

Diablo Canyon 2

4Q/2008 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform a Safety Assessment for Following Discovery of Explosive Gas in the Auxiliary and Containment Buildings

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," after Pacific Gas and Electric personnel failed to perform a safety assessment prior to implementing a temporary procedure on July 20, 2008, to transfer an explosive gas mixture from the waste gas system to the Unit 2 vent. The explosive mixture of oxygen and hydrogen was discovered in the Unit 2 reactor coolant drain tank, waste gas surge tank, and interconnecting piping. The licensee also identified that the Unit 2 pressurizer relief tank vapor space exceeded the lower flammable limits. The explosive and flammable gas created a condition outside the plant design bases and was inconsistent with safety analysis. Plant Procedure TS3.ID2, "Licensing Basis Impact Evaluation," required the licensee to have performed a safety assessment prior to conducting activities outside the design bases and inconsistent with safety analysis. The licensee entered this condition into the corrective actions system as Action Request A0741069.

This finding is greater than minor because explosive and flammable gas within the containment and auxiliary buildings affected the Initiating Events Cornerstone objective to limit the likelihood of events that may upset plant stability and challenge critical safety functions during power operations and protect against external factors such as fire and explosions. The inspectors used Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," to analyze the significances of the finding. The inspectors determined this finding was a fire prevention and administrative controls category due to the failure to meet the equipment control guideline for combustible gas flammability limits. The inspectors concluded that that this finding is of very low safety significance because the condition represented a low degradation rating due to the lack of a direct ignition source. This finding has a crosscutting aspect in human performance in the area of Decision Making because the licensee failed to use the systematic process provided in Procedure TS3.ID when making a safety significant or risk-significant decision when faced with the unexpected explosive gas mixture within containment and auxiliary building plant systems.

Inspection Report# : [2008004](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Evaluation Following the Loss of Design Control for the 500 kV Offsite Power Source

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criteria III, Design Control, after Pacific Gas and Electric Company failed to maintain and verify that the 500 kilo-Volt offsite power system met the design basis. The licensee was unable to retrieve design documents demonstrating in compliance with General Design Criteria 17. On October 28, 2008, the licensee completed an evaluation of the missing documentation and concluded that the 500 kilo-Volt system was in compliance with the plant design basis by a "road map" of pre-existing analysis supporting other plant requirements. Licensee personnel failed to verify the applicability of "road map" analysis as required by design control measures. The inspectors concluded that the licensee's evaluation of the 500 kilo-Volt offsite power design measures was inadequate. The licensee assumed a 30 minute delay time was needed to align the

500 kilo-Volt offsite power to the plant vital buses. The licensee assumed no reactor coolant inventory loss would occur through the reactor coolant pump seals during the delay time. The inspectors determined that this assumption was incorrect and the supporting “road map” document was not appropriate to the application. The inspectors estimated about 12 gallons per minute of reactor coolant inventory would be lost through the seals during first 8 minutes and then increase to about 88 gallons per minute until seal injection could be reestablished. The licensee entered this condition into the corrective action program as Notification 50083989.

The finding is greater than minor because the failure to maintain design measures of the 500 kilo-Volt offsite power system is associated with the Mitigating Systems Cornerstone design control attribute and objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors used Inspection Manual Chapter 0609, Appendix A, “Determining the Significance of Reactor Inspection Findings for At-Power Situations,” to analyze the significance of this finding. The inspectors concluded the finding is of low safety significance because the condition was not a design or qualification deficiency conformed to result in loss of operability or functionality. While this performance deficiency represented a latent issue, the inspectors determined that the licensee had reasonable opportunity to identify the problem during the evaluation of the impact of missing design documents during October 2008. The inspectors concluded that the performance deficiency was representative current licensee performance and assigned a crosscutting component of problem identification and resolution and corrective action program aspect because Pacific Gas and Electric Company did not thoroughly evaluate the missing design basis such that the resolutions address causes and extent of conditions, as necessary [P.1.(c)].

Inspection Report# : [2008005](#) (*pdf*)

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Operation of 230 kV Offsite Power System Outside the Design Basis

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criteria III, Design Control, after Pacific Gas and Electric failed to adequately translate the design basis for the 230 kV preferred offsite power system into specifications and procedures. Between November 3 and 7, 2008, the licensee operated with both units aligned to a single startup transformer. This created a situation where a dual unit trip or trip on one unit and accident on the other unit could result in loss of the preferred immediate offsite power source offsite power to both units.

The finding is greater than minor because the Mitigating Systems Cornerstone design control attribute and objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences was affected. The inspectors used Inspection Manual Chapter 0609, Appendix A, “Determining the Significance of Reactor Inspection Findings for At-Power Situations,” to analyze the significance of this finding. The inspectors concluded that the finding is a design deficiency that did result in loss of operability. However, the inspectors concluded the finding is of very low safety significance because the actual loss of safety function of the 230 kV offsite power system was less than the Technical Specification allowed outage time. The inspectors also concluded that the finding did not represent a loss of safety function for greater than 24 hours or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that 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 operability of the offsite power circuit prior to removing the Unit 2 startup transformer from service [P.1(c)].

Inspection Report# : [2008005](#) (*pdf*)

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: FIN Finding

Failure to Implement Effective Actions to Correct an Adverse Trend

The inspectors identified a finding after Pacific Gas and Electric was ineffective in addressing an adverse trend in missed quality control inspection hold points. Licensee Procedure OM7, “Corrective Action Program,” required that the licensee evaluate problems commensurate with their significance, determine the cause, and conduct a proper

evaluation and resolution of repeat occurrences. The procedure further required that corrective actions are completed in a timely manner consistent with the problem significance. On May 19, 2007, Pacific Gas and Electric identified an adverse trend of missing quality control inspection hold points and requested that an apparent cause evaluation be performed. On July 11, 2007, this adverse trend was also evaluated by the Quality Verification Department as part of an assessment of Refueling Outage 14 maintenance. In March 2008, the licensee completed the evaluations and corrective actions. During the subsequent Unit 2 refueling outage, the Quality Verification Department identified over 11 additional missing quality inspection hold points. The inspectors identified that the licensee's corrective actions were ineffective to correct the adverse trend in missing quality control inspection hold points. Pacific Gas and Electric Company entered this finding into the corrective action program as Notification 50135175.

The finding was more than minor because, if left uncorrected, the failure to perform inspections has the potential to lead to a more significant safety concern. The inspectors used Inspection Manual Chapter 0609, Appendix A, "Determining the Significance of reactor Inspection Findings for At-Power Situations," to analyze the significance of this finding. The inspectors concluded that this finding was of very low safety significance because the uncorrected adverse trend did not represent a loss of system safety function, the loss of safety function of a single train for greater than its Technical Specification allowed outage time, actual loss of safety function of one or more non-Technical Specification trains greater than 24 hours, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating. The finding has a crosscutting aspect in the area of problem identification and resolution, associated with the corrective action program component, because the licensee failed to thoroughly evaluate the adverse trend and take corrective actions that addressed the cause and extent of condition [P.1(c)].

Inspection Report# : [2008005](#) (*pdf*)

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Control for the Emergency Diesel Generator

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," after Pacific Gas and Electric failed to provide adequate design control measures for verifying the emergency diesel generators meet the design basis. The inspectors requested to review the design control measures that Pacific Gas and Electric maintained to demonstrate compliance with General Design Criteria 17, "Electric Power Systems," design basis. The licensee was not able to retrieve the requested design control measures for the onsite electrical power systems. The licensee provided unit specific diesel loading calculations. The inspectors identified that the licensee failed to include all design basis accidents, a single limiting failure, consider bus frequency and voltage fluctuations, motor starting currents, or manually initiated loads in the calculation. In response to the inspectors' observations, the licensee performed an operability evaluation. The inspectors reviewed the evaluation and concluded that the emergency diesel generators remained operable and capable of performing their intended safety function. The licensee has entered this issue into the corrective action program as Notification 50163396.

This finding 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 are affected. The inspectors used Inspection Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," to analyze the significance of this finding. The inspectors concluded the finding is of very low safety significance because the condition was a design or qualification deficiency confirmed not to result in loss of operability or functionality. The inspectors did not assign a crosscutting aspect because the finding represented a latent design issue. Pacific Gas and Electric revised the calculations in September 2006 and did not have a recent opportunity to identify this issue.

Inspection Report# : [2008005](#) (*pdf*)

Significance:  Nov 20, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct Violations of the Seismically-Induced Systems Interaction Program

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to properly implement housekeeping procedures to prevent seismically-induced system

interactions. Specifically, the team identified two instances during a plant walk down where transient equipment was staged in the vicinity of safety-related equipment identified as seismically-induced system interaction targets. This transient equipment had not been analyzed to assess the risk to these safety-related components. Following identification by the team, licensee staff secured and analyzed the transient equipment. Licensee staff entered this finding into the corrective action program as Notifications 50084856 and 50084761.

The failure of plant personnel to follow the requirements to properly secure or analyze equipment in close proximity to sensitive equipment was a performance deficiency. The finding was more than minor because it was similar to Inspection Manual Chapter 0612, "Power Reactor Inspection Reports" Appendix E, Example 3.j., in that it was indicative of a significant programmatic deficiency in the licensee's Seismically-Induced System Interactions Program that could lead to worse errors if uncorrected. Specifically, a change in program ownership in 2006 resulted in a degradation of the sensitivity of plant personnel to the risk of seismically-induced system interactions due to transient materials, insufficient training of plant personnel on the program, and an absence of quality records over an approximately two-year period. Using Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have very low safety significance because it did not result in an actual loss of a system safety function, did not result in a loss of a single train of safety equipment for greater than its technical specification allowed outage time, did not involve the loss or degradation of equipment specifically designed to mitigate a seismic, flooding, or severe weather initiating event, and did not involve the total loss of any safety function that contributes to an external event initiated core damage accident sequence. This finding has a cross-cutting aspect in the area of human performance associated with the work practices area component because the licensee failed to define and effectively communicate expectations regarding procedural compliance and personnel failed to follow procedures [H.4(b)].

Inspection Report# : [2008008](#) (*pdf*)

Significance:  Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Operability Procedure

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," after the licensee failed to adhere to several requirements in Administrative Procedure OM7.ID12, "Operability Determination," Revision 11. Specifically, the licensee identified that it did not perform a prompt operability assessment for a condition adverse to quality until approximately 1 year after the immediate operability determination was performed. Also, the inspectors identified that when the prompt operability assessment was performed, it relied inappropriately on engineering judgment, for a complex issue, without an adequately documented basis for that judgment. The adverse condition was an identified nonconformance related to the design basis because both units were operating at a full power average temperature less than the design value. The licensee has entered this into their corrective action program as Action Request A0723331 which details their planned correction actions.

The inspectors determined that the finding was more than minor because it is similar to Inspection Manual Chapter 0612, Appendix E, Minor Example 3(j) in that operability was questioned and both the licensee and the vendor had to perform significant work and analysis in order to fully address the operability impact of a low average temperature on operating Unit 1. In accordance with Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, Phase 1 - Initial Screening and Characterization of Findings, the inspectors concluded the finding was of very low safety significance (Green) because it did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of human performance associated with the decision making component because the licensee did not use conservative assumptions when it decided that engineering judgment alone was a sufficient basis for operability without a supporting plant specific analysis [H.1(b)] .

Inspection Report# : [2008003](#) (*pdf*)

G**Significance:** Mar 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Demonstrate that the Unit 2 Containment Atmosphere Particulate Radioactivity Monitor Performance was Being Effectively Controlled per 10 CFR 50.65(a)(2)

The inspectors identified a noncited violation of 10 CFR 50.65(a)(2), after Pacific Gas and Electric Company failed to effectively control performance monitoring of the Unit 2 containment atmosphere particulate radiation monitor through appropriate preventive maintenance. Eight functional failures of the radiation monitor occurred between November 2006 and January 2008. The licensee did not categorize any of these failures as Maintenance Rule functional failures.

This finding is greater than minor because it is associated with the mitigating systems cornerstone attribute of equipment performance and it affects the cornerstone objective to ensure the availability, reliability, and capability of the systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of this finding using Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1, Appendix A. The inspectors determined that this finding was of very low safety significance because this is not a design or qualification deficiency, does not represent a loss of a system safety function or safety function of a single train, and does not screen as potentially risk significant due to external events. The inspectors also determined that this finding has a crosscutting aspect in the area of human performance associated with the work practices component because engineering staff failed to follow the November 2006 revision to the licensee maintenance rule procedure that would have required each failure to be counted as a maintenance rule functional failure. Engineering staff incorrectly concluded that the revision was not applicable to the radiation monitors and therefore did not implement the change. [H4(b)]

Inspection Report# : [2008002](#) (*pdf*)**G****Significance:** Feb 17, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain the Integrity of an Auxiliary Building Fire Door

On February 17, 2008, the inspectors identified a noncited violation of Technical Specification 5.4.1.d, "Fire Protection Program," after Pacific Gas and Electric failed to maintain the integrity of an auxiliary building fire door. The inspectors identified that the latching mechanism on Fire Door 348 was degraded and not engaged. The unlatched fire door resulted in a reduction in fire confinement capability. The door was required to provide a 1½-hour fire barrier between two plant fire areas. The licensee had several prior opportunities to identify the degraded fire door. Security and operations personnel passed through the affected fire area several times each day.

This finding is greater than minor because the degraded fire barrier affected the mitigating systems cornerstone external factors attribute objective to prevent undesirable consequences due to fire. Using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," the inspectors determined this finding is within the fire confinement category and the fire barrier was moderately degraded because the door latch was not functional. The inspectors concluded that this finding is of very low safety significance because a non-degraded automatic full area water based fire suppression system was in place in the exposing fire area. This finding was entered into the corrective action program as Action Request A0719774. This finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because plant personnel did not maintain a low threshold for identifying issues.

Inspection Report# : [2008002](#) (*pdf*)

Barrier Integrity

Significance:  Sep 30, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Procedure Resulting in Inoperable Auxiliary Building Ventilation System

The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.4.1, "Procedures," after Pacific Gas and Electric personnel failed to provide adequate work instructions for removal of equipment from service, resulting in the inoperability of both Unit 2 auxiliary building ventilation system trains, a condition prohibited by plant technical specifications. The work instruction did not provide a step for properly realigning the system to maintain operability of one train. The licensee entered this condition into the corrective actions system as Notification 50070612.

This finding was more than minor because the loss of both ventilation trains affected the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events and the inadequate procedure affected the attribute of procedure quality. The finding was of very low safety significance because it only represented a degradation of the radiological barrier function provided for the auxiliary building. This finding had a crosscutting aspect in the area of human performance with a Work Practices component because Pacific Gas & Electric staff failed to perform an adequate prejob brief to address questions regarding the sequence of steps and operators proceeded with the clearance in the face of uncertainty.

Inspection Report# : [2008004](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Feb 13, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Conduct an Adequate Evaluation

Part 20.1501(a) of Title 10 of the Code of Federal Regulations requires that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in 10 CFR Part 20 and that are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present. Pursuant to 10 CFR 20.1003, a "survey" means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. Part 20.1201(a) of Title 10 of the Code of Federal Regulations states, in part, that the licensee shall control the occupational dose to individual adults to specified limits.

Contrary to this requirement, as of February 13, 2008, the licensee failed to perform an evaluation of the radiological conditions and the potential hazards during fuel pool activities that was necessary to comply with 10 CFR 20.1201(a) and that were reasonable under the circumstances to evaluate the concentrations of radioactive materials, and the potential radiological hazards that could be present. Specifically, the licensee failed to evaluate the placement of an AMS-4 monitor to ensure that surveys taken were appropriate for monitoring the concentrations of radioactive material and the potential radiological hazards that could be present. Because this failure to perform radiological surveys is of very low safety significance and has been entered into the licensee's corrective action program as Action Request A0719338, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000323/2008002 03, Failure to Conduct an Adequate Evaluation.

Inspection Report# : [2008002](#) (*pdf*)

Public Radiation Safety

Significance: SL-IV Dec 11, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Update the Final Safety Analysis Report

The team identified a non-cited violation of 10 CFR 50.71(e) for the failure of the licensee to periodically (every 24 months) update its Final Safety Analysis Report Update with all changes made in the facility or procedures. Specifically, in July 2005, the licensee stopped using the boric acid evaporator system as described in the Final Safety Analysis Report Update, Section 11.2.6, and did not submit an update to the NRC regarding this operational change. This issue was entered into the licensee's corrective action program as Notification 50116337 and licensee representatives stated an update would be submitted.

The team determined that the failure to update the Final Safety Analysis Report Update to reflect changes made to the facility was a performance deficiency. This issue is subject to traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. The finding is characterized as a Severity Level IV, non-cited violation in accordance with NRC Enforcement Policy, Supplement I, Example D.6, in that, the erroneous information in the Final Safety Analysis Report Update was not used to make an unacceptable change to the facility or procedures.

Inspection Report# : [2008009](#) (*pdf*)

Significance:  Nov 20, 2008

Identified By: NRC

Item Type: FIN Finding

Failure to Take Appropriate Actions to Correct an Identified Adverse Trend

The team identified a finding for failure to take adequate corrective actions to correct adverse trends in control of radioactive and potentially contaminated material as required by the corrective action program. Specifically, between May 2005 and June 2008, the licensee on two occasions identified and failed to correct adverse trends in the control of radioactive and potentially contaminated material. Licensee staff entered this finding into the corrective action program as Notification 50085121.

The finding was more than minor because it affected the Public Radiation Safety cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Using Inspection Manual Chapter 0609 Appendix D, "Public Radiation Safety Significance Determination Process," the finding was determined to have very low safety significance because the dose impact to a member of the public was less than or equal to 0.005 rem total effective dose equivalent. The finding has a cross-cutting aspect in the area of problem identification and resolution, associated with the corrective action area component; because the licensee failed to thoroughly evaluate problems such that the resolution addressed the cause [P.1(c)].

Inspection Report# : [2008008](#) (*pdf*)

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Last modified : April 07, 2009