



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

June 14, 2012

MEMORANDUM TO: Robert J. Pascarelli, Chief  
Projects Management Branch  
Japan Lessons-Learned Project Directorate  
Office of Nuclear Reactor Regulation

FROM: Christopher Gratton, Sr. Project Manager  
Projects Management Branch  
Japan Lessons-Learned Project Directorate  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF MAY 15 AND 16, 2012, PUBLIC MEETING  
REGARDING SEISMIC REEVALUATION INFORMATION  
REQUEST

*For CG*

On May 15 and 16, 2012, the U.S. Nuclear Regulatory Commission (NRC) staff held a public meeting<sup>1</sup> with the Nuclear Energy Institute (NEI) and industry representatives to review and assess the recommendations in the *Near-Term Task Force (NTTF) Recommendations for Enhancing Reactor Safety in the 21st Century* report, issued July 12, 2011<sup>2</sup>. The meeting focused on NTTF Recommendation 2.1, the reevaluation of seismic hazards, which is part of the Tier 1 recommendations under consideration for implementation without unnecessary delay. During this meeting, the participants discussed development of the guidance document to support the screening and prioritization of seismic hazard and risk evaluations.

The lists of attendees that participated in person and via conference call line for each day is the enclosure. The NEI presentation can be found under Agencywide Documents Access and Management System (ADAMS) Accession No. ML12087A010.

The meeting discussions centered on the progress made on the 11 topics discussed during the April 2, 2012, meeting on this issue.

Topic 1 related to the review and update of the Electric Power Research Institute (EPRI) (2004, 2006) attenuation model. The NRC staff expressed concerns with the plan to update the model, but took the action to review the industry's updated work plan and provide feedback as it may be useful in addressing the concerns with updating the model during the seismic reevaluation project.

Topic 2 related to the use of existing site condition information. The participants have not yet reached agreement on how to handle sites that have very little soil profile data. It was

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<sup>1</sup> The meeting notice is available via the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML12079A172.

<sup>2</sup> The NTTF report is available under ADAMS Accession No. ML111861807.

recommended that a hypothetical site be used as an example to work through this issue. This was recommended to be a potential agenda item for a mid-June meeting with NRC.

The NRC is developing an internal approach for site response and we will be looking at some test sites. The NRC staff expressed a desire to compare our results with results developed by industry for some trial sites. The NRC staff agreed that approach does not have to be a real site. NEI took the action to further discuss this cooperative comparison and, if it is acceptable, to develop the test cases.

Topic 3 related to the use of existing structural models for new seismic response analysis. The NRC staff did not have any significant issues with this approach. There was general agreement that new 3D finite element models are not needed for evaluations performed for Recommendation 2.1. However, both industry and the NRC staff recognize that some older stick models may need to be upgraded if new Seismic Margin Analyses (SMAs) or Seismic Probabilistic Risk Assessments (SPRAs) are required.

Topic 4 related to scaling of in-structure response spectra based on previous analysis. The NRC staff recommended that NEI develop guidance with examples of spectral shapes that are obviously similar and obviously not similar to help plants understand when case-specific engineering judgment and justification is needed to determine the appropriateness of scaling.

Topic 5 related to screening criteria for structures, systems, and components that will be included in the seismic probabilistic risk assessment and seismic margins analysis (SPRA/SMA) systems analysis models. NRC staff and NEI reached general agreement on the several comments for this topic. Specifically, the participants agreed that the basis for the screening levels for structure, system, and constructions, including examples, should be documented in a white paper, which should be issued in the next three to four months.

Topic 6 is related to the use of individual plant examination for external events (IPEEE) and high confidence in low probability of failure (HCLPF) spectrum as an alternative to the safe shutdown earthquake to compare the ground motion response spectrum for screening the plants. The NRC staff characterized the NEI proposed criteria as necessary but not sufficient. NRC staff took an action to identify additional criteria to address its concerns.

The NRC is also considering performing a review of the IPEEE submittals and NRC reviews for the plants that are likely to want to use the IPEEE screening. This is likely to include (among other elements) a comparison to current guidance for SPRA and the updated guidance we are developing in the NRC SMA. The NRC staff indicated that it would consider only those plants that can demonstrate that they performed the plant upgrades needed to meet the stated HCLPF.

Topic 7 is related to the treatment of high frequency response and high frequency capacity. The NRC staff noted that the treatment of high frequency response and capacity needs strong participation on both sides to assure that the results are achieved as effectively as possible. The NRC staff noted that we have already had discussions on this topic as part of the NRC-EPRI Memorandum of Understanding and that we would prefer to keep the work on this topic within that research program.

Topic 8 related to the use of either Conservative Deterministic Failure Margin method (hybrid approach) or the separation of variables method to develop fragilities. The NRC staff noted that we agreed with the CDFM method as described (i.e., using it for all components to start, and then applying the separation of variables method for only the dominant risk contributors). The NRC staff also noted that use of the CDFM method alone may be acceptable, but some specific studies were requested. NRC staff took an action to discuss this internally and provide feedback to NEI.

Topic 9 related to the approach for spent fuel pool (SFP) evaluations. The meeting participants were in general agreement on the approach for the SFP evaluations. NEI needs to revise the wording in the Screening, Prioritization and Implementation Details (SPID) guide to more clearly describe how the 2.3 seismic walkdown will feed into the SFP evaluation. NEI agreed to incorporate the necessary changes into the next revision of our SPID guide.

The NRC staff raised a concern about the high frequency sensitivity of SFP structures. The NRC staff agreed to provide additional information on this topic.

Topic 10 related to invoking requirements from the American Society of Mechanical Engineers/American Nuclear Society probabilistic risk analysis standard and Regulatory Guide 1.200 that are consistent with the nature of this application in performing an SPRA or SMA. The NRC staff's position is that licensees should start with Level 2 and allow lowering to Level 1 on a case-by-case basis with proper justification. The NRC staff provided comments to the SPID that NEI agreed to incorporate in the next revision to the guide.

Topic 11 related to the consideration of rock founded structures for developing an in-structure floor response spectra. NEI indicated that it will complete the analysis of a containment structure by May 2012. They indicated that it will likely be necessary to look at a stiffer structure (with a fundamental frequency around 10 Hz) in addition to the containment structure. NEI will decide whether to do that additional work after they review the results from the containment structure. The NRC staff stated that the results of the containment analysis will not be sufficient for demonstrating the position because it is not the appropriate structure to use. It is the NRC staff's understanding that analysis is being provided because that the information that is in hand, not because it was optimal structure choice. The NRC staff understands this position, but indicated that it shouldn't delay actions on evaluating other structures. The NRC staff encouraged the industry to start planning for a more appropriate study now, rather than to wait until the containment analysis is complete.

Members of the public were in attendance and asked clarifying questions throughout the meeting. No regulatory decisions were made as a result of this meeting.

Enclosures:

1. May 15, 2012, List of Attendees
2. May 16, 2012, List of Attendees



# **NRC Meeting with Stakeholders** **Development of Guidance** **NTTF Recommendation 2.3 Seismic**

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 Commission Hearing Room

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**NRC Meeting with Stakeholders**  
**Development of Guidance**  
**NTTF Recommendation 2.3 Seismic**

Tues May 15, 2012  
Commission Hearing Room

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# **NRC Meeting with Stakeholders Development of Guidance NTTF Recommendation 2.3 Seismic**

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Enclosure 2

**Wed May 16, 2012**  
**Commission Hearing Room**

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