



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
REGION IV  
612 EAST LAMAR BLVD, SUITE 400  
ARLINGTON, TEXAS 76011-4125

November 3, 2008

John T. Conway  
Senior Vice President and Chief Nuclear Officer  
Pacific Gas and Electric Company  
P.O. Box 3  
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Avila Beach, California 93424

SUBJECT: DIABLO CANYON POWER PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000275/2008004 AND 05000323/2008004

Dear Mr. Conway:

On September 30, 2008, the U.S. Nuclear Regulatory Commission completed an inspection at your Diablo Canyon Power Plant, Units 1 and 2, facility. The enclosed integrated report documents the inspection findings that were discussed on September 30, 2008, with Mr. James Becker and members of your staff.

This inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of your licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

There were one self-revealing and two NRC identified findings of very low safety significance (Green) identified in this report. These findings involved violations of NRC requirements. However, because of their very low risk significance and because they are entered into your corrective action program, the NRC is treating these three findings as noncited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy. If you contest any NCV in this report, 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, U.S. Nuclear Regulatory Commission, Region IV, 612 East Lamar Blvd., Suite 400, Arlington, Texas 76011-4125; 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.

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Sincerely,

**/RA/**

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Dockets: 50-275  
50-323  
Licenses: DPR-80  
DPR-82

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SUNSI Review Completed: VGG ADAMS: ☒ Yes ☐ No  
☒ Publicly Available ☐ Non-Publicly Available ☐ Sensitive

Initials: VGG  
☒ Non-Sensitive

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RIV:RI:DRP/B	SRI:DRP/B	C:DRS/EB2	C:DRS/PSB
MABrown	MSPeck	NOkeefe	MPShannon
<b>/RA VGG for/</b>	<b>/RA VGG for/</b>	<b>/RA/</b>	<b>/RA/</b>
10/29/2008	10/29/2008	10/24/2008	10/24/2008
C:DRS/EB1	C:DRS/PSB	C:DRS/OL	C:DRP/B
RLBywater	GEWerner	RELantz	VGGaddy
<b>/RA/</b>	<b>/RA/</b>	<b>/RA/</b>	<b>/RA/</b>
10/22/2008	10/24/2008	10/23/2008	11/03/2008

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Dockets: 50-275, 50-323

Licenses: DPR-80, DPR-82

Report: 05000275/2008004  
05000323/2008004

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, California

Dates: July 1 through September 30, 2008

Inspectors: M. Peck, Senior Resident Inspector  
M. Brown, Resident Inspector  
P. Elkmann, Senior Emergency Preparedness Inspector  
L. Ellershaw, PE, Lead Inspector  
J. Adams, Reactor Inspector  
J. Drake, Senior Reactor Inspector  
S. Graves, Reactor Inspector

Approved By: V. G. Gaddy, Chief, Projects Branch B  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000275/2008-004, 05000323/2008-004; 7/1/08 - 9/30/08; Diablo Canyon Power Plant Units 1 and 2; Equipment Alignment, Fire Protection, and Operability Evaluations.

This report covered a 13-week period of inspection by resident inspectors and announced baseline by regional based inspector. Three Green non-cited violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609 "Significance Determination Process." Findings for which the Significance Determination Process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### A. NRC-Identified and Self-Revealing Findings

#### Cornerstone: Initiating Events

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," after Pacific Gas and Electric personnel failed to perform a safety assessment prior to implementing a temporary procedure on July 20, 2008, to transfer an explosive gas mixture from the waste gas system to the Unit 2 vent. The explosive mixture of oxygen and hydrogen was discovered in the Unit 2 reactor coolant drain tank, waste gas surge tank, and interconnecting piping. The licensee also identified that the Unit 2 pressurizer relief tank vapor space exceeded the lower flammable limits. The explosive and flammable gas created a condition outside the plant design bases and was inconsistent with safety analysis. Plant Procedure TS3.ID2, "Licensing Basis Impact Evaluation," required the licensee to have performed a safety assessment prior to conducting activities outside the design bases and inconsistent with safety analysis. The licensee entered this condition into the corrective actions system as Action Request A0741069.

This finding is greater than minor because explosive and flammable gas within the containment and auxiliary buildings affected the Initiating Events Cornerstone objective to limit the likelihood of events that may upset plant stability and challenge critical safety functions during power operations and protect against external factors such as fire and explosions. The inspectors used Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," to analyze the significances of the finding. The inspectors determined this finding was a fire prevention and administrative controls category due to the failure to meet the equipment control guideline for combustible gas flammability limits. The inspectors concluded that this finding is of very low safety significance because the condition represented a low degradation rating due to the lack of a direct ignition source. This finding has a crosscutting aspect in human performance in the area of Decision Making because the licensee failed to use the systematic process provided in Procedure TS3.ID when making a safety significant or risk-significant decision when faced with the unexpected explosive gas mixture within containment and auxiliary building plant systems [H.1(a)] (Section 1R05).

## Cornerstone: Barrier Integrity

- Green. The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.4.1, "Procedures," after Pacific Gas and Electric personnel failed to provide adequate work instructions for removal of equipment from service, resulting in the inoperability of both Unit 2 auxiliary building ventilation system trains, a condition prohibited by plant technical specifications. The work instruction did not provide a step for properly realigning the system to maintain operability of one train. The licensee entered this condition into the corrective actions system as Notification 50070612.

This finding was more than minor because the loss of both ventilation trains affected the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events and the inadequate procedure affected the attribute of procedure quality. The finding was of very low safety significance because it only represented a degradation of the radiological barrier function provided for the auxiliary building. This finding had a crosscutting aspect in the area of human performance with a Work Practices component because Pacific Gas & Electric staff failed to perform an adequate prejob brief to address questions regarding the sequence of steps and operators proceeded with the clearance in the face of uncertainty [H.4(a)] (Section 1R04).

- Green. The inspectors identified a noncited violation of Technical Specification 3.4.15, "RCS Leakage Detection Instrumentation," after the Unit 1 containment atmosphere gaseous radioactivity monitor reactor coolant leak detection system was inoperable for greater than the allowed out of service time. On August 13, 2008, the inspectors identified that the source term assumed in the leak detector design basis was not present in the reactor coolant system. Pacific Gas and Electric personnel performed an operability evaluation of the degraded condition and concluded that the detector was operable. The inspectors identified that the licensee's evaluation did not consider the effect of the current reactor coolant conditions on the functionality of the detector. The inspectors subsequently concluded that the detector was inoperable from August 16 through September 18, 2008. The licensee declared the leak detector inoperable on September 23, 2008, and entered the condition into their corrective action program as Action Request A0737958.

This finding was more than minor because less than adequate operability evaluations, if left uncorrected, would become a more significant safety concern. The inspectors determined this finding affected the Barrier Integrity Cornerstone. The inspectors used Inspection Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," to analyze the significance of this finding. The inspectors concluded that the finding is of low safety significance because the condition was not related to pressurized thermal shock, loss of cooling to the spent fuel pool, or fuel handling errors or the loss of spent fuel pool inventory. This finding has a crosscutting aspect in the

area of problem identification and resolution, associated with the corrective action program component, because Pacific Gas and Electric personnel failed to perform an adequate operability evaluation of a degraded reactor coolant leak detection system [P.1(c)] (Section 1R15).

B. Licensee-Identified Violations

No violations of significance were identified.



## REPORT DETAILS

### Summary of Plant Status

Pacific Gas and Electric Company (PG&E) was operating Diablo Canyon Unit 1 and Unit 2 at full power at the beginning of the inspection period. On August 16, 2008, Unit 2 automatically shut down following a failure of the main transformer. The licensee replaced the damaged transformer and restarted Unit 2 on September 6, 2008.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R04 Equipment Alignments (71111.04)

##### Quarterly Partial System Walkdowns

##### a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- July 21, 2008, Unit 2, Auxiliary Building Ventilation System
- July 31, 2008, Unit 2, Boric Acid Transfer System
- September 15, 2008, Unit 2, Residual Heat Removal System

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system; and therefore, potentially increased risk. The inspectors reviewed applicable operating procedures, system diagrams, Final Safety Analysis Report (FSAR), Technical Specification (TS) requirements, Administrative Technical Specification, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Documents reviewed are listed in the attachment.

These activities constituted three partial system walkdown samples as defined by Inspection Procedure 71111.04.

##### b. Findings

Introduction. The inspectors identified a self-revealing noncited violation of Technical Specification 5.4.1, "Procedures," after PG&E failed to provide adequate work

instructions for removal of equipment from service, resulting in the inoperability of both Unit 2 auxiliary building ventilation system trains, a condition prohibited by plant technical specifications.

Description. On July 21, 2008, plant operators inadvertently created a condition prohibited by plant technical specifications while removing the Unit 2 auxiliary building ventilation exhaust Fan E-2 for planned maintenance. During the removal of Fan E-2 from service, the redundant Fan E-1, also shut down. Fan E-1 shut down because the manual suction dampers were closed by operators in accordance with steps 16 and 17 of Clearance 2C15D-23-042. Before the suction dampers were closed, the operators should have placed the auxiliary building ventilation system mode selector switch in the "Safeguards Only with 'S' Signal" position, which would have realigned the system to bypass the manual suction dampers, and would have prevented Fan E-1 from shutting down. However, the work instructions did not provide a dedicated step to place the switch in the appropriate position. PG&E took immediate action to restore Fan E-1 within 32 minutes. The inoperability of both ventilation trains was a condition prohibited by TS 3.7.12 which requires two trains of auxiliary building ventilation system be operable.

A less than adequate prejob briefing contributed to the event because even though operators questioned the appropriate time for placing the mode selector switch in the appropriate position, no answer was obtained before beginning the work.

The failure of PG&E to provide an adequate equipment removal instruction was a performance deficiency.

Analysis. This finding was more than minor because the loss of both ventilation trains affected the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events and the inadequate procedure affected the attribute of procedure quality.

The inspectors assessed the significance of the finding using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Phase 1 Screening Worksheet. The inspectors concluded that the finding is of very low safety significance (Green) because it only represented a degradation of the radiological barrier function provided for the auxiliary building. This finding had a crosscutting aspect in the area of human performance with Work Practices component because PG&E staff failed to perform an adequate prejob briefing to address questions regarding the sequence of steps and operators proceeded with the clearance in the face of uncertainty [H.4(a)].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures shall be established and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, Appendix A, February 1972. Regulatory Guide 1.33, Revision 2, Appendix A, Section 9.a, requires that maintenance that can affect the performance of safety related equipment should be properly preplanned with documented instructions appropriate to the circumstances. Contrary to this, on July 21, 2008, PG&E did not properly preplan maintenance of safety-related equipment with appropriate documented instructions resulting in the inoperability of the auxiliary building ventilation system. Because this finding was of very low safety significance and was entered into the licensee's corrective action program as Notification 50070612, this violation is being

treated as a noncited violation (NCV), consistent with Section VI.A of the Enforcement Policy (NCV 05000323/2008004-01; "Inadequate Clearance Results in Inoperable Auxiliary Building Ventilation System").

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk significant plant areas:

- Fire Area 3-I-1, Unit 2, Centrifugal Charging Pump 2-1 and 2-2 Room, August 6, 2008
- Fire Area 3-I-2, Unit 2, Centrifugal Charging Pump 2-3 Room, August 6, 2008
- Fire Area TB-4, 13-A, Unit 1, 4.16 kV Switchgear Room, F Bus, September 14, 2008
- Fire Area TB-5, 13-B, Unit 1, 4.16 kV Switchgear Room, G Bus, September 14, 2008
- Fire Area B-6, 13-C, Unit 1, 4.16 kV Switchgear Room, H Bus, September 14, 2008

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program.

These activities constituted five quarterly fire protection inspection samples as defined by Inspection Procedure 71111.05.

b. Findings

Introduction. On July 20, 2008, PG&E failed to perform a safety assessment prior to implementing a temporary procedure to transfer an explosive gas mixture from the waste gas system to the Unit 2 vent. The explosive gas mixture, within auxiliary and Unit 2 containment building waste gas system, was a condition outside the facility design bases and inconsistent with the safety analysis assumptions and descriptions in the FSAR.

Description. The Diablo Canyon waste gas system collects, stores, and releases waste gases, such as hydrogen and nitrogen, that may contain gaseous or particulate radionuclides. Design Criteria Memorandum DCM-S-24, "Gaseous Radwaste System," Revision 4D, established the design bases requirement that gases within waste gas system are maintained below the lower flammability limit. The integrity of this design bases requirement was maintained by Equipment Control Guideline 24.2, "Gaseous Radwaste – Explosive Gas Mixture," by restricting oxygen concentrations to less than 2 percent whenever hydrogen concentrations were greater than 4 percent by volume. On July 18, 2008, plant personnel identified that the gas mixture within the waste gas surge tank had exceeded both the lower flammability and explosion limits, about 16 percent oxygen and about 50 percent hydrogen. The licensee subsequently determined that an explosive gas mixture extended into the reactor coolant drain tank and associated containment penetration piping.

On July 19, 2008, plant operations personnel approved a formal communication (temporary procedure) to transport this explosive gas mixture through the auxiliary building miscellaneous drain tank and out Unit 2 vent stack. Plant operations personnel did not perform a safety assessment of the proposed activity prior to implementing the temporary procedure. Procedure TS3.ID2, Licensing Basis Impact Evaluation, required a safety assessment to be performed for activities outside the bounds of the design bases or inconsistent with analysis or descriptions in the FASR. The safety assessment was the systematic process used by the licensee to determine if the activity was safe and if prior NRC approval was required. The inspectors concluded that a hydrogen explosion in the affected waste gas systems could potentially adversely affect safety related components in the Auxiliary Building Fire Zones 3-X and 3-C, and an explosion of the reactor coolant drain tank could ruptured reactor coolant system incore detector tubes. The inspectors concluded that the failure of plant personnel to perform a safety assessment prior to implementing the formal communication was a performance deficiency.

Analysis. The finding is more than minor because it is associated with the Initiating Events Cornerstone objective to limit the likelihood of events that may upset plant stability and challenge critical safety functions during power operations and the attribute to protect against external factors, such as fire and explosions. The inspectors used IMC 0609, Appendix F, "Fire Protection Significance Determination Process," to analyze the significances of the finding. The inspectors determined this finding was a fire prevention and administrative controls category due to the failure to meet the equipment control guidelines for combustible gas flammability limits. The inspectors concluded that this finding is of very low safety significance because the condition represented a low degradation rating due to the lack of a direct ignition source. This finding has a crosscutting aspect in human performance in the area of Decision Making because the licensee failed to use the systematic process provided in Procedure TS3.ID when making a safety significant or risk significant decision when faced with the unexpected explosive gas mixture within containment and auxiliary building plant systems [H.1(a)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings", required that activities affecting quality be accomplished in accordance with written instructions and procedures. Procedure TS3.ID2, "Licensing Basis Impact Evaluation," Revision 22, required a safety assessment to be performed prior to conducting activities outside the bounds of the design bases or inconsistent with analysis or descriptions in the FSAR. Contrary to the above on July 20, 2008, the licensee did not perform a safety assessment prior to conducting activities outside the bounds of the design bases and that were inconsistent with analysis and descriptions in the FSAR. Because this finding is of very low safety significance and was entered into the corrective action program as Action Request A0741069, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000323/2008004-02, Failure to Perform a Safety Assessment for Following Discovery of Explosive Gas in the Auxiliary and Containment Buildings".

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On August 17, 2008, the inspectors observed a fire brigade activation following a fire in a Unit 2 main transformer. During the activation, the inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of pre-planned strategies; (9) adherence to the pre-planned drill scenario; and (10) drill objectives.

These activities constituted one annual fire protection inspection sample as defined by Inspection Procedure 71111.05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On July 31, 2008, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator regualification training to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors observed a simulator scenario of loss of all alternating power and a seismic event, Course R08, Lesson R082S2. The inspectors evaluated the following areas:

- Licensed operator performance;
- Crew's clarity and formality of communications;
- Ability to take timely actions in the conservative direction;
- Prioritization, interpretation, and verification of annunciator alarms;
- Correct use and implementation of abnormal and emergency procedures;
- Control board manipulations;
- Oversight and direction from supervisors;
- Ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements.

This inspection constitutes one quarterly licensed operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

Routine Quarterly Evaluations (71111.12Q)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- Unit 2, Boric acid transfer system, August 1, 2008
- Unit 2, Containment gaseous radiation monitor reactor leak detection, August 25, 2008

The inspectors reviewed events where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices;
- Identifying and addressing common cause failures;

- Scoping of systems in accordance with 10 CFR 50.65(b) of the Maintenance Rule;
- Characterizing system reliability issues for performance;
- Charging unavailability for performance;
- Trending key parameters for condition monitoring;
- Ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- Verifying appropriate performance criteria for structures, systems, and components functions classified as (a)(2) or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Documents reviewed are listed in the attachment.

This inspection constitutes two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Technical Speciation Sheets (TSS) T0063285 and TSS T0063372, Unit 1, Containment Fan Cooling Unit 1-4 inoperable concurrent with Containment Spray Pump 1-1 routine testing, July 11, 2008
- TSS T0063449, Unit 1, Incore and excore calibration, July 14, 2008
- TSS T0063334, Unit 2, Condensate and Condensate Booster Pump 2-2 removed from service for planned maintenance, July 14, 2008
- TSS T0063487, Unit 1, AMSAC failed functional Test, July 18, 2008
- TSS T0063530, Unit 1, ASW Pump 1-1 and CCW HX 1-1, August 4, 2008
- TSS T0063866, Units 1 and 2, Vibration Monitors Out of Calibration for STP's, September 17, 2008

These activities were selected based on their potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed Technical Specification requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

These activities constituted six samples as defined by Inspection Procedure 71111.13.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- Action Requests A0733045, A0733097, and A0663923; Units 1 and 2; High Ambient Temperatures; July 1, 2008
- Action Request A0737958, Evaluation of the Containment Gaseous Radioactivity Monitor Reactor Coolant Leak Detection System, August 14, 2008
- Action Request A0739575, Diesel Generator 12 Load Erratic During Adjustments for Surveillance Procedure STP M-9A, August 28, 2008

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and FSAR to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations.

Documents reviewed are listed in the attachment.

This inspection constitutes three samples as defined in Inspection Procedure 71111.15.



b. Findings

Introduction. PG&E performed an inadequate operability evaluation of the Unit 1 containment atmosphere gaseous radioactivity monitor reactor coolant leak detection system. The inspectors concluded that the leak detector was not capable of performing the specified safety function to detect a reactor coolant leak within the required response time.

Description. The inspectors identified that containment atmosphere gaseous radioactivity monitor reactor coolant leak detection system was not capability of meeting the specified safety function. Design Criteria Memorandum S-39, "Radiation Monitoring System," stated that the gaseous monitor reactor coolant leak detector had sufficient response and sensitivity to detect a one gallon per minute reactor coolant leak within 1 hour in consistent with Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems," May 1973. The inspectors identified that the Unit 1 containment gaseous radioactivity reactor coolant leak detection system capability was limited to detecting a 13 gallon per minute leak within 1 hour as described in Radiation Monitor High Alert Set Point and Alert Alarm Set Point Calculation Log 07-020. Also, FSAR Section 5.2.7.4, "Unidentified Leakage," stated that a reactor coolant radioactive source term equivalent to about 0.05 percent failed fuel was assumed for the containment gaseous radioactivity monitor to detect a 2 gallon per minute reactor coolant leak within one hour. The licensee stated that Unit 1 did not have any failed fuel between August 13 and September 18, 2008.

Technical Specification 3.4.15.c, "RCS Leakage Detection Instrumentation," required either a containment fan cooler unit condensate collection monitor or the containment atmosphere gaseous radioactivity monitor to be operable during Modes 1, 2, 3, and 4. The bases for Technical Specification 3.4.15 stated that the reactor leak detection systems met General Design Criteria 30 requirement for leak detection and that Regulatory Guide 1.45 describes acceptable methods for selecting leakage detection systems. Regulatory Guide 1.45, Position C.5, stated that the "sensitivity and response time of each leakage detection system in regulatory Position 3 above employed for unidentified leakage should be adequate to detect a leakage rate, or its equivalent, of one gpm in less than one hour." The Technical Specification basis also stated that the resolution of Unresolved Safety Issue 2 for Westinghouse Reactors was the use of leak before break fracture mechanics technology for reactor coolant system piping greater than 10 inches diameter. Included within this methodology was the requirement to have leak detection systems capable of detecting a 1.0 gpm leak within 4 hours. The NRC approved the licensee amendment for leak before break evaluation of reactor coolant system piping in 1993 (TAC No. M83282). The safety evaluation stated that:

*"the licensee stated that the leak detection system for the reactor coolant pressure boundary meets the intent of the Regulatory Guide 1.45 which recommend that a leakage of one gallon per minute in one hour be detected."*

The inspectors raised the concern with the licensee on August 13, 2008, that design assumption of failed reactor fuel was not present in Unit 1 and that the leak detector may not be capable of performing the specified safety function. The licensee entered this condition into the corrective action program as Action Request AR A0737958 on August 14, 2008. Using Procedure 0M7.ID12, "Operability Determination," Revision 11, the licensee concluded that the containment gaseous radioactivity reactor coolant system leak detection system was operable because "once a component or system is

established as operable, it is reasonable to assume that it continues to remain operable.” However, the inspectors concluded that the leak detector was not operable because the conditions assumed for functionality, including a specified reactor coolant source term, were not met. The licensee subsequently declared the leak detection system inoperable on September 24, 2008. The failure of the licensee to perform an adequate operability determination of a technical specification required component was a performance deficiency.

Analysis The finding is more than minor because if left uncorrected, less than adequate operability determinations would become a more significant safety concern. This finding is associated with the Barrier Integrity Cornerstone because it involved the licensee’s ability to detect a reactor coolant system leak. The inspectors used Inspection Manual Chapter 0609, Appendix A, “Determining the Significance of Reactor Inspection Findings for At-Power Situations,” to analyze the significance of this finding. The inspectors concluded the finding is of low safety significance because the condition was not related to pressurized thermal shock issues, resulting in loss of cooling to the spent fuel pool, or involving fuel handling errors or the loss of spent fuel pool inventory. This finding has a crosscutting aspect in the area of problem identification and resolution, associated with the corrective action program component, because PG&E failed to perform an adequate operability evaluation of a degraded reactor coolant leak detection system [P.1(c)].

Enforcement Technical Specification 3.4.15, “RCS Leakage Detection Instrumentation,” required that either a containment fan cooler unit condensate collection monitor or the containment atmosphere gaseous radioactivity monitor to be operable during Modes 1, 2, 3, and 4. The technical specification required PG&E to restore either containment atmosphere gaseous radioactivity monitor or containment fan cooler unit condensate collection monitor to be operable within 30 days or to place the unit in Mode 3 within the next 6 hours. Contrary to the above, the Unit 1 containment fan cooler unit condensate collection monitor and the containment atmosphere gaseous radioactivity monitor were inoperable from August 16 to September 18, 2008, and the unit was not placed in Mode 3. Because the finding is of very low risk significance and has been entered into the corrective action program as Action Request A0737958, this violation is being treated as a NCV consistent with Section VI.A of the Enforcement Policy: NCV 05000275/2008004-03, “Inadequate Operability Evaluation of Reactor Coolant Leakage Detection System.”

## 1R17 Permanent Plant Modifications (71111.17)

### Evaluations - Changes, Tests, or Experiments and Permanent Plant Modifications

#### a. Inspection Scope

This inspection procedure is a combination of two previous baseline inspection procedures: (1) Evaluations of Changes, Tests, or Experiments (71111.02); and (2) Permanent Plant Modifications (71111.17B). The procedure is now performed on a triennial basis and requires a minimum sampling of 5 permanent plant modifications, 6 evaluations required by 10 CFR 50.59, and 12 changes, tests, or experiments that were screened out by the licensee's program as not requiring an evaluation.

The objectives of this procedure are to verify that evaluations were performed in accordance with the requirements of 10 CFR 50.59; that the design bases, licensing bases, and performance capability of structures, systems and components have not been degraded through modifications; and that design and license basis documentation affected by and used to support changes, have been adequately updated and reflect the design and license basis of the facility after the change has been made.

The inspection was performed with an in-office review and preparation period, followed by an onsite inspection at the Diablo Canyon Power Plant. The inspectors reviewed licensee procedures for engineering change development, installation, testing, and closure. Procedures pertaining to the licensee's 10 CFR 50.59 program were also reviewed.

The inspectors reviewed 12 - 10 CFR 50.59 evaluations and supporting documentation, including drawings, calculations, FSAR Report Updates, and applicable technical specifications to confirm the licensee's conclusions that the changes would not require application for a license amendment. The evaluation samples were chosen based on risk significance, safety significance, and complexity. The listing of evaluations reviewed is included in the list of documents reviewed.

The inspectors reviewed 33 examples of screenings for which the licensee had concluded that evaluations were not required. The review confirmed that the licensee's conclusions were correct and in consistence with the requirements of 10 CFR 50.59. The screenings reviewed are listed in the list of documents reviewed.

The inspectors evaluated 11 permanent plant modification packages. The modifications were reviewed for adverse effects on system availability, reliability, and functional capability. Documents reviewed included calculations, modification design and change packages, drawings, corrective action documents, and applicable sections of the FSAR Updated, technical specifications, and various design basis documents. The inspectors reviewed postmaintenance test documentation to ensure adequacy in scope and conclusion. The modifications reviewed are listed in the list of documents reviewed.

The inspectors reviewed a sample of recent licensee action requests (corrective action documents) related to the 10 CFR 50.59 and the permanent plant modification processes to determine whether the licensee had identified problems and entered them into the corrective action program at the appropriate threshold. Action request documents reviewed are listed in the list of documents reviewed.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- PMT R0294234 and R0316755, Unit 2, Overhaul of Boric Acid Transfer Pump 2-2, August 1, 2008
- PMT R0316911 and R0294760, Unit 2, Preventive Maintenance on Steam Generator Level Control Valves LCV-106, 107, 108 and 109, August 12, 2008
- PMT R0318582 and R0316969, Unit 2, Preventive Maintenance of the Turbine Drive Auxiliary Feed Pump, August 12, 2008
- PMT 61.08, Unit 2, Replacement Main Bank Transformer "C" Installation Testing, August 27, 2008

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion), and test documentation was properly evaluated. The inspectors evaluated the activities against Technical Specifications, the FSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the attachment.

This inspection constitutes four samples as defined in Inspection Procedure 71111.19.

b. Findings

No findings of significance were identified.

1R20 Outage Activities (71111.20)

Other Outage Activities

a. Inspection Scope

The inspectors reviewed the Outage Safety Plan and contingency plans for the Unit 2 forced outage between August 17, 2008 and September 6, 2008, to verify that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the forced outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below.

- Licensee configuration management, including maintenance of defense-in-depth commensurate with the outage safety plan for key safety functions and in compliance with the applicable technical specifications when taking equipment out of service
- Implementation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error
- Controls over the status and configuration of electrical systems to ensure that Technical Specifications and outage safety plan requirements were met, and controls over switchyard activities
- Monitoring of decay heat removal processes, systems, and components
- Reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss
- Controls over activities that could affect reactivity
- Licensee identification and resolution of problems related to outage activities

This inspection constitutes one forced outage sample as defined in Inspection Procedure 71111.20.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

.1 Routine Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and Technical Specification requirements:

- Unit 1, Surveillance, Calculation of quadrant power tilt ratio, July 15, 2008
- Unit 2, Surveillance, Reactor heat balance, July 16, 2008
- Unit 2, Surveillance R0316391, Routine Surveillance Test of Motor-Driven Auxiliary Feedwater Pump 2-2, July 26, 2008

The inspectors observed in-plant activities and reviewed procedures and associated records to determine whether: any preconditioning occurred; effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis; plant equipment calibration was correct, accurate, and properly documented; as left set-points were within required ranges; the calibration frequency was in accordance with technical specifications, the FSAR, procedures, and applicable commitments; measuring and test equipment calibration was current; test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied; test frequencies met technical specification requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used; test data and results were accurate, complete, within limits, and valid; test equipment was removed after testing; where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable; where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure; where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished; prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test; equipment was returned to a position or status required to support the performance of the safety functions; and all problems identified during the testing were appropriately documented and disposition in the corrective action program. Documents reviewed are listed in the attachment.

This inspection constitutes three routine surveillance testing samples as defined in Inspection Procedure 71111.22.

b. Findings

No findings of significance were identified.

.2 In Service Testing Surveillance

a. Inspection Scope

The inspectors reviewed the test results for the following activity to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and Technical Specification requirements:

- Unit 1, Surveillance R0315997-01, Component heat exchanger return valves, FVC-364 and FVC-365, July 14, 2008

The inspectors observed in-plant activities and reviewed procedures and associated records to determine whether: any preconditioning occurred; effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis; plant equipment calibration was correct, accurate, and properly documented; as left set-points were within required ranges; and the calibration frequency were in accordance with technical specifications, the FSAR, procedures, and applicable commitments; measuring and test equipment calibration was current; test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied; test frequencies met Technical Specifications requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used; test data and results were accurate, complete, within limits, and valid; test equipment was removed after testing; where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers Code, and reference values were consistent with the system design basis; where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable; where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure; where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished; prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test; equipment was returned to a position or status required to support the performance of its safety functions; and all problems identified during the testing were appropriately documented and disposition in the corrective action program. Documents reviewed are listed in the attachment.

This inspection constitutes one inservice inspection sample as defined in Inspection Procedure 71111.22.

b. Findings

No findings of significance were identified.

### .3 Reactor Coolant System Leak Detection Inspection Surveillance

#### a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and Technical Specifications requirements:

- Unit 2, Reactor coolant system water inventory balance, August 12, 2008

The inspectors observed in-plant activities and reviewed procedures and associated records to determine whether: preconditioning occurred; effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis; plant equipment calibration was correct, accurate, and properly documented; as left set-points were within required ranges; and the calibration frequency were in accordance with technical specifications, the FSAR, procedures, and applicable commitments; measuring and test equipment calibration was current; test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied; test frequencies met Technical Specifications requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used; test data and results were accurate, complete, within limits, and valid; test equipment was removed after testing; where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable; where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure; where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished; prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test; equipment was returned to a position or status required to support the performance of its safety functions; and all problems identified during the testing were appropriately documented and disposition in the corrective action program. Documents reviewed are listed in the attachment.

This inspection constitutes one reactor coolant system leak detection inspection sample as defined in Inspection Procedure 71111.22.

#### b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness



## 1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

### .1 Emergency Plan Revision

#### a. Inspection Scope

The inspectors performed an in-office review of Revision 4, Change 11, to Section 7, "Emergency Facilities and Equipment," of the Diablo Canyon Power Plant Emergency Plan, submitted June 19, 2008. This revision added descriptions of the function of the transient recording system in the technical support center, the emergency operations facility, and at the meteorological tower.

The revision was compared to its previous revision, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revision adequately implemented the requirements of 10 CFR 50.54(q). This review was not documented in a safety evaluation report and did not constitute an approval of the licensee's changes, therefore, the revisions are subject to future inspection.

This inspection constitutes one sample as defined in Inspection Procedure 71114.04.

#### b. Findings

No findings of significance were identified.

### .2 Emergency Plan Implementing Procedure Revision

#### a. Inspection Scope

The inspectors performed an in-office review of the revised sections of the Diablo Canyon Power Plant Emergency Plan listed below, and reviewed Revision 37 to Emergency Plan Implementing Procedure G-1, "Emergency Classification and Emergency Plan Activation," both submitted on July 28, 2008. The inspectors also reviewed the documents listed in the attachment to this report. These revisions implemented a scheme of emergency action levels in consistence with Nuclear Energy Institute Report 99-01, "Methodology for Development of Emergency Action Levels," Revision 4, as approved by the NRC by letter dated December 31, 2007 (ADAMS Accession Number ML073610403), and made minor administrative changes and corrections.

- Revision 4, Change 4, to Section 1, "Definitions and Acronyms"
- Revision 4, Change 1, to Section 4, "Emergency Conditions"
- Revision 4, Change 1, to Section 9, "Recovery"
- Appendix D, "Emergency Action Level Technical Bases Manual"

The revisions were compared to their previous revision, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, to the criteria of Nuclear Energy Institute Report 99-01, "Methodology for Development of Emergency Action Levels," Revision 4, and to the emergency planning standards of 10 CFR 50.47(b) to determine if the revisions adequately implemented the requirements of 10 CFR 50.54(q).

This review was not documented in a Safety Evaluation Report and did not constitute an approval of the licensee's changes; therefore, these revisions are subject to future inspection.

The inspectors completed two samples during the inspection.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated a routine licensee emergency drill conducted on September 24, 2008 to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the plant simulator and Technical Support Center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with the procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

This inspection constitutes one drill evaluation sample as defined in Inspection Procedure 71114.06.

b. Findings

No findings of significance were identified.

.2 Training Observation

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on July 31, 2008, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed Emergency Plan Training Scenario, Session 07-5.

This inspection constitutes one simulator sample as defined in Inspection Procedure 71114.06.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the second quarter 2008 performance indicators for any obvious inconsistencies in accordance with IMC 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

.2 Mitigating Systems Performance Index (MSPI) – Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Heat Removal System performance indicator for Diablo Canyon Units 1 and 2 for the period from the second quarter 2007 through the second quarter 2008. To determine the accuracy of the Performance Indicator data reported during those periods, PI definitions and guidance contained in Revision 5 of the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," definitions and guidance were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC integrated inspection reports for the period of the second quarter 2007 through the second quarter 2008 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified.

This inspection constitutes one MSPI sample as defined by Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.3 MSPI – Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Residual Heat Removal System performance indicator for Diablo Canyon Units 1 and 2 for the period from the second quarter 2007 through the second quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in Revision 5 of the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," definitions and guidance were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC integrated inspection reports for the period of the second quarter 2007 through the second quarter 2008 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified.

This inspection constitutes one MSPI sample as defined by Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.4 MSPI – Cooling Water System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Cooling Water Systems performance indicator for Diablo Canyon Units 1 and 2 for the period from the second quarter 2007 through the second quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in Revision 5 of the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," definitions and guidance were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC integrated inspection reports for the period of the second quarter 2007 through the second quarter 2008 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified.

This inspection constitutes one MSPI sample as defined by Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

#### 4OA2 Identification and Resolution of Problems (71152)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

##### .1 Routine Review of Items Entered Into the Corrective Action Program

###### a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: the complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's corrective action program as a result of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

###### b. Findings

No findings of significance were identified.

##### .2 Daily Corrective Action Program Reviews

###### a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's Corrective Action Program. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

###### b. Findings

No findings of significance were identified.

.3 Annual Sample: Review of Operator Workarounds (OWAs)

a. Inspection Scope

The inspectors evaluated the licensee's implementation of their process used to identify, document, track, and resolve operational challenges. Inspection activities included, but were not limited to, a review of the cumulative effects of the OWAs on system availability and the potential for improper operation of the system, for potential impacts on multiple systems, and on the ability of operators to respond to plant transients or accidents.

The inspectors performed a review of the cumulative effects of OWAs. The documents listed in the attachment were reviewed to accomplish the objectives of the inspection procedure. The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold, had entered them into their corrective action program and proposed or implemented appropriate and timely corrective actions which addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an Initiating Event, if the challenge was contrary to training, required a change from long-standing operational practices, or created the potential for inappropriate compensatory actions. Additionally, all temporary modifications were reviewed to identify any potential effect on the functionality of mitigating systems, impaired access to equipment, or required equipment uses for which the equipment was not designed. Daily plant and equipment status logs, degraded instrument logs, and operator aids or tools being used to compensate for material deficiencies were also assessed to identify any potential sources of unidentified operator workarounds.

The above constitutes completion of one operator workarounds annual inspection sample.

b. Findings

No findings of significance were identified.

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors completed an in-depth review of:

- Action Request A0737958, Licensing Basis Review of Reactor Coolant System Leak Detection, August 14, 2008
- Action Requests A0736586 and A0731862, Ability to meet General Design Criteria 17 for Delay Source of Offsite Power, July 30, 2008

The above constitutes completion of two in-depth problem identification and resolution samples.

b. Findings

No findings of significance were identified.

4OA3 Followup of Events and Notices of Enforcement Discretion (71153)

.1 Fire Alarm in Unit 2 Ventilation Fan Room

a. Inspection Scope

On July 21, 2008, the inspectors responded to a declaration of a Notice of Unusual Event by PG&E following a fire alarm in the Unit 2 auxiliary building ventilation exhaust fan room. The unusual event was declared because the operations staff was unable to validate the control room alarm within fifteen minutes due to the fan room being inaccessible due to a high pressure differential at the fan room door. The licensee was able to enter the room shortly thereafter and verified no fire existed. The inspectors reviewed operator actions taken in accordance with licensee procedures and reviewed unit and system indications to verify that actions and system responses were as expected. The inspectors also verified that fire department personnel would have been able to access the fan room and combat a fire if necessary.

b. Findings

No findings of significance were identified.

.2 (Opened) URI 05000323/2008004-04 Unit 2 Main Transformer Fire

a. Inspection Scope

On August 17, 2008, the inspectors responded to a declaration of a Notice of Unusual Event by PG&E following a fire in the Unit 2 main transformer. The inspectors reviewed operator actions taken in accordance with licensee procedures and reviewed unit and system indications to verify that actions and system responses were as expected.

The inspectors were unable to complete a review of this event because the root cause investigation team had not completed its investigation. Therefore, an unresolved item will be opened and is planned to be closed in the fourth quarter of 2008. The inspectors will assess the details of review and adequacy of the root cause and any proposed corrective actions as part of the closeout of the unresolved item.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee

security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status reviews and inspection activities.

b. Findings

The inspectors identified one or more issues. Although they were immediately corrected or compensated for by the licensee, the issues will be discussed and their significance determined in a separate security inspection report.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On August 6, 2008, the inspectors conducted a telephonic exit meeting to present the results of the in-office inspection of changes to the licensee's emergency plan to Ms. M. Zawalick, Senior Emergency Planning Coordinator, who acknowledged the findings.

On September 11, 2008, the inspectors presented the inspection findings on evaluations of changes, tests, or experiments and permanent plant modifications to Mr. J. Becker and other members of his staff, who acknowledged the findings. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

On September 29, 2008, the inspectors conducted a telephonic exit meeting to present the results of the in-office inspection of the licensee's changes to their emergency plan and emergency plan implementing procedures to Mr. M. Persky, Manager, Emergency Planning, and other members of his staff, who acknowledged the findings.

On September 30, 2008, the inspectors presented the inspection results to Mr. J. Becker, and other members of your staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION



## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### PG&E personnel

J. Becker, Vice President - Diablo Canyon Operations and Station Director  
R. Hite, Manager, Radiation Protection  
S. Ketelsen, Manager, Regulatory Services  
K. Langdon, Director, Operations Services  
K. Peters, Director, Engineering Services  
M. Somerville, Manager, Radiation Protection

### **LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened

05000323/2008004-04    URI    Unit 2 Main Transformer Fire (Section 4OA3)

#### Opened and Closed

05000323/2008004-01	NCV	Inadequate Procedure Resulting in Inoperable Auxiliary Building Ventilation System (Section 1R04)
05000323/2008004-02	NCV	Failure to Perform a Safety Assessment for Following Discovery of Explosive Gas in the Auxiliary and Containment Buildings (Section 1R05)
05000275/2008004-03	NCV	Inadequate Operability Evaluation of Reactor Coolant Leakage Detection System (Section 1R15)

### **LIST OF DOCUMENTS REVIEWED**

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

## 1R04 Equipment Alignment

### Condition Reports

A0715884, Check Valve RHR-2-8742A Leakage, January 7, 2008

A0738244, RHR-2-HCV-670 Slow to Respond, August 19, 2008

A0735823, ABVS Clearance Results in Tech Spec 3.0.3 Entry, July 21, 2008

A0715524, Adverse Trend in Configuration Control, January 2, 2008

Nonconformance Report N0002225, Status Control and Clearance Errors Continue to Occur,  
July 30, 2008

### Procedure

OP2.ID1, Clearances, Revision 20A

### Drawings

107723 Sheet 7, Fuel Handling Building Heating and Ventilation with Aux Building Exhaust,  
Revision 76

107708 Sheet 9, Boric Acid Storage Tanks, Revision 97

## Section 1R05: Fire Protection

### Drawings

111906 Sheet 16, Fire Protection Auxiliary Building El. 73', Revision 1

Action Request A0739106, Lessons Learned Resulting From Unit 2 Transformer Fire

Action Request A0739108, Evaluate Enhancements for Reflash Watch

## Section 1R12: Maintenance Effectiveness

### Condition Reports

A0699822, Boric Acid Xfr Pp 2-2 Experiencing Frequent Oil Adds, June 2, 2007

A0720251, CVCS-2-8487B Fails STP V-18R1

A0717009, Review of MRFF Determination for Unit 2 RM-11 Failures, January 22, 2008

A0693647, Diesel Generator 2-3 fuel pump seal leak, April 18, 2007

A0645680, Diesel Generator 2-3 failed to reach rated frequency and voltage on start,  
September 8, 2005

A0711739, Diesel Generator 2-1 Tach Pack Failure, November 11, 2007

A0652959, Diesel Generator 2-3 Lube Oil Heater Contactor overheated, November 23, 2005

A0717009, Review of MRFF Determination for Unit 2 RM-11 Failures, January 22, 2008

## Procedure

MA1.ID17, Maintenance Rule Monitoring Program, Revision 20

## Section 1R13: Maintenance Risk Assessments and Emergent Work Control

### Condition Reports

A0689773, Breaker 52-1H-01R Minor Heating at B Phase Bus Side Term, February 27, 2007

A0734067, Manual Evaluation of Subcriticality SFAT Tree for CCP 1-2, July 1, 2008

A0734867, Modify ORAM Sentinel Containment Safety Function Tree, July 9, 2008

A0736955, Evaluate Splitting ASW/CCW MOW's to Stay Green Risk, August 4, 2008

A0741259, Dual Unit Entry into SR 3.0.3 Due to Vibration Monitor Cals, September 17, 2008

### Calculations

Calculation PRA08-09, Evaluation of PRA Impact of Missed Surveillances Due to Vibration Monitor Out of Calibration, Revision 0

## 1R15 Operability Evaluations

### Condition Reports

A0733045, Unit 2 Inverter 23 Rm Exceeded 103F for > 8 hours, June 20, 2008

A0733046, Unit 1 480V Bus G Rm Exceeded 103F for > 8 hours, June 20, 2008

A0733092, Unit 1 Battery 13 Rm Exceeded 89F for > 8 hours, June 21, 2008

A0733093, Unit 1 Inverter 11 Rm Exceeded 103F for > 8 hours, June 21, 2008

A0688447, Large MW Spike When Reducing Load on EDG 2-2 During STP M-9A, February 10, 2007

## Procedures

AR PK15-05, Ambient Air Temp PPC, Revision 16

AR PK15-09, Electrical Rooms Temp Monitor, Revision 27

## Section 1R17: Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

### Procedures

MPM-55.5, Fabrication, Installation, and Modification of Pipe Supports, Revision 12

MPM-56.10, Piping Fabrication, Installation, Repair or System Alteration, Revision 6

MIP C-2.0, Installation and Inspection of Expansion Anchors, Revision 4

CF3.ID9, Design Change Development, Revisions 29 and 32

CF4.ID3, Modification Implementation, Revision 21

CF4.ID4, Field Change Process, Revision 14A

MA2.ID1, Use and Control of Measuring and Test Equipment (MT&E), Revision 8

STP R-20, Boric Acid Inventory, Attachment 9.1, Boric Acid Inventory-Unit 1 and  
Attachment 9.2, Boric Acid Inventory-Unit 2, Revision 29A

#### Section 1R19: Post Maintenance Testing

##### Condition Reports

A0736323, FI-206 Flow Does Not Appear to be Stabilizing, July 27, 2008

A0724788, AFW Pump 2-2 Recirculation Flow Erratic, March 22, 2008

A0740077, CB 642 Tripped Open During Inrush Testing, September 3, 2008

##### Procedures

STP V-3P5, Exercising Valves LCV-106, 107, 108, and 109 Auxiliary Feedwater Pump  
Discharge, Revision 20.

STP P-AFW-21, Routine Surveillance Test of Turbine-Driven Auxiliary feedwater Pump 2-1,  
Revision 20

STP V-35, Exercising Steam Supply to Auxiliary Feedwater Pump Stop Valve FCV-95,  
Revision 19

STP M-64, Deluge System Functional Test, Revision 9

STP M-66B, Deluge System Nozzle Proof Test Main and Auxiliary Transformers, Revision 7A

#### Section 1R22: Surveillance Testing

##### Procedures

STP-V-3H7, Exercising valves FCV-364 and FVC-365, RHR heat exchanger CCW return  
Valves, Revision 17

STP R-10C, Reactor Coolant System Water Inventory Balance, Revision 0

STP R-25, Calculation of Quadrant Power Tilt Ratio, Revision 27A

STP R-2B1, PPC Operator Heat Balance, Revision 24

STP R-10C, Reactor Coolant System Water Inventory Balance, Revision 0

STP P-AFW-22, Routine Surveillance Test of Motor-Driven Auxiliary Feedwater Pump 2-2,  
Revision 14

#### Section 1EP4: Emergency Action Level and Emergency Plan Changes

Safety Evaluation by the Office of Nuclear Security and Incident Response related to the Proposed Revisions to the Emergency Action Levels for the Diablo Canyon Nuclear Power Plant, December 21, 2007

Diablo Canyon Response to the NRC Request for Additional Information, December 14, 2007

#### Section 1EP6: Drill Evaluation

##### Condition Reports

A0741879, SM Called by EOF During EP Drill  
A0741885, SM Called by Cal Fire During EP Drill  
A0741887, SFM Called During EP Drill by SLO Sheriff  
A0741896, Action from 9/24 Bravo Team Drill  
A0741901, Bravo Team Drill Item – EP RB-1  
A0741902, Bravo Team (TSC) Critique Item  
A0741905, PA Announcement Could Not Be Heard in BLDG 202  
A0741911, Bravo Team Critique Item  
A0741914, Bravo Team Critique Item  
A0741920, EP EF-2 Maintenance Coordinator Checklist Add Step  
A0741925, Bravo Team Critique Item  
A0741930, Modify Ops Coordinator Checklist  
A0741932, Emergency Tailboard Briefing Card  
A0741933, Control of Teams Prior to Accountability  
A0741935, Evaluate EP G-5 Early Work Release Guidance  
A0741938, Need RMD Assistant Assigned to EOF  
A0741939, Offsite EOF FMT Radios Need Batteries Replaced  
A0741942, Suspension of Admin Controls During Drill  
A0741943, TSC Habitability Implementation AFI's Noted in Drill  
A0741944, Radios with Ext. Mikes Needed in the OSC for Emergency Drill  
A0741947, Ops WCL Sent to OSC to Assist at Operation's Liaison Position  
A0741948, EP Drill VANS Actuation from Simulator Issues  
A0741949, Emergency Drill Briefings  
A0741953, EP Drill 9/24/8 – Sim "Red Book" G-3 Did Not Have Latest Rev  
A0741956, Need Method at EOF to Verify Plant Personnel Dose  
A0741957, CP M-6 Not Entered During EP Drill Rehearsal

A0741959, Admin Controls in REP Drill  
A0741960, EP Drill 9/24/8 – Sim Crew Did Not Recognize Entry AP-27  
A0741965, EARS Run/Plot Needs to be Linked to Associated ERF Tailboard  
A0741975, DEP PI Failure During 2008 Dress Rehearsal for Late PAR  
A0741976, Evaluate Current Drill Staffing Levels for EP Drills  
A0741979, Bravo Team Drill Recommendation  
A0741981, Fire Phone Bridge Use During Drill  
A0741982, Bravo Team Drill Recommendation  
A0741986, Evaluate Need & Method for More Timely INFO Release to JMC  
A0741987, Delays in Submitting EOF Forms to JMC – Drill Critique  
A0741991, Operators Confused on NI Response to LBLOCA  
A0742000, Untimely Follow-up Notification During B Team Drill  
A0742003, Dress Rehearsal Drill Critique Item – JIC  
A0742009, Dress Rehearsal Drill Critique Item – JIC  
A0742020, Notification to State Did Not Meet Procedural Requirement  
A0742021, 2008 Dress Rehearsal Drill Control Deficiency on ENF-1 Data  
A0742022, Incorrect Drill Data Provided By Drill Controller

#### Notifications entered into SAP

50062947 – UDAC Radiation Manager Not Able to Manage UDAC  
50062948 – Improve Coordination of EP Field Teams  
50062949 – Simulator Bridge Line Failure  
50062950 – Missing ATC-EOC Controller  
50062955 – Drill Notification #2 Not Faxed to JIC

#### Section 4OA2: Problem Identification and Resolution

##### Condition Reports

A0677367, Tracking AR for Seal Oil Workaround Item, September 12, 2006  
A0705527, GSS-1-TCV-26 Did Not Open During Startup, August 18, 2007

##### Procedure

OP1.DC40, Operations Equipment Deficiency Tracking, Revision 3

## Documents

2008 Corrective Action Program Audit, Audit # 081290001, August 14, 2008

DCPP Observation Program Report, Observer Department Report for Quality Verification, Date Range: 10-Jul-08 To: 24-Jul-08, File #082130012

DCPP Observation Program Report, Observer Department Report for Quality Verification, Date Range: 24-Jul-08 To: 7-Aug-, File #082180021

DCPP Observation Program Report, Observer Department Report for Quality Verification, Date Range: 7-Aug- 14-Aug, File #082180022

## **LIST OF ACRONYMS**

ADAMS	agency document and management system
CFR	<i>Code of Federal Regulations</i>
FSAR	Final Safety Analysis Report
NCV	noncited violation
NRC	Nuclear Regulatory Commission
PG&E	Pacific Gas and Electric Company
PI	performance indicator
PMT	postmaintenance
TS	Technical Specification