

## Summary Status of Active Generic Issues

### Reactor Generic Issues

The generic issues (GI) program is currently evaluating three open GIs and tracking their resolution. The three open GIs (GI-191, GI-199, and GI-204) are currently in the regulatory office implementation stage. The following summarizes the status of each open GI.

#### **GI-191, “Assessment of Debris Accumulation on Pressurized-Water Reactor (PWR) Sump Performance”**

This GI concerns the possibility that, following a loss-of-coolant accident (LOCA) in a PWR, debris accumulating on the emergency core-cooling system (ECCS) sump screen may result in clogging and restrict water flow to the ECCS pumps.

As a result of this GI and the related Generic Letter 2004-02, “Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors,” dated September 13, 2004, all PWR licensees increased the size of their containment sump strainers, significantly reducing the risk of the strainers clogging. A related issue, which needs to be resolved to close GI-191, is the potential for debris to bypass the sump strainers and enter the reactor core. In 2008, the staff of the U.S. Nuclear Regulatory Commission (NRC) determined that additional industry-sponsored testing was necessary to resolve this issue. In 2012, the industry performed and completed the additional testing and submitted a topical report to the NRC. In 2013, the NRC staff issued a safety evaluation of the topical report, finding it an acceptable model for assessing the effect of sump-strainer-bypassed fibrous, particulate and chemical debris on core cooling in PWRs.

In December 2010, the Commission determined that it was prudent to allow the nuclear industry to complete testing on in-vessel effects and zone of influence and to develop a path forward by mid-2012. The Commission directed the NRC staff to evaluate alternative approaches, including risk-informed approaches, for resolving GI-191 and to present them to the Commission by mid-2012. Based on the interactions with stakeholders and the results of the industry testing, in 2012 the NRC staff developed three options for licensees to resolve GI-191. The staff documented and proposed these options to the Commission in SECY-12-0093, “Closure Options for Generic Safety Issue-191, Assessment of Debris Accumulation on Pressurized-Water Reactor Sump Performance,” dated July 9, 2012. All options require licensees to demonstrate compliance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.46, “Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors.” The options allow the industry alternative approaches for resolving GI-191. The Commission issued a staff requirements memorandum on December 14, 2012, approving the options for closing GI-191.

Licensees have since notified the NRC of the option that they have selected and are developing proposed technical resolutions based on the option selected. The NRC staff is reviewing the proposed technical resolutions as licensees submit them. All Option 1 plants have been closed out as of June 2016. To date, nine sites have successfully resolved GI-191.

## **GI-199, “Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States for Existing Plants”**

This GI addresses how current estimates of the seismic hazard level at some nuclear sites in the central and eastern United States (CEUS) might be higher than the values used in their original designs and previous evaluations. Following collaboration with the Electric Power Research Institute (EPRI), the NRC staff issued a safety/risk assessment report recommending actions for addressing GI-199 to licensees and other stakeholders via Information Notice 2010-18, “Generic Issue 199, ‘Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants,’” dated September 2, 2010.

Following the March 2011 nuclear event in Japan, the NRC incorporated GI-199 into their Fukushima response activities. Consequently, as part of a March 12, 2012, 10 CFR 50.54(f) request for information, the NRC requested that all nuclear power plants reevaluate their seismic hazards using present-day guidance and methods. The CEUS sites submitted their reevaluated seismic hazard reports in March 2014. Based on the reports, the NRC staff determined the need to complete future seismic probabilistic risk assessments (SPRAs) or other seismic evaluations, as documented in a letter to the CEUS sites dated October 27, 2015.

As of June 2016, of the original 61 sites, the staff has completed its assessments of the reevaluated seismic hazards reports for all 58 CEUS sites. The remaining three plants in the western United States (WUS) are still under staff review. The screening results were refined based on the completed staff assessments. Overall, 20 operating reactor sites (18 CEUS sites, and 2 WUS sites) have screened in for completion of SPRAs. Of the remaining 41 sites (40 CEUS sites and 1 WUS site), 8 CEUS sites and the 1 WUS site have screened out of any further evaluations. The remaining 32 CEUS sites are required to perform limited-scope evaluations (i.e., high-frequency evaluation, low-frequency evaluation, or spent fuel pool evaluation). Sites are required to complete the individual plant evaluations as specified in the NRC final determination letter dated October 27, 2015.

Of the original 61 sites, 48 sites (later reduced to 34 sites) were initially selected to perform expedited seismic evaluation process (ESEP) reports that were due in December 2014. The ESEP reports confirmed that adequate seismic margin exists to safely shut down the plant without the need for modifications while lengthier seismic evaluations were being conducted. The NRC staff has completed reviews of all 34 ESEP reports. Plant upgrades not requiring an outage will be completed by December 2016 for CEUS plants and by June 2018 for WUS plants.

## **GI-204, “Flooding of Nuclear Power Plant Sites Following Upstream Dam Failure”**

This GI relates to potential flooding effects from upstream dam failure(s) on nuclear power plant sites, spent fuel pools, and sites undergoing decommissioning with spent fuel stored in spent fuel pools. The Office of Nuclear Reactor Regulation proposed this GI in July 2010, and it has been subsumed as part of the implementation of the recommendations from the agency’s Japan Near-Term Task Force (NTTF).

In March 2012, the NRC sent letters to licensees requesting the reevaluation of all flood hazards, to include dam failures, using present-day guidance and methodologies. Most sites have completed flood hazard reevaluations in response to the March 2012 request. Some licensees have requested and been granted extensions where appropriate (e.g., to allow time

for the U.S. Army Corps of Engineers to provide input necessary to complete the analyses). The NRC has begun to issue assessments of the flood hazard reevaluation reports. The staff expects to complete the technical assessment of the licensees' flood hazard reevaluation reports by the end of 2016. Those sites that had flood-causing mechanisms that exceeded the current design basis are required to perform additional analysis depending on the hazard and evaluate the site's response to the updated flood hazard. Focused evaluations are due in mid-2017, and integrated assessments are due by the end of 2018.

**Status Summary of Active GIs  
during the Third Quarter of Fiscal Year 2016**

<b>GI No.</b>	<b>Title</b>	<b>Current Stage</b>	<b>Planned Closure</b>	<b>Months Open</b>	<b>Regulatory Effects</b>
191	Assessment of Debris Accumulation on Pressurized-Water Reactor (PWR) Sump Performance	Regulatory Office Implementation	December 2018	238	<p>Regulatory Guide 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant-Accident"</p> <p>Regulatory Guide 1.229, "Risk-Informed Approach for Addressing the Effects of Debris on Post-Accident Long-Term Core Cooling"</p> <p>NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Sections 6.2.2 and 6.3</p> <p>Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized-Water Reactors"</p> <p>Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized Water Reactors"</p>

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199	Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants	Regulatory Office Implementation  Activities Covered by 10 CFR 50.54(f) Letters on Items 2.1, 2.3, and 9.3 of the Japan NTF Recommendations	December 2019	134	Information Notice (IN) 2010-018, "Generic Issue 199, 'Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants'"  IN 2010-019, "Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States"  Request for Information letter dated March 12, 2012, "Request for Information Pursuant to Title 10 of the <i>Code of Federal Regulations</i> 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident"
204	Flooding of Nuclear Power Plant Sites Following Upstream Dam Failure	Regulatory Office Implementation  Activities Covered by 10 CFR 50.54(f) Letters on Items 2.1, 2.3, and 9.3 of the Japan NTF Recommendations	December 2021	57	Request for Information letter dated March 12, 2012, "Request for Information Pursuant to Title 10 of the <i>Code of Federal Regulations</i> 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident"