UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 E. LAMAR BLVD
ARLINGTON TX 76011-4511

April 21, 2016

Mr. Edward D. Halpin, Senior Vice President
and Chief Nuclear Officer
Pacific Gas and Electric Company
Diablo Canyon Power Plant
P.O. Box 56, Mail Code 104/6
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON POWER PLANT, UNITS 1 AND 2 – NRC COMPONENT DESIGN BASES INSPECTION REPORT 05000275/2016007 AND 05000323/2016007

Dear Mr. Halpin:

On March 10, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Diablo Canyon Power Plant, Units 1 and 2. The NRC inspectors discussed the results of this inspection with Mr. J. Welsch, Site Vice President, and other members of your staff. On April 7, 2016, the NRC inspectors discussed the final results of this inspection with Mr. R. Waltos, Acting Director, Engineering, Mr. T. Baldwin, Director, Nuclear Site Services, and other members of your staff. The inspectors documented the results of this inspection in the enclosed inspection report.

The NRC inspectors documented six findings of very low safety significance (Green) in this report. All of these findings involved violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the Diablo Canyon Power Plant, Units 1 and 2.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV; and the NRC resident inspector at the Diablo Canyon Power Plant, Units 1 and 2.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice and Procedure," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Thomas R. Farnholtz, Chief
Engineering Branch 1
Division of Reactor Safety

Docket Nos. 50-275 and 50-323
License Nos. DPR-80 and DPR-82

Enclosure:
Inspection Report 05000275/2016007 and
05000323/2016007 w/Attachment:
Supplemental Information

cc w/encl: Electronic Distribution

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets:	05000275; 05000323
Licenses:	DPR-80; DPR-82
Reports:	05000275/2016007; 05000323/2016007
Licensee:	Pacific Gas and Electric Company
Facility:	Diablo Canyon Power Plant, Units 1 and 2
Location:	7 ½ miles NW of Avila Beach Avila Beach, CA
Dates:	February 8 through March 10, 2016
Team Leader:	J. Braisted, Reactor Inspector, Engineering Branch 1
Inspectors:	C. Steely, Operations Engineer, Operations Branch M. Hayes, Operations Engineer, Operations Branch N. Okonkwo, Reactor Inspector, Engineering Branch 2 R. Kopriva, Senior Reactor Inspector, Engineering Branch 1 R. Latta, Senior Reactor Inspector, Engineering Branch 1
Senior Reactor Analyst:	D. Loveless, Senior Reactor Analyst, Plant Support Branch 2
Accompanying Personnel:	H. Leake, Contractor, Beckman and Associates J. Zudans, Contractor, Beckman and Associates
Approved By:	Thomas R. Farnholtz, Chief Engineering Branch 1 Division of Reactor Safety

SUMMARY

IR 05000275; 05000323/2016007; 02/08/2016 – 03/10/2016; Diablo Canyon Power Plant, Units 1 and 2: Baseline inspection, NRC Inspection Procedure 71111.21, “Component Design Bases Inspection.”

The inspection activities described in this report were performed between February 8, 2016, and March 10, 2010, by six inspectors from the NRC’s Region IV office and two contractors. Six findings of very low safety significance (Green) are documented in this report. All of these findings involved violations of NRC requirements. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, “Significance Determination Process.” Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, “Aspects within the Cross-cutting Areas.” Violations of NRC requirements are dispositioned in accordance with the NRC‟s Enforcement Policy. The NRC’s program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, “Reactor Oversight Process.”

Cornerstone: Mitigating Systems

- Green. 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. (Section 1R21.2.3.b.1)

- Green. 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 [P.2]. (Section 1R21.2.3.b.2)

- Green. 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 DCPP," 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 [H.6]. (Section 1R21.2.4.b)

- Green. 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 [H.14]. (Section 1R21.2.5.b)

- Green. 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 DCPP 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 [H.6]. (Section 1R21.3.1.b.1)

- Green. 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 [H.6]. (Section 1R21.3.1.b.2)

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

This inspection of component design bases verifies that plant components are maintained within their design basis. Additionally, this inspection provides monitoring of the capability of the selected components and operator actions to perform their design basis functions. As plants age, modifications may alter or disable important design features making the design bases difficult to determine or obsolete. The plant risk assessment model assumes the capability of safety systems and components to perform their intended safety function successfully. This inspectable area verifies aspects of the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones for which there are no indicators to measure performance.

1R21 Component Design Bases Inspection (71111.21)

.1 <u>Overall Scope</u>

To assess the ability of the Diablo Canyon Power Plant, Units 1 and 2, equipment and operators to perform their required safety functions, the team inspected risk-significant components and the licensee’s responses to industry operating experience. The team selected risk-significant components for review using information contained in the Diablo Canyon Power Plant, Units 1 and 2, probabilistic risk assessments and the NRC standardized plant analysis risk model. In general, the selection process focused on components that had a risk achievement worth factor greater than 1.3 or a risk reduction worth factor greater than 1.005. The items selected included components in both safety-related and nonsafety-related systems, including pumps, circuit breakers, heat exchangers, transformers, and valves. The team selected the risk-significant operating experience to be inspected based on its collective past experience.

To verify that the selected components would function as required, the team reviewed design basis assumptions, calculations, and procedures. In some instances, the team performed calculations to independently verify the licensee's conclusions. The team also verified that the condition of the components was consistent with the design basis and that the tested capabilities met the required criteria.

The team reviewed maintenance work records, corrective action documents, and industry operating experience records to verify that licensee personnel considered degraded conditions and their impact on the components. For selected components, the team observed operators during simulator scenarios, as well as during simulated actions in the plant.

The team performed a margin assessment and detailed review of the selected risk-significant components to verify that the design basis have been correctly implemented and maintained. This design margin assessment considered original design issues, margin reductions because of modifications, and margin reductions identified as a result of material condition issues. Equipment reliability issues were also considered in the selection of components for detailed review. These included items such as failed performance test results; significant corrective actions; repeated maintenance; 10 CFR 50.65(a)1 status; operable, but degraded, conditions; NRC resident inspector input of problem equipment; system health reports; industry operating experience; and licensee problem equipment lists. Consideration was also given to the uniqueness and complexity of the design, operating experience, and the available defense in-depth margins.

The inspection procedure requires a review of 15 to 25 total samples that include risk-significant and low design margin components, components that affect the large early release frequency (LERF) and operating experience issues. The sample selection for this inspection was 15 components, 1 component that affects LERF, and 5 operating experience items. The selected inspection and associated operating experience items supported risk-significant functions including the following:

a. Electrical power to mitigation systems: The team selected several components in the electrical power distribution systems to verify operability to supply alternating current (ac) and direct current (dc) power to risk-significant and safety-related loads in support of safety system operation in response to initiating events such as loss of offsite power, station blackout, and a loss-of-coolant accident with offsite power available. As such the team selected:

- Diesel Generator 1-3 Instrument and Control System
- 4160 Volt Switchgear Bus 2F
- 480 Volt Switchgear 2F
- 125 Volt Distribution Panel and Bus 2-2
- 4160 Volt Feeder Breaker 52HF10
- 4160 Volt / 480 Volt Transformer 2F

b. Components that affect LERF: The team reviewed a component required to perform functions that mitigate or prevent an unmonitored release of radiation. The team selected the following component:

- Containment Fan Cooler Unit 2-5

c. Mitigating systems needed to attain safe shutdown: The team reviewed components required to perform the safe shutdown of the plant. As such the team selected:

- Auxiliary Saltwater Pump 1-1
- Auxiliary Saltwater Traveling Screen 1-7
- Charging Pump Suction Valves LCV-112B and LCV-112C

- Component Cooling Water Pump 2-2
- Component Cooling Water Heat Exchanger Inlet Valves FCV-602 and FCV-603
- Condensate Storage Tank
- Pressurizer Power Operated Relief Valves PCV-455, PCV-456, and PCV-474
- Residual Heat Removal System Valves RHR-8701 and RHR-8702

.2 Results of Detailed Reviews for Components:

.2.1 Diesel Generator 1-3 Instrument and Control System

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, the current system health report, selected drawings and calculations, maintenance and test procedures, and condition reports associated with diesel generator 1-3 instrument and control system. The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Component maintenance history and corrective action program reports to verify the monitoring of potential degradation

- Engineering changes and resultant design revisions, including work orders and condition reports

- Single-line and wiring diagrams of the local control panel, including functional descriptions

- Vendor manual for emergency diesel generator 1-3 instrument and controls

- Surveillance and preventive maintenance procedures and performed preventive maintenance, inspection, and testing documents

- Diesel generator 1-3 output traces, including observation of a field flash

- Output breaker sizing and protection calculations

b. Findings

No findings were identified.

.2.2 4160 Volt Switchgear 2F

a. Inspection Scope

The team reviewed the updated final safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with 4160 Volt switchgear 2F to ensure design basis requirements and specifications were met. The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Calculations for electrical distribution system loading, steady-state and transient voltages, and maximum short-circuit levels to evaluate the adequacy of the switchgear bus and breakers to carry anticipated loads under limiting conditions

- Protective device settings and circuit breaker ratings to confirm adequate selective protection and coordination of connected equipment during worst-case short circuit conditions and to withstand and interrupt maximum available faults

- Degraded voltage and loss of voltage relay protection schemes that initiate automatic transfers from the offsite power supply to the diesel generator to assess adequacy of voltage at the terminals of the safety-related loads, and ability to remain connected to offsite power under worst operating and accident conditions

- Corrective action history to determine whether there had been any adverse operating trends

- Visual inspection to assess material condition, the presence of hazards, and consistency of installed equipment with design documentation and analyses

b. Findings

No findings were identified.

.2.3 480 Volt Switchgear 2F

a. Inspection Scope

The team reviewed the updated final safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with 480 Volt switchgear 2F to ensure design basis requirements and specifications were met. The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Calculations for electrical distribution system loading, steady-state and transient voltages, and maximum short-circuit levels to evaluate the adequacy of the switchgear bus and breakers to carry anticipated loads under limiting conditions

- Protective device settings and circuit breaker ratings to confirm adequate selective protection and coordination of connected equipment during worst-case short circuit conditions and to withstand and interrupt maximum available faults

- Corrective action history to determine whether there had been any adverse operating trends

- Visual inspection to assess material condition, the presence of hazards, and consistency of installed equipment with design documentation and analyses

b. Findings

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

Introduction. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," involving the failure to evaluate 480 Vac combination motor starters with instantaneous magnetic circuit breaker trip current settings higher than their manufacturers' specifications.

Description. The 480 Vac combination motor starters, which are used in motor control centers, contain an instantaneous magnetic circuit breaker, contactor, and thermal overload relay. The thermal overload relay senses excessive current due to motor overloads and failures to start and responds by signaling the contactor to open in order to protect the motor, components of the combination motor starter, and downstream cables and containment penetrations against excessive heating due to overcurrent conditions. If properly coordinated with the thermal overload setting, the instantaneous magnetic circuit breaker protects the combination starter components and downstream cables, and penetrations from downstream faults. Calculation 366A-DC, "Molded Case Circuit Breakers and Thermal Overload Relays," Appendix 9, includes the following precaution from a Cutler Hammer vendor document: "WARNING – To maintain overcurrent, short circuit, and ground fault protection, the manufacturer's instructions for selection of the heater pack and setting of the instantaneous trip circuit breaker (current interrupter) must be followed." Other Cutler Hammer documents provide more specific setting instructions for the instantaneous magnetic circuit breakers to coordinate with the thermal overload relay setting, such as no higher than 13 times the motor full load amp ratings.

Trip settings of the vital instantaneous magnetic circuit breakers in combination starters are documented and analyzed in calculation 195B-DC, "Evaluation of Molded Case Circuit Breaker Settings for 460VAC Class 1E Motors." Many of those breakers were set higher than the limits specified by their manufacturers. This lack of compliance with manufacturers' setting instructions could result in downstream faults causing damage to the combination starter components, fire in the motor control center cubicle, spurious tripping of the entire motor control center, or thermal damage to cables and containment penetrations. The licensee had no analysis to demonstrate that these vulnerabilities do not exist.

Analysis. 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.

Enforcement. 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." Contrary to the above, prior to September 10, 2013, the licensee failed to verify or check 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, 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. Because this finding was of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as a non-cited violation, consistent with

Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000275/2016007-01 and 05000323/2016007-01, "Failure to Evaluate 480 Vac Motor Starters with Circuit Breaker Trip Settings Higher than Manufacturers' Specifications."

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

Introduction. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," involving the failure to correct the lack of design verification of 460 Vac motors at maximum allowable frequency when powered from the emergency diesel generators.

Description. Technical specification surveillance requirements 3.8.1.2, 3.8.1.7, 3.8.1.11, 3.8.1.12, 3.8.1.15, and 3.8.1.20 allow a maximum emergency diesel generator frequency of 60.8 Hz. Increased frequency of a motor power supply causes a faster motor speed and increases the brake horsepower of the driven equipment. Motors that operate at or near their thermal capability limit at 60 Hz could overheat or trip on overcurrent when operating at a higher frequency.

Procedure OM7.ID1, "Problem Identification and Resolution," provides instructions on the timeliness of problem resolution in Section 5.3. The procedure specifies the timeframe in calendar days within which actions should be completed from the time the action is generated. The timeframe for corrective actions from apparent cause evaluations is 180 days, and the timeframe for a preliminary plan for resolution is 30 days.

On July 31, 2013, the licensee completed an apparent cause evaluation under Notification 50573621 to address Non-cited Violations 05000275/2013007-02 and 05000373/2013007-02 documented in the 2013 component design bases inspection report regarding the effect of maximum allowable emergency diesel generator voltage on the auxiliary feedwater pump motors. The licensee's corrective actions in response to these non-cited violations identified the need to perform an extent of condition review for all vital alternating current motors in Task #5. The apparent cause evaluation stated, "As a result the scope of Notification 50572850 has increased to include an extent of condition which applies to all ESF motors that have a BHP loading greater than their name plate rating." However, the associated corrective action task did not include all engineered safety feature (ESF) motors as described in the apparent cause evaluation, but limited the review to 4 kV motors (i.e., not 460 Vac motors).

In addition, on December 17, 2015, the licensee issued the "DCPP 2016 Component Design Basis Inspection (CDBI) Self-Assessment" report, which identified that, for 460 Vac motors, "a documented Engineering evaluation of Class 1E motor heating when operating at 60.8 Hz via a DG powered vital bus should be prepared." Although Notification 50826105 was initiated on December 17, 2015, to address this issue, an action to perform the technical motor evaluation had not been initiated prior to the team's inquiry.

Analysis. 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 [P.2].

Enforcement. 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." Contrary to the above, prior to March 16, 2016, the licensee failed to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances were promptly identified and corrected. Specifically, 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. Because this finding was of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000275/2016007-02 and 05000323/2016007-02, "Failure to Promptly Correct the Lack of Design Verification of 460 Vac Motors at Maximum Allowable Frequency."

.2.4 125 Volt Distribution Panel and Bus 2-2

a. Inspection Scope

The team reviewed the updated final safety analysis report, design basis documents, the current system health report, selected drawings, maintenance and test procedures, and condition reports associated with 125 Volt Distribution Panel and Bus 2-2 to ensure design basis requirements and specifications were met. The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Calculations for electrical distribution system loading, voltages, and maximum short-circuit levels to evaluate the adequacy of the distribution panel bus and breakers to carry anticipated loads under limiting conditions

- Protective device settings and circuit breaker ratings to confirm adequate selective protection and coordination of connected equipment during worst-case short circuit conditions and to withstand and interrupt maximum available faults

- Corrective action history to determine whether there had been any adverse operating trends

- Visual inspection to assess material condition, the presence of hazards, and consistency of installed equipment with design documentation and analyses

b. Findings

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

Introduction. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," involving the failure to evaluate operation of 125 Volt direct current (dc) and 480 and 120 Volt alternating current (ac) equipment at maximum allowable voltages (two examples).

Description. Example 1: Equipment is designed and rated by its manufacturers to withstand supply voltages within a limited range. Procedure OP J-9:IV, "Performing a Battery Equalizing Charge," specified an equalizing voltage of approximately 138 Vdc, and design criterion memorandum S-67, "125V/250V Volt Direct Current System," specified a maximum equalizing voltage of 139.8 Vdc, on nominally 125 Vdc systems, without an analysis to ensure that safety-related direct current equipment would not be adversely affected at the equalizing voltage level. However, the licensee had not performed a comprehensive review to verify or check that the maximum voltage to which vital dc equipment would be exposed during battery equalizing, which could be as high as 139.8 Vdc, was within the equipment maximum voltage ratings or that the equipment had been analyzed to function above its rated voltage limits. In response to the team's inquiry, the licensee performed a preliminary evaluation of the condition and determined that some of the dc equipment had maximum voltage ratings that were less than 139.8 Vdc, but that it was unlikely that they had been damaged due to exposure to voltages above their ratings.

Example 2: Equipment is designed and rated by its manufacturers to withstand supply voltages within a limited range. On June 30, 1997, the licensee issued design change package E-050321, which increased the voltage of the vital 480 Vac buses by 2.5 percent. The design change package stated, "The calculation performed by Duke Engineering and Services (358A-DC) detailed the acceptable voltages on all buses during normal operation, accident conditions, and plant shutdown." Calculation 358A-DC, "DCPP Unit 2 Load Flow, Short Circuit, and Transient Stability Calculation," established a maximum voltage acceptance criterion of 105.4 percent (506 Volt) for the 480 Volt buses. Units 1 and 2 Procedures STP I-1C, "Routine Weekly Checks Required by Licenses," include voltage checks of vital 480 Vac buses to verify that the voltage does not exceed 126.33 Vac on the secondary of the potential transformers, which translates to a limit of about 506 Vac on the 480 Vac buses. Calculation 357G-DC, "Guidelines for Circuit Breaker Data Entered into ETAP Database," specified a maximum voltage of 508 Vac on the 480 Vac buses to maintain the credited circuit breaker interrupting ratings. Calculation 357A-DC, "Units 1&2 Load Flow, Short Circuit, and Motor Starting," identifies, in section 3.1.6, a voltage limit of 511 Vac to avoid overvoltages on the 120 Vac control circuits.

Contrary to these established voltage limits, implementation of design change package E-050321 resulted in measured bus voltages that were sometimes as high as 528 Vac. These overvoltage conditions were justified in Procedure OP J-2:VIII, "Guidelines for Reliable Transmission Service for DCPP," Section 5.4, which stated that they are acceptable based on several corrective action documents that it referenced. The team reviewed the referenced notifications and determined that they lacked the rigor of a formal calculation and failed to address a number of vulnerabilities. Specifically, the licensee lacked analysis of allowable overvoltage conditions on induction motor rotor overheating, comprehensive review of non-motor maximum voltage ratings, consideration of additional voltage boosting at the 120 Vac level, derating of circuit breaker interrupting capacities, motor operated valve torque considerations, and exceedance of maximum voltages for which equipment was qualified.

Analysis. 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 [H.6].

Enforcement. 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." Contrary to the above, prior to February 10, 2016, the licensee failed to verify or check 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, 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 DCPP," 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. Because this finding was of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000275/2016007-03 and 05000323/2016007-03, "Failure to Ensure Safety-Related Alternating Current and Direct Current Equipment Functionality at Maximum Allowable Voltages."

.2.5 4160 Volt Feeder Breaker 52HF10

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, the current system health report, selected drawings and calculations, maintenance and test procedures, and condition reports associated with 4160 Volt feeder breaker 52HF10. The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Component functional description, maintenance history, and corrective action program reports to verify the monitoring of potential degradation

- Component logic, schematic, and wiring diagrams

- Feeder breaker vendor manual and qualification document

- Calculations for electrical distribution, system load flow/voltage drop, short-circuit, cable sizing and routing, and electrical protection to verify that switchgear bus capacity and voltages remained within minimum acceptable limits

- Protective device settings and circuit breaker ratings to ensure adequate selective protection coordination of connected equipment during worst-case short circuit conditions

- Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance

- Results of completed preventative maintenance on breakers, including other breakers in the switchgear

b. Findings

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

Introduction. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," involving 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.

Description. Feeder circuit breaker 52HF10 is a 1200 A, 4160 Vac SF6 breaker. Although 1200 A and 2000 A 4160 Vac SF6 circuit breakers were procured safety-related, some of their applications are classified as nonsafety-related. These breakers are mostly used in Units 1 and 2 4160 Vac switchgear buses, D and E, and safety-related switchgear, buses F and G.

The team reviewed corrective actions associated with the 4160 Vac SF6 breakers and observed that, on October 8, 2015, Notification 50809805 documented corrective actions associated with a cracked holding pawl on nonsafety-related 4160 Vac SF6 breaker 52HD10. As a corrective action, the licensee promptly removed the part and replaced it with a spare, but failed to review the impact of the condition on safety-related breakers. Specifically, although breaker 52HD10 is used in a nonsafety-related application, it was procured as safety-related and is of the same make and model as the safety-related 4160 Vac SF6 breakers.

The licensee failed to review Notification 50809805 and implement corrective actions in accordance with Procedure OM7.ID1, "Problem Identification and Resolution."

Section 5.2.4.b.2, states that ---"ensure positive contact is made with WCSFM" to perform extent of condition "if problem could adversely impact safety ---- or the ability of equipment to perform its intended licensing and or design function." Contrary to that provision, the licensee failed to recognize that the problem associated with the 4160 Vac nonsafety-related SF6 breaker could impact the ability of other safety-related breakers to perform their intended safety function and, as such, perform an extent of condition on safety-related 4160 Vac SF6 breakers due to the cracked holding pawl on the nonsafety-related 4160 Vac SF6 breaker, which was procured as quality equipment and, similar in make and model, to the safety related 4160 Vac SF6 breakers.

Analysis. 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 [H.14].

Enforcement. 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." Contrary to the above, in October of 2015, the licensee failed to accomplish activities affecting quality prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstance in accordance with these instructions, procedures, or drawings. Specifically, 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 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. Because this finding was of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000275/2016007-04 and 05000323/2016007-04, "Failure to Evaluate the Extent of Condition for a Degraded Condition on a Nonsafety-Related 4160 Vac Breaker."

.2.6 4160 Volt / 480 Volt Transformer 2F

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, the current system health report, selected drawings and calculations, maintenance and test procedures, and condition reports associated with the 4160 Volt / 480 Volt transformer 2F. The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Component maintenance history and corrective action program reports to verify the monitoring of potential degradation

- Load tap changer design and temperature sensor monitor

- Component functional description, protection, logic and schematic diagram and sizing calculation

- Calculations for electrical distribution, system load flow/voltage drop, short-circuit, cable de-rate for load center transformer 2F, and electrical protection to verify that 480 Vac bus capacity and voltages remained within minimum acceptable limits

- Protective device settings and circuit breaker 52HF10 ratings to ensure adequate selective protection coordination of connected equipment during worst-case short circuit conditions

- Procedures for transformer maintenance, surveillances, inspection, and testing to compare maintenance practices against industry and vendor guidance; including the cable and insulation aging management program

- Results of completed preventative maintenance on transformer and supply breaker 52HF10, including breaker tracking

- Vendor manual and vendor recommended preventive maintenance requirements

b. Findings

No findings were identified.

.2.7 Containment Fan Cooler Unit 2-5

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, the current system health report, selected drawings and calculations, maintenance and test procedures, and condition reports associated with containment fan cooler unit 2-5. The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Component maintenance history and corrective action program reports to verify the monitoring of potential degradation

- Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance

- Surveillances of containment air flow

- Modifications to the containment fan cooler unit back-draft damper

- Technical specifications and bases documents

- Vendor documentation

- External cleaning processes of the fan cooler units

- Chemistry control surveillances and test results of component cooling water system water with respect to system corrosion and containment fan cooler fouling requirements

- Piping and instrumentation diagrams

- System operating instructions

- Component one-line and control wiring diagram, cable schedule and cable routing for the fan motor

- Component fan motor cable sizing and routing for the fan motor and brake horsepower calculation

- Calculations for electrical distribution, system load flow/voltage drop, short-circuit, and electrical protection to verify that bus capacity and voltages remained within minimum acceptable limits

- Protective device settings and circuit breaker ratings for fan motor to ensure adequate selective protection coordination of connected equipment during worst-case short circuit conditions

- Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance; including the cable aging management program

b. Findings

No findings were identified.

.2.8 Auxiliary Saltwater Pump 1-1

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, the current system health report, selected drawings and calculations, maintenance and test procedures, modifications, vendor technical manual and condition reports associated with auxiliary saltwater pump 1-1. The team also performed walk downs and conducted interviews with system engineering personnel and inservice testing program personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Component maintenance history and corrective action program reports to verify the monitoring of potential degradation

- Net positive suction head calculations, including elevated ultimate heat sink temperatures and varying tidal conditions, hydraulic balancing calculations to verify that the pump will be able to perform its functions during normal and accident conditions

- Modification to upgrade the pump to a larger impeller and the hydraulic effects on the system and pump

- Test trends for the last three years to verify that the pump has been operating in the desired range and is operationally ready, as well actions taken to correct any deficient conditions identified during tests

- Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance

- Schematic diagrams to confirm the motor operation conformed to the design requirements

- Voltage drop calculations to determine whether the motor had adequate voltage for starting and running under degraded voltage conditions

- Cable sizes to determine whether the motor circuit cabling had adequate ampacity

- Maximum power demand of the pump to verify it was properly reflected in alternating current distribution system and diesel generator loading analyses, that the electrical protective devices were set appropriately, and that the motor thermal capability was not exceeded

b. Findings

No findings were identified.

.2.9 Auxiliary Saltwater Traveling Screen 1-7

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, selected drawings and calculations, maintenance and test procedures, modifications, vendor technical manual and condition reports associated with auxiliary saltwater travelling screen 1-7 and associated components. The team also performed walk downs and conducted interviews with system engineering personnel and operations personnel to ensure the capability of the auxiliary saltwater strainer components (e.g., screens, pumps, differential pressure instruments) to perform their desired design basis function under varying intake conditions. Specifically, the team reviewed:

- Component maintenance history and corrective action program reports to verify the monitoring of potential degradation

- Seismic calculation to verify the travelling screens are adequately supported during seismic and normal operating conditions, including considerations for maximum tidal conditions associated with tsunami conditions

- Intake management and alarm response procedures associated with the travelling screes to verify that changing conditions in the intake structure are managed adequately

- Modification to screen wash pumps and travelling screens to improve system performance

- Data collected from operator rounds to assure that the travelling screen system is operating acceptably and corrective actions are taken when system problems are encountered

- Material condition of this system to assure that the components get adequate consideration in the corrosive salt water environment

- Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance

- Schematic diagrams to confirm that the screen and screen wash pump motor operation conformed to the design requirements

- Voltage drop calculations to determine whether the motor had adequate voltage for starting and running under degraded voltage conditions

- Cable sizes to determine whether the motor circuit cabling had adequate ampacity

b. Findings

No findings were identified.

.2.10 Charging Pump Suction Valves LCV-112B and LCV-112C

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, the current system health report, selected drawings and calculations, maintenance and test procedures, and condition reports associated with the charging pump suction valves. The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of the related components to perform their desired design basis function. Specifically, the team reviewed:

- Component maintenance history and corrective action program reports to verify the monitoring of potential degradation

- Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance

- Corrective action documents issued in the past five years to verify that repeat failures, and potential chronic issues, will not prevent the charging pump suction valves from performing their safety function

b. Findings

No findings were identified.

.2.11 Condensate Storage Tank

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, the current system health report, selected drawings and calculations, maintenance and test procedures, and condition reports associated with the condensate storage tank for Unit 2. The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Component maintenance history and corrective action program reports to verify the monitoring of potential degradation

- Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance

- Corrective action documents issued in the past five years to verify that repeat failures, and potential chronic issues, will not prevent the condensate storage tank and associated components from performing their safety function

b. Findings

No findings were identified.

.2.12 Component Cooling Water Pump 2-2

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, the current system health report, selected drawings and calculations, maintenance and test procedures, modifications, vendor technical manual and condition reports associated with component cooling water pump 2-2. The team also performed walk downs and conducted interviews with system engineering personnel and inservice testing program personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Component maintenance history and corrective action program reports to verify the monitoring of potential degradation

- Net positive suction head calculations including elevated ultimate heat sink, hydraulic balancing calculations to verify that the pump will be able to perform its functions during normal and accident conditions

- Test trends for the last three years to verify that the pump has been operating in the desired range and is operationally ready, as well actions taken to correct any deficient conditions identified during tests

- Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance

- Schematic diagrams to confirm the motor operation conformed to the design requirements

- Voltage drop calculations to determine whether the motor had adequate voltage for starting and running under degraded voltage conditions

- Cable sizes to determine whether the motor circuit cabling had adequate ampacity

- Maximum power demand of the pump to verify it was properly reflected in alternating current distribution system and diesel generator loading analyses, that the electrical protective devices were set appropriately, and that the motor thermal capability was not exceeded

b. Findings

No findings were identified.

.2.13 Component Cooling Water Heat Exchanger Inlet Valves FCV-602 and FCV-603

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, the current system health report, selected drawings and calculations, maintenance and test procedures, and condition reports associated with the component cooling water heat exchanger inlet valves FCV-602 and FCV-603. The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Component maintenance history and corrective action program reports to verify the monitoring of potential degradation

- Calculations for air-operated valve design basis operating conditions, and weak-link analyses

- Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance

- Air supply system and back up air accumulator system associated with valves FCV-602 and FVC-603

- System quarterly functional tests

- Technical specifications and bases documents

- Vendor manual for the valves

- Work orders and corrective action program documents

- Piping and instrumentation diagrams

- System operating instructions

b. Findings

No findings were identified.

.2.14 Pressurizer Power Operated Relief Valves PCV-445, PCV-456, and PCV-474

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, the current system health report, selected drawings and calculations, maintenance and test procedures, and condition reports associated with pressurizer power operated relief valves PCV-445, PCV-456, and PVC-474. The team also reviewed recent photographs of the valves and conducted interviews with system engineering personnel to ensure the capability of these components to perform their desired design basis function. Specifically, the team reviewed:

- Component maintenance history and corrective action program reports to verify the monitoring of potential degradation

- Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance

- Corrective action documents issued in the past five years to verify that repeat failures, and potential chronic issues, will not prevent the valves from performing their safety function

b. Findings

No findings were identified.

.2.15 Residual Heat Removal System Valves RHR-8701 and RHR-8702

a. Inspection Scope

The team reviewed the updated final safety analysis report, system description, design basis documents, the current system health report, selected drawings and calculations, maintenance and test procedures, and condition reports associated with residual heat removal system motor operated valves RHR-8701 and RHR-8702. The team also performed walkdowns and conducted interviews with system engineering personnel to ensure the capability of this component to perform its desired design basis function. Specifically, the team reviewed:

- Component maintenance history and corrective action program reports to verify the monitoring of potential degradation
- Calculations for motor-operated valve design basis operating conditions, torque and thrust capabilities, and weak-link analyses
- Procedures for preventive maintenance, inspection, and testing to compare maintenance practices against industry and vendor guidance
- Surveillances pertaining to valve leakage requirements and test results
- System quarterly functional tests
- Technical specifications and bases documents
- Vendor documentation for installation, operation, and maintenance of the valves
- Work orders and corrective action program documents
- Piping and instrumentation diagrams
- System operating instructions
- Component one-line and control wiring diagram, cable schedule and cable routing for the valve motors
- Component motor cable sizing and routing for the valve motors and brake horsepower calculations

- Calculations for electrical distribution, system load flow/voltage drop, short-circuit, and electrical protection to verify that bus capacity and voltages remained within minimum acceptable limits

- Protective device settings and circuit breaker ratings to ensure adequate selective protection coordination of connected equipment during worst-case short circuit conditions

- Procedures for preventive maintenance, corrective actions, inspection, and testing to compare maintenance practices against industry and vendor guidance; including the cable aging management program

- Valve motor control power transformer and fuse sizing

b. Findings

No findings were identified.

.3 Results of Reviews for Operating Experience

.3.1 Inspection of NRC Generic Letter 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power"

a. Inspection Scope

The inspectors reviewed the licensee response to NRC Generic Letter 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power." The licensee's interface and coordination with the transmission system operator for plant voltage requirements and notification of the need for compensatory measures were reviewed. The inspectors also reviewed the capacity and capability of the 230 kV offsite power circuit to perform its required functions during anticipated operational occurrences and postulated accidents. The review included the ability of the load tap changing standby-startup transformers to automatically correct low voltage conditions prior to actuation of the degraded voltage relays.

b. Findings

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

Introduction. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," involving 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.

Description. The licensee's updated final safety analysis report states in Section 8.2.1.2, "The preferred power supply has sufficient capacity and capability to assure that: (1) specified fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences, and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents." Calculation 359-DC, "Determination of 230 kV Grid Capability Limits as DCPP Offsite Power Source," models the transient voltage effects of various design basis events and verifies that the resulting voltage depression is not so severe that it would result in loss of the 230 kV offsite power circuit due to an undervoltage trip. The calculation assumes a coincident engineered safety features actuation system signal and reactor trip signal. The engineered safety features actuation system signal initiates immediate automatic transfer of the vital buses from the auxiliary transformer to the standby startup transformer, but transfer of the non-vital buses to the standby startup transformer and tripping of the main generator is delayed for approximately 30 seconds after a reactor trip. However, the team reviewed the licensee's accident analyses and observed that the reactor trip signal could also occur before the engineered safety features actuation system signal for steam generator tube rupture, steam line break, and small break loss-of-coolant accidents. Therefore, the transfer of vital and non-vital loads to the standby startup transformer and tripping of the main generator could coincide and the voltage effect on the vital buses could be more severe than the scenarios modeled in the calculation.

Analysis. 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 [H.6].

Enforcement. 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." Contrary to the above, prior to January 30, 2014, the licensee failed to verify or check 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, 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 DCPP 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. Because this finding was of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000275/2016007-05 and 05000323/2016007-05, "Failure to Evaluate the Voltage Effects of Limiting Design Basis Events on the 230 kV Offsite Power Circuit."

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

Introduction. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," involving the failure to translate appropriate load tap changer timing acceptance criteria into functional tests to ensure that design assumptions were being maintained.

Description. The licensee's updated final safety analysis report states in Section 8.2.1.2: "The preferred power supply has sufficient capacity and capability to assure that: (1) specified fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences, and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents." Calculation 359-DC, "230 kV Grid Interface Requirements as a DCPP Offsite Power Source," includes simulations to verify that vital bus voltage transients during design basis events are automatically corrected by the standby startup transformer load tap changers to ensure that that the 230 kV offsite power circuit has the required capability (i.e., that it would not be lost due to an undervoltage trip). However, Unit 1 Procedure MP E-62.3, "Tap Changer Functional Test for Standby-Startup Transformer 11," allows up to 16 seconds for three load tap changer step changes, but calculations 357A-DC, "Unit 1 and 2 Load Flow, Short Circuit and Motor Starting Analysis," and 359-DC, "230 kV Grid Interface Requirements as a DCPP Offsite Power Source," credit a faster speed of 3.3 seconds per step. Most of the postulated cases require multiple load tap changer steps to achieve a voltage that exceeds the second level undervoltage relay voltage threshold. Margins between the calculated voltage recovery times and the second level undervoltage relay minimum time delay are discussed in calculation 359-DC, Section 9.1. For the bounding case, the calculated recovery time is 16.07 seconds versus a required recovery time of 16.09 seconds, so the design margin is only 0.02 seconds.

Analysis. 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 [H.6].

Enforcement. 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." Contrary to the above, prior to November 25, 2015, the licensee failed to include appropriate quantitative or qualitative acceptance criteria in instructions, procedures, and drawings for determining that important activities have been satisfactorily accomplished. Specifically, 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. Because this finding was of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as a non-cited violation, consistent with

Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000275/2016007-06 and 05000323/2016007-06, "Failure to Translate Appropriate Load Tap Changer Timing Acceptance Criteria into Periodic Tests."

.3.2 Inspection of NRC Information Notice 2007-36, "Emergency Diesel Generator Voltage Regulator Problems"

a. Inspection Scope

The team reviewed the licensee's evaluation of Information Notice 2007-36, "Emergency Diesel Generator Voltage Regulator Problems," to verify the licensee performed an applicability review and took corrective actions, if appropriate, to address the concerns described in the information notice. This information notice discusses various failure associated with emergency diesel generator voltage regulators. The team verified that the licensee's review adequately addressed the issues in the information notice.

b. Findings

No findings were identified.

.3.3 Inspection of NRC Information Notice 2012-06, "Ineffective Use of Vendor Technical Recommendations"

a. Inspection Scope

The team reviewed the licensee's evaluation of Information Notice 2012-06, "Ineffective Use of Vendor Technical Recommendations," to verify the licensee performed an applicability review and took corrective actions, if appropriate, to address the concerns described in the information notice. This information notice discusses recent operating experience regarding ineffective use of vendor technical recommendations at U.S. nuclear power plants. The team verified that the licensee's review adequately addressed the issues in the information notice.

b. Findings

No findings were identified.

.3.4 Inspection of NRC Information Notice 2012-14, "Motor-Operated Valve Inoperable due to Stem-Disc Separation"

a. Inspection Scope

The team reviewed the licensee's evaluation of Information Notice 2012-14, "Motor-Operated Valve Inoperable due to Stem-Disc Separation," to verify the licensee performed an applicability review and took corrective actions, if appropriate, to address the concerns described in the information notice. The team also reviewed enhancements to the licensee's processes for verifying valve position and the affected procedures to assure that this key aspect of the information notice was considered. The team verified that the licensee's review adequately addressed the issues in the information notice.

b. Findings

No findings were identified.

.3.5 Inspection of NRC Information Notice 2014-03, "Turbine-Driven Auxiliary Feedwater Pump Overspeed Trip Mechanism Issues"

a. Inspection Scope

The team reviewed the licensee's evaluation of Information Notice 2014-03, "Turbine-Driven Auxiliary Feedwater Pump Overspeed Trip Mechanism Issues," to verify the licensee performed an applicability review and took corrective actions, if appropriate, to address the concerns described in the information notice. This information notice discusses recent operating experience related to improper adjustments of control mechanisms that led to inoperability of turbine-driven auxiliary feedwater pumps. The team reviewed several corrective action program documents and maintenance activities for physical inspection and measurement of the pump control mechanisms to address the concerns identified in the information notice. The team verified that the licensee's review adequately addressed the issues in the information notice.

b. Findings

No findings were identified.

.4 Results of Reviews for Operator Actions

a. Inspection Scope

The team selected risk-significant components and operator actions for review using information contained in the licensee's probabilistic risk assessment. This included components and operator actions that had a risk achievement worth factor greater than two or Birnbaum value greater than 1E-6.

For the review of operator actions, the team observed operators during simulator scenarios associated with the selected components as well as observing simulated actions in the plant.

The selected operator actions were:

- Scenario 1 was initiated by a spurious safety injection signal. The crews were required to stop centrifugal charging pump number 3, make a power operated relief valve available, restore instrument air to containment, and to establish normal letdown.

- Scenario 2 was initiated by a leak in the component cooling water system. The crews were required to locate and isolate the leak, which includes field actions, after receiving component cooling water surge tank makeup alarm.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

4OA2 Problem Identification and Resolution (71152)

The team reviewed actions requests and notifications associated with the selected components, operator actions and operating experience notifications. Any related findings are documented in prior sections of this report.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On March 10, 2016, the inspectors presented the inspection results to Mr. James Welsch, Site Vice President, and other members of the licensee staff. On April 7, 2016, the NRC inspectors discussed the final results of this inspection with Mr. Robert Waltos, Acting Director, Engineering, and Mr. Thomas Baldwin, Director, Nuclear Site Services, and other members of the licensee’s staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

A. Heffner, NRC Interface, Regulatory Services
A. Peck, Director, Engineering Services
C. Basulto, Mechanical Engineer, Design Engineering
C. Ingram, Mechanical Engineer, Design Engineering
E. Tahlman, Electrical Engineer, Electrical Systems and Components
G. Reimers, Senior Consultant, Design Engineering
H. Garcia, Manager, CNO Support
H. Hamzehee, Manager, Regulatory Services
J. Loya, Manager, Quality Verification
J. Morris, Senior Advising Engineer
J. Nimick, Senior Station Director
J. Salazar, Engineer, Mechanical Systems
J. Welsch, Site Vice President
L. Orozco, Electrical Engineer, Design Engineering
L. Parker, STARS Regulatory Affairs Specialist
M. McCoy, NRC Interface, Regulatory Services
M. Sharp, Manager, Design Engineering
P. Gerfen, Director, Operation Services
R. Waltos, Acting Director, Engineering
T. Baldwin, Director, Nuclear Site Services
T. Stanton, Senior Engineer, Design Engineering

NRC Personnel

B. Tharakan, Senior Resident Inspector
J. Reynoso, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000275; 05000373/2016007-01	NCV	Failure to Evaluate 480 Vac Motor Starters with Circuit Breaker Trip Settings Higher than Manufacturers' Specifications (Section 1R21.2.3.b.1)
05000275; 05000373/2016007-02	NCV	Failure to Promptly Correct the Lack of Design Verification of 460 Vac Motors at Maximum Allowable Frequency (Section 1R21.2.3.b.2)
05000275; 05000373/2016007-03	NCV	Failure to Ensure Safety-Related Alternating Current and Direct Current Equipment Functionality at Maximum Allowable Voltages (Section 1R21.2.4.b)

Opened and Closed

05000275; 05000373/2016007-04	NCV	Failure to Evaluate the Extent of Condition for a Degraded Condition on a Nonsafety-Related 4160 Vac Breaker (Section 1R21.2.5.b)
05000275; 05000373/2016007-05	NCV	Failure to Evaluate the Voltage Effects of Limiting Design Basis Events on the 230 kV Offsite Power Circuit (Section 1R21.3.1.b.1)
05000275; 05000373/2016007-06	NCV	Failure to Translate Appropriate Load Tap Changer Timing Acceptance Criteria into Periodic Tests (Section 1R21.3.1.b.2)

LIST OF DOCUMENTS REVIEWED

Calculations

Number	Title	Revision / Date
100A-DC	4kV ESF Motor Stator Temperature Rise for Operation Above Nameplate Horsepower	0
114-DC	Protection Relay Setting for Bus and Feeders, Class 1E 4.16kV Switchgear	8
156-DC	4kV Motor Starting Times as a Function of Voltage	6
15-DC	Diesel Generator Loading for Vital Bus Loads Units 1 and 2	25
170-DC	Basler Class 1E 4kV Motor Overcurrent Relay Setpoints	16
192A-DC	Determine the Maximum Allowable Length of 120 VAC Control Wire for Control Circuits of 480 MCCs	2
195A-DC	460V Motors Thermal Overload Setting for 460V Continuous Duty Motors	20
195B-DC	460V Motors Magnetic Trip Setting of Molded Case Circuit Breakers for Class 1E 460V Motors	22
195C-DC	Evaluation of Thermal Overload Relay Settings for 460VAC Class 1E MOV/MOD Motors	12
195D-DC	MCCB Settings for 480VAC Class 1E Non-Motor Loads	9
202-DC	System Coordination Study for Class 1E 480V Buses	1
207B-DC	MCCB Settings/460VAC Non-Class 1E Continuous Duty Motors	18
230-DC	Under and Overvoltage Setting for Class 1E 125V DC System	0
234E-DC	125 VDC Battery 22 Coordination Evaluation	4A
235A-DC	Battery 11 Sizing, Load Flow, Voltage Drop, Short Circuit and Charger Sizing	11
235E-DC	Battery 22 Sizing, Load Flow, Voltage Drop, Short Circuit and Charger Sizing	11
258-DC	32G Generator Reverse Power Relay	0
357A-DC	12kV / 4kV / 480V Electrical Distribution System	14

Calculations

Number	Title	Revision / Date
357F-DC	Guidelines for Motor Data Entered into ETAP Database	7
357G-DC	Guidelines for Circuit Breaker Data Entered into ETAP Database	2
357I-DC	230/12KV Startup Transformer LTC	2
357R-DC	4.16 kV Bus Under-Voltage Relay & Timer	2
358A-DC	Load Flow, Short Circuit and Transient Stability Calculation	1
359-DC	230 kV & 500 kV Grid Interface Requirements	10
360-DC	125VDC System Analysis Methodology & Scenario Development	3
361-DC	125 VDC Ground Detection System Sensitivity	0
364-DC	Electrical Penetration Protection for Unit 2	6
366A-DC	Sizing and Setting of Molded Case Circuit Breakers and Thermal Overload Relays	2
9000033359 (357A-DC)	12kV / 4kV / 480V Electrical Distribution System	14A
B-22-09-04-02	Seismic Interaction East of CCW Ht. Ex. 2-2 Above Mech. Panel 149 North of CL	June 15, 1983
DC-135	Auxiliary Salt Water Pumps Increased Loading	0
HVAC-2005-03	Backflow through the Idle CFCUs without the Backdraft Dampers	0
M-0180	Calculation of the Brake Horse Power for Miscellaneous Pumps	4
M-1018	Evaluate CCW Split Train Operations with Vital Bus Failure and Temporary Loss of Cooling	0
M-1020	Evaluate CCW System with Elevated UHS Temperature in Mode 4	1
M-1027	To determine the maximum allowable ASW temperature when two CCW HX are aligned	3
M-1141	Maximum Emergency Diesel Generator Mechanical Loading	2

Calculations

Number	Title	Revision / Date
M-1141, 90000040769	Emergency Diesel Generator, 4kv System, 480 V System	Part 2, Version 00
M-1185	SAP CALC NO. 90000041599 – CCW FATHOM Flow and Heat Transfer Analysis Model	December 18, 2014
M-175	Check NPSHA for CCW for Temperatures of 100 to 250 deg.F and Flows from 5000 to 20000 gpm	2
M-305	CCW System Pressure and Temperature	14
M-854	Maximum Brake HP for CCW, ASW, AFW, and CCW Auxiliary Lube Oil Pumps	0
M-877	Demonstrate the Acceptability of Throttling Cooling Water Flow to the CCW Pump Lube Oil coolers	1
M-885	Determine Change in ASW Flow When Switching Configuration and Tidal Conditions	3
M-888	Minimum Hold Time for FCV-602 and FCV-603	2
M-919	Single CCW Pump Operation During Station Blackout – Analysis of Ability to Support Cold Shutdown	1
M-951	Evaluation of CCW System Accident Mitigation Capabilities during Plant Cooldown and During ASME Section XI testing	May 28, 2015
M-953	Determine if Adequate NPSH is Available for ASW Pump Operations	3
M-988	ASW System Flows, Pressures and Temperatures	8
SAP Calculation No. 9000013922-008-00	Environmental Qualification Requirements: Bases for "Note 11: and "Note 16" Devices; Bases for the Required Post-DBA Operating Time" and "Minimum Required Qualification Time"; Review of Potential 10CFR50.49(b)(2) Devices; and Radiation EQ of Non-Electronic Devices Subject to a TID of between 10^3 and 10^4 Rads. Legacy No. EZ-002.	8
SAP Calculation No. 9000039862-006-01	Component Cooling Water System Flow Balancing. Legacy No. M-1017	6
SAP Calculation No. 9000039872-002-00	Component Cooling Water System and Auxiliary Saltwater System – To determine the maximum allowable ASW temperature when two CCW HXs are aligned. Legacy No. M-1027	2

Calculations

Number	Title	Revision / Date
SAP Calculation No. 9000039872-003-00	Component Cooling Water System and Auxiliary Saltwater System – To determine the maximum allowable ASW temperature when two CCW HXs are aligned. Legacy No. M-1027	3
SAP Calculation No. 9000041599	Component Cooling Water (CCW) – Component Cooling Water Fathom Flow and Heat Transfer Analysis Model. Legacy No. M-1185	0
SAP Calculation No.: 9000035423	Rising-Stem MOV Actuator Sizing and Setpoints.	7
SAP Calculation No.: 9000039834	Calculation M-988 Auxiliary Saltwater System (ASW). To evaluate the effects of the new ASW bypass piping.	6
SQME-63	Evaluation of Seismic Lateral Restraint for Traveling Water Screens	0
STA-246	ASW Outlet Pressure of the CCCW H	0
STA-274	Establish a Bounding Time to Implement the 500 kV Backfeed and Restore Reactor Coolant System RCS Makeup Flow and Still Meet the GDC 17 Requirements for a Delayed Offsite Power Source	1
WCAP-14282	Evaluation of Peak CCW Temperature Scenarios for Diablo Canyon Units 1 and 2	1
52.21.1	Seismic Verification of Outdoor Water Storage Tanks	4
EQP-52.21.9	Structural Integrity of Outdoor Water Storage Tanks	3
52.21.10	Structural Integrity of Outdoor Water Storage Tanks Relative to Effects of Tornado Loading and Normal Wind Loading	1

Design Change Packages

Number	Title	Revision / Date
C-49207	ASW Bypass Piping – Intake to Hillside Tie-in	7
DC2-EP-4328	Installation of Vacuum Relief System on Each Aux. Saltwater Line	1
DCM S-10	Residual Heat Removal System	20
DCM S-7	Reactor Coolant System	28

Design Change Packages

Number	Title	Revision / Date
DCM-S-14	Component Cooling Water System	28
DCM-S-17B	Auxiliary Saltwater System	21A
DCM-S-23A	Containment HVAC System	22
DCM-S-25B	Backup Air / Nitrogen Supply System	16
DCN 2000000751	Unit 1 Traveling Screen Speed Control Upgrade	August 2, 2011
DCN 2000000752	Replacement of Existing Travelling Screen and Screen Wash Controls Unit 1&2	August 2, 2011
DCN 2-SE-50649	125/250 Volt Direct Current System – 125V DC Vital Battery Charger BTC21(ED21)	0
DCN 2-SE-50650	125/250 Volt Direct Current System – 125V DC Vital Battery Charger BTC22(ED22)	0
DCN 2-SE-50651	125/250 Volt Direct Current System – 125V DC Vital Battery Charger BTC221(ED221)	0
DCN 2-SE-50652	125/250 Volt Direct Current System – 125 VDC Vital Battery Charger BTC 231 (ED231)	0
DCN 2-SE-50653	125/250 Volt Direct Current System –125V DC Vital Battery Charger BTC232 (ED232)	0
DCP - 50649	Replace Vital Battery Chargers	0
DDN 2-1297	Containment Fan Cooler Unit Inlet Damper Modification	1
DDN 2-249	Containment Fan Cooler Unit Anti-Reverse Rotation Device	0
DDN 2-442	Containment Fan Cooler Unit Anti-Reverse Rotation Device	0
DDP 1-119	Containment Fan Cooler Unit Anti-Reverse Rotation Device	0
DDP 1-24907	Containment Fan Cooler Unit Inlet Damper Modification	1
DFC 3-1340	Containment Fan Cooler Unit Anti-Reverse Rotation Device	0
DFC 3-2239	Containment Fan Cooler Unit Inlet Damper Modification	0
DFC 3-2254	Containment Fan Cooler Unit Inlet Damper Modification	0
DFC 3-756	Containment Fan Cooler Unit Anti-Reverse Rotation Device	0

Design Change Packages

Number	Title	Revision / Date
DFC 3-964	Containment Fan Cooler Unit Anti-Reverse Rotation Device	0
E-41629	Change Overcurrent Relay Setpoint of Auxiliary Saltwater Pumps Motor	1
E-50321	Adjust Various Transformer Taps	0
E-50322	Replace Startup Transformer 21	1
E-50365	Replace Startup Transformer 21	0
E-50649	Replace Battery Chargers	0
LBIE Screen Applicability DCP M-49948	Installations of Lube Oil Sample Ports on Safety Related and Non-Safety Related Pumps, Motors and Gearboxes	January 23, 2008
M000096	Lube oil Sample Points	12
M-09383	John Crane Mechanical Seal – Component Cooling Water Pump	0
M-39834	Change Impeller Size on ASW Pumps	0
MMD M00010-1	Damaged Bolt Hole Repair	3

Drawings

Number	Title	Revision / Date
067998	DCPP Unit 2 SRData Cable Report for cable G02P00	23
102008, Sheet 4B	Chemical &Volume Control System (Unit 1)	114
102008, Sheet 4D	Chemical & Volume Control System (Unit 1)	131
102017, Sheet 1	Piping Schematic – Saltwater Systems	89
102017, Sheet 10	Piping Schematic – Saltwater Systems	60
102017, Sheet 11	Piping Schematic – Saltwater Systems	73
102017, Sheet 12	Piping Schematic – Saltwater Systems	84
102017, Sheet 13	Piping Schematic – Saltwater Systems	89
102017, Sheet 2	Piping Schematic – Saltwater Systems	15
102017, Sheet 3	Piping Schematic – Saltwater Systems	109
102017, Sheet 3A	Piping Schematic – Saltwater Systems	99

Drawings

Number	Title	Revision / Date
102017, Sheet 3B	Piping Schematic – Saltwater Systems	95
102017, Sheet 4	Piping Schematic – Saltwater Systems	68
102017, Sheet 5	Piping Schematic – Saltwater Systems	98
102017, Sheet 5A	Piping Schematic – Saltwater Systems	3
102017, Sheet 6	Piping Schematic – Saltwater Systems	102
102017, Sheet 6A	Piping Schematic – Saltwater Systems	93
102017, Sheet 6B	Piping Schematic – Saltwater Systems	1
102017, Sheet 7	Piping Schematic – Saltwater Systems	15
102017, Sheet 8	Piping Schematic – Saltwater Systems	15
102017, Sheet 9	Piping Schematic – Saltwater Systems	38
103011	Logic Diagram 12kV Bus Sections "D" & "E" Automatic Transfer	3
106717, Sheet 7	Saltwater OVID	198
107031, Sheet 1	Piping Schematic Long Term Cooling Water System	7
107031, Sheet 1A	Piping Schematic Long Term Cooling Water System	6
107714, Sheet 2	Component Cooling Water System	65
107723, Sheet 4	Containment Fan Cooler Units – Containment Air Circulation	104
108007, Sheet 4	Reactor Coolant System (Unit 2)`	59
108009, Sheet 3	Safety Injection System	55
108010, Sheet 1	Piping Schematic – Residual Heat Removal System	18
108010, Sheet 2	Piping Schematic – Residual Heat Removal System	17
108010, Sheet 3	Piping Schematic – Residual Heat Removal System	30
108010, Sheet 4	Piping Schematic – Residual Heat Removal System	16
108010, Sheet 5	Piping Schematic – Residual Heat Removal System	18
108010, Sheet 6	Piping Schematic – Residual Heat Removal System	18
108014, Sheet 1	Piping Schematic – Component Cooling Water System	51
108014, Sheet 10	Piping Schematic – Component Cooling Water System	42

Drawings

Number	Title	Revision / Date
108014, Sheet 2	Piping Schematic – Component Cooling Water System	12
108014, Sheet 3	Piping Schematic – Component Cooling Water System	12
108014, Sheet 4	Piping Schematic – Component Cooling Water System	22
108014, Sheet 4A	Piping Schematic – Component Cooling Water System	45
108014, Sheet 5	Piping Schematic – Component Cooling Water System	49
108014, Sheet 5A	Piping Schematic – Component Cooling Water System	35
108014, Sheet 6	Piping Schematic – Component Cooling Water System	43
108014, Sheet 6A	Piping Schematic – Component Cooling Water System	30
108014, Sheet 7	Piping Schematic – Component Cooling Water System	36
108014, Sheet 8	Piping Schematic – Component Cooling Water System	41
108014, Sheet 9	Piping Schematic – Component Cooling Water System	46
108016, Sheet 17	Make-up Water System (Unit 2)	50
108017, Sheet 1	Piping Schematic Salt Water Systems	72
108017, Sheet 3	Diablo Canyon Power Plant Salt Water System Unit 2	79
108017, Sheet 3	Saltwater System	79
108017, Sheet 3B	Diablo Canyon Power Plant Salt Water System	82
108023, Sheet 3	Ventilation and Airconditioning system	82
333354	Schematic Diagram Ground Detector 125/250 Volt DC Buses	9
437530	Single Line Meter & Relay Diagram 12kV Startup System	38
437533	Single Line Meter & Relay Diagram 4160 V System	43

Drawings

Number	Title	Revision / Date
437533, Sheet 1	Electrical Single line, Single line Meter and Relay Diagram, 4160 Volt System	43
437541	Single Line Meter and Relay Diagram 480 Volt System Bus Sections 14D and 14E	32
437583, Sheet 1	Electrical Schematic Diagram, Auxiliary Feedwater system	25
437594	Schematic Diagram Auxiliary Salt Water Pump	33
437595, Sheet 1	Electrical Schematic Diagram, Charging Pumps 11 & 12	33
437629, Sheet 1	Electrical Schematic Diagram, Motor Control Center transformer	17
437641	Schematic Diagram Screen Drive System	17
437666, Sheet 1	Electrical Schematic Diagram, 4KV Diesel Generator and Associated Breakers	30
441219	Single Line Diagram 12/4.16kV System	18
441220	Single Line Diagram for Station Auxiliaries	28
441228	Single Line Meter & Relay Diagram, 4160 V System Bus section “D” & “E”	16
441229	Single Line Meter and Relay Diagram 4160 Volt System Bus Section "F"	20
441229, Sheet 1	Electrical Single Line Meter and Relay Diagram, 4160 V System Bus Section “F” DG 23	20
441230	Single Line Meter & Relay Diagram 4160 V System Bus Section "G" & "H"	31
441231	Single Line Meter & Relay Diagram 480 Volt System Bus Sections 21D & 21E	49
441237	Single Line Meter and Relay Diagram 480 Volt System Bus Section 2F	37
441237, Sheet 1	Electrical Single line Meter and Relay Diagram, 480 Volt System Bus Section 2F	37
441238, Sheet 1	Single line Meter & Relay Diagram, 480 Volt System Bus Section 2G	53
441239, Sheet 1	Single line Meter & Relay Diagram, 480 Volt System Bus Section 2H	47

Drawings

Number	Title	Revision / Date
441240	Single Line Meter and Relay Diagram 125V D.C. System	43
441240, Sheet 1	Electrical Single line Meter and Relay Diagram, 125V D.C. System	43
441286	Logic Diagram 4160 Volt Bus Section "F" Automatic Transfer	11
441287	Schematic Diagram Auxiliary Salt Water Pumps	28
441310, Sheet 1	Electrical Schematic Diagram, Residual Heat Removal Motor Operated Valves	31
441311	Schematic Diagram Component Cooling Water Pumps	27
441313, Sheet 1	Electrical Schematic Diagram, Containment Fan Coolers	35
441313, Sheet 2	Electrical Schematic Diagram, Containment Fan Coolers, No. 21, 23, 24 & 25	6
441339	Bus Potential and Synchronizing 4160 V System	11
441340	Schematic Diagram Potential & Synchronizing Diagram 4160V Bus Sections F, G, & H	31
441352	Schematic Diagram 4160 Volt Bus Section "F" Automatic Transfer	26
441352, Sheet 1	Electrical Schematic Diagram' 4160V Bus Section "F" Automatic Transfer	26
441359	Schematic Diagram 4kV Diesel Generators Auxiliary Motors	22
441363	Schematic Diagram Motor Control Center Transformer	8
441364	Schematic Diagram Motor Control Center Transformer	10
441368	Schematic diagram 125 Volt DC System	22
441457	Diagram of Connections 125 Volt Battery No. 22 and DC Distribution Panel No. 22	19
441462, Sheet 1	Electrical Diagram of Connections, Penetration No. 3E, 9E, 15E, 29E, 32E	4

Drawings

Number	Title	Revision / Date
441473, Sheet 1	Electrical Diagram of Connections, Penetration No. 16E	16
441493	Diagram & Panel Schedule Lighting Distribution	76
448570	Electrical Wiring Diagram, 4160 Volt Switchgear Bus "F" Cell 8	12
448572	Electrical Wiring Diagram, 4160 Volt Switchgear Bus "F" Cell 10	7
448573	Electrical Wiring Diagram, 4160 Volt Switchgear Bus "F" Cell 11	13
451805	Single Line Diagram Main Control Board 2VB1 & 2VB2 Fuse Panels	15
498123	Schematic Diagram Stand-By Start-Up Transformer No. 11 Cooling and Local Annunciator	7
498124	Schematic Diagram Stand-By Start-Up Transformer No. 11 Load Tap Changer	8
500788, Sheet 1	Electrical Schematic Diagram, Main Annunciator Windows PK 1817 – PK 1923	24
500800	Functional Diagram Reactor - Turbine - Generator Protection	18
502110	Single Line Diagram 500/230/25/12/4.16kV Systems	21
502669, Sheet 1	Electrical Diagram of Connections, Above elevation 140' – 0" Area G	24
663030-61	PG&E Diablo Canyon Unit 1&2 Auxiliary Saltwater Pump Curve	May 24, 1989
663212, Sheet 67	CCW HX Tube Plugging Map Unit 1	10
663219	4 Inch – Limitorque 150 lb. Gate Valve	17
663219, Sheet 430	Piping – 14 inch Motor Operated Gate Valve Assembly	16
663393, Sheet 42	Electrical Wiring Diagram, ASL and ASL-R Transformer	2
FIGURE 9.2-2	Arrangement of Intake Structure	September 12, 1998
FIGURE 9.2-3	Arrangement of Auxiliary Saltwater System Piping	September 12, 1998

Procedures

Number	Title	Revision / Date
AD13.DC1	Control of the Surveillance Testing Program	43
AD13-ID4	Post Maintenance Testing	20
AD13-ID4	Post Maintenance Testing	23A
AD4.ID1	Housekeeping	14
AD9.DC2	Purchase Classification and Documentation Requirements	8
AR PK04-24	VCT PRESS LVL TEMP	18
AR PK05-21	PZR LEVEL HI-LO	11
AR PK11-21	High Radiation	31
AR PK13-01	DCPP Annunciator Alarm Response – Bar Rack/Screens	23
AR PK15-01	CONTMT TURB BLDG SUMP LVL	22
AR PK18-22	Annunciator Response 480 V Bus 2F	13
AR PK19-17	U1 12kV SU Transf 11	16
AR PK20-04	U1 SU Transf 11, 12, or 21 Local Annun	14
CF3.ID22	Minor Modification Process	1
CF3.ID4	Design Calculations	22
CF3.ID9	Design Change Development	50A
CF4.ID10	Non-Design Modifications (N-MOD)	25
CF5.ID2	Control of Material in Storage	13
DCM No. T-19	Electrical Separation and Isolation	12
DCM T-22	Electrical Cable, Termination and Raceway	11
EDDG-005	Fuse Control Program	0
EQ File IH-07	System Component Evaluation Worksheet – Limitorque Valve Actuators	8
ER1.ID1	Equipment Reliability Process	4A
MA1.DC54	Conduct of Maintenence	10
MA1.ID27	Preventive Maintenance Program	1
ME E-50.30B	Agastat Type ETR Timing Relay Maintenance	26

Procedures

Number	Title	Revision / Date
ME E-50.61	Basler Type BE1-27 Medium Inverse Undervoltage Relay Maintenance	6
MP E-35.2	Transformer Temperature Probe Calibration	11
MP E-50.1	Thermal Overload Relay and Cubicle Maintenance	48
MP E-52.1	480 Volt Switchgear Maintenance	30
MP E-53.10A	Preventative Maintenance of Limitorque Motor Operators	37
MP E-53.10A1	Low Impact External Inspection of Limitorque Motor Operators	1
MP E-53.10N	Limitorque SMB 0, 1, 2, and 3 Overhaul	25
MP E-53.10R	Augmented Stem Lubrication for Limitorque Operated Valves	6
MP E-53.10S	Limitorque Swap-Out and Switch Settings	12
MP E-57.11A	Preparations for Working on Potentially Energized Load Centers and Transformers	13
MP E-63.1C	Overhaul of 4KV and 12KV Magna-Blast Circuit Breaker	5
MP E-63.3C	Maintenance of 4 and 12 KV Switchgear	30
MP E-63.6A	Maintenance of SF6 4kV Circuit Breakers	24
MP E-64.6A	Maintenance of ABB K-line Circuit Breaker	41
MP I-17-FCV602	Unit 2 CCW Heat Exchanger 2-1 Saltwater Flow FCV-602 Calibration	0
MP I-17-FCV603	Unit 2 CCW Heat Exchanger 2-2 Saltwater Flow FCV-603 Calibration	0
O-23	Operating Instructions for Reliable Transmission Service to DCPP	2.2
OM4.ID14	Notification Review Team (NRT)	26
OM4.ID15	Corrective Action Review Boards (CARB and D CARB)	22A
OM7	Corrective Action Program	6
OM7.ID1	Problem Identification and Resolution	47
OM7.ID1	Problem Identification and Resolution	48
OM7.ID12	Operability Determination	27

Procedures

Number	Title	Revision / Date
OM7.ID12	Operability Determination	29
OM7.ID12	Operability Determination	34
OP AP-1	Excessive Reactor Coolant System Leakage	22
OP AP-11	Malfunction of Component Cooling Water	32
OP E-5	Auxiliary Saltwater System	9
OP E-5:I	Auxiliary Saltwater - Make Available	35
OP E-5:II	Auxiliary Saltwater System Two CCW Heat Exchanger Operation	19
OP F-2:VII	Alternate Makeup Water Sources to the CCW System	8A
OP H-2:I	Operating Procedure – Containment Fan Cooler Units – Make Available and System Operation	38
OP J-2:VIII	Guidelines for Reliable Transmission Service for DCPP	27
OP K01014	Sealed Component Checklist for Backup Regulating Transformer TRY -24 (NORMAL Supply)	3
OP K-10	Systems Requiring Sealed Component Checklists	39
OP K10B2	Sealed Component Checklist for Containment Manual Isolation Components Outside Containment	25
OP K10F	Sealed Component Checklist for Auxiliary Saltwater System	10
OP K10G1	Sealed Component Checklist for ECCS Modes 1, 2 and 3	25
OP O-28	Intake Management	18
OP1.DC16	Control of Plant Equipment Not Required by the Technical Specification	12b
OP1.DC20	Sealed Components	20
OP1.ID2	Time Critical Operator Action	8A
STP 1-1C	Routine Weekly Checks Required by licenses	89A
STP I 1A	Routine Shift Checks Required By Licenses	133
STP I-1B	Routine Daily Checks Required By Licenses	124
STP I-1C	Routine Weekly Checks Required by Licenses	89A
STP M 31	Vital Switchgear Appendix R Circuit Isolation Test	1

Procedures

Number	Title	Revision / Date
STP M-109	Test of Back-Up Air Accumulator System to FCV-602, CCW Heat Exchanger No. 1 Saltwater Inlet Valve	20
STP M-110	Test of Back-Up Air Accumulator System to FCV-603, CCW Heat Exchanger No. 2 Saltwater Inlet Valve	22
STP M-13F	4KV Bus Non-Si Auto Transfer Test	57
STP M-26	ASW System Flow Monitoring	31
STP M-31	Vital Switchgear Appendix R circuit isolation Test	1
STP M-31	Vital Switchgear Appendix R Circuit Isolation Test	3
STP M-51	Routine Surveillance Test of Containment Fan Cooler Units	24
STP M-8B	Leak Rate Testing of Electrical Penetrations	6
STP M-93A	Refueling Interval Surveillance – Containment Fan Cooler System	27
STP M-93A	Refueling Interval Surveillance – Containment Fan Cooler System	34
STP M-9G	Diesel Generator 24-Hour Load Test and Hot Restart Test	57
STP P-ASW-11	Routine Surveillance Test of Auxiliary Saltwater Pump 1-1	33
STP P-ASW-A	Performance Test of Auxiliary Saltwater Pumps	30
STP P-ASW-A11	Comprehensive Test of Auxiliary Saltwater Pump 1-1	10
STP P-CCW 22	Routine Surveillance Test for Component Cooling Water Pump 2-2	14
STP P-CCW-A	Performance Test of Component Cooling Water Pumps	11
STP P-CCW-A22	Comprehensive Pump Test for Component Cooling Water Pump 2-2	4
STP R-10	Reactor Coolant System Leak Evaluation	12
STP R-10C	Reactor Coolant System Water Inventory Balance	46
STP V-13A	CCW Flow Balancing	17
STP V-2	Pacific Gas and Electric Company Nuclear Power Generation Diablo Canyon Power Plant Surveillance Test Procedure	14

Procedures

Number	Title	Revision / Date
STP V-2D3	Pacific Gas and Electric Company Nuclear Power Generation Diablo Canyon Power Plant Surveillance Test Procedure	7
STP V-2D3	Excersizing and Position Verification of Vavles 8701 and 8702	7
STP V-2D3	Exercising and Position Verification of Valves 8701 and 8702	March 31, 2013
STP V-2D3	Exercising and Position Verification of Valves 8701 and 8702	May 18, 2011
STP V-2D3	Exercising and Position Verification of Valves 8701 and 8702	October 20, 2016
STP V-3F4	Exercising Valve FCV-602 CCW Hx No. 1 Saltwater Inlet	27
STP V-3F5	Exercising Valve FCV-603 CCW Hx No. 2 Saltwater Inlet	22
STP V-3T6	Exercising Containment Ventilatlon Isolation Valves FCV-662, FCV-663 and FCV-664	16
STP V-682B	Penetrations 82B and 82C Containment Isolation Valve Leak Testing	13A
STP V-7C	Leak Test of RHR Suction Valves 8701 and 8702 (Surveillance Test November 3, 2014)	12
STP V-7C	Leak Test of RHR Suction Valves 8701 and 8702 (Surveillance Test Mach 19, 2013)	12
STP V-7C	Leak Test of RHR Suction Valves 8701 and 8702	13
TS3.ID2	Licensing Basis Impact Evaluations	40A
TS5.ID1	System Engineering Program	25
U1 OP J-9:IV	Performing a Battery Equalizing Charge	9A
U1 OP L-4	Normal Operation at Power	89
U1&2 MP E-50.33A	Westinghouse Type SSV-T One Unit Voltage Relay Maintenance	12
U1&2 MP E-50.62	Basler BE1-GPS100 Relay Maintenance	8
U1&2 MP E-57.15	Maintenance & Calibration of Ammeters Voltmeters, Frequency Meters & Tachometers	14

Procedures

Number	Title	Revision / Date
U1&2 MP E-63.6A	Maintenance of SF6 4kV Circuit Breakers	24
U1&2 MP E-64.1B	Molded Case Circuit Breaker Exercise and Maintenance	15A
U1&2 STP M-13F	4KV Bus F Non-SI Auto-Transfer Test	57
U1&2 STP M-84F	CIAX-F and CIAX2-F Operations Test	10
U2 EOP ECA-0.0	Loss of all Vital AC Power	24
U2 MP E-62.3	Tap Changer Functional Test for Standby-Startup Transformer 21	0
U2 OP AP-26	Loss of Offsite Power	18
U2 OP J-2:V	Backfeeding the Unit from the 500 kV System	14
U2 STP M-75F	4kv Vital Bus F Undervoltage Relay Calibration	4
XI1.ID4	NRC Communications and Inspection Support	6

Miscellaneous

Number	Title	Revision / Date
64136746-0100	Performance Test of Component Cooling Water Pumps	November 3, 2014
663022-76	Traveling Screen Vendor Technical Manual	August 22, 1997
663213-55	Installation, Operation and Maintenance Instructions for Component Cooling Water Pumps Unit 2	9
Appendix B	Systems Interaction Program Appendix B Source Acceptance Criteria	5
CCW PUMP TEST DATA	IST data for 2-2 CCW pump – approximately last 3 years	Various Dates
CDBI Self-Assessment	DCPP 2016 Component Design Basis Inspection (CDBI) Self-Assessment, Notification 50795610	December 17, 2015
DC 663030-17	Instruction Manual - ASW	22
DC-2-14-M-PP-CCWP2	Component Cooling Water Pump 2-2	August 20, 1985

Miscellaneous

Number	Title	Revision / Date
DC2-EP-4328	Installation of Vacuum Relief System on Each Aux. Saltwater Line	1
DCM NO. S-17B	Design Criteria Memorandum DCM S-17B Auxiliary Saltwater System	21A
DCM S-14	Component Cooling Water System	28
DCN 2000000751	Unit 1 Traveling Screen Speed Control Upgrade	August 2, 2011
DCN 2000000752	Replacement of Existing Travelling Screen and Screen Wash Controls Unit 1&2	August 2, 2011
DCP M-050284	CCW Surge Tank Pressurization	0
DCPP UFSARY	DCPP UNITS 1&2 FSAR UPDATE	22
IST PROGRAM PLAN	Inservice Testing Program Plan – Fourth Ten Year Interval	0
IST PROGRAM PLAN	Inservice Testing Program Plan – Third Ten Year Interval	0
LBIE Screen Applicability DCP M-49948	Installations of Lube Oil Sample Ports on Safety Related and Non-Safety Related Pumps, Motors and Gearboxes	January 23, 2008
LER 1-88-032-00	Improper Design Change Package for Auxiliary Saltwater System Pump Impeller Replacement Due to Personnel Error	March 29, 1989
Log Entries	Logs For high DP traveling screen start	Various
M000096	Lube oil Sample Points	12
M-09383	John Crane Mechanical Seal – Component Cooling Water Pump	0
MR-APP C	Appendix C Mapping of Maintenance Rule Performance Criteria Functions From Scoping Functions	16
RPE 8000001132	DCI, Auxiliary Salt Water Pump (ASP) Parts, Sulzer Bingham, HydoAire Services, Inc., etc.	10
SAPN 50501007	IN 12-14: MOV Inop Stem-Disk Separation	
SISI Manual	Seismically Induced Systems Interaction Manual	11
Unit 1 Screens dp	Traveling Screen DP Plot and Operator logs for traveling screens	Various Dates

Miscellaneous

Number	Title	Revision / Date
A-005	Component Cooling Water Data Sheet	January 25, 2016
A-005	Component Cooling Water Data Sheet	February 1, 2016
A-005	Component Cooling Water Data Sheet	February 8, 2016
A-005	Component Cooling Water Data Sheet	February 16, 2016
A-005	Component Cooling Water Data Sheet	February 22, 2016
A-006	Component Cooling Water Data Sheet	January 25, 2016
A-006	Component Cooling Water Data Sheet	February 1, 2016
A-006	Component Cooling Water Data Sheet	February 8, 2016
A-006	Component Cooling Water Data Sheet	February 16, 2016
A-006	Component Cooling Water Data Sheet	February 22, 2016
B-2	System Training Guide –Residual Heat Removal System	20
DCL-95-135	PG&E Letter DCL 95-135: 10 CFR 50.59 Report of Facility Changes, Procedure Changes, Tests, and Experiments for the Report Period May 3, 1993 – October 28, 1994	June 16, 1995
DCM S-10	Residual Heat Removal System	20
ECC-0001	Critical Component List – Limitorque Operator SMB-1	7
H-2	System Training Guide – Containment Fan Coolers	18
Material D772854	Stockable Materials - Material D772854. Limitorque Limit Switch Compartment Cover	
NA8281O5	Unit 1R15 Motor Operated Valves Trending Study.	
RHR Valve 8701	Last Three Diagnostic Test Reports with Trend Data	
RHR Valve 8702	Last Three Diagnostic Test Reports with Trend Data	
STI_Listu3r03	Surveillance Test Intervals List, Revision 3	November 19, 2015
STP V-13A	Surveillance – CCW Flow Balancing	March 2013
STP V-13A	Surveillance – CCW Flow Balancing	October 2014

Miscellaneous

Number	Title	Revision / Date
TES 420DC 96-161	Diablo Canyon Power Plant (DCPP) Molybdate Blend Monitoring, Evaluation of Corrosion Coupons Exposed in the Closed Cooling Water Systems (CCW) Unit 1 and Unit 2, and in the Intake Cooling Water System (ICW) Unit 2	October 30, 1996
Unit 2 System 03B	System Health Report – Auxiliary Feedwater, Fourth Quarter Report, 2015	December 31, 2015
Unit 2 System 10	System Health Report – Residual Heat Removal System, Fourth Quarter, 2015	December 31, 2015
Unit 2 System 14	System Health Report – Component Cooling Water, Fourth Quarter, 2015	December 31, 2015
Unit 2 System 17A	System Health Report – Saltwater, Fourth Quarter, 2015	December 31, 2015
Unit 2 System 17B	System Health Report – Auxiliary Saltwater, Fourth Quarter, 2015	December 31, 2015
Unit 2 System 23-3	System Health Report – Control Room and Containment Ventilation , Fourth Quarter, 2015	December 31, 2015
1-LCV-112B	Valve Stroke Time Data	February 21, 1999 – Feb. 25, 2014
1-LCV-112C	Valve Stroke Time Data	October 14, 2010 – October 16, 2015
60431-95N	Dedication / Acceptance Basis for Class 1E Retrofit circuit breakers 4KV, 350MVA for Diablo Canyon Power Plant units 1 & 2 Pacific Gas and Electric Company	3
64136746-0100	Performance Test of Component Cooling Water Pumps	November 3, 2014
663022-76	Traveling Screen Vendor Technical Manual	August 22, 1997
663213-55	Installation, Operation and Maintenance Instructions for Component Cooling Water Pumps Unit 2	9
663219-539	Maintenance Manual for Masoneilan Control Valves	29
A-005	Component Cooling Water Data Sheet	January 25, 2016
A-005	Component Cooling Water Data Sheet	February 1, 2016
A-005	Component Cooling Water Data Sheet	February 8, 2016

Miscellaneous

Number	Title	Revision / Date
A-005	Component Cooling Water Data Sheet	February 16, 2016
A-005	Component Cooling Water Data Sheet	February 22, 2016
A-006	Component Cooling Water Data Sheet	January 25, 2016
A-006	Component Cooling Water Data Sheet	February 1, 2016
A-006	Component Cooling Water Data Sheet	February 8, 2016
A-006	Component Cooling Water Data Sheet	February 16, 2016
A-006	Component Cooling Water Data Sheet	February 22, 2016
A0712687	Evaluation of NRC IN 2007-036, Emergency Diesel Generator Voltage Regulator problem	February 6, 2008
ANSI/IEEE C37.09-1979	IEEE Standard Test Procedure for AC High Voltage Circuit Breakers rated on a Symmetrical Current Basis	October 15, 1979
Appendix B	Systems Interaction Program Appendix B Source Acceptance Criteria	5
B-2	System Training Guide –Residual Heat Removal System	20
B-35	Notification Review	March 23, 2015
CCW PUMP TEST DATA	IST data for 2-2 CCW pump – approximately last 3 years	Various Dates
CHRON 191107	Review of Westinghouse CFCU Backdraft Damper Calculations	June 8, 1992
Chron 219049	Meeting minutes from DCPP Breaker Project Kick off meeting	March 29, 1994
CVCS-1-LCV-112B	Diagnostic Testing MP E-53.10V1	February 25, 2014
CVCS-1-LCV-112B	External Inspection MP E-53.10A1	April 25, 2014
CVCS-1-LCV-112C	Diagnostic Testing MP e-53.10V1	December 29, 2015
CVCS-1-LCV-112C	External Inspection MP E-53.10A1	March 11, 2014

Miscellaneous

Number	Title	Revision / Date
DC 663030-17	Instruction Manual - ASW	22
DC 663216-66-1	Vortex Suppression, Refueling, Condensate, and Fire Water Storage Tanks	August 2, 2009
DC-2-14-M-PP-CCWP2	Component Cooling Water Pump 2-2	August 20, 1985
DC2-EP-4328	Installation of Vacuum Relief System on Each Aux. Saltwater Line	1
DCL-95-135	PG&E Letter DCL 95-135: 10 CFR 50.59 Report of Facility Changes, Procedure Changes, Tests, and Experiments for the Report Period May 3, 1993 – October 28, 1994	June 16, 1995
DCM NO. S-17B	Design Criteria Memorandum DCM S-17B Auxiliary Saltwater System	21A
DCM S-10	Residual Heat Removal System	20
DCM S-14	Component Cooling Water System	28
DCN 2000000751	Unit 1 Traveling Screen Speed Control Upgrade	August 2, 2011
DCN 2000000752	Replacement of Existing Travelling Screen and Screen Wash Controls Unit 1&2	August 2, 2011
DCP M-050284	CCW Surge Tank Pressurization	0
DCPP UFSARY	DCPP UNITS 1&2 FSAR UPDATE	22
EA-15-040	Diablo Canyon Power Plant – NRC Integrated Inspection Report 05000275/2015002 and 05000323/2015002	August 7, 2015
ECC-0001	Critical Component List – Limitorque Operator SMB-1	7
FCT 7*1944	Revise Drawing 441237 to correct the discrepancy between Electrical Calcs and Electrical design dwgs	December 20, 2012
H-2	System Training Guide – Containment Fan Coolers	18
IST PROGRAM PLAN	Inservice Testing Program Plan – Fourth Ten Year Interval	0
IST PROGRAM PLAN	Inservice Testing Program Plan – Third Ten Year Interval	0

Miscellaneous

Number	Title	Revision / Date
LBIE Screen Applicability DCP M-49948	Installations of Lube Oil Sample Ports on Safety Related and Non-Safety Related Pumps, Motors and Gearboxes	January 23, 2008
LER 1-88-032-00	Improper Design Change Package for Auxiliary Saltwater System Pump Impeller Replacement Due to Personnel Error	March 29, 1989
Log Entries	Logs For high DP traveling screen start	Various
M000096	Lube oil Sample Points	12
M-09383	John Crane Mechanical Seal – Component Cooling Water Pump	0
Material D772854	Stockable Materials - Material D772854. Limitorque Limit Switch Compartment Cover	
MP E-53.10A	PM of Limitorque Motor Operators	37
MP E-53.10A	Preventive Maintenance of Limitorque Motor Operators	37
MP E-53.10R	Augmented Stem Lubrication - Limitorque	6
MP E-53.10V1	MOV Diagnostic Testing	14
MP M-5128	Actuator Maintenance for Masoneilan Actuator Sizes 9, 11, 13, 15 and 18	29
MR-APP C	Appendix C Mapping of Maintenance Rule Performance Criteria Functions From Scoping Functions	16
NA8281O5	Unit 1R15 Motor Operated Valves Trending Study.	
NRC Letter to DCPP	Diablo Canyon Power Plant, Units Nos.1&2 – Issuance of Amendments Regarding Revision to Technical Specification (TS) 3,8,1, “AC Sources – Operating” (TAC Nos. MF3826 AND MF3827)	July 1,2015
OE 36324	Essential Power Breaker Lost Control Power Unexpectedly Due To A Failed Breaker Subcomponent (Charging Spring Motor)	March 6, 2012
PG&E Letter DCL-14-018	License Amendment Request 14-01 Revision to Technical Specification 3.8.1, "AC Sources - Operating"	March 27, 2014
RHR Valve 8701	Last Three Diagnostic Test Reports with Trend Data	
RHR Valve 8702	Last Three Diagnostic Test Reports with Trend Data	
RPE 8000001132	DCI, Auxiliary Salt Water Pump (ASP) Parts, Sulzer Bingham, HydoAire Services, Inc. etc.	10

Miscellaneous

Number	Title	Revision / Date
SAPN 50501007	IN 12-14: MOV Inop Stem-Disk Separation	
SISI Manual	Seismically Induced Systems Interaction Manual	11
STI_Listu3r03	Surveillance Test Intervals List, Revision 3	November 19, 2015
STP I-1D	Surveillance Test	January 2016
STP M-105	Test of Backup Nitrogen Accumulator System to Pressurize PCV-455C	20
STP M-106	Test of Backup Nitrogen Accumulator System to Pressurize PCV-456	22
STP V-13A	Surveillance – CCW Flow Balancing	March 2013
STP V-13A	Surveillance – CCW Flow Balancing	October 2014
STP V-21	Charging and Letdown Valves	10
STP V-2I1	Surveillance Test	October 2015
STP V-2T1	Pressurizer Power Operated Relief Valves	9
STP V-3J2	Exercising Pressurizer Power Operated Relief Valves PVC-455C, 456 and 474.	17
STP V-3K12	Surveillance Test	February 2013
STP V-3K12	Exercising VCT Outlet Isolation Valves LCV 112B and LCV-112C	2
STP V-I1	Charging and Letdown Valves	9A
STP-1-1D	Routine Monthly Checks Required by Licensees	88
TES 420DC 96-161	Diablo Canyon Power Plant (DCPP) Molybdate Blend Monitoring, Evaluation of Corrosion Coupons Exposed in the Closed Cooling Water Systems (CCW) Unit 1 and Unit 2, and in the Intake Cooling Water System (ICW) Unit 2	October 30, 1996
Unit 1 Screens dp	Traveling Screen DP Plot and Operator logs for traveling screens	Various Dates
Unit 2 System 03B	System Health Report – Auxiliary Feedwater, Fourth Quarter Report, 2015	December 31, 2015
Unit 2 System 10	System Health Report – Residual Heat Removal System, Fourth Quarter, 2015	December 31, 2015

Miscellaneous

Number	Title	Revision / Date
Unit 2 System 14	System Health Report – Component Cooling Water, Fourth Quarter, 2015	December 31, 2015
Unit 2 System 17A	System Health Report – Saltwater, Fourth Quarter, 2015	December 31, 2015
Unit 2 System 17B	System Health Report – Auxiliary Saltwater, Fourth Quarter, 2015	December 31, 2015
Unit 2 System 23-3	System Health Report – Control Room and Containment Ventilation , Fourth Quarter, 2015	December 31, 2015

Vendor Documents

Number	Title	Revision / Date
6009838-207-1	Maintenance Manual of Yaskawa Circuit Breakers for PG&E	April 16, 1997
660030, Sheet 61	Aux. Saltwater Pumps	June 2 , 1998
663022, Sheet 95	Envirex Products Operation & Maintenance Manual	1
663030, Sheet 17	Bingham-Willamette Co. Aux. Saltwater Pumps	22
663030, Sheet 83	Motor Outline Drawing	6
663079-110	Performance curves for motor Shop orders 17565 LN with Air gaos	September 15, 1998
663079-51	Reactor Containment fan cooler – Westinghouse Technical Manual	
663102, Sheet 24	Electrical Relay Boards	18
663213, Sheet 22	Comp Cooling Water Pump Motor Outline	10
663213, Sheet 55	Installation, Operation, & Maintenance Instructions for Component Cooling Water Pumps	9
663332, Sheet 220	Instruction Manual for Generator Protection System BE1-GPS100	1
663332, Sheet 80	4kV and 12kV Switchgear	27
663332, Sheet 221	Instruction Manual for Undervoltage, Overvoltage, and Under/Overvoltage Relays BE1-27, BE1-59, and BE1-27/59	1
663336, Sheet 20	Instructions for Type W Control Centers	5

Vendor Documents

Number	Title	Revision / Date
663345, Sheet 141	125VDC Vital Panels	1
663345, Sheet. 6	125VDC Distribution Panel No. 22	8
663347, Sheet 33	Delta-Star Metal Enclosed Bus Motor Operated Disconnect Switch	5
663393, Sheet 80	NLI Safety Related Type W Motor Control Center Cubicles	6
DC 663079-51	Reactor Containment Fan Cooler	31
DC 663219-619	Instruction Manual for Installation, Operation, and Maintenance of 14" Motor Operated Gate Valve	4
DC 663219-629	Limitorque Type SMB - Instruction and Maintenance Manual – Installation Book	36
DC 663336-6-2	Instruction for Temperature Indicator Hottest Spot Dial Type, Three Switch, Electrically Isolated Bulb for Type ASL Transformer	October 1971
DC 663344-86	400 AMP Battery Charger – Ametek Solid State Controls Instruction Manual	3
DC-663173	Fisher Controls Company – Type 7600 Butterfly Control Valve Body.	1
DC-663303 6-1	Instruction Book for Westinghouse Type ASL Core Form Power center Transformer Class AA/FA 1000/1333 KVA 4160 V Delta-480 Y Volt Three Phase, 60 Hz 150 degree C Rise	August 8, 1972

Design Basis Documents

Number	Title	Revision
DCM S-14	Component Cooling Water System	28
DCM S-17B	Auxiliary Saltwater System - DBD	21A
DCM S-17B	Auxiliary Saltwater System	21A
DCM S-21	Diesel Engine System	24
DCM S-61B	500-kV and 230-kV Systems	16
DCM S-62	12-kV System	16
DCM S-63	4160 Systems	17

Design Basis Documents

Number	Title	Revision
DCM S-64	480V System	12
DCM S-67	125/250 Volt Direct Current System	15
DCM T-18	Electrical System Protection	13A
DCM T-22	Electrical Cable, Termination and Raceway	11
DCM T-23	Miscellaneous Electrical Devices	5A
T-19	Electrical Separation and Isolation	12

System Health Reports

Number	Title	Date
System Health Report	Diablo Canyon System Health Report (10/1/2015 to 12/31/2015) System 17b Auxiliary Saltwater Unit 2	January 11, 2016
System Health Report	Diablo Canyon System Health Report (10/1/2015 to 12/31/2015) System 17b Auxiliary Saltwater Unit 1	January 11, 2016
System Health Report	Diablo Canyon System Health Report (10/1/2015 to 12/31/2015) System 14 Component Cooling Water Unit 2	January 11, 2016
System Health Report	Unit 2, System 62, 12kV	January 11, 2016
System Health Report	Unit 2, System 69, 230kV	January 11, 2016
System Health Report	Unit 2, Systems 64A/B, 480V Vital & Non-Vital	January 11, 2016
System Health Report	Unit 2, Systems 673A/B, 4kV Vital & Non-Vital	January 11, 2016
System Health Report	Unit 2, Systems 67A/B, 125VDC Vital & Non-Vital	January 11, 2016

System Training Guides

Number	Title	Date
E-5	Salt Water Systems Training Guide	May 7, 2012
F-2	CCW System Training Guide	April 29, 2013

Notifications

50300606	50491644	50620750	50587273	50373271
0549975	50830482	50534891	50629148	50656852
50291751	50828426	50595631	50681168	50381215
50358136	50231071-214	50608110	A0659098	50321527
50431909	50632130	50568523	50330692	50676139
50455238	50662593	50570469	50501007	50681486
50517064	50503166	50811791	50814814	50540447
50532192	50576508	50627543	50807847	50702101
50545886	50546077	50286329	50538388	50663465
50554741	50604297	50658301	50627627	50386803
50568258	50560220	50269363	50540604	50706699
50595604	50809805	50811253	50635014	50635017
50596378	50455238	50662593	50570469	50501007
50596454	50495384	50486697	50595863	50276427
50607511	50662776	50595473	50635018	50276427
50613228	50664721	50671890	50406133	50661719
50631370	50626989	50534892	50698514	50604534
50664410	50570744	50807849	50621835	50306109
50664723	50760568	50447137	50662235	50665755
50670046	50710844	50231547	50622084	50688120
50681486	A0411052	50455129	N0001391	A0528007
50797891	50641515	50603907	50596454	50595324
50807943	50573621	50826105	A0419055	50116231
50833428	50477565	50662501	50665898	50833948
A0324392	50430900	50618155	50371576	50611955
A0326480	50541523	50614215	50370944	50658850
A0326851	50250049	50581356	50711542	50504168
A0345486	50381172	50584794	50708628	50666965
A0350041	50392548	50600263	50683171	50451797

Notifications

A0430641	50467570	50494229	50572850	50577620
A0436537	50417986	50659277	50682630	50451576
A0504915	A0528008	A0505071	A0211602	A0199950
A0535671	50584579	50700200	50673779	A0314487
A0716463	50700052	50822636	50537323	A0205747

Notifications (generated during inspection)

50833428	50834112	50834259	50835432	50836297
50838195	50834130	50834558	50835906	50836436
50833948	50833957	50834545	50835945	50836439
50833972	50834163	50835394	50835949	50836490
50834034	50834333	50835416	50836360	50836630
50836636	50836747	50837032	50838307	50839137
50836637	50836816	50838071	50838381	50839164
50836607	50836820	50838195	50838988	50836859
50836645	50836872	50838241	50839030	50839333

Work Orders

60038044	64136746	60041960	C0202740	64096130
60063640	64012403-0100	64044027	64104386	64045811
60063640-0010	64012403-0200	64044027-0100	64104385	64012403-0010
60063640-0020	64012403-0300	64036577	64078368	64002034-0020
60065396	60064964	64014577	64014600	64014645
64005883	64034249	60083430	64002394-0300	64021013-0100
64014600	R0172924	64013424	R0242344	R0180547
64014650	64027789	64051113	64053313	R0182081
64072501	60055360-0030	64012403-0400	64021013	64078368-0100
64081494	R0242307	R0182081	R0115538	C0135888
64090893	64088052	64071952	64100631	64064575
A0400036	A0352283	A0242552	64076563	64075043

Work Orders

A0532210	A0492191	64014654	R0108355	A0712687
A0554731	64077454	64009140	A0666608	A0574886
R0231692	R0242307	C0200957	64013958	64033837
64063041	60076719	60075280	64065125	64068023
64009141	64085198	64048109	64081125	64065847

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice and Procedure," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Thomas R. Farnholtz, Chief
Engineering Branch 1
Division of Reactor Safety

Docket Nos. 50-275 and 50-323
License Nos. DPR-80 and DPR-82

Enclosure:
Inspection Report 05000275/2016007 and
05000323/2016007 w/Attachment:
Supplemental Information

cc w/encl: Electronic Distribution

<u>Distribution</u>:
See next page

ADAMS ACCESSION NUMBER: ML16112A422

☒ SUNSI Review By: TFarnholtz		ADAMS ☒ Yes ☐ No	☒ Publicly Available ☐ Non-Publicly Available		☒ Non-Sensitive ☐ Sensitive		Keyword: NRC-002
OFFICE	RI:DRS/EB1	SRI:DRS/EB1	SRI:DRS/EB1	RI:DRS/EB2	RI:DRS/OB	RI:DRS/OB	C:DRS/EB1
NAME	JBraisted	RKopriva	RLatta	NOkonkwo	MHayes	CSteely	TFarnholtz
SIGNATURE	E-mail	E-mail	E-mail	/RA/	E-mail	E-mail	/RA/
DATE	4/19/16	4/19/16	4/14/16	4/19/16	4/11/16	4/15/16	4/21/16
OFFICE	C:DRP/PBA						
NAME	JGroom						
SIGNATURE	/RA/						
DATE	4/21/16						

OFFICIAL RECORD COPY

Letter to Edward D. Halpin from Thomas R. Farnholtz, dated April 21, 2016

SUBJECT: DIABLO CANYON POWER PLANT, UNITS 1 AND 2 – NRC COMPONENT DESIGN BASES INSPECTION REPORT 05000275/2016007 AND 05000323/2016007

Electronic distribution by RIV:
Regional Administrator (Marc.Dapas@nrc.gov)
Deputy Regional Administrator (Kriss.Kennedy@nrc.gov)
DRP Director (Troy.Pruett@nrc.gov)
DRP Deputy Director (Ryan.Lantz@nrc.gov)
DRS Director (Anton.Vegel@nrc.gov)
DRS Deputy Director (Jeff.Clark@nrc.gov)
Senior Resident Inspector (Binesh.Tharakan@nrc.gov)
Resident Inspector (John.Reynoso@nrc.gov)
Administrative Assistant (Madeleine.Arel-Davis@nrc.gov)
Branch Chief, DRP/A (Jeremy.Groom@nrc.gov)
Senior Project Engineer, DRP/A (Ryan.Alexander@nrc.gov)
Project Engineer, DRP/A (Matthew.Kirk@nrc.gov)
Project Engineer, DRP/A (Thomas.Sullivan@nrc.gov)
Public Affairs Officer (Victor.Dricks@nrc.gov)
Project Manager (Balwant.Singal@nrc.gov)
Team Leader, DRS/IPAT (Thomas.Hipschman@nrc.gov)
RITS Coordinator (Marisa.Herrera@nrc.gov)
ACES (R4Enforcement.Resource@nrc.gov)
Regional Counsel (Karla.Fuller@nrc.gov)
Technical Support Assistant (Loretta.Williams@nrc.gov)
Senior Congressional Affairs Officer (Jenny.Weil@nrc.gov)
RIV Congressional Affairs Officer (Angel.Moreno@nrc.gov)
RIV/ETA: OEDO (Jeremy.Bowen@nrc.gov)