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FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects
Division of Dam Safety and Inspections – San Francisco Regional Office
100 First Street, Suite 2300
San Francisco, CA 94105-3084
(415) 369-3300 Office – (415) 369-3322 Facsimile

October 5, 2021

In reply refer to:
Project Nos. 77, 96, 137, 175,
233, 606, 619, 803, 1061,
1121, 1333, 1354, 1962, 1988,
2105, 2106, 2107, 2130, 2155,
2310, 2661, and 2687-CA

Mr. Jan Nimick, Vice President
Pacific Gas and Electric Company
Mail Code: N11E
PO Box 770000
San Francisco, CA 94177-0001

Re: March 2017 Deterministic Seismic Hazard and Regional Seismicity Reports

Dear Mr. Nimick:

This is in response to a letter dated October 1, 2020, from Mr. David Ritzman that submitted PG&E's responses to our May 29, 2020 comments on the March 2017 Deterministic Seismic Hazard and Regional Seismicity Reports (Reports) for PG&E dams. We have reviewed PG&E's responses and have the following comments:

1. PG&E's responses to our comments and planned approach for resolving them are broadly acceptable. However, please note that we will defer any specific technical review comments or final acceptance of the results until we have received and reviewed PG&E's revised Reports.
2. PG&E's response to Comment No. 4 indicated that PG&E plans to incorporate site correction factors into the revised seismic model. Although the approach described in PG&E's response is appropriate for developing bedrock acceleration response spectra and may thus be directly applicable for dam sites founded on rock, it may not be as appropriate for dam sites founded on soil (except as a screening tool). In such cases, the depth and variability of the soil

profile underlying the dam sites may have a significant impact on the predicted ground motions at different periods, and the use of a single V_{S30} value may not adequately capture site response effects. PG&E should evaluate this issue on a case-by-case basis in the revised Reports and consider that for some sites, applying the attenuation relationships using a reference rock site condition (e.g., $V_{S30} = 760$ m/s) and then performing a site-specific dynamic site response analysis may be a more appropriate approach.

3. In response to your comment regarding the limited availability of normal faulting data, we believe the use of the BSSA14, CB14, and CY14 GMMs for calculating spectral values generated by earthquakes occurring on normal faults include reductions that are too large to be justified by the recorded ground motions. The ASK14 GMM includes a reduction of about 9-percent and the Idriss (2014) GMM includes zero reduction. The GMM by Akkar et al. (2014) shows that reduction for corresponding spectral values varies from about 3 to 11 percent for spectral periods shorter than about 0.2 sec and zero (i.e., equal to those generated by strike slip events) for periods equal to 0.2 to 4 sec. Therefore, we recommend that at least for the BSSA14, CB14, and CY14 GMMs, your analyses should use the average of the normal and strike slip spectral values.

Please incorporate our comments into the revised Reports, as appropriate, and submit them by December 1, 2021, as indicated in Mr. Ritzman's October 1, 2020 letter. File your submittal using the Commission's eFiling system at <https://www.ferc.gov/ferc-online/overview>. For all Dam Safety and Public Safety Documents, select Hydro: Regional Office and San Francisco Regional Office from the eFiling menu. The cover page of the filing must indicate that the material was eFiled. For assistance with eFiling, contact FERC Online Support at FERCOnlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY).

We appreciate your continued cooperation in this aspect of the Commission's dam safety program. If you have questions, please contact Mr. Michael Vail at (415) 369-3346.

Sincerely,



Frank L. Blackett, P.E.
Regional Engineer

cc:

Ms. Sharon Tapia, Chief
CA Dept. of Water Resources
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P.O. Box 942836
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