

August 16, 2011

MEMORANDUM TO: Charles E. Ader, Director
Division of Safety Systems and Risk Assessment
Office of New Reactors

FROM: Donald A. Dube, Senior Technical Advisor */RA/*
Division of Safety Systems and Risk Assessment
Office of New Reactors

SUBJECT: SUMMARY OF PUBLIC MEETING TO PERFORM TABLETOP
EXERCISES REGARDING GUIDANCE ON 50.69, AND DRAFT NEI
96-07 APPENDIX C RELATED TO EX-VESSEL SEVERE ACCIDENT
FEATURES FOR NEW REACTORS, HELD ON AUGUST 9, 2011

On August 9, 2011, a public meeting was held at One White Flint North, Room 4B6, to conduct tabletop exercises regarding the adequacy of existing guidance on 50.69, risk-informed categorization and treatment of structures, systems and components (SSCs), and draft NEI 96-07, Appendix C, changes to ex-vessel severe accident design features, applied to new reactor designs. The workshop was held to address the Commission's Staff Requirements Memorandum (SRM) of March 2, 2011 on SECY-10-0121. The workshop plan is provided as Enclosure 1. A list of attendees is provided as Enclosure 2. Handouts presented by industry representatives are provided as Enclosures 3 through 7.

The workshop was the fifth in a series in response to the Commission SRM to perform tabletop exercises that "test various realistic performance deficiencies, events, modifications, and licensing bases changes against current U. S. Nuclear Regulatory Commission (NRC) policy, regulations, guidance and all other requirements (e.g., Technical Specifications, license conditions, code requirements) that are or will be relevant to the licensing bases of new reactors."

Staff began the workshop by providing an overview of the tabletop exercises previously conducted. The upcoming milestones were also highlighted.

The Electric Power Research Institute (EPRI) provided an overview of the methodologies on risk-informed categorization and treatment of active and passive components under 50.69 per guidance in NEI 00-04. American Society of Mechanical Engineers Code Cases N660 and N752 (draft) were also briefly discussed. For passive components (e.g., piping), there is consistency with the risk-informed inservice inspection of piping program. The important role of the integrated decision-making panel (IDP) was also highlighted.

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Representatives from Erin Engineering and Research as well as General Electric-Hitachi discussed some of the considerations for new reactor designs. It was noted that typically only 2000 components may be modeled in the Probabilistic Risk Assessment, leaving thousands of other components to be classified on the basis of criteria other than risk. Finally, Vesna Dimitrijevic, on behalf of EPRI, discussed sample categorization for a new pressurized water reactor design with active safety features. The RISC-1, 2, 3, and 4 categorization distribution mirrored results from South Texas Project Units 1 and 2, recognizing that the classification for the new design was based strictly on risk importance measures and had not been through the IDP. A sample categorization for active and passive components in a new reactor safety injection system was also provided. Finally, the role of the risk sensitivity study was described.

Meeting participants identified the features as well as regulatory and programmatic controls that strengthen the 50.69 program and tend to limit the decrease in enhanced safety margin of the new reactor designs. These include, for example:

- 50.69 does not change the nuclear plant system designs, but simply changes the treatment of SSCs
- NRC review and approval of a license amendment request is required. Typically, methods and sample results are provided to the staff as part of the review cycle.
- Risk sensitivity studies provide the staff with a measure of the potential risk impact of the program
- For passive reactor designs, there is strong overlap between the regulatory treatment of non-safety systems (RTNSS), previously reviewed by the staff, and the RISC-2 SSC components
- For RISC-3 components, there are regulatory requirements for performance monitoring and timely corrective action. Periodic review of the program is also required. Experience with the reliability performance of SSCs within the South Texas Project 1 & 2 program has been positive.

The second topic of the tabletop was discussion of the draft guidance in Nuclear Energy Institute (NEI) 96-07, Appendix C, regarding changes to ex-vessel severe accident design features. NEI summarized the 4-page document, and staff provided specific comments of a clarifying nature on the draft guidance. Staff noted that the guidance generally met the intent, with useful definitions and examples. Staff will target transmitting marked-up draft comments to NEI in early September, 2011.

At the end of the workshop, staff discussed the initiation of the Reactor Oversight Process tabletop exercises, with a planning meeting open to the public scheduled for August 25, 2011, in the White Flint complex.

It was noted that an informational briefing of the subcommittee on Reliability and PRA of the Advisory Committee on Reactor Safeguards is scheduled for September 20, 2011.

Enclosures: As stated

PRELIMINARY

Workshop #4, SRM to SECY-10-0121: Tabletop on 50.69, risk-informed categorization of SSCs	
Date	August 9, 2011
Location	NRC, Rockville, OWFN 4B6
Time	8:30 am to 5:00 pm
Objective of workshop	To test implementation of 50.69 for new reactor designs, and either confirm the adequacy of existing regulatory guidance or identify areas for improvement
Scope of Workshop	Limited to issues of the adequacy of the existing risk-informed guidance to prevent significant decrease in the enhanced margin of safety for new plants. Process issues will not be addressed in this workshop.
Regulatory guidance	RG 1.201, and draft inspection procedure 37060
Supporting document(s)	<ol style="list-style-type: none"> 1. NEI 00-04, "10 CFR 50.69 SSC Categorization Guideline," 2. WCAP-16308-NP-A, Revision 0, "Pressurized Water Reactor Owners Group 10 CFR 50.69 Pilot Program - Categorization Process - Wolf Creek Generating Station," August 2009
New reactor designs in tabletop	Preferably, one reactor design with active safety features and one with passive features
SPAR models	None to be used for this workshop
Further Commission direction per SRM	"If the staff concludes that the enhanced safety margins for new plants will significantly decrease without regulatory policy changes, the staff should clearly explain how 'significant' (in the context of decreasing safety margins) was defined to support the recommendations."
Pre-workshop activities	<ol style="list-style-type: none"> 1. Industry to review past and current licensing basis change submittals related to 50.69 2. Industry (EPRI and its contractors) to qualitatively, and to the extent possible, quantitatively, assess the risk impact of implementing the various methodologies on one or more new reactor designs
Workshop activities	<ol style="list-style-type: none"> 1. Overview of methodologies for active and passive SSCs 2. Discussion of application of 50.69 to one or more currently operating reactors 3. Qualitative and quantitative discussions of risk-impacts of 50.69 for new reactor designs 4. Identification of a) regulatory controls, and b) licensee controls to limit the decrease in the enhanced safety margin for new reactors
Preliminary conclusion to draw from tabletop exercise	<p>Determine whether the preponderance of the experience on implementing 50.69 in the currently operating fleet, qualitative and quantitative results of the tabletop exercises for new reactor designs, and the regulatory and licensee controls to limit the decrease in the enhanced safety margin</p> <ol style="list-style-type: none"> a) provide reasonable assurance of the adequacy of existing risk-informed guidance when applied to 50.69 for new reactor designs, <u>or</u> b) identify the need for additional analysis or tabletop exercises, and if so, what additional analysis/tabletop, what time frame, and the owner(s) of such action item, <u>or</u> c) whether an area for improvement has been identified, the technical basis for concluding a "significant" decrease in the enhanced safety margin will result, and the specific recommendation to be made to the Commission
Lessons-learned	A list of the major lessons learned from the workshop/tabletop should be carried forward to future workshops/tabletops

U.S. Nuclear Regulatory Commission
Rockville, MD 20852
Public Workshop #4 on SRM to SECY-10-0121
50.69 and EVSA for New Reactors
August 9, 2011

List of Attendees

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