

**Comments on NRC Recommendation 2.1
Seismic**

1. The NRC requests that each addressee in the Central and Eastern United States (CEUS) submit hazard curves and a site-specific ground motion response spectrum (GMRS) within one year of the date of the Section 50.54(f) information request. It would be prudent to either update the EPRI (2004, 2006) attenuation model or use the new Next Generation Attenuation (NGA)-East model to develop the requested hazard curves and GMRS. We believe the EPRI (2004, 2006) attenuation model could be updated using a SSHAC Level 2 process, and the requested hazard curves and GMRS could be submitted to the NRC within two years of the date of the information request. Taking the time to update the model now would reduce the likelihood for rework when the NGA-East model is completed in the 2015 time frame.
2. The NRC requests that each addressee in the Western United States (WUS) submit hazard curves and a site-specific GMRS within two years of the date of the information request. The NRC also states that licensees in the WUS will need to develop SSHAC Level 3 seismic source and ground motion models to characterize their regional seismic hazards in order to complete Recommendation 2.1. Experience has shown that it typically takes about three years to perform a SSHAC Level 3 study. Each of the four WUS sites has unique aspects that affect the amount of fieldwork needed to support the SSHAC Level 3 studies; therefore, we recommend that a provision be added to the letter to allow addressees in the WUS to recommend schedules that are appropriate for their specific situations.
3. The NRC states that licensees who elect to collect geophysical or geotechnical data on local soil/rock properties may request a reasonable amount of additional time to develop and submit the hazard curves and GMRS. The draft Section 50.54(f) letter also includes a general provision that if addressees cannot meet the requested response date, they must provide a response within 90 days of the date of the information request and describe the alternative course of action they propose to take, including the basis of the acceptability of the proposed alternative course of action and estimated completion dates. It may take longer than 90 days for licensees to determine whether additional geophysical or geotechnical data should be obtained and establish firm completion dates for that work. We recommend adding specific wording to the Section 50.54(f) request to allow licensees up to 180 days to request additional time to gather geophysical or geotechnical data that could improve the analytical process and accuracy of the evaluations reducing the potential for rework.
4. The NRC requests that all necessary seismic risk assessments (seismic PRAs and risk-based seismic margin assessments) be completed over a period not to exceed three years. Some plants may screen out at the SSE-to-GMRS comparison. However, industry engineers and technical advisors believe a large number of licensees may need to complete the risk assessments. Resources to complete risk-based seismic margins assessments are approximately 80% of those required to produce a seismic PRA. The majority of work to produce a seismic risk assessment involves seismic ground motion response, structural

response to the new hazard shape, and seismic fragility analyses. The resource pool of qualified experts can only support a finite number of parallel studies. Peer reviews pursuant to standards requirements also detract from the resources available to produce the models. The resources needed to perform the seismic risk assessments could vary significantly depending on the approach used (Regulatory Guide 1.200 vs. simplified methods) and will be affected by the implementation details that will be developed during the first 180 days after the request for information is issued. If a regulatory Guide 1.200 approach is required, very few seismic risk assessments will be completed in the three-year schedule because of national technical resource limitations.

5. Given the current state of the PRA standard and lack of experience performing Regulatory Guide 1.200 seismic PRAs, it will be difficult to ensure that the risk assessments will be performed in a consistent manner that meets the NRC's expectations unless a joint industry-NRC pilot is conducted. Therefore, we recommend including a seismic risk assessment pilot in the schedule for Recommendation 2.1.
6. The NRC staff has acknowledged that consensus standards and regulatory guidance do not exist for spent fuel pool seismic risk assessments. Given the other Fukushima response activities that will be occurring at the same time using the same technical resources as other seismic evaluation elements, the spent fuel pool seismic risk assessments should be sequenced to occur after sufficient time to develop the guidance and in a manner that does not interfere with performing the seismic walkdowns (Recommendation 2.3), implementing mitigative measures (Recommendation 4.2), and completing the other activities associated with Recommendation 2.1.

**Comments on NRC Recommendation 2.3
Seismic**

1. The NRC requests that each addressee submit a seismic walkdown procedure within 90 days of the date of the information request. We think addressees should be able to submit an industry guideline within 120 days of the date of the Section 50.54(f) request for information. Following NRC endorsement of the industry generic guideline, licensees would separately develop their own site-specific walkdown procedures to implement the industry standard guideline, train the personnel involved in the walkdown and commence the walkdown. The project schedule should provide for sufficient time to develop site-specific procedures, training and conducting the walkdown.
2. With the exception of inspections requiring outages, it may be possible to perform walkdowns in six months if the scope is based on using a sampling approach to verify that the current plant configuration is consistent with the existing licensing basis. It is not clear what the NRC staff expects for bullets 8 and 9 under item 1 of the Requested Information, whether those items could be addressed during walkdowns, and how that would affect the conduct of and completion times for the walkdowns.
3. The seismic walkdown should verify current plant configuration is consistent with the licensing basis. Insights from the various international and U.S. reports of the Fukushima accidents have not identified maintenance, monitoring or testing as issues needing attention. If there are concerns about maintenance and testing programs at U.S. facilities, they should be the topic of a separate regulatory action and not part of Fukushima-related activities.