Diablo Canyon 2
1Q/2007 Plant Inspection Findings

Initiating Events

Significance: G May 16, 2006
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Preserve Corrective Action for Thimble Tube Wear
A self-revealing, noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified for the failure to apply adequate design control measures regarding the installation of thimble tubes with chrome-plated bands. Specifically, Pacific Gas and Electric Company installed thimble tubes with chrome-plated bands at the fuel assembly bottom nozzle/lower core plate interface to address flow-induced vibration wear. Due to the failure of engineering personnel to account for the chrome-plated bands in the thimble tube relocation procedure, the chrome-plated band on Thimble Tube L-13 was removed from its designed location at the fuel assembly bottom nozzle, thereby increasing the potential for thimble tube through-wall wear. This issue was entered into Pacific Gas and Electric Company's corrective action program as Nonconformance Report N0002211.

The finding is greater than minor because it is associated with the Initiating Events Cornerstone attribute of design control and affects the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because, assuming the worst-case degradation, the finding would not result in exceeding the Technical Specification limit for identified reactor coolant system leakage or affect mitigating systems. Specifically, the inspectors verified the worst-case leakage, i.e., guillotine break, from a thimble tube at the fuel assembly bottom nozzle/lower core plate interface to be approximately 7 gpm versus the Technical Specification reactor coolant system identified leakage limit of 10 gpm. The finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program because Pacific Gas and Electric Company removed a corrective action to prevent recurrence of significant thimble tube wear.
Inspection Report# : 2006005 *(pdf)*

Mitigating Systems

Significance: G 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: G 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)*

Significance: G 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)*

Significance: G Apr 20, 2006
Identified By: NRC
Item Type: NCV NonCited Violation

Inadequate refueling procedure for draining and depressurizing the reactor coolant system
An NRC-identified, non-cited violation of Technical Specification 5.4.1.a was determined for an inadequate procedure, Procedure OP A-2:II, “Reactor Vessel - Draining the RCS to the Vessel Flange - With Fuel in Vessel,” Revision 33A. Specifically, on April 20, 2006, while operators depressurized the reactor coolant system (RCS), with water level 2 ft below the reactor vessel flange, the two required level instruments, wide-range reactor vessel refueling level indication system and LI-400, read 15 inches higher than actual reactor vessel water level. The inspectors determined that the procedure was not adequate because prior operating experience had not been incorporated into the procedure that demonstrated the level instruments would read non-conservatively during RCS depressurization. Also, Procedure OP A-2:II did not have criteria that alerted operators to abnormal level instrument deviations that may be caused by phenomenon outside of the level deviations expected by the RCS depressurization. Pacific Gas and Electric Company (PG&E) has planned to evaluate potential changes to Procedure OP A-2:II and RCS water level instrumentation when used during RCS depressurization. This issue was entered into PG&E's corrective action program as Action Requests A0664484, A0672419, and A0672422.

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 Inspection Manual Chapter 0609, Appendix G, Attachment 1, Checklist 3, the finding is determined to be of very low safety significance since an optional set of instrumentation provided accurate RCS level indication and there was no loss of RCS inventory control. The finding had a cross-cutting aspect in the area of human performance for resources because PG&E failed to ensure the adequacy of procedures used for reactor vessel level monitoring to ensure nuclear safety.
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)*

Barrier Integrity

Significance:  Jan 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inappropriate Temporary Modification to Control Room Condenser

An NRC-identified, noncited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” was determined for the failure of maintenance personnel to make modifications to the Control Room Condenser CR-38 filter mount consistent with the component’s design documentation and Procedure CF4.ID7, “Temporary Modifications,” Revision 18. Specifically, on August 15, 2006, maintenance personnel used vice-grip pliers, C-clamps, and plastic tie-wraps to secure in place the filter mount, which was significantly corroded. The modification had not been documented or analyzed at the time it was placed into service. After subsequent engineering reviews, the condenser was considered inoperable due to the loss of seismic qualification. This issue was entered into Pacific Gas and Electric Company’s corrective action program as Action Request A0688202.

The finding is greater than minor because it is associated with the Barrier Integrity Cornerstone attribute of design control for the control room barrier and affects the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide 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 did not represent degradation of the barrier function of the control room against radiological hazards, smoke, or toxic atmosphere. This finding has a crosscutting aspect in the area of problem identification and resolution, associated with the corrective action program component, in that maintenance personnel failed to adequately identify the degraded condition of the control room condenser when it was initially discovered.
Inspection Report# : 2007002 *(pdf)*

Significance: G 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)*

Significance: G May 03, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to follow welding procedures
An NRC-identified, non-cited violation of Technical Specification 5.4.1 was identified because Pacific Gas and Electric Company (PG&E) failed to follow the procedure for ensuring that welding preheat temperatures were verified prior to welding. Specifically, during the replacement of Component Cooling Water Valves 279 and 280, which provide cooling to the reactor vessel support pads, PG&E failed to verify that the minimum welding preheat temperature of 50°F was met and could not demonstrate that the ambient temperature was greater than 50°F. PG&E entered the finding into their corrective action program as Action Request A0665588.

The finding was greater than minor because it was associated with the human performance attribute of the Barrier Integrity Cornerstone and impacted the cornerstone objective of providing reasonable assurance that physical design barriers, in this

case the reactor coolant system, protect the public from radio-nuclide releases caused by accidents or events. The finding was determined to be of very low safety significance based on management review of the plant conditions at the time the performance deficiency occurred (defueled) and the condition was evaluated prior to the plant entering Mode 5.
Inspection Report# : 2006003 *(pdf)*

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)*

Occupational Radiation Safety

Significance:  Apr 18, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to survey to identify the magnitude and extent of radiation levels to identify radiological hazards
The inspectors identified a non-cited violation of 10 CFR 20.1501(a) because Pacific Gas and Electric Company (PG&E) failed to survey to determine the extent and magnitude of radiation levels and evaluate the radiological hazards. Specifically, on April 18, 2006, the inspectors identified elevated radiation levels near two chemical volume control system valves located in a hallway on the 100-foot elevation of Unit 2. PG&E confirmed elevated radiation levels near the valves were as high as 200 millirem per hour on contact and 28 millirem per hour at 30 centimeters. PG&E surveyed the area and entered the finding into their corrective action program as Action Request A0665039.

The finding was greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Exposure Control and Monitoring and affected the cornerstone objective to ensure the adequate protection of a worker's health and safety from exposure to radiation because workers could have unknowingly received additional radiation exposure. When going through the Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it was not an as low as is reasonably achievable finding. There was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised. The finding also had cross-cutting aspects associated with human performance because because adequate resources were not established for the survey requirements.

Inspection Report# : 2006003 *(pdf)*

Public Radiation Safety

Significance: G 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)*

Physical Protection

Physical Protection information not publicly available.

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