GENERIC ISSUE MANAGEMENT CONTROL SYSTEM REPORT FOR THE SECOND HALF OF FISCAL YEAR 2018

SUMMARY STATUS OF ACTIVE GENERIC ISSUES

Active Generic Issues

During this reporting period (April 2018–September 2018), the U.S. Nuclear Regulatory Commission (NRC) staff continued its evaluation of three open generic issues (GIs) and two proposed GIs. For the first proposed GI regarding the effects of high-energy arcing faults involving aluminum at nuclear power plants, the staff continued its assessment to determine whether the issue should proceed to the regulatory office implementation stage of the GI process. In particular, Sandia National Laboratories performed small-scale testing during August 2018, and the first round of large-scale testing took place at a testing facility during September 2018. For the second proposed GI regarding the adequacy of licensees' procedures to address anticipated operational occurrences, the staff determined that there is no immediate safety concern and is currently evaluating whether the issue meets the screening criteria to proceed in the GI program.

The open GIs currently in the regulatory office implementation stage are GI-191, GI-199, and GI-204. The sections below summarize the actions associated with these three open GIs. Additional information on the status of open GIs can be found on the GI dashboard on the NRC's public Web site at http://www.nrc.gov/about-nrc/regulatory/gen-issues/dashboard.html.

GI-191, "Assessment of Debris Accumulation on PWR Sump Performance"

GI-191 concerns the possibility that, after a loss-of-coolant accident in a pressurized-water reactor (PWR), debris accumulating on the emergency core cooling system (ECCS) sump screen may result in clogging and restriction of water flow to the pumps. As a result of GI-191, all PWR licensees increased the size of their containment sump strainers, significantly reducing the risk of debris clogging the strainers. Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors," dated September 13, 2004, also considered a related issue: the potential for debris to pass through the sump strainers and enter the reactor core.

In 2008, the NRC staff determined that additional industry-sponsored testing was necessary to resolve this issue. On October 18, 2012, the NRC approved revision 2 of the industry topical report WCAP-16793-NP, "Evaluation of Long-Term Cooling Considering Particulate, Fibrous and Chemical Debris in the Recirculating Fluid," as an acceptable model for assessing the effects on core cooling from fibrous, particulate, and chemical debris reaching the reactor vessel. This included a conservative generic limit on the amount of fiber reaching the core.

The PWR Owners Group developed a methodology to justify higher in-vessel limits using plant-specific analyses and submitted a topical report, WCAP-17788, "Comprehensive Analysis and Test Program for GSI-191 Closure (PA-SEE-1090)—Cold Leg Break (CLB) Evaluation Method for GSI-191 Long-Term Cooling," in July 2015 (ADAMS Accession No. ML15210A669). The PWR Owners Group provided initial responses to the NRC requests for additional information on March 20, 2017, and revised responses on September 28, 2018. The NRC staff anticipates completing its review of this topical report by the end of 2019. This extended completion results from delays in industry responses to staff questions and complexities in the review of the revised methodology.

SECY-12-0093, “Closure Options for Generic Safety Issue-191, Assessment of Debris Accumulation on Pressurized Water Reactor Sump Performance,” dated July 9, 2012, proposed three options for licensees to choose among to close GSI-191. In response, the Commission approved these options on December 14, 2012. Licensees have since notified the NRC of the option that they have selected and are developing proposed technical resolutions for the staff to review.

There are 37 operating reactor sites subject to GI-191. All of the nine operating reactor sites that chose Option 1, which involves using WCAP-16793, have submitted their evaluations. The NRC staff reviewed these evaluations and closed the issue for these plants. The remaining 28 operating reactor sites chose Option 2, which involves implementing mitigative measures and a deterministic (Option 2a) or risk-informed approach (Option 2b). Of the 28 sites choosing Option 2, 21 sites chose Option 2a and 7 sites chose Option 2b. Plants that elect to use a risk-informed approach are following the pilot plant for that method, the South Texas Project, which closed the issue in the summer of 2017. No sites are pursuing Option 3, which involves separating the regulatory treatment of the sump strainer and in-vessel effects.

The NRC is continuing its review of a technical report from Vogtle Electric Generating Plant for closure of GL 2004-02, which it received on April 21, 2017, as well as a license amendment request and closure letter for GL 2004-02 for Calvert Cliffs Nuclear Power Plant, which it received on August 14, 2018. Based upon current schedules, the staff expects all activities associated with this GI to be completed by the end of 2021.

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

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

Following the March 2011 nuclear event in Japan, the NRC incorporated GI-199 into its Fukushima Dai-ichi response activities. Consequently, as part of a March 12, 2012, request for information under Title 10 of the *Code of Federal Regulations* (10 CFR) 50.54(f), the NRC asked all nuclear power plants to reevaluate their seismic hazards using present-day guidance and methods. All sites submitted their reevaluated seismic hazard reports by March 2015. The staff completed its assessment of the reevaluated seismic hazard reports by December 2016.

Based on the staff's assessment of the licensee's reevaluated seismic hazards reports, the staff refined the requirements for individual plants to complete seismic probabilistic risk assessments (SPRAs) or other seismic evaluations. The NRC staff determined which sites were required to complete individual plant evaluations and specified the level of evaluation in the NRC’s final determination letter dated October 27, 2015. Nine sites screened out of any further seismic evaluations.

The NRC staff screened in 34 sites to submit expedited seismic evaluation process (ESEP) reports. The ESEP reports confirmed that adequate seismic margin exists to safely shut down the plants without the need for modifications while lengthier seismic evaluations were being conducted. The NRC staff has completed its reviews of all 34 ESEP reports. Licensees have notified the NRC that all required upgrades have either been completed or deferred to the SPRA.

The NRC staff screened in 52 sites to perform one or more limited-scope evaluations (i.e., high-frequency evaluations, low-frequency evaluations, spent fuel pool high-hazard evaluations, or spent fuel pool low-hazard evaluations). The NRC staff completed reviews of 1 low-frequency evaluation, 34 high-frequency evaluations, 30 spent fuel pool low-hazard evaluations, and 8 spent fuel pool high-hazard evaluations. During this reporting period, the NRC staff completed reviews of the spent fuel pool high-hazard reports for North Anna Power Station and Peach Bottom Atomic Power Station. The NRC staff has now completed its review of the limited-scope seismic evaluations for all licensed plants.

The NRC staff screened in 18 sites to submit SPRAs. Seven sites have submitted their SPRAs for NRC staff review and approval. During this reporting period, the NRC staff completed reviews of the SPRA reports for Watts Bar Nuclear Plant and Beaver Valley Power Station. The NRC has completed its review of three SPRAs to date.

As of September 30, 2018, the NRC staff has completed its assessment and closed out actions resulting from the seismic hazard reevaluations for 45 of the 61 operating reactor sites. Based upon current schedules, the staff expects that it will complete activities associated with this GI by the end of 2020.

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 the GI has been subsumed as part of the implementation of the recommendations from the agency's Japan Near-Term Task Force.

In March 2012, the NRC sent letters to licensees requesting information under 10 CFR 50.54(f) about the reevaluation of all flood hazards, including dam failures, using present-day guidance and methodologies. All sites have completed flood hazard reevaluations in response to the March 2012 request. The NRC has issued the majority of staff assessments of the flood hazard reevaluation reports. It expects to receive the majority of licensee analyses for review by the end of 2018 and the remaining analyses in early 2019.

The NRC required those sites that had flood-causing mechanisms that exceeded the current design basis to perform an additional analysis. On June 30, 2015, the staff issued COMSECY-15-0019, "Closure Plan for the Reevaluation of Flooding Hazards for Operating Nuclear Power Plants," which included the option for sites to perform a focused evaluation to fully complete their response to the 10 CFR 50.54(f) request without the need for the sites to perform an integrated assessment, depending on the hazard and the site's response to the updated flood hazard. Separately, the Nuclear Energy Institute (NEI) issued NEI 16-05, "External Flooding Assessment Guidelines," dated April 12, 2016, which describes the Flooding Impact Assessment Process (FIAP) to assess the impacts of flood mechanisms not bounded by

the design-basis flood level. The FIAP directs licensees to perform either a focused evaluation or an integrated assessment.

During this reporting period, the NRC received 2 focused evaluations from Palisades Nuclear Plant and Brunswick Steam Electric Plant for the staff's review. Thus far, 40 out of 49 sites performing focused evaluations have submitted them, and the NRC staff has issued safety evaluations for 38 of the 40. Two of 5 sites performing integrated assessments have submitted them. The staff expects the remaining evaluations and assessments to be submitted to the NRC by the end of 2018. Two sites have deferred their evaluations until the licensees decide whether to continue operations or permanently shut down. The reevaluated hazard mechanisms for the remaining sites were bounded by the site's current design basis.

As of September 30, 2018, the NRC staff has completed its assessment and closed out all required actions concerning flood hazard reevaluations for 44 operating reactor sites. Based upon current schedules, the staff anticipates that it will complete the remaining associated activities by the end of 2020.