Diablo Canyon 2
3Q/2005 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2004
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Properly Implement Procedure for Spent Fuel Pool Skimmer Filter Replacement
A self-revealing NCV was identified for the failure to appropriately implement the procedure for spent fuel pool skimmer filter replacement, as required by Technical Specification 5.4.1.a. On December 23, 2004, operators cleared the spent fuel pool skimmer system using Section 6.3.1 of Procedure OP B-7:III, "Spent Fuel Pool System - Shutdown and Clearing and Filter Replacement," Revision 15, instead of the appropriate section, which was Section 6.3.2. A human performance cross cutting aspect was identified for the failure on two occasions to address configuration control concerns with the system.

This finding impacted the Initiating Events Cornerstone and was considered more than minor using Example 5.a of IMC 0612. Specifically, Valve SFS-2-3 was mis-positioned due to the use of the wrong section of Procedure OP B-7:III and then returned to service. Additionally, operators had two opportunities to identify the mis-positioning of Valve SFS-2-3 but failed to identify the condition. The mis-positioned valve resulted in a loss of approximately 36,000 gallons of water from the spent fuel pool. Using the SDP Phase 1 screening worksheet of IMC 0609, Appendix A, the finding was evaluated as a transient initiator, and it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. Therefore, the finding was screened as having very low safety significance
Inspection Report# : 2004005*(pdf)*

Mitigating Systems

Significance: G 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 an 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.
Inspection Report# : 2005004*(pdf)*

Significance: G 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 an 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. This finding had cross-cutting aspects in the area problem identification and resolution.

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.
Inspection Report# : 2005004*(pdf)*

Significance: G Mar 31, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to correct fire program violation concerning qualifications of Operations Responders in support of the fire brigade
The inspectors identified a noncited violation of Technical Specification 5.4.1.d for failure to implement procedures for Fire Protection Implementation, because of failure to provide adequate training for operations fire responders. Procedure OM8, "Fire Protection Program," Revision 2B, Section 7.8 states, in part, that quality problems associated with the Fire Protection Program shall be documented and resolved in accordance with Procedure OM7 "Corrective Action," Revision 2B. Section 9.5.1 of the Final Safety Analysis Report states that measures are established to ensure conditions adverse to fire protection are identified, reported and corrected, and that administrative procedures are established to implement this requirement. Contrary to the above, Pacific Gas & Electric Company did not adequately implement and maintain a procedure for fire protection. Specifically, Pacific Gas & Electric Company failed to adequately resolve a condition adverse to fire protection in accordance with Procedure OM7. As of March 1, 2005, operations responders were not required to participate in fire drills for initial qualification or maintenance of qualification, as was noted as a qualification deficiency in Non-cited Violation 50-275;323/2003-08-01, and Action Request (AR) A0600934. This finding has problem identification and resolution cross cutting aspects for failure to correct operations responder training deficiencies.

The performance deficiency associated with this finding is a failure to adequately implement the fire protection program with respect to the qualifications of the fire brigade operations responder. The finding impacted the mitigating systems cornerstone and was more than minor since there was an adverse impact to a fire protection defense-in-depth element. Using the Significance Determination Process (SDP) Phase I Screening Worksheet and the SDP Phase II Notebook in Appendix F of Inspection Manual Chapter (IMC) 0609, the inspectors determined that the finding was of very low safety significance. Specifically, the significance of the finding was evaluated by considering fire scenarios in the vital 4 kV Bus F switchgear room and auxiliary saltwater Pump 1-1 vault. These two areas have the highest dependence on fire brigade response since they have the highest fire ignition frequency for areas that do not have automatic fire suppression. The inspectors evaluated the risk-significance using half the nominal credit for manual fire suppression as a result of the finding. Using Tables 5.4, 5.5, and 5.6 of IMC 0609, both fire scenarios screened as very low safety significance. Since the two fire scenarios were considered worst-case for the finding, the inspectors determined that the finding was of very low safety significance.

Inspection Report# : 2005002*(pdf)*

Significance: G Mar 31, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to promptly correct diesel engine generator lube oil instrument line crack
The inspectors identified a noncited violation for the failure to promptly correct a cracked lube oil instrument sensing line, as required by 10 CFR Part 50, Appendix B, Criterion XVI. On August 29, 2004, operators observed a lube oil leak from the weld connecting the outlet of Valve DEG-2-1084 to instrument tubing. Approximately one month later, the leak had increased and it was discovered that the circumferential crack was 180 degrees through-wall on the weld. As a result, there was an increased potential for diesel engine generator (DEG) 2-3 to trip on low lube oil level. The finding had problem identification and resolution crosscutting aspects associated with operations and engineering personnel not recognizing the significance of the degraded condition and not implementing timely corrective actions.

This finding impacted the Mitigating Systems Cornerstone for reliability of systems that respond to initiating events to prevent undesirable consequences, and it affects the equipment performance attribute. The finding was more than minor using Example 4.f of Inspection Manual Chapter 0612, Appendix E. Similar to Example 4.f, the inspectors determined that there was impact to DEG 2-3 operability. Using the SDP Phase 1 screening worksheets in Appendix A of Inspection Manual Chapter 0609, the finding was determined to have potentially greater than very low safety significance because the failure could have resulted in an actual loss of diesel engine Generator 2-3 during a loss of offsite power event. An NRC Senior Reactor Analyst performed a Phase 3 significance determination and the estimated conditional core damage frequency was 1.2E-7/yr. This violation was of very low safety significance.

Inspection Report# : 2005002*(pdf)*

Significance: G Feb 15, 2005
Identified By: NRC
Item Type: FIN Finding
Diesel fuel oil transfer modification did not adequately assess reliability impact
A finding was identified for modifying the diesel fuel oil transfer system without properly assessing the resulting net affect on reliability from introducing a new failure potential associated with new active components. As a result, the licensee rejected a small design change, which would have eliminated the failure mode when it was recognized that failure of the new pressure control valves could fail the train. Because the failure potential was not fully assessed, the licensee decided not to implement a change that would have eliminated the impact of the failure, nor were the pressure control valves subject to any preventive maintenance to ensure their reliability. This issue was entered into the licensee's corrective action program under Action Request A0630383.

The failure to properly assess the net effect on system reliability and risk due to the positive and negative effects of this modification, or to mitigate or eliminate a new failure mode created by the modification was a performance deficiency. This issue is more than minor because it affected the design control attribute of the Mitigating Systems cornerstone objective to assure the reliability and capability of equipment needed for accident mitigation. This finding was determined to be of very low safety significance (Green) during a Phase 1 significance determination process, since the performance deficiency was confirmed not to result in a loss of function in accordance with Generic Letter 91-18 based on test results.
Inspection Report# : 2005006*(pdf)*

Significance: G Feb 15, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
No procedure for cross-tying trains of the diesel fuel oil transfer system
A noncited violation was identified for not having a procedure to cross-tie fuel oil transfer trains in response to certain failures, contrary to the design and licensing basis of the system. The design and license basis of the diesel fuel oil transfer system credited the capability to cross-tie trains in order to meet requirements to maintain the system function and be able to withstand a worst-case single failure. The team identified that the licensee did not have a procedure or training to accomplish this task. Failure to incorporate design and licensing requirements into plant procedures was a violation of 10 CFR Part 50, Appendix B, Criterion III. This issue was entered into the licensee's corrective action program under Action Requests A0630010 and A0630015.

The failure to have a procedure needed to meet the design and license basis of the fuel oil transfer system was a performance deficiency. This finding was more than minor because it impacted the Mitigating Systems cornerstone objective of procedure quality to ensure the capability of the system, in that, the system would not be capable of supplying the emergency diesel generators for the required 7-day mission time in the event of a single failure. The team concluded that this would not result in a loss of function in accordance with Generic Letter 91-18; since procedures direct monitoring of fuel capacity, operators would be aware of the need for action for the following reasons: 1) there should be a relatively long time available to detect and correct the problem (in excess of 24 hours), 2) the expected actions are not complex, and 3) existing procedures require monitoring of the remaining fuel oil capacity during extended diesel runs. Therefore, this finding was determined to be of very low safety significance (Green) in Phase 1 of the significance determination process. The licensee took prompt compensatory measures to ensure the full mission time could be met.
Inspection Report# : 2005006*(pdf)*

Significance: G Feb 15, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Diesel fuel oil storage tank calculation did not adequately account for vortexing
A noncited violation was identified for inadequate design control because the licensee did not properly account for vortex prevention in the calculation used to determine the usable volume in the diesel fuel oil storage tank, which could cause the pump to ingest air. The licensee was unable to locate a technical basis for this part of the calculation. The team independently calculated that 4.1 inches was necessary, compared to the 2.0 inches used in the calculation. The licensee performed a similar calculation and reached the same conclusion, which reduced the tanks' unusable volumes by a little less than 1,000 gallons in this 50,000 gallon tank. Failure to properly account for the unusable fuel oil storage tank volume necessary to prevent vortexing was a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." This issue was entered into the licensee's corrective action program under Action Request A0629779.

The failure to properly evaluate and document the unusable volume of the diesel fuel oil storage tank needed to prevent vortexing and ingesting air into the transfer pump was a performance deficiency. Through calculations, the licensee was able to demonstrate that there was sufficient available margin in both the tank capacity and the existing technical specification requirement to account for this without affecting operability or necessitating a technical specification change. This finding affected the Mitigating Systems cornerstone. The issue is more than minor because it was similar to Example 3.i of Appendix E to Manual Chapter 0609, since it was necessary to re-perform a calculation to determine whether the existing condition was acceptable. The finding was determined to be of very low safety significance (Green) during Phase 1 of the significance determination process, since there was available margin in the tank capacity and technical specification minimum required volume and it was confirmed not to involve a loss of function of the system in accordance with Generic Letter 91-18.
Inspection Report# : 2005006*(pdf)*

Significance: G Feb 15, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to use the highest pressure in calculation to verify adequate auxiliary feedwater flow
A noncited violation was identified for inadequate design control, because Calculation STA-135, "Auxiliary Feedwater System," Revision 2, which was intended to demonstrate that the auxiliary feedwater pumps have adequate capacity to meet their design basis, did not correctly identify the highest pressure under which the pumps needed to function. Specifically, the calculation did not account for the dynamic pressure loss between the feedwater inlet ring and the main steam safety valves. The licensee was able to perform an analysis that concluded the pumps had sufficient flow margin at the new pressure. Failure to properly translate the peak pressure against which the auxiliary feedwater pumps must deliver the required flow rate was a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." This issue was entered into the licensee's corrective action program under Action Request A0630804.

The failure to document the capability of the auxiliary feedwater pumps to deliver the required flow at the maximum possible pressure was a performance deficiency. The issue is more than minor because a calculation was needed to determine whether the existing condition was acceptable, consistent with Example 3.i of Appendix E to Manual Chapter 0609. This issue affected the Mitigating Systems cornerstone. Because there was available margin in the pump capacity, this issue was confirmed not to involve a loss of function of the system in accordance with Generic Letter 91-18. Therefore, the finding was determined to be of very low safety significance (Green) during Phase 1 of the significance determination process.
Inspection Report# : 2005006*(pdf)*

Significance: G Feb 15, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate power operated relief valve accumulator calculation
A noncited violation was identified for inadequately translating design requirements into calculations used to demonstrate the capabilities of the pressurizer power operated relief valve backup accumulators. The calculation was found to contain a number of non-conservative errors and did not contain the most current acceptance criteria from accident analyses. As a result, this calculation failed to demonstrate that the backup nitrogen accumulators could operate the pressurizer power operated relief valves for the required number of cycles. Failure to properly demonstrate that design requirements for the number of power operated relief valve cycles needed to respond to an inadvertent safety injection actuation were satisfied through a design calculation was a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." This issue was entered into the licensee's corrective action program under Action Requests A0631420, A0630719 and A0630740.

The failure to adequately assess and document the capability of the backup accumulators to provide enough gas to operate the power operated relief valves through the required number of cycles was a performance deficiency. This issue was greater than minor because it was similar to Example 3.i in Manual Chapter 0612, Appendix E, in that, calculations had to be performed to demonstrate that the system could satisfy the accident analyses. This finding affected the Mitigating System cornerstone. This finding screened as having very low safety significance (Green) during a Phase 1 significance determination process, since the issue was confirmed to not have resulted in a loss of function in accordance with Generic Letter 91-18.
Inspection Report# : 2005006*(pdf)*

Significance: G Feb 15, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Analyses did not demonstrate proper load sequencing with timer anomalies
A noncited violation was identified for failure to demonstrate that load sequencing would satisfy regulatory requirements. The team identified that a single postulated fault occurring during load sequencing with offsite power available could restart load sequencing timers in all three engineered safety features buses and result in a more limiting scenario than previously analyzed by the licensee. This could result in overlaping starting transients for motors that were intended to start separately, which was not evaluated in existing calculations. The combined effects of this could cause later starting times for safety-related loads, potentially affecting system performance assumed in accident analyses. Failure to demonstrate that the system could perform as required considering a single fault was a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." This issue was entered into the licensee's corrective action program under Action Request 0630036.

This failure to demonstrate through analyses that the electrical distribution system was capable of performing its required function following a single postulated fault was a performance deficiency. This issue was more than minor because it affected the Mitigating System cornerstone objective of ensuring availability, reliability, and capability of systems needed to respond to a design basis accident. The licensee was subsequently able to demonstrate that there would be no loss of safety function even considering the effects of a fault as described above. Therefore, this finding was determined to be of very low safety significance (Green) in Phase I of the significance determination process.
Inspection Report# : 2005006*(pdf)*

Significance: G Feb 15, 2005
Identified By: NRC
Item Type: FIN Finding

Incomplete action for setting auxiliary feedwater pump minimum flow values
The team identified a Green finding for inadequate response to industry operating experience regarding establishing minimum flow for the auxiliary feedwater pumps. The team concluded that the licensee recognized that the conditions reported in NRC Bulletin 88-04 were present in auxiliary feedwater pumps because of low settings in the minimum flow lines, but failed to take appropriate actions to minimize and manage, or to eliminate, the potential for pump damage.

This finding represented a performance deficiency because the licensee did not adequately address a degradation mechanism identified in NRC Bulletin 88-04, as required by the station's operating experience program. As a result, the auxiliary feedwater pumps continued to be operated with insufficient minimum flow to avoid unusual wear and aging without establishing increased monitoring and maintenance, or other compensating actions.

This issue was more than minor because it affected the equipment reliability objective of the Mitigating Systems cornerstone. This issue screened as Green during a Phase 1 significance determination process, since the performance deficiency was confirmed not to result in a loss of function in accordance with Generic Letter 91-18. This issue will be treated as a finding in accordance with Manual Chapter 0612: FIN 05000275, 323/2005006-08, Inadequate Response to Operating Experience for Auxiliary Feedwater Minimum Flow.

Inspection Report# : 2005006*(pdf)*

Significance: G Jan 27, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide Corrective Actions to Prevent Recurrence for Pressurizer Safety Valve Out-of-Tolerance Lift Setpoints
The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI for failure to take corrective actions to prevent recurrence for a significant condition adverse to quality. On January 27, 2005, Pacific Gas and Electric Co. identified that the Unit 2 pressurizer safety valve lift setpoints were determined to be significantly out-of-tolerance, as compared to historical and industry-wide experience. However, Pacific Gas and Electric Co. failed to identify the root cause and propose any corrective actions to prevent recurrence, despite a history of pressurizer safety valve lift setpoints being out-of-tolerance.

The finding impacted the Mitigating Systems Cornerstone and was determined to be more than minor because it impacted the cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. 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 it did not represent an actual loss of safety function, represent an actual loss of a 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. Specifically, analysis demonstrated that the two valves having lift setpoints 4.4 and 3.6 percent low would not adversely affect the proper lift of the power-operated relief valves, and would not result in a spurious lift of the pressurizer safety valves during a normal transient.

Inspection Report# : 2005003*(pdf)*

Significance: G Dec 31, 2004
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Wire and Connect Test Equipment Resulted in Vital Bus De-Energization
A self-revealing, noncited violation was identified for the failure to set up phase sequence test equipment according to procedure, as required by 10 CFR Part 50, Appendix B, Criterion V. This failure resulted in the momentary de-energization of Vital 4kV Bus G and the auto-start of Diesel Engine Generator 2-1. Subsequent investigation by Pacific Gas & Electric Company (PG&E) revealed that the primary side of the test transformer was wired in a wye configuration instead of a delta configuration. This wiring configuration introduced a direct short to ground, which caused the second level undervoltage relay to sense a degraded bus voltage for Vital 4kV Bus G. Subsequently, the relay removed the auxiliary power supply from Bus G and caused DEG 2-1 to start and load onto the bus. This finding involved a human performance cross-cutting aspect for the failure to wire the phase sequence test equipment properly for Vital 4kV Bus G and DEG 2-1.

The finding impacted the Mitigating Systems Cornerstone for ensuring the availability and capability of systems that respond to initiating events to prevent undesirable consequences that was associated with a pre-event human error performance. Considering Example 4.b of IMC 0612, Appendix E, the finding is greater than minor since the incorrect wiring and connection of the test equipment resulted in a vital bus de-energization and the actuation of DEG 2-1. Using Checklist 4 of Inspection Manual Chapter (IMC) 0609, Appendix G, Attachment 1, the finding did not result in the Technical Specifications for AC and DC power sources not being met and the finding was determined not to increase the likelihood of a loss of reactor coolant system inventory, degrade PG&E's ability to terminate a leak path or add reactor coolant system inventory when needed, or degrade PG&E's ability to recover decay heat removal once it is lost. Therefore, the finding was screened as having very low safety significance .
Inspection Report# : 2004005*(pdf)*

Significance: G Dec 31, 2004
Identified By: Self-Revealing

Item Type: NCV NonCited Violation
Inadequate ASCO Valve Qualification Causes Plant Trip
A self revealing violation of 10 CFR 50.49(f) was identified for the failure to maintain approximately 70 safety related solenoid operated valves in an environmentally qualified condition. On February 9, 2002, an age related ASCO solenoid operated valve failure caused a loss of steam generator feedwater event and a Unit 2 manual plant trip. Further, the licensee did not promptly evaluate the extent of condition of the ASCO failure (coil insulation failure), which delayed the identification of elastomer qualification issues for approximately 1 year. In a related finding, the team identified that the licensee had missed earlier opportunities to identify ASCO elastomer qualification issues, in that they failed to thoroughly evaluate several pertinent NRC information notices and previous valve failures. The failure to: 1) properly establish equipment qualification limits; 2) thoroughly evaluate plant events and failures; and 3) properly evaluate industry operating experience constituted performance concerns. PG&E entered this issue into their corrective action program as Action Request 0613008. These issues have cross-cutting aspects in the area of problem identification and resolution because the original problem investigation did not identify the full scope of the cause and extent of condition, delaying some important corrective actions for approximately 1 year.

This finding was greater than minor because, if left uncorrected, these deficiencies would become a more significant safety concern by increasing the failure rate as the components age. An NRC Senior Reactor Analyst performed a Phase 3 significance determination and the estimated delta-CDF for the finding is 2.2E-8/yr. This violation was of very low risk significance.
Inspection Report# : 2004005*(pdf)*

Barrier Integrity

Significance: G 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)*

Significance: G Mar 31, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to properly pre-plan CRVS maintenance when opening the control room boundary
Two examples of a self-revealing violation of Technical Specification 5.4.1.a were identified for failure to pre-plan maintenance associated with the Control Room Ventilation System (CRVS). On January 4 and February 1, 2005, both trains of CRVS were rendered inoperable for short periods of time when the system was opened to the atmosphere for maintenance without pre-planning the administrative controls prescribed by Technical Specification 3.7.10, because of personnel error. Technical Specification 3.7.10 states that the control room boundary may be opened intermittently under administrative controls, and that if two trains of CRVS are inoperable because of the control room boundary being open, then the system must be restored to operability within 24 hours. The Bases for Technical Specification 3.7.10 states that proper administrative controls to invoke this Technical Specification exception consist of stationing a dedicated individual who is in continuous communication with the control room, who has a method of rapidly closing the control room boundary, and has been specifically trained on these duties. These administrative controls were not in place when the control room boundary was inadvertently opened on January 4 and February 1, 2005. A human performance crosscutting aspect was identified for failure to pre-plan maintenance associated with the CRVS that resulted in the control room boundary being opened without administrative controls.

This issue is more than minor and affects the Barrier Integrity Cornerstone, because it represents partial losses of function of the CRVS on two occasions. On January 4 (for 15 minutes) and February 1, 2005, (four hours) both trains of CRVS were rendered inoperable because of an

opening in the CRVS boundary which would have prohibited pressurization of the control room. Although Technical Specification 3.7.10 allowed this condition for up to 24 hours, it only allows opening of the control room boundary under strict administrative controls, that were not in place. This issue screens to Green in accordance with Item 1 of the Containment Barriers Cornerstone Phase 1 review, because it constitutes a CRVS issue only, and is therefore of very low safety significance.

Inspection Report# : 2005002*(pdf)*

Significance: G Dec 31, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Mislabel of Neutron Flux Detector Resulted in Neutronic Decoupling of Detector From the Core
The inspectors identified a noncited violation for the failure to develop a core offload sequence that maintained the source range neutron flux monitors operable, as required by 10 CFR Part 50, Appendix B, Criterion V. Inaccurate labeling of two neutron detectors in the core offload planning tool resulted in the development of a core offload sequence that when implemented resulted in one of the detectors becoming neutronically uncoupled from the core during core alterations. A human performance crosscutting aspect was identified for the labeling error in the core offload planning. A second human performance crosscutting aspect was identified for the failure to ascertain the cause of the downward trend when first identified by the inspectors.

The finding impacts the Barrier Integrity Cornerstone to provide reasonable assurance that physical design barriers protect the public from radio nuclide releases caused by accidents or events and is associated with the barrier performance attribute for procedure quality which could impact cladding. The finding is more than minor when compared to Example 4.e of Inspection Manual Chapter 0612, Appendix E. Similar to the example, Procedure OP B-8DS1, Step 5.2.1, described a responding nuclear instrument as having at least one fuel assembly face-adjacent or diagonally adjacent to the detector. Due to a labeling error in the core offload planning tool, the core offload sequence was developed in a manner that caused a neutron detector (Detector N-52) not to have an adjacent fuel assembly. Using Checklist 4 of Inspection Manual Chapter 0609, Appendix G, Attachment 1, the finding was determined not to increase the likelihood of a loss of reactor coolant system inventory, degrade Pacific Gas & Electric Company's ability to terminate a leak path or add reactor coolant system inventory when needed, or degrade Pacific Gas & Electric Company's ability to recover decay heat removal once it is lost. Therefore, the finding was screened as having very low safety significance.
Inspection Report# : 2004005*(pdf)*

Significance: G Dec 31, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Promptly Correct Containment Fan Cooler Unit Reverse Rotation
The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to promptly correct reverse rotation of containment fan cooler units (CFCUs) for both Units 1 and 2. PG&E observed reverse rotation of CFCUs for approximately 13 years, as a result of the CFCU backdraft dampers sticking partially open. The purpose of the backdraft dampers is to prevent reverse rotation of the CFCUs, which could cause the fan motor to trip on overcurrent when the CFCUs are started following a loss of coolant accident. Prior to Refueling Outage 2R12, 2 CFCUs in Unit 1 and 3 CFCUs in Unit 2 exhibited reverse rotation. One of the CFCUs in Unit 2 was considered inoperable due to reverse rotation and another was only considered operable if it was running.

The finding impacts the Barrier Integrity Cornerstone to provide reasonable assurance that physical design barriers protect the public from radio nuclide releases caused by accidents or events and is associated with the barrier performance attribute. The finding is more than minor when considering Example 3.g of IMC 0612, Appendix E. Similar to the example, PG&E observed reverse rotation of CFCUs for 13 years, and the reverse rotation impacted the operability of the CFCUs. Using the SDP Phase 1 Screening Worksheet from IMC 0609, the finding was determined to be of very low safety significance since it was determined that there was not an actual loss of defense-in-depth in containment pressure control or hydrogen control .
Inspection Report# : 2004005*(pdf)*

Emergency Preparedness

Significance: G Dec 31, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Establish Compensatory Measures to Ensure the Implementation of the Diablo Canyon Emergency Plan
The inspectors identified a violation of 10 CFR 50.54(q) and 50.47.b(4) for the failure to maintain the seismic force monitors during the periods, June 16-19,1999, December 1-4, 2000, April 25-27, 2002, May 25-29, 2002, November 6-8, 2003, December 30-31, 2003, and August 9-10, 2004, such that the emergency plan designed to meet planning standard (4) in 10 CFR 50.47(b) could be promptly implemented. Specifically, PG&E failed to provide a means for the emergency director to promptly classify seismic events at the notification of unusual

event, alert or site area emergency levels, while the seismic force monitor utilized by the operators (emergency director) was out of service or being replaced. This finding had a human performance cross-cutting aspect associated with identifying compensatory measures to address the removal of the earthquake force monitors.

This performance deficiency impacted the emergency preparedness cornerstone because PG&E did not meet an emergency planning requirement and the cause was reasonably within PG&E 's control and should have been prevented. It is greater than minor because it has a potential to impact safety and because it was not a record keeping or administrative issue or an insignificant procedural error. This deficiency could have affected the EP Cornerstone objective of ensuring the capability to implement measures to protect the health and safety of the public during an emergency, and is associated with attributes of facilities and equipment, and offsite emergency preparedness. The finding is evaluated using the Emergency Preparedness "Failure to Comply" flowchart of the SDP and is a violation of 10 CFR 50.54(q) and planning standard 50.47(b)(4), which states, in part, that a standard emergency action level and classification system... is in use Utilizing the Failure to Comply Flow Chart in Manual Chapter 0609, the performance deficiency does not result in a failure of the risk significant planning standard (RSPS) or a degraded RSPS in that the unavailability of the seismic monitors would not prevent the declaration of a Site Area Emergency, Alert or Notification of Unusual Event .
Inspection Report# : 2004005*(pdf)*

Occupational Radiation Safety

Significance: G Jan 14, 2005
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Perform an Adequate Survey to Evaluate Radiological Hazards
A self-revealing non-cited violation of 10 CFR 20.1501(a) was identified when the licensee failed to perform an adequate survey to evaluate the radiological hazards associated with venting the steam generator exhaust into containment during the Unit 2 refueling outage. On February 7, 2003, the licensee failed to take air samples to account for the decay of tellurium-132 into iodine-132 in the steam generator exhaust prior to venting into the containment building. Consequently, fifty-two workers in containment received unplanned and unintended low-level intakes (less than 10 millirem) of iodine-132. This issue has been entered into the licensee's corrective action program as Action Request No. A0628334.

The failure to perform a survey to evaluate radiological hazards is a performance deficiency. The finding is more than minor because it affected the Occupational Radiation Safety cornerstone objective to protect worker health and safety from radiation and radioactive materials. This finding was associated with the cornerstone attribute of Exposure Control and involved unplanned and unintended dose to workers that resulted from actions contrary to NRC requirements. Therefore the Occupational Radiation Safety Significance Determination Process was used to analyze the significance of the finding which was determined to be of very low safety significance because it did not involve: (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose.
Inspection Report# : 2004009*(pdf)*

Significance: G Dec 31, 2004
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Lock a High Radiation Area with Dose Rates Greater than 1 Rem per Hour
A self-revealing NCV of Technical Specification 5.7.2 was reviewed as a result of PG&E's failure to prevent unauthorized entry of a portion of the whole body into a high radiation area with dose rates greater than 1 rem per hour. Specifically, on November 14, 2004, PG&E failed to use an effective locking mechanism on the lower access flaps of the primary steam generator shield doors. The ineffective locking mechanism was discovered two days later when workers went to remove suction hoses. This could have allowed an individual to expose the arm above the elbow to dose rates greater than 1 rem per hour. This finding was placed into PG&E's corrective action program.

The finding is greater than minor because it is associated with one of the cornerstone attributes (exposure control) and affected the cornerstone objective because it could have resulted in unplanned, unintended radiation dose. The inspector determined that the finding was of very low significance because (1) it was not an ALARA finding, (2) it was not an overexposure, (3) it did have a substantial potential for overexposure, and (4) it did not compromise the ability to assess doses. This finding also had crosscutting aspects associated with human performance.
Inspection Report# : 2004005*(pdf)*

Significance: G Dec 31, 2004
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Access a High Radiation Area with Dose Rates Greater than 1 Rem per Hour with the Correct Radiation Work Permit
A self-revealing NCV of Technical Specification 5.7.2 was reviewed as a result of PG&E's failure to prevent two individuals from entering a high radiation area with dose rates greater than 1 rem per hour on the incorrect radiation work permit. Two individuals entered an area with dose rates of 6 rem per hour in Reactor Coolant Pump Cubicle 2-4 using a radiation work permit which only allowed entry into areas with dose

rates up to 1 rem per hour. This finding was placed into PG&E's corrective action program.

The finding is greater than minor because it is associated with one of the cornerstone attributes (exposure control) and affected the cornerstone objective because it could have resulted in unplanned, unintended radiation dose. The inspector determined that the finding was of very low significance because (1) it was not an ALARA finding, (2) it was not an overexposure, (3) it did have a substantial potential for overexposure, and (4) it did not compromise the ability to assess doses. This finding also had crosscutting aspects associated with human performance.
Inspection Report# : 2004005*(pdf)*

Public Radiation Safety

Significance:  Jan 14, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to control radioactive material contained in certain generally-licensed devices in accordance with 10 CFR 31.5
The team identified a non-cited violation of 10 CFR 31.5(c) because the licensee failed to maintain a program for generally-licensed radioactive devices used for reactor operations in accordance with the regulatory requirements. The licensee failed to implement a program for the use of generally-licensed devices used for monitoring personnel, and consequently failed to maintain and test 14 radioactive sources housed within the generally-licensed devices. Specifically, the licensee had not (1) conducted contamination leak tests on the device and the 10-millicurie Nickel-63 source housed in each device at the required frequency and (2) assigned an individual with the regulatory knowledge or authority to ensure compliance with 10 CFR 31.5. This issue has been entered into the licensee's corrective action program as Action Request A0628345.

The licensee's failure to control generally-licensed devices containing radioactive material in accordance with 10 CFR 31.5 was a performance deficiency. The finding was more than minor because it affected the Public Radiation Safety cornerstone attribute and affected the associated cornerstone objective. In order to ensure adequate protection of the public health and safety from exposure to radioactive materials released into the public domain, the licensee is required to leak test each generally-licensed device. Using the Public Radiation Safety Significance Determination Process, the finding had very low safety significance (Green) because: (1) it was not a transportation issue, (2) public exposure was not more than 5 millirem, and (3) there were not more than five occurrences. This finding also had crosscutting aspects associated with the effectiveness of problem identification and resolution.
Inspection Report# : 2004009*(pdf)*

Physical Protection

Physical Protection information not publicly available.

Miscellaneous

Last modified : November 30, 2005