

Diablo Canyon 1

2Q/2006 Plant Inspection Findings

Initiating Events

G**Significance:** Jan 27, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Adequately Maintain Abnormal Operating Procedure for Reactor Coolant Pump Malfunctions

A self-revealing, non-cited violation of Technical Specification 5.4.1.a was identified for the failure to adequately maintain abnormal operating Procedure OP AP-28, "Reactor Coolant Pump Malfunction," Revision 1. On January 27, 2006 operators vented the pressurizer relief tank and received a reactor coolant pump high seal flow alarm. Due to the inadequate construction of Procedure OP AP-28, operators were directed to a step that required them to manually trip the reactor when diagnostics performed in previous steps demonstrated no reactor coolant pump seal problem. The failure to adequately maintain Procedure OP AP-28 increased the potential for operators to initiate a reactor trip, with loss of forced circulation in one loop, for conditions that may not warrant such a response. This finding was entered into the corrective action program as Action Request A0658595.

The finding impacted the Initiating Events Cornerstone and, as described in Inspection Manual Chapter 0612, Appendix B, the finding was considered more than minor since it affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. Specifically, Procedure OP AP-28 affected the cornerstone attribute of procedure quality since it may lead operators to induce a significant transient on the unit (reactor trip) for plant conditions that do not warrant such action. Using the Significance Determination Process Phase 1 Screening Worksheet of Inspection Manual Chapter 0609, Appendix A, the finding was determined to be of very low safety significance since it does not contribute to the likelihood of a primary or secondary loss-of-coolant accident, does not contribute to both the likelihood of a reactor trip and unavailability of mitigating systems, and it does not increase the likelihood of a fire or flood. The cause of the finding is related to the crosscutting element of human performance in that procedure developers constructed Procedure OP AP-28 in a way that would unnecessarily increase the likelihood of a manual reactor trip.

Inspection Report# : [2006002\(pdf\)](#)

Mitigating Systems

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\(pdf\)](#)

G**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\(pdf\)](#)



Significance: Nov 27, 2005

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: Nov 19, 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.

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



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\(pdf\)](#)



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\(pdf\)](#)

Barrier Integrity



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\(pdf\)](#)

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\(pdf\)](#)

Occupational Radiation Safety

Significance:  Nov 15, 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\(pdf\)](#)

Significance:  Oct 26, 2005

Identified By: Self-Revealing
Item Type: NCV NonCited Violation

Failure to Follow Special Work Permit Instructions

The inspectors reviewed a self-revealing, NCV of Technical Specification 5.4.1, resulting from failure to follow special work permit instructions by a radiation protection technician. On October 26, 2005, a radiation protection technician working on Special Work Permit 05-1004, "Radiation Protection in Containment," placed a portion of the whole body in a higher dose rate than allowed by the special work permit (1,600 millirem per hour versus 1,000 millirem per hour). Pacific Gas and Electric Company (PG&E) was alerted to the problem by the alarming dosimeter of the radiation protection technician. As a corrective action, PG&E will include this event in radiation protection continuing training and require radiation protection technicians to be present during the worker briefings, if the work will be conducted in dose rates greater than 1 rem per hour.

The finding was greater than minor because it was associated with one of the cornerstone attributes (exposure control) and the finding affected the Occupational Radiation Safety cornerstone objective, in that a failure to follow special work permit instructions resulted in additional radiation dose. The inspectors determined that the finding had no more than very low safety significance because (1) it did not involve an ALARA finding, (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 doses. The finding also had cross-cutting aspects related to human performance in that the radiation protection technician failed to follow the special work permit instructions directly resulted in the finding.

Inspection Report# : [2006002\(pdf\)](#)

Public Radiation Safety

Physical Protection

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

Miscellaneous

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