UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 22, 2010

John Conway
Senior Vice President
Generation and Chief Nuclear Officer
Pacific Gas and Electric Company
77 Beale Street, MC B32
San Francisco, CA 94105

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION RELATED TO THE REVIEW OF THE DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION (TAC NOS. ME2896 AND ME2897) – AGING MANAGEMENT REVIEW AND TIME LIMITED AGING ANALYSES

Dear Mr. Conway:

By letter dated November 23, 2009, Pacific Gas & Electric Company submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54, to renew the operating licenses for Diablo Canyon Nuclear Power Plant, Units 1 and 2, for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review.

The request for additional information was discussed with Mr. Terry Grebel, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-1045 or e-mail nathaniel.ferrer@nrc.gov.

Sincerely,

Nathaniel Ferrer, Safety Project Manager
Projects Branch 2
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

Enclosure:
As stated

cc w/encl: Distribution via Listserv

Diablo Canyon Nuclear Power Plant, Units 1 and 2
License Renewal Application
Request for Additional Information Set 14
Aging Management Review/Time Limited Aging Analyses

RAI 3.1.2.2.7.2-1

Diablo Canyon Power Plant (DCPP) license renewal application (LRA) Section 3.1.2.2.7.2 with LRA Table 3.3.1, item 3.1.1.24 addresses stainless steel Class 1 pressurized water reactor (PWR) cast austenitic stainless steel (CASS) piping and components exposed to reactor coolant. The LRA section states that for managing the aging of cracking due to stress corrosion cracking for the CASS components, the Water Chemistry Program will be augmented by the American Society of Mechanical Engineers (ASME) Section XI Inservice Inspection, Subsections IWB, IWC and IWD Program. LRA Section 3.1.2.2.7.2 also states that the susceptibility to thermal aging embrittlement will be evaluated in the Thermal Aging Embrittlement of Cast Austenitic Stainless Steel Program (B2.1.39). LRA Section B2.1.39 indicates that the applicant's Thermal Aging Embrittlement of CASS Program is a new program that will be consistent with Generic Aging Lessons Learned (GALL) aging management program (AMP) XI.M12, "Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS)," with no exception or enhancement.

The staff noted that although LRA Section 3.1.2.2.7.2 addresses the material evaluation criteria used to manage the thermal embrittlement of CASS, the LRA section does not address the material screening criteria used to further evaluate and manage stress corrosion cracking of the CASS components.

In order to manage the stress corrosion cracking of the CASS components, the GALL Report, under item IV.C2-3, recommends further evaluation for CASS that has carbon content greater than 0.035% or ferrite content less than 7.5%.

1. Clarify the material screening criteria used to further evaluate and manage the stress corrosion cracking of CASS are consistent with GALL Report item IV.C2-3 which recommends that stress corrosion cracking of CASS with carbon content greater than 0.035% or ferrite content less than 7.5% be further evaluated and adequately managed.

2. Clarify whether stress corrosion cracking in the CASS components under GALL Report item IV.C2-3 is managed by inspections, flaw evaluations, and repairs and replacements in accordance with the ASME Section XI Inservice Inspection, Subsections IWB, IWC and IWD Program and the material screening criteria that the GALL Report recommends for the further evaluation. If the ASME Section XI Inservice Inspection, Subsections IWB, IWC and IWD Program or the material screening criteria recommend for the further evaluation is not used to manage the stress corrosion cracking, justify why the applicant's aging management approach is adequate to manage the aging effect.

ENCLOSURE

RAI 3.5.2.3.10-1

LRA Table 3.5.2-10 indicates that for aluminum components encased in concrete (external), there are no aging effects requiring management. The aging management review (AMR) line item cites generic Note J, indicating that neither the component nor the material and environment combination is evaluated in the GALL Report.

Corrosion of aluminum due to alkaline reaction could occur when it is used in contact with concrete. No justification for why there are no aging effects requiring management for the line item referenced above is provided.

Provide justification for why there are no aging effects requiring management for the identified aluminum components exposed to a concrete environment.

RAI 4.6.2-1

In LRA Section 4.6.2, "Design Cycles for Containment Penetrations," the applicant states:

1. The 14,000 additional thermal cycles used in the original analysis for the steam generator blowdown lines is greater than the maximum of 7000 cycles which are expected in 60 years. Therefore, the fatigue analysis for the main steam generator blowdown line flued heads is valid for the period of extended operation in accordance with 10 CFR 54.21(c)(1)(i).

2. The original number of transients used in the containment airlocks, hatches, penetration sleeves, end plates, and flued head analyses (not including the steam generator blowdown lines flued heads) will be monitored by the DCPP Metal Fatigue of the Reactor Coolant Pressure Boundary Program, described in LRA Sections 4.3.1 and B3.1, to ensure that fatigue will be adequately managed for the period of extended operation in accordance with 10 CFR 54.21(c)(1)(iii). Action limits will permit completion of corrective actions before the design basis number of events is exceeded.

The staff reviewed LRA Sections 4.6.2, 4.3.1, and B3.1 and was unable to find the following information:

1. The total number of transients (thermal cycles, OBE events) used in the original analysis for the steam generator blowdown line flued heads.

2. Total number of transients used to determine that requirements of a fatigue waiver per Subparagraph N-415.1, *Vessels Not Requiring for Cyclic Operation,* and Figure N-415(A) were met for airlocks, equipment hatches, containment penetration sleeves, and end plates.

3. Total number of transients assumed in the current design basis for airlocks, equipment hatches, containment penetration sleeves, and end plates.

The staff needs the below information to confirm that an evaluation the fatigue analysis for the steam generator blowdown line flued heads is valid for the period of extended operation in accordance with 10 CFR 54.21(c)(1):

1. The total number of cycles used for the original analysis for the main steam generator blowdown lines flued heads for 40 years of operation.

2. The projected number of cycles for the main steam generator blowdown line flued heads during 60 years of operation.

3. Total number of transients used to determine that requirements of a fatigue waiver per Subparagraph N-415.1, *Vessels Not Requiring for Cyclic Operation,* and Figure N-415(A) were met for airlocks, equipment hatches, containment penetration sleeves, and end plates.

4. Total number of transients assumed in the current design basis for airlocks, equipment hatches, containment penetration sleeves, and end plates.

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Sincerely,
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Nathaniel Ferrer, Safety Project Manager
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Docket Nos. 50-275 and 50-323

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Letter to J. Conway from N. Ferrer dated July 22, 2010

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