COMMUNICATION PLAN FOR GENERIC ISSUE (GI) 199

November 2007 (ML072950292)

Goals

This plan will guide staff communications and activities with internal and external stakeholders of the U.S. Nuclear Regulatory Commission (NRC), as they relate to Generic Issue (GI) 199, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants."

Background

In support of early site permits (ESPs) for new reactors, the NRC staff reviewed updates to seismic source and ground motion models provided by applicants. The seismic update information included new models to estimate earthquake ground motion and updated models for earthquake sources in seismic regions such as eastern Tennessee, and around both Charleston, South Carolina, and New Madrid, Missouri. This new data and models resulted in increased estimates of the seismic hazards for plants in the Central and Eastern United States (CEUS), but these estimates remain small in an absolute sense. The staff reviewed and evaluated this new information along with similar U.S. Geological Survey (USGS) seismic hazard estimates, used for building code applications (as opposed to nuclear power plant licensing). From this review, the staff identified that the estimated seismic hazard levels at some current CEUS operating sites might be higher than seismic hazard values used in design and previous evaluations.

The staff of the NRC's Office of Nuclear Reactor Regulation (NRR) compared the new seismic hazard data with the earlier evaluations conducted by the NRC staff as part of the Individual Plant Examination of External Events (IPEEE) Program. From this comparison, the staff determined that seismic designs of operating plants in the CEUS still provide an adequate safety margins while the staff continues to evaluate new seismic hazard data and models and their potential impact on plant risk estimates. At the same time, the staff also recognized that this new seismic data and models could reduce available safety margins due to increased estimates of the probability associated with seismic hazards at some of the currently operating sites in the CEUS. The licensing basis for these plants does not include a probabilistic assessment of seismic hazards or a probabilistic assessment of their potential impact on plant structures, systems, and components. Rather, the licensing basis for these plants is based on deterministic analysis for design basis loads from the maximum earthquake level that is determined from historical data. However, to help assess potential reduction in available safety margins using a probabilistic approach, the staff of NRR issued a memorandum, dated May 26, 2005, recommending that the new data and models on CEUS seismic hazards be examined under the Generic Issue Program (GIP). This memorandum is available in the NRC's Agency-wide Documents Access and Management System (ADAMS), under Accession No. ML051450456.

The NRC's Office of Nuclear Regulatory Research (RES) reviewed the information in NRR's memorandum, and identified the issue as GI-199, as described in the RES response, dated June 9, 2005 (ADAMS Accession No. ML051600272). Given NRR's determination that

seismic designs of operating plants in the CEUS still provide an adequate level of protection, RES determined that this issue was lower priority than some of the other issues already being evaluated under the Generic Issues Program (GIP). Then, on November 7, 2005, RES assigned a contractor to perform the initial screening analysis of GI-199 in accordance with the guidelines outlined in Management Directive (MD) 6.4, "Generic Issues Program." In February, 2006, the contractor notified RES of problems obtaining Electric Power and Research Institute (EPRI) Report NP-6395-D, "Probabilistic Seismic Hazard Evaluation at Nuclear Plant Sites in the Central and Eastern Untied States: Resolution of the Charleston Issue," dated April 1989, which the contractor needed to perform its task. From March 2006 through February 2007, RES coordinated with the Office of Administration, Division of Contracts; Office of General Counsel; and EPRI to provide EPRI Report NP-6395-D to the contractor. However, the NRC's attempts to provide this copyrighted document to the contractor were unsuccessful.

During this same time period, two developments led to RES's decision in March 2007 to perform the screening analysis for GI-199 using NRC staff. One development was issuance of SECY-07-0022, "Status Report on Proposed Improvements to the Generic Issues Program," dated January 30, 2007 (ADAMS Accession No. ML063460239). This paper outlines the seven screening criteria for use to determine whether GIs should proceed to the more detailed safety/risk assessment stage under the Generic Issues Program (GIP). The other development was RES hiring additional seismologists with prior experience involving the assessment of seismic hazards on critical facilities. From April 2007 through September 2007, the NRC staff performed the screening analysis of GI-199 using guidance provided in Management Directive MD 6.4 and SECY-07-0022.

In October 2007, for consistency with the performance-based approach for assessing seismic hazards for new reactors, the staff determined that the screening analysis should consider seismic hazard data and models besides those available from the USGS. This determination is based on the staff's ongoing interactions with stakeholders to develop a new performance-based approach for assessing seismic hazards for new reactors as described in a memorandum to the Commission, "A Performance-Based Approach to Define the Safe Shutdown Earthquake Ground Motion," dated July 26, 2006 (ADAMS Accession No. ML052360044). The staff's ongoing work on this performance-based approach resulted in issuance of NRC Regulatory Guide 1.208, "A Performance-Based Approach to Define the Site-Specific Earthquake Ground Motion," dated March 2007 that endorses the performance-based approach. The staff is currently assessing the various seismic data and models available to complete the preliminary analysis and will identify an approach that is suitable to support the more detailed safety/risk analysis, should GI-199 proceed to that GIP stage.

Recently, the staff has also responded to Freedom of Information Act (FOIA) requests related to GI-199; the USGS data related to the FOIA request is publicly available at ML072880133.

Key Messages

The key messages to be communicated to stakeholders are as follows:

(1) Recent updates to seismic data and models indicate that estimates of the earthquake hazard at some operating nuclear power plant sites in the Central and Eastern United States (CEUS) may have increased.

(2) The updates to seismic data and models could result in estimated seismic hazard levels at some current CEUS operating sites that would be higher than seismic hazard values used in design and previous evaluations.

(3) The seismic hazard estimates remain small in an absolute sense and current operating nuclear power plants are designed with margin to withstand potential earthquakes.

(4) The NRC staff has conducted a preliminary review of the recent updates to seismic data and models and has not changed the conclusion that currently operating nuclear plants in the central and eastern U.S. remain safe. The NRC will continue to monitor ongoing research and new information that may alter estimates of seismic hazards with potential impact on nuclear facilities under NRC oversight.

(5) The NRC staff has also determined that this recent data and models warrant further study and analysis and those activities have been initiated.

(6) This issue is currently in the screening stage of the Generic Issues Program (GIP), which uses conservative assumptions where appropriate and reasonable to determine whether or not the issue should proceed to the more detailed safety/risk assessment stage.

Audience and Stakeholders

Internal

Internal stakeholders include the Commission, NRC management and staff, and the agency's advisory committees (as applicable).

External

External stakeholders include Congress, state regulators, industry (licensees, vendors, owners' group, architect-engineers, and associations involved with existing nuclear power plants), the international nuclear community, interest groups, the media, and the public.

Communication Timeline

The purpose of the activities in this communication plan is to consistently deliver the key messages (identified above) to the agency's internal and external stakeholders. The following table provides the timeline for communicating with stakeholders.

Communication Milestones				
Step	**Action**	**Lead Organization**	**Support Organization**	**Date**
1	Complete draft communication plan.	RES	NRR & NRO	By October 16, 2007 *Completed*
2	Identify and contact internal stakeholders to arrange briefing(s).	RES	NRR & NRO	By October 18, 2007 *Ongoing*
3	Obtain comments on draft communication plan from internal stakeholders and make appropriate changes.	RES	NRR & NRO	By November, 2007 *Ongoing*
4	Brief internal stakeholders as appropriate.	RES	NRR & NRO	By November 30, 2007 *Ongoing*
4.a	Brief Deputy Executive Director for Materials, Waste, Research, State, Tribal, and Compliance Programs (DEDMRT).	RES	NRR & NRO	October 24, 2007 *Completed*
4.b	Brief Deputy Executive Director for Reactor and Preparedness Programs (DEDR).	RES	NRR & NRO	November 1, 2007 *Completed*

Communication Milestones				
Step	**Action**	**Lead Organization**	**Support Organization**	**Date**
5	Finalize Rev. 0 of the communication plan, obtain concurrence, and issue the communication plan.	RES	NRR & NRO	By November 30, 2007 *Update as necessary*
6	Add the communication plan to the GIP **Internal** Web page.	RES	N/A	By December 7, 2007
7	Develop and communicate an agreed upon seismic analysis methodology for screening analysis.	RES	NRR & NRO	By December 10, 2007
8	Reconvene the screening panel.	RES	NRR & NRO	By January 11, 2008
9	Issue the approved GI-199 screening analysis panel memorandum.	RES	N/A	February 2008
10	Update the communication plan in parallel with the screening memorandum.	RES	NRR & NRO	February 2008
11	Develop seismic issue fact sheet (general primer on subject of seismic for nuclear power plants).	RES	NRR & NRO	February 2008
12	Add the seismic fact sheet to the GIP Internal and Public Web pages in parallel with the screening memorandum.	RES	N/A	February 2008
13	Schedule and conduct a public meeting to inform external stakeholders about GI-199	RES	NRR, NRO, & OPA	February 2008
14	Review and respond to inquiries on GI-199 and update the questions and answers (Q&As) in the communication plan, as appropriate.	RES	NRR & NRO	As needed
15	Provide responses to inquiries from the public via established agency channels.	RES	NRR, NRO, OPA, & OCA	Ongoing

Communication Team

RES/DRA/OEGIB has the lead for the Communication Plan and the overall project lead. The Communication Team also includes contacts from the Office of Nuclear Reactor Regulation (NRR), the Office of New Reactors (NRO), the NRC's regional offices, the Office of the Executive Director for Operations (OEDO), Office of Public Affairs (OPA), and Office of Congressional Affairs (OCA) as identified in the following table.

Name	Office	Telephone Number	Email ID
Contacts from RES Operating Experience and Generic Issues Branch			
Jack Foster	RES	301-415-6250	JWF@nrc.gov
Timothy Mitts		301-415-4067	TMM5@nrc.gov
Contact from NRR Division of Engineering			
Patrick Hiland	NRR	301-415-3298	PLH@nrc.gov
Contact from NRR Division Of Reactor Licensing			
Lisa Regner	NRR	301-415-1906	LMR2@nrc.gov
Contact from NRO Division of Site and Environmental Reviews			
Nilesh Chokshi	NRO	301-415-1634	NCC1@nrc.gov
Contacts from NRC Regional Offices			
Wayne Schmidt	Region I	601-337-5315	WLS@nrc.gov
Robert Carrion	Region II	404-562-4522	RPC1@nrc.gov
David Hills	Region III	630-829-9733	DEH@nrc.gov
William Jones	Region IV	817-860-8185	WBJ@nrc.gov
Communications Assistant in the Office of the Executive Director for Operations			
Lance Rakovan	OEDO	301-415-2589	LJR2@nrc.gov
Communications Assistant in OPA			
Scott Burnell	OPA	301-415-8204	SRB3@nrc.gov
Contact in OCA			

Name	Office	Telephone Number	Email ID
Eugene Dacus	OCA	301-415-3693	EXD2@nrc.gov

Communication Tools

The staff will issue this communication plan and post it to the NRC's Internal Web page at http://www.internal.nrc.gov/communications/plans/active-plans.html for agency-wide access. The Communication Team lead will brief key internal and external stakeholders on this issue, as indicated in the Communication Milestones table (above). The NRC staff also recently published a new internal Generic Issues Program (GIP) Web page (http://www.internal.nrc.gov/RES/GIP/index.html) and updated the public GIP Web page (http://www.nrc.gov/about-nrc/regulatory/gen-issues.html). These pages include program information and documents, background and historical information, GI status information, and links to related programs. In addition, the staff has responded to recent Freedom of Information Act (FOIA) requests related to GI-199, the U.S. Geological Survey (USGS) information related to the FOIA request is publicly available at ML072880133. The staff will be creating a Seismic Issue Fact Sheet as previously indicated. The latest Generic Issue Management Control System (GIMCS) quarterly report, which has GI-199 information, is publicly available at ML072920187.

Questions and Answers

Q1. What is the NRC's Generic Issue program?

A1. This program evaluates technical issues that apply to two or more facilities and that may not be covered by existing regulatory processes or criteria for their effect on safety, security, and /or the environment. The Generic Issues Program (GIP) is the program by which these issues can be formally assessed to see if they can be dispositioned by existing regulatory processes or if not, to determine their safety and/or risk significance and how best to treat them within the existing regulatory framework. SECY-07-0022 contains more details and is available from the NRC internal and external Web sites at link: http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2007/ or in the Agencywide Documents Access and Management System (ADAMS) document number ML063460239.

Q2. What is Generic Issue 199 (GI-199)?

A2. Generic Issue 199 deals with recent data and models that indicate estimates of the potential for earthquake hazards for some nuclear power plants in the Central and Eastern United States (CEUS) may be larger than previous estimates.

Q3. Have all the plants been evaluated as part of GI-199?

A3. No, the scope of GI-199 is limited to plants in the central and eastern US because that is where the recent data and models indicate that estimates of earthquake hazards may be larger than previous estimates.

Q4. What do you mean by "increased estimates of earthquake hazards"?

A4. Earthquake or seismic hazard represents the chance (or probability) that a specific level of ground shaking could be observed or exceeded at a given location. Our estimates of seismic hazard at some CEUS locations have changed based on results from recent research indicating that earthquakes occurred more often than previous estimates. Our estimates of seismic hazard have also changed because the model(s) used to predict the level of ground shaking from a specific magnitude earthquake a certain distance from a site changed. Accordingly, recent research indicates that estimates of the chance of an earthquake in some parts of the CEUS may be somewhat larger than previous estimates. The increased estimates of seismic hazard at some locations in the CEUS is discussed in more detail in memorandum to the Commission, dated July 26, 2006, available in the NRC's Agency-wide Documents Access and Management System (ADAMS), under Accession No. ML052360044.

Q5. What does this mean for operating nuclear power plants?

A5. The NRC staff has completed a preliminary review of the recent seismic data and models and has not changed the conclusion that currently operating nuclear plants in the CEUS remain safe.

Q6. Why do you say that nuclear power plants remain safe?

A6. The plants are designed to withstand anticipated earthquakes with substantial design margins. In addition, earthquakes cause ground motion over a range of frequencies. Lower frequency motions are more damaging to buildings and equipment than higher frequency motions. Based on the NRC staff's reviews associated with Early Site Permits (ESP), the staff is confident that the recent seismic data and models will show that increased estimates of the seismic hazards will occur primarily in the higher ground motion frequencies. Accordingly, the staff anticipates that these increased estimates of seismic hazards would primarily have little impact on previous estimates of the potential damage to buildings and equipments.

Q7. What is the seismic design basis for existing nuclear power plants that results in their having substantial safety margins?

A7. The seismic ground motion used for the design basis is determined from the maximum historic earthquake at the site without explicitly considering the time spans between such earthquakes. In the mid to late 1990s, the staff reviewed the plant's assessments of potential consequences of severe earthquakes (well beyond the plant's design basis) that licensees performed as part of the Individual Plant Examination for External Events Program. From this review, the staff determined that seismic designs of operating plants in the CEUS have considerable safety margins for earthquakes.

Q8. If the plants are safe, why are you evaluating the increased earthquake hazards as a generic issue?

A8. The recent seismic data and models warrant further study and analysis. This further analysis will allow us to better understand the current margins at plants for earthquakes. The agency will take the appropriate action as warranted to ensure public health and safety.

Q9. What is the timeframe for analyzing the recent seismic data and models?

A9. The NRC plans to complete GIP screening by February 2008. The NRC expects to complete any further evaluations by December 2008. The NRC will also continue to monitor ongoing updates of the seismic data and models in the US and evaluate potential impact on nuclear facilities subject to NRC oversight.

Q10. What has been done about this issue since it was identified as a generic issue in the GIP?

A10. The issue was logged into the GIP in June 2005, and based on NRC's determination the seismic design of plants in the CEUS still provided an adequate level of protection, the Agency decided this issue was relatively low priority. Accordingly, the Agency awarded a contract in November 2005 to screen this issue and determine whether it should continue to be evaluated under the GIP. However, in February 2006, the contractor notified the NRC that it was encountering difficulty in acquiring Electric Power and Research Institute (EPRI) Report NP-6395-D, "Probabilistic Seismic Hazard Evaluation at Nuclear Plant Sites in the Central and Eastern Untied States: Resolution of the Charleston Issue," dated April 1989, which the contractor needed to perform the screening analysis. From March 2006 through February 2007, the NRC unsuccessfully attempted to provide this copyrighted document to the contractor. Then, in April 2007, the NRC decided to use Agency staff to complete the screening analysis using guidance provided in Management Directive MD 6.4 and SECY-07-0022, "Status Report on Proposed Improvements to the Generic Issues Program," dated January 30, 2007, which outlines the seven screening criteria for use to determine whether GIs should proceed to the more detailed safety/risk assessment stage under the Generic Issues Program (GIP).

Q11. Has the NRC received any requests from government officials regarding seismic issues?

A11. Yes, on November 15, 2007, the NRC received a letter from the Attorneys General of six States (Connecticut, Delaware, Illinois, Kentucky, New York, and Vermont) encouraging the NRC to consider siting and safety requirements, including geographic and seismic issues, in the regulatory process for license renewal. The news release for this request is available at: http://www.oag.state.ny.us/press/2007/nov/nov15a_07.html. The NRC is reviewing this letter and will respond, as appropriate.

Q12. Where can I get current information on GI-199?

A12. The NRC public GIP Web page (http://www.nrc.gov/about-nrc/regulatory/gen-issues.html) contains program information and documents, background and historical information, GI status information, and links to related programs. The NRC internal GIP Web page (http://www.internal.nrc.gov/RES/GIP/Individual%20GIs/GI-0199.html) contains additional information about GI-199 and is available to NRC staff. The preliminary U.S. Geological Survey (USGS) data is publicly available at ML072880133. The latest Generic Issue Management Control System (GIMCS) quarterly report, which has GI-199 information, is publicly available at ML072920187.

Q13. What are the next steps in the NRC's Generic Issues Program (GIP) for addressing generic issue GI-199?

A13. The next step is for the staff to complete the screening analysis stage of the GIP. The staff plans to complete the screening analysis by February 2008. If this issue screens in for further processing under the GIP, then the staff will assess the various seismic data and models available to determine whether (based on the latest data and models available) any plant sites in the CEUS might have seismic hazards that could result in appreciable increased estimates of the plant's risk for response to seismic events. The GIP would then proceed, under the safety/risk assessment stage, to estimate the potential increase in core damage frequency for any plants identified. The final stage of the GIP would identify appropriate regulatory actions should the staff's evaluations determine the seismic risk increase exceeds established safety values.