

## Diablo Canyon 1 3Q/2014 Plant Inspection Findings

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### Initiating Events

**Significance:** G Sep 19, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Failure to Provide Adequate Procedural Guidance Resulting in a Loss of Unit 1 230kV Off-site Power**

The inspectors reviewed a Green self-revealing finding for the licensee's failure to provide appropriate acceptance criteria to ensure work activities were satisfactorily accomplished. Specifically, the licensee failed to provide acceptance criteria for torqueing or verification of acceptable torqueing during the re-assembly of the load tap changer in Work Order 64006965, Reinhausen Tap Changer Overhaul, for the re-termination of the Unit 1 startup transformer load tap changer diverter switch flex lead terminations. The licensee documented this issue in Notification 50578636. The licensee replaced the load tap changer and revised the procedure as part of their corrective actions.

The licensee's failure to provide appropriate acceptance criteria in Work Order 64006965 for the re-termination of the Unit 1 Startup Transformer load tap changer diverter switch flex lead terminations was a performance deficiency. Specifically, the work order did not provide acceptance criteria for torqueing or verification of acceptable torqueing during the re-assembly of the load tap changer diverter switch flex lead terminations. This performance deficiency was more than minor because it is associated with the procedure quality attribute of the Initiating Events cornerstone objective and adversely affected the objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 1, "Initiating Events Screening Questions," this finding was determined to be of very low safety significance (Green) because, it did not result in a reactor trip or a loss of mitigating equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition.

This finding has a human performance cross-cutting aspect associated with work management, specifically in that the licensee did not implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority [H.5]. (Section 40A3.2)

Inspection Report# : [2014004](#) (*pdf*)

**Significance:** G Mar 21, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inappropriate Fatigue Rule Waivers**

The inspectors identified a Green non-cited violation of 10 CFR 26.207(a) for Pacific Gas and Electric's (PG&E) inappropriate granting of waivers necessary to mitigate or prevent conditions adverse to safety, and to the extent practicable, rely on the granting of waivers only to address circumstances that could not have been reasonably controlled. Specifically, PG&E supervisors granted multiple fatigue waivers to covered workers during the DCP Unit 1 February 2014, refueling outage that were determined to be inappropriate based on plant conditions. Immediate corrective action was to enter this condition into their corrective action program as Notification 50615724 for further evaluation.

The inspectors determined that PG&E's inappropriate granting of waivers in accordance with regulatory requirements

was a performance deficiency. This performance deficiency is more than minor and is therefore a finding because it was associated with the human performance attribute of the Initiating Events cornerstone. This performance deficiency adversely affected the 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. Specifically, the resulting increased likelihood of human error could adversely affect the station's defense-in-depth. Using Inspection Manual Chapter (IMC) 0609, Attachment 04, "Initial Characterization of Findings," and Appendix G, Attachment 04, "PWR Refueling Operation: RCS level > 23 feet," the finding is screened as very low safety significance (Green) based on no known effects to the plant safety caused by possible worker fatigue. In addition, because there was no fuel in the reactor core at the time of the work activities, none of the checklist guidelines were impacted.

This finding has a human performance cross-cutting aspect associated with resources; in that leaders did not ensure that personnel, equipment, procedures, and other resources were available and adequate to support nuclear safety [H.1].

Inspection Report# : [2014002](#) (*pdf*)

**Significance:**  Oct 14, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Auxiliary Feedwater Actuation Due to a Main Feedwater Pump Trip**

The inspectors reviewed a Green self-revealing finding due to an inadequate procedure for calibrating non-vital bus relays. This caused an initiating event due to a main feed pump trip and unplanned downpower transient to 50 percent power on Unit 1.

The licensee's failure to maintain an adequate maintenance procedure for calibrating non-vital bus relays is a performance deficiency. Specifically, the procedure was inadequate in that it contained an optional step to position a cut-out switch so that the relay would not de-energize the bus if actuated during maintenance activities. The performance deficiency was more than minor because, if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. In particular, when the bus de-energized and tripped the running control oil pump, and the accumulator was unable to maintain system pressure while the back-up control oil pump reached operating pressure, the main feed pump tripped which resulted in a reactor power transient greater than 20 percent. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 1, "Initiating Events Screening Questions," this finding was determined to be of very low safety significance (Green) because, although it resulted in a reactor transient, it did not result in the loss of mitigating equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding was entered into the corrective action program as Notification 50588799.

This finding had a cross-cutting aspect in the area of human performance, associated with the work control component, because the licensee did not adequately plan and coordinate maintenance activities. Specifically, the licensee did not appropriately assess the job site conditions that could impact human performance and human-system interface by failing to incorporate operating experience into procedural guidance [H.3(a)].

Inspection Report# : [2013005](#) (*pdf*)

## Mitigating Systems

**Significance:**  Sep 19, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Document Degraded Conditions in the Corrective Action Process**

The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and drawings," in that the licensee did not enter degraded conditions into the corrective action process. The inspectors identified two examples. Specifically, on May 12-13, 2014, the licensee experienced high temperatures in the 480 volt vital bus rooms and did not initiate a notification to document the unexpected condition. Second, on May 20, 2014, the licensee failed to document that a 480 volt vital bus room ventilation system register louvers was found closed.

The failure to enter problems into the corrective action process on the 480 volt busses was a performance deficiency. The performance deficiency was more than minor because it was associated with the human performance 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, and is therefore a finding. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," this finding was determined to be of very low safety significance (Green) because, it was not a design or qualification deficiency, was not a loss of the system or function, and did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time. The inspectors determined this finding has a human performance cross-cutting aspect associated with challenging the unknown attribute, specifically in that licensee personnel did not maintain a questioning attitude to resolve unexpected conditions [H.11]. (Section 1R15)

Inspection Report# : [2014004](#) (pdf)

**Significance:**  Sep 19, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Inadequate Maintenance Procedure Resulted in Improper Configuration of Safety Related Equipment**

The inspectors reviewed a Green self-revealing, non-cited violation of Technical Specification 5.4.1.a, "Procedures," for failure to implement properly preplanned maintenance procedures affecting the performance of safety-related equipment. Specifically, inspectors reviewed the licensee performance associated with surveillance and maintenance activities and identified two examples of improper configuration of safety-related equipment returned to service, because of inadequate preplanned maintenance procedures.

The failure to implement properly preplanned maintenance procedures affecting the performance of safety-related equipment is a performance deficiency. The inspectors determined that the finding was more than minor because it is associated with the procedure quality attribute of the Mitigating System Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesired consequences. Specifically, the restriction of airflow caused by inadvertent closure of ventilation registers following the damper inspection resulted in the undesired consequences of higher ambient 480 volt switchgear room temperatures. In addition, the misconfiguration of the source range N-32 nuclear instrumentation impacted the functioning of the P-6 permissive and prevented it from performing properly during Unit 2 reactor startup such that operator action was necessary to prevent damage to the detector. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," this finding was determined to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of mitigating structures, systems, and components that did not affect operability or functionality.

The inspectors concluded that this finding affected the cross-cutting aspect of human performance associated with documentation, because the licensee did not ensure plant activities are governed with comprehensive maintenance procedures which are complete, accurate, and up to date to ensure work processes did not affect the performance of safety-related equipment [H.7]. (Section 4OA2.2)

Inspection Report# : [2014004](#) (pdf)

**Significance:**  Sep 12, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Document Degraded Emergency Diesel Generator Fuel Injector Nozzles in the Corrective Action Program**

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” in that the licensee did not enter degraded conditions into the corrective action process. The first example of this violation occurred in ten identified instances from 2009 to 2012 when technicians failed to document degraded emergency diesel generator fuel injector nozzles in the corrective action program. The second example occurred in July and August 2014 when engineering personnel failed to appropriately document loose bolts on 4.16kV breaker panels in the corrective action program. The licensee documented this issue in the corrective action program as SAPNs 50641514 and 50656750 and issued a communication to the station reminding personnel of the requirement to initiate notifications even when problems are immediately resolved.

The failure to document unsatisfactory emergency diesel generator fuel injection nozzles and loose 4.16kV switchgear bolts in the corrective action program as required by procedure was a performance deficiency. The performance deficiency was more than minor because it was associated with the human performance 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. It is therefore a finding. Using Inspection Manual Chapter 0609, Appendix A, the team determined that this finding was of very low safety significance (Green) because it did not result in the loss of operability or functionality of a system or train. The inspectors determined this finding has an identification cross-cutting aspect in the problem identification and resolution cross-cutting area because the organization failed to implement a corrective action program with a low threshold for identification (P.1). Specifically, personnel failed to recognize that identified deficiencies were deviations from standards and that degraded conditions were promptly documented in the corrective action program. Inspection Report# : [2014007](#) (*pdf*)

**Significance:**  Sep 12, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Technical Specification Surveillance Requirement for Emergency Diesel Generators**

The team identified a Green non-cited violation of 10 CFR 50.36 for the licensee’s failure to establish an appropriate surveillance test to demonstrate operability of its emergency diesel generators. After revising its emergency diesel generator loading analysis, the licensee failed to adjust the parameters for the full-load-reject surveillance to ensure the test was performed with the maximum anticipated electrical loading. After the team identified this violation, the licensee entered Surveillance Requirement 3.0.3 and documented the condition in its corrective action program as SAPNs 50657635 and 50657637.

The licensee’s failure to specify the “lowest functional capability or performance level of equipment required for safe operation of the facility” as required by 10 CFR 50.36 was a performance deficiency. This performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. Using Inspection Manual Chapter 0609, Appendix A, the team determined that this finding was of very low safety significance (Green) because it did not result in the loss of operability or functionality of a system or train. This finding has a resolution cross-cutting aspect in the problem identification and resolution cross-cutting area because the licensee failed to take effective corrective actions to address the nonconservative surveillance parameters in a timely manner (P.3). Specifically, the licensee did not take appropriate interim corrective actions to mitigate the issue while more fundamental causes were being assessed.

Inspection Report# : [2014007](#) (*pdf*)

**Significance:**  Sep 12, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**Longstanding Uncompensated Nonconforming Condition**

The team identified a Green non-cited violation of 10 CFR Part 50 Appendix B Criterion XVI for the licensee's failure to take timely corrective actions. In 2011, the licensee identified a potential path for gas intrusion into the containment spray system, contrary to design basis requirements. The licensee took no interim or compensatory actions while planning its final corrective actions. The licensee documented this condition in its corrective action program as SAPN 50657636.

The failure to take timely corrective actions as required by 10 CFR 50 Appendix B Criterion XVI was a performance deficiency. This performance deficiency was more than minor because it was associated with the design control attribute of the mitigating systems cornerstone and it adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. Using Inspection Manual Chapter 0609 Appendix A, the team determined that this finding was of very low safety significance (Green) because it did not result in the loss of operability or functionality of a system or train. This finding has a conservative bias cross-cutting aspect in the human performance cross-cutting area because licensee personnel failed to use decision-making practices that emphasized prudent choices over those that were simply allowable (H.14). Specifically, licensee managers failed to take timely action to address degraded conditions commensurate with their safety significance.

Inspection Report# : [2014007](#) (*pdf*)

**Significance:**  Jun 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow Procedure Associated with Seismic Induced Structural Interactions**

The inspectors identified a Green non-cited violation of 10 CFR, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to properly identify and evaluate system interactions as required by the licensee's Seismically-Induced Systems Interaction Program (SISIP) Procedure AD4.ID3, "SISIP Housekeeping Activities." Specifically, the inspectors identified multiple instances of components or sources capable of producing a potential threat related to seismic induced structural interactions of safety related equipment or components.

The failure of plant personnel to follow procedure requirements to properly identify and evaluate for impact equipment near sensitive or safety related equipment was a performance deficiency. This performance deficiency was more than minor and is therefore a finding because it was associated with the protection against external factors (seismic) attribute of the Mitigating Systems cornerstone objective and adversely affected the objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, because Diablo Canyon staff did not fix or perform evaluations of seismic induced system interactions on safety-related or accident mitigating systems, this had the potential to challenge the availability, reliability, and capability of various systems required to function following or during earthquakes to prevent undesirable consequence.

Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 2, "Mitigating System Screening Questions," the finding was determined to be of very low safety significance (Green) because the finding was associated with seismic design or qualification of systems, structures, and components but did not result in the loss of a system operability or functionality.

The inspectors determined this finding has a problem identification and resolution cross cutting aspect associated with the Identification attribute; specifically in that PG&E personnel failed to implement the SISIP with a low enough threshold for identifying and assessing seismic induced system interactions in accordance with the SISI program and

procedures [P.1].

Inspection Report# : [2014003](#) (pdf)

**Significance:**  Jun 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Design Control with Respect to Seismic Induced System Interaction of Safety Related Components**

The inspectors identified a Green non-cited violation of 10 CFR, Part 50, Appendix B, Criterion III, “Design Control,” involving the licensee’s failure to verify the adequacy of their design with respect to seismic induced system interaction of safety related components. Specifically, PG&E did not verify the adequacy of interference limitations on structural components associated with the safety related component cooling water (CCW) heat exchanger.

The licensee’s failure to verify the adequacy of their design with respect to seismic induced system interaction of safety related components was a performance deficiency. This performance deficiency is more than minor, and is therefore a finding because the finding was associated with the Mitigating Systems Cornerstone attribute of design control and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of the component cooling water system to respond to initiating events to prevent undesirable consequences. Specifically, the original plant design configuration associated with seismic interference clearances for Unit 1 component cooling water heat exchanger components was not adequately controlled to ensure design piping stresses would not be challenged. Using Inspection Manual Chapter 0609, Attachment 04, “Initial Characterization of Findings,” and Appendix A, Exhibit 2, “Mitigating System Screening Questions,” the finding was determined to be of very low safety significance (Green) because the finding was associated with seismic design or qualification of systems, structures, and components but did not result in the loss of a system operability or functionality. The inspectors determined this finding has a problem identification and resolution cross cutting aspect associated with the Identification attribute; specifically in that PG&E personnel failed to implement the SISIP with a low enough threshold for identifying and assessing seismic induce system interactions in accordance to the SISI program and procedures.

This finding did not have a cross-cutting aspect because the most significant contributor did not reflect current licensee performance.

Inspection Report# : [2014003](#) (pdf)

**Significance:**  Mar 21, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow Procedure Results in Inadequate Operability Assessment**

The inspectors identified a Green non-cited violation of 10 CFR, Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure to follow the operability assessment procedure in considering the tornado atmospheric effects and tornado missile impactive force effects on the emergency diesel generator radiator ventilation plenum and engine exhaust pipes. The licensee took immediate corrective actions to remove potential tornado missiles that may affect the operability of the emergency diesel generators.

The licensee’s failure to account for tornado atmospheric pressure change effects and tornado-generated missile impactive loads is a performance deficiency. Specifically, the operability assessment did not account for the pressure change or impactive loads as described by the Standard Review Plan methodology. This performance deficiency was more than minor because it is associated with the protection against external factors attribute of the Mitigating Systems cornerstone objective and adversely affected the objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Using Inspection Manual Chapter 0609, Attachment 04, “Initial Characterization of Findings,” and Appendix A, “The Significance Determination Process (SDP) For Findings At-Power”, dated July 1, 2012, the inspectors determined that the finding

could not be screened as Green, or very low safety significance. As a result, a detailed risk evaluation was performed by a senior risk analyst. The detailed risk analysis determined that the calculated tornado missile strike frequency at Diablo Canyon is lower than the  $1 \times 10^{-6}$  threshold in the significance determination process, and therefore, the finding was determined to be of very low safety significance (Green).

This finding has a problem identification and resolution cross-cutting aspect associated with evaluation; specifically in that the licensee did not thoroughly evaluate the problem to ensure that resolutions addressed the cause(s) and extent of conditions, commensurate with their safety significance [P.2].

Inspection Report# : [2014002](#) (*pdf*)

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## Barrier Integrity

**Significance:**  Dec 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Loss of Control Room Ventilation System due to Inadequate Design Control**

The inspectors reviewed a Green self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," after the licensee performed a design change to the control room ventilation system (CRVS) that resulted in none of the four CRVS pressurization fans being able to continuously operate if they started in response to a Phase A containment isolation or control room radiation atmosphere intake actuation signal. This resulted in declaring the Units 1 and 2 CRVS actuation instrumentation and CRVS inoperable and an unplanned entry into Technical Specifications (TS) 3.3.7, "Control Room Ventilation System Actuation Instrumentation," and TS 3.7.10, "Control Room Ventilation System," respectively.

The failure to use proper design control during the CRVS modification was a performance deficiency. The performance deficiency was more than minor because it was associated with the human performance attribute of the Barrier Integrity Cornerstone, and it adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radiological releases caused by accidents or events, and is therefore a finding. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 3, "Barrier Integrity Screening Questions," this finding was determined to be of very low safety significance (Green) because only the radiological barrier function of the control room was affected. The licensee entered the condition into the corrective action program as Notification 50525605.

The finding had a cross cutting aspect in the area of human performance resources component because licensee staff did not maintain complete, accurate, and up to date design documentation – specifically, because the functions of the pressure switches and CRVS interlocks had never been adequately described in design control documents [H.2(c)].

Inspection Report# : [2013005](#) (*pdf*)

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## Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

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### 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.

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### Miscellaneous

Last modified : November 26, 2014