



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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September 30, 2014

MEMORANDUM TO: Timothy J. McGinty, Director
Division of Safety Systems
Office of Nuclear Reactor Regulation

Jack R. Davis, Director
Japan Lessons Learned Project Directorate
Office of Nuclear Reactor Regulation

Scott C. Flanders, Director
Division of Site Safety and Environmental Analysis
Office of New Reactors

Michael J. Case, Director
Division of Systems Analysis
Office of Nuclear Regulatory Research

Lawrence E. Kokajko, Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

FROM: Brian E. Thomas, Director (A) **/RA/T. Boyce for B. Thomas**
Division of Engineering
Office of Nuclear Regulatory Research

SUBJECT: GENERIC ISSUE MANAGEMENT CONTROL SYSTEM REPORT
(FY 2014, Q4)

Enclosed for your information is the fourth Generic Issue Management Control System (GIMCS) report of fiscal year (FY) 2014. As part of the Generic Issues Program, this report is sent to those division directors in the NRC program offices responsible for one or more of the active Generic Issues (GIs), as well as to program office counterparts for GI Program activities. The following table summarizes the status of GIs, and the subsequent paragraphs provide a narrative summary of the status of these GIs. The enclosure provides additional detail. This memorandum and the enclosed report cover the period from June 1, 2014, through August 31, 2014.

CONTACT: Arthur Cunanan, RES/DE/RGGIB
301-251-7457

Discussion

Commission Distribution

As requested by the Commission, this GIMCS report will be distributed to Commission offices on a quarterly basis for information.

Improving Communications

The GI Program staff is in the process of replacing the quarterly text-based GIMCS report with a Web-based dashboard to show the status of active GIs in a simple graphic format. The dashboard will have clear visual indication of GI status with interim milestones and the ability to drill down for detailed information. For issues in regulatory office implementation, the intent is to provide implementation status by nuclear power plant (NPP). For example, the dashboard will be able to show how many NPPs need a modification, how many NPPs have installed the modification, and how many NPPs have been inspected by the NRC staff and have fully resolved the issue.

<i>Status Summary of Active Generic Issues during the Fourth Quarter (Q4) of FY 2014</i>					
<i>GI No.</i>	<i>Title</i>	<i>Current Stage</i>	<i>Planned Closure</i>	<i>Months Open</i>	<i>Regulatory Impacts</i>
191	<i>Assessment of Debris Accumulation on Pressurized-Water Reactor (PWR) Sump Performance</i>	<i>Regulatory Office Implementation</i>	12/2018	216	<i>Regulatory Guide 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant-Accident"; NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition"; Bulletin 2003-01; Generic Letter (GL) 2004-02</i>
193	<i>BWR ECCS Suction Concerns</i>	<i>Technical Assessment</i>	<i>To Be Determined</i>	148	<i>To Be Determined</i>

<i>Status Summary of Active Generic Issues during the Fourth Quarter (Q4) of FY 2014</i>					
<i>GI No.</i>	<i>Title</i>	<i>Current Stage</i>	<i>Planned Closure</i>	<i>Months Open</i>	<i>Regulatory Impacts</i>
199	<i>Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States for Existing Plants</i>	<i>Regulatory Office Implementation Activities Covered by 10 CFR 50.54(f) Letters on items 2.1, 2.3 & 9.3 of the Japan Near-Term Task Force (NTTF) Recommendations</i>	<i>To Be Determined</i>	112	<i>Information Notice (IN) 2010-018, "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 Code of Federal Regulations 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"</i>

<i>Status Summary of Active Generic Issues during the Fourth Quarter (Q4) of FY 2014</i>					
<i>GI No.</i>	<i>Title</i>	<i>Current Stage</i>	<i>Planned Closure</i>	<i>Months Open</i>	<i>Regulatory Impacts</i>
204	<i>Flooding of Nuclear Power Plant Sites Following Upstream Dam Failures</i>	<i>Regulatory Office Implementation Activities Covered by 10 CFR 50.54(f) Letters on Items 2.1, 2.3 & 9.3 of the Japan NTTF Recommendations</i>	<i>To Be Determined</i>	32	<i>Request for Information letter dated March 12, 2012, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 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"</i>

In accordance with Management Directive 6.4, “Generic Issues Program,” the NRC transferred the responsibility for implementation and verification of GI-191, GI-199, and GI-204 to the Office of Nuclear Reactor Regulation (NRR). Through the Japan Lessons Learned Project Directorate working groups, NRR is coordinating with the Office of New Reactors (NRO) on GI-199 and GI-204. The GI Program will continue to track the status of all GIs and report on them until completion. GI-191 is being managed by NRR, Division of Safety Systems.

Active Reactor Generic Issues

GI-191, Regulatory Office Implementation, “Assessment of Debris Accumulation on Pressurized-Water Reactor (PWR) Sump Performance” (pages 1–8 of the GIMCS report). This GI concerns the possibility that, following a loss-of-coolant accident (LOCA) in a PWR, debris accumulating on the emergency core cooling system sump screen may result in clogging and restricting water flow to the pumps. Because of this GI and the related generic letter (GL) 2004-02, all PWR licensees increased the size of their containment sump strainers substantially, which significantly reduced the risk of strainer clogging. Some licensees removed fibrous or particulate insulation, changed their sump pH buffers to reduce chemical effects, or installed debris interceptors to reduce the amount of debris that can reach the strainers. An associated issue that needs to be resolved to close GI-191 involves the potential for debris to bypass the sump strainers and to enter the reactor core. In 2008, the NRC staff determined that additional industry-sponsored testing was necessary to support resolution of this issue. The industry performed and completed its additional testing and submitted its topical report to the NRC. The topical report guidance and acceptable bases were developed through analyses and flow testing using representative fuel assemblies and ECCS flow rates. The NRC staff issued a safety evaluation (SE) to 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. The Commission issued a staff requirements memorandum (SRM) 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 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 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, the NRC staff in 2012 developed three options to resolve GI-191. These options were documented and proposed 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 would require licensees to demonstrate compliance with 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors." The options allowed industry alternative approaches for resolving GI-191. The Commission issued an SRM on December 14, 2012, approving the options for closure of GI-191. The staff currently projects closure for this GI in December 2018.

GI-193, Technical Assessment, "Boiling Water Reactor (BWR) Emergency Core Cooling System (ECCS) Suction Concerns" (pages 9–12 of the GIMCS report). This GI involves an evaluation of possible failure or degraded performance of the emergency core cooling systems (ECCS) pumps due to unknown quantities of noncondensable gas in the suction piping that could cause gas binding, vapor locking, or cavitation.

Completed portions of the Task Action Plan resulted in a basic understanding of the overall phenomena and a preliminary assessment that continued work on the GI is warranted. The next phase will attempt to quantify the gas void fraction present at different locations in the suppression pool as a function of time following a LOCA. Ultimately, this may identify the possible need for a post-LOCA suppression pool ECCS pump suction strainer "exclusion zone." "Exclusion zone" is the volume below or around the downcomer exhaust that is expected to contain a large concentration of noncondensable gas from the drywell. The "exclusion zone" will help to define boundary zones such that if a suction strainer is located in a boundary zone, the ECCS pump may be vulnerable.

Computational fluid dynamics (CFD) models and analyses have been completed for several tests. Scaling activities using data from the tests are being used to refine a method to scale the test results to full-scale geometry. Afterwards, the developed scaling method will be applied to full-scale suppression pool geometry and compared to the CFD analysis of full-scale suppression pool geometry.

GI-199, Regulatory Office Implementation, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States for Existing Plants" (pages 13–16 of the GIMCS report). The NRC opened GI-199 to assess the implications of updated seismic data and methods for Central and Eastern U.S. (CEUS) operating plants. The staff's confirmatory analysis concluded that the calculated seismic hazard for some operating plants in the CEUS had increased. The NRC issued Information Notice (IN) 2010-18 to NPPs and independent spent fuel storage installations (ISFSIs). The agency also issued IN 2010-19 to fuel cycle facilities. These INs stated that the NRC would follow the appropriate regulatory process to request that operating plants, fuel cycle facilities, and ISFSIs provide specific information about their facilities to enable the staff to complete the regulatory assessment and to identify and evaluate candidate backfits. NRR developed a draft Generic Letter (GL) to request needed data from power reactor licensees. The NRC originally intended the request to apply only for power reactor licensees in the CEUS, but in light of the March 2011 Japanese earthquake, NRR expanded the scope of the request to include all U.S. power reactor licensees.

The NRC released the draft GL to the public for comment in September 2011. The preparation of the GL was halted because the agency incorporated this GI into the work it is doing in response to the Fukushima Dai-ichi accident. The NRC has requested that all nuclear power plants reevaluate seismic hazards using present-day guidance and methods. Depending on the comparison between the reevaluated seismic hazard and the design basis, the resulting outcome is either no further risk evaluation for the plant (screened-out) or perform a plant risk assessment if the reevaluated hazard exceeds the plant's design basis (screened-in).

For plants in the central and eastern United States (CEUS), the seismic hazard reevaluations were submitted in March 2014. Plants in the western United States (WUS) will complete their seismic hazard reevaluations by March 2015. The NRC performed a screening and prioritization of the March 2014 CEUS site submittals. The NRC determined which licensees screened in for further analysis and sorted those licensees into different priority groups with different due dates for submitting the risk evaluations to the NRC. The NRC is now performing a more comprehensive review of the reevaluated hazard submittals. The priority for the subsequent completion of the risk assessments by NPPs was determined by the NRC based on the following factors: (1) the extent to which the reevaluated hazard exceeds the current design basis, (2) the absolute seismic hazard based on an examination of the probabilistic seismic hazard curves for the site, and (3) previous estimates of plant capacity (e.g., IPEEE insights). If required, the risk evaluations are due in 2017, 2019, or 2020 depending on the priority.

While the risk evaluations are ongoing, plants will also perform near-term expedited seismic evaluations of key equipment needed to protect the reactor core following a beyond design-basis seismic event. The expedited seismic evaluations for CEUS plants will be completed by December 2014 and by January 2016 for WUS plants. As a result of the expedited seismic evaluations, plant upgrades not requiring an outage will be completed by December 2016 for CEUS plants and by June 2018 for WUS plants.

GI-204, Regulatory Office Implementation, “Flooding of Nuclear Power Plant Sites Following Upstream Dam Failures” (page 17–18 of the GIMCS report). This GI pertains to the flooding of U.S. NPP sites following upstream dam failure. Possible effects on spent fuel pools at NPP sites are also within the scope of the GI. The NRC completed a screening analysis and approved the issue as a GI on February 29, 2012. This issue is similar to GI-199 in that the NRC was examining both issues prior to the Fukushima Dai-ichi accident in Japan. The NRC is addressing both issues as part of its response to the recommendations of the agency’s Near Term Task Force (NTTF) review of insights from the accident, specifically, NTTF recommendation 2.1. Request for information letters related to the reevaluation of flood hazards were issued by the NRC in March 2012.

An NRC letter dated May 11, 2012, (ADAMS Accession number ML12097A510) to all power reactor licensees states that licensees, separated by categories, must submit their flood hazard reevaluations to the NRC in three prioritized response due dates by March 2013, March 2014, and March 2015. The NRC staff used criteria described in the letter to assign plants a schedule (category) for completing the flood hazard reevaluations. The categories correspond to the length of time allotted (prioritization) to complete the hazard reevaluation and report the results to the NRC.

As of June 2014, about half of all sites have completed flood hazard reevaluations in response to the March 2012 request. Some sites have requested and been granted extensions, if

appropriate. The flood hazard reevaluations for the remaining sites are due by March 2015. The NRC has begun to issue assessments of the flood hazard reevaluation report that were received in March 2013.

Materials-related Generic Issues

At the end of the reporting period, no materials-related GIs remain to be resolved.

The RES GI Program staff will continue to track the staff's progress in resolving GIs and is available to support any significant challenges that may arise during their resolution.

Enclosure:

As stated

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OFFICE	RES/DE/RGGIB	RES/DE/RGGIB (A)	Tech Edit	RES/DE:DD (A)	RES/DE:D (A)
NAME	A. Cunanan	H. Karagiannis	J. Zabel	T. Boyce	B. Thomas
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