

January 13, 2011

MEMORANDUM TO: Greg A. Casto, Chief  
Balance-of-Plant Branch  
Division of Safety Systems  
Office of Nuclear Reactor Regulation

Stewart N. Bailey, Chief  
Safety Issue Resolution Branch  
Division of Safety Systems  
Office of Nuclear Reactor Regulation

FROM: Benjamin G. Beasley, Chief */RA/*  
Operating Experience and Generic Issues Branch  
Division of Risk Analysis  
Office of Nuclear Regulatory Research

SUBJECT: GENERIC ISSUE MANAGEMENT CONTROL SYSTEM  
REPORT (FY 2011, Q1)

Enclosed is the Generic Issue Management Control System (GIMCS) report for the first quarter of FY 2011. The following table summarizes the status of the Generic Issues (GIs), and the subsequent paragraphs provide a narrative summary of the current status of these GIs. This memorandum and the enclosed GIMCS report contain data that are current as of November 30, 2010.

CONTACT: Lauren Killian, RES/DRA  
301-251-7475

Status Summary of Active Generic Issues During Q1 of FY 2011						
GI No.	Title	Current Stage	Status	Planned Closure	Months Open	Regulatory Impacts
186	Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants	Verification	Active	3/2011	140	NUREG-1774; Standard Review Plan (NUREG-0800), Section 9.1.5
189	Susceptibility of Ice Condenser and Mark III Containments to Early Failure from Hydrogen Combustion During a Severe Accident	Regulatory Office Implementation		3/2011	115	Title 10, Sections 50.34 and 50.44, of the <i>Code of Federal Regulations</i> (10 CFR 50.34 and 50.44)
191	Assessment of Debris Accumulation on PWR Sump Performance	Regulatory Office Implementation		12/2011	171	Regulatory Guide 1.82, Rev. 3; NUREG-0800; GL 1985-22; Bulletin 2003-01; GL 2004-02
193	BWR ECCS Suction Concerns	Technical Assessment	Active	12/2012*	103	To Be Determined
199	Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States for Existing Plants	Regulatory Office Implementation		To Be Determined	67	IN 2010-018 IN 2010-019

\* Proceed to regulatory assessment stage or close the GI.

GI-189, GI-191 and GI-199 have exited the Generic Issues Program. The responsibility for their implementation and verification was transferred to the Office of Nuclear Reactor Regulation (NRR) in accordance with Management Directive 6.4, "Generic Issues Program," dated November 17, 2009 (ADAMS Accession No. ML083181192). Their status will continue to be tracked and reported in GIMCS until completion by the program office.

**Reactor Generic Issues**

**GI-186, Implementation and Verification, Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants** (pages 1 – 3 of the GIMCS report). In July 2008, Nuclear Energy Institute (NEI) submitted final industry-developed guidelines in NEI 08-05 to address reactor vessel head drop consequence analyses and to establish a highly reliable handling system for reactor vessel head lifts. On September 5, 2008, the NRC staff issued a safety evaluation endorsing these guidelines, with one exception regarding acceptance criteria for the consequence analysis. The staff also issued supplementary inspection guidance for refueling and other outage activities that addresses implementation of the industry initiative on control of heavy loads. This inspection guidance was posted for inspector use and public review on September 18, 2008. The NRC issued Regulatory Issue Summary 2008-28, “Endorsement of Nuclear Energy Institute Guidance for Reactor Vessel Head Heavy Load Lifts,” to notify stakeholders of NRC endorsement of the guidelines in NEI 08-05. The NRC staff is continuing to conduct sampling inspections to validate initial implementation of the guidelines. The staff plans to submit a closeout memorandum, for review through the ACRS, during the 2<sup>nd</sup> quarter of FY 2011.

**GI-189, Regulatory Office Implementation, Susceptibility of Ice Condenser and Mark III Containments to Early Failure from Hydrogen Combustion during a Severe Accident** (pages 4 – 7 of the GIMCS report). The NRC staff has reviewed industry proposals from licensees affected by GI-189 and has concluded that those proposed modifications will resolve GI-189 and provide benefit for some separate security scenarios which were identified during the course of the GI-189 review. On June 15, 2007, the NRC staff issued letters to affected licensees accepting the commitments to changes that enhance plant capabilities to mitigate the potential for early containment failure from hydrogen combustion. Since that time, licensee implementation and NRC verification inspections performed pursuant to NRC Temporary Instruction (TI) 2515/174, “Hydrogen Igniter Backup Power Verification,” have been completed at all 9 affected sites. In November 2010, the staff received a commitment from the Tennessee Valley Authority to implement measures at Watts Bar Unit 2 equivalent to those measures verified to have been implemented at Watts Bar Unit 1.

**GI-191, Regulatory Office Implementation, Assessment of Debris Accumulation on PWR Sump Performance** (pages 8 – 13 of the GIMCS report). 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/or 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. The testing resulted in submittal of a topical report to the NRC in April 2009, which remains under NRC review. Additional testing, required by the NRC, yielded unexpected results; therefore further testing is in progress. The NRC expects to issue a safety evaluation on the topical report which will provide guidance to licensees regarding use of the industry-developed test results and the topical report. The expected issuance date of this safety evaluation has been delayed until June 2011 because of NRC staff concerns about the results of the industry testing. Licensees have also sought to take credit for an assumption of

reduced generation of debris following a LOCA based on vendor testing. The NRC staff reviewed this testing and, despite numerous interactions with the industry, has been unable to conclude that the reduced generation assumptions are valid. The industry plans a new testing campaign to address the staff's concerns.

On April 15, 2010, the NRC staff and industry briefed the Commission regarding the current status of the resolution of GI-191. Representatives from industry summarized their actions to address the issue and suggested that these actions have resolved the safety implications of this GI. The industry representatives further recommended resolution and closure via the application of 10 CFR 50, Appendix A, General Design Criterion 4 (GDC-4). This criterion allows credit, for certain purposes, for the high likelihood that a reactor coolant leak would be detected before a major piping rupture would occur; the NRC staff has not heretofore allowed this credit for resolving sump performance issues. The staff acknowledged the industry's actions to address this issue. However, the staff stated its position that the issue remains of concern for plants with relatively high fibrous insulation loading that have not demonstrated adequate sump performance using methods acceptable to the NRC. Based on the information presented, the Commission directed the staff to provide the Commission with information on potential approaches for bringing GI-191 to closure. A paper was sent to the Commission on August 26, 2010, presented to the ACRS on September 9, 2010, and presented to the Commission on September 29, 2010. The Commission is developing the staff requirements memorandum on the path forward for GI-191 and the expected closure date for GI-191 will be adjusted based on the Commission's direction.

**GI-193, Technical Assessment, Boiling Water Reactor (BWR) Emergency Core Cooling System (ECCS) Suction Concerns** (pages 14 – 17 of the GIMCS report). The task action plan to resolve this GI involves an evaluation of suppression pool designs, the dynamics of air entrainment in the suppression pool, and the effects of air entrainment on ECCS pump performance. Based upon a staff request, the BWR owners group provided voluntary data regarding the characteristics of LOCA phenomena at the earliest stages of the postulated accidents plus general information about wetwell geometries in relation to ECCS suction strainers. Staff efforts are continuing in order to estimate the maximum potential void fraction through scale experiments being conducted at Purdue University. The experiments should provide clarification as to the potential for bubbles formed during a simulated LOCA blowdown to be transported in the wetwell to the ECCS pump inlets and, consequently, ingested into the ECCS pump impellers. The draft test plan is available using the Agencywide Documents Access & Management System (ADAMS), accession number ML100750236. Steady state tests began in mid-June 2010 and transient tests will be completed in early 2011.

**GI-199, Safety/Risk Assessment, Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States for Existing Plants** (pages 18 – 21 of the GIMCS report). While reviewing new reactor applications and updating seismic hazard information from the U.S. Geological Survey, the staff identified that the estimated seismic hazard levels at some current central and eastern U.S. (CEUS) nuclear sites may be higher than seismic hazard values used in design and previous evaluations. GI-199 was opened to assess the implications of updated seismic data and methods on operating plants. For the Safety/Risk Assessment, RES evaluated the effects of new seismic hazard data and methods on U.S. nuclear plants, and collaborated with the Electric Power Research Institute to assure a sound technical approach. The Safety/Risk Assessment Panel Report was issued on September 2, 2010. The panel

recommended that further actions be taken to address GI-199 outside the GI Program. The issue was transferred to NRR on September 2, 2010 for Regulatory Office Implementation. Information Notices were issued in September 2010, to inform stakeholders of the issuance of the GI-199 Safety/Risk Assessment Report. Information Notice IN 2010-18 was issued to nuclear power plants and independent spent fuel storage installations (ISFSI); it stated that the NRC will follow the appropriate regulatory process to request operating plants and ISFSIs to provide specific information relating to their facilities to enable the NRC staff to complete the Regulatory Assessment where candidate backfits are identified and evaluated. Information Notice IN 2010-19 was issued to fuel cycle facilities. NRR plans to develop a Generic Letter to request needed data from power reactor licensees in the Central and Eastern U.S.

As summarized above, five reactor GIs remain to be resolved.

***Nonreactor Generic Issues***

At the end of the reporting period, no nonreactor GIs remain to be resolved.

I will continue to keep you informed of the staff's progress in resolving the remaining reactor GIs and any future GIs, as well as any significant challenges that may arise during their resolution.

Enclosure:  
As stated

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OFFICE	RES/DRA/OEGIB	RES/DRA/OEGIB
NAME	LKillian	BBeasley
DATE	1/13 /11	1/13/11

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