

Diablo Canyon 1

1Q/2016 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Properly Evaluate for Aggregate Impact of Fire Impairments

The inspectors identified a non-cited violation of Technical Specification 5.4.1.d, "Procedures," for the failure to follow approved fire protection program procedures to review the fire impairments list to assess the aggregate impact on the fire protection design and safe shutdown analysis. Specifically, from August 31 to September 2, 2015, the licensee failed to evaluate the aggregate impact of having three fire doors simultaneously blocked open in adjacent Unit 1 vital battery charger rooms. The licensee implemented immediate corrective actions by assigning a continuous fire watch to the area and documented the issue in the corrective action program as Notification 50826793.

The failure to follow approved fire protection program procedures to review the fire impairments list to assess the aggregate impact on the fire protection design and safe shutdown analysis was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the Initiating Events cornerstone attribute of Protection against External Factors (Fire) and adversely affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during plant operations. Specifically, the failure to evaluate the aggregate impact of multiple fire system impairments affected the licensee ability to limit the impact of a potential fire. The inspectors evaluated the finding using IMC 0609, Attachment 4, "Phase 1–Initial Screening and Characterization of Findings." Because the finding involved fire protection, the inspectors transitioned to IMC 0609, Appendix F "Fire Protection Significance Determination Process." The inspectors characterized the finding using IMC 0609, Appendix F, Attachment 1, "Fire Protection SDP Phase 1 Worksheet," dated September 20, 2013. The finding screened as very low safety significance (Green), per Attachment 1, Question 1.4.3-A since the fire finding category was determined to be fire confinement, due to the fire doors being propped open, and the combustion loading on both sides of the door was determined to be a duration of 30 minutes as documented in licensee calculation M-824, "Controlled Combustion Loading Tracking." In addition, the inspectors determined this finding had a cross-cutting aspect in human performance associated with the teamwork component because the licensee's work groups did not properly communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety was maintained. Specifically, the work planners did not properly communicate to the fire protection department that all three fire doors would be open at the same time during battery charger load testing. [H.4]

Inspection Report# : [2015004](#) (*pdf*)

Significance: G Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Appropriately Scope 230 KV Switchyard into the Maintenance Rule Monitoring Program

The inspectors identified a Green, non-cited violation of 10 CFR 50.65(b)(2) for the licensee's failure to appropriately scope the 230 kV switchyard in the Maintenance Rule monitoring program. Specifically, from the inception of the facilities' monitoring program through May 18, 2015, the licensee failed to properly scope or evaluate the 230 kV switchyard to include the entire switchyard up through the first inter-tie circuit breakers CB262 and CB282 into the

Maintenance Rule program. Electrical faults within the 230 kV switchyard can cause loss of offsite power which is relied upon to mitigate accidents and cause an actuation of a safety-related systems, such as, emergency diesel generators, and should have been included into its Maintenance Rule program. This issue was entered into the licensee's corrective action program as Notifications 50702970 and 50703118.

The inspectors determined that the licensee's failure to scope the 230 kV offsite power source including the switchyard up through the first breakers from the transmission system into the Maintenance Rule program was contrary to the requirements of 10 CFR 50.65 and therefore a performance deficiency. The performance deficiency was determined to be more than minor because it is associated with the initiating events attribute of protections against external factors and adversely affected the cornerstone objective, in that, a 230 kV switchyard failure can upset plant stability and challenge critical safety functions during shutdown as well as power operations. Failure to monitor the performance or condition of 230 kV offsite power source (including the switchyard up through the first breakers from the transmission system) in a manner sufficient to provide reasonable assurance the offsite power was capable of fulfilling the intended functions affected the reliability of the plant equipment to perform their safety function. The inspectors determined if the 230 kV switchyard was properly scoped into the Maintenance Rule program the loss of offsite power due to the flash over event may have been prevented. However the direct cause of the event has been identified as untimely corrective actions associated with an ineffective corrective action program. As such, improper Maintenance Rule scoping was not the direct cause. Therefore, the inspectors determined the finding could be evaluated using the significant determination process in accordance using IMC 0609, Appendix A, "Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions." The inspectors determined that the finding was of very low safety significance (Green) because the finding was determined not to be the cause of the actual 230 kV failure such that all of the screening questions in Exhibit 1 could be answered "no." The inspectors determined that since the scoping of the switchyard systems had occurred more than 3 years ago, and the opportunity to reevaluate system scoping had not recently occurred, the finding did not represent current licensee performance and therefore a cross-cutting aspect was not assigned.

Inspection Report# : [2015002](#) (*pdf*)

Significance: G Jun 30, 2015

Identified By: Self-Revealing

Item Type: FIN Finding

High Voltage Insulator Flashover Resulted in Loss of 230 kV Offsite Power and Start of Emergency Diesel Generators

The inspectors reviewed a self-revealing, Green finding for the licensee's failure to adequately implement procedure OM7.ID1, Problem Identification and Resolution, to prevent a high voltage insulator flashover event in the 230 kV switchyard that occurred on October 31, 2014. Specifically, corrective actions from three previous root cause evaluations were not effective to prevent a loss of the 230 kV start-up power and subsequent auto start of all of the safety standby emergency diesel generators (EDGs). This issue was entered into the licensee's corrective action program as Notification 50699230.

The licensee's failure to adequately implement procedure OM7.ID1, Problem Identification and Resolution was a performance deficiency. The performance deficiency was more than minor because it was associated with the human performance attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. Specifically, this failure resulted in another high-voltage insulator flashover, which resulted in loss of 230 kV offsite startup power and activation of all safety-related EDGs, on October 31, 2014. In accordance with IMC 0609.04, "Initial Characterization of Findings," the inspectors determined that the impact of the finding on Unit 1 should be evaluated using Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," and further determined that this finding required a detailed risk evaluation by the regional senior risk analyst because the finding involved a partial loss of offsite power, a support system that contributes to the likelihood of an initiating event and affected mitigation equipment.

The risk analyst determined that, with the 230 kV system de-energized, any plant transient would result in a plant-centered loss of offsite power. Therefore, the risk analyst calculated the incremental conditional core damage probability for an exposure period of 9 hours to be 2.09×10^{-7} , which is lower than the 1×10^{-6} threshold in the significance determination process; this finding is of very low safety significance (Green) for Unit 1. In accordance with IMC 0609.04, "Initial Characterization of Findings," the inspectors determined that the impact of the finding on Unit 2 should be evaluated using IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process," because the finding pertained to operations, an event, or a degraded condition while the plant was shut down. Unit 2 was shutdown in a refueling outage when the event occurred on October 31, 2014. Because of the shutdown configuration of Unit 2, the loss of 230 kV support system did not impact the ability to continue to provide decay heat removal for the unit. Therefore, the analyst determined qualitatively that this finding is also of very low safety significance (Green) for Unit 2. This finding has a cross-cutting aspect of work management, in the area of human performance, for failing to implement a process of planning, controlling, and executing work activities such that nuclear safety is an overriding priority. Specifically the licensee failed to effectively plan and coordinate preventative maintenance strategies associated with root causes from previous high-voltage insulators flashover or failures since 2008 to prevent the loss of offsite 230 kV and the transient on October 31, 2014 [H.5].

Inspection Report# : [2015002](#) (pdf)

Mitigating Systems

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Verify Adequate Design Airflow for 480 volt AC Switchgear and 125 volt DC Inverter Rooms

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to verify the design adequacy of the safety-related ventilation system for the 480-volt AC switchgear and 125-volt DC inverter rooms. Specifically, the licensee failed to verify sufficient ventilation system airflow to ensure the temperature in rooms housing safety-related electrical equipment remained below 104 degrees Fahrenheit. The licensee's corrective actions were documented in Notification 50840266.

The failure to provide design control measures to verify the adequacy of the 480-volt AC switchgear and 125-volt DC inverter rooms ventilation system design was a performance deficiency. The performance deficiency was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the reduction in airflow to the rooms impacts the reliability of the safety-related equipment ventilation system to maintain the temperatures in these rooms below design limits for the duration of all accident scenarios. Using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding was of very low safety significance because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours.

The inspectors determined that this finding did not have a cross-cutting aspect because the most significant contributor of this finding occurred more than three years ago, and is therefore, not representative of current licensee performance.

Inspection Report# : [2016001](#) (pdf)

Significance:  Mar 10, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Evaluate 480 Vac Motor Starters with Circuit Breaker Trip Settings Higher than Manufacturers' Specifications

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which states, in part, "The design control measures shall provide for verifying or checking the adequacy of design, such as by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program." Specifically, prior to September 10, 2013, the licensee failed to verify the design of 480 Vac combination motor starter instantaneous magnetic circuit breakers settings, by the use of alternate or simplified calculational methods, for those breakers whose settings are higher than their manufacturers' specifications, as documented in calculation 195B-DC, "MCCB Settings for 460VAC Class 1E Motors," to provide the required level of protection and ensure that certain failures that could be caused by sustained fault currents below the circuit breaker trip setting would not occur. In response to this finding, the licensee conducted a preliminary evaluation of some of the affected equipment and concluded that sustained fault currents below the trip settings are unlikely. This finding was entered into the licensee's corrective action program as Notification 50838071.

The team determined the failure to evaluate 480 Vac combination motor starters with instantaneous magnetic circuit breaker trip current settings higher than their manufacturers' specifications was a performance deficiency. The performance deficiency was more-than-minor, and therefore a finding, because it related to the design control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, improper motor starter breaker trip settings could result in a fire in the motor control center cubicle, damage to motor starter components, spurious tripping of the entire motor control center, or lack of protection for downstream components during fault conditions. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated July 19, 2012, the finding screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding did not have a cross-cutting aspect because the most significant causal factor of the performance deficiency did not reflect current licensee performance.

Inspection Report# : [2016007](#) (pdf)

Significance:  Mar 10, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Promptly Correct the Lack of Design Verification of 460 Vac Motors at Maximum Allowable Frequency

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," which states, in part, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." Specifically, prior to March 16, 2016, the licensee failed to assure that the lack of design verification of 460 Vac motors, which could be overloaded at the maximum allowable diesel generator frequency, was promptly corrected after having been identified in a 2013 apparent cause evaluation and again in a 2015 self-assessment as documented in Notifications 50572850 and 50826105, respectively. In response to this finding, the licensee performed a preliminary evaluation of the affected 460 Vac motors and concluded that operation at maximum

emergency diesel generator frequency would not cause them to overheat or trip on overcurrent. This finding was entered into the licensee's corrective action program as Notifications 50835699 and 50838988.

The team determined the failure to correct the lack of design verification of 460 Vac motors at maximum allowable frequency when powered from the emergency diesel generators was a performance deficiency. The performance deficiency was more-than-minor, and therefore a finding, because it related to the design control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, operation of 460 Vac motors above their rated or analyzed maximum allowable frequencies could result in motor overheating or a trip of the thermal overload relays. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated July 19, 2012, the finding screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect in the area of problem identification and resolution associated with evaluation because the licensee failed to ensure that the organization thoroughly evaluated issues to ensure that resolutions address causes and extent of conditions.

Inspection Report# : [2016007](#) (pdf)

Significance: G Mar 10, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Ensure Safety-Related Alternating Current and Direct Current Equipment Functionality at Maximum Allowable Voltages

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which states, in part, "The design control measures shall provide for verifying or checking the adequacy of design, such as by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program." Specifically, prior to February 10, 2016, the licensee failed to verify the design of (1) equipment on the nominally 125 Vdc system at the maximum voltage specified in Procedure OP J-9:IV, "Performing a Battery Equalizing Charge," and (2) equipment on 480 Vac and 120 Vac vital buses at maximum voltages specified in Procedure OP J-2:VIII, "Guidelines for Reliable Transmission Service for DCP," by the use of alternate or simplified calculational methods, to ensure equipment functionality. In response to this finding, the licensee conducted a preliminary evaluation of the affected equipment and concluded that any past exposure to voltages above their maximum rating would not have caused a loss of functionality. This finding was entered into the licensee's corrective action program as Notifications 50834558, 50835906, 50835394, 50835945, 50835949, 50836376, 50836439, 50836638, 50836872, and 50836995.

The team determined the failure to evaluate operation of 125 Vdc and 480 and 120 Vac equipment at maximum allowable voltages was a performance deficiency. The performance deficiency was more-than-minor, and therefore a finding, because it related to the equipment performance attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, operation of equipment outside of its rated or analyzed maximum allowable voltages adversely affects the reliability and capability of that equipment required to perform safety-related functions. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated July 19, 2012, the finding screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect in the area of human performance associated with design margins because the

licensee failed to ensure that the organization operated and maintained equipment within design margins and that margins were carefully guarded and changed only through a systematic and rigorous process.

Inspection Report# : [2016007](#) (*pdf*)

Significance:  Mar 10, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Evaluate the Extent of Condition for a Degraded Condition on a Nonsafety-Related 4160 Vac Breaker

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” which states, in part, “Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.” Specifically, in October of 2015, the licensee failed to evaluate the extent of condition of a cracked holding pawl on a nonsafety-related 4160 Vac SF6 breaker, which was procured as safety-related, in accordance with Procedure OM7.ID1, “Problem Identification and Resolution,” when the failure of the component could adversely impact safety-related breakers of the same make and model. In response to this finding, the licensee is performing a procedure review to include steps to perform an extent of condition analysis for unplanned nonsafety-related equipment issues that may also affect similar safety-related equipment. This finding was entered into the licensee's corrective action program as Notifications 50836859 and 50836689.

The team determined the failure to evaluate the impact of a cracked holding pawl identified on a nonsafety-related 4160 Vac SF6 breaker on additional safety-related 4160 Vac SF6 breakers was a performance deficiency. The performance deficiency was more-than-minor, and therefore a finding, because it related to the equipment performance attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the 4160 Vac breaker with the cracked holding pawl was procured as safety-related; therefore, the condition extends to safety-related 4160 Vac breakers of the same make and model and potentially adversely affects the ability to perform their safety function. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” dated July 19, 2012, the finding screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect in the area of human performance associated with conservative bias because the licensee failed to ensure that individuals used decision-making practices that emphasized prudent choices.

Inspection Report# : [2016007](#) (*pdf*)

Significance:  Mar 10, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Evaluate the Voltage Effects of Limiting Design Basis Events on the 230 kV Offsite Power Circuit

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” which states, in part, “The design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.” Specifically, prior to January 30, 2014, the licensee failed to verify the design of the 230 kV preferred offsite power source, such as by the performance of design reviews or use of alternate or simplified calculational methods, by assuming in calculation 359-DC, “Determination of 230 kV Grid Capability

Limits as DCP Offsite Power Source,” that the reactor trip and engineered safety features actuation system signals are coincident in time for all postulated design basis events. However, the plant is designed such that, during some events, the signals are separate in time and would result in a greater vital bus voltage depression than analyzed. In response to this finding, the licensee conducted a preliminary evaluation and concluded that the current transmission grid conditions were such that the calculation criteria would be met in the event of a design basis event involving non-coincident reactor trip and engineered safety features actuation system signals. This finding was entered into the licensee's corrective action program as Notification 50839137.

The team determined the failure to evaluate the voltage effects of a limiting design basis event with non-coincident reactor trip and engineered safety features actuation system signals on the 230 kV offsite power circuit was a performance deficiency. The performance deficiency was more-than-minor, and therefore a finding, because it related to the design control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to ensure adequate bus voltages as a result of a design basis event with non-coincident reactor trip and engineered safety features actuation system signals would result in a trip of the undervoltage relays and the loss of the preferred offsite power circuit. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” dated July 19, 2012, the finding screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect in the area of human performance associated with design margins because the licensee failed to ensure that the organization operated and maintained equipment within design margins and that margins were carefully guarded and changed only through a systematic and rigorous process.

Inspection Report# : [2016007](#) (*pdf*)

Significance:  Mar 10, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Translate Appropriate Load Tap Changer Timing Acceptance Criteria into Periodic Tests

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” which states, in part, “Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.” Specifically, prior to November 25, 2015, the licensee failed to include appropriate quantitative acceptance criteria in Procedure MP E-62.3, “Tap Changer Functional Test for Standby-Startup Transformer 11,” to ensure that the load tap changer speed for standby-startup transformer 11 was adequate to restore vital bus voltages to the required level during design basis events. In response to this finding, the licensee performed a preliminary evaluation of the condition and concluded that the most recently measured speed of the load tap changer was adequate to ensure that it would restore vital bus voltage within the required time. This finding was entered into the licensee's corrective action program as Notification 50839333.

The team determined the failure to translate appropriate load tap changer timing acceptance criteria into functional tests to ensure that design assumptions were being maintained was a performance deficiency. The performance deficiency was more-than-minor, and therefore a finding, because it related to the design control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the load tap changer could meet its functional test acceptance criterion, but not operate fast enough to restore vital bus voltages within the required time during design basis events, which would result in an undervoltage trip and loss of the preferred offsite power circuit. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP)

for Findings At-Power,” dated July 19, 2012, the finding screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect in the area of human performance associated with design margins because the licensee failed to ensure that the organization operated and maintained equipment within design margins and that margins were carefully guarded and changed only through a systematic and rigorous process.

Inspection Report# : [2016007](#) (*pdf*)

Significance:  Dec 31, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Identify a Cause and Implement Actions to Prevent Recurrence of a Significant Condition Adverse to Quality

The inspectors reviewed a self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI "Corrective Action," for the failure to identify the cause and take corrective action to prevent recurrence of a significant condition adverse to quality impacting both trains of the Unit 1 safety-related residual heat removal (RHR) system. Specifically, the licensee failed to identify a definitive cause and implement corrective actions to prevent recurrent failures of the socket weld for relief valve RHR-1-RV-8708 for both trains of the RHR system. As immediate corrective actions, the licensee installed additional piping supports to mitigate the vibrations at the socket weld and documented this issue in the corrective action program as Notification 50680750.

The failure to identify the cause of the RHR vibration-induced problems and to take adequate corrective actions to prevent recurrence of the weld failures was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it could lead to a more significant safety concern. Specifically, no additional supports were installed and no actions were taken to reduce or eliminate the vibrations to prevent recurring weld failures, which could affect the availability of the RHR system. The lack of corrective actions to prevent recurrence could leave RHR components and other components physically connected to the system susceptible to future failures. Using Inspection Manual Chapter 0609, Appendix A, the inspectors determined the issue to have very low safety significance (Green) because the performance deficiency, which affected the mitigating systems cornerstone, did not result in a loss of safety function and did not result in an actual loss of function for greater than the technical specification allowed outage time. The licensee entered this into their corrective action program as Notification 50680750. In addition, this finding has a cross-cutting aspect in the human performance area associated with conservative bias decision making component because individuals failed to use decision making practices that emphasize prudent choices over those that are simply allowable. Specifically, the licensee chose to only install a fatigue resistance weld rather than install additional pipe supports as were in the Unit 2 system [H.14].

Inspection Report# : [2015004](#) (*pdf*)

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Design the Emergency Diesel Generators to operate under Worst Case Environmental Conditions

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III "Design Control," for the failure to implement design control measures to verify the adequacy of the Unit 1 emergency diesel generators (EDGs) cooling system design to ensure operation of the EDGs under worst-case environmental conditions. Specifically, since initial licensed operations began in 1984, the licensee failed to ensure the Unit 1 EDGs were designed and built to operate under worst-case high wind and temperature conditions. As a result, sustained high winds from specific directions could have impacted EDG radiator performance resulting in the unavailability of the

Unit 1 EDGs. Immediate corrective actions included issuing shift orders to the reactor operators to monitor for specific weather conditions (high air temperature, high wind speed and direction) and provide additional room cooling using established procedures, as necessary. The licensee documented the issue in the corrective action program as Notification 50599190.

The failure to implement design control measures to ensure the emergency diesel generators could perform their design basis function was a performance deficiency. The performance deficiency was more than minor, and is therefore a finding, because it was associated with the design control attribute of the mitigating system cornerstone, and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the performance deficiency resulted in a condition where sustained high winds from specific directions could have impacted EDG radiator performance resulting in the unavailability of the Unit 1 EDGs. The inspectors evaluated the finding using Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At Power," dated June 19, 2012. The inspectors determined that a detailed risk evaluation by an NRC senior reactor analyst was required since the finding was associated with a loss of EDG function. The regional senior reactor analyst performed a Phase 3 SDP analysis for the finding. The results of analysis established the incremental conditional core damage probability (ICCDP) was 2.74E-07, less than 1E-06, and therefore the analyst determined that the subject finding was of very low safety significance (Green).

A cross-cutting aspect was not assigned to the finding since the finding did not represent current licensee performance. The condition existed since original construction of the plant.

Inspection Report# : [2015004](#) (*pdf*)

Significance:  Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Document an Adequate Evaluation for a Change in Seismic Load Combination Methodology

The inspectors identified a Severity Level IV, Green, non cited violation of 10 CFR 50.59(d)(1) which requires, in part, that the licensee shall maintain records of changes in the facility, of changes in procedures, and of tests and experiments made pursuant to paragraph (c) of this section. These records must include a written evaluation which provides the bases for the determination that the change, test, or experiment does not require a license amendment pursuant to paragraph (c)(2). Specifically, the licensee changed the method for combining earthquake loads and loss of coolant accident loads from the absolute summation method to square root sum of the squares (SRSS) method without sufficient justification to demonstrate the change did not require prior NRC approval.

The licensee's failure to implement the requirements of 10 CFR 50.59 and adequately evaluate changes to determine if prior NRC approval is required was a performance deficiency. The licensee entered the issue into the corrective action program as Notification 50811191. In accordance with the licensee's corrective action program, this issue will be addressed by the licensee through a re-evaluation of the methodology change and the required actions that need to be taken by the licensee will be implemented. Additionally, the licensee performed an operability determination for the affected structures, systems, and components that established a reasonable expectation for operability pending final resolution of the issue.

This performance deficiency was more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the reliability, availability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to determine that use of SRSS in the Watts Bar safety evaluation report cited in the PG&E evaluation represented a change in a method of evaluation, in that the Watts Bar safety evaluation report was very narrow in scope and not appropriate for the intended application at Diablo Canyon. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very

low safety significance (Green) because it was a design or qualification deficiency that did not result in the inoperability of the system. Because this performance deficiency had the potential to impact the NRC's ability to perform its regulatory function, the inspectors also evaluated the performance deficiency using traditional enforcement. Since the violation is associated with a Green finding having very low safety significance, the traditional enforcement violation was determined to be a Severity Level IV violation, consistent with the example in paragraph 6.1.d(2) of the NRC Enforcement Policy. This finding had a cross cutting aspect in the area of human performance associated with design margins because individuals failed to ensure margins were carefully guarded and changed only through a systematic and rigorous process [H.6].

Inspection Report# : [2015003](#) (*pdf*)

Significance:  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Appropriately Pre-plan and Perform Maintenance on Hydrogen Guard Piping

The inspectors identified a Green, non-cited violation of Technical Specification 5.4.1 involving the failure to appropriately pre-plan and implement written procedures associated with configuration control of the hazard barrier hydrogen guard piping in the proximity and impacting safety-related equipment. This issue was entered into the licensee corrective action program as Notification 50778755.

The inspectors determined that the failure to consider the impact to the fire hazard analysis and the seismic configuration of the hydrogen guard pipe was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems (i.e. hazard barriers) that respond to initiating events, such as fires, to prevent undesirable consequence. Though there were no actual consequences, the breaching of the seismically qualified hydrogen guard piping removed a designed hazard barrier and has the potential to vent hydrogen into rooms containing safety related equipment. Using IMC 0609, Appendix F, "Fire Protection Significance Determination Process, Phase 1 Worksheet," the finding was determined to be of very low safety significance (Green) because it represented a low degradation of fire prevention and administrative controls element of the plant combustible material controls program, and the breaching of the hydrogen guard piping would not have prevented the safe shutdown of the plant. This finding has a cross-cutting aspect of design margins associated with the human performance area. Specifically, the most significant contributor for the performance deficiency was the licensee did not have an adequate work process that focused on maintaining defense in depth related to a fire hazard barrier, such as a hydrogen guard piping, during maintenance activities. Breaching hydrogen guard piping impacts defense in depth and design margins used to protect safety-related equipment, and special attention is required to carefully guard and change the configuration with great thought and care [H.6].

Inspection Report# : [2015002](#) (*pdf*)

Significance:  Jun 30, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Maintain Operator Licensing Examination Integrity

The inspectors reviewed a self-revealing, Severity Level IV non-cited violation of 10 CFR 55.49, "Integrity of Examinations and Tests," and an associated Green finding for the licensee's failure to provide adequate examination security measures during administration of the 2015 biennial requalification examination. On May 26, 2015, a licensed operator was able to obtain plant computer information that led to the discovery of specific plant events contained on the NRC-required annual operating test. The licensee entered this issue into the corrective action program as Notification 50704195 and retested the crew with a new scenario.

The failure of the licensee to provide adequate measures for examination security for the biennial requalification examinations was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the human performance attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using NRC Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, Tables 1 and 2 worksheets (issue date June 19, 2012); and the corresponding Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)," Flowchart Block #10 (issue date December 6, 2011), the finding was determined to have very low safety significance (Green). Although the 2015 finding resulted in a compromise of the integrity of biennial dynamic simulator examinations had no compensatory actions been taken, the equitable and consistent administration of the biennial dynamic simulator examination was not actually affected by this compromise. The traditional enforcement violation was determined to be a Severity Level IV violation consistent with Section 6.4.d of the Enforcement Policy. This finding has a cross-cutting aspect in the resources component of the human performance cross-cutting area because the licensee failed to ensure the procedures are adequate to ensure nuclear safety [H.1].

Inspection Report# : [2015002](#) (*pdf*)

Significance:  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Design Control for High-Energy Line Break Vent Flow Path

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 ensure credited design features, such as flow vent paths, protect safety-related systems, from temperature and pressure effects of a high-energy line break (HELB) in the auxiliary building. Specifically, the licensee allowed obstruction of a credited flow path with acrylic glass plates not qualified in the original design and not verified to function under a HELB scenario. The licensee entered this issue into the corrective action program as Notifications 50697910 and 50698102, and took immediate actions to remove the acrylic glass plates from the vent path doors in the auxiliary building.

The performance deficiency was determined to be more than minor because it affected the Mitigating Systems Cornerstone attribute of Design Control and adversely affected the cornerstone objective of ensuring the reliability, availability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee did not have adequate measures in place to ensure that qualified components were available to mitigate the consequences of a HELB in the auxiliary building. The finding screened as of very low safety significance (Green) because the finding did not affect the design or qualification of mitigating structures, systems, and components; the finding did not represent a loss of system and/or function; the finding did not represent an actual loss of a function of a single train for greater than the technical specification (TS) allowed outage time; the finding did not represent an actual loss of a function of one or more non-TS trains of equipment; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding was not assigned a cross-cutting aspect since the performance deficiency is not indicative of current plant performance.

Inspection Report# : [2015002](#) (*pdf*)

Significance:  Jun 30, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Technical Specification 3.3.4 Not Met Due to Inoperable Remote Shutdown System Function

The inspectors reviewed a self-revealing Green, non-cited violation of Technical Specification 3.3.4 "Remote Shutdown System," for the licensee's failure to maintain adequate configuration control of fuses associated with an emergency diesel generator (EDG). The licensee's failure to maintain adequate configuration control by not verifying that fuses were properly installed, and adequate post maintenance testing was performed, following maintenance

activities was a performance deficiency. Specifically, following the 1R17 refueling outage, from approximately June 13, 2013 until November 22, 2013, EDG 1-3 would not have been able to perform its remote shutdown function due to not being able to be adequately operated at the local EDG control cubicle. The licensee entered this issue into the corrective action program as Notification 50595473, and took prompt actions to restore the fuses to the correct position and verify the positions of the fuses in the other EDG output breaker cubicles.

The failure to properly install fuses in the local manual operation circuitry of EDG 1-3 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. Specifically, it affected the ability to reach and maintain safe shutdown conditions in case of a fire causing a control room abandonment. The inspectors evaluated this finding using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013. Because it affected the ability to reach and maintain safe shutdown conditions in case of a fire that led to control room evacuation, the Phase 2 methodology of Inspection Manual Chapter 0609, Appendix F, was not appropriate for this finding. Therefore, the senior reactor analyst performed a Phase 3 evaluation to determine the risk significance. The analyst determined that the performance deficiency only increased the risk of the plant as it related to the need to locally control EDG 1-3 following a postulated control room evacuation. The Senior Risk Analyst determined that the change in core damage frequency was less than 1×10^{-6} , and the finding was not significant with respect to large, early release frequency. The analyst determined that this finding was of very low risk significance (Green). This finding had a cross-cutting aspect in the area of human performance associated with the work practices component, because the licensee did not ensure supervisory and management oversight of work activities, such that nuclear safety was supported [H.5].
Inspection Report# : [2015002](#) (pdf)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Sep 30, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Secure a Locked High Radiation Area

The inspectors reviewed a self-revealing non-cited violation (NCV) of Technical Specification 5.4.1(a), "Procedures," for failure to secure a locked high radiation area. Specifically, the padlock on the Letdown Filter 1-1 locking bar was found unlocked. Upon discovery, the licensee guarded the area until properly secured. This issue was entered into the licensee's corrective action program as Notification 50710852.

The failure to secure a locked high radiation area was a performance deficiency. The performance deficiency was more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, failure to adequately secure the locked high radiation area could result in unintended exposure to high

levels of radiation. Using Inspection Manual Chapter 0609, Appendix C, “Occupational Radiation Safety Significance Determination Process,” dated August 19, 2008, the inspectors determined the violation was of very low safety significance (Green) because: (1) it was not an as low as reasonably achievable (ALARA) 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. The finding had an avoid complacency cross-cutting aspect, in the area of human performance, because individuals failed to recognize and plan for the possibility of mistakes, even while expecting positive outcomes. Specifically, licensee personnel failed to ensure that the padlock was secured after completing the task [H.12].
Inspection Report# : [2015003](#) (*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

Last modified : July 11, 2016