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions." Specifically, Pacific Gas and Electric Company failed to effectively implement interim corrective actions to remove carbonized lube oil from Diesel Engine Generator 1-1 lube oil system, which led to Diesel Engine Generator 1-1 unplanned unavailability. A problem identification and resolution crosscutting aspect was identified for the failure to effectively correct the impact of carbonized lube oil on Diesel Engine Generator 1-1. This issue has been entered into the corrective action program as Action Request A0638887.

The finding impacted the Mitigating Systems Cornerstone and was more than minor since it impacted the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. With respect to this finding, the carbonized oil clogged the precirculation lube oil line and required the unplanned unavailability of Diesel Engine Generator 1-1 to clean the line. Using the significance determination process Phase 1 screening worksheet in Appendix A of IMC 0609, the inspectors determined that there was no loss of an actual safety function, no loss of a safety-related train for greater than the diesel engine generator Technical Specification allowed outage time, and the finding is not potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event. Therefore, the finding was determined to be of very low safety significance  
Inspection Report# : [2005003\(pdf\)](#)

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## Barrier Integrity

**G****Significance:** Sep 08, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Implement Adequate Work Control for Activities That Can Affect The Control Room Boundary**

A self-revealing noncited violation of Technical Specifications 5.4.1.a was identified for the failure to implement adequate work controls for painting activities in the area of control room ventilation equipment. Subsequently, the conduct of painting in the supply duct for Control Room Supply Fan S-38 resulted in operating fans drawing in the paint fumes into the control room. The work planning did not identify that the established ventilation path would result in the paint fumes entering the control room. The finding has crosscutting aspects associated with human performance in the planning of the work activity.

This finding impacted the Barrier Integrity Cornerstone and was determined to be more than minor because if left uncorrected the finding could result in a more significant safety concern involving control of work activities that could affect the control room atmosphere. Using the Significance Determination Process Phase 1 Screening Worksheet in Appendix A of Inspection Manual Chapter 0609, the inspector considered that the issue represented an administrative control function for preventing paint fumes from entering the control room and the protection of the control room ventilation system charcoal filters. This issue was discussed with a senior reactor analyst and determined that the appropriate safety significance evaluation was through management review. The management review considered Pacific Gas and Electric Company's control of painting materials in and around the control room envelope, any potential impact on the charcoal filters used to maintain the radiological barrier in the event of an accident, and any potential impact on licensee personnel. Based on the introduction of paint fumes into the control room did not adversely affect the control room operators' ability to operate the plant, there was not an actual degradation of the control room boundary and the charcoal filters remained operable, the finding was determined to be of very low safety significance.

Inspection Report# : [2005004\(pdf\)](#)

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## Emergency Preparedness

**Significance:** SL-IV Oct 20, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

### Failure to Accurately Assess and Report Performance Indicator Data

The inspector identified a noncited violation of 10 CFR Part 50.9 because Pacific Gas and Electric Company (PG&E) failed to provide complete and accurate information in a submittal of data for the emergency preparedness drill and exercise performance indicator. Specifically, PG&E staff failed to identify three missed opportunities for emergency notification accuracy during the second calendar quarter of 2005. PG&E took prompt action to correct the second quarter data, which resulted in the drill and exercise performance indicator color to cross from GREEN to WHITE. PG&E also initiated a 100 percent review of the second and third quarter drill and exercise performance indicator data and discovered one additional administrative error in the third quarter performance indicator data, which had been previously evaluated, but not yet reported to the NRC. PG&E had previously initiated a root cause evaluation in its corrective action program to determine the reason for the declining indicator and, subsequently, initiated another root cause evaluation to determine the reason for the failure to adequately evaluate and report the performance indicator data.

Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process. Supplement 7, Section D.3, of the NRC Enforcement Policy describes this finding as a Severity Level IV violation. The issue is significant because it indicates a declining trend in the attention to detail shown by senior licensed operators in performing emergency notifications to the state and local authorities. This issue is documented in PG&E's corrective action program as Nonconformance Report N0002200. The finding had human performance cross-cutting aspects for the failure to provide accurate performance indicator data.

Inspection Report# : [2005005\(pdf\)](#)

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## Occupational Radiation Safety

**Significance:**  Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

### Failure to Post A Radiation Area

The inspector identified a non-cited violation of 10 CFR 20.1902 because Pacific Gas and Electric Company (PG&E) failed to post a radiation area. Specifically, PG&E did not post an area within Vault 26 in which the radiation dose rates were approximately 30 millirem per hour at 30 centimeters from the surfaces of radioactive material storage containers. The finding was entered into PG&E's corrective action program as Action Request A0652226 and planned corrective action is still being evaluated.

The finding was more than minor because it was associated with one of the cornerstone attributes (exposure control and monitoring) and the finding affected the Occupational Radiation Safety cornerstone objective, in that uninformed workers could unknowingly accrue additional radiation dose. The inspector determined that the finding had no more than very low safety significance because: (1) it did not involve ALARA planning and controls, (2) there was no personnel overexposure, (3) there was no substantial potential for personnel overexposure, and (4) the finding did not compromise PG&E's ability to assess dose. The finding also has cross-cutting aspects related to problem identification and resolution, in that a similar violation was previously identified during Inspection 50-275/02-04; 50-323/02-04.

Inspection Report# : [2005005\(pdf\)](#)

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## Public Radiation Safety

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## Physical Protection

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

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## Miscellaneous

