

POLICY ISSUE INFORMATION

July 31, 2012

SECY-12-0105

FOR: The Commissioners

FROM: Brian W. Sheron, Director
Office of Nuclear Regulatory Research

SUBJECT: SUMMARY OF ACTIVITIES RELATED TO THE GENERIC ISSUES
PROGRAM

PURPOSE

The purpose of this paper is to inform the Commission on Generic Issues Program activities. This paper does not contain any new commitments.

SUMMARY

The paper contains a summary of Generic Issues Program activities and discusses the results of changes in the Generic Issues Program, which were initiated by SECY-07-0022, "Status Report on Proposed Improvements to the Generic Issues Program," dated January 30, 2007, and later implemented in Management Directive (MD) 6.4, "Generic Issues Program," dated November 17, 2009. The U.S. Nuclear Regulatory Commission (NRC) staff used the improved Generic Issues Program to process a number of active Generic Issues (GIs) and proposed GIs since 2007. This paper explains the experience of NRC staff with the improved program and discusses successes and challenges in achieving the objectives of program improvements, such as timeliness, openness, and agencywide collaboration, outlined in the November 2009 revision of MD 6.4 and SECY-07-0022. Furthermore, this paper provides the annual update on the status of continuing enhancements to the Generic Issues Program. In addition, this paper provides information on changes in the status of active GIs, estimated completion dates of their current major milestones, and the number of identified and dispositioned proposed GIs.

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BACKGROUND

The NRC's Generic Issues Program provides compliance with Section 210, "Unresolved Safety Issues (USIs)¹," of the Energy Reorganization Act of 1974, as amended by the Congress through Public Law 95-209 on December 12, 1977. Section 210 required the NRC to "develop a plan providing for specification and analysis of unresolved safety issues relating to nuclear reactors." In response to this requirement, NUREG-0410, "NRC Program for the Resolution of Generic Issues Related to Nuclear Power Plants," was submitted to the Congress on January 1, 1978, describing the NRC Generic Issues Program that had been implemented earlier in 1977. The NUREG-0410 process for assignment of priorities and resolution of issues has evolved gradually since 1978 by taking a quantitative approach to place issues in four risk categories using risk assessment, introducing a more comprehensive quantitative system in early 1979, developing a quantitative prioritization method to assign a numerical priority score to each issue in 1981, refining the quantitative prioritization method in 1983, adjusting the numerical thresholds used for prioritization in 1993, and replacing the prioritization method with a screening process in 1999.

In a staff requirements memorandum (SRM) issued in response to SECY-05-0126, "Staff Requirements-SECY-05-0126-Summary of Activities Related to Generic Safety Issues," dated August 31, 2005 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML052430101), the Commission directed the NRC staff to develop a plan focusing renewed attention to resolve older GIs and to ensure that future GIs are resolved in a timely manner. In response to the SRM, the NRC staff provided a plan in a memorandum to the Commission, "Response to Staff Requirements Memorandum on SECY-05-0126, 'Summary of Activities Related to Generic Safety Issues,'" dated March 29, 2006 (ADAMS Accession No. ML053570259), which, in part, described the staff's intention to perform a more comprehensive and fundamental reevaluation of the Generic Issues Program to ensure timely and effective resolution of GIs. In addition, the NRC staff committed to continue providing the Commission with an annual status report on GIs. The NRC staff provided proposed improvements in the Generic Issues Program to the Commission in SECY-07-0022. Improvements proposed in SECY-07-0022 were intended to help ensure timely issue resolution, clarify roles and responsibilities, increase stakeholder participation, and establish clear interfaces between the Generic Issues Program and other program office processes and activities used to address GIs outside the program. Proposed improvements were implemented by issuance of the November 2009 revision of MD 6.4. This revision of MD 6.4 describes the agency's policy for the Generic Issues Program, its legal basis and the programmatic changes in the program.

DISCUSSION

Purpose and Benefits of Generic Issues Program

¹ A USI was defined as a matter affecting a number of nuclear power plants that poses important questions concerning the adequacy of existing safety requirements for which a final resolution has not yet been developed and that involves conditions not likely to be acceptable over the lifetime of the plants affected. Today, the term "Generic Issue" encompasses USIs and includes any generic question that meets specific criteria including a safety determination, and has been formally entered into the program.

The purpose of the Generic Issues Program is to enable the public and the NRC staff to raise issues with potentially significant generic safety or security implications to ensure that those issues are evaluated and dispositioned through an effective, collaborative, and open process; and to disseminate information about program activities. In accordance with the purpose of the program, improvements and process changes in the Generic Issues Program were implemented by the revised MD 6.4 to (1) enable and facilitate raising issues with potentially generic safety or security implications by providing an open process, (2) address issues with potentially generic safety or security implications by collaborating with other offices to determine an effective resolution, either by pursuing issues through the resolution stages of the process outlined in the revised MD 6.4 or directing them to appropriate regulatory programs or long-term studies, (3) ensure resolution of all accepted issues by effective and open tracking of all identified issues, whether pursued by the Generic Issues Program or by other programs, and (4) disseminate the status of active and proposed GIs to other offices and the public by issuing a number of status reports to provide an open and accountable resolution process. These status reports include current information on issues and their potential safety concerns, along with resolution timelines and results of the resolution process.

The Generic Issues Program originally outlined in NUREG-0410 included plans for the resolution of generic environmental issues, development of improvements in the reactor licensing process, and consideration of less conservative design criteria or operating limitations in areas in which existing requirements might be unnecessarily restrictive or costly. As a main objective of Generic Issues Program improvements described in SECY-07-0022, the new program addresses only those issues that have significant generic implications related to safety or security that cannot be more effectively handled by other regulatory programs and processes. The Generic Issues Program continues to contribute to the agency's mission of protecting people and the environment by identifying, elevating, and providing agencywide solutions to address issues with potential safety and security concerns. The most recent examples of these issues are GI-199, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States for Existing Plants," and GI-204, "Flooding of Nuclear Power Plant Sites Following Upstream Dam Failure." The effective and agencywide process for addressing issues along with the prominence provided to these safety issues by the Generic Issues Program, based on the mandate of Section 210 of the Energy Reorganization Act of 1974, has drawn significant attention to these GIs and resulted in implementation of regulatory actions toward resolution.

Experience with Changes in the Generic Issues Program

The NRC staff has used the improved process to address all proposed GIs submitted to the program since issuance of SECY-07-0022 and a number of the active GIs initiated prior to issuance of SECY-07-0022. This section of the paper explains staff experience with implementation of changes in the Generic Issues Program and discusses successes and challenges in achieving the objectives of the revised MD 6.4.

1. Address GIs in a timely and effective manner to support agency objectives.

To timely and effectively address proposed and active GIs, the Generic Issues Program addresses only those issues that meet all seven screening criteria presented in SECY-07-0022. The NRC implemented these criteria to include only those issues in the Generic Issues Program that could be most effectively resolved by the program's five-stage process. Issues that can be

more effectively handled by other regulatory programs or long-term studies are transferred to those appropriate programs, such as GI-204, which was transferred for implementation of resolution to the Order for NRC's Japan Near-Term Task Force Recommendations 2.1 and 2.3. The screening criteria are continuously applied throughout the GI process to ensure that only a proposed GI or a GI that continues to meet all of these criteria is further processed. In addition to employing the screening criteria for timely and effective GI resolution, the program staff increased collaboration with other offices from the early stages of the program to build and ensure consensus on pursuing appropriate resolution processes available throughout the agency. Finally, program staff defined the roles and responsibilities of the offices and clarified accountability at all stages of GI assessment. As explained further below, program improvements mentioned above and recent process enhancements have affected effectiveness and timeliness of the resolution process for both proposed and active GIs.

Since the issuance of SECY-07-0022 in 2007, 13 issues have been proposed to the program. Two issues, which were identified shortly before issuance of SECY-07-0022, were also processed in accordance with changes introduced by SECY-07-0022. As of July 2012, 4 of these issues are in the acceptance or screening stages of the program, 10 issues were not accepted into the program, and 1 issue, GI-204, was established as a formal GI. For issues that were not accepted into the program and warranted further considerations, the program staff collaborated with submitters of those issues to identify appropriate regulatory processes or long-term studies (e.g. further research) and directed issues to those programs. The Generic Issues Program continues to track proposed issues that are addressed as long-term studies until their final resolution.

The program staff has observed notable improvements in effectiveness and timeliness of the review process for proposed GIs as a result of using the SECY-07-0022 screening criteria and collaborating with other offices to identify appropriate regulatory programs and processes available throughout the NRC. Using the screening criteria of SECY-07-0022, program staff dispositioned 10 issues in a timely manner at the early stages of the program without pursuing them through all stages of the program as formal GIs. In each of these cases, the staff determined that the proposed GIs were addressed by existing programs or processes, could be handled more effectively by other programs, or required long-term studies to establish their safety significance; therefore, did not warrant further action in the more intensive stages of the program. Applying the screening criteria has helped the staff focus on safety significant issues and direct issues to the most appropriate processes for them to be actively worked. On the other hand, as the Generic Issues Program seeks further collaboration with other regulatory offices and involved federal partner agencies to identify appropriate paths for resolution, the process for building consensus has, in some cases, required more time than originally envisioned. However, the attained value of intra and interagency collaboration in reaching effective resolution through consensus building and more effective communication planning has justified the additional time to address these issues.

Figure 1 presents the timeline of issues proposed after or shortly before issuance of SECY-07-0022. For issues closed at the end of the acceptance or screening stages, the reason for disposition is also presented.

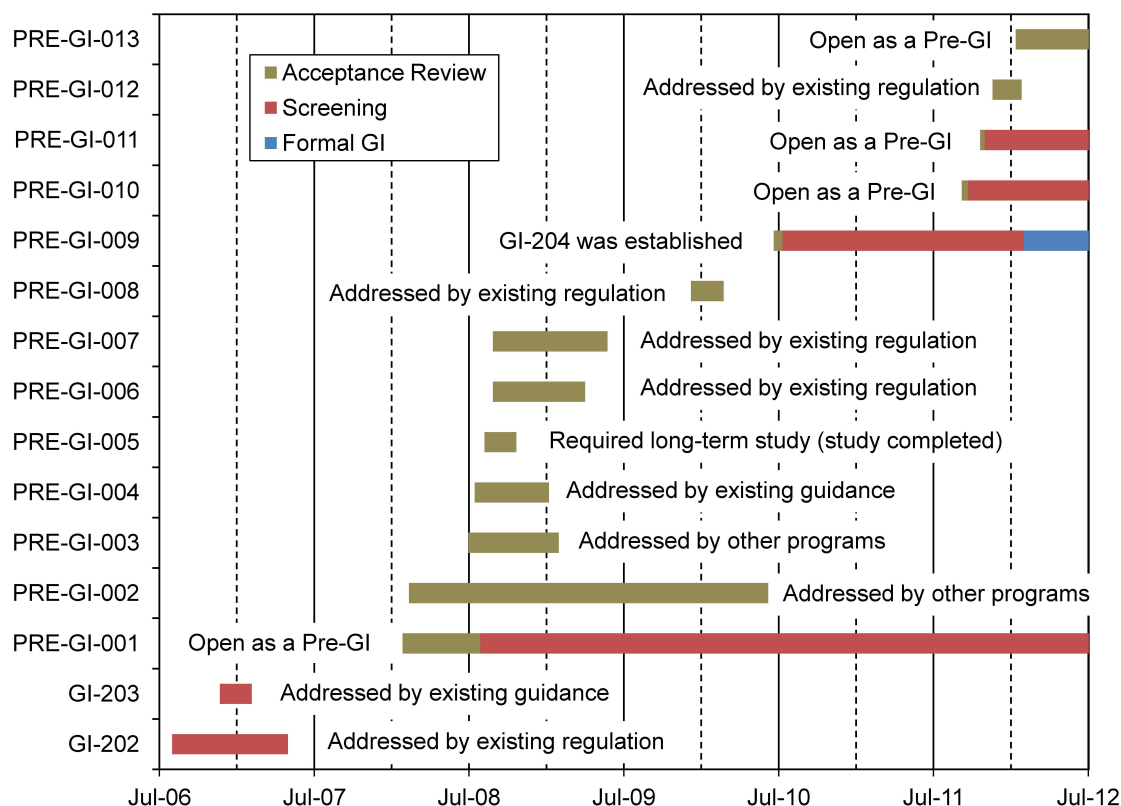


Figure 1. Timeline of proposed GIs ²

Fifteen formal GIs were active when SECY-07-0022 was issued. Nine active GIs were closed within a year of SECY-07-0022 issuance. Furthermore, the statuses of three more active GIs were updated to “regulatory office implementation.” The changes in the status of these issues were consistent with SECY-07-0022 and clarified accountability and responsibilities, as the assigned regulatory office is responsible for implementation and verification of regulatory solutions identified in prior stages of the program. Moreover, the flexibility of the improved Generic Issues Program, which allows GIs to be transferred to the appropriate resolution processes at any stage of the program, helped advance GI-204 toward resolution. Resolution of this GI is being pursued through the implementation of NRC’s Japan Near-Term Task Force Recommendations 2.1 and 2.3 following the March 2011, major earthquake in Japan.

Although recent changes have improved the overall effectiveness and timeliness of the GI resolution process, the NRC staff acknowledges concerns on timeliness for resolution of some GIs. Figure 2 presents the timeline of GIs that have been active since SECY-07-0022 was issued. As indicated by this chart, a number of active GIs have undergone prolonged resolution processes. The safety and risk significance of GIs is, by definition, uncertain and, thus, needs to have the safety and risk significance quantified to determine if further regulatory action is

² Pre-GI-001, “Multi-Unit Core Damage Events,” pertains to whether the NRC should develop multiunit Probabilistic Risk Assessments (PRAs). It has been determined that this issue is not a GI and is addressed by the site Level 3 PRA project. The program staff is updating documentation to reflect the transfer of this issue to the long-term Level 3 PRA project.

needed and, if so, what regulatory process is best suited to address the issue. Resolution of some complex issues identified prior to issuance of SECY-07-0022 involves a wide range of activities, which may include conducting research studies, issuing regulatory guidance and generic communications, building consensus among internal stakeholders, and implementing and verifying regulatory actions. Because the resolution process usually involves performing studies and analyses, these analyses can reveal aspects that need to be further explored, which can extend the time and level of effort required for resolution. Even though all actions for closure of some issues with extended resolution times are not complete, safety benefits are gained by licensee implementation of changes long before verifications are complete and issues are formally closed.

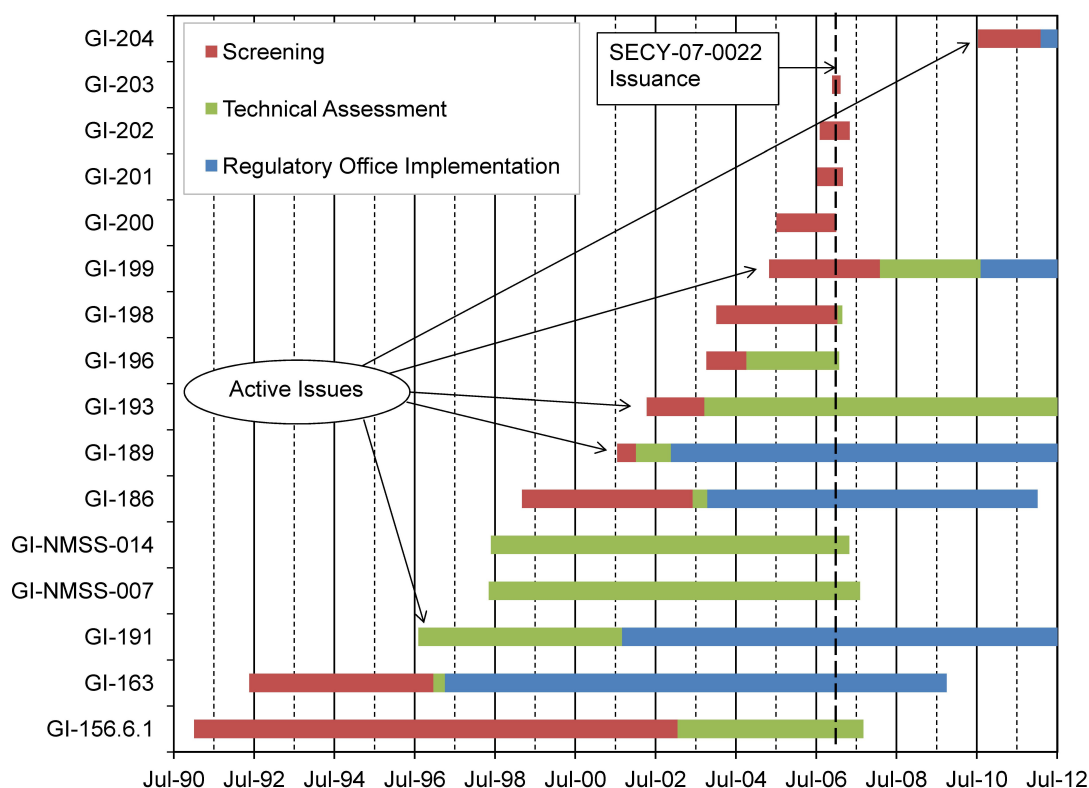


Figure 2. Timeline of active GIs

In addition to complexity of these issues, interactions with the industry to obtain generic or plant-specific information have contributed to additional time needed to resolve some issues. Although such interactions were meant to help timely and effective issue resolution, the process of obtaining information from the industry on a voluntarily basis proved to be less productive than anticipated in some cases. If an issue were to challenge reasonable assurance of adequate protection of public health and safety, the NRC staff would immediately propose Orders to licensees or other regulatory actions to the Commission as appropriate, rather than engaging industry and other stakeholders. Proposed GIs that pass the acceptance review of the program are referred to the responsible program office, which determines if prompt actions are necessary to provide assurance that facilities can continue to operate safely while GIs are being resolved. For example, if warranted for any emerging reactor safety issue, the Office of Nuclear Reactor Regulation (NRR) may implement NRR Office Instruction LIC-504, "Integrated

Risk-Informed Decision-Making Process for Emergent Issues,” to supplement the evaluation conducted by the Generic Issues Program.

In addition to improvements in addressing proposed and active GIs, the NRC staff used the revised MD 6.4 improvements to provide a final disposition to legacy low-priority generic issues and to clarify the program role regarding further actions on legacy licensing and regulatory impact GIs. Disposition of these issues was described in SECY-11-0101, “Summary of Activities Related to Generic Issues Program,” dated July 26, 2011. As discussed below, the NRC is evaluating the program for more refinements to improve its effectiveness and timeliness.

2. Coordination of the Generic Issues Program with other agency programs to avoid duplication, channel issues to be processed by appropriate agency programs, and build consensus and cooperation throughout the Generic Issues Program process.

In accordance with the revised MD 6.4 process, the staff recognized the need to increase collaboration and coordination with other offices to identify the most effective process in the agency for handling each issue. The program staff collaborates with other offices by including their representatives on GI review panels and providing information on the program and the status of GIs through briefings, internal, and public meetings, and by issuing routine reports.

As a few examples, development of an effective communication plan, coordination of the Generic Issues Program with other agency programs, and building consensus for channeling these issues to the appropriate agency program have helped the program staff in forming agencywide solutions for the safety and risk assessment of GI-199 and the screening analysis of GI-204. The program staff intends to further improve internal collaborations where areas for improvements have been observed.

3. Effectively track, document, and report GI status to support Generic Issues Program process management and communication with stakeholders.

The Generic Issues Program develops several reports and products, such as longstanding periodic reports to the Congress, to track, document, and disseminate information related to proposed and active GIs. To enhance the openness, improve accessibility, and provide more accountability, the program has been implementing several improvements to its reports and products in recent years. These improvements include the following:

- Issuing periodic reports on the status of proposed GIs, beginning in August 2011.
- Publishing and maintaining internal and public Web pages since 2007.
- Initiating the process to produce a user-friendly, Web-based, accessible, and searchable version of NUREG-0933, “Resolution of Generic Safety Issues.”
- Developing and posting a database on the data.gov Web site in December 2011, to enhance searchability and make the NUREG-0933 information more accessible.

- Changing the process for issuing quarterly generic issue management control system (GIMCS) reports on the status of active GIs by issuing reports to responsible Division Directors (vs. Branch Chiefs) since the fourth quarter of 2011.
- Developing and disseminating statistics on timeliness and resolution of GIs.

4. Provide a process that is open to the staff and public on proposed GIs.

The program staff continues to provide an open process by promoting understanding and use of the Generic Issues Program and disseminating information about the program and its activities. As a few examples, the staff (1) has presented posters on the Generic Issues Program and active GIs during the NRC Regulatory Information Conferences three times since 2008, (2) published NUREG/BR-0478, "The Generic Issues Program," issued July 2011, to provide key information about the program, (3) developed internal and public Web pages to provide information on the program and the process for proposing new issues, (4) developed a GI proposal form available on internal and public Web pages to facilitate proposing issues by the staff and public, (5) provided an effective communication plan and press releases for GI-204, and (6) made informational and technical presentations to NRC organizations such as the Advisory Committee on Reactor Safeguards.

5. Coordinate with other offices to identify potential GIs from existing information sources.

The program staff maintains awareness of potential issues through liaisons in other offices. In addition to coordination through program liaisons, the staff routinely participates in the Office of NRR's operating experience clearinghouse to identify potential GIs with safety, physical security or cyber security implications.

Improvement Efforts

Although significant changes to the program in SECY-07-0022 improved the timeliness of evaluation and determination of a regulatory resolution, GIs continue to face challenges in getting to closure when they move to regulatory office implementation. In light of that, Directors of the Office of Nuclear Regulatory Research (RES) and NRR directed that a team with representatives from different offices be organized and chartered to propose further refinements in the agency processes for GIs to efficiently resolve safety issues and more effectively communicate the progress. The team is evaluating improvements in areas such as internal collaboration and knowledge transfer, expectation of timely processing and management of issues exiting the program, and process changes that enhance external communication. Findings and assessments of this team will be reported to the Commission following the completion of this effort later in calendar year 2012. Any recommendations to alter the process discussed in SECY-07-0022 will be brought to the Commission for approval, as appropriate.

Status of GIs

Since the previous annual report to the Commission (SECY-11-0101), the NRC staff completed actions supporting closure of GI-186, "Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants," in January 2012, and established GI-204, "Flooding of Nuclear Power Plant Sites Following Upstream Dam Failure," in February 2012.

NRC opened GI-186 in 1999 to address a concern related to the measures to protect against heavy load drops. In the closure memorandum to the Executive Director for Operations, "Completion of Generic Issue 186, 'Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants'," dated January 27, 2012 (ADAMS Accession No. ML113050589), the NRC staff concluded that the safety concerns associated with GI-186 have been adequately addressed and GI-186 is closed following staff activities supporting closure of this issue. These activities include the endorsement of an industry initiative that clarifies the licensing basis for control of heavy loads, development of supplemental inspection guidance, endorsement of an industry standard for the design of highly reliable overhead cranes, and reemphasis of existing regulations and guidance related to the control of heavy loads. Verification activities for this GI included the implementation of supplemental inspection guidance by region-based inspectors and the review of selected updated final safety analysis reports to establish that changes consistent with the industry initiative have been completed.

The screening analysis for the proposed GI pertaining to the flooding of U.S. nuclear power plant sites following upstream dam failure was completed on February 29, 2012, and documented under ADAMS Accession No. ML111890588. With the endorsement of the RES Director, the proposed GI passed the screening stage of the program, and GI-204 was established. During the review of GI-204, staff identified an issue on failure of downstream dams, which is under review as a proposed GI.

Following the completion of actions for GI-186 and establishment of GI-204 and transfer of the lead responsibility for this issue to NRR, one reactor GI remains open in the safety and risk assessment stage. Four reactor GIs are open in the regulatory office implementation stage. There are no open nonreactor GIs.

Open GIs in the Generic Issues Program

- GI-193, "Boiling-Water Reactor Emergency Core Cooling System Suction Concerns" (completion of safety and risk assessment estimated in November 2012). Staff has evaluated reports on simulated blowdown tests performed at Purdue University. The staff's evaluations of the test findings and overall issue recommendations are in the process of being prepared and peer reviewed. RES is the lead office for GI-193.

GIs in Regulatory Office Implementation

The following reactor GIs are being processed by NRR for regulatory office implementation:

- GI-189, "Susceptibility of Ice Condenser and Mark III Containments to Early Failure from Hydrogen Combustion during a Severe Accident" (completion of all agency actions estimated in January 2013).
- GI-191, "Assessment of Debris Accumulation on PWR Sump Performance" (staff provided the Commission a notation vote paper in July 2012 with options for the path forward to resolve GI-191).

- GI-199, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States for Existing Plants." Resolution is being pursued through the implementation of NRC's Japan Near-Term Task Force Recommendations 2.1 and 2.3.
- GI-204, "Flooding of Nuclear Power Plant Sites Following Upstream Dam Failure." Resolution is being pursued through the implementation of NRC's Japan Near-Term Task Force Recommendations 2.1 and 2.3.

More information on active GIs can be found in the GIMCS report, which is updated once each quarter to track and report the status of active GIs. The GIMCS report is available at the NRC public Web site on the Generic Issues Program Web page (<http://www.nrc.gov/about-nrc/regulatory/gen-issues.html>).

In addition to active GIs, the Generic Issues Program has dispositioned 9 of 13 proposed GIs received since 2008. As of July 2012, one proposed GI is open in the acceptance review stage and three proposed GIs are open in the screening stage. As explained earlier, the program staff issued the first report on the status of proposed GIs in August 2011. Routine reports on proposed GIs are available at the NRC public Web site on the Generic Issues Program Web page.

RESOURCES

For FY 2013, the staff estimated that the resources needed for Generic Issues Program activities would total \$225,000 and 14.1 full-time equivalents (FTE). Resources for the Generic Issue Program were reduced to \$175,000 and 13.1 FTE, as a result of budget adjustments, and are contained in the FY 2013 Current Estimate (CE) budget request. If the contracting needs change during the FY, additional funds will be requested through the agency's shortfall process.

Table of Budgeted Resources for FY 2013 and FY 2014 in Comparison to FY 2012 ¹

	Business Line	FY 2012 CE	FY 2013 CE	FY 2014 Request
RES	Operating Reactors	\$225k and 7.7 FTE	\$175k and 6.7 FTE	\$225k and 7.7 FTE
NRR	Operating Reactors	6 FTE	6 FTE	6 FTE
FSME	Nuclear Materials Users	0.1 FTE	0.1 FTE	0.1 FTE
NMSS	Spent Fuel Storage and Transportation	0.2 FTE	0.1 FTE	0.1 FTE
NRO	New Reactors	0.1 FTE	0.1 FTE	0.1 FTE
NSIR	Operating Reactors	0	0.1 FTE	0.1 FTE

¹ To facilitate comparison, FY 2012 amounts represent the FY 2012 CE from SECY-11-0101.

COORDINATION

The Office of the General Counsel reviewed this package and has no legal objection. The Chief Financial Officer reviewed this package and determined that it has no financial impact.

/RA/

Brian W. Sheron, Director
Office of Nuclear Regulatory Research

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