Diablo Canyon 2
3Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement the Fire Protection Program Requirements for the Control of Transient Combustible Material
Green. The inspectors identified a Green non-cited violation of the licensee's approved fire protection program as defined in Diablo Canyon Facility Operating License Conditions 2.C(5) for Unit 1 and 2.C(4) for Unit 2 involving the failure to effectively implement the fire protection program. Specifically, the inspectors identified multiple examples where the licensee failed to maintain control and tracking of combustible materials, welding equipment, and oxygen/acetylene rigs in the plant. The licensee entered the condition into the corrective action program as Notifications 50510062, 50511864, 50561959, and 50537650.
The failure to effectively implement all fire prevention controls and processes 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 Initiating Events Cornerstone and it adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions. Using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," the inspectors concluded that the finding was of very low safety significance (Green) because each deficiency was rated as "Low" degradation because for the violations of the hot work permitting program, all normally required fire prevention measures remained in place and for the violations of the transient combustibles control program, the materials involved did not significantly increase the fire frequency. This finding had a cross-cutting aspect in the area of human performance associated with the work practices component, because the cause of the performance deficiency involved the licensee not ensuring supervisory and management oversight of work activities, such that nuclear safety was supported.
Inspection Report# : 2013003 *(pdf)*

Significance: G Mar 23, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure To Provide Adequate Guidance To Address General Welding Standard Requirements
On February 14, 2013, the inspectors observed field welders add a partial circumferential weld on one side of the pipe in efforts to repair the pipe misalignment prior to the completion of the final visual inspection. This action represents a violation of 10 CFR Part 50, Appendix B, Criterion IX, "Control of Special Processes," because the licensee's procedure established special controls for critical distortions but failed to adequately define what situations fit that category. The licensee reviewed the stress calculation for the piping in question and concluded that the addition of the weld filler material did not affect the fatigue resistance of the weld, but acknowledged that a definition and additional guidance for the term "critical" was missing in the procedure and could have adverse effects on future final welds. The licensee entered the finding into their corrective action program as Notification 50542347.

The inspectors determined that the failure of the site's welding standard to provide adequate guidance to identify what constitutes a weld distortion during welding activities is a performance deficiency. The finding is more than minor

because if left uncorrected, it has the potential to lead to a more significant safety concern. Specifically, Procedure GSW ASME did not provide the necessary guidance for welders and quality assurance personnel to identify and understand what constitutes critical distortion of a weld. The welding process can introduce effects of weld shrinkage (stresses) and distortion that could adversely affect the final condition of the weld, potentially leading to a service induced failure. Using Manual Chapter 0609, Attachment A, "The Significance Determination Process (SDP) for Findings At-Power," the finding was determined to be of very low safety significance (Green) because the finding did not result in exceeding the reactor coolant system leak rate for a small loss-of-coolant accident and did not affect other systems used to mitigate a loss-of-coolant accident resulting in a total loss of their function. The inspectors determined the finding had a cross cutting aspect in the human performance area associated with work practices, procedural compliance, because the licensee did not adequately define or train welders to know what constituted a critical distortion, and did not effectively communicate the expectation of questioning the procedure if the welding activity required skill of the craft. [H.4(b)]

Inspection Report# : 2013002 *(pdf)*

Significance: G Mar 23, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure To Identify Existing Indications During Prior Ultrasonic Examinations Of Pressurizer Structural Weld Overlays
The inspectors identified a Green non-cited violation of 10 CFR 50.55a(a)(3)(i), which requires that proposed alternatives to industry codes and standards provide an acceptable level of quality and safety. The NRC staff approved relief request REP 1 U2 dated March 28, 2007, for installing six structural weld overlays on the pressurizer safety, relief, spray and surge nozzles. The request established acceptance criteria of laminar flaws during weld acceptance examinations limited to only the third 10 year inservice inspection interval. Contrary to the above, the licensee failed to identify unacceptable flaws as defined by the approved request following completion of these welds in 2008. The licensee entered the finding into their corrective action program as Notification 50540188.

The inspectors determined that the licensee's failure to identify indications that exceeded the acceptable linear dimension of laminar flaws prior to placing the system in service is a performance deficiency. The performance deficiency is more than minor because it is associated with the initiating events cornerstone attribute of equipment performance, and adversely affects the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, during the months of February and March 2013, the licensee identified that three out of the six pressurizer structural weld overlays exhibited laminar flaws that exceeded the linear dimensions approved by the safety evaluation. Using Manual Chapter 0609, Attachment A, "The Significance Determination Process (SDP) for Findings At Power," the finding was determined to be of very low safety significance (Green) because the finding did not result in exceeding the reactor coolant system leak rate for a small loss-of-coolant accident and did not affect other systems used to mitigate a loss-of-coolant accident resulting in a total loss of their function. This issue did not have a cross-cutting aspect associated with it because it is not indicative of current performance.
Inspection Report# : 2013002 *(pdf)*

Significance: G Mar 23, 2013
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to Effectively Evaluate Design Change for High Voltage Bushing
The inspectors reviewed a self-revealing finding for failure to effectively and accurately evaluate all available resources to procure appropriate equipment for plant modifications. Specifically, design engineering staff was not effective in using applicable station design documents, in conjunction with industry standards to determine minimum

creepage distance for high voltage insulators when replacing ceramic bushings with polymer bushings on the main bank transformer. As a result, the licensee approved installation of an insulator stack that did not provide adequate ground protection, which caused a plant trip on October 11, 2012. The licensee entered the condition in their corrective action program as Notification 50518473.

Failure to effectively and accurately evaluate all available resources to procure appropriate equipment for plant modifications was a performance deficiency. The performance deficiency was more than minor because it was associated with the design control attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenged critical safety functions during power operations, and is therefore a finding. 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 trip, 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 had a cross-cutting aspect in the area of human performance, associated with the decision making component, because the licensee did not use conservative assumptions in decision making when considering the suitability of the design for the environment [H.1(b)].
Inspection Report# : 2013002 *(pdf)*

Significance: G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Update Emergency Operating Procedures
The inspectors identified a self-revealing non-cited violation of Technical Specification 5.4.1(b) for failure to maintain emergency operating procedures after personnel reviewing a temporary modification failed to identify and change affected emergency operating procedures. Specifically, the emergency operating procedure EOP E-0.1, "Reactor Trip Response," Revision 28, was not updated to be consistent with a temporary modification of steam generator water level low-low bistable setpoints. The licensee entered the condition into the corrective action program as Notifications 50517883, 50520697, and 50518355.

The failure to update emergency operating procedure E-0.1 "Reactor Trip Response," Revision 28, to account for higher low-low water level bistable reset setpoints introduced by Temporary Modification 60044709 was a performance deficiency. The finding was more than minor because it was associated with the procedure quality attribute of the Initiating Events cornerstone. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," this finding was determined to be of very low safety significance (Green) because the finding does not represent a loss of system and/or function and does not represent an actual loss of function of at least a single train for greater than its Technical Specification allowed outage time, or two separate safety systems out-of-service for greater than its Technical Specification allowed outage time. This finding had a crosscutting aspect in the area of human performance, associated with the resources component, because the licensee did not ensure complete, accurate and up-to-date procedures were available and adequate to ensure nuclear safety
Inspection Report# : 2012005 *(pdf)*

Mitigating Systems

Significance: G Jul 11, 2013
Identified By: NRC
Item Type: NCV NonCited Violation

Failure to Evaluate the Effects on the Emergency Diesel Generator Load Capability for Maximum Combustion Air Temperature Conditions
The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which states, in part, "measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures and instructions." Specifically, as of July 11, 2013, the licensee failed to evaluate the impact of the site combustion air temperature and the vendor specified diesel generator rating for combustion air temperature in the emergency diesel generator loading analysis. In addition, the licensee failed to evaluate the available combustion air temperature for the maximum site outside air conditions could have affected the capability of safety-related equipment to respond to initiating events. This finding was entered into the corrective action program as Notifications DN-50573049 and DN-50570764

The failure to properly evaluate the vendor stated effects of combustion air temperature on the diesel generator capability and to determine and evaluate the expected maximum value for diesel generator combustion air temperature, based on site-specific conditions, was a performance deficiency. The finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, using actual data, the licensee found that derating of 1.5 percent was necessary under limiting air temperature conditions. Using Inspection Manual Chapter 0609, Significance Determination Process, Appendix A, the finding was determined to have very low safety significance (Green) because the finding was a design or qualification deficiency that did not result in the loss of operability or functionality, did not result in a loss of safety function, and did not screen as potentially risk significant due to external events. This finding had a problem identification and resolution cross-cutting aspect associated with thoroughly evaluating problems such that the resolution addresses cause and extent of condition.
Inspection Report# : 2013007 *(pdf)*

Significance: G Jul 11, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Evaluate the Auxiliary Feedwater Pump Motor Capability for the Effects of Pump Maximum Breakhorsepower Conditions
The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which states, in part, "measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures and instructions." Specifically, as of July 11, 2013, the licensee failed to evaluate the effects of pump load on the auxiliary feedwater pump motor for the design basis maximum flow conditions that could occur during a postulated steam line break coincident with maximum diesel generator frequency which could have affected the capability of safety-related equipment to respond to initiating events. This finding was entered into the corrective action program as Notification DN-50572850.

The failure to evaluate the capability of auxiliary feedwater pump motors for the design basis accident maximum pump brake horsepower condition coincident with the maximum diesel generator frequency, which could result in a motor overload, was a performance deficiency. The finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, there was no analysis or test that demonstrated the motors would be capable of operating for the required mission time during a high energy line break, which resulted in maximum pump brake horsepower conditions that could occur coincident with maximum diesel engine frequency. Using Inspection Manual Chapter 0609, Significance Determination Process, Appendix A, the finding was determined to have very low safety significance (Green) because the finding was a design or qualification deficiency that did not result in the loss of operability or functionality, did not result in a loss of safety function, and did not screen as potentially risk significant due to external events. This finding did not have a cross-cutting aspect because the most significant contributor did

not reflect current licensee performance.
Inspection Report# : 2013007 *(pdf)*

Significance: G Jul 11, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Procedures for Establishing Temporary Ventilation
The team identified a Green non-cited violation associated with Technical Specification 5.4.1(a), "Procedures," which requires that written procedures be established, implemented, and maintained covering the applicable procedures in Regulatory Guide 1.33, Revision 2, Appendix A. Regulatory Guide 1.33, "Quality Assurance Program," Appendix A, Section 5, requires procedures for Abnormal, Offnormal, or Alarm Conditions. Specifically, as of July 11, 2013, Procedure CP M-10, "Fire Protection of Safe Shutdown Equipment," Revision 27, Attachment 7.8, "Temporary Ventilation for the Control Room, Inverter/Charger Rooms, and 480V Vital Switchgear Rooms and Charging Pump 1-3 Room," Section 4a, requires the use of two 24-inch diameter fans, which, if connected as directed, would not perform the function as prescribed by the procedure as the fans require more current than can be supplied from either the equipment room receptacles or from the alternate power source (the temporary generator and distribution panel). This finding was entered into the corrective action program as Notifications DN-50570838 and DN-50572295.

The failure to provide an adequate procedure for establishing temporary ventilation was a performance deficiency. The finding was more than minor because it affected the equipment performance attribute associated with the Mitigating Systems Cornerstone as related to the availability, reliability, and capability of the 480V Vital Switchgear Rooms. The team reviewed this finding using Inspection Manual Chapter 0609 Attachment 0609.04; 0609 Appendix A, Exhibit 2; and Inspection Manual 0609 Appendix A, Exhibit 4, because it affected the External Event Mitigation Systems (Seismic/Fire/Flood/Severe Weather Protection Degraded) while the plant was at power and involved the loss or degradation of equipment specifically designed to mitigate an external initiating event such as a fire. Inspection Manual Chapter 0609 Appendix A, Exhibit 4, led to a Detailed Risk Evaluation because the finding would degrade two or more trains of a multi-train system or function and would degrade one or more trains of a system that supports a risk significant system or function. The bounding change to the core damage frequency was 4E-7/year (Green). The finding was not a significant contributor to the large early release frequency. The most dominant sequences included fires in Fire Area 34, failure of the 480 Vac switchgear cooling, and the failure of the manual action to restore cooling. The low frequency of applicable fires combined with the relatively low failure probability for the alternate cooling helped to reduce the risk. This finding had a human performance cross-cutting aspect associated with resources, because the licensee did not have adequate procedures and available facilities and equipment, including physical improvements, simulator fidelity and emergency facilities and equipment.
Inspection Report# : 2013007 *(pdf)*

Significance: G 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 x 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: G 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 x 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)*

Barrier Integrity

Significance: G 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: G 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)*

Emergency Preparedness

Occupational Radiation Safety

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

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