

July 23, 2010

Mr. John T. Conway  
Senior Vice President-Energy Supply  
& Chief Nuclear Officer  
Pacific Gas and Electric Company  
P.O. Box 3  
Mail Code 104/6/601  
Avila Beach, California 93424

SUBJECT: HUMBOLDT BAY POWER PLANT UNIT 3 - ISSUANCE OF AMENDMENT  
RE: DELETION OF FUEL STORAGE POOL LINER WATER LEVEL  
TECHNICAL SPECIFICATION (TAC NO. J00368)

Dear Mr. Conway:

The Commission has issued the enclosed Amendment No. 44 to Facility Operating License No. DPR-7 for the Humboldt Bay Power Plant Unit 3. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated April 9, 2010, as supplemented May 7, 2010.

The amendment deletes Technical Specification (TS) 3.1.3, "Fuel Storage Pool Liner Water Level." TS 3.1.3 imposed restrictions on the maximum operating water level in the gap between the stainless steel liner covering the inside surface of the fuel storage pool and the pool walls. Additional conforming and administrative changes are also made.

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

Sincerely,

**/RA/**

John B. Hickman, Project Manager  
Reactor Decommissioning Branch  
Decommissioning and Uranium Recovery  
Licensing Directorate  
Division of Waste Management  
and Environmental Protection  
Office of Federal and State Materials and  
Environmental Management Programs

Docket No. 50-133

Enclosures: Amendment  
Safety Evaluation

cc w/enclosures:  
Humboldt Bay Service List

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DATE	6/ /2010	5/12/2010	5/12/2010	6/14/2010	7/21/2010	7/23/2010

**OFFICIAL RECORD COPY**

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PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-133

HUMBOLDT BAY POWER PLANT, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 44  
License No. DPR-7

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 9, 2010, as supplemented May 7, 2010, 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 be maintained in conformity with the application, as amended, the provisions of the Act, and the applicable rules and regulations of the Commission;
  - C. There is reasonable assurance: 1) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public; and 2) that such activities will be conducted in compliance with applicable portions of 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-7 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 44, are hereby incorporated in the license. Pacific Gas and Electric Company shall maintain the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

Keith I. McConnell, Deputy Director  
Decommissioning and Uranium Recovery  
Licensing Directorate  
Division of Waste Management  
and Environmental Protection  
Office of Federal and State Materials and  
Environmental Management Programs

Date of Issuance: 7/21/2010

ATTACHMENT TO LICENSE AMENDMENT NO. 44

FACILITY OPERATING LICENSE (POSSESSION ONLY) NO. DPR-7

DOCKET NO. 50-133

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

All

INSERT

All

SAFETY EVALUATION BY OFFICE OF FEDERAL AND STATE MATERIALS  
AND ENVIRONMENTAL MANAGEMENT PROGRAMS  
RELATED TO AMENDMENT NO. 44 TO FACILITY OPERATING LICENSE NO. DPR-7  
PACIFIC GAS AND ELECTRIC COMPANY  
HUMBOLDT BAY POWER PLANT, UNIT 3  
DOCKET NO. 50-133

1.0 INTRODUCTION

By letter dated April 9, 2010, as supplemented May 7, 2010, Pacific Gas and Electric Company (PG&E, the licensee) submitted to the NRC, a request for an amendment to delete Technical Specification (TS) 3.1.3, "Fuel Storage Pool Liner Water Level" from its facility operating license. Additional conforming and administrative changes were also proposed. These changes were based on the completion of the transfer of spent nuclear fuel assemblies and fuel fragment containers (spent fuel) from the Spent Fuel Pool (SFP) to the Humboldt Bay Independent Spent Fuel Storage Installation (ISFSI).

2.0 BACKGROUND

The licensee, in its submittals and the Defueled Safety Analysis Report (DSAR), described the installation and function of the fuel storage pool liner. A stainless steel liner covering the inside surface of the fuel storage pool was installed in 1963 because of high chloride concentrations in the pool that were suspected to be from groundwater in-leakage. The liner formed a nominal one quarter- inch gap between the walls and floor of the pool and the liner. It was discovered in March of 1966 that a leak had developed in the fuel storage pool liner and that the leakage was from the fuel storage pool to the gap, and then through the structural concrete to the adjacent groundwater. TS 3.1.3 requires that the water level in the gap be maintained below the fuel storage pool water level and below the exterior groundwater level to preclude both pool leakage to the surrounding groundwater and groundwater leakage into the pool. Water level in the liner gap is maintained using a liner gap pump, which discharges to the Turbine Building Drain Tank in the Liquid Radwaste Collection System.

On July 2, 1976, Humboldt Bay Power Plant (HBPP) Unit 3 was shut down for annual refueling and to conduct seismic modifications. In 1983, updated economic analyses indicated that restarting Unit 3 would probably not be cost-effective, and in June 1983, PG&E announced its intention to decommission the unit. On July 16, 1985, the U.S. Nuclear Regulatory Commission (NRC) issued Amendment No. 19 to the HBPP Unit 3 Operating License to change the status to possess-but-not-operate, and the plant was placed into a SAFSTOR status. SAFSTOR is the decommissioning method in which a nuclear facility is placed and maintained in a condition that allows the safe storage of radioactive components of the nuclear plant and subsequent decontamination to levels that permit license termination.

In December 2003, PG&E formally submitted a license application to the NRC for approval of a dry-cask Independent Spent Fuel Storage Installation (ISFSI) at the Humboldt Bay site. A license and safety evaluation for the Humboldt Bay ISFSI were issued on November 17, 2005. The transfer of spent fuel from the fuel storage pool to the ISFSI was completed in December 2008, and the decontamination and dismantlement phase of HBPP Unit 3 decommissioning has commenced.

### 3.0 PROPOSED CHANGES

The changes proposed by this license amendment request (LAR) would delete TS 3.1.3, "Fuel Storage Pool Liner Water Level." The deletion of TS 3.1.3 will eliminate the only remaining Unit 3 TS Limiting Condition for Operation (LCO). Therefore, the licensee also proposed that TS sections 1.0, "Use and Application," 3.0, "Limiting Condition for Operation (LCO) Applicability," 3.0, "Surveillance Requirement (SR) Applicability," and 5.6.2, "Technical Specification (TS) Bases Control Program," be deleted because these sections are only applicable to TS LCOs. In addition, editorial corrections are proposed for the Table of Contents and TS section 4.1, "Site Location."

### 4.0 REGULATORY BASIS

10 CFR 50.36(c)(2)(ii), specifies the criteria for a limiting condition for operation as follows: "A technical specification limiting condition for operation of a nuclear reactor must be established for each item meeting one or more of the following criteria:

(A) Criterion 1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

(B) Criterion 2. A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

(C) Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

(D) Criterion 4. A structure, system, or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety."

### 5.0 TECHNICAL EVALUATION

Following completion of transfer of spent fuel from the storage pool to the ISFSI in December 2008, the licensee updated the HBPP Unit 3 Defueled Safety Analysis Report (DSAR), including the fuel pool rupture analysis. HBPP, Unit 3 Calculation NX-356, "Radiological Consequences for Breach of Defueled Spent Fuel Pool, June 2009," was performed by the licensee to re-analyze rupture of the fuel storage pool from a heavy load drop. The calculation inputs include the radioisotopic results from a March 2009 sample of fuel storage pool water and the conservative assumption that a uniform layer of high activity sludge is covering the floors of the fuel pit and the cask pit. The calculation concluded that various HBPP site groundwater studies continue to support the DSAR assertion that the only feasible pathway for radiological dose to the public is from human consumption of fish. The sum of the peak yearly doses from each

radionuclide released, which occur anywhere from three years to 244 years from the initiating event, is 0.37 mrem. The licensee's analysis determined that if all the peak doses were to occur in the same year, the maximum yearly dose to a single member of the public would be approximately 0.4 mrem due to the radionuclide concentrations in edible aquatic foods in Humboldt Bay. The highest yearly dose to a member of the public would be 0.24 mrem at 250 years. These dose consequences are less than the 10 CFR 20.1301 dose limit to a member of the public of 100 mrem in a year. The staff has reviewed HBPP, Unit 3 Calculation NX-356, and finds the analysis methodology and conclusions to be acceptable.

PG&E Calculation NX-356 evaluates the rupture of the fuel storage pool and subsequent discharge of the entire contents of the pool. The assumption in Calculation NX-356 that the entire contents of the fuel storage pool are released to the groundwater does not take credit for monitoring and maintaining the fuel storage pool liner gap water level to ensure that leakage is captured and precluded from entering the surrounding groundwater. Therefore, the staff finds that the results of Calculation NX-356 conservatively envelope the radiological consequences of fuel storage pool leakage. Since monitoring the fuel storage pool liner gap water level is not necessary to ensure that average annual releases of radioactive material in effluents and their resultant committed effective dose equivalents are maintained at small percentages of the dose limits specified in 10 CFR 20.1301, the staff finds that the retention of this TS requirement is not necessary. Therefore, the staff finds that the deletion of TS 3.1.3, "Fuel Storage Pool Liner Water Level," is acceptable. With the deletion of TS 3.1.3, there are no longer any LCOs contained in TS section 3.0. Therefore, the staff finds that the deletion of TS section 3.0, "Limiting Condition for Operation (LCO) Applicability," is acceptable.

The licensee also proposed to delete TS section 1.1 which contains definitions for "ACTIONS" and "ELEVATION." These two terms are currently used only in TS 3.1.3, which is to be deleted. With the deletion of TS 3.1.3, TS 1.1 is no longer needed; therefore the staff finds the proposed deletion to be acceptable. Additionally, the licensee proposed to delete TS section 1.3 which establishes the Completion Time convention and provides guidance for its use. This term is currently used only in TS 3.1.3, which is to be deleted. With the deletion of TS 3.1.3, TS 1.3 is no longer needed; therefore the staff finds the proposed deletion to be acceptable. The licensee also proposes to delete TS section 1.4 defines the proper use and application of Frequency requirements. This term is used only in TS 3.1.3, which is to be deleted. With the deletion of TS 3.1.3, TS 1.4 is no longer needed; therefore the staff finds the proposed deletion to be acceptable. The above deletions remove all remaining content of TS section 1.0; therefore the staff finds the deletions of TS section 1.0, "Use and Application," is acceptable.

The licensee proposed to delete TS section 3.0, "Surveillance Requirement (SR) Applicability," which establishes the conditions for which TS Surveillance Requirements must be met and the requirements that shall be met when a given SR is not performed within its specified frequency. This section applies only to LCOs. The deletion of TS 3.1.3, removes the last LCO from the TS. Therefore, the staff finds the deletion of TS section 3.0, "Surveillance Requirement (SR) Applicability," to be acceptable.

The licensee proposed to restore the heading of TS section 4.1, "Site Location," to the first paragraph of section 4.0, "Design Features." The licensee states that this heading was previously deleted in error. This change is editorial and is therefore acceptable.

The licensee proposed to delete TS section 5.6.2, "Technical Specification (TS) Bases Control Program," which establishes the process for making changes to the TS Bases. This section applies only to LCOs. The deletion of TS 3.1.3 removes the only remaining LCO from the TS.

Therefore, the proposed deletion of TS section 5.6.2, "Technical Specification (TS) Bases Control Program," is acceptable.

Finally, the licensee proposed that the Table of Contents be corrected to delete the word "(Deleted)" from section 5.8, "High Radiation Area." This section remains in the TS, and the word "(Deleted)" was erroneously added in a previous license amendment. Since the prior deletion was in error the reinstatement is editorial and the staff finds it to be acceptable.

## 6.0 REGULATORY EVALUATION

HBPP Unit 3 has no active reactor coolant pressure boundary, only a radiological control boundary. Therefore, HBPP Unit 3 does not have any installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. Based on the above, Criterion 1 of 10 CFR 50.36(c)(2)(ii) is not applicable for the facility.

HBPP Unit 3 does not have any reactor design basis accidents or transient conditions that present a challenge to a fission product barrier. Therefore HBPP Unit 3 does not have any process variables, design features, or operating restrictions that are an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. Based on the above, Criterion 2 of 10 CFR 50.36(c)(2)(ii) is not applicable for the facility.

HBPP Unit 3 does not have any reactor design basis accidents or transient conditions that present a challenge to a fission product barrier. Therefore HBPP Unit 3 does not have any structures, systems or components that are part of the primary success path and which function or actuate to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. Based on the above, Criterion 3 of 10 CFR 50.36(c)(2)(ii) is not applicable for the facility.

HBPP Unit 3 fuel has been removed from the spent fuel pool and, in accordance with PG&E Calculation NX-356, dose consequences of not maintaining the liner gap has been shown not to present a significant risk to public health and safety. Therefore, not maintaining the fuel pool liner level has been shown to not be significant to public health and safety. Based on the above, Criterion 4 of 10 CFR 50.36(c)(2)(ii) does not require a TS LCO for the fuel storage pool liner water level.

Based on the above there is no regulatory requirement for a TS LCO for the fuel storage pool liner water level at HBPP Unit 3.

## 7.0 SUMMARY

The changes proposed by this LAR will delete deletion of Technical Specification (TS) 3.1.3, "Fuel Storage Pool Liner Water Level." On the basis of its review, NRC staff concluded that the licensee's request has no significant impact on the dose consequences to the public from fuel storage pool leakage and there is no regulatory basis to maintain this TS requirement. The proposal adequately addresses the regulatory safety requirements for a permanently shutdown nuclear power facility with the spent nuclear fuel transferred to dry cask storage in an ISFSI. The staff, therefore, concludes that the LAR is acceptable.

## 8.0 STATE CONSULTATION

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

## 9.0 ENVIRONMENTAL CONSIDERATION

The amendment includes changes to requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to recordkeeping, reporting, or administrative procedures or requirements. 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 previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (75 FR 33842). The May 7, 2010, supplement provided supporting technical information that did not change the initial proposed no significant hazards determination. Accordingly, the portion of the amendment related to the fuel storage pool liner level meets the eligibility criteria for categorical exclusions set forth in 10 CFR 51.22(c)(9) and the portion of the amendment making administrative or editorial changes meets the eligibility criteria for categorical exclusions set forth in 10 CFR 51.22(c)(10)(ii). 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.

## 10.0 CONCLUSION

The staff 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 nor to the health and safety of the public.

Principal Contributor: John Hickman

Date: 7/21/2010