



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005**

May 15, 2006

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**SUBJECT: DIABLO CANYON POWER PLANT - NRC INTEGRATED INSPECTION
REPORT 05000275/2006002 AND 05000323/2006002**

Dear Mr. Keenan:

On March 31, 2006, 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 April 12, 2006, with Ms. Donna Jacobs 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 two self-revealing 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 two 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, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005; 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.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document 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/

William B. Jones, Chief
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Dockets: 50-275
50-323

Licenses: DPR-80
DPR-82

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Inspection Report 05000275/2006002
and 05000323/2006002
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets: 50-275, 50-323
Licenses: DPR-80, DPR-82
Report: 05000275/2006002
05000323/2006002
Licensee: Pacific Gas and Electric Company (PG&E)
Facility: Diablo Canyon Power Plant, Units 1 and 2
Location: 7.5 miles NW of Avila Beach
Avila Beach, California
Dates: January 1 through March 31, 2006
Inspectors: T. Jackson, Senior Resident Inspector
T. McConnell, Resident Inspector
Larry Ricketson, Senior Health Physicist
Approved By: W. B. Jones, Chief, Projects Branch B
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000275/2006-002, 05000323/2006-002; 1/1/06 - 3/31/06; Diablo Canyon Power Plant Units 1 and 2; Problem Identification and Resolution and Access Control to Radiologically Significant Areas.

This report covered a 13-week period of inspection by resident inspectors and an announced inspection in radiation protection. Two self-revealing Green noncited 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 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. A self-revealing noncited violation of Technical Specification 5.4.1.a was identified for the failure to adequately maintain abnormal operating Procedure OP AP-28, "Reactor Coolant Pump Malfunction," Revision 1, to ensure the procedure could be implemented in accordance with the requirements of Procedure OP1.DC11, "Conduct of Operations - Abnormal Plant Conditions." On January 27, 2006, operators vented the pressurizer relief tank and received a reactor coolant pump high seal flow alarm. The reactor coolant pump alarm response procedure, Procedure OP AP-28, eventually directed the operators to a step that required them to manually trip the reactor although diagnostics performed in previous steps demonstrated no reactor coolant pump seal problem. The failure to adequately maintain Procedure OP AP-28, consistent with the requirements in Procedure OP1.DC11, increased the potential for operators to initiate a reactor trip, with loss of forced circulation in one loop, for conditions that may not warrant such a response. This finding was entered into the corrective action program as Action Request A0658595.

The finding impacted the Initiating Events Cornerstone and, as described in Inspection Manual Chapter 0612, Appendix B, the finding was considered more than minor since it affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. Specifically, Procedure OP AP-28 affected the cornerstone attribute of procedure quality since it may lead operators to induce a significant transient on the unit (reactor trip) for plant conditions that do not warrant such action. Using the Significance Determination Process Phase 1 Screening Worksheet of Inspection Manual Chapter 0609, Appendix A, the finding was determined to be of very low safety significance since it does not contribute to the likelihood of a primary or secondary loss-of-coolant accident, does not contribute to both the likelihood of a reactor trip and unavailability of mitigating systems, and it does not increase the likelihood of a fire or flood. The cause of the finding is related to the crosscutting element of

human performance in that procedure developers constructed Procedure OP AP-28 in a way that would unnecessarily increase the likelihood of a manual reactor trip (Section 4OA2.2).

Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.4.1, resulting from failure to follow special work permit instructions by a radiation protection technician. On October 26, 2005, a radiation protection technician working on Special Work Permit 05-1004, "Radiation Protection in Containment," placed a portion of the whole body in a higher dose rate than allowed by the special work permit (1,600 millirem per hour versus 1,000 millirem per hour). Pacific Gas and Electric Company was alerted to the problem by the alarming dosimeter of the radiation protection technician. As a corrective action, Pacific Gas and Electric Company will include this event in radiation protection continuing training and require radiation protection technicians to be present during the worker briefings, if the work will be conducted in dose rates greater than 1 rem per hour.

The finding was greater than minor because it was associated with one of the cornerstone attributes (exposure control) and the finding affected the Occupational Radiation Safety cornerstone objective in that a failure to follow special work permit instructions resulted in additional radiation dose. The inspectors determined that the finding had no more than very low safety significance because: (1) it did not involve an as low as is reasonably achievable finding, (2) there was no personnel overexposure, (3) there was no substantial potential for personnel overexposure, and (4) the finding did not compromise Pacific Gas and Electric Company's ability to assess doses. The finding also had cross-cutting aspects related to human performance in that the radiation protection technician failed to follow the special work permit instructions directly resulted in the finding (Section 2OS1).

B. Licensee-Identified Violations

Violations of very low safety significance, which have been identified by Pacific Gas and Electric Company, have been reviewed by the inspectors. Corrective actions taken or planned by Pacific Gas and Electric Company have been entered into their corrective action program. These violations and corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Diablo Canyon Unit 1 operated at 100 percent power for this inspection period.

Diablo Canyon Unit 2 began this inspection period at 100 percent power. On January 13, 2006, Unit 2 power was reduced to 73 percent to support planned line maintenance work on the Diablo Canyon to Midway 230 kV Transmission Line. Unit 2 returned to 100 percent power on January 14, 2006, and remained at this power level for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather (71111.01)

c. Inspection Scope

The inspectors completed a review of Pacific Gas and Electric Company's (PG&E's) readiness of seasonal susceptibilities involving extreme high temperatures. The inspectors: (1) reviewed plant procedures, the Final Safety Analysis Report (FSAR) Update, and Technical Specifications (TS) to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portions of the one system listed below to ensure that adverse weather protection features (heat tracing, space heaters, weatherized enclosures, etc.) were sufficient to support operability, including the ability to perform safe shutdown functions; (3) evaluated operator staffing levels to ensure PG&E could maintain the readiness of essential systems required by plant procedures; and (4) reviewed the corrective action program (CAP) to determine if PG&E identified and corrected problems related to adverse weather conditions.

- February 9, 2006: Units 1 and 2, 480V Vital Switchgear Rooms

Documents reviewed by the inspectors included:

- Procedure Action Request (AR) PK15-09, "Electrical Rooms Temp Monitor," Revision 27
- Design Criteria Memorandum S-63, "4160 System," Revision 13A

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04)

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors: (1) walked down portions of the four below listed risk-important systems and reviewed plant procedures and documents to verify that critical portions of the selected systems were correctly aligned; and (2) compared deficiencies identified during the walkdown to the FSAR Update and CAP to ensure problems were being identified and corrected.

- January 5, 2006: Unit 1, Auxiliary Feedwater Pump 1-2 and 1-3
- January 17, 2006: Unit 1, Containment Spray Pump 1-2
- January 19, 2006: Unit 1, Residual Heat Removal Pump 2-2
- **February 21, 2006: Unit 2, Diesel Engine Generators 2-1 and 2-2**

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors: (1) reviewed plant procedures, drawings, the FSAR Update, TSs, and vendor manuals to determine the correct alignment of the high head injection system; (2) reviewed outstanding design issues, operator workarounds, and FSAR Update documents to determine if open issues affected the functionality of the high head injection system; and (3) verified that PG&E was identifying and resolving equipment alignment problems. Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Inspection

a. Inspection Scope

The inspectors walked down the seven below listed plant areas to assess the material condition of active and passive fire protection features and their operational lineup and readiness. The inspectors: (1) verified that transient combustibles and hot work activities were controlled in accordance with plant procedures; (2) observed the condition of fire detection devices to verify they remained functional; (3) observed fire suppression systems to verify they remained functional and that access to manual actuators was unobstructed; (4) verified that fire extinguishers and hose stations were provided at their designated locations and that they were in a satisfactory condition; (5) verified that passive fire protection features (electrical raceway barriers, fire doors, fire dampers, steel fire proofing, penetration seals, and oil collection systems) were in a satisfactory material condition; (6) verified that adequate compensatory measures were established for degraded or inoperable fire protection features and that the compensatory measures were commensurate with the significance of the deficiency; and (7) reviewed the FSAR Update to determine if PG&E identified and corrected fire protection problems.

- February 1, 2006: Unit 1, 12 kV switchgear cable spreading room
- February 13, 2006: Unit 1, 115 ft. radiological controlled area yard
- February 13, 2006: Unit 1, 100 ft. containment penetration area
- February 21, 2006: Unit 1, diesel engine generator Cable K2401 penetration repairs
- March 8, 2006: Unit 1 and 2, 154 ft. control room ventilation area
- March 8, 2006: Unit 1 and 2, auxiliary feed pump rooms
- March 8, 2006: Unit 1 and 2, spent fuel pools and hot shop

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed seven samples.

b. Findings

No findings of significance were identified.

.2 Fire Drill (71111.05A)

q. Inspection Scope

On February 22, 2006, the inspectors observed a fire brigade drill to evaluate the readiness of PG&E personnel to prevent and fight fires, including the following aspects: (1) the number of personnel assigned to the fire brigade; (2) use of protective clothing; (3) use of breathing apparatuses; (4) use of fire procedures and declarations of emergency action levels; (5) command of the fire brigade; (6) implementation of prefire strategies and briefs; (7) access routes to the fire and the timeliness of the fire brigade response; (8) establishment of communications; (9) effectiveness of radio communications; (10) placement and use of fire hoses; (11) entry into the fire area; (12) use of firefighting equipment; (13) searches for fire victims and fire propagation; (14) smoke removal; (15) use of prefire plans; (16) adherence to the drill scenario; (17) performance of the postdrill critique; and (18) restoration from the fire drill. PG&E simulated a fire in the Unit 1 component cooling water pump room.

Documents reviewed by the inspectors included:

- Fire Preplans for Unit 1 Radiological Control 54', 64', and 73'
- EP G-1, "Emergency Classification and Emergency Plan Activation," Revision 34

The inspectors completed one sample

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

Semiannual Internal Flooding

a. Inspection Scope

The inspectors: (1) reviewed the FSAR Update, the flooding analysis, and plant procedures to assess seasonal susceptibilities involving internal flooding; (2) reviewed the FSAR Update and CAP to determine if PG&E identified and corrected flooding problems; (3) inspected underground bunkers/manholes to verify the adequacy of (a) sump pumps, (b) level alarm circuits, (c) cable splices subject to submergence, and (d) drainage for bunkers/manholes; (4) verified that operator actions for coping with flooding can reasonably achieve the desired outcomes; and (5) walked down the one below listed area to verify the adequacy of: (a) equipment seals located below the flood line, (b) floor and wall penetration seals, (c) watertight door seals, (d) common drain lines and sumps, (e) sump pumps, level alarms, and control circuits, and (f) temporary or removable flood barriers.

- February 21, 2006: Units 1 and 2, auxiliary feedwater pump rooms

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

The inspectors observed testing and training of senior reactor operators and reactor operators to identify deficiencies and discrepancies in the training, to assess operator performance, and to assess the evaluator's critique. The training scenario involved high reactor coolant pump seal differential pressure and a steam generator tube leak followed by a faulted steam generator.

Documents reviewed by the inspectors included Lesson E3ECA33, "SGTR," Revision 13.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the two below listed maintenance activities to: (1) verify the appropriate handling of structure, system, and component (SSC) performance or condition problems; (2) verify the appropriate handling of degraded SSC functional performance; (3) evaluate the role of work practices and common cause problems; and (4) evaluate the handling of SSC issues reviewed under the requirements of the Maintenance Rule, 10 CFR Part 50, Appendix B, and the TSs.

- February 6, 2006: Units 1 and 2, auxiliary saltwater pumps packing replacement
- March 2, 2006: Units 1 and 2, long-term cooling pumps

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

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

.1 Risk Assessments and Management of Risk

a. Inspection Scope

The inspectors reviewed the five below listed assessment activities to verify: (1) performance of risk assessments when required by 10 CFR 50.65(a)(4) and PG&E procedures prior to changes in plant configuration for maintenance activities and plant operations; (2) the accuracy, adequacy, and completeness of the information considered in the risk assessment; (3) that PG&E recognizes, and/or enters as applicable, the appropriate risk category according to the risk assessment results and PG&E procedures; and (4) PG&E identified and corrected problems related to maintenance risk assessments.

- January 8, 2006: Unit 1, Eagle 21 Rack 13 hot leg streaming factors parameter update
- January 11, 2006: Unit 1, Auxiliary saltwater pump shaft packing replacement
- February 15, 2006: Unit 2, Auxiliary Saltwater Pump 2-2 routine maintenance and Diesel Engine Generator 2-1 Starting Air Receiver B relief valve replacement
- February 27, 2006: Unit 2, Diesel Engine Generator 2-3 extended maintenance outage requiring risk management actions
- March 16, 2006: Unit 2, Diesel Engine Generator 2-1 maintenance outage concurrent with testing of vital bus undervoltage relays

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

.2 Emergent Work

d. Inspection Scope

The inspectors: (1) verified that PG&E performed actions to minimize the probability of initiating events and maintained the functional capability of mitigating systems and barrier integrity systems; (2) verified that emergent work-related activities such as troubleshooting, work planning/scheduling, establishing plant conditions, aligning equipment, tagging, temporary modifications, and equipment restoration did not place the plant in an unacceptable configuration; and (3) reviewed the FSAR Update to determine if PG&E identified and corrected risk assessment and emergent work control problems.

- February 21, 2006: Unit 2, Eagle 21 Rack 13 power supply failure

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample

b. Findings

No findings of significance were identified.

1R14 Personnel Performance Related to Nonroutine Plant Evolutions and Events (71111.14)

a. Inspection Scope

The inspectors: (1) reviewed operator logs, plant computer data, and/or strip charts for the below listed evolutions to evaluate operator performance in coping with nonroutine events and transients; (2) verified that operator actions were in accordance with the response required by plant procedures and training; and (3) verified that PG&E has identified and implemented appropriate corrective actions associated with personnel performance problems that occurred during the nonroutine evolutions sampled.

- January 8, 2006: Unit 1, Eagle-21 Solid-State Protection System, Set 3, Rack 13, locked up during performance of routine maintenance using Surveillance Test Procedure STP I-36-S3SF
- January 27, 2006: Unit 1, Reactor Coolant Pump (RCP) 1-1 number 2 high seal leak-off alarm during pressurizer relief tank venting operations

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified for the January 8, 2006, observation. The findings associated with the January 27, 2006, observation are discussed in Section 4OA2.2.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors: (1) reviewed plant status documents such as operator shift logs, emergent work documentation, deferred modifications, and standing orders to determine if an operability evaluation was warranted for degraded components; (2) referred to the FSAR Update and design bases documents to review the technical adequacy of the operability evaluations; (3) evaluated compensatory measures associated with operability evaluations; (4) determined degraded component impact on

any TS; (5) used the surveillance determination process to evaluate the risk significance of degraded or inoperable equipment; and (5) verified that PG&E has identified and implemented appropriate corrective actions associated with degraded components.

- January 8, 2006: Unit 1, Eagle-21 Solid-State Protection System, Set 3, Rack 13, reset resulted in Valve RCS-1-PORV-456 inoperability
- February 6, 2006: Unit 1, Feedwater Regulating Valve FW-1-FCV-520 erratic position indication
- February 6, 2006: Unit 2, Westinghouse top fuel pellet chipping during manufacture and assembly of fuel rods
- February 16, 2006: Unit 1, Electrical conduit contacting the turbine-driven auxiliary feedwater pump overspeed trip rod
- March 8, 2006: Unit 2, Diesel Engine Generator 2-3 Bussman KTN type fuses
- March 14, 2006: Unit 2, Diesel Engine Generator 2-3 Low Crankcase Oil Level

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

b. Findings

Section 4OA7 discusses a licensee-identified violation.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the six below listed postmaintenance test activities of risk-significant systems or components. For each item, the inspectors: (1) reviewed the applicable licensing basis and/or design basis documents to determine the safety functions; (2) evaluated the safety functions that may have been affected by the maintenance activity; and (3) reviewed the test procedure to ensure it adequately tested the safety function that may have been affected. The inspectors either witnessed or reviewed test data to verify that acceptance criteria were met, plant impacts were evaluated, test equipment was calibrated, procedures were followed, jumpers were properly controlled, the test data results were complete and accurate, the test equipment was removed, the system was properly realigned, and deficiencies during testing were documented. The inspectors also reviewed the FSAR Update to determine if PG&E identified and corrected problems related to post-maintenance testing.

- February 1, 2006: Unit 2, Auxiliary Feedwater Pump 2-1
- February 5, 2006: Unit 1, Vital 4kV Bus H cable replacement

- February 2, 2006: Unit 1, Valve FW-1-LCV-108 motor-operator torque switch
- February 23, 2006: Unit 1 and 2, Radiation Monitors RM-11/12 calibration
- February 26, 2006: Unit 2, Diesel Engine Generator 2-3 maintenance outage window
- March 7, 2006: Unit 2, Eagle-21 Rack 13 channel operational test

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the FSAR Update, procedure requirements, and TS to ensure that the eight below listed surveillance activities demonstrated that the SSC's tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the following significant surveillance test attributes were adequate: (1) preconditioning; (2) evaluation of testing impact on the plant; (3) acceptance criteria; (4) test equipment; (5) procedures; (6) jumpers; (7) test data; (8) testing frequency and method demonstrated TS operability; (9) test equipment removal; (10) restoration of plant systems; (11) fulfillment of ASME Code requirements; (12) updating of performance indicator (PI) data; (13) engineering evaluations, root causes, and bases for returning tested SSCs not meeting the test acceptance criteria were correct; (14) reference setting data; and (15) annunciators and alarm setpoints. The inspectors also verified that PG&E identified and implemented any needed corrective actions associated with the surveillance testing.

- (Containment Isolation Valve) January 2, 2006: Unit 1, Emergency core cooling second-off check valve containment isolation valve testing
- January 5, 2006: Unit 1, Procedure STP P-AFW-11, "Routine Surveillance Test of Turbine-Driven Auxiliary Feedwater Pump 1-1," Revision 21
- (Inservice Testing) January 17, 2006: Unit 1, Procedure STP P-SIP-12, "Routine Surveillance Test of Safety Injection Pump 1-2," Revision 19
- January 17, 2006: Unit 1, Procedure STP P-SIP-11, "Routine Surveillance Test of Safety Injection Pump 1-1," Revision 18
- January 17, 2006: Unit 2, Procedure STP I-39-R30.B, "Containment High Range Area Radiation Monitor RM-30/RM-31 Calibration," Revision 7

- January 18, 2006: Unit 1, Procedure STP P-RHR-12, "Routine Surveillance Test of RHR Pump 1-2," Revision 17
- January 26, 2006: Unit 1, Procedure STP P-AFW-13, "Routine Surveillance Test of Motor-Driven Auxiliary Feedwater Pump 1-3," Revision 13
- (Reactor Coolant System Leak Detection) March 8, 2006: Unit 2, Procedure STP R-10C, "Routine Coolant System Water Inventory Balance," Revision 29

The inspectors completed eight samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the FSAR Update, plant drawings, procedure requirements, and TS to ensure that the one below listed temporary modification was properly implemented. The inspectors: (1) verified that the modifications did not have an affect on system operability/availability; (2) verified that the installation was consistent with modification documents; (3) ensured that postinstallation test results were satisfactory and that the impact of the temporary modifications on permanently installed SSC's were supported by the test; (4) verified that the modifications were identified on control room drawings and that appropriate identification tags were placed on the affected drawings; and (5) verified that appropriate safety evaluations were completed. The inspectors verified that PG&E identified and implemented any needed corrective actions associated with temporary modifications.

- January 31, 2006: Unit 1, Change in digital feedwater control tuning constants

Documents reviewed by the inspectors included:

- AR A0657503
- Work Order C0202553

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

This area was inspected to assess PG&E's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas (HRAs), and worker adherence to these controls. The inspectors used the requirements in 10 CFR Part 20, the TS, and PG&E's procedures required by the TS as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed independent radiation dose rate measurements and reviewed the following items:

- PI events and associated documentation packages reported by PG&E in the Occupational Radiation Safety Cornerstone
- Controls (surveys, posting, and barricades) of three radiation areas, HRAs, or airborne radioactivity areas
- PG&E's actions in cases of repetitive deficiencies or significant individual deficiencies
- Radiation work permit briefings and worker instructions
- Adequacy of radiological controls such as, required surveys, radiation protection job coverage, and contamination controls during job performance
- Dosimetry placement in high radiation work areas with significant dose rate gradients
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

The inspectors completed nine inspection samples.

b. Findings

Introduction. The inspectors reviewed a self-revealing, noncited violation of TS 5.4.1, resulting from the failure to follow special work permit instructions by a radiation protection technician. The finding had very low safety significance.

Description. On October 26, 2005, a radiation protection technician was instructed to perform a radiation survey for workers conducting in-service inspection. After performing the survey, the radiation protection technician reached through the reactor head inspection port and retrieved a piece of tape. While doing so, the radiation protection technician's electronic dosimeter alarmed. PG&E determined that the radiation protection technician's upper arm had been placed in a dose rate of

1,600 millirem per hour. The maximum radiological condition allowed by the radiation protection technician's special work permit (05-1004) was 1,000 millirems per hour. As a corrective action, PG&E will include this event in radiation protection continuing training and require radiation protection technicians to be present during the worker briefings, if the work will be conducted in dose rates greater than 1 rem per hour.

Analysis. The failure to follow special work permit instructions is a human performance deficiency. The finding was greater than minor because it was associated with one of the cornerstone attributes (exposure control) and the finding affected the Occupational Radiation Safety cornerstone objective in that the special work permit instructions was not followed, resulting in additional radiation dose. The inspectors determined that the finding had no more than very low safety significance because: (1) it did not involve an ALARA finding, (2) there was no personnel overexposure, (3) there was no substantial potential for personnel overexposure, and (4) the finding did not compromise PG&E's ability to assess doses. The finding also had crosscutting aspects related to human performance in that the radiation protection technician's failure to follow the special work permit instructions directly resulted in the finding.

Enforcement. TS 5.4.1 requires procedures be established, implemented, and maintained covering the applicable procedures in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A, Section 7, lists procedures for access control to radiation areas, including a radiation work permit system. Procedure RP1.ID9, Section 4.3, requires individuals to read, understand, and follow radiation work permit/special work permit requirements. Radiation Work Permit 05-1004-00 lists maximum radiological conditions as 1,000 millirems per hour. This requirement was violated when the radiation protection technician's upper arm was inserted into a dose rate of 1,600 millirems per hour. Because the failure to follow the special work permit instructions was determined to be of very low safety significance and was entered into PG&E's corrective action program as AR A0649226, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: Noncited Violation (NCV) 50-275/06-02-01, Failure to follow special work permit instructions.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope

The inspectors assessed PG&E's performance with respect to maintaining individual and collective radiation exposures ALARA. The inspectors used the requirements in 10 CFR Part 20 and PG&E's procedures required by TS as criteria for determining compliance. The inspectors interviewed PG&E personnel and reviewed:

- Current 3-year rolling average collective exposure
- Site-specific ALARA procedures
- Five work activities of highest exposure significance completed during the last outage
- ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements

- Intended versus actual work activity doses and the reasons for any inconsistencies
- Person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements
- Dose rate reduction activities in work planning
- Postjob (work activity) reviews
- Method for adjusting exposure estimates, or replanning work, when unexpected changes in scope or emergent work were encountered
- Exposure tracking system
- Use of engineering controls to achieve dose reductions and dose reduction benefits afforded by shielding
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or HRAs
- Self-assessments, audits, and special reports related to the ALARA program since the last inspection
- Corrective action documents related to the ALARA program and follow-up activities such as initial problem identification, characterization, and tracking
- Effectiveness of self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies

The inspectors completed 15 samples of as low as is reasonably achievable (ALARA) planning and controls.

b. Findings

No findings of significance were identified.

4OA1 Performance Indicator (PI) Verification (71151)

.1 Cornerstone: Initiating Events

a. Inspection Scope

The inspectors sampled PG&E submittals for the three PIs listed below for the period January 1, 2004, to December 31, 2005, for Units 1 and 2. The definitions and guidance of Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 2, were used to verify PG&E's basis for reporting each data element in order to verify the accuracy of PI data reported during the assessment period. The inspectors reviewed licensee event reports (LERs), monthly operating

reports, and operating logs as part of the assessment. PG&E's PI data were also reviewed against the requirements of Procedure XI1.DC1, "Collection and Submittal of NRC Performance Indicators," Revision 5.

- Unplanned scrams per 7,000 critical hours
- Unplanned scrams with loss of normal heat removal
- Unplanned power changes per 7,000 critical hours

b. Findings

No findings of significance were identified.

.2 Occupational Radiation Safety Cornerstone

a. Inspection Scope

The inspectors reviewed PG&E's documents from October 2005 through December 2005. The review included corrective action documentation that identified occurrences in locked HRAs (as defined in PG&E's TS), very HRAs (as defined in 10 CFR 20.003), and unplanned personnel exposures (as defined in NEI 99-02). Additional records reviewed included ALARA records and whole body counts of selected individual exposures. The inspectors interviewed PG&E personnel that were accountable for collecting and evaluating the PI data. In addition, the inspectors toured plant areas to verify that HRAs, locked HRAs, and very HRAs were properly controlled. PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 3, were used to verify the basis in reporting for each data element.

- Occupational Exposure Control Effectiveness

b. Findings

No findings of significance were identified.

.3 Public Radiation Safety Cornerstone

a. Inspection Scope

The inspectors reviewed PG&E documents from October through December 2005. The reviewed PG&E records included corrective action documentation that identified occurrences for liquid or gaseous effluent releases that exceeded PI thresholds and those reported to the NRC. The inspectors interviewed PG&E personnel that were accountable for collecting and evaluating the PI data. PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 3, were used to verify the basis in reporting for each data element.

- Radiological Effluent TS/Offsite Dose Calculation Manual Radiological Effluent Occurrences

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

The inspectors performed a daily screening of items entered into PG&E's CAP. This assessment was accomplished by reviewing ARs and event trend reports, and attending daily operational meetings. The inspectors: (1) verified that equipment, human performance, and program issues were being identified by PG&E at an appropriate threshold and that they issues were entered into the CAP; (2) verified that corrective actions were commensurate with the significance of the issue; and (3) identified conditions that might warrant additional follow-up through other baseline inspection procedures.

.2 Selected Issue Follow-Up Inspection

a. Inspection Scope

In addition to the routine review, the inspectors performed a cumulative review of operator workarounds. The inspectors reviewed the one below listed operator workaround to: (1) determine if the functional capability of the system or human reliability in responding to an initiating event is affected; (2) evaluate the effect of the operator workaround on the operator's ability to implement abnormal or emergency operating procedures; and (3) verify that the licensee has identified and implemented appropriate corrective actions associated with operator workarounds.

- January 27, 2006: Units 1 and 2, Cumulative Operator Workaround Review

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

Introduction. A Green, self-revealing, NCV of TS 5.4.1.a was identified for the failure to adequately maintain abnormal operating Procedure OP AP-28, "Reactor Coolant Pump Malfunction," Revision 1. Specifically, the construction of the procedure, taken in context with the conduct of operations procedure, increased the likelihood of operators initiating a reactor trip, with loss of forced circulation in one loop, for conditions that would not warrant such a response.

Description. On January 27, 2006, while venting the pressurizer relief tank (PRT) control room operators received Alarm PK 05-01, Input 1259, "RCP 1-1 Number 2 Seal Leakoff Flow High." Control room operators entered Alarm Response Procedure AR PK 05-01, "RCP 11," Revision 30, when the alarm annunciated and took actions as described in Section 2.12. These actions confirmed the alarm by an indicated rise in reactor coolant drain tank level from 62 to 70 percent full. The alarm procedure then directed the operators to diagnose a failure of the number one reactor coolant pump seal using Procedure OP AP-28, Section B, "RCP Number 1 Seal Failure."

Procedure OP AP-28, Section B, step 2, stated that "it is acceptable to assume a No. 2 seal leakoff of less than 1 gpm if Alarm PK 05-01, 'RCP SEAL NO. 2 LKOFF FLO HI' is NOT IN." Executing the abnormal alarm procedure in accordance with guidance

contained in Procedure OP1.DC11, "Conduct of Operations - Abnormal Plant Conditions," Revision 25A, step 5.5.1, for procedural rules of usage, the control room operators were then directed to step 2 of Procedure OP AP-28, which directed the reactor to be tripped and Emergency Operating Procedure E-0 entered. The shift foreman had noted that the RCP seal alarm was coincident with venting the PRT and determined correctly that a seal failure had not occurred. Additionally, through diagnostic steps in Procedure OP AP-28, prior to the step to trip the reactor, operators had concluded that there was no RCP 1-1 seal problem. However, without a step to exit Procedure OP AP-28, operators were now at a step to manually trip the reactor. The shift foreman obtained concurrence from the operations manager to not trip the reactor as directed by Procedure OP AP-28. The shift manager directed that a containment entry be made and the Barton transmitters for the alarm indication be equalized. When the instruments were equalized, the RCP high seal flow alarm cleared.

The inspectors identified a similar event on December 15, 2005, where during PRT venting the same RCP seal alarm was received. AR A0655829 was written to identify the interaction between venting the PRT and RCP seal flow alarms. The inspectors determined through reviews of other ARs that this interaction between PRT venting and RCP seal leak off alarms had existed for at least 3 years. However, the additional diagnosis and corrective actions for the interaction between the PRT venting and RCP seal flow indication had not been identified in shift standing orders, policy notes, or through a change in procedures. The inspectors, concluded that venting the Barton instruments was an undocumented operator workaround that required operators to diagnose and correct the cause of RCP seal high flow alarms.

The inspectors determined that Procedure OP AP-28, being implemented in accordance with Procedure OP1.DC11, "Conduct of Operations - Abnormal Plant Conditions," would result in the operators proceeding to a step in the procedure that instructed them to manually trip the reactor, although as demonstrated by this event, the conditions did not warrant the action. Specifically, procedure developers did not provide steps to appropriately exit the procedure when diagnostic steps demonstrated the absence of RCP seal problems. The inspectors observed that Procedure OP AP-28 had been revised on January 28, 2005, as part of an overall procedure revision program.

Analysis. The performance deficiency associated with this finding is a failure to adequately establish the guidance in Procedure OP A-28 as required by TS 5.4.1.a. such that it could be implemented consistently with the guidance in Procedure OP1.DC11, "Conduct of Operations - Abnormal Plant Conditions." This deficiency impacted the Initiating Events Cornerstone and, as described in Inspection Manual Chapter (IMC) 0612, Appendix B, the finding was considered more than minor since it affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenged critical safety functions. Specifically, Procedure OP AP-28 affected the cornerstone attribute of procedure quality since it may lead operators to induce a significant transient on the unit (reactor trip) for plant conditions that do not warrant such action (in this case the venting the PRT). Using the Significance Determination Process Phase 1 Screening Worksheet of IMC 0609, Appendix A, the finding was determined to be of very low safety significance since it does not contribute to the likelihood of a primary or secondary loss-of-coolant accident, does not contribute to both the likelihood of a reactor trip and unavailability of mitigating systems, and it does not increase the likelihood of a fire or flood. The cause of the finding is related to the crosscutting element of human performance in that procedure

developers constructed Procedure OP AP-28 in a way that could unnecessarily increase the likelihood of a manual reactor trip, when implemented in accordance with Procedure OP1.DC11.

Enforcement. TS 5.4.1.a requires that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2. Item 5 of Regulatory Guide 1.33, Appendix A, requires procedures for abnormal, off normal, and alarm conditions. Contrary to the above, PG&E failed to adequately maintain Procedure OP AP-28 with regard to RCP seal high flow alarms during PRT venting operations. The failure to adequately maintain this procedure increased the likelihood of operators tripping the reactor when conditions do not warrant such actions. The cause was the construction of Procedure OP AP-28 not permitting the operators to exit in accordance with the rules of procedure usage contained in Procedure OP1.DC11. Procedure OP AP-28 was subsequently modified to allow an exit from the procedure when there is no indicated RCP seal issue. Because the failure to adequately maintain Procedure OP AP-28 is of very low safety significance and has been entered into the CAP as AR A0658595, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 50-323/06-2-02, Failure to Adequately Maintain Abnormal Operating Procedure for Reactor Coolant Pump Malfunctions.

.3 Occupational Radiation Safety

Section 2OS1 evaluated the effectiveness of PG&E's problem identification and resolution processes regarding access controls to radiologically significant areas and radiation worker practices. The inspectors reviewed corrective action documents for root cause/apparent cause analysis against PG&E's problem identification and resolution process. No findings of significance were identified.

Section 2OS2 evaluated the effectiveness of the PG&E's problem identification and resolution processes regarding exposure tracking, higher than planned exposure levels, and radiation worker practices. The inspectors reviewed the corrective action documents listed in the attachment against PG&E's problem identification and resolution program requirements. No findings of significance were identified.

4OA3 Event Follow-up

.1 (Closed) LER 50-323/02-03-02, Technical Specification 3.7.7 Not Met Due to Cable Fault

On August 19, 2002, operators received ground alarms on Component Cooling Water (CCW) Pump 2-3. Operators shut down the pump and declared it inoperable. PG&E determined that the ground fault was in Phase C of the power cables to CCW Pump 2-3. The root cause of the ground fault was a manufacturing defect based on presence of isolated contaminant particles in the insulation. Corrective actions to prevent recurrence included replacing 4 kV cables in both units. Due to the amount of time required to replace the 4 kV cables for CCW Pump 2-3, PG&E requested and received a Notice of Enforcement Discretion from the NRC on August 21. CCW Pump 2-3 exceeded the allowed outage time of TS 3.7.7 on August 22. Following cable replacement and postmaintenance testing, CCW Pump 2-3 was returned to operable status on August 23.

NRC Inspection Reports 05000275; 323/2002005 and 05000275; and 323/2004003 closed out an unresolved item and previous revisions to LER 05000323/2002003. No violations of NRC requirements was identified in those inspection reports. PG&E submitted Revision 2 of LER 05000323/2002003 to provide a more detailed schedule of their 4 kV cable replacement for other safety-related pumps. No new information that would change the disposition of this issue was provided in this LER. This LER is closed.

.2 (Closed) LER 50-323/05-02-00, Unplanned Emergency Diesel Generator Auto-Start During Testing Due to Personnel Error in Relay Testing

This LER discussed an event in which an unplanned start of all three Unit 2 diesel engine generators occurred on November 19, 2005. While testing the sudden pressure relay on Unit 1 Startup Transformer 1-1, maintenance technicians failed to review applicable drawings and take appropriate actions prior to testing, which resulted in a sudden pressure relay trip and the subsequent loss of startup power to Unit 2. The Unit 2 diesel engine generators are designed to automatically start on a loss of startup power. This event is discussed in detail in NRC Inspection Report 05000275; 323/2005005, and a self-revealing NCV of NRC requirements was identified (NCV 50-275/05-05-01). No new information was provided in the LER that would change the disposition. This LER is closed.

.3 (Closed) LER 50-323/05-01-01, TS 3.4.10 Not Met During Pressurizer Safety Valve Surveillance Testing Due to Random Lift Spread

Revision 0 of this LER was submitted on March 28, 2005, to document two of the three pressurizer safety valves on Unit 2 that did not meet the TS 3.4.10 allowable lift setpoint range of ≥ 2460 and ≤ 2510 psig. Revision 1 of this LER was submitted to state that the loss-of-load analysis was revised to determine the upper and lower as-found allowable pressurizer safety valve lift settings. The analysis was part of the corrective actions stemming from the failure to meet TS 3.4.10. The event was discussed in detail in NRC Inspection Report 05000275; 323/2005003, where an NRC-identified violation of NRC requirements was identified (NCV 50-323/05-03-02). No new information was provided in the LER that would change the disposition. This LER is closed.

4OA5 Other

.1 (Closed) Unresolved Item (URI) 50-275/05-05-04: Assess Failure of Agastat ETR Time-Delay Relays

a. Inspection Scope

The inspectors performed additional inspection associated with this unresolved item to determine any performance issues associated with design and maintenance practices regarding Agastat ETR time-delay relays. The inspectors also evaluated any extent of condition and/or generic impacts.

b. Findings

Description. While performing surveillance test STP M-13G, "4kV Bus G Non-SI Auto-Transfer Test," Revision 28A, on November 21, 2005, PG&E staff noted that Diesel Engine Generator 1-2 feeder breaker closed at 23 seconds versus the 17 second

acceptance criteria in the test procedure. Engineers and maintenance technicians subsequently performed troubleshooting and determined that Relay 62HG3B was the source of the slow breaker closure. Relay 62HG3B was an Agastat ETR14D time-delay relay. It was erroneously reported in AR A0652664 that the bench test of the relay found that it exhibited considerable drift from its time-delay setpoint of 17 seconds (as-found was 19.98 seconds). In actuality, the relay was bench-tested eight times and the as-found values were between 16.96 and 17.03 seconds. Maintenance technicians performed further visual inspection of the relay but could not find a cause for why the relay had a slow operation during the test. PG&E staff found only one other industry operating experience since 1984 where this type of relay had a slow operation that was not repeatable. Maintenance technicians replaced the relay, and operators successfully reperformed STP M-13G.

On November 23, 2005, while performing surveillance test STP-15, "Integrated Test of Engineered Safeguards and Diesel Generators," Revision 38A, CCW Pump 1-2 failed to start on a safety injection signal. Engineers and maintenance technicians performed troubleshooting and found that Relay 2HG12/TD (Agastat ETR14D time-delay relay) failed to actuate. Technicians subsequently replaced the relay, and operators were able to successfully run CCW Pump 1-2 from a safety injection signal. PG&E submitted the failed relay to the relay vendor for failure analysis. The vendor was not able to reproduce the failure observed at Diablo Canyon Power Plant and the relay was found to operate properly.

PG&E staff reviewed industry operating experience on the Agastat ETR14D time-delay relays and found approximately 25 issues in the past 21 years. Most of the issues involved poor solder connections. The inspectors also reviewed operating experience on the Agastat ETR14D time-delay relays, but did not find any applicable experience. Most operating experience associated with Agastat time-delay relays has been associated with the electropneumatic models. A subsequent search of operating experience with the relays at Diablo Canyon showed only four reliability issues, with only one issue in the past year. Currently, PG&E does not consider the two relay failures to be indicative of a larger problem with the Agastat ETR14D time-delay relays based on good performance from the relays in the past and successful testing of the other relays on Unit 1 during Refueling Outage 1R13.

The inspectors found that PG&E took appropriate measures to determine the cause of the two relay failures. Despite troubleshooting efforts, the problems with both relays were not repeatable and there were no other indications that would provide for an apparent cause of failure. The inspectors reviewed PG&E's assessment regarding extent of condition to other relays, operability determinations, and generic implications with regard to the Agastat ETR time-delay relays and found them to be acceptable.

Analysis. No performance deficiency was identified; therefore, no safety significance analysis was performed.

Enforcement. No violation of NRC requirements was identified. URI 50-275/05-05-04, Assess Failure of Agastat ETR Time-Delay Relays is closed.

40A6 Management Meetings

Exit Meeting Summary

The resident inspection results were presented on April 12, 2006, to Ms. Donna Jacobs, Vice President-Nuclear Services, Diablo Canyon and other members of PG&E management. PG&E acknowledged the findings presented.

On February 9, 2006, the inspectors presented the access controls inspection results to Mr. David Oatley, Vice President and General Manager, and other members of his staff who acknowledged the findings.

The inspectors asked PG&E whether any materials examined during the inspection should be considered proprietary. Proprietary information was reviewed by the inspectors and left with PG&E at the end of the inspection.

40A7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by PG&E and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design. Contrary to this, on November 28, 2005, maintenance personnel reterminated the electrical connections and conduit to Auxiliary Feedwater Pump 1-1 in a nonconforming manner that resulted in the conduit resting against the turbine overspeed trip rod. PG&E documented the issue in AR A0659711 and temporarily secured the conduit from the trip rod until the conduit can be relocated to its correct position. The finding was determined to be more than minor when compared to Example 3.a of IMC 0612, Appendix E, since rework would be needed to eliminate the nonconformance. The finding was of very low safety significance since it was a design deficiency confirmed not to result in loss of operability per "Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment."
- 10 CFR Part 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Section (a)(4), states that, before performing maintenance activities (including but not limited to surveillance, postmaintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to this, on March 30, 2006, the work control center authorized work during helicopter operations to support startup power line maintenance on the Morrow Bay to Diablo Canyon 230kV line, concurrent with 500 kV switchyard Breaker 542 being out of service for maintenance, and concurrent with Auxiliary Feedwater Pump 2-1 being in a maintenance outage window. PG&E documented the issue in AR A0662909 and posted Auxiliary Feedwater Pumps 2-2 and 2-3 as protected equipment trains. Using IMC 0612, Appendix B, the finding was determined to be more than minor since the risk assessment failed to consider maintenance activities that could

increase the likelihood of initiating events, such as work in the electrical switchyard. Using IMC 0609, Appendix K, the finding was of very low safety significance since the incremental core damage probability between the correct risk assessment and incorrect risk assessment was less than 1E-6.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

PG&E personnel

J. Becker, Vice President - Diablo Canyon Operations and Station Director
S. Chesnut, Director, Engineering Services
S. David, Manager, Operations
J. Fledderman, Director, Site Services
R. Hite, Manager, Radiation Protection
D. Jacobs, Vice President - Nuclear Services
S. Ketelsen, Acting Director, Performance Improvement
M. Lemke, Manager, Emergency Preparedness
J. Purkis, Director, Maintenance Services
P. Roller, Director, Operations Services
D. Taggart, Manager, Quality Verification

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000275/2006-02-01	NCV	Failure to follow special work permit instructions (Section 2OS1)
05000275/2006-02-02	NCV	Failure to Adequately Maintain Abnormal Operating Procedure for Reactor Coolant Pump Malfunctions (Section 4OA2.2)

Closed

50-323/02-03-02	LER	TS 3.7.7 Not Met Due to Cable Fault (Section 4OA3.1)
50-323/05-02-00	LER	Unplanned Emergency Diesel Generator Auto-Start During Testing Due to Personnel Error in Relay Testing (Section 4OA3.2)
50-323/05-01-01	LER	Technical Specification 3.4.10 Not Met During Pressurizer Safety Valve Surveillance Testing Due to Random Lift Spread (Section 4OA3.3)

50-275/05-05-04

URI Assess Failure of Agastat ETR Time-Delay Relays
(Section 40A5.1)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment (71111.04)

Procedures

OP D-1:II, "Auxiliary Feedwater System - Alignment Verification for Plant Startup," Revision 30

OP I-2:II, "Containment Spray System - Alignment Verification Checklist for Plant Startup,"
Revision 18

OP B-2:I, "RHR System Alignment Verification for Plant Startup," Revision 19

Op J-6B:I, "Diesel Generator 2-1 Make Available," Revision 19

Op J-6B:II, "Diesel Generator 2-2 Make Available," Revision 20

Drawings

106703, "Feedwater," Sheet 3, Revision 69

106712, "Spray Additive Tank and Pumps," Sheet 2, Revision 34

107710, "Residual Heat Removal," Sheet 2, Revision 27

Section 1R06: Flood Protection (71111.06)

Action Requests

A0230458

Calculations

NSC Calculation 76070, "Flooding Analysis of G Area and Auxiliary Building," Revision 1

M-193, "MELB Protection," Revision 0

Drawings

106719, "Liquid Radwaste System," Sheet 6, Revision 52

500085, "Piping and Mechanical Area J & L - Plan at El. 100'-0," Revision 20

500088, "Piping and Mechanical Area J & L - Section I," Revision 18

Documents

Design Criteria Memorandum T-12, "Pipe Break (HELB/MELB), Flooding, and Missiles,"
Revision 14A

Memo 177655, "IE Notice 83-44, Supplement 1: Potential Damage to Redundant Safety Equipment as a Result of Backflow Through the Equipment and Floor Drain System," Sept. 12, 1991

Section 3.4.1, "Flood Protection," NUREG-0800, *Standard Review Plan*, Revision 2, July 1981

Section 3.6.1, "Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment," NUREG-0800, *Standard Review Plan*, Revision 2, October 1990

Section 1R12: Maintenance Effectiveness (71111.12)

Action Requests

A0628784 A0653800 A0653942 A0657460 A0658226 A0658342
A0658671

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

Action Requests

A0500194 A0636681 A0657460 A0660735 A0660739 A0660743
A0660745 A0660759 A0660769

Procedures

AD7.DC6, "On-line Maintenance Risk Management," **Revision 9**

MA1.DC11, "Risk Assessment," Revision 7

OP J-6B:IX, "Diesel Generator Extended On-Line Maintenance," Revision 0

STP M-75G, "4kV Vital Bus G Undervoltage Relay Calibration," Revision 28

Calculations

WCC0AF- PRA Calculation file C.13, Revision 3

ZHERE9- PRA Calculation file G.2, Revision 3

Miscellaneous

NRC Letter from Meena Khanna to Gregory Rueger, "Diablo Canyon Power Plant, Unit No. 1 (TAC No. MB9146) and Unit No. 2 (TAC No. MB9147) - Issuance of Amendment RE: Extensions of the Completion Times for Restoring an Inoperable Diesel Generator from 7 Days to 14 Days," date April 20, 2004

Section 1R15: Operability Evaluations(71111.15)

Action Requests

A0613059 A0658498 A0658563 A0658711 A0660121 A0660759 A0661216

Procedures

STP P-AFW-11, "Routine Surveillance Test of Turbine-Driven Auxiliary Feedwater Pump 1-1,"
Revision 21

Work Orders

R0215353 R0260401 R0276901

Section 1R19: Postmaintenance Testing (71111.19)

Action Requests

A0658546 A0658946 A0660234

Procedures

STP I-120B3, "Calibration of Containment Air Particulate Monitor," Revision 7
STP I-120B4, "Reinstatement to Service: containment Air Particulate Monitor," Revision 7
STP I-36-S3R13, "Protection Set III Rack 13 Functional Test," Revision 14
STP M-9A, "Diesel Engine Generator Routine Surveillance Test," Revision 70
STP M-9B, "Overspeed Trip Test of Diesel Generators," Revision 24
STP M-9D1, "Diesel Generator Full Load Rejection Test," Revision 12
STP V-302, "Diesel Starting Air Receiver Leak Check and Check Valve Exercising," Revision 12

Technical Specification Tracking Sheets

T0055739

Work Orders

R0271308 R0283012 C0183838 C0184441 C0183846 C0202502

Section 2OS1: Access Controls to Radiologically Significant Areas (71121.01)

Procedures

RCP D0220, "Control of Access to High, Locked High, and Very High Radiation Areas,"
Revision 31

Section 2OS2: ALARA Planning and Controls (71121.02)

Action Requests

A0652226 A0652864

Audits and Self-Assessments

2005 Radiation Protection Program Audit (EDMS #050830011)
Quality Verification Assessment of 1R13 Performance Windows 1 and 2

Quality Performance Assessment Report - Fourth Period 2005
A0639359, Daily, Non-Outage Radiation Dose Tracking Self-Assessment

Radiation Work Permits and ALARA Packages

1002 1R13 Scaffolding in Containment
1007 1R13 ISI in Containment
1027 1R13 Reactor Reassembly
1044 1R13 Primary Steam Generator Eddy Current Inspection
1051 1R13 RCP Motor Maintenance

Procedures

RCP D-200 Writing Radiation Work Permits, Revision 33
RP1.ID1 Requirements for the ALARA Program, Revision 2B
RP1.ID9 Radiation Work Permits, Revision 8

Miscellaneous

Diablo Canyon Power Plant Annual Dose - 3 Year Rolling Average

Section 4OA1: Performance Indicator Verification (71151)

Action Requests

A0649226 A0649943 A0652093

Section 4OA2: Identification and Resolution of Problems (71152)

Action Requests

A0552326 A0557333 A0559015 A0568275 A0585231 A0585231
A0592787 A0598078 A0599381 A0599385 A0599645 A0602975
A0609202 A0625735 A0630001 A06310001 A0635259 A0638543
A0640733 A0655829 A0658543 A0658595 A0658595

Procedures

OP AP-28, "Reactor Coolant Pump Malfunction," Revision 1
OP1.DC11, "Conduct of Operations - Abnormal Plant Conditions," Revision 25A

LIST OF ACRONYMS

ADAMS	agencywide documents access and management system
AFW	auxiliary feedwater
ALARA	as low as is reasonably achievable
AR	action request
CAP	corrective action program
CCW	component cooling water
CFR	<i>Code of Federal Regulations</i>
FSAR	Final Safety Analysis Report
HRA	high radiation area
IMC	Inspection Manual Chapter
LER	Licensee Event Report
NCV	noncited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
PG&E	Pacific Gas and Electric Company
PI	performance indicator
PRT	Pressurizer Relief Tank
RHR	residual heat removal
RCP	reactor coolant pump
SSC	structure, system and component
STP	surveillance test procedure
TS	Technical Specifications
URI	unresolved item