



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

July 14, 2015

Mr. Edward D. Halpin  
Senior Vice President and Chief  
Nuclear Officer  
Pacific Gas and Electric Company  
P.O. Box 56  
Mail Code 104/6  
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON POWER PLANT, UNIT NOS. 1 AND 2 – ACCEPTANCE OF PACIFIC GAS AND ELECTRIC COMPANY'S INTERIM EVALUATION ASSOCIATED WITH REQUEST FOR INFORMATION PURSUANT TO TITLE 10 OF THE *CODE OF FEDERAL REGULATIONS* 50.54(f) REGARDING RECOMMENDATION 2.1 SEISMIC OF THE NEAR-TERM TASK FORCE REVIEW OF INSIGHTS FROM THE FUKUSHIMA DAI-ICHI ACCIDENT

Dear Mr. Halpin:

The purpose of this letter is to inform Pacific Gas and Electric Company (the licensee, PG&E) of the U.S. Nuclear Regulatory Commission's (NRC's) review of the assessment of Expedited Seismic Evaluation Process (ESEP), as it relates to Diablo Canyon Power Plant, Unit Nos. 1 and 2 (DCPP). The licensee has informed the NRC of their intentions to not perform the ESEP, as previously committed, stating that the ESEP would not provide a significant increase in safety insight or provide indication of seismic margin for the units beyond what was demonstrated through the Long Term Seismic Program (LTSP).

Background

On March 12, 2012, the NRC issued a request for information pursuant to Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR), Section 50.54(f). The purpose of that request was to gather information concerning, in part, the seismic hazard at operating reactor sites to enable the NRC staff to determine whether licenses should be modified, suspended, or revoked. The "Required Response" section of Enclosure 1 of the request indicated that licensees should provide a seismic hazard evaluation and screening report within 3 years from the date of the letter for Western United States (WUS) plants.

By letter dated March 11, 2015<sup>1</sup>, to the NRC, PG&E submitted for NRC review its Seismic Hazard and Screening Report (SHSR), Pursuant to 10 CFR 50.54(f), Request for Information Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident. As requested in the Seismic Evaluation Guidance: Screening, Prioritization and Implementation Details (SPID)<sup>2</sup>, PG&E included a description on their interim

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<sup>1</sup> The licensee's SHSR can be found in Agencywide Documents Access and Management System (ADAMS) under Accession No. ML15071A046.

<sup>2</sup> The SPID guidance document can be found in ADAMS under Accession No. ML12333A170. The staff endorsement letter for the SPID guidance is found in ADAMS under Accession No. ML12319A074.

evaluation to address the seismic safety of DCP. The licensee's interim evaluation included a comparison between the Ground Motion Response Spectrum (GMRS) and the results of the LTSP margin evaluation. The LTSP is a "seismic margin analysis" included as an original plant license condition. The LTSP addressed concerns at the time the plant was licensed, including uncertainty related to the Hosgri Fault. The implementation of the LTSP included a deterministic seismic margin assessment and a seismic probabilistic risk assessment (SPRA)/seismic hazard analysis. Based on the margins between the GMRS and LTSP margin spectrum, PG&E concluded that DCP's safety-related systems, structures and components (SSCs) will continue to perform their intended safety function if subjected to the ground motions at the GMRS levels. Following an NRC staff screening and prioritization review, the staff concluded that the interim evaluation is an acceptable response as an interim action to the 50.54 (f) letter. In addition, the staff concludes that PG&E has previously demonstrated the plant's capacity to withstand a seismic hazard that bounds the re-evaluated hazard which supports continued plant operation while additional seismic risk evaluation is conducted.

#### Review and Acceptance of Interim Evaluation Associated with Reevaluated Seismic Hazard

Licensees with a GMRS exceeding the design-basis safe shutdown earthquake, in their March 2015 seismic hazard reevaluation reports, committed to perform the ESEP in accordance with the methodology in the Electric Power Research Institute (EPRI) 3002000704, "Augmented Approach, Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic"<sup>3</sup>. The ESEP was developed to address the higher seismic hazard and demonstrate seismic margin while more detailed and comprehensive plant seismic risk evaluations are being performed.

In its SHSR, PG&E provided the NRC an assessment of the ESEP commitment. The licensee stated that their previous LTSP margins evaluation demonstrates capacities above the GMRS and therefore, there is no significant safety benefit from performing the ESEP. Because of the reasons stated above, PG&E does not intend to perform the ESEP for DCP. The NRC staff previously reviewed PG&E's LTSP margins evaluation and documented its conclusions and acceptance in Safety Evaluation Report (SER) No. 34<sup>4</sup>. The NRC staff has considered the conclusions reached in SER 34, along with the information provided in the SHSR, and concludes that the information provided is an adequate alternative to performing the ESEP interim evaluation.

Furthermore, the licensee stated that all Design Class 1 SSCs have been designed for the Hosgri earthquake. The Hosgri design spectra bound the reevaluated hazard for most of the 1-10 Hertz (Hz) frequency range with the exception of a small exceedance below a frequency of 1.33 Hz. Additionally, the licensee found this exceedance to be insignificant because no SSC required for safe shutdown were identified below 1.33 Hz. Disposition of higher frequency exceedance has been demonstrated through the LTSP and will be assessed through the seismic risk evaluation.

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<sup>3</sup> EPRI 3002000704 can be found in ADAMS under Accession No. ML14204A619.

<sup>4</sup> The SER can be found in ADAMS under Accession No. ML14279A130.

Limitations on Acceptance of Interim Evaluation and Alignment with Proposed Rulemaking 10 CFR 50.155 "Mitigation of Beyond Design-Basis Events"

Staff acceptance of the LTSP, as an adequate interim evaluation, does not extend to the Order EA-12-049 compliance review or the proposed rulemaking 10 CFR 50.155 Mitigation of beyond design-basis events.

The staff encourages the licensee to implement corrective actions consistent with their Mitigation Strategies Overall Integrated Plans<sup>5</sup> to harden newly installed equipment (if applicable and necessary), maintain the robustness of equipment to the higher seismic hazard identified in the seismic hazard evaluation, and evaluate newly installed mitigation strategies equipment, to demonstrate their ability to cope with the higher seismic hazard where it may be applicable. Further requirements on the seismic capacity of equipment are being considered in the proposed 10 CFR 50.155 rulemaking associated with mitigation of beyond-design basis events. Draft guidance<sup>6</sup> is currently under development that identifies the necessary considerations to evaluate the SSCs referenced above with respect to the reevaluated hazard as required under the proposed rule.

In addition to the previous seismic evaluations performed for DCP, PG&E is currently updating their SPRA. This risk evaluation will bring additional insights on overall plant safety, including the plants capability to withstand beyond design-basis accidents. This seismic risk evaluation is expected to be submitted to the NRC in June 2017.

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<sup>5</sup> DCP Overall Integrated Plan can be found in ADAMS under Accession No. ML13059A201.

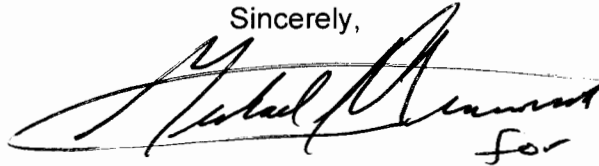
<sup>6</sup> Draft Regulatory Guide 1301 "Flexible Mitigation Strategies for Beyond Design Basis Events" can be found in ADAMS under Accession No. ML13168A031.

E. Halpin

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If you have any questions regarding this letter, please contact Frankie Vega at 301-415-1617 or via e-mail at [Frankie.Vega@nrc.gov](mailto:Frankie.Vega@nrc.gov).

Sincerely,

A handwritten signature in dark ink, appearing to read "Jack R. Davis", with a stylized flourish underneath.

Jack R. Davis, Director  
Japan Lessons-Learned Division  
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

cc: Distribution via Listserv

E. Halpin

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If you have any questions regarding this letter, please contact Frankie Vega at 301-415-1617 or via e-mail at Frankie.Vega@nrc.gov.

Sincerely,

**/RA by Michael Franovich for/**

Jack R. Davis, Director  
Japan Lessons-Learned Division  
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

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