Risk-Related Generic Issues

RES/DRA

The Generic Issues Program (GIP) is an agency-wide program to address difficult safety or security issues that do not clearly fit elsewhere at the NRC. Several active generic issues involve risk.

- GI-191, Assessment of Debris Accumulation on PWR Sump Performance: This generic issue concerns the possibility that, following a loss of coolant accident in a PWR, debris accumulating on the emergency core cooling system sump screen may result in clogging and restrict water flow to the pumps. As a result of this generic issue and the related generic letter (GL 2004-02), all PWR licensees increased the size of their containment sump strainers, significantly reducing the risk of strainer clogging. An associated issue, which needs to be resolved to close GI-191, regards the potential for debris to bypass the sump strainers and enter the reactor core. In 2008, the NRC staff determined that additional industry-sponsored testing was necessary to support resolution of this issue. Some testing was performed, but testing and NRC evaluation are continuing because of NRC staff concerns about the testing results and related assumptions. In SRM-SECY-10-0113, "Closure Options for Generic Safety Issue – 191, Assessment of Debris Accumulation of Pressurized Water Reactor Sump Performance," dated December 23, 2010, the Commission determined that it was prudent to allow the nuclear industry to complete testing on in-vessel effects and zone of influence in 2011, and to develop a path forward by mid 2012. The SRM directed the staff to evaluate alternative approaches, including risk-informed approaches, for resolving GSI-191 and to present them to the Commission by mid 2012. The Commission further agreed that modifications should be completed within two operating cycles for smaller LOCAs and three operating cycles for larger LOCAs after development of the path forward. NRC staff will determine a closure date for this Generic Issue after meeting with the Commission in mid-2012.

- GI-199, Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants: In support of early site permits (ESPs) and combined license applications (COLs) for new reactors, the NRC staff reviewed updates to the seismic source and ground motion models provided by applicants. These seismic updates included new Electric Power Research Institute models to estimate earthquake ground motion and updated models for earthquake sources in the Central and Eastern US (CEUS). These reviews identified higher seismic hazard estimates than previously assumed at some sites. As a result, the staff concluded on May 26, 2005 (ADAMS Accession No. ML051450456), that the issue of increased seismic hazard estimates in the CEUS be examined under the GIP as GI-199, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants" (ADAMS Accession No. ML051600272). After the initial screening analysis for GI-199 suggested that estimates of the seismic hazard for some currently operating plants in the CEUS has increased, the issue proceeded to the safety/risk assessment stage of the GIP. Subsequently, during the safety/risk assessment stage of the GIP, the NRC staff reviewed and evaluated the new

information received with the ESP/COL submittals, along with 2008 U.S. Geological Survey seismic hazard estimates and recent geological research literature. The staff compared the new seismic hazard data with the earlier evaluations conducted as part of the IPEEE program. From this evaluation, the staff concluded that the likelihood of exceeding the seismic hazard used in the IPEEE program could be higher than previously understood for some currently operating CEUS sites. The NRC staff completed the safety/risk assessment stage of GI-199 on September 2, 2010 (ADAMS Accession No. ML100270582), concluding that GI-199 should transition to the regulatory assessment stage of the GIP. Information Notice 2010-018, "Generic Issue 199, 'Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants,' " dated September 2, 2010 (ADAMS Accession No. ML101970221) summarizes the results of the GI-199 safety/risk assessment. The issue was transmitted from RES to NRR for action and the NRR staff developed a draft generic letter that has been issued for public comment, which concludes in November, 2011. After addressing public comments, the NRC staff plans to issue the GL in early 2012.

- GI-204, Flooding of Nuclear Power Plant Sites Following Upstream Dam Failure: In July 2010, NRR submitted a proposed issue to the GIP on flooding impacts at operating reactors due to potential dam failures. The submittal was motivated by recent findings under the Reactor Oversight Process by NRR and Regional staff with respect to flooding protection which could be challenged by potential upstream dam failure. The screening assessment of the generic issue concluded that further evaluation of external flooding of nuclear power plants due to an upstream dam failure is warranted, which will require a risk-informed evaluation of the impact of potential flooding scenarios, such as the likelihood of potential dam failures, flooding analysis, and consequential impacts at nuclear power plants. No immediate safety concerns were identified during the conduct of the screening assessment. In addition to the submittal to the GI Program, NRR is planning to release (in coordination with GI-204) information on these items as two Information Notices on (1) dam failure frequencies, and (2) impacts on severe flood considerations resulting from the U.S. Army Corps of Engineers' 2004 study.