

Diablo Canyon 1

4Q/2012 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Dec 20, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Maintain Required Firewater System Configuration

The team reviewed a self-revealing non-cited violation of License Conditions 2.C(4) for Unit 1 and 2.C(5) for Unit 2, "Fire Protection Program," due to the licensee inadvertently isolating the firewater yard loop for approximately three days, reducing the plant's fire protection capability without compensatory actions. The licensee entered this issue in their corrective action program as Notification 50513006.

The failure to maintain the fire water system configuration as required in the approved fire protection program was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The performance deficiency affected the fire protection defense-in depth strategies involving post-fire safe shutdown systems. The major fire loading in the yard area resulted from the 12 large transformers. The senior reactor analyst made the bounding assumption that any transformer fire without suppression would result in an unrecoverable loss of offsite power. A bounding value was calculated by multiplying the fire ignition frequency by the conditional core damage probability. This resulted in a change to core damage frequency of 1.2×10^{-7} . Therefore, the subject finding was of very low safety significance (Green).

This performance deficiency had a cross-cutting aspect in the area of resources associated with providing complete, accurate and up-to-date design documentation, procedures, and work packages, and correct labeling of components. Specifically, the licensee did not provide sufficient details in procedures for operators to successfully align an infrequently operated valve with no position indication. [H.2(c)]

Inspection Report# : [2012008](#) (*pdf*)

Significance:  Dec 20, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Compensatory Measures for Fire Protection Program Deficiencies

The team identified a non-cited violation of License Conditions 2.C(4) for Unit 1 and 2.C(5) for Unit 2, "Fire Protection Program," due to the licensee's failure to establish or adequately implement compensatory measures for non-compliances with the licensee's approved fire protection program. These non-compliances were identified during the licensee's ongoing transition to a new fire protection program in compliance with National Fire Protection Association Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," (NFPA 805). The licensee entered this issue in their corrective action program as Notifications 50521360 and 50531363.

The failure to establish or maintain appropriate compensatory measures for identified deficiencies in the approved fire protection program was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it

adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. A senior reactor analyst evaluated the significance of this performance deficiency.

A fire that results in the loss of switchgear room ventilation would cause a loss of all ac and dc power if operators did not take action to recover cooling. The analyst determined that the licensed operators would have at least two clear annunciators indicating that ventilation had been lost and that room temperatures were increasing. Additionally, Procedure CP-M10, "Fire Protection of Safe Shutdown Equipment", was available to assist in providing portable fan cooling to the rooms.

For a fire to result in an intersystem loss of coolant accident, it would have to cause a 3 phase hot short on both of two shutdown cooling suction valves. Given that each valve is on a different electrical train, the analyst determined that the conditional probabilities of the hot shorts involved would best be modeled as independent. Accounting for the risk associated with both issues evaluated, the analyst estimated the change to core damage probability to be 1.5×10^{-7} per unit. Therefore, the performance deficiency was considered to be of very low safety significance (Green).

This finding did not have a cross-cutting aspect because it was not indicative of the licensee's present performance.
Inspection Report# : [2012008](#) (*pdf*)

Significance:  Sep 30, 2012

Identified By: NRC

Item Type: VIO Violation

Inadequate Corrective Actions to Update the Final Safety Analysis Report Update (FSARU) with Required Information

The inspectors identified a cited violation of 10 CFR Part 50.71(e), "Maintenance of Records, Making of Reports," for failing to update the Final Safety Analysis Report. Specifically, the licensee failed to update the Final Safety Analysis Report to include the information describing the extent to which plant structures, systems, and components met 10 CFR 50, Appendix A, or describing and justifying exceptions to those General Design Criteria. This failure to update the Final Safety Analysis Report was previously identified as a non-cited violation in NRC's "Diablo Canyon Power Plant Integrated Inspection Report 05000275/2009003 and 05000323/2009003." The licensee entered the condition into the corrective action program as Notification 50513243.

The failure to correct missing information that was required to be in the Final Safety Analysis Report Update was a performance deficiency. The inspectors concluded that the finding is more than minor because, if left uncorrected, this could lead to a more significant safety concern because future changes to the facility, procedures, and programs would not be able to consider the licensing basis information that was removed or never inserted. The finding was screened using Manual Chapter 0609, "Significance Determination Process." The inspectors concluded that the finding was of very low safety significance (Green) because while the finding was a deficiency affecting design or qualification of a mitigating system, it did not result in the loss of operability or functionality of a system. The finding also affected the NRC's ability to perform its regulatory function and was evaluated using the traditional enforcement process. The finding was determined to be Severity Level IV because the required information was not used to make an unacceptable change to the facility or procedures, which was consistent with the determination that the issue had very low safety significance. The inspectors concluded that this finding had a crosscutting aspect in the area of human performance associated with the decision making component because the licensee did not use conservative assumptions in decision making and did not adopt a requirement to demonstrate that the proposed action is safe in order to proceed.

Inspection Report# : [2012004](#) (*pdf*)

Significance:  Jun 22, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Preferred Offsite Power System Design Control

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," after plant engineers failed to adequately translate regulatory requirements and the design bases into the offsite power

interface calculation on May 6, 2011. As a result, the licensee failed to demonstrate that the 230 kilo-Volt preferred offsite power source had adequate capacity and capability to supply the minimum required terminal voltage to plant engineering safety features following a limiting transmission system contingency. The licensee took corrective actions to limit the plant load that would automatically transfer to the preferred power source following a unit trip and entered the condition into the corrective action program as Notification 50492766.

The failure to ensure that the 230 kV power system had adequate capability and capability as defined in the current licensing basis requirements was a performance deficiency. This performance deficiency was more than minor because it was associated with the modification design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors concluded this finding was of very low safety significance because the duration of potential losses of a single offsite power source safety function was less than the technical specification allowed outage time, did not represent an actual loss of safety function of risk significant non-technical specification equipment, and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. This finding has a cross-cutting aspect in the area of human performance, associated with the decision making component, because the licensee did not demonstrate that the proposed action was safe in order to proceed while assessing the CLB requirement during decision making.

Inspection Report# : [2012003](#) (*pdf*)

Significance:  Jun 22, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform a 50.59 Evaluation

The inspectors identified a non-cited violation of 10 CFR 50.59, “Changes, Tests, and Experiments,” because the licensee failed to document an evaluation providing a basis that changes made to the facility and associated changes to Procedure OP J-2:VIII, “Guidelines for Reliable Transmission Service for DCPD,” did not require prior NRC approval. When a 50.59 review was performed, the licensee incorrectly concluded that only a screening was needed. Plant operators use Procedure OP J-2:VIII to determine the operability of the preferred offsite power system for various transmission system configurations. This change accepted a reduction in the preferred offsite power capacity and capability, below the minimum specified by the current licensing basis, due to local service area load growth. This condition would have likely required prior NRC approval had a 50.59 evaluation been performed. The licensee entered this finding into the corrective action program as Notification 50492767.

The failure to perform a 50.59 evaluation was also a performance deficiency. The inspectors concluded that this issue involved traditional enforcement because it had the potential for impacting the NRC’s ability to perform its regulatory function. This performance deficiency is more than minor because it was associated with modification design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors concluded this finding was of very low safety significance because the duration of potential losses of a single offsite power source safety function was less than the technical specification allowed outage time, did not represent an actual loss of safety function of risk significant non-technical specification equipment, and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. This finding has a cross-cutting aspect in the area of human performance, associated with the decision making component, because the licensee did not use conservative assumptions to adopt the licensing basis requirement during decision making.

Inspection Report# : [2012003](#) (*pdf*)

Barrier Integrity

Significance:  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform Operability Evaluation

The inspectors identified a non-cited violation of 10 CFR, Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” after personnel failed to adequately assess the impact of an unanalyzed condition on

control room envelope operability. Specifically, personnel performed a problem screening for a nonconforming condition that impacted operability of the control room ventilation system operability and determined that a review by the Shift Foreman, work control Shift Foreman, or Shift Manager was not required. The licensee entered the condition into the corrective action program as Notification 50497774.

The failure to adequately assess the impact of an unanalyzed, non-conservative condition on control room habitability system operability was a performance deficiency. This finding was more than minor because it was associated with the Barrier Integrity Cornerstone objective design control attribute to provide reasonable assurance for the control room physical design to protect from radionuclide releases caused by accidents or events. Using the Inspection Manual Chapter 0609, Appendix A, "Significance Determination Process (SDP) for Findings At-Power," the inspectors concluded that the finding was of very low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the control room. This finding had a cross-cutting aspect in the area of problem identification and resolution, associated with the corrective action program component, because the licensee did not thoroughly evaluate the impact of non-conservative control room atmospheric dispersion factor methodology on control room habitability system operability,

Inspection Report# : [2012005](#) (*pdf*)

Significance:  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Non-conservative Decision Making Resulted in a Violation of Technical Specification

The inspectors identified a non-cited violation of Technical Specification 3.7.10, "Control Room Ventilation System (CRVS)," after the control room envelope boundary for both units was inoperable for a greater duration than permitted by the out-of-service time. Specifically, the licensee operated Units 1 and 2 without an operable control room envelope from between at least September 2011 and December 2012, which is greater than the 90 day allowed outage time. The licensee entered the condition into the corrective action program as Notifications 50483820, 50497328, and 50485800

The failure to comply with Technical Specification 3.7.10 was a performance deficiency. The finding was more than minor because it was associated with the Barrier Integrity Cornerstone objective design control attribute to provide reasonable assurance that the control room physical design would protect operators from radionuclide releases caused by accidents or events. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the inspectors concluded that the finding was of very low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the for the control room. This finding had a crosscutting aspect in the area human performance associated with decision-making component because the licensee did not use conservative assumptions in their decision to implement compensatory actions following the inoperability of the control room envelope boundary,

Inspection Report# : [2012005](#) (*pdf*)

Significance:  Jun 22, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedure Resulted in the Loss of Low Temperature Overpressure Protection System Safety Function

The inspectors identified a non-cited self-revealing violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," following the unplanned loss of the Unit 1 low temperature overpressure protection system during Mode 5 operations on June 7, 2012. One train of the low temperature overpressure protection system safety function was lost after a maintenance technician mistakenly opened the breaker providing power to the functioning train performing troubleshooting activities on the other train. The licensee's corrective actions included promptly restoring power to temperature overpressure protection system and entering the condition into the corrective action program as Notification 50488636.

The failure of the plant technician to follow troubleshooting work instructions was a performance deficiency. This

performance deficiency was more than minor because the performance deficiency is associated with the human performance attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The inspectors concluded that the finding is of very low safety significance (Green) because adequate mitigating equipment remained available and the finding did not constitute a loss of control, as defined in Appendix G, "Shutdown Operations Significance Determination Process." This finding has a cross-cutting aspect in the area of human performance associated with the work practices component because the licensee failed to use human error prevention techniques, such as self- and peer-checking, commensurate with the risk of the assigned task such that work activities were performed safely.

Inspection Report# : [2012003](#) (*pdf*)

Significance:  Mar 23, 2012

Identified By: NRC

Item Type: VIO Violation

Incomplete and Inaccurate Information Provided to the NRC in Response to Generic Letter 2003-01, "Control Room Habitability"

The inspectors identified a Green finding and Severity Level III violation of 10 CFR 50.9, "Completeness and Accuracy of Information," after Pacific Gas and Electric failed to submitted complete and accurate information in response to Generic Letter 2003-01, "Control Room Habitability." Generic Letter 2003-01 requested that the licensee submit information demonstrating that the control room habitability system was in compliance with the current licensing and design bases. The licensee was specifically requested to verify that the most limiting unfiltered in-leakage into the control room envelope was no more than the value assumed in the design basis radiological analyses for control room habitability. On April 22, 2005, the licensee reported to the NRC that testing performed in the most limiting configuration for operator dose demonstrated that there was no unfiltered in-leakage into the control room envelope. This was material because the NRC used this information to close out Generic Letter 2003-01. In September 2011, the inspectors identified that the control room test results were greater than the value assumed in the design basis radiological analysis and that the licensee's testing was not performed in the most limiting configuration for operator dose. Using the actual control room in-leakage rates, the inspectors concluded that the resultant operator dose could have exceeded the limit established by current licensing and design bases during an accident.

The inspectors concluded that the failure of Pacific Gas and Electric to provide complete and accurate information in response to Generic Letter 2003-01 was a performance deficiency. The finding was more than minor because the information was material to the NRC's decision making processes. The inspectors screened the issue through the Reactor Oversight Process because the finding included a performance deficiency that was reasonably within the licensee's ability to control. The inspectors concluded that the finding was of very low safety significance (Green) because only the radiological barrier function of the control room was affected. The inspectors also screened the issue through the traditional enforcement process because the violation impacted the regulatory process. The inspectors concluded that the violation was a Severity Level III because had the licensee provided complete and accurate information in their letter dated April 22, 2005, the NRC would have likely reconsidered a regulatory position or undertaken a substantial further inquiry. The inspectors did not identify a cross-cutting aspect because the performance deficiency was not reflective of present performance.

Inspection Report# : [2012002](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 22, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Entering a High Raditation Area with Dose Rates Greater than 1.0 Rem/Hour without knowing the Dose Rates in the Area

The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.7.2, which was the result of a worker entering a high radiation area with dose rates greater than 1 rem/hour without knowing of the dose rates in the area. In response, licensee representatives suspended fuel movement, posted the area as a locked high radiation area, documented the occurrence in the corrective action program as Notification 50478716 and evaluated the occurrence.

Entering a high radiation area with dose rates greater than 1 rem/hour without knowing the dose rates in the area was a performance deficiency. The performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation because the failure exposed workers to high dose rates. Using the occupational radiation safety significance determination process, the inspectors determined the finding to be of very low safety significance because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This finding has a cross-cutting aspect in the human performance area, resources component, because the licensee did not have adequate facilities and equipment in the form of physical or visual barriers to preclude moving fuel into the vicinity of the spent fuel pool door with the transfer canal drained.

Inspection Report# : [2012003](#) (pdf)

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Significance: N/A Mar 24, 2012

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution

The inspection team concluded that the implementation of the corrective action program and overall performance related to identifying, evaluating, and resolving problems at Diablo Canyon was generally effective. Licensee identified problems were entered into the corrective action program at an appropriately low threshold. Problems were effectively prioritized and evaluated commensurate with the safety significance of the problems. Corrective actions were effectively implemented in a timely manner commensurate with their importance to safety and addressed the identified causes of problems. Lessons learned from industry operating experience were effectively reviewed and applied when appropriate. Audits and self-assessments were effectively used to identify problems and appropriate actions. Finally, Diablo Canyon effectively established and maintained a Safety Conscious Work Environment.

Inspection Report# : [2012007](#) (pdf)

