



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

October 23, 2017

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

SUBJECT: DIABLO CANYON POWER PLANT, UNIT NOS. 1 AND 2 – NUCLEAR
REGULATORY COMMISSION RESPONSE TO REQUEST FOR EXTENSION
OF SEISMIC PROBABILISTIC RISK ASSESSMENT SUBMITTAL SCHEDULE

Dear Mr. Halpin:

The purpose of this letter is to provide the U.S. Nuclear Regulatory Commission (NRC) staff's response to the letter received from Pacific Gas and Electric Company (PG&E, the licensee), on September 6, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17249A431), related to post-Fukushima seismic hazard reevaluations. This letter requests an extension of the submittal date of the seismic probabilistic risk assessment (SPRA) associated with the seismic hazard reevaluation for Diablo Canyon Power Plant, Unit Nos. 1 and 2 (DCPP). The request was made in order to allow PG&E to adequately address the Facts and Observations (F&Os) generated by the industry peer review team that evaluated the DCPD SPRA in June 2017. According to the request, the disposition of the F&Os requires the performance of additional evaluations and preparation of updated SPRA documentation. The request further identifies that PG&E plans to use the Independent Assessment Team process described in the Nuclear Energy Institute (NEI) Letter, "Final Revision of Appendix X to NEI 05-04/07-12/12-16 (sic), *Close-Out of Facts and Observations (F&Os)*," dated February 21, 2017 (ADAMS Accession No. ML17086A431). This process was accepted by the NRC as stated in the letter, "U.S. Nuclear Regulatory Commission Acceptance on Nuclear Energy Institute Appendix X to Guidance 05-04, 07-12, and 12-13, *Close-Out of Facts and Observations*," dated May 3, 2017 (ADAMS Accession No. ML17079A427). In light of the facts presented by the licensee and other information available to the staff, the NRC staff has determined that extending the submittal date of DCPD's SPRA is acceptable.

BACKGROUND

By letter dated March 12, 2012, the NRC issued a request for information under Title 10 of the *Code of Federal Regulations*, (10 CFR) Section 50.54(f) (hereafter referred to as the 50.54(f) letter), to all nuclear power reactor licensees and construction permit holders in response to lessons learned from the March 2011 accident at Japan's Fukushima Dai-ichi nuclear power plant (ADAMS Accession No. ML12053A340). Enclosure 1 of the 50.54(f) letter requested that licensees perform seismic hazard reevaluations using present-day methodologies and guidance, and then assess the impact of the reevaluated hazard on the plant (e.g., through an SPRA). The NRC staff would review the completed responses to these assessments to determine if there is a need for any additional regulatory actions, such as a plant-specific backfit.

Concurrent with the reevaluation of seismic hazards, licensees were required to develop and implement mitigating strategies under NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (ADAMS Accession No. ML12054A735). In order to proceed with the implementation of Order EA-12-049, licensees used the current design basis seismic hazard or the most recent seismic hazard information, which may not be based on present-day methodologies and guidance, in developing their mitigation strategies.

By letter dated October 27, 2015 (ADAMS Accession No. ML15194A015), the NRC made a determination of which licensees were to perform: (1) an SPRA; (2) limited scope evaluations; or (3) had no further actions to perform based on a comparison of the reevaluated seismic hazard and the site's design-basis earthquake. As documented in that letter, DCPD is expected to complete an SPRA, which will also assess high frequency ground motion effects, and a limited-scope evaluation for the spent fuel pool (SFP). These seismic evaluations were expected to be submitted to the NRC by September 30, 2017, and December 31, 2017, respectively. Because the SPRA results are used to develop the seismic Mitigation Strategies Assessment (MSA), licensees submitting an SPRA in 2017, such as DCPD was originally, are expected to submit the seismic MSA by December 31, 2017. After 2017, all licensees are expected to submit their seismic MSA to the NRC at the same time they submit their SPRA.

By letter dated September 6, 2017, the licensee requested an extension of the submittal date for the SPRA and the seismic MSA until April 30, 2018. The letter also specifically states that the SFP evaluation, which is separate from both the SPRA and MSA, will still be submitted by December 31, 2017.

EVALUATION

The staff's evaluation of the licensee's request for extension of the seismic reevaluations considered: (1) the schedule of the DCPD submittal, including extension, as it relates to the NRC's overall SPRA submittal schedule; (2) the additional defense-in-depth capabilities achieved through Order EA-12-049 and Order EA-12-051, "Order to Modify Licenses With Regard to Reliable Spent Fuel Pool Instrumentation" (ADAMS Accession No. ML12054A679); and (3) the seismic design margin currently existing at DCPD. Below is a brief description of each consideration.

As shown in the NRC's October 27, 2015, letter, licensees were requested to perform specific evaluations based on a number of criteria associated with the magnitude of their reevaluated seismic hazard and how it compared to their design-basis seismic hazard. A subset of licensees were requested to perform SPRAs. One of the sites requested to perform an SPRA was DCPD. Within this subset, there is a range of dates by which licensees are to submit their SPRA evaluations. The range of dates begins in March 2017 and continues through December 2019. The ordering of licensee submittals within this range of dates was not based on safety or seismic risk concerns but on resource availability. That is to say, the plants are not graded within this submittal date range in order of increasing or decreasing seismic risk. The DCPD extension request moves the SPRA submittal within the existing date range and not beyond the last date in the range. Therefore, the NRC staff's basis for continued safe operation, which is stated in a May 9, 2014 (ADAMS Accession No. ML14111A147), letter, is still applicable.

The staff also considered the additional defense-in-depth that has been achieved for coping with an extended loss of alternating current power and loss of normal access to the ultimate heat sink due to external events, including those caused by seismic and flooding events, as a result of DCPD's compliance with Orders EA-12-049 and EA-12-051. The NRC staff issued DCPD's safety evaluation regarding implementation of these mitigating strategies and the reliable SFP

instrumentation on December 28, 2016 (ADAMS Accession No. ML16349A386). The NRC inspectors are scheduled to verify implementation at DCPD in November 2017. The completion of this work results in a safety benefit and an enhanced ability to mitigate beyond-design-basis events at DCPD during the period of deferment.

The ability of DCPD to cope with earthquakes larger than the design-basis earthquake while the longer-term evaluation is performed is documented in the licensee's reevaluated hazard submittal dated March 11, 2015, "Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Re. the Seismic Aspects of Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident: Seismic Hazard and Screening Report" (ADAMS Accession No. ML15071A046). In its submittal, the licensee stated that all structures, systems, and components required for safe shutdown have been evaluated to the 1988 Long-Term Seismic Program (LTSP) spectrum and found to have significant seismic margins. The LTSP Seismic Margin Spectrum was compared to the reevaluated seismic hazard or ground motion response spectrum (GMRS). In its submittal, the licensee provided Figure 5.0-2 (reproduced below), "Comparison of GMRS and LTSP Seismic Margin Spectrum for DCPD (5 percent Damping)."

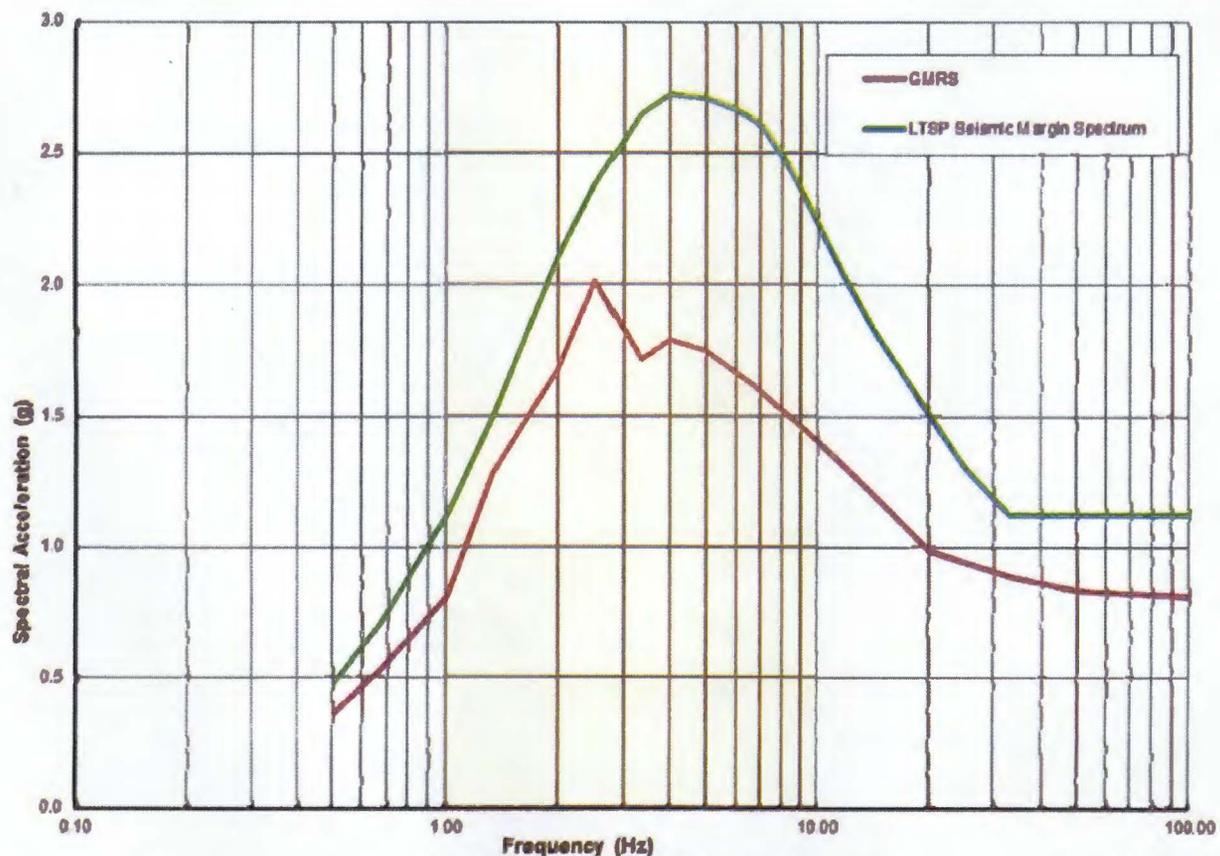


Figure 5.0-2: Comparison of GMRS and LTSP Seismic Margin Spectrum for DCPD (5% Damping)

The comparison clearly shows that the GMRS is bounded by the LTSP Seismic Margin Spectrum at all frequencies with sufficient margin. Therefore, the staff has high confidence that, in the unlikely event of an earthquake up to the magnitude of the reevaluated seismic hazard during the extension period, safe shutdown equipment will perform its function, and there is not undue risk to the public while the longer-term evaluation is being performed.

In summary, DCP's deferral request does not move the SPRA submittal outside the date range allotted to all plants who are to perform an SPRA. Compliance with NRC Orders EA-12-049 and EA-12-051 has provided a safety benefit and an enhanced ability to mitigate beyond-design-basis events at DCP during the period of deferment, and the DCP evaluation of the seismic capacity of safe-shutdown equipment as documented in the licensee's March 11, 2015, Seismic Hazard and Screening Report provides additional assurance that DCP can cope with an earthquake larger than the design-basis earthquake while the SPRA is being finalized. For these reasons, the staff finds that deferment of the SPRA submittal to support disposition of the industry peer review team's F&O's using the Appendix X process as accepted by NRC letter dated May 3, 2017, is acceptable.

CONCLUSION

Based on the staff's evaluation, and after consultation with the Acting Director of the NRC's Office of Nuclear Reactor Regulation, the NRC concludes that the licensee's request to defer submittal of the SPRA related to the 10 CFR 50.54(f) letter request for information for seismic events and the deferral of the corresponding seismic MSA are acceptable. Accordingly, the required response date for these activities is deferred until April 30, 2018. As stated in the licensee's September 6, 2017, letter, the staff expects that DCP will still submit the aforementioned SFP evaluation by December 31, 2017.

If you have any questions, please contact Brett Titus, Senior Project Manager, at (301) 415-3075 or via e-mail at Brett.Titus@nrc.gov.

Sincerely,



Louise Lund, Director
Division of Licensing Projects
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

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