September 26, 2003

Mr. Gregory M. Rueger
Senior Vice President, Generation and
Chief Nuclear Officer
Pacific Gas and Electric Company
Diablo Canyon Nuclear Power Plant
P.O. Box 3
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 - ISSUANCE OF LICENSE AMENDMENTS RE: SPENT FUEL CASK HANDLING (TAC NOS. MB4998 AND MB4999)

Dear Mr. Rueger:

The U. S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 162 to Facility Operating License No. DPR-80 and Amendment No. 163 to Facility Operating License No. DPR-82 for the Diablo Canyon Power Plant (DCPP), Unit Nos. 1 and 2, respectively. The amendments are in response to your application dated April 15, 2002, as supplemented by letters dated September 27, 2002, February 28, 2003, April 25, 2003, June 24, 2003, and September 12, 2003.

The amendments authorize changes to the Final Safety Analysis Report (FSAR) Update, together with other analyses, design, and procedure changes, to implement the DCPP NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants – Resolution of Generic Activity A-36" program that is required to implement a dry cask Independent Spent Fuel Storage Installation (ISFSI).

A copy of the related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Additionally, your application dated April 15, 2002, requested an exemption from the requirements of 10 CFR 70.24. However, by letter dated September 27, 2002, you informed the staff that you have chosen to comply with 10 CFR 50.68 instead of 10 CFR 70.24, and that

you plan to submit a request for exemption from 10 CFR 50.68. Your exemption request, when received, will be reviewed separately.

Sincerely,

/RA/

Girija S. Shukla, Project Manager, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-275
and 50-323

Enclosures:
1. Amendment No.162 to DPR-80
2. Amendment No. 163 to DPR-82
3. Safety Evaluation

cc w/encls: See next page

you plan to submit a request for exemption from 10 CFR 50.68. Your exemption request, when received, will be reviewed separately.

Sincerely,
/RA/
Girija S. Shukla, Project Manager, Section 2
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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. 162
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 April 15, 2002, and its supplements dated September 27, 2002, February 28, April 25, June 24, and September 12, 2003, 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, by Amendment No. 162, the license is amended to authorize revision of the Final Safety Analysis Report (FSAR) Update, as set forth in the application for amendment by Pacific Gas and Electric Company dated April 15, 2002, and supplements dated September 27, 2002, February 28, April 25, June 24, and September 12, 2003. Pacific Gas and Electric Company shall update the FSAR Update to incorporate the Diablo Canyon Power Plant NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants – Resolution of Generic Activity A-36" program that is required to implement a dry cask Independent Spent Fuel Storage Installation, as described in the amendment application of April 15, 2002, and supplements dated September 27, 2002, February 28, April 25, June 24, and September 12, 2003, and the staff's Safety Evaluation attached to this amendment.

3. This license amendment is effective as of its date of issuance and shall be implemented following the implementation of the Independent Spent Fuel Storage Installation (ISFSI). The implementation of the amendments includes the incorporation into the FSAR Update the changes discussed above, as described in the licensee's application dated April 15, 2002, and supplements dated September 27, 2002, February 28, April 25, June 24, and September 12, 2003, and evaluated in the staff's Safety Evaluation attached to this amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Date of Issuance: September 26, 2003

PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-323

DIABLO CANYON NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 163
License No. DPR-82

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

   A. The application for amendment by Pacific Gas and Electric Company (the licensee) dated April 15, 2002, and its supplements dated September 27, 2002, February 28, April 25, June 24, and September 12, 2003, 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, by Amendment No. 163, the license is amended to authorize revision of the Final Safety Analysis Report (FSAR) Update, as set forth in the application for amendment by Pacific Gas and Electric Company dated April 15, 2002, and supplements dated September 27, 2002, February 28, April 25, June 24, and September 12, 2003. Pacific Gas and Electric Company shall update the FSAR Update to incorporate the Diablo Canyon Power Plant NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants – Resolution of Generic Activity A-36" program that is required to implement a dry cask Independent Spent Fuel Storage Installation, as described in the amendment application of April 15, 2002, and supplements dated September 27, 2002, February 28, April 25, June 24, and September 12, 2003, and the staff's Safety Evaluation attached to this amendment.

3. This license amendment is effective as of its date of issuance and shall be implemented following the implementation of the Independent Spent Fuel Storage Installation (ISFSI). The implementation of the amendments includes the incorporation into the FSAR Update the changes discussed above, as described in the licensee's application dated April 15, 2002, and supplements dated September 27, 2002, February 28, April 25, June 24, and September 12, 2003, and evaluated in the staff's Safety Evaluation attached to this amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Date of Issuance: September 26, 2003

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 162 TO FACILITY OPERATING LICENSE NO. DPR-80

AND AMENDMENT NO. 163 TO FACILITY OPERATING LICENSE NO. DPR-82

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-275 AND 50-323

1.0 INTRODUCTION

By application dated April 15, 2002, as supplemented by letters dated September 27, 2002, February 28, 2003, April 25, 2003, June 24, and September 12, 2003, Pacific Gas and Electric Company (PG&E or licensee) requested amendments to Facility Operating License Nos. DPR-80 and DPR-82, for Diablo Canyon Power Plant, Unit Nos. 1 and 2 (DCPP). The proposed license amendment request (LAR) involves changes in the implementation of the DCPP NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants – Resolution of Generic Activity A-36," program together with other analyses, design and procedure changes required to implement a dry cask Independent Spent Fuel Storage Installation (ISFSI). The proposed license amendment request was submitted in accordance with the recommendations of NRC Bulletin 96-02, "Movement of Heavy Loads Over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment," and describes the dry cask-related activities to be performed in the DCPP 10 CFR Part 50 licensed facilities along with other cask transport and ISFSI activities that could potentially affect the DCPP 10 CFR Part 50 facilities.

The September 27, 2002, February 28, April 25, June 24, and September 12, 2003, supplemental letters provided additional clarifying information, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on June 11, 2002.

The proposed changes would allow handling and loading of Holtec International's (Holtec's) multi-purpose canisters and transfer cask in the DCPP 10 CFR Part 50 facilities, which include the fuel handling building/auxiliary building (FHB/AB), where most of the 10 CFR Part 50 dry cask related activities take place, and other structures, systems, and components (SSCs) associated with the DCPP 10 CFR Part 50 licensed facilities that could either affect or be affected by the ISFSI activities. By letter dated December 21, 2001, PG&E applied for a site-specific license for an ISFSI at DCPP, in accordance with 10 CFR Part 72. The ISFSI would use Holtec's HI-STORM 100 System. Approval of this LAR is necessary to implement the DCPP ISFSI.

Section 2.0 of Enclosure 1 to the LAR states that no changes to the DCPP operating licenses or technical specifications are required. The applicable details (such as the "spent fuel cask exclusion zone") were previously relocated from the technical specifications to the Final Safety Analysis Report (FSAR) Update in accordance with License Amendments 135/135 for DCPP Unit Nos. 1 and 2, dated May 28, 1999.

This amendment request is to make changes to (1) cask handling procedures, (2) hardware and other procedures, and (3) accident analyses revisions and updates. The changes to cask handling procedures include the modification of DCPP procedures and Final Safety Analysis Report (FSAR) Update to eliminate spent fuel cask exclusion zone. The elimination of the exclusion zone would allow use of Holtec's 125-ton transfer cask, containing a multi-purpose canister (MPC) for storing spent fuel assemblies, fuel debris, and other authorized non-fuel-related hardware, in the DCPP facilities, including the cask recess area in the spent fuel pool (SFP). The DCPP FSAR Update and NUREG-0612 submittal, dated April 21, 1998 described a 67-1/2 ton cask. In accordance with the recommendations of NRC Bulletin 96-02, PG&E submitted this LAR for the staff's review and approval because the analyses for a 125-ton cask demonstrating that the associated licensing criteria remain satisfied was not previously approved by the staff.

PG&E would revise the FSAR Update, DCPP procedures, and other affected documents to incorporate key modifications and procedure changes. These changes would be necessary to handle, load, drain, dry, backfill with helium, and seal the MPC while within the transfer cask, before it leaves the FHB/AB.

The accident analysis and associated descriptions in the DCPP FSAR Update that evaluates spent fuel cask movement impacts on the DCPP 10 CFR Part 50 facilities would be revised. The revisions would include a description of key features and changes necessary, so that analyses demonstrate the potentially affected DCPP 10 CFR Part 50 facilities, the fuel, the MPC, and transfer cask remain within their respective licensing bases.

2.0 REGULATORY EVALUATION

NUREG-0554, "Single-Failure-Proof Cranes for Nuclear Power Plants," dated May 1979, identifies features of the design, fabrication, installation, inspection, testing, and operation of single-failure-proof overhead crane handling systems that are used for handling critical loads. NUREG-0554 superseded Draft Regulatory Guide 1.104, "Overhead Crane Handling Systems for Nuclear Power Plants," dated 1976.

NUREG-0612 provides regulatory guidelines in two phases (Phase I and II) for licensees to assure safe handling of heavy loads in areas where a load drop could impact on stored spent fuel, fuel in the reactor core, or equipment that may be required to achieve safe shutdown or permit continued decay heat removal. Phase I guidelines address measures for reducing the likelihood of dropping heavy loads and provide criteria for establishing safe load paths, procedures for load handling operations, training of crane operators, design, testing, inspection, and maintenance of cranes and lifting devices, and analyses of the impact of heavy load drops. Phase II guidelines address alternatives for mitigating the consequences of heavy load drops, including using (1) a single-failure-proof crane for increased handling system reliability, (2) electrical interlocks and mechanical stops for restricting crane travel, or (3) load drops and

consequence analyses for assessing the impact of dropped loads on plant safety and operations. NUREG-0612, Appendix A, provides guidelines for an analysis of postulated load drops and evaluation of potential consequences. NUREG-0612, Appendix C, provides alternative means of upgrading the reliability of the crane to satisfy the guidelines of NUREG-0554.

The basis for the guidelines in NUREG-0612 was to minimize the occurrence of the principal causes of load handling accidents and to provide an adequate level of defense-in-depth for handling of heavy loads near spent fuel and safe shutdown systems. Defense-in-depth is generally defined as a set of successive measures that reduce the probability of accidents and/or the consequences of such accidents. In the area of control of heavy loads, the emphasis is on measures that prevent load drops or other load handling accidents. These measures include: use of rigorous crane design standards with substantial safety margins; implementation of prudent maintenance, testing, and inspection guidance; selection and use of appropriate lifting devices; and establishment of crane operator training programs and heavy load handling procedures. Measures to reduce the consequences of potential load handling accidents include: restricting, by procedure or interlock, the travel of heavy loads to reduce the potential that a dropped load would damage spent fuel or safe shutdown equipment; verifying by analysis that intervening structures would prevent a dropped load from damaging spent fuel or safe shutdown equipment; or verifying by analysis that the damage to critical SSCs from a dropped load would remain within acceptable limits. At a minimum, the operational restrictions that maintain heavy loads within selected safe load paths provide some defense-in-depth in addition to measures that reduce the probability of a load drop by reducing the likelihood that a dropped load could damage critical SSCs.

Generic Letter 85-11, "Completion of Phase II of Control of Heavy Loads at Nuclear Power Plants, NUREG-0612," dated June 28, 1985, dismissed the need for licensees to implement the guidelines of NUREG-0612 Phase II on the basis of improvements obtained from the implementation of NUREG-0612 Phase I. Generic Letter 85-11, however, encouraged licensees to implement actions they perceived to be appropriate to provide adequate safety.

NRC Bulletin 96-02, dated April 11, 1996, clarified that "[a]lthough the generic letter [GL 85-11] stated that the NRC staff review of the Phase II submittals did not indicate the need to require further generic action at that time, it did not preclude the possible further need for the staff to review additional heavy load handling concerns and to require, as appropriate, further actions by licensees."

NRC Bulletin 96-02, states the following:

> For licensees planning to perform activities involving the handling of heavy loads over spent fuel in the reactor core, or safety related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) and that involve a potential load drop accident that has not previously been evaluated in the FSAR [final safety analysis report], submit a license amendment request in advance (6-9 months) of the planned movement of the loads so as to afford the staff sufficient time to perform an appropriate review.

3.0 TECHNICAL EVALUATION OF HANDLING OF THE SPENT FUEL TRANSFER CASK

The staff has reviewed the licensee's technical analysis in support of its proposed LAR on handling of the spent fuel transfer cask with a maximum weight, including the lifting yoke during any loading, unloading, or transfer operation not to exceed 125 tons. The staff evaluation was conducted to determine acceptance of proposed procedure and hardware changes on the basis of obtaining reasonable assurance that the licensee has met the regulatory guidelines as described in Section 2.0.

The licensee's bases for the proposed changes to the DCPP NUREG-0612 Control of Heavy Loads Program are (1) commitments to meet the NUREG-0612, Section 5.1.1 guidelines for safe load paths; procedures; crane operators; special lifting devices; general lifting devices; crane inspection, testing, and maintenance; and crane design; (2) commitments to increase reliability of the FHB/AB crane by design modifications, which conformed to the intent of NUREG-0612, Appendix C guidelines, and (3) demonstration of acceptable consequences for postulated load drops using analyses in accordance with the NUREG-0612, Appendix A guidelines. The staff evaluation of these bases is described below.

PG&E has provided defense-in-depth through the crane enhancements in those locations where drop could have unacceptable consequences. Specifically, the design of the auxiliary lift ensures that uncontrolled drop onto the edge of the SFP wall, which could allow the cask to tip or tumble horizontally into the SFP or into the cask washdown area (CWA), is not credible. However, in three lifts during the transfer cask/MPC movement, greater vertical travel is required, and the redundant load path provided by the auxiliary lift is not available. These lifts are: (1) a drop onto the cask recess area of the SFP; (2) a drop onto the CWA; and (3) a drop or tipover when the transfer cask/MPC is being upended or downended on the cask transport frame, onto the AB floor, in the receiving/shipping area. The licensee analyzed the consequences of a postulated drop of the transfer cask/MPC during these three lifts. The staff evaluation of these analyses is described below.

3.1 NUREG-0612, General Guidelines

Section 4.2.2 of Enclosure 1 to the LAR describes the DCPP's Control of Heavy Loads Program, which includes revisions for loading the HI-STORM 100 System components within the 10 CFR Part 50 facility. The licensee described the defense-in-depth approach used for the following in accordance with the guidelines of Section 5.1.1 of NUREG-0612: safe load paths; procedures; crane operators; special lifting devices; general lifting devices; crane inspection, testing, and maintenance; and crane design.

The licensee has reviewed and will revise heavy load paths to incorporate the movement of the cask system. The licensee will add a load path in the receiving/shipping area for the upending and downending of the transfer cask on the cask transport frame so that the transfer cask assembly on the cask transport frame may pass through the FHB/AB roll-up door. The licensee states that the remaining load paths for other new heavy loads inside the FHB/AB are enveloped under a previous load path as shown in Figure 9 of Enclosure 1 to the LAR. In addition to the procedures, the licensee will use redundant electrical interlocks to ensure that the crane does not move outside of the analyzed load path and into a position where the cask could drop onto the fuel assemblies in storage racks in the SFP.

In a request for additional information (RAI), the staff asked the licensee to provide the basis for eliminating the cask exclusion area and to demonstrate how the defense-in-depth philosophy is maintained through cask handling operations supporting the proposed ISFSI. In the letter dated April 25, 2003, the licensee responded that PG&E did not intend to handle a spent fuel cask over any area of the SFPs other than the cask recess area as shown in Figure 9.1-3 of the DCPP FSAR Update. The DCPP Control of Heavy Loads Program prohibits movement of all heavy loads over the SFP fuel storage racks unless specifically authorized by written procedures reviewed and approved by the plant management. PG&E will not move the cask over the spent fuel storage racks, and the exclusion area over the fuel will not be eliminated. Elimination of the spent fuel cask exclusion zone was based on the design and load drop analyses of the overhead load handling system and its interface with the SFP frame. The overhead load handling system and SFP frame geometry was intentionally designed such that the transfer cask cannot adversely affect nuclear fuel assemblies placed in racks adjacent to the cask recess area which comprise the "spent fuel cask exclusion zone." The staff finds that the licensee's response is acceptable.

PG&E will revise its procedures covering the handling of heavy loads to address the transfer cask and related heavy load lifts and handling within the 10 CFR Part 50 facility, in accordance with PG&E's program requirements. The heavy loads procedures used to handle plant heavy loads are contained in maintenance procedures. Implementation of the HI-STORM 100 System will be in accordance with plant design control procedures, including the maintenance procedures, to reflect all the necessary details to ensure safe load handling for the HI-STORM 100 System loads.

In an RAI, the staff asked the licensee to describe the procedures that need to be revised and updated to implement the cask transfer operation. In response, in the letter dated April 25, 2003, the licensee listed the following procedures, which would be revised after approval and implementation of required design documentation, and described the changes:

- Inter-Departmental Administrative Procedure (IDAP) MA1.1D11, "Rigging and Load Handling," which implements administrative controls on heavy load handling in accordance with the DCPP Control of Heavy Loads Program commitments.

- IDAP MA1.1D14, "Plant Crane Operating Restrictions," which implements administrative controls on overhead crane heavy load handling in accordance with the DCPP Control of Heavy Loads Program commitments.

- Surveillance Test Procedure M-43, "Fuel Handling Building Crane Interlock Verification," which provides instructions for verifying the operability of the redundant interlock systems that prevent movement of the FHB crane over areas above the SFPs (except for the cask loadings).

- Mechanical Maintenance Procedure (MP) M50-3, "Overhead, Gantry and Mobile Crane Inspection, Testing and Maintenance," which provides inspection, testing and maintenance instructions for plant cranes including the FHB crane.

- MP 50.3, "Fuel Handling Building Crane Operation and Moveable Wall Relocation," which provides operating instructions specific to the FHB crane and the moveable walls that separate the Unit 1 and Unit 2 SFPs from the hot machine shop.

- Security procedures.

- Fire protection procedures.

In addition, the licensee will create the following new procedures: (1) a maintenance procedure (or procedures) to address load handling of the cask/MPC in the FHB/AB, up to and including placement at the ISFSI storage pad, and (2) a subset of operating procedures under Operating Procedure Series B-8 to assure plant conditions necessary to load (or unload) the dry cask storage system contents. The staff finds that the licensee's response is acceptable and it demonstrates the licensee's commitment to defense-in-depth philosophy with respect to procedures as recommended in Section 5.1.1(2) of NUREG-0612.

The licensee stated that crane operator training and qualification meets the requirements of ANSI B30.2-1976. The licensee will review the existing crane operator qualification training and augment it with storage system load handling practices, as applicable, to ensure compliance with Section 5.1.1(3) of NUREG-0612 commitments. In the RAI, the staff asked the licensee to explain what training, if any, will be conducted to ensure that personnel understand the new procedures and when the training will be conducted. In response, in the letter dated April 25, 2003, the licensee stated that training for handling of the cask/MPC would include instruction on the proper operation of all new or modified load handling equipment, heavy load exclusion areas, safe load paths and equipment testing requirements. This training would be completed prior to any cask/MPC handling operation inside the FHB/AB. The staff finds that the licensee's response is acceptable and it demonstrates the licensee's commitment to defense-in-depth philosophy with respect to crane operator training and qualification as recommended in Section 5.1.1(3) of NUREG-0612.

The licensee stated that special lifting devices will be used to lift the transfer cask/MPC, and include the transfer cask lifting yoke assembly, which couples the transfer cask/MPC to the FHB crane and the auxiliary lift. These devices have been, or will be, designed and constructed to ensure compliance with PG&E commitments to Section 5.1.1(4) of NUREG-0612.

The licensee stated that general lifting devices will be selected, procured where needed and installed in accordance with the requirements of the DCPP Control of Heavy Loads Program, which incorporated the guidance of ASME (formerly ANSI) B30.9. The staff finds that the licensee followed the guidelines of selecting general lifting devices as given in Section 5.1.1(5) of NUREG-0612.

The licensee stated that DCPP’s maintenance program meets the requirements of Chapter 2-2 of ANSI B30.2-1976 and the guidance of Section 5.1.1(6) of NUREG-0612. The additional load handling systems for dry cask operation will be added and controlled under the DCPP maintenance program.

The licensee stated that PG&E previously described the crane design and qualification in its December 5, 1984, NUREG-0612 submittal, and that description remained generally

appropriate. The crane was procured before NUREG-0612 was issued, but it is consistent with the intent of the ANSI/CMAA specifications, as described and accepted in the previously referenced submittal. In addition, the FHB crane will be modified to increase its load handling reliability and redundancy, as discussed in Section 4.2.1 of Enclosure 1 to the LAR. The staff finds that the licensee followed the guidelines for crane design as given in Section 5.1.1(5) of NUREG-0612.

The staff finds that the licensee demonstrates commitment to defense-in-depth philosophy in accordance with the guidelines of Section 5.1.1 of NUREG-0612: safe load paths; procedures; crane operators; special lifting devices; general lifting devices; crane inspection, testing, and maintenance; and crane design.

3.2 Handling System Modifications

The FHB crane consists of a main hoist and auxiliary lift. The main hoist of the crane carries the load at all times and is seismically qualified for all DCPP earthquakes at full-rated load (125 tons). The auxiliary lift is a redundant load-handling component with a rated load capacity of 128 tons. The auxiliary lift is a lifting beam suspended from two 100-ton screw jacks supported by a removable beam pinned to a yoke assembly pinned to the main hoist top block of the crane trolley. The bottom portion of the lift is removable from the crane during periods when not needed for dry cask storage system load handling operations.

The auxiliary lift receives loading from the main hoist system (hook load plus reeving) upon loss of the main hoist load path (load transfer) during specific load handling operations with the cask. In order to limit impact loading on the auxiliary lift during load transfer, the lift vertically adjusts its position to follow the vertical travel of the main hoist hook and bottom block. Vertical position of the auxiliary lift is controlled by the processing of inputs from the crane main hoist drive train and load measurement, and auxiliary lift screw jack drive train and load measurement.

In an RAI, the staff asked the licensee to state the maximum estimated load to be lifted with the new crane configuration (i.e., with the auxiliary lift) including the weight of the lifting devices because it was not clear from the April 15, 2002, LAR. In a letter dated April 25, 2003, the licensee clarified that the 128-ton rated capacity of the auxiliary lift was based on the nominal 125-ton weight of the loaded transfer cask, transfer cask lift yoke, extension links and slings, and 3 tons for the main hook, lower block and wire rope. The maximum load to be lifted with the main hoist was 125 tons. The maximum static load to be carried by the auxiliary lift upon a load carrying failure of the main hoist was 128 tons. The staff finds that the maximum load capacities of 125 and 128 tons for main hoist and auxiliary lift are sufficient for handling Holtec's HI-STORM 100 System with a maximum weight including the lifting yoke during any loading, unloading, or transfer operation.

In an RAI, the staff asked the licensee to demonstrate that the crane bridge and its supporting structure was adequate to support the combined weight of the trolley, auxiliary lift, and the crane at full rated load because it was not clear from the April 15, 2002, LAR. In the letter dated April 25, 2003, the licensee stated that it reevaluated the crane and structural analysis of record (FSAR Update Section 3.8.2.1) with loading of the auxiliary lift to find that the bounding local and global stresses on the FHB crane and structure were below the allowable stresses.

Seismic margin assessment of the auxiliary lift determined a minimum capacity to demand ratio of 1.05. The staff finds that the licensee's response is acceptable and that the crane bridge and supporting structure is adequate to support the new crane configuration.

The rigging components between the auxiliary lift and transfer cask lifting yoke are designed to double the factor of safety normally applied to rigging for a load handling operation resulting in a ten-to-one factor of safety. The rigging is also designed to limit excessive vertical travel during load transfer to control impact loading on the lift.

In an RAI, the staff asked the licensee to provide information on the design, testing and inspection criteria applicable to the auxiliary lift and a description of the proof testing to be completed at the manufacturer's facility on the auxiliary lift to verify its ability to perform its intended function prior to the checking and testing performed at the place of installation. In the letter dated April 25, 2003, the licensee responded that the lift is designed to the same structural code as the crane, Association of Iron and Steel Engineers (AISE) Standard No. 6 (Tentative), May 1, 1969. The licensee will upgrade the control systems of the crane using the applicable provisions of ASME B30.2, CMAA-70 and the National Electrical Code in accordance with the DCPP Control of Heavy Loads Program commitments. The rigging between the auxiliary lift and transfer cask lift yoke is designed in accordance with applicable provisions of ASME B30.9 for the slings and ANSI N14.6 for the steel extension links used only for handling between the CWA and receiving/shipping area (RSA) locations. Since the rigging to the cask lifting yoke is not redundant, a 10-to-1 factor of safety was used to select the slings in accordance with NUREG-0612 guidance, and the extension links are designed as special lifting devices in accordance with ANSI N14.6. The licensee will inspect and test the auxiliary lift in accordance with the provisions of ASME B30.2, as supplemented by CMAA-70, in accordance with the DCPP Control of Heavy Loads Program commitments. The licensee will inspect and test the rigging and special lifting device extension links in accordance with the provisions of ASME B30.9 and ANSI N14.6 as applicable in accordance with the DCPP Control of Heavy Loads Program commitments. The licensee will perform an impact proof test of the auxiliary lift structure simulating a load transfer condition followed by a standard 125 percent static proof load test prior to installation on the FHB crane. Once installed, the licensee will perform a customary 125 percent static load test of the main hoist and the auxiliary lift, independently. The staff finds that the licensee's response is acceptable and demonstrates the licensee's use of defense-in-depth by design, inspection, testing of heavy loads handling equipment as recommended in Section 5.1.1 of NUREG-0612.

In addition to the redundant load handling provided by the auxiliary lift, the licensee will upgrade the crane control system with the following:

- Add infinitely variable speed control for each motive function of the crane (bridge, trolley, and hoists).

- Add programmable controls for the operating logic of the crane and its interface with the auxiliary lift, providing safer crane operation by using diverse output measurements from the crane components as input to perform real-time monitoring and control of the machinery. The main hoist will be upgraded to include measurement of hook load and variable speed motor controller that allows loading of the system to be monitored and controlled by comparing output from a load cell in the hoist load path with expected

versus actual hoist motor current. A mismatch will cause the hoist system to stop safely and provide appropriate indication to the crane operator. The motor controls will also be programmed with limits to ensure that subcomponents of the machinery are not subjected to demands beyond their inherent design value (e.g., limiting motor output torque to match the maximum drive train gearbox rating, or "soft" motor startups to reduce dynamic loading on the drive train).

The staff finds that the licensee's crane modifications conform with the intent of NUREG-0612, Appendix C guidance, enhancing the reliability of the crane. Considering the limited area where the auxiliary lift provides defense-in-depth, the modified handling system is acceptable.

3.3 Load Drop Analyses

The licensee stated that the analyses for a drop of a loaded transfer cask from the highest point in the lift on to the bottom of the cask recess area of the SFP demonstrated the adequacy of the affected structures during the postulated drop. It demonstrated that the drop will not cause: (1) loss of building structural function, (2) damage to the SFP resulting in loss of SFP water, or (3) unacceptable damage to other systems or equipment. The SFP frame precludes cask tipover while the cask is resting on the bottom of the cask recess area, and ensures the cask remains upright in the event of an accidental fall into the SFP during a lift. The SFP frame is designed as a safety-related structure. For the load drop analysis, the licensee took an exception to the NUREG-0612, Appendix A guidance "that the load is dropped in an orientation that caused the most severe consequences." Based on the licensee's analysis, which confirmed the initial tipping was small and the use of the DCPP SFP frame that keeps the cask upright during a possible drop, the staff finds that the above exception is acceptable.

The licensee stated that the analyses for a drop of the transfer cask/MPC into the CWA of the SFP demonstrated the adequacy of the affected structures during the postulated drop. It demonstrated that the drop will not cause: (1) loss of building structural function, or (2) unacceptable damage to other systems or equipment. A removable cask seismic restraint structure keeps the cask from tipping over in any conditions that could be encountered while the cask is in the CWA. The cask restraint structure is designed as a safety-related structure. For the load drop analysis, the licensee took an exception to the NUREG-0612, Appendix A guidance "that the load is dropped in an orientation that caused the most severe consequences." Based on the licensee's analysis, which confirmed the initial tipping was small, and the use of the DCPP CWA seismic restraint, which keeps the cask upright during a possible drop, the staff finds that the above exception is acceptable.

The licensee stated that the analyses for (1) a vertical drop of a loaded transfer cask, without impact limiter protection, and (2) tipover of the cask and its contents during downending of the loaded cask from vertical to horizontal orientation onto the AB floor, demonstrated that the drop or tipover will not cause (1) loss of building structural function, or (2) unacceptable damage to other systems or equipment.

3.4 Summary

The licensee’s commitments to meet the guidelines of Section 5.1.1 of NUREG-0612 for safe load paths; procedures; crane operators; special lifting devices; general lifting devices; crane

inspection, testing, and maintenance; and crane design, and demonstration of acceptable consequences for postulated load drops using analyses will provide defense-in-depth and reasonable assurance that the handling of Holtec's HI-STORM 100 System at DCPP will be performed in a safe manner. Therefore, the staff finds the proposed changes in the implementation of the DCPP NUREG-0612 Control of Heavy Loads Program together with other proposed analyses, design and procedure changes acceptable.

3.5 Conclusion

On the basis of the preceding discussions, the staff has concluded that the proposed revisions to DCPP's Control of Heavy Loads Program associated with the upgrading of the FHB/AB crane at DCPP are in accordance with NUREG-0612 guidelines. To ensure the continued safety of the spent fuel in the spent fuel pool during movement of the transfer cask and other heavy loads, the licensee has committed to meet the guidelines of Section 5.1.1 of NUREG-0612 for safe load paths; procedures; crane operators; special lifting devices; general lifting devices; crane inspection, testing, and maintenance; and crane design, and demonstrated acceptable consequences for postulated load drops using analyses. The staff finds that the proposed revisions to DCPP's Control of Heavy Loads Program are acceptable and will not represent a decrease in oversight and control of the movement of heavy loads in the vicinity of the spent fuel pool.

4.0 TECHNICAL EVALUATION OF THE STRUCTURAL ADEQUACY

4.1 Natural Phenomena

4.1.1 Seismic Demand

PG&E stated in the LAR that the seismic loads with the criteria and methodologies used for the structural design and analysis involved in spent fuel storage and handling are the same as those described in the DCPP FSAR Update with one exception. The exception is the spatial load combination method used to determine seismic loads for the newly designed SFP frame structure. In the spatial combination method, the three component responses due to seismic input motions in the two horizontal and vertical directions is performed in accordance with the Newmark 100-40-40 method, instead of the standard square-root-of-the-sum-of-the-squares method, to determine the frame reactions and member stresses. PG&E stated that the Newmark 100-40-40 method previously used by PG&E in the Hosgri evaluation of the turbine building was reviewed and accepted by the NRC staff. In addition, this method has been endorsed by the NRC in a draft revision to Regulatory Guide 1.92, "Combining Modal Responses and Spatial Components in Seismic Response Analysis." This is acceptable to the staff.

4.1.2 Tornado Winds and Tornado Missile Generated Loads

The criteria and methodologies used for the tornado wind and tornado generated missile evaluation for DCPP, including the FHB/AB, are given in Section 3.3.2 of the DCPP FSAR Update. The tornado-generated missile spectrum for DCPP and the safe wind velocities associated with major structures and equipment, for both wind alone and wind combined with missiles, are also given in Section 3.3.2 of the DCPP FSAR Update.

PG&E stated in the application that the effects of tornado wind loads acting on the cask suspended from the FHB crane are enveloped by the seismic analysis of this configuration. Therefore, a separate evaluation for tornado loading was not required. However, it stated that the use and handling of the cask assembly in the FHB/AB will introduce new tornado missile targets that have not been previously addressed in the original plant licensing basis. This includes the cask and cask handling equipment used during cask loading, purging, and closure activities inside the FHB/AB. PG&E stated that the potential tornado effects during cask transport and storage are addressed in the 10 CFR Part 72 license application. This is acceptable to the staff.

4.2 Structural Design and Analysis

PG&E considered the potential impact of seismic events on cask loading, handling, closure, and transport activities in the evaluation of the cask system components and in the design and evaluation of the interfaces with the DCPP 10 CFR Part 50 facilities. Two new structures, the SFP frame and the CWA seismic restraint structure, have been designed in the DCPP 10 CFR Part 50 facilities for the ISFSI activities. PG&E stated that its structural analysis and design preclude unacceptable movements of the cask system components, assuring all involved SSCs remain within their design bases.

PG&E designed the SFP frame to enclose the transfer cask assembly, guide it during raising and lowering, and prevent unacceptable movement (swinging or tipping) in order to ensure that the transfer cask and MPC assembly cannot tip over and/or impact fuel or other parts of the SFP beyond their design basis limits. In addition, PG&E designed the CWA seismic restraint structure to provide a seismic restraint and to ensure that the cask MPC assembly remains in an upright position and does not impact other safety-related structures or equipment during a seismic event.

PG&E analyzed the following conditions to demonstrate conformance with the DCPP seismic licensing basis loads described in the DCPP FSAR Update:

- A loaded transfer cask in the SFP frame (inside SFP).
- A loaded transfer cask suspended from the FHB crane.
- A loaded transfer cask in the CWA seismic restraint structure (located in the cask walkdown area).
- A loaded transfer cask on the cask transport frame (located in the cask receiving/shipping area and access area).
- A loaded/unloaded HI-TRAC on the cask transport frame being carried by the transporter on the transport route when it could potentially impact the power plant.

PG&E and its contractor, Holtec, performed analyses to demonstrate the acceptability of the SFP frame, the auxiliary lift, the FHB crane, and the structural elements of the buildings for the loads imposed by the cask assembly, cask transport frame, SFP frame, and CWA cask seismic restraint. PG&E's analyses for the existing building structures and the new structures inside the

buildings used the DCPP licensing-basis load combinations, acceptance criteria, and methodology previously used in these buildings and similar structures at DCPP. The analyses also used current industry standard software, including ANSYS and SAP 2000, which have been qualified in accordance with PG&E's quality assurance program.

4.2.1 SFP Frame Structure

PG&E performed three-dimensional static analyses of the frame using SAP 2000 to develop stiffnesses for use in the dynamic analyses. It also performed nonlinear dynamic analyses, based on a two-dimensional model of the frame, using adjusted stiffness to match that of the three-dimensional frame (from the stiffness development calculation using SAP 2000). The nonlinear analyses were performed under the seismic loadings utilizing the ANSYS computer program. Seismic input was based on the North/South and East/West time histories at elevation 140 feet of the FHB/AB. Results of these analyses provided the impact forces between the cask and frame and/or SFP walls.

In addition, PG&E performed static analyses of the three-dimensional SFP frame, using the computer program SAP 2000, to calculate the member and connection forces and moments, and the frame reactions on the SFP walls and floor slab. Based on member forces and moments, and support reaction loads developed in the three-dimensional static analyses, PG&E designed joints, bumpers, supports, hinges, shimming, and splices.

PG&E also performed evaluations for the restraints connecting the top of the frame and the top of the SFP concrete wall at elevation 140 feet to withstand lateral loads imposed by the SFP frame and contained cask assembly during seismic events. It also performed evaluations to demonstrate the adequacy of existing cask restraint structure at elevation 111 feet in the SFP to withstand loads from the SFP frame and contained cask assembly during seismic events.

The staff reviewed the methodologies and the results of the analyses and found that they are in accordance with current industry practice and are consistent with the acceptance criteria set forth in the FSAR Update. The calculated stresses in the structures are all smaller than the allowable stresses, except that minor modifications to the existing restraint structure are required to accommodate the SFP frame. PG&E indicated that the structural modifications will be done prior to cask transport operations so that the structure will meet the current DCPP licensing basis criteria. The structural analyses and results are acceptable to the staff.

4.2.2 The Existing DCPP 10 CFR Part 50 Facilities including CWA Seismic Restraint Structure and Rail System

PG&E performed analyses that demonstrated the adequacy of the cask system inside the SFP frame, inside the CWA seismic restraint structure, and on the cask transport frame while the cask system enters or exits the building. PG&E also performed analyses which demonstrated the adequacy of the CWA seismic restraint structure, the hardware associated with crane handling activities, both inside and outside the SFP, and the cask transporter frame/rail system.

In the LAR, PG&E addressed the adequacy of the existing DCPP 10 CFR Part 50 facilities that will be subject to additional loads associated with the transfer cask/MPC assembly and the use of equipment in the DCPP 10 CFR Part 50 facilities. The evaluations included the FHB crane,

SFP floor and wall, and AB floor and wall. PG&E stated that all existing structural elements continue to meet the applicable criteria for the event under consideration, with the exception of the floor slab at elevation 115 feet, which will require shoring in selected areas to support the weight of the cask assembly and cask transport frame. PG&E indicated that the required shoring will be done prior to cask transport operations so that the structure will meet the current DCPP licensing basis criteria.

PG&E also performed analyses for the CWA seismic restraint structure, including its anchorage to the building wall, to demonstrate compliance with the DCPP structural design criteria. The computer codes, Visual Nastran 2001, ANSYS and DR.Frame2.0, were used for the analyses.

In order to demonstrate the stability of the cask and transporter with the rail system, PG&E performed a dynamic analysis. The result of the analysis shows that the cask and transporter will not overturn or leave the transport route during a design basis seismic event. Adequate clearance of the transporter from any safety-related 10 CFR Part 50 SSCs will be maintained when it is located in the area immediately adjacent to the FHB/AB. This assures there is no possibility of seismically-induced damage to the DCPP 10 CFR Part 50 facilities from the cask and transporter movement during such an event.

The staff reviewed the results of the analyses and found that the analyses verify the continued compliance of the DCPP 10 CFR Part 50 facilities with plant design criteria, with the additional loads imposed by the transfer cask/MPC system and associated components. In addition, the analyses demonstrate the adequacy of the CWA restraint structure and the cask transport frame/rail system, and the cask transporter to preclude unacceptable movement or impact on the DCPP 10 CFR Part 50 facilities. The analysis results show that the design of the handling systems, buildings, and associated structures such as the above frames and restraints, ensures the storage system components and plant structures will continue to perform their important-to-safety and safety-related functions during any of the postulated seismic events. Therefore, the analyses and their results are acceptable to the staff.

4.2.3 Exterior Structures

PG&E identified two exterior structures that may be affected by the weight of the cask assembly and cask transport frame. The two exterior structures are the east exterior wall and vital water tank piping vault. PG&E performed a calculation to demonstrate the adequacy of the structure with respect to lateral earth pressures related to the surcharge loads associated with movement of the cask assembly and cask transport frame outside the building. The results of the calculation show that the ratio of the actual maximum wall moment to the allowable moment is about 0.133, which is acceptable.

PG&E also evaluated the effects of the lateral earth pressure/surcharge loading on the vital water tank piping vaults below grade, east of the AB. The results of the evaluation showed that the vault walls are overstressed for the normal condition and for the abnormal condition that combines seismic and cask transporter surcharge loading. PG&E stated that the vault walls will be remediated prior to cask transport operations so that the walls meet the current DCPP licensing basis criteria. This is acceptable to the staff.

4.3 Drop and Tipovers

PG&E examined the postulated off-normal events and accidents to demonstrate that the consequences of these events remain within the current DCPP licensing basis criteria as identified in the DCPP FSAR Update. It addressed the spent fuel handling process, including spent fuel loading, unloading if required, and handling activities that take place in, or that could affect the DCPP 10 CFR Part 50 facilities. Potential heavy-load drops are postulated, evaluated, and analyzed in accordance with the guidance of Section 5.1 of NUREG-0612, demonstrating defense-in-depth.

4.3.1 Loaded Transfer Cask Drops

PG&E considered a potential for load drops during three lifts: (1) a drop onto the CWA, (2) a drop into the cask recess area of the SFP, and (3) a drop or tipover when the transfer cask/MPC is being upended or downended on the cask transport frame, onto the AB floor, in the receiving/shipping area. It performed a finite element analysis for the vertical drop of a loaded transfer cask (HI-TRAC 125D) using the computer code LS-DYNA to determine the consequences of the vertical drop event.

4.3.1.1 Drop Into the CWA

This evaluation considered the drop of a loaded transfer cask and MPC from the highest point in the lift (at approximate elevation 141 feet, 6 inches) to the floor in the CWA (at approximate elevation 115 feet). PG&E demonstrated that the drop of the transfer cask and MPC will not cause any: (1) stresses in the transfer cask, MPC, or basket, that exceed the allowables established in the HI-STORM 100 System FSAR for load handling accidents, (2) loss of fuel-cladding integrity due to exceeding allowable acceleration limits established in the HI-STORM 100 System FSAR for load handling accidents, (3) fuel criticality, (4) overheating of fuel in the MPC, (5) loss of retrievability of fuel in the MPC, (6) exposure of MPC contents by lid opening, (7) loss of shielding function due to unacceptable lead slump, and (8) loss of shielding function beyond the dose for analyzed loss of shielding accident in HI-STORM 100 System FSAR.

The results of PG&E's finite element analysis of the post-impact event are summarized in the following:

1. The maximum Von Mises stress in the MPC enclosure vessel is approximately one-third of the allowable stress intensity, as described in the HI-STORM 100 System FSAR.

2. The maximum Von Mises stress in the body of the overpack is less than one-third of the allowable stress intensity, as described in the HI-STORM 100 System FSAR.

3. The maximum downward movement of the annular lead column relative to the transfer cask shells is below the value demonstrated to be acceptable.

4. The vertical drop event produces no change in the fuel geometry in the fuel basket.

5. The overall geometry of the overpack and the MPC remains unaltered.

In addition, PG&E used these results as an input to the analyses to demonstrate the adequacy of the affected structures during the postulated drop, demonstrating that the drop will not cause the loss of building structural function, or unacceptable damage to other systems or equipment.

In the analyses, PG&E demonstrated that there are no unacceptable consequences from a drop of the transfer cask and MPC in the loaded or unloaded condition in the CWA. Therefore, the guidelines for a drop analysis in NUREG-0612, Appendix A, are met, providing defense-in-depth assurance in addition to that achieved through compliance with PG&E's commitment to Section 5.1.1 of NUREG-0612. The analyses are acceptable to the staff.

4.3.1.2 Drop Into the Cask Recess Area

This evaluation considered the drop of a loaded transfer cask from the highest point in the lift (approximate elevation of cask bottom is 140 feet) to the bottom of the cask recess area in the SFP. This drop was similar to the drop into the CWA, except that there was water to slow the cask and the postulated drop is longer.

PG&E demonstrated that the drop of the transfer cask and MPC will not cause any: (1) stresses in the transfer cask, MPC, or basket, that exceed the allowables established in the HI-STORM 100 System FSAR for load handling accidents, (2) loss of fuel cladding integrity due to exceeding allowable acceleration limits established in the HI-STORM 100 System FSAR for load handling accidents, (3) fuel criticality, (4) overheating of spent fuel in the MPC, and (5) loss of retrievability of fuel in the MPC.

In addition, PG&E used these results as an input to the cask-drop analyses to demonstrate the adequacy of the affected structures during the postulated drop, demonstrating that the drop will not cause any: (1) loss of building structural function, (2) damage to the SFP resulting in loss of SFP water, or (3) unacceptable damage to other systems or equipment.

From these analyses, PG&E demonstrated that there are no unacceptable consequences from a drop of the transfer cask with an MPC in the loaded or unloaded condition. Hence the guidelines for a drop analysis in NUREG-0612, Appendix A, are met, providing defense-in-depth assurance in addition to that achieved through compliance with PG&E's commitments to Section 5.1.1 of NUREG-0612. The analyses are acceptable to the staff.

4.3.1.3 Drop or Tipover onto the AB Floor During Downending

An analysis of a vertical drop of the loaded transfer cask was performed using the dynamic finite element code LS-DYNA to establish the upper bound on the lift height. The following results were obtained from the LS-DYNA finite element analysis of the post-impact event:

1. The maximum Von Mises stress in the MPC enclosure vessel is approximately one-third of the allowable stress intensity in accordance with the HI-STORM 100 System FSAR.

2. The maximum Von Mises stress in the body of the overpack is approximately one-half of the allowable stress intensity in accordance the HI-STORM 100 System FSAR.

3. The maximum deceleration experienced by the fuel at the top of the fuel assemblies is less than the 60 g design limit discussed in the HI-STORM 100 System FSAR.

4. The tipover event produces no change in the fuel geometry in the fuel basket.

5. The overall geometry of the overpack and the MPC remain unaltered so that fuel can be removed from the unit after the event, if necessary.

6. There is no overheating of spent fuel in the MPC.

7. Shielding function is maintained.

In addition, PG&E performed analyses to demonstrate the adequacy of the affected structures during the postulated tipover. The results of the analyses showed that the tipover will not cause the loss of building structural function, or unacceptable damage to other systems or equipment.

PG&E analyses demonstrated that there are no unacceptable consequences from a tipover of the transfer cask and MPC in the loaded or unloaded condition. Hence, the guidelines for a drop analysis in NUREG-0612, Appendix A, are met, providing defense-in-depth assurance in addition to that achieved through compliance with PG&E's commitment to Section 5.1.1 of NUREG-0612. The analyses are acceptable to the staff.

4.3.1.4 Drop Before Loading MPC

PG&E stated that the smaller individual sub-components of the dry cask storage system have been evaluated within the commitments of DCPP's Control of Heavy Loads Program and the results of the evaluations are satisfactory. The staff concurs with its findings.

4.4 Conclusion

Based on the above evaluations, the staff concludes that there is reasonable assurance that the existing DCPP 10 CFR Part 50 facilities and two newly designed structures at DCPP provide an adequate degree of safety. The staff's conclusion is based on: (1) PG&E's structural analysis and design are in accordance with current industry practice and in compliance with current licensing basis set forth in the DCPP FSAR Update, (2) the criteria and methodologies used for the analyses have been previously reviewed and accepted by the NRC, (3) the adequate factor of safety of the induced stresses in the structures when they are compared to the corresponding allowables provided in the American Institute of Steel Construction (AISC) and American Concrete Institute (ACI) Codes, and (4) PG&E's overall structural integrity conclusions supported by static, dynamic and drop analyses that demonstrate the adequacy of the structural analysis and design to withstand the effects of the applicable loads including the seismic loads. The staff, therefore, concludes that, pursuant to 10 CFR 50.92, the structural aspects of the proposed LAR are acceptable.

5.0 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.

6.0 ENVIRONMENTAL CONSIDERATION

The amendments involve a change to 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 amendments involve 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 previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding (67 FR 40025). Accordingly, the amendments meet 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.

7.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

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