

March 5, 2012

MEMORANDUM TO: Alexander R. Klein, Chief
Fire Protection Branch
Division of Risk Assessment
Office of Nuclear Reactor Regulation

FROM: Daniel M. Frumkin, Team Leader */RA/*
Fire Protection Branch
Division of Risk Assessment
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF JANUARY 31, 2012, PUBLIC MEETING OF THE
NUCLEAR REGULATORY COMMISSION TO DISCUSS FIRE
PROTECTION CIRCUIT FAILURES AND OTHER CURRENT
LICENSING BASIS ISSUES

On January 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) held a Category 2 public meetings with industry stakeholders to discuss fire protection issues related to fire induced circuit failures. The main topics discussed were the status of industry activities relating to Revision 3 of NEI 00-01, "Guidance for Post-Fire Safe Shutdown Circuit Analysis," submitted to the NRC on October 12, 2011 as ADAMS Accession Number [ML112910143](#), and licensing bases issues with regard to Multiple Spurious Operations (MSOs). A list of participants is included in Enclosure 1.

The following is a breakdown of the discussion from the meeting. The Nuclear Energy Institute (NEI) Circuit Failure Task Force (ITF) members provided slides for the meeting, which are included as Enclosure 2. The slides were emailed to the teleconference participants before the call.

1. NEI Circuit Failure ITF members presented their priorities for NRC consideration of information in NEI 00-01. The NRC staff provided preliminary view that the NRC staff could support a review of these topics. The NRC staff also indicated that more information would be needed with respect to the position papers prepared by the General Electric Boiling Water Reactor Owner Group (BWROG).

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NEI Circuit Failure ITF members indicated that they would revisit the level of detail provided with respect to these position papers and inform the NRC staff of plans to provide additional information.

2. The NRC staff questioned how Chapter 5 of NEI 00-01, was being applied. NEI Circuit Failure ITF members indicated that although it isn't typically being used as part of the current efforts, it may have use in future screening of new circuit configurations.
3. Regarding the topic of current licensing basis for multiple spurious operations (MSOs), the NEI Circuit Failure ITF members indicated that they have not identified the need for any adjustments in their current licensing basis and that each licensing basis is specific to each plant. ITF members had concerns regarding the process for changing the licensing basis and also how new issues would be addressed in the event of a revised licensing basis. ITF members suggested that new MSOs be dispositioned using risk tools.

NRC staff indicated that there are a number of factors which would have to be addressed before risk tools could be applied to a deterministic fire protection program. The NRC staff indicated that the use of risk tools would likely as a minimum entail a fire probabilistic risk assessment (PRA) that was developed in accordance with NRC guidance. The application of risk tools requires input from Probabilistic Risk Assessment Licensing Branch staff, but they were not at the meeting.

4. During the meeting ITF members raised numerous concerns regarding the treatment of new information, specifically new information generated from ongoing fire research efforts. ITF members expressed concerns that the new information would have an impact on the work that is being performed to meet NEI 00-01, Revision 2, and would complicate the development of a licensing basis for MSOs. ITF members discussed other concerns related to integrating MSOs into the CLB. For example, the CLB circuit failure criteria will not match the MSO circuit failure criteria so the CLB would need to be completely re-evaluated using the new criteria which could result in hardware or procedure changes.

The NRC staff suggested that there are two issues to be addressed, 1) the MSO lists and equipment configurations (such as new combinations) and 2) new electrical failure configurations (such as different kinds of electrical failures including ground fault equivalent hot shorts). The NRC staff proposed that future discussions regarding licensing basis should be parsed into these two categories to facilitate the discussion. If

all issues do not fit into these two categories, these categories could be expanded or additional categories could be added.

5. The ongoing research information has not yet been published. NRC staff familiar with the research indicated that some of the conclusions would have the potential to reduce the scope of electrical failure configurations to be considered whereas other conclusions may introduce new credible failures. The NRC staff noted that this information was not yet final, and the NRC staff has not yet determined how the new research information will be formally integrated in to the regulatory framework.
6. The NRC staff plans to hold the next public meeting around April 2012. Intermediate meetings may be held if needed.
7. The NRC staff briefly mentioned the follow-on tasks, applying the fire protection license condition statement, "adverse affect on the ability to safely shutdown," and entry conditions for safe shutdown procedures. The NRC staff plans to begin a discussion of these topics in May 2012.

It is the NRC staff position that sufficient technical information is available in Regulatory Guide 1.189, Revision 2 for licensees to address circuit failure issues.

This meeting did not decide any Agency or staff positions, and it did not interpret regulations other than what is currently established by guidance or staff position.

Meeting minutes from the December 8, 2011, public meeting on this topic are in NRC document management system, Accession Number [ML120050208](#).

There were no questions for the NRC staff from members of the public.

Enclosures:

As stated

5. The ongoing research information has not yet been published. NRC staff familiar with the research indicated that some of the conclusions would have the potential to reduce the scope of electrical failure configurations to be considered whereas other conclusions may introduce new credible failures. The NRC staff noted that this information was not yet final, and the NRC staff has not yet determined how the new research information will be formally integrated in to the regulatory framework.
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**NRC PUBLIC FIRE PROTECTION CIRCUIT FAILURES MEETING
LIST OF ATTENDEES**

January 31, 2012

<u>Name</u>	<u>Organization</u>	<u>Name</u>	<u>Organization</u>
Daniel Frumkin	NRR/DRA	Robert White	ERIN Engineering
Brian Metzger	NRR/DRA	Michelle Kelley	Xcel Energy
Harry Barrett	NRR/DRA	Tony Maness	NEI
Gary Cooper	NRR/DRA	Tom Gorman	PPL
Alex Klein	NRR/DRA	Randy Jamison	Seabrook
John Rogge*	Region I	Chris Pragman	Exelon
Ladonna Suggs*	Region II	Glen Stewart	Exelon
Jonathan Montgomery*	Region II	Fleur de Peralta	Tri-En Corp.
Geoff Miller*	Region IV	Nancy Chapman*	Bechtel
		Jason Trilovich*	South Texas Project
		Jose (Joe) Loya*	South Texas Project
		Brenda Simril	TVA
		Greg Cameron	Arizona Public Service (Palo Verde)
		Thomas Weber	Arizona Public Service (Palo Verde)
			Alan Jelalian* EPM
		Jack Martin*	Dominion
		Gregory Alan Lang*	SNC
		Andy Ratchford*	RDS
		Sean Hunt*	Hughes Associates
		Eddie Turner*	Sequoyah
		Laura Amini*	Sequoyah
		Saeed Savar	PSEG

* Participated via phone or video conference

Slide 1

Public Meeting NEI 00-01 Revision 3 & MSO Licensing Basis

**NEI Circuit Failures ITF
January 31, 2012**

Slide 2

Agenda

- **NEI 00-01 Revision 3 Review**
 - Priorities
 - Completeness of Technical Information
- **Licensing Basis for MSO**
 - Problem Statement
 - Current Position
 - Impediments to Moving Forward
 - Potential Path Forward

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Slide 3

NEI 00-01 Revision 3

<u>Review Priorities</u>	<u>Priority/Add'l Info Req'd</u>
• Chapter 1 & 2 – review for agreement with the Staff's Interpretation of the Regulations	• Medium/None
• Chapter 3 – – 3.1, 3.2, 3.3 & 3.4 & Appendix H – Additional Guidance for Classifying Components as 'Required' or 'Important'	• High/None

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NEI 00-01 Revision 3

<u>Review Priorities</u>	<u>Priority/Add'l Info Req'd</u>
• Chapter 3 [cont.] – Criteria/Assumptions in 3.1.1 & 3.2.1 – 3.5.1	• High/GE NEDO 33638
• Chapter 4 – 4.5.2.2 Fire Modeling Change	• Medium/None
• Chapter 6 – Revised Definitions	• Low/None

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NEI 00-01 Revision 3

Review Priorities

- **Appendix E**
 - Acceptability
- **Appendix G**
 - MSO Changes & Classifications
- **Other changes in the document**

Priority/Add'l Info Req'd

- Medium/None
- High/Westinghouse RCP Paper LTR-RAM-I-10-053; Technical Bulletin 04-22-1; WCAP 16175
- Low/None

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Licensing Basis for MSOs

- **Current Position**
 - The CLB for plants transitioning to NFPA 805 is being changed through the Licensing Amendment Request (LAR) Process.
 - The CLB for plants not transitioning to NFPA 805 is unchanged from that described in their FSAR, etc.

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Licensing Basis for MSOs

- **Current Position**

- Discussions to date have focused on a technical resolution approach.
- The industry has not identified the need for any adjustments in their CLB.
- The CLB for each Licensee is unique to that Licensee both at a high level (e.g., Appendix R by 10CFR50.48, Appendix R by FSAR Commitment, NUREG 0800) and, even more so, at the detailed level (e.g. use of III.G.3, selected safe shutdown systems and equipment).

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Licensing Basis for MSOs

- **Current Position**

- The determination of the CLB for any Licensee can only be made by a review of that Licensee's NRC submittals and SER's
- There is not a single Licensee whose CLB would match verbatim the language in Regulatory Guide 1.189 Revision 2 and NEI 00-01 Revision 2.

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Licensing Basis for MSOs

- **Impediments to Moving Forward**

- Altering a Licensee's CLB to include MSOs would require a Licensee to re-baseline their CLB for the Post-Fire Safe Shutdown portions of their Fire Protection Program.
- The NRC and the Industry are not in full agreement with the criteria for addressing MSOs.
 - Changes in NEI 00-01 Revision 3
 - Potential circuit failure changes from the research area, both completed and ongoing testing
 - Open-ended/unbounded aspect of the MSO Lists

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Licensing Basis for MSOs

- **Potential Path Forward, as a minimum could include**

- An agreed upon Design Criteria for Post-Fire Safe Shutdown Circuit Analysis including MSOs
 - NEI 00-01 Revision 3 (& a Possible Revision 4)
 - Industry approaches to addressing MSO (e.g., shorting switches).
 - Research related changes
- Agreement that any new MSOs may be addressed on the basis of risk significance, (e.g., NEI 00-01 Chapter 5). This is consistent with the current regulatory process for addressing new issues beyond the CLB.

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Licensing Basis for MSOs

- **Problem Statement:**
 - The industry is reluctant to change their CLB with the current situation,(e.g. evolving research, the potential for MSO list revisions, the need for a Risk Informed evaluation process to address future changes).