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

March 30, 2006

John S. Keenan
Senior Vice President - Generation
and Chief Nuclear Officer
Pacific Gas and Electric Company
P.O. Box 770000
Mail Code B32
San Francisco, CA 94177-0001

SUBJECT: NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000275/2006009; 05000323/2006009 AND EXERCISE OF ENFORCEMENT DISCRETION

Dear Mr. Keenan:

On January 23 through February 16, 2006, the NRC completed an inspection at your Diablo Canyon Nuclear Power Plant, Units 1 and 2. The enclosed report documents the inspection findings which were discussed on February 16, 2006, with Ms. D. Jacobs and other members of your staff.

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

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Sincerely,

David Proulx for

Linda J. Smith, Chief
Engineering Branch 2
Division of Reactor Safety

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

Enclosures:
Inspection Report 05000275/2006-09; 05000323/2006-09
w/Attachment 1 Supplemental Information
Attachment 2 Manual Actions Not Specifically Approved

cc w/enclosures:
Donna Jacobs
Vice President, Nuclear Services
Diablo Canyon Power Plant
P.O. Box 56
Avila Beach, CA 93424

James R. Becker, Vice President
Diablo Canyon Operations and
Station Director, Pacific Gas and
Electric Company
Diablo Canyon Power Plant
P.O. Box 3
Avila Beach, CA 93424

Sierra Club San Lucia Chapter
ATTN: Andrew Christie
P.O. Box 15755
San Luis Obispo, CA 93406

Nancy Culver
San Luis Obispo Mothers for Peace
P.O. Box 164
Pismo Beach, CA 93448

Chairman
San Luis Obispo County Board of
Supervisors
Room 370
County Government Center
San Luis Obispo, CA 93408

Truman Burns\Robert Kinosian
California Public Utilities Commission
505 Van Ness Ave., Rm. 4102
San Francisco, CA 94102-3298

Diablo Canyon Independent Safety Committee
Robert R. Wellington, Esq.
Legal Counsel
857 Cass Street, Suite D
Monterey, CA 93940

Ed Bailey, Chief
Radiologic Health Branch
State Department of Health Services
P.O. Box 997414 (MS 7610)
Sacramento, CA 95899-7414

Richard F. Locke, Esq.
Pacific Gas and Electric Company
P.O. Box 7442
San Francisco, CA 94120

City Editor
The Tribune
3825 South Higuera Street
P.O. Box 112
San Luis Obispo, CA 93406-0112

James D. Boyd, Commissioner
California Energy Commission
1516 Ninth Street (MS 34)
Sacramento, CA 95814

Jennifer Tang
Field Representative
United States Senator Barbara Boxer
1700 Montgomery Street, Suite 240
San Francisco, CA 94111

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SUNSI Review Completed: ljs ADAMS: / Yes ☐ No Initials: ljs
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RIV: DRS/EB2/SRI	DRS/EB2	DRS/EB2	ACES	C:EB2	DRP/PBB/BC
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DProulx for				
03/30/06				

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ENCLOSURE
U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket(s):	50-275; 50-323
License(s):	DPR-80; DPR-82
Report No.:	05000275/2006-09; 05000323/2006-09
Licensee:	Pacific Gas and Electric Company
Facility:	Diablo Canyon Nuclear Power Plant, Units 1 and 2
Location:	7 1/2 miles NW of Avila Beach Avila Beach, CA
Dates:	January 23 through February 16, 2006
Inspector(s):	N. O'Keefe - Team Leader J. Mateychick - Senior Reactor Inspector D. Livermore - Reactor Inspector H. Abuseini - accompanying D. Szwarc - accompanying R. Mullikin - consultant
Approved By:	L. J. Smith, Chief Engineering Branch 2 Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000275/2006-09; 05000-323/2006-09; January 23 through February 17, 2006; Diablo Canyon Nuclear Power Plant, Units 1 and 2: Triennial Fire Protection Inspection, Manual Actions

The report covered a 2-week period of inspection by region-based specialist inspectors and a contractor. No findings of significance were identified. The significance of most findings is indicated by its color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determinatin Process" (SDP). Findings for which the SDP 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.

Diablo Canyon formally committed to converting their Fire Protection Program to comply with the requirements of 10 CFR 50.48.(c) and National Fire Protection Association Standard 805. This involves using a risk-informed methodology. Because the conversion and licensing process is expected to identify and address a variety of difficult issues that are normally the subject of triennial fire protection inspections, and because any findings in this area would have to be addressed under the new, rather than the existing, program, the NRC has adapted its inspection and enforcement of certain issues for plants in this situation. As a result, the scope of this inspection was modified, and some issues raised in this inspection are documented but subject to enforcement discretion.

A. NRC-Identified and Self Revealing Findings

No findings of significance were identified during this inspection.

B. Licensee-Identified Findings

None.

REPORT DETAILS

1 REACTOR SAFETY

1R05 Fire Protection

The purpose of this inspection was to review the Diablo Canyon Power Plant fire protection program (FPP) for selected risk-significant fire areas. The inspection was performed in accordance with Inspection Procedure (IP) 71111.05T, Fire Protection (Triennial), dated 02/18/05, as modified for a plant in transition to National Fire Protection Association (NFPA) Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition. The NRC reduced the scope of this inspection by not specifically targeting safe shutdown circuit configurations for inspection. Emphasis was placed on verification of the post-fire safe shutdown capability. The inspection was performed in accordance with the NRC regulatory oversight process using a risk-informed approach for selecting the fire areas and attributes to be inspected. The team used the Individual Plant Examination for External Events for Diablo Canyon to choose risk-significant areas for detailed inspection and review. Inspection Procedure 71111.05T, "Fire Protection (Triennial)," requires selecting three to five fire areas for review. The five fire areas reviewed during this inspection were:

- Fire Area 4-B, Access control area (Unit 1)
- Fire Area 3-J-2 (Unit 1) and 3-K-2 (Unit 2), component cooling water (CCW) pump room
- Fire Area 3-Q-1 (Unit 1) and 3-T-1 (Unit 2), turbine driven auxiliary feedwater (AFW) pump rooms
- Fire Area 3-Q-2 (Unit 1) and 3-T-2 (Unit 2), motor driven AFW pump rooms
- Fire Area 3-BB (Unit 1) and 3-CC (Unit 2), containment penetration rooms (all levels)

For each of these fire areas, the inspection focused on fire protection features, systems and equipment necessary to achieve and maintain safe shutdown conditions, and licensing basis commitments.

Documents reviewed by the team are listed in the attachment.

.1 Shutdown From Outside Main Control Room

a. Inspection Scope

The team reviewed the functional requirements identified by the licensee as necessary for achieving and maintaining hot shutdown conditions to ensure that at least one post-fire safe shutdown success path was available in the event of fire in each of the selected areas and alternative shutdown for the case of control room evacuation. The

team reviewed piping and instrumentation diagrams of systems credited in accomplishing safe shutdown functions to independently verify whether licensee's shutdown methodology had properly identified the required components. The team focused on the following functions that must be available to achieve and maintain safe shutdown conditions:

- Reactivity control capable of achieving and maintaining cold shutdown reactivity conditions,
- Reactor coolant makeup capable of maintaining the reactor coolant inventory,
- Reactor heat removal capable of achieving and maintaining decay heat removal,
- Supporting systems capable of providing other services necessary to permit extended operation of equipment necessary to achieve and maintain hot shutdown conditions,
- Verify that a safe shutdown can be achieved and maintained with and without off-site power.

A review was also conducted to ensure that all required components in the selected systems were included in the licensee's safe shutdown analysis. The team identified the systems required for each of the primary safety functions necessary to achieve and maintain shutdown conditions. These systems were then evaluated to identify the systems that interfaced with the selected fire areas and were the most risk significant systems required for reaching hot shutdown conditions.

b. Findings

No findings of significance were identified.

.2 Protection of Safe Shutdown Capabilities

a. Inspection Scope

The team reviewed the piping and instrumentation diagrams, safe shutdown equipment list, safe shutdown design basis documents, and the post-fire safe shutdown analysis to verify whether the shutdown methodology had properly identified the components and systems necessary to achieve and maintain safe shutdown conditions for equipment in the fire areas selected for review. The team also reviewed and observed walkdowns of the procedures for achieving and maintaining safe shutdown in the event of a fire to verify that the safe shutdown analysis provisions were properly implemented. The team focused on the following functions that must be ensured to achieve and maintain post-fire safe shutdown conditions: (1) reactivity control capable of achieving and maintaining cold shutdown reactivity conditions, (2) reactor coolant makeup capable of maintaining the reactor coolant level within the level indication in the pressurizer, (3) reactor heat removal capable of achieving and maintaining decay heat removal, (4) supporting systems capable of providing all other services necessary to permit

extended operation of equipment necessary to achieving and maintaining hot shutdown conditions, and (5) process monitoring capable of providing direct readings to perform and control the above functions.

In accordance with Inspection Procedure (IP) 71111.05T, Fire Protection (Triennial), dated 02/18/05, as modified for a plant in transition to NFPA Standard 805, the NRC reduced the scope of this inspection by not specifically targeting safe shutdown circuit configurations for inspection. However, the team reviewed the separation of safe shutdown cables, equipment, and components within the same fire areas for a reduced sample, and reviewed the methodology for meeting the requirements of 10 CFR 50.48, Appendix A to Branch Technical Position 9.5-1 and 10 CFR Part 50, Appendix R, Section III.G. Specifically, this was to determine whether at least one post-fire safe shutdown success path was free of fire damage in the event of a fire in the selected areas. The team compared the results of this review with the results of the licensee's efforts. A sample of components was selected whose inadvertent operation could significantly affect the shutdown capability credited in the safe shutdown analysis. The specific components selected are listed in the attachment. In addition, the team reviewed license documentation, such as NRC safety evaluation reports, the Diablo Canyon Power Plant Updated Final Safety Analysis Report, submittals made to the NRC by the licensee in support of the NRC's review of their fire protection program, and deviations from NRC regulations to verify that the licensee met license commitments.

b. Findings

No findings of significance were identified. However, an unresolved item related to this review is discussed in Section 4OA5.1.

.3 Passive Fire Protection

a. Inspection Scope

For the selected fire areas, the team evaluated the adequacy of fire area barriers, penetration seals, fire doors, electrical raceway fire barriers and fire rated electrical cables. The team observed the material condition and configuration of the installed barriers, seals, doors, and cables. The team compared the as-installed configurations to the approved construction details and supporting fire tests. In addition, the team reviewed license documentation, such as NRC safety evaluation reports, and deviations from NRC regulations and the National Fire Protection Association code to verify that fire protection features met license commitments.

b. Findings

No findings of significance were identified.

.4 Active Fire Protection

a. Inspection Scope

For the selected fire areas, the team evaluated the adequacy of fire suppression and detection systems. The team observed the material condition and configuration of the installed fire detection and suppression systems. The team reviewed design documents and supporting calculations. In addition, the team reviewed license basis documentation, such as NRC safety evaluation reports, and deviations from NRC regulations and the National Fire Protection Association codes to verify that fire suppression and detection systems met license commitments.

For Fire Area 2-J-2, the team used the NRC Fire Dynamics Tools to conduct fire modeling of the sprinkler response. The team also reviewed the more sophisticated method and results of licensee fire modeling of the same room. Modeling was performed to verify that the existing sprinkler and ventilation configuration would provide acceptable sprinkler response times.

The team also observed a fire drill and the subsequent drill critique using the guidance in Inspection Procedure 71111.05AQ. Team members observed the site fire department simulate fire fighting activities in plant Fire Area 3-J-2 (Unit 1 CCW Pump 1-2 room), as well as control room operator response. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner during 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 fire fighting 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.

The team also reviewed the capability of the raw water reservoir to provide adequate pressure to fire hose nozzles in the plant, since the pressure available was less than a typical fire protection design. The team reviewed the available vendor documents for the nine nozzle types, and the results of spray demonstration tests. Corrective actions documented in Action Request A0659340 were also reviewed.

The team also reviewed the test results used to demonstrate that the carbon dioxide system used to protect the cable spreading room reached and maintained the design concentration.

b. Findings

No findings of significance were identified.

.5 Protection From Damage From Fire Suppression Activities

a. Inspection Scope

For the selected fire areas, the team verified that redundant trains of systems required for hot shutdown would not subject to damage from fire suppression activities or from the rupture or inadvertent operation of fire suppression systems including the effects of flooding. The team conducted walkdowns of each of the selected fire areas to assess conditions, such as the adequacy and condition of floor drains, equipment elevations, spray protection.

b. Findings

No findings of significance were identified.

.6 Alternative Shutdown Capability

a. Inspection Scope

The team reviewed the licensee's alternative shutdown methodology to determine if the licensee properly identified the components, systems, and instrumentation necessary to achieve and maintain safe shutdown conditions from the auxiliary shutdown panel and alternative shutdown locations. The team focused on the adequacy of the systems selected for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring and support system functions. The team verified that hot and cold shutdown from outside the control room could be achieved and maintained with offsite power available or not available. The team verified that the transfer of control from the control room to the alternative locations was not affected by fire-induced circuit faults by reviewing the provision of separate fuses for alternative shutdown control circuits.

The team also reviewed the operational implementation of the licensee's alternative shutdown methodology. Team members observed a walk-through of the control room evacuation procedures with both licensed reactor and senior reactor operators. The team observed operators simulate performing the steps of Procedure OP AP-8A, "Control Room Inaccessibility - Establishing Hot Standby," Revision 19, which provided instructions for performing an alternative shutdown from the hot shutdown panel, dedicated shutdown panel and for manipulating equipment in the plant. The team verified that the minimum number of available operators, exclusive of those required for the fire brigade, could reasonably be expected to perform the procedural actions within the applicable plant shutdown time requirements and that equipment labeling was consistent with the procedure. Also, the team verified that procedures, tools, dosimetry, keys, lighting, and communications equipment were available and adequate to support successfully performing the procedure as intended. The team also reviewed records for operator training conducted on this procedure.

b. Findings

No findings of significance were identified.

.7 Circuit Analyses

a. Inspection Scope

On a reduced sample basis, the team reviewed the post-fire safe shutdown analysis to verify that the licensee had identified circuits that may impact safe shutdown. The team verified those cables for equipment required to achieve and maintain hot shutdown conditions in the event of fire in selected fire zones had been properly identified by the licensee. Included in this evaluation were a sample of components whose inadvertent operation could significantly affect the shutdown capability credited in the safe shutdown analysis. In addition, the team verified that these cables had either been adequately protected from the potentially adverse effects of fire damage, mitigated with approved manual operator actions, or analyzed to show that fire induced faults (e.g., hot shorts, open circuits, and shorts to ground) would not prevent safe shutdown. In order to accomplish this, the team reviewed electrical schematics and cable routing data for power and control cables associated with each of the selected components.

The team verified, on a sample basis, that circuit breaker coordination and fuse protection have been analyzed, and were acceptable as means of protecting the power source of the designated redundant or alternative safe shutdown component.
For the selected fire areas, the team also reviewed the licensee's evaluation of the location and installation of diagnostic instrumentation that was necessary for achieving and maintaining safe shutdown conditions to ensure that in the event of a fire, this instrumentation would remain functional.

In addition, the team reviewed a circuit analysis performed by the licensee during the inspection in response to the team's conclusion that the manual actions to overcome spurious opening of the containment sump suction valves were not feasible. The team verified that the analysis method was appropriate and the licensee's conclusion that this failure mode was not possible.

b. Findings

No findings of significance were identified.

.8 Communications

a. Inspection Scope

The team reviewed the adequacy of the communication system to support plant personnel in the performance of alternative safe shutdown functions and fire brigade duties. The team verified that plant telephones and radios were available for use and maintained in working order. The team reviewed that the electrical power supplies and cable routing for these systems to verify that either the telephones or the radios would remain functional following a fire. The team discussed system design and testing with the system engineer. Additionally, the team observed proper use and functioning of these communications systems during the fire drill conducted on February 14, 2006.

b. Findings

No findings of significance were identified.

.9 Emergency Lighting

a. Inspection Scope

The team reviewed the emergency lighting system required to support plant personnel in the performance of alternative safe shutdown functions to verify it was adequate to support the performance of manual actions required to achieve and maintain hot shutdown conditions, and for illuminating access and egress routes to the areas where manual actions are required. The locations and positioning of emergency lights were observed during a walkthrough of the control room evacuation procedure.

b. Findings

No findings of significance were identified.

.10 Cold Shutdown Repairs

a. Inspection Scope

The team used the guidance in Inspection Procedure 71111.05T and Generic Letter 86-10 to reviewed licensee procedures to determine whether repairs were required to achieve cold shutdown and to verify that dedicated repair procedures, equipment, and material to accomplish those repairs were available on the site. The team also evaluated whether cold shutdown could be achieved within the required time using the licensee's procedures and repair methods.

b. Findings

No findings of significance were identified.

.11 Compensatory Measures

a. Inspection Scope

The team reviewed the Diablo Canyon Equipment Control Guidelines to determine whether the procedures adequately controlled compensatory measures for fire protection systems, equipment and features (e.g., detection and suppression systems and equipment, and passive fire barriers). The Equipment Control Guidelines addressed required actions and completion times associated degraded or out of service fire detection equipment, fire suppression equipment, fire rated assemblies, some instrumentation and controls required for alternative shutdown and the positive displacement pump.

The team reviewed procedures AD7.DC6, “On-Line Maintenance Risk Management,” Revision 9, and AD7.ID4, “On-Line Maintenance Scheduling,” Revision 8A, to determine

whether the procedures adequately controlled compensatory measures for out-of-service, degraded, or inoperable equipment that could affect post-fire safe shutdown equipment, systems or features.

b. Findings

Introduction. The team identified an unresolved item involving the adequacy of assessing and managing increases in risk due to potential fire events when removing equipment from service. The potential fire events in combination with out-of-service, degraded, or inoperable equipment could affect post-fire safe shutdown.

Description. The team reviewed the licensee's procedures AD7.DC6, "On-Line Maintenance Risk Management," Revision 9, and AD7.ID4, "On-Line Maintenance Scheduling," Revision 8A, for treatment of maintenance. This procedure provides guidance for managing plant trip risk, probabilistic risk assessment, and safety function degradation risk from on-line maintenance, external or internal conditions, and was intended to satisfy the requirements of 10 CFR 50.65(a)(4) of the Maintenance Rule. The licensee's Risk Management Program followed the guidance of NUMARC 93-01 which was endorsed by the NRC in Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants."

The licensee's methodology did not specifically consider the impact on risk due to potential fire events in combination with other maintenance on post-fire safe shutdown equipment. This was important because the regulatory requirements fire safe shutdown only require that a single train of equipment be free of fire damage for a fire in each fire area. If some of that equipment is removed from service, there could be added risk that must be assessed and managed before the equipment is removed from service. As a result of not considering this specific element of risk, the licensee's risk management process did not consider establishing compensatory measures due to a component having post-fire safe shutdown functions which could not be achieved if a fire occurred during the maintenance period. The licensee entered the issue into their corrective action program for further evaluation as Action Request A0660070.

Analysis. This issue was discussed with the appropriate NRC staff personnel, who indicate that in the near future, the NRC will be reviewing a proposed industry guideline for establishing a process to assess and manage risk associated with fire initiating events. It was recommended that this issue be treated as unresolved until this proposed guideline was reviewed. It was determined to be advisable to assess this issue in light of any new policy that results. The safety significance of this issue will be determined upon completion of the enforcement assessment.

Enforcement. Section (a)(4) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," states, "Before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. The scope of the assessment may be limited to structures, systems, and components that a risk-informed evaluation process has shown to be significant to public health and safety."

Additional NRC staff review was needed to determine whether the licensee's practices were in compliance with 10 CFR 50.65(a)(4). This will be tracked as an unresolved item pending completion of this review: URI 05000275,323/2006009-01, Assessing and Managing Maintenance Risk for Post-Fire Safe Shutdown Equipment.

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution

a. Inspection Scope

The team reviewed a sample of Action Requests to verify that the licensee was identifying fire protection-related issues at an appropriate threshold, entering those issues into the corrective action program, and resolving the issues in a timelly manner consistent with the significance of the issues. A listing of Action Requests reviewed is provided in the attachment to this report.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 Unresolved Item 50-275;323/200302-02 (Closed): For a fire in some fire areas, the licensee credited manual actions to mitigate the consequences of a fire, in lieu of ensuring one train of equipment and cabling associated with systems required for safe shutdown was free of fire damage, as required by 10 CFR Part 50, Appendix R, Section III.G.2.

a. Inspection Scope

The team performed a detailed review of the licensee's fire protection compliance strategies which included the use of manual actions in areas identified as meeting the requirements of Section III.G.2. The team compared the manual actions, by fire area, with the documentation comprising Diablo Canyon's current license basis. The manual actions were walked down with operators and then assessed using the guidance in Inspection Procedure 71111.05T to determine whether the actions were reasonable and feasible.

b. Findings

Introduction. A violation of very low safety significance was identified because the licensee failed to appropriately protect redundant safe shutdown equipment to ensure that at least one train of equipment required to attain and maintain a safe shutdown condition in the event of fire in certain areas of the plant. Specifically, the licensee relied on unapproved manual actions to assure that the required equipment would be available. This violation had very low safety significance because the manual actions were determined to be reasonable and feasible compensatory actions in accordance with the interim inspection guidance in Inspection Procedure 71111.05T. However,

enforcement discretion to not cite this violation will be granted for this issue. The NRC Enforcement Policy criteria for enforcement discretion were satisfied for a plant committed to adopting NFPA 805.

Description. The licensee was crediting some manual actions in lieu of protection and separation for fire areas identified as complying with 10 CFR 50, Appendix R, Section III.G.2. These manual actions were specified for each affected fire area in Casualty Procedure CP M-10, "Fire Protection of Safe Shutdown Equipment," Revision 16A (Unit 1), Revision 14A (Unit 2). Approximately 135 components and their cables (67 in Unit 1, 68 in Unit 2) were not protected from fire damage, many in multiple areas. Most of the affected components required one or two simple manual actions, but a few required more elaborate actions. Most fire areas had less than 10 manual actions that might need to be performed, while three fire areas had 51, 53, and 64 manual actions that might be required. For the latter cases, the fire areas were such large spaces with such a low fire loading that there was not a credible fire that could be expected to damage more than a fraction of the cables in the area.

Through discussions, it was apparent that the licensee had believed that the NRC had accepted their crediting of manual actions as a methodolgy for compliance with III.G.2. This was based on having submitted docketed letters to the NRC which discussed the use of manual actions in response to fires, and having received overall approval of the Fire Protection Program. Using this reasoning, the licensee had added manual actions over time in the belief that their compliance methodology permitted this practice.

The team concluded that the NRC had approved the use of some manual actions explicitly in Safety Evaluation Reports. However, in the remainder of instances, there was no record to indicate that the NRC had specifically approved of the manual actions. In discussions with the NRC Office of General Counsel, it was clear that the licensee had not received explicit or tacit approval of the manual actions in question in this case. Further, the approval of manual actions in meeting III.G.2 requires specific NRC approval of the actions and fire areas involved in the form of an exemption. Thus, even an approved manual action cannot be credited in a different fire area than the ones specifically approved.

A list of the affected equipment and the fire areas where they were not protected is in the attachment. The number of manual actions necessary to address each component's fire damaged state is included. It is possible that other manual actions may also have been improperly credited.

Analysis. Failure to properly protect redundant trains of safe shutdown equipment to ensure that at least one train needed for safe shutdown in the event of a fire was a performance deficiency. The team evaluated each of the improperly credited manual actions using the guidance in Inspection Procedure 71111.05T. The team determined that, individually and collectively, the manual actions associated with this performance deficiency satisfied the specified criteria. Therefore, these manual actions were considered reasonable and feasible for use as compensatory actions until the non-compliance could be addressed, and are therefore defined to be of very low risk significance.

Enforcement. Diablo Canyon License Condition 2.C.(5) requires that the licensee shall implement and maintain in effect all provisions of the approved Fire Protection Program as described in Revision 5 to the Final Safety Analysis Report Update, in PG&E's December 6, 1984, Appendix R Analysis Report, and in the NRC staff's Fire Protection Evaluation in Supplements 8, 9, 13, 23, and 27 to the Diablo Canyon Safety Evaluation Report. As part of the approved Fire Protection Program, the licensee committed by letter dated March 20, 1981, to implement the requirements of Section III.G of Appendix R to 10 CFR 50. Section III.G.2 of this Appendix R lists three options for satisfying the requirements for separation and protection of equipment needed to ensure safe shutdown remains free of fire damage. The requirements of this section do not allow using manual actions in lieu of protection and separation. Contrary to this, the team concluded that the licensee failed to protect and separate cables and equipment necessary to ensure safe shutdown in the event of a fire in multiple fire areas designated by the licensee as complying with the requirements of Section III.G.2. Specifically, the licensee relied on manual actions to overcome the effects of spurious operation or damage due to the effects of fire for the equipment listed in the attachment to this report.

Because the licensee committed, prior to 12/31/05, to adopting NFPA 805 and changing their Fire Protection Program license basis to comply with 10 CFR 50.48.(c), this issue is covered by enforcement discretion in accordance with the NRC Enforcement Policy. Specifically, this issue would have been expected to be identified and addressed during the licensee's conversion to NFPA 805, was entered into the licensee's corrective action program and will be corrected, and was of very low safety significance. The manual actions were to remain in effect as compensatory measures until the issue was resolved and compliance restored. Since all the criteria were met, the NRC is exercising enforcement discretion for this issue.

The licensee entered this issue in their corrective action program under Action Request A0645338.

.2 URI 50-275;323/2005006-07 (Discussed): Assess peak pressure effects due to tsunami.

In January, 2005, an engineering design team inspection raised a question about the design basis of the plant for withstanding the effects of a tsunami which was not documented in the licensee’s analysis of record. The licensee had not determined what the peak pressure could be in the a cooling water system as a result of the dynamic wave effects. In response, the licensee had performed an operability evaluation, documented in Action Request A0630734, which concluded that the expected dynamic effects should be within the capability of the system.

During this inspection, the team reviewed the progress the licensee had made in completing analyses for plant response to a tsunami. Since the original inspection, the licensee had contracted several consulting groups to update the environmental factors associated with the design basis tsunami. In parallel, site personnel formalized the preliminary assessment into calculations.

The team reviewed Calculations 52.27.100.522, "Structural Design Margin of Major Structural Components, Revision 1, and STA-221, “ASW and CW Flow Evaluation Due to Tsunami Waves, Revision 0 and discussed them with a group of system and design engineers on January 26, 2006. These calculations used very conservative inputs and was considered a “preliminary” calculation due to the fact that contractors had not completed their study. These calculations confirmed the earlier conclusion that the cooling water systems and associated structures would remain within design limits during the license basis tsunami. The team concluded that the calculation methodology and inputs were conservative in assessing the peak conditions in the systems of interest.

This URI will remain open until the NRC receives a copy of the contractor reports so that the key inputs to these calculations can be verified to be appropriate.

4OA6 Meetings, Including Exit

On February 16, 2006, the inspectors presented the inspection results to Ms. D. Jacobs, Vice President, Nuclear Services, and other members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during this inspection.

ATTACHMENTS: SUPPLEMENTAL INFORMATION
MANUAL ACTIONS NOT SPECIFICALLY APPROVED

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

A. Afzali, PRA Supervisor
T. Chitwood, Senior Operations Engineer
G. Corsiglia, Systems Engineer
F. dePeralta-Meister, Consultant
T. Grozan, Supervisor, Regulatory Services
D. Hampshire, Superintendent, Fire Protection
D. Jacobs, Vice President, Nuclear Services
S. Ketelsen, Director, PI
A. Lin, PRN Engineer
C. Paris, Fire Supervisor
L. Parker, Supervisor, Regulatory Services
D. Powell, Systems Engineer
H. Singh, Electrical Engineer
L. Walter, Manager, Engineering
C. Worrell, Fire Protection Engineer
S. Zawalick, Engineer, Regulatory Services

NRC personnel

S. Alexander, Maintenance Rule Engineer, NRR
T. Jackson, Senior Resident Inspector
A. Klein, Fire Protection Engineer, NRR
T. McConnell, Resident Inspector
G. Mizuno, OGC
P. Qualls, Fire Protection Engineer, NRR

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000275,323/2006009-01	URI	Assessing and Managing Maintenance Risk for Post-Fire Safe Shutdown Equipment (Section 1R05.11)

Closed

05000275, 323/200302-02	URI	Use of manual actions (Section 40A5.1)

Discussed

05000275;323/2005006-07	URI	Assess peak pressure effects due to tsunami (Section 4OA5.2)

LIST OF DOCUMENTS REVIEWED

COMPONENTS SELECTED FOR REVIEW

Component	Description
HCV-8107 HCV-8108	Charging System Discharge Isolation Valves
PCV-455C PCV-456 PCV-474	Pressurizer Power Operated Relief Valves
8000A 8000B 8000C	Pressurizer Block Valves
RCP 2-1	Reactor Coolant Pump 2-1
PCV-455A	Pressurizer Spray Valve
8078A 8078B 8078C 8078D	Reactor Head Vent Valves
LCV-112B LCV-112C	Volume Control Tank Outlet Valves
8982A 8982B	Containment Sump Isolation Valves

CALCULATIONS

335-DC 10 CFR 50, Appendix R Emergency Lighting and Communications, Revision 7

M-928 10 CFR 50, Appendix R Safe Shutdown Analysis, Revision 6

M-944 10 CFR 50 Appendix R Alternative Shutdown Methodology - Time and Manpower Study/Safe shutdown System Considerations, Revision 2

M-680, 10 CFR Appendix R Safe Shutdown Equipment, Revision 14

STA-170, RETRAN Analysis for Manual Actions for Failed Pressurizer PORV or AFW following a Fire, Revision 0

M-177, Basis for Acceptance of Grinnell Sprinkler Calculations, Revision 1

STA-207, RETRAN Analysis to Perform Thermal Hydraulic Evaluations for Manual Actions of Several Appendix R Scenarios, Revision 0

M-928, 10 CFR 50 Appendix R Safe Shutdown Analysis, Revision 11

M-944, 10 CFR 50 Appendix R Alternate Shutdown Methodology - Time and Manpower Study/Safe Shutdown System Considerations, Revision 2

M-1023, Calculation Verifying Vendor Leakage Testings of the Cable Spreading Room CO2 System, Revision 2

134-DC, Electrical Appendix 'R' Analysis, Revision 7

134-DC, Electrical Appendix 'R' Analysis, Section I, Safe Shutdown Circuit Identification, Revision 4

134-DC, Electrical Appendix 'R' Analysis, Section II, Breaker/Fuse Coordination, Revision 0

134-DC, Electrical Appendix 'R' Analysis, Section II, Attachment 1, Breaker/Fuse Coordination - 4.16KV System, Revision 0

134-DC, Electrical Appendix 'R' Analysis, Section II, Attachment 2, Breaker/Fuse Coordination - Vital 480V System, Revision 1

134-DC, Electrical Appendix 'R' Analysis, Section II, Attachment 3, Breaker/Fuse Coordination - 120 VAC Instrumentation System, Revision 0

134-DC, Electrical Appendix 'R' Analysis, Section II, Attachment 4, "Breaker/Fuse Coordination - 125 VDC System", Revision 0

134-DC, Electrical Appendix 'R' Analysis, Section II, Appendix A, "Common Power Source Analysis - 120V Vital AC Bus Branch Circuit Breakers, Revision 10

DRAWINGS

Number	Title	Revision
065126	DCPP Unit 1 SSD Equipment Report	13
066144	DCPP Unit 1 Fuse Report (Panel SVD5, Panel SVU11)	16
102007, Sheet 4	P&ID Unit 1 - RCS System - Pressurizer	63

Number	Title	Revision
102007, Sheet 7	P&ID Unit 1 - Reactor Vessel Level Instrumentation and Vent Systems	54
102008, Sheets 4 & 4B	P&ID Unit 1 - CVCS	110
102008, Sheet 4C	P&ID Unit 1 - CVCS	109
102008, Sheet 4D	P&ID Unit 1 - CVCS - Charging System	117
102009, Sheet 4	P&ID Unit 1 - Safety Injection System	76
102009, Sheet 5	P&ID Unit 1 - Safety Injection System	66
102017, Sheet 3	P&ID Unit 1 - Screen Wash System	100
437518	Unit 1 - Electrical Single Line Diagram for Station Auxiliaries	38
437543	Unit 1 - Electrical Single Line Meter & Relay Diagram - 480V System Bus Section H	43
437565	Schematic Diagram Circulating Water Pumps No. 11 and 12	31
437583	Unit 1 - Electrical Schematic Diagram - Auxiliary Feedwater Pumps	24
437584	Unit 1 - Electrical Schematic Diagram - Auxiliary Feedwater Pump Turbine Control	19
437587	Unit 1 - Electrical Schematic Diagram - Reactor Coolant Motor Operated Valves	20
437593	Unit 1 - Electrical Schematic Diagram - Component Cooling Water Pumps	31
437595	Unit 1 - Electrical Schematic Diagram - Charging Pumps No. 11 & 12	27
437605	Unit 1 - Schematic Diagram - Safety Injection System Motor Operated Valves	13
437607	Unit 1 - Electrical Schematic Diagram - Chemical and Volume Control System Motor Operated Valves	23
437609	Unit 1 - Electrical Schematic Diagram - Reactor Coolant System Solenoid Valves	16
437619	Schematic Diagram Start-up Transformer No. 11 and Associated Circuit Breakers	24

Number	Title	Revision
437666	Unit 1 - Electrical Schematic Diagram - 4KV Diesel Generators and Associated Circuit Breakers	29
455060	Unit 1 - Electrical Schematic Diagram - Auxiliary Feedwater Pump Turbine Control	12
458859	Unit 1 - Schematic Diagram - External Hydrogen Recombiner System/Containment Hydrogen Purge System Isolation Valves	9
502110	Single Line Diagram 500/230/25/12/4.16KV Systems	14

ACTION REQUESTS (ARs)

A0572960	A0603767	A0627424	A0635830	A0642176	A0656808
A0583189	A0618912	A0631353	A0636798	A0642680	A0659932*
A0587323	A0620761	A0635344	A0639938	A0646729	A0426430
A0594389	A0624407	A0635366	A0642175	A0647991	A0659340*
A0562033	A0645338*	A0660038*	A0658504*	A0658956*	A0658957
A0659147*	A0659388*	A0658506*	A0659966*	A0659340*	A0656808*
A0635830*	A0659908*	A0659951*	A0647991	A0659887*	A0659900*
A0656934	A0646729	A0660070*			

*AR written as a result of inspection activities

PROCEDURES

AD7.DC6, On-Line Maintenance Risk Management, Revision 9

AD7.ID4, On-Line Maintenance Scheduling, Revision 8A

CP M-6, Fire, Revision 28

CP M-10 (Unit 1), Fire Protection of Safe Shutdown Equipment, Revision 16A

CP M-10 (Unit 2), Fire Protection of Safe Shutdown Equipment, Revision 14A

OP AP-8A, Control Room Inaccessibility - Establishing Hot Standby, Revision 19

OP AP-8B, Control Room Inaccessibility - Hot Standby to Cold Shutdown, Revision 11

OP O-22, Emergency Operation of Motor Operated Valves, Revision 2

TQ1.DC12, Fire Brigade and Emergency Response Training, Revision 8

EDDG-005, Electrical Design Desk Guide - Fuse Control Program, Revision 0

STP M-70B, Inspection and Testing of Fire Dampers, Revision 11

TP TB-9711 Rev. 1 Temporary Procedure, “Cable Spreading Room Pressure Boundary Integrity Verification”

MISCELLANEOUS DOCUMENTS

“Individual Plant Examination of External Events Report for Diablo Canyon Power Plant Units 1 and 2 in Response to Generic Letter 88-20 Supplement 4,” dated June 1994

Cable Data Worksheets for Valves 8982A & 8982B - Containment Sump Recirculation Valves

DCPP Appendix R Post-Fire safe Shutdown Associated Circuits Self Assessment Report - June 7-17, 2005, Revision 2

DCPP Plant Protection System Actuation Impacts in Appendix R Post-Fire Safe Shutdown, December 1, 2005

DCPP Units 1 & 2 Final Safety Analysis Report Update, Appendix 9.5G, “Equipment Required for Safe Shutdown, Revision 15

DCPP Evaluation of NRC Information Notice 92-18: Potential for Loss of remote Shutdown Capability During a Control Room Fire, dated May 8, 1992

DCPP Unit 1 Data Raceway Reports for Conduits K3815, K6742, K6745, K6747, K6749, K7151, K7152, K7266, K7816, K7880, K7882, K8335,

Quality Verification Audit Report #052500003, “2005 Triennial Fire protection Program Audit”,January 13, 2006

Fire Drill Guide, RCA Fire 73' CCW Pumps, 1/17/06

FHARE 117,Safe Shutdown Analysis for Modifying Fire Area 4A and 4B Boundary Barriers, Revision 1

NCR No. N0001887,Testing Discrepancies Identified with Fire Barrier Material, Revision 00

STP M-17B1,Functional Test of Emergency DC Lighting System, Revision 11

STP M-17C3,Check of AC Emergency Lighting, Revision 14

MP E-67.5A

AD13.DC1 (Attachment 7.8), Motor Operated Valves Thermal Overload Protection and Bypass Devices dated 05/15/02

PG&E Letter DCL-94-119, Revision to Request for Exemption from an Emergency Lighting Technical Requirement of Section III.J of Appendix R to 10 CFR 50, dated 05/25/1994

PG&E Letter DCL-94-036, Request for Exemption from an Emergency Lighting Technical Requirement of Section III.J of Appendix R to 10 CFR 50, dated 03/15/1994

EQUIPMENT CONTROL GUIDELINES

ECG 4.2, Steam Generator Level and Pressure Instruments (Appendix R), Revision 1A

ECG 7.1, RCS Instrumentation (Appendix R), Revision 2A

ECG 7.2, PORV Emergency Close at the HSP (Appendix R), Revision 1A

ECG 8.1, Positive Displacement Pump, Revision 4

ECG 8.2, Chemical and Volume Control System Valves (Appendix R), Revision 0A

ECG 10.1, Residual Heat Removal (RHR) Pump Transfer Switch at 4kV Switchgear (Appendix R), Revision 0A

ECG 18.1, Fire Suppression Systems/Fire Suppression Water Systems, Revision 5

ECG 18.2, Fire Hose Stations, Revision 7

ECG 18.3, Fire Detection Instrumentation, Revision 8

ECG 18.4, Spray and/or Sprinkler Systems, Revision 3

ECG 18.5, CO2 System, Revision 6

ECG 18.7, Fire Rated Assemblies, Revision 5

ECG 37.1, Hot Shutdown Panel (HSP) Neutron Flux Indicators (Appendix R), Revision 1A

INSTRUCTOR LESSION GUIDE

R032C12, Operations Responder Responsibilities, Revision 0

R036C11, Operations Responder Responsibilities, Revision 1

R036C11R, Operations Responder Responsibilities Refresher Training, Revision 0

RO42P1, AOP/EOP Local Action Walkdown Package H, Revision 0

RO42P1, AOP/EOP Local Action Walkdown Package H, Revision 0

RO47P1, AOP/EOP Local Action Walkdown Package K, Revision 0

RO51P1, AOP/EOP Local Action Walkdown Package H, Revision 0

RO52C3, Appendix R Fire Response, Revision 1

RO52C5, Appendix R Tasks, Revision 1

RO52S3, Control Room Evacuation Due to Fire, Revision 0

JOB PERFORMANCE MEASURES

FJP-001, Incident Command Drill - Fire in 480V Vital Bus 1F, Revision 0A

LJP-ATT6.1, CO Actions for OP AP-8A, Revision 1

LJP-ATT6.2, Aux Bldg Actions for OP AP-8A, Revision 1

LJP-ATT6.3, Turbine Bldg Actions for OP AP-8A, Revision 0

LJP-ATT6.4, Electrical Sys Actions for OP AP-8A, Revision 1

LICENSE BASIS DOCUMENTS

Updated Final Safety Analysis, Chapter 9.5, Revision 16

PG&E letter to NRC dated February 6, 1978, regarding responses to RAI.

PG&E letter to NRC dated July 7, 1978, regarding responses to RAI.

PG&E letter to NRC dated February 2, 1979, regarding protection of conduits.

PG&E letter to NRC dated July 2, 1979, regarding responses to RAI.

PG&E letter to NRC dated July 19, 1979, regarding responses to RAI.

PG&E letter to NRC dated November 4, 1983, regarding emergency lighting.

PG&E letter to NRC dated December 6, 1984, regarding assessment of conformance to Appendix R

Diablo Canyon Power Plant Appendix R Post-fire Safe Shutdown Associated Circuits Self-assessment Report, June 7-17, 2005, Revision 1

NRC Safety Evaluation Report on Diablo Canyon Units 1 and 2, Supplement 8, dated November 15, 1978

NRC Safety Evaluation Report on Diablo Canyon Units 1 and 2, Supplement 9, dated June 1980

NRC Safety Evaluation Report on Diablo Canyon Units 1 and 2, Supplement 13, dated April 1981

NRC Safety Evaluation Report on Diablo Canyon Units 1 and 2, Supplement 23, dated July 2, 1984

NRC Safety Evaluation Report on Diablo Canyon Units 1 and 2, Supplement 27, dated July 1984

NRC Questions and Responses from letters dated 2/6/78, 7/7/78, 8/3/78, 11/13/78, 12/19/78, and 2/2/79.

NRC Safety Evaluation Report on Diablo Canyon Units 1 and 2, Supplement 31, dated May 2, 1984

Fire Hazards Analysis Report

NFPA 12 (1968) Carbon Dioxide Extinguishing Systems

NFPA 12A (1992) Halon 1301 Fire Extinguishing Systems

NFPA 13 (1969) Installation of Sprinkler Systems

Vendor (Grinnell Corporation) information for the Automatic Directional Spray Nozzles

Original (1975) Low Pressure CO2 System Field Test Report (performed by Chemetron Fire Systems)

NRC Information Notice 92-28, “Inadequate Fire Suppression System Testing”

NRC Information Notice 2002-24, “Potential Problems with Heat Collectors on Fire Protection Sprinklers”

DCPP Response to IN 2002-24, “Potential Problems with Heat Collectors on Fire Protection Sprinklers”

ATTACHMENT 2

MANUAL ACTIONS NOT SPECIFICALLY APPROVED

Component Not Protected	Fire Area/Zone Affected	Number of Actions	Unit(s) Affected	Protection Category
1-8078 A/B/C/D Reactor Head Vent Valves	1-A/B/C 3-BB (115 ft) 6-A-4	1	1	spurious operation
2-8078 A/B/C/D Reactor Head Vent Valves	8-G 3-CC (100 ft, 115 ft) 6-B-4 9-A/B/C	1	2	spurious operation
1-8149 A/B/C, Letdown Orifice Outlet Valve	1-A 3-BB (100 and 115 ft) 5-A-1 6-A-1	1	1	hot standby
2-8149 A/B/C, Letdown Orifice Outlet Valve	3-CC (100 and 115 ft) 6-B-1 9-A	1	2	hot standby
1-8805A/B, RWST Outlet Valves	3-BB (85 ft) 4-A (F bus) 4-A (G bus) 4-A (H bus) 8-G 3-AA 3-X 3-L	2	1	hot standby
2-8805A/B, RWST Outlet Valves	3-CC(85 ft) 4-B (F bus) 4-B (G bus) 4-B (H bus) 8-H 3-AA 3-X 3-L	2	2	hot standby
1-9003A, RHR to Spray Ring Header Isolation Valve	5-A-2 6-A-2	2	1	spurious operation

Component Not Protected	Fire Area/Zone Affected	Number of Actions	Unit(s) Affected	Protection Category
1-9003B, RHR to Spray Ring Header Isolation Valve	5-A-3 6-A-3	2	1	spurious operation
2-9003-A, RHR to Spray Ring Header Isolation Valve	5-B-2 6-B-2	2	2	spurious operation
2-9003-B, RHR to Spray Ring Header Isolation Valve	5-B-3 6-B-3	2	2	spurious operation
1-FCV-151/250, SG 1-1/1-2 Blowdown Outboard Isolation Valves	3-BB (100 and 115 ft) 8-G	1	1	hot standby
2-FCV-151/250, SG 1-3/1-4 Blowdown Outboard Isolation Valves	3-CC (100 and 115 ft) 8-H	1	2	hot standby
1-FCV-22/23, SG 1-4/1-3 Main Steam Bypass Valves	3-BB (115 ft) 3-AA	2	1	hot standby
2-FCV-22/23, SG 2-4/2-3 Main Steam Bypass Valves	3-CC (115 ft)	2	2	hot standby
1-FCV-24, SG 1-2 Main Steam Bypass Valve	3-BB (100 ft) 5-A-2 6-A-2	2	1	hot standby
2-FCV-24, SG 2-2 Main Steam Bypass Valve	3-CC (100 ft) 5-B-2 6-B-2	2	2	hot standby
1-FCV-25, SG 1-1 Main Steam Bypass Valve	3-BB (100 and 115 ft)	2	1	hot standby
2-FCV-25, SG 2-1 Main Steam Bypass Valve	3-CC (100 and 115 ft) 6-B-1	2	2	hot standby
1-FCV-38, Turbine-driven AFW Pump Steam Supply Isolation Valve	5-A-1 6-A-1	2	1	hot standby
2-FCV-38, Turbine-driven AFW Pump Steam Supply Isolation Valve	5-B-1 6-B-1	2	2	hot standby

Component Not Protected	Fire Area/Zone Affected	Number of Actions	Unit(s) Affected	Protection Category
1-FCV-41/42, SG 1-1, 1-2 Main Steam Isolation Valves	3-BB (100 ft) 4-A 4-A-1 5-A-2 6-A-2 8-G 12-B 13-B	2	1	hot standby
2-FCV-41/42, SG 2-1, 2-2 Main Steam Isolation Valves	3-CC (85 and 100 ft) 4-B-1 5-B-2 6-B-2 8-H 23-B 24-B	2	2	hot standby
1-FCV-43, SG 1-3 Main Steam Isolation Valve	3-BB (115 ft) 4-A 4-A-2 5-A-3 6-A-3 8-G 12-C 13-C	2	1	hot standby
2-FCV-43/44, SG 2-3/2-4 Main Steam Isolation Valves	3-CC (100 and 115 ft) 4-B 4-B-2 5-B-3 6-B-3 8-H 23-C 24-C	2	2	hot standby

Component Not Protected	Fire Area/Zone Affected	Number of Actions	Unit(s) Affected	Protection Category
1-FCV-44, SG 1-4 Main Steam Isolation Valve	3-BB (115 ft) 4-A 4-A-2 5-A-3 6-A-3 8-G 3-AA 12-C 13-C	2	1	hot standby
FCV-430, CCW Supply Header A Valve	4-A (F bus) 4-A (H bus) 4-B 5-A-4 6-A-5	2	1	hot standby
FCV-430, CCW Supply Header A Valve	4-B (F bus) 4-B (H bus) 5-B-4 6-B-5	2	2	hot standby
1-FCV-431, CCW Supply Header B Valve	4-A (F bus) 4-A (H bus) 4-B 6-A-5	2	1	hot standby
2-FCV-431, CCW Supply Header B Valve	4-A (F bus) 4-A (H bus) 6-B-5 19-A	2	2	hot standby
1-FCV-602, CCW Heat Exchanger Inlet Loop 1	4-A (F bus) 4-A (G bus) 4-A-(H bus) 4-B 5-A-4 6-A-5 14-E	2	1	hot standby
2-FCV-602, CCW Heat Exchanger Inlet Loop 1	4-B (F bus) 4-B (H bus) 5-B-4 6-B-5 19-E	2	2	hot standby

Component Not Protected	Fire Area/Zone Affected	Number of Actions	Unit(s) Affected	Protection Category
1-FCV-603, CCW Heat Exchanger Inlet Loop 1	4-A (F bus) 4-A (G bus) 4-A-(H bus) 6-A-5 14-E	2	1	hot standby
2-FCV-603, CCW Heat Exchanger Inlet Loop 1	4-B (F bus) 4-B-(H bus) 6-B-5 19-A 19-E	2	2	hot standby
1-FCV-762/763, SG 1-3/1-4 Blowdown Inboard Isolation Valve	3-BB (110 and 115 ft) 8-G	1	1	hot standby
2-FCV-762/763, SG 2-3/2-4 Blowdown Inboard Isolation Valve	3-CC (100 and 115 ft) 8-H	1	2	hot standby
1-LCV-106/107, AFW Supply Throttle Valves	3-BB (100 ft)	2	1	hot standby
2-LCV-113/115, AFW Supply Throttle Valves	3-CC (100 ft) 5-B-4 6-B-1	2	2	hot standby
1-LCV-110/111, AFW Supply Throttle Valves	3-BB (100 ft) 4-A 5-A-4	2	1	hot standby
2-LCV-110/111, AFW Supply Throttle Valves	5-B-4 6-B-4	2	2	hot standby
1-LCV-112B/C, VCT Outlet Valves	3-BB (85, 100 and 115 ft) 4-A (F bus) 4-A (G bus) 4-A (H bus) 8-G 3-X 3-L 3-AA	2	1	hot standby

Component Not Protected	Fire Area/Zone Affected	Number of Actions	Unit(s) Affected	Protection Category
2-LCV-112B/C, VCT Outlet Valves	3-CC (85, 100 and 115 ft) 4-B (F bus) 4-B (H bus) 8-H 3-X 3-L 3-AA	2	2	hot standby
1-PCV-19/20, SG 1-1/1-2 10% Atmospheric Dump Valves	3-BB (100 and 115 ft) 5-A-4 8-G	2	1	hot standby
2-PCV-19/20, SG 2-1/2-2 10% Atmospheric Dump Valves	3-CC (85 and 115 ft) 5-B-4 8-H	2	2	hot standby
1-PCV-21/22, SG 1-3/1-4 10% Atmospheric Dump Valves	8-G	2	1	hot standby
2-PCV-21/22, SG 2-3/2-4 10% Atmospheric Dump Valves	3-CC (115 ft) 5-B-4 8-H	2	2	hot standby
1-PCV-455C/456/474, Pressurizer PORVs	3-BB (115 ft)	1	1	hot standby
2-PCV-455C/456/474, Pressurizer PORVs	3-CC (100 and 115 ft)	1	2	hot standby
1-SPF, 480V Switchgear	5-A-1	1	1	spurious operation
1-SPG, 480V Switchgear	5-A-2	1	1	spurious operation
1-SPH, 480V Switchgear	5-A-3	1	1	spurious operation
2-SPF, 480V Switchgear	5-B-1	1	2	spurious operation
2-SPG, 480V Switchgear	5-B-2	1	2	spurious operation
2-SPH, 480V Switchgear	5-B-3	1	2	spurious operation

Component Not Protected	Fire Area/Zone Affected	Number of Actions	Unit(s) Affected	Protection Category
Auxiliary Saltwater Pump 1-1	30-A-2 4-A 8-G 12-B 13-B	2	1	hot standby
Auxiliary Saltwater Pump 2-1	30-A-4 8-H 23-B 24-B	2	2	hot standby
Auxiliary Saltwater Pump 1-2	30-A-1 8-G 12-A 13-A	2	1	hot standby
Auxiliary Saltwater Pump 2-2	30-A-3 8-H 23-A 24-A	2	2	hot standby
CCW Pumps 1-1, 1-2, and 1-3	8-G	2	1	hot standby
CCW Pumps 2-1, 2-2, and 2-3	8-H	2	2	hot standby
Charging Pump 1-1	4-A 3-J-2 3-J-3	2	1	hot standby
Charging Pump 2-1	3-K-2 3-K-3	2	2	hot standby
Charging Pump 1-2	3-J-2 3-J-3	2	1	hot standby
Charging Pump 2-2	4-B (F bus) 4-B (H bus) 3-K-2 3-K-3	2	2	hot standby
Charging Pump 1-3	3-H-1	2	1	hot standby
Charging Pump 2-3	3-I-1	2	2	hot standby

Component Not Protected	Fire Area/Zone Affected	Number of Actions	Unit(s) Affected	Protection Category
Containment Spray Pump 1-1	5-A-2 6-A-2 8-G	2	1	spurious operation
Containment Spray Pump 2-1	5-B-2 6-B-2 8-H	2	2	spurious operation
Containment Spray Pump 1-2	5-A-3 6-A-3 8-G	2	1	spurious operation
Containment Spray Pump 2-2	8-H	2	2	spurious operation
Diesel Fuel Oil Transfer Pump 0-2	5-A-4	1	2	hot standby
Emergency Diesel Generator 1-1, 1-2, and 1-3	12-E 13-D	4	1	hot standby
Emergency Diesel Generator 2-1, 2-2, and 2-3	23-E 24-D	4	2	hot standby
S-43/44, 480V Switchgear Supply Fans	34 5-A-4	multiple	1	hot standby
S-43/44, 480V Switchgear Supply Fans	34 5-B-4	multiple	2	hot standby
E-45/46, 480V Switchgear Exhaust Fans	34	multiple	1	hot standby
E-45/46, 480V Switchgear Exhaust Fans	34	multiple	2	hot standby
Pressurizer Heater Group 1-1	4-A 4-A-2 5-A-3 5-A-4 6-A-3 6-A-4 3-X 3-AA 12-C 13-C	2	1	spurious operation

Component Not Protected	Fire Area/Zone Affected	Number of Actions	Unit(s) Affected	Protection Category
Pressurizer Heater Group 2-1	4-B 5-B-3 5-B-4 6-B-3 6-B-4 3-X 3-AA 23-C 24-C	2	2	spurious operation
Pressurizer Heater Group 1-2	4-A 4-A-2 5-A-3 5-A-4 6-A-3 6-A-4 12-C 13-C	4	1	spurious operation,h
Pressurizer Heater Group 2-2	4-B 4-B-2 5-B-3 5-B-4 6-B-3 6-B-4 8-H 23-C 24-C	4	2	spurious operation,h
Pressurizer Heater Group 1-3	4-A 4-A-1 5-A-2 5-A-4 6-A-2 6-A-3 6-A-4 12-B 13-B			spurious operation, h

Component Not Protected	Fire Area/Zone Affected	Number of Actions	Unit(s) Affected	Protection Category
Pressurizer Heater Group 2-3	4-B-1 5-B-2 5-B-4 6-B-2 6-B-3 6-B-4 8-H 23-B 24-B	4		spurious operation,h
Pressurizer Heater Group 1-4	4-A 4-A-1 5-A-2 5-A-4 6-A-1 6-A-2 6-A-3 6-A-4 6-A-5 12-B 13-B	2	1	spurious operation
Pressurizer Heater Group 2-4	4-B-1 5-B-2 5-B-4 6-B-1 6-B-2 6-B-3 6-B-4 6-B-5 23-B 24-B	2	2	spurious operation
Safety Injection Pump 1-1	4-A (F bus) 4-A (G bus) 4-A (H bus) 5-A-1 6-A-1 8-G 12-A 13-A	2	1	spurious operation

Component Not Protected	Fire Area/Zone Affected	Number of Actions	Unit(s) Affected	Protection Category
Safety Injection Pump 2-1	4-A (F bus) 4-A (H bus) 5-B-1 6-B-1 8-H 23-A 24-A	2	2	spurious operation
Safety Injection Pump 1-2	4-A-2 5-A-3 6-A-3 8-G 12-C 13-C	2	1	spurious operation
Safety Injection Pump 2-2	4-B-2 5-B-3 6-B-3 8-H 23-C 24-C	2	2	spurious operation