November 15, 2006

Mr. John S. Keenan
Senior Vice President and Chief Nuclear Officer
Pacific Gas and Electric Company
Diablo Canyon Power Plant
P.O. Box 770000
San Francisco, CA 94177-0001

SUBJECT: DIABLO CANYON POWER PLANT, UNIT NO. 1 - ISSUANCE OF EXIGENT AMENDMENT RE: REQUEST TO EXTEND THE COMPLETION TIME TO RESTORE AN INOPERABLE STATION BATTERY (TAC NO. MD3334)

Dear Mr. Keenan:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 190 to Facility Operating License No. DPR-80 for the Diablo Canyon Power Plant, Unit No. 1. The amendment consist of changes to the Technical Specifications (TSs) in response to your application dated October 18, 2006, as supplemented on November 2, 2006.

The amendment revises TS Section 3.8.4, "DC Sources – Operating," Condition B to extend the completion time (CT) to restore an inoperable vital battery from 2 hours to 4 hours for the current operating Cycle 14, provided certain required actions are taken. The extended CT would allow sufficient time to correct a degraded condition on the station Vital Battery 1-1.

This amendment is being issued under exigent circumstances in accordance with Section 50.91(a)(6) of Title 10 of the *Code of Federal Regulations*. The exigent circumstances and final no significant hazards considerations are addressed in Sections 4.0 and 5.0 of the enclosed Safety Evaluation.

The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Alan B. Wang, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-275

Enclosures: 1. Amendment No. 190 to DPR-80
2. Safety Evaluation

cc w/encls: See next page

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Package Accession No.: ML063140004 (Amendment ML063140003, TS & license pages ML063190540)

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PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-275

DIABLO CANYON NUCLEAR POWER PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 190
License No. DPR-80

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Pacific Gas and Electric Company (the licensee) dated October 18, 2006, as supplemented on November 2, 2006, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-80.

3. This license amendment is effective as of its date of issuance and shall be implemented within 7 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility
Operating License and
Technical Specifications

Date of Issuance: November 15, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 190

TO FACILITY OPERATING LICENSE NO. DPR-80

DOCKET NO. 50-275

Replace page 3 of the Facility Operating License No. DPR-80 with the attached revised page.

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE	INSERT
3.8-18	3.8-18
-----	3.8-18a

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 190 TO FACILITY OPERATING LICENSE NO. DPR-80

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON POWER PLANT, UNIT NO. 1

DOCKET NO. 50-275

1.0 INTRODUCTION

By application dated October 18, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML062980201), as supplemented on November 2, 2006 (ADAMS Accession No. ML063130349), Pacific Gas and Electric Company (PG&E, the licensee) requested changes to the Technical Specifications (Appendix A to Facility Operating License No. DPR-80) for the Diablo Canyon Power Plant (DCPP), Unit No. 1.

The proposed amendment would revise Technical Specification (TS) Section 3.8.4, "DC Sources – Operating," Condition B to extend the completion time (CT) to restore an inoperable vital battery from 2 hours to 12 hours for the current operating Cycle 14, provided certain required actions are taken. The extended CT would allow sufficient time to correct a degraded condition on the station Vital Battery 1-1. By letter dated November 2, 2006, the licensee revised the request for a CT of 12 hours to a CT of 4 hours. The reduced CT request is based on the licensee's decision to only bypass the bad cell at this time and replace the bad cell during the next refueling outage. The probabilistic evaluation did not need to be revised as the analysis for an extended CT of 12 hours bounds the 4 hour request.

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.91(a)(6), the licensee requested that the proposed amendment be issued under exigent circumstances in order to support a timely corrective action for the degraded condition affecting a single cell that impacts the long-term reliability of Vital Battery 1-1. This amendment will alleviate the risk of a TS-required shutdown with a degraded battery. A detailed explanation of the exigent circumstances of this issue is contained in Section 4 of this evaluation.

The supplemental letter dated November 2, 2006, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the Federal Register on October 27, 2006 (71 FR 63040).

2.0 REGULATORY EVALUATION

The following NRC requirements and guidance documents are applicable to the staff's review of the licensee's amendment request:

Title 10 of the *Code of Federal Regulations* (10 CFR) Appendix A of Part 50, General Design Criterion (GDC) 17, "Electric power systems," requires, in part, that nuclear power plants have onsite and offsite electric power systems to permit the functioning of structures, systems, and components that are important to safety. The onsite system is required to have sufficient independence, redundancy, and testability to perform its safety function, assuming a single failure. The offsite power system is required to be supplied by two physically independent circuits that are designed and located so as to minimize, to the extent practical, the likelihood of their simultaneous failure under an operating and postulated accident and environmental conditions. In addition, this criterion requires provisions to minimize the probability of losing electric power from the remaining electric power supplies as a result of loss of power from the unit, the offsite transmission network, or the onsite power supplies.

GDC 18, "Inspection and testing of electric power systems," requires that electric power systems that are important to safety must be designed to permit appropriate periodic inspection and testing.

Section 50.63 of 10 CFR, "Loss of all alternating current power," requires that each light-water cooled nuclear power plant licensed to operate must be able to withstand for a specified duration and recover from a station blackout (SBO).

Section 50.36 of 10 CFR, "Technical specifications," requires a licensee's TSs to establish limiting conditions for operation (LCOs), which include CTs for equipment that is required for safe operation of the facility.

Section 50.65 of 10 CFR, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," requires that preventive maintenance activities are appropriately balanced to ensure the objective of preventing failures of structures, systems, and components against the objective of minimizing the unavailability of the structures, systems, and components due to monitoring or preventive maintenance.

Regulatory Guide (RG) 1.32, "Criteria for Power Systems for Nuclear Power Plants," provides guidance for complying with GDC 17 and 18 with respect to design, operation, and testing of safety-related electric power systems of all types of nuclear power plants.

RG 1.93, "Availability of Electric Power Sources," provides guidance with respect to operating restrictions (i.e., CTs/allowed outage times (AOTs)) if the number of available direct current (DC) sources is less than that required by the TS LCO. In particular, this guide prescribes a maximum CT of 2 hours for an inoperable DC source.

RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," describes a risk-informed approach, acceptable to the NRC, for assessing the nature and impact of proposed licensing-basis changes by considering engineering issues and applying risk insights.

RG 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," describes an acceptable risk-informed approach specifically for assessing proposed TS changes in AOTs. These RGs also provide acceptance guidelines for evaluating the results of such evaluations.

3.0 TECHNICAL EVALUATION

The NRC staff has reviewed the licensee's regulatory and technical analyses in support of its proposed one-time license amendment. The licensee's submittal dated October 18, 2006, as revised by a letter dated November 2, 2006, in response to subsequent discussion and a request for additional information (RAI), is risk-informed in that the licensee considered deterministic and probabilistic safety aspects. The NRC staff evaluation of the deterministic and probabilistic assessments provided by the licensee is discussed below.

3.1 LCO 3.8.4 Change

The licensee proposed adding the following to TS 3.8.4 Condition B, Required Action B.1:

> OR
>
> B.2.1.1 ----------Note----------
> Required Actions B.2.1.1, B.2.1.2, and B.2.2 are applicable, on a one time basis, for Unit 1 cycle 14.
> ---
> Determine OPERABLE batteries are not inoperable due to common cause failure.
>
> OR
>
> B.2.1.2 Perform SR 3.8.4.1 and SR 3.8.6.1 for OPERABLE batteries.
>
> AND
>
> B.2.2 Restore battery to OPERABLE status.

The proposed change to LCO 3.8.4 addresses the condition where one battery is inoperable. The licensee originally proposed increasing the battery CT from 2 hours to 12 hours on a one-time basis provided it is able to determine that the remaining batteries are not inoperable due to common-cause failure (CCF) or perform SR 3.8.4.1 and SR 3.8.6.1 for the OPERABLE batteries within 2 hours.

In letter dated November 2, 2006, the licensee proposed to limit the proposed CT to 4 hours (in lieu of the original extension request of 12 hours). This extension will provide the licensee with sufficient time to bypass a low-voltage cell without introducing time pressure as an error precursor. Although the three 125 V (volt) DC batteries consist of a 60-cell configuration, the licensee contends that an analysis is in place to fully support a 59-cell configuration. Therefore, while this configuration poses a reduction in available operational margin, it does not affect the capability of the DCPP, Unit No.1, battery to perform its intended safety functions.

3.2 Design of DCPP, Unit No. 1, DC Electrical Power System

At DCPP, Unit No. 1, the Class 1E DC electrical power system provides the alternating current (AC) emergency power system with control power. It also provides both motive and control power to selected safety-related equipment and backup 120 V AC vital bus power via inverters.

The 125 V DC electrical power system consists of three independent safety-related Class 1E DC electrical power subsystems. Each subsystem consists of one dedicated 60-cell 125 V DC battery (Batteries 1-1(2-1), 1-2(2-2), and 1-3(2-3)), one dedicated battery charger (Battery Chargers 1-1(2-1), 1-2(2-2), and 1-3(2-3)), a backup charger, and all the associated switchgear, control equipment, and interconnecting cabling.

During normal operation, the 125 V DC load is powered from the battery chargers with the batteries floating on the system. In case of loss-of-normal power to the battery charger, the DC load is automatically powered from the station batteries. Each DCPP, Unit No. 1, battery has adequate storage capacity to carry the required load continuously for at least 2 hours.

The DC electrical power subsystems provide the control power for the associated Class 1E AC power load group, 4.16 kV switchgear, and 480 V load centers. The DC electrical power subsystems also provide DC electrical power to the inverters, which in turn are backup sources to power the 120 V AC vital buses.

Each 125 V DC battery is separately housed in a ventilated room apart from its charger and distribution centers. Each subsystem is located in an area separated physically and electrically from the other subsystem to ensure that a single failure in one subsystem does not cause a failure in a redundant subsystem.

The batteries for the three DC electrical power subsystems are sized to produce required capacity at 80 percent of nameplate rating, corresponding to warranted capacity at end-of-life cycles and the 100-percent-design demand. The minimum design voltage limit is 112.1 V for a 59-cell battery.

The initial conditions of a design-basis accident (DBA) and transient analysis assume that engineered safety feature systems are operable. The DC electrical power system provides normal and emergency DC electrical power for the emergency diesel generators (EDGs), emergency auxiliaries, and control and switching during all modes of operation.

The operability of the DC sources is consistent with the initial assumptions of the DCPP, Unit No. 1, accident analyses and is based upon meeting the design basis of the unit. This includes maintaining the DC sources operable during accident conditions in the event of an assumed loss of all offsite AC power or all onsite AC power, and a worst-case single failure.

The DC subsystems are required to be operable to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. Loss of any one DC electrical power subsystem does not prevent the minimum safety function from being performed.

An operable DC electrical power subsystem requires the battery and its normal or backup charger to be operating and connected to the associated DC bus.

3.3 Deterministic Evaluation of Proposed Change

DCPP, Unit No. 1, Battery 1-1 (one of the three Class 1E vital batteries) has been in service for approximately 11 years. It was replaced during the DCPP, Unit No. 1, refueling outage on

October 13, 1995. The licensee indicated that quarterly surveillance testing has shown normal voltages for all 60 cells, including the surveillance test completed on July 13, 2006. Throughout this period, the licensee stated that there was no indication of a problem with Cell 15.

However, on October 3, 2006, during performance of the quarterly surveillance of Battery 1-1, the licensee noted that Cell 15 had a low voltage of 2.093 V DC compared to a typical cell voltage between 2.20 to 2.25 V DC on float voltage.

The 2.093 V DC cell voltage is still above the minimum cell voltage of greater than 2.07 V DC as required by TS 3.8.6, "Battery Parameters," Condition A. Therefore, Battery 1-1 remained operable.

Visual inspection of the low-voltage cell of Battery 1-1 revealed that sulfation was forming on the positive plates of the cell which is a confirmatory indication of low-cell voltage.

The licensee applied an equalizing charge on Battery 1-1 when the problem was discovered, and although sulfation was removed, the charge was ineffective in increasing the voltage of Cell 15. To no success, the licensee then performed single cell charging for a week. Per the battery vendor's recommendation, the licensee performed single cell charging again but at a higher charging voltage; this was also ineffective. Consequently, the licensee has elected to bypass the low-voltage cell.

In response to an NRC staff request for additional information, the licensee provided the following list of compensatory actions that will be taken when taking Battery 1-1 out-of-service:

- Communicate with the DCPP Switching Center and Transmission Operations to ensure no elective maintenance or testing on the offsite power sources will be performed, and to verify offsite power sources are not in danger of being lost due to wild fires, other grid related events, or work activities.

- Provide assurance that storms or ocean swell events are not expected during maintenance period.

- Assure that Operations, Maintenance, and Engineering are notified in the event of external events that may jeopardize offsite power sources, and that they determine if postponement of the battery maintenance is warranted.

- Avoid scheduling site activities that may cause a plant transient on the affected unit. Exceptions should be authorized in accordance with DCPP Administrative Procedure AD7.DC6, "On-Line Maintenance Risk Management."

- Avoid performing any testing or elective maintenance on the affected unit unless it is identified on the approved work week schedule. Exceptions may be approved by the shift manager or work week manager.

- Verify all parts and equipment necessary for the project have been procured and meet quality related checks.

- Post caution signs on the affected unit's battery room doors; reroute normal traffic during maintenance.

- Perform a walkdown verifying the other two batteries and associated areas are clean and in good material condition with no activities being performed, which could jeopardize operation.

- Verify that redundant safety-related systems, subsystems, trains, components and devices that depend on the other two batteries are operable prior to beginning maintenance.

- Perform no elective maintenance or testing on components required to crosstie the vital 4 kV buses between units as required by DCPP emergency operating procedures.

- Perform no elective maintenance or testing on components (other than normally scheduled surveillances) on affected unit's EDGs.

Furthermore, in its November 2, 2006, response to an NRC staff request for additional information, the licensee provided assurance that the DCPP, Unit No. 1, SBO analysis would not be affected by the proposed change since any of the three EDGs and their respective buses may be used as an alternate AC source.

Based on the above deterministic evaluation, the NRC staff finds that the proposed revisions to the DCPP, Unit No. 1, TSs are reasonable and would continue to ensure the availability of the required DC power to shut down the reactor and to maintain the reactor in a safe condition after an anticipated operational occurrence or a postulated design-basis accident.

3.4 Probabilistic Evaluation

In evaluating the risk information submitted by the licensee, the NRC staff followed the three-tiered approach documented in (RG 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications."

Under the first tier, the staff determines if the proposed change is consistent with the NRC's Safety Goal Policy Statement, as documented in RG 1.174 for adequacy of plant protection from potential risk. Specifically, the first tier objective is to ensure that the plant risk does not increase unacceptably during the period the equipment is taken out of service.

The second tier addresses the need to preclude potentially high-risk plant configurations that could result if additional equipment, not associated with the proposed change, is taken out of service during the proposed 2-hour additional CT extension.

The third tier addresses the establishment of a configuration risk management program for identifying risk-significant configurations resulting from maintenance or other operational activities, and taking appropriate compensatory measures to avoid such configurations.

3.4.1 Basis and Quality of Risk Assessment

The licensee used its probabilistic risk assessment (PRA) model and appropriate conservative assumptions to assess the risk increase associated with operation at-power for a period of 2 additional hours without an operable battery. The licensee employed a plant-specific RISKMAN model, Version 7.1, which employs a small fault tree/large event tree model, and is the basis for the quantitative on-line risk assessment portion of ORAM-Sentinel. The Diablo Canyon PRA (DCPRA) is based on the original 1988 model that was performed as part of the Long-Term Seismic Program and was a full scope Level 1 PRA that included internal and external events. It was updated to support the Individual Examination (IPE) of 1991 and the IPE External events of 1993. The DCPRA was updated several times, including plant-specific reliability and unavailability data, incorporation of plant changes, and plant model fidelity. The current model is a full scope level 1 and level 2 PRA model, and has been incorporated with the peer review comments by Westinghouse Owners Group.

Subsequently, numerous enhancements were made for various applications, that included loss of offsite power initiating events, applications for on-line maintenance, and TS changes, among others. All risk quantification was performed using RISKMAN Version 7.1 with a truncation limit of 1E-12 for all initiators, and a sensitivity case at 1E-14 was run with a negligible difference. The risk consideration included maintaining defense-in-depth and quantifying risk to determine the change in core damage frequency (CDF) and large early release frequency (LERF) as a result of the proposed 2-hour CT extension. Details of the risk metrics are discussed in the following Section 3.2.3 on risk impact as a result of the proposed change in Tier 1 evaluation.

The NRC staff evaluated the quality of the PRA models, limited to the systems related to the proposed change, major assumptions, and data used in the risk assessment. The NRC staff's review of the licensee's PRA and the risk assessment findings included an independent evaluation and comparison of the licensee risk metrics against that of the NRC's plant-specific Standardized Plant Analysis Risk (SPAR) model, Version 3.2, using an NRC PRA quantification tool, SAPHIRE Version 7, and NRC Manual Chapter 0609, Appendix H for LERF, as well as findings from similar evaluations of similar plants. The staff found it acceptable for this application.

3.4.2 Risk Impact of the Proposed Change (Tier 1)

An acceptable approach to risk-informed decisionmaking is to show that the proposed change to the design basis meets several key principles. One of these principles is to show that the proposed change results in a small, but acceptable, increase in risk in terms of CDF and LERF, and is consistent with the NRC's Safety Goal Policy Statement. Acceptance guidelines for meeting this principle are presented in RG 1.174. The licensee used its PRA model to calculate risk increases due to the CT extension of 2 hours, during which other associated batteries are available. Both the incremental conditional core damage probability (ICCDP) and the incremental conditional large early release probability (ICLERP) were assessed. These quantities are a measure of the increase in probability of core damage and large early release, respectively, during a single outage that would last for the entire duration allowed by the proposed change. The acceptance guideline for an extension of the TS CT is provided in RG 1.177 as 5.0E-7 and 5.0E-8 for ICCDP and ICLERP, respectively. However, the RG 1.177 guideline is for permanent changes, and the reviewer has considered additional credits for the

proposed one-time extension within the bound of adequate protection under the guideline in RG 1.174. Based on the one-time extension of 2 hours, the risk metrics are summarized in the following table:

		Baseline CDF	Incremental Change in CCDP	Baseline LERF	Incremental Change in ICLERP
Prior to CT Extension		5.88E-05/yr		3.25E-06/yr	
Increase because of 2-hour CT extension (Licensee Results)			7.23E-08		1.49E-09
New Baseline CDF		5.88E-05/yr		3.25E-06/yr	
Increase because of 2-hour CT Extension	A. Using NRC SPAR 3.2 Model		7.48E-08		<7.48E-9 ***
	B. Compensatory Measures*		Not credited		Not credited
Acceptance Guidelines**			5E-7		5E-8

* Quantifiable compensatory measures provided by the licensee
** Criteria for permanent change, flexibility considered for one-time changes.
*** Using a conversion factor less than 0.1 based on Appendix H, ROP process. See the discussion below.

The licensee's results of the risk metrics are consistent with that of the NRC's SPAR values. Based on the staff's analysis using the SPAR model, the configuration risk increase associated with internal initiating events with a Vital Battery 1-1 out-of-service is 7.48E-8 in ICCDP, and less than 7.48E-9 for ICLERP, well within the threshold values of 5.0E-07 and 5.0E-8, respectively, the acceptance guideline for total CDF risk (internal and external events) in RG 1.177 for permanent changes. The licensee used full scope Level I and II PRA model that addresses internal, seismic and fire events at full power. The LERF is independently estimated employing NRC Inspection Manual Chapter 0609, Significance Determination Process Appendix H with the CDF-LERF conversion factor of 0.1. This conversion multiplier is a ratio of LERF-to-CDF to evaluate the LERF value conservatively for those plants without available level II and III PRA model for NRC staff.

The DCPP, Unit No. 1, containment is a large dry, reinforced concrete containment with steel liner. The containment design pressure is 47 pounds per square inch gauge (psig) and the ultimate pressure capacity is approximately 140 psig. It is among the largest and the most robust containments with regard to containment volume and ultimate pressure capacity. Given its large volume and high ultimate pressure capacity, the DCPP, Unit No. 1, containment is capable of withstanding the internal loads associated with energetic phenomena, such as direct containment heating and hydrogen deflagrations, with a low attendant probability of containment over-pressure failure. For the same reasons, potential containment failures due to

gradual containment over-pressurization (from such mechanisms as non-condensible gas generation from core concrete interactions, or steam generation during events with loss of all containment heat removal) would not be expected to occur until tens of hours following event initiation, and well after the timeframes in which the close-in population could be evacuated. Accordingly, these containment failure mechanisms do not typically contribute to LERF.

As is the case for other large dry containments, the major contribution to LERF is from containment bypass sequences (including interfacing systems loss-of-coolant accidents and steam generator tube rupture events), and from core damage events in which the containment fails to isolate. However, the frequency of these events and their relative contribution to CDF is small. The net result is that the multiplier of the overall conditional containment failure probability and the overall LERF is typically less than 0.1 for such containment.

Defenses against potential CCFs are maintained and the potential for a new CCF mechanism is assessed. There are no physical changes nor design/operational changes introduced as a result of the proposed change. In assessing risk metrics, the licensee did not include CCF of the battery trains since the proposed TS changes will require inspection of the operable trains prior to taking the affected trains out of service.

The licensee evaluated the configuration risk without a Bus F Battery, using a “zero maintenance” model. Parametric uncertainty was not assessed based on a rationale that the proposed change does not affect the parametric uncertainty. However, it was understood that the conditions of other vital batteries may be indicative of CCFs, and this was not considered because the compensatory measure of inspecting the conditions of other batteries would reduce the uncertainty.

During the proposed extension period, the total CDF and LERF have been increased due to the incremental changes in ICCDP and ICLERP respectively, resulting from the one-time 2-hour extension of the CT under TS 3.8.4. However, the licensee employed several conservative assumptions with separate compensatory measures during the maintenance activities to reduce the plant risk. The specifics of risk quantification (qualitative and quantitative) of the proposed compensatory measures are documented in the proposed request letter and supplemented in the RAI response letter. The proposed compensatory measures are not credited in the incremental risk figures, and the risk increases under the proposed CT extension are well within the acceptable guidelines.

The NRC staff has evaluated risk insights, associated with conducting the repair to the vital battery during at-power operation, and qualitatively compared the risk with the total risk of performing the maintenance activities following transitional operation and shutdown without the battery. The staff concurs with the licensee’s assessment that a separate risk evaluation is not necessary for the shutdown and transitional risk, since they are bounded by the at-power risk.

In conclusion, a one-time 2-hour extension of TS LCO 3.8.4 at power to perform appropriate maintenance work would be more desirable than requiring the plant to go through a maintenance transition and potential shutdown.

3.4.3 Avoidance of High- Risk Plant Configurations (Tier 2)

The licensee's PRA identified and estimated major risk contributors of plant configurations, contributing event sequences, and associated cutsets. Potential major risk contributors include plant equipment failures, human errors, and CCFs. Insights from the risk assessment will be used in identifying and monitoring the plant configurations or conditions that may lead to significant risk increases during the CT extension. The NRC staff finds that the proposed precautions, as well as the proposed compensatory measures, identified in the licensee's submital are adequate for preventing plant configurations or conditions that may increase risk significantly. In conclusion, there is reasonable assurance that high-risk plant configuration will not occur during the proposed 2-hour extension period.

The ORAM-Sentinel computor code is a configuration risk management tool that is equivalent to equipment out-of-service (EOOS) software for configuration-specific risk assessment. Also, the licensee is maintaining the continuous on-line risk management program to control the performance of other risk-significant tasks during the extended CT period with consideration of specific compensatory measures listed in the initial submittal to minimize risk. The dominant accident sequences contributing to the assessed risk increase include the occurrence of conditions due to the unavailability of and demand for the use of the Vital Bus F Battery 1-1.

3.4.4 Risk-Informed Configuration Risk Management (Tier 3)

The intent of risk-informed configuration risk management is to ensure that plant safety is maintained and monitored. ORAM-Sentinel is the tool the licensee currently uses for configuration risk management in all modes, and the DCPP RISKMAN PRA model is the basis for the quantitative on-line risk assessment portion of ORAM-Sentinel. The licensee is taking a proactive approach to maintain plant risk to a minimum while performing on-line maintenance activities, and identifying specific risk management procedures, as documented in the Enclosure 1, Section 5.4.3 of the change request dated October 18, 2006. A formal commitment to maintain a configuration risk management program is necessary on the part of a utility prior to implementation of a risk-informed TS. This program can support the licensee's decisionmaking regarding the appropriate actions to control risk whenever a risk-informed TS LCO is entered. The staff finds that the licensee has an adequate configuration risk management program to support the proposed license amendment.

The NRC staff has developed risk insights, associated with conducting the repair to the battery during at-power operation, and qualitatively compared the risk with the total risk of performing the maintenance activities following transitional operation and shutdown without the battery. The NRC staff concludes that the shutdown and transitional risk are greater than at-power risk, and thus, the proposed one-time 2-hour extension of the CT with an inoperable battery is acceptable. In addition, as discussed in Section 3.3, based on a deterministic evaluation, the NRC staff finds that the proposed revisions to the DCPP, Unit No. 1, TSs are reasonable and would continue to ensure the availability of the required DC power to shut down the reactor and to maintain the reactor in a safe condition after an anticipated operational occurrence or a postulated design basis accident. Based on the above, the NRC staff concludes that the one-time request, for Cycle 14 for DCPP, Unit No. 1, for the extension of the CT for LCO 3.8.4 from 2 hours to 4 hours is acceptable.

4.0 EXIGENT CIRCUMSTANCES

The Commission's regulations, 10 CFR 50.91, contain provisions for issuance of amendments when the usual 30-day public notice period cannot be met. One type of special exception is an exigency. An exigency is a case where the staff and licensee need to act promptly. PG&E requested this amendment for DCPP, Unit No. 1, be processed on a one-time exigent basis to support a timely corrective action for the degraded condition affecting a single cell that impacts the long-term reliability of Vital Battery 1-1. This amendment was requested under exigent circumstances to alleviate the risk of a TS-required shutdown with a degraded battery.

DCPP, Unit No. 1, Vital Battery 1-1 (one of the three Class 1E vital batteries) has been in service for approximately 11 years. It was replaced during the DCPP, Unit No. 1, Seventh Refueling Outage on October 13, 1995. Subsequent quarterly surveillance testing has shown normal voltages for all 60 cells, including the surveillance test completed on July 13, 2006. Throughout this period, there was no indication of a problem with Cell 15.

On October 3, 2006, during the performance of the quarterly surveillance of Battery 1-1, it was noted that Cell 15 had a low voltage of 2.093 V DC compared to a typical cell voltage between 2.20 to 2.25 V DC on the float voltage. The 2.093 V DC cell voltage is above the minimum cell voltage required by TS 3.8.6, "Battery Parameters" Condition A of greater than 2.07 V DC. Therefore, Battery 1-1 remained operable. Visual inspection of the low-voltage cell of Battery 1-1 revealed that sulfation was forming on the positive plates of the cell which is a confirmatory indication of low-cell voltage. Currently, Battery 1-1 is operable since the low-cell voltage of 2.093 V DC is still greater than or equal to 2.07 V DC as required in TS 3.8.6 Condition A. However, if Cell 15 degrades to below the TS minimum limit of 2.07 V DC, the Required Action requires restoring the affected cell float voltage to greater than or equal to 2.07 V DC in 24 hours. If this Required Action and associated CT are not met, TS 3.8.6 Condition F will be entered to declare the associated battery inoperable immediately. With one battery inoperable, the plant has two hours to restore the battery to operable status, or a shutdown of the unit is required. PG&E requested an exigent TS change to extend the CT for the Vital Battery 1-1 from 2 to 4 hours for the current operating Cycle 14 to allow sufficient time to correct a degraded condition on the station Vital Battery 1-1 and alleviate the potential to shutdown the plant because of the degraded battery.

The licensee has performed an equalizing charge on Battery 1-1 when the problem was discovered, and although the sulfation was removed, the charge was ineffective in bringing Cell 15's voltage up. Single cell charging was then performed for a week and this was also ineffective. Per the battery vendor's recommendation, single cell charging was performed again but at a higher charging voltage which was also ineffective. Therefore, PG&E has elected to bypass the low-voltage cell as soon as possible. The NRC staff has concluded that exigent circumstances exist because of the degraded condition of the battery at present, and the potential for the battery to become inoperable without further warning at anytime. Although the battery could remain operable in its current condition for an indefinite time, its continued operability is in question as it could become further degraded without notice and quickly become inoperable. This potential constitutes an exigent circumstance. In addition, the NRC staff concluded that the licensee did not abuse the exigent circumstances rule inasmuch as the licensee could not have detected the battery's condition sooner; the licensee made efforts to restore the battery promptly upon discovering the problem, without success; and the licensee then determined that the battery was not restorable and could become inoperable at any time

without advance notice. Further, the licensee promptly filed the amendment request upon finding that the battery was not restorable, and thus acted in a timely manner in seeking the amendment. These circumstances warrant the issuance of the requested amendment prior to conclusion of the 30-day period for public comment as an exigent circumstances amendment.

There were no public comments in response to the notice published in the *Federal Register* on October 27, 2006 (71 FR 63040).

5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards considerations if operation of the facility in accordance with the amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in the margin of safety. Based on its analysis, the NRC staff has concluded that:

Operation of the facility in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated. The amendment adds provisions to increase the CT from 2 hours to 4 hours, on a one-time basis for DCPP, Unit No. 1 Vital Battery 1-1. Additional Required Actions are specified when this battery, associated with the plant Class 1E Direct Current (DC) electrical power subsystem, is inoperable. The amendment does not physically alter any plant structures, systems, or components, and is not an accident initiator; therefore, there is no effect on the probability of accidents previously evaluated. As part of the single-failure design feature, loss of any one DC electrical power subsystem does not prevent the minimum safety function from being performed. Also, the amendment does not affect the type or amounts of radionuclides released following an accident, or affect the initiation and duration of their release. Therefore, the consequences of accidents previously evaluated, which rely on the Class 1E Battery to mitigate, are not significantly increased. Therefore, the amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Operation of the facility in accordance with the amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated. The amendment does not involve a change in design, configuration, or method of operation of the plant. The amendment will not alter the manner in which equipment is initiated, nor will the functional demands on credit equipment be changed. The amendment does not impact the interaction of any systems whose failure or malfunction can initiate an accident. There are no identified redundant components affected by these changes and, thus, there are no new CCFs or any existing CCFs that are affected by extending the CT. The amendment does not create any new failure modes. Therefore, the amendment does not create the possibility of a new or different accident from any accident previously evaluated.

Operation of the facility in accordance with the amendment will not involve a significant reduction in the margin of safety. The amendment is based upon both a deterministic evaluation and a risk-informed assessment.

The deterministic evaluation concluded that although one battery associated with the Class 1E DC electrical power subsystem is inoperable, the redundant operable Class 1E DC electrical power subsystems will be able to perform the safety function as described in the accident analysis.

The risk assessment performed to support this license amendment request concluded that with additional Required Actions the increase in plant risk is small and consistent with the NRC's Safety Goal Policy Statement, "Use of Probabilistic Risk Assessment Methods in Nuclear Activities: Final Policy Statement," guidance contained in RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," and guidance contained in RG 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications."

Together, the deterministic evaluation and the risk-informed assessment provide assurance that the plant Class 1E DC electrical power subsystem will be able to perform its design function with a longer CT for an inoperable Unit No. 1 Vital Battery 1-1 and risk is not significantly impacted by the change. Therefore, the amendment does not involve a significant reduction in a margin of safety.

Based upon the above considerations, the NRC staff concludes that the amendment meets the three criteria of 10 CFR 50.92. Therefore, the NRC staff has made a final determination that the amendment does not involve a significant hazards consideration.

6.0 STATE CONSULTATION

In accordance with the Commission's regulations, the California State official was notified of the proposed issuance of the amendment. The State official had no comments.

7.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has made a final finding that the amendment involves no significant hazards consideration. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

8.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: J. Chung
M. McConnell

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cc:
NRC Resident Inspector
Diablo Canyon Power Plant
c/o U.S. Nuclear Regulatory Commission
P.O. Box 369
Avila Beach, CA 93424

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

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

Chairman
San Luis Obispo County
Board of Supervisors
1055 Monterey Street, Suite D430
San Luis Obispo, CA 93408

Mr. Truman Burns
Mr. Robert Kinosian
California Public Utilities Commission
505 Van Ness, Room 4102
San Francisco, CA 94102

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

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
Harris Tower & Pavillion
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Richard F. Locke, Esq.
Pacific Gas & 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

Director, Radiologic Health Branch
State Department of Health Services
P.O. Box 997414, MS 7610
Sacramento, CA 95899-7414

Mr. James D. Boyd, Commissioner
California Energy Commission
1516 Ninth Street (MS 31)
Sacramento, CA 95814

Mr. James R. Becker, Vice President
Diablo Canyon Operations
and Station Director
Diablo Canyon Power Plant
P.O. Box 56
Avila Beach, CA 93424

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