

August 24, 2012

Letter # PT-082412-024

Dr. Nilesh Chokshi  
Deputy Director, Division of Site & Environmental Reviews  
Office of New Reactors  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

**Subject:** EPRI (2004, 2006) Ground Motion Model (GMM) Review Project

Dear Nilesh:

The purpose of this letter is to inform you of our decision to proceed with Phase 2 of the GMM review project, which will result in an update of the EPRI (2004, 2006) GMM for the Central and Eastern United States (CEUS). Consistent with NRC guidance, this update is being conducted using the Senior Seismic Hazard Analysis Committee (SSHAC) Level 2 methodology.

The EPRI (2004, 2006) ground motion model review project is divided into two phases. The purposes of Phase 1 were to a) review the EPRI (2004, 2006) GMM, which is based on data, models and methods compiled and evaluated from 2002 to 2004, in light of current (2012) data, models and methods, and b) determine whether the EPRI (2004, 2006) GMM should be updated before it is used to calculate ground motion response spectra (GMRS) at existing nuclear power plants in the CEUS in response to the NRC Request for Information (RFI) 50.54(f) letter dated March 12, 2012. The purpose of Phase 2 is to update the EPRI (2004, 2006) GMM integrating up-to-date data, models and methods.

The Technical Integration (TI) Team and Project Manager (PM) presented the Phase 1 results to the project Participatory Peer Review Panel (PPRP), the Senior Technical Advisors and the NRC staff during a working meeting held on August 14, 2012. At this working meeting, the TI Team, together with the PM, recommended that industry proceed with Phase 2 based on the compilation and evaluation of new data, models and methods completed in Phase 1. The PPRP and Senior Technical Advisors for the Project concurred with this recommendation. The PPRP Decision 2 letter is enclosed. In summary, the basis for this recommendation, as presented during the August 14, 2012 working meeting and the August 16, 2012 public meeting, is as follows:

- Ground motion experts, who developed seven (7) of the thirteen (13) ground motion prediction equations (GMPEs) used in the EPRI (2004, 2006) GMM, recommended that their GMPEs be updated with newer models developed during the last ten (10) years.
- There are three new GMPEs developed by ground motion experts during the past ten (10) years that should be evaluated and possibly integrated into an update of the EPRI (2004, 2006) GMM.
- A new ground motion database for the Central and Eastern North America (CENA) is now available with nearly 28,000 earthquake recordings. Eighty percent (80%) of the earthquake records are from earthquakes that occurred after the development of the EPRI (2004, 2006) GMM in 2004.

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- Comparison of these new data to the predictions by the EPRI (2004) GMM indicates that updating the EPRI (2004, 2006) GMM is warranted to better support the NTTF Recommendation 2.1 effort.

As stated above, this letter serves as notification of the industry conclusion that it is appropriate to update the existing EPRI (2004, 2006) GMM to incorporate current data, models and methods before it is used to calculate GMRS at existing nuclear power plant sites for the purpose of addressing NTTF Recommendation 2.1 for seismic. For this purpose industry is implementing Phase 2 of the approved EPRI (2004, 2006) GMM Review Project Plan<sup>1</sup>.

Proceeding with the update will not impact the schedule for the CEUS hazard responses to the 50.54(f) letter provided that the use of the update EPRI GMM can commence in February 2013. The updated EPRI (2004, 2006) GMM will be available in February 2013 and the updated EPRI (2004, 2006) GMM Final Report in April 2013. We request that the NRC review and endorse the updated GMM by February 2013. A draft version of the model and supporting text will be available in January 2013 to facilitate the NRC review and approval by the February 2013 Closure Briefing. In addition, the implementation of Phase 2 of the project will be discussed at multiple NRC Recommendation 2.1 public meetings, which will facilitate appropriate public interactions.

As we have proceeded using the appropriate SSHAC methodology, we anticipate that, upon completion of the project, the updated EPRI (2004, 2006) GMM will be acceptable for responding to the NRC Request for Information (RFI) 50.54(f) letter dated March 12, 2012 and be suitable for use to address other seismic regulatory issues, pending completion of the NGA-East Project. It is expected that the NGA-East Project will provide a replacement ground-motion model for the CEUS when it becomes available.

Sincerely,



Jeffrey F. Hamel  
EPRI Program Manager

<sup>1</sup> *EPRI (2004, 2006) Ground-Motion Model Review Project: Project Plan*. EPRI, Palo Alto, CA: 2012. 1025770

Cc

L. Salamone  
K. Keithline (NEI)  
S. Flanders (U.S. NRC)