

April 17, 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: PUBLIC MEETING TO DISCUSS CIRCUIT ANALYSIS ISSUES AND  
FIRE PROTECTION CURRENT LICENSING BASIS ISSUES

DATE & TIME: Thursday, May 3, 2012  
9:00 a.m. – 12:30 p.m.  
Call-in line: Limited.  
Please e-mail contacts for call-in number and passcode.

LOCATION: U.S. Nuclear Regulatory Commission (NRC)  
One White Flint North, O-16B4  
11555 Rockville Pike  
Rockville, Maryland 20852-2738

PURPOSE: To discuss Revision 3 of Nuclear Energy Institute (NEI 00-01), Guidance  
for Post Fire Safe Shutdown Circuit Analysis and other current licensing  
basis issues.

CATEGORY\*: This is a Category 2 meeting. The public is invited to participate in this  
meeting by discussing regulatory issues with the NRC at designated  
points identified on the agenda.

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\* Commission's Policy Statement on "Enhancing Public Participation in NRC Meetings,"  
(67 FR 36920) May 28, 2002

PARTICIPANTS: NRC and external stakeholders, including members of NEI, industry

A. Klein

- 2 -

representatives, consultants to the nuclear industry, and any interested members of the public.

NRC

D. Frumkin

H. Barrett

A. Klein

G. Cooper

B. Metzger

Stakeholders

NEI

Industry representatives

Public

Consultants to the industry

Enclosure:

1. Agenda

PARTICIPANTS: NRC and external stakeholders, including members of NEI, industry representatives, consultants to the nuclear industry, and any interested members of the public.

NRC

D. Frumkin  
H. Barrett  
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Enclosure:  
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OFFICE	NRR/DRA/AFPB	NRR/DRA/AFPB
NAME	DFrumkin	AKlein
DATE	04/16/12	04/17/12

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**Public Meeting to Discuss Revision 3 of NEI 00-01 and  
Fire Protection Current Licensing Basis Issues  
May 3, 2012  
U.S. Nuclear Regulatory Commission Headquarters - Rockville, Maryland**

**Agenda**

- PURPOSE: To discuss Revision 3 of Nuclear Energy Institute (NEI 00-01), Guidance for Post Fire Safe Shutdown Circuit Analysis ([ML112910143](#)) and other current licensing basis issues. Since the last meeting on January 31, 2012, the NRC staff responded to an NEI email requesting clarification on a number of related topics. The clarifications are included in this agenda.
- 9:00 a.m. Introduction and meeting focus
- 9:05 a.m. NRC staff will discuss comments on NEI 00-01, Revision 3. These comments are based on the high and medium priority portions of NEI 00-01, Revision 3, as presented in the January 31, 2012, public meeting ([ML120481526](#)) by NEI and stakeholder staff.
- 10:15 a.m. NEI staff will discuss white papers and other technical information being relied upon for the resolution of the fire induced circuit failure issue that was not included in Revision 3 of NEI 00-01. This could include information from General Electric document number NEDO-33638 (not publicly available), addressing the topics of 1) Information Notice 2007-07 (post-fire SCRAM capabilities), 2) Fire Induced Water Hammer, 3) Fire-Induced Spurious Operations of All SRVs, and 4) Time Until Start of Damage for Dead-Headed Centrifugal Pumps. Also, NEI staff could discuss the inclusion into NEI 00-01 of technical basis for other industry approaches to addressing circuit failures such as shorting switch analyses.
- 11:15 a.m. NEI staff and industry stakeholders will discuss licensing basis, based in part on the clarifications provided to NEI included in this agenda.
- 12:20 p.m. Discuss upcoming meetings on related topics, including safe shutdown procedure entry conditions and application of, "no adverse affect," from fire protection license condition.
- 12:25 p.m. Industry and public comments
- 12:30 p.m. Adjournment

ENCLOSURE

Clarifications Sent to NEI Staff Regarding this Meeting:

- **The two emails below discuss License condition and License basis for the April meeting.**
  - **What is the specific agenda topic for the April meeting?**

The specific agenda items for the next meeting are the NRC review of NEI 00-01, Revision 3, and a discussion of licensing basis. A discussion of licensing basis is included in the next set of bullets.

The NRC staff is compiling comments on the high and medium priority section of NEI 00-01, Revision 3 and we plan to be prepared to discuss and distribute the comments at the meeting, this represents one topic for the meeting.

The NRC staff would like to discuss the white papers that GE and Exelon (shorting switch) have developed. The NRC staff understands that industry stakeholders plan to rely on the results of those white papers in their circuit failure analyses. The NRC staff has not seen how the industry stakeholders plan to use those white papers.

For example NEI 00-01, Revision 3, Section 3.2.1.5 discusses fire-induced water hammer events. Two paragraphs are included that provide a short overview of the assumptions, conclusions, primary concerns, and reference to an EPRI paper. The NRC staff will likely have questions on Section 3.2.1.5, but there is much more information on water hammer than the other subjects discussed in the NEDO document.

Below are all the references that I could find in NEI 00-01, Revision 3, to the NEDO document in brackets (I pulled the list from Jonathan Li's presentation from the 2012 NEI FICF Workshop).

"A BWROG Supplement report, NEDO-33638, has been generated to address the following MSOs:

- NRC Information Notice 2007-07 (post-fire SCRAM capabilities) [3.1.2.1?, Scenario 1a and 1b, Brief discussion H-2]
- Fire-Induced Water Hammer [3.2.1.5]
- Fire-Induced Spurious Opening of All SRVs [3.1.1.2?, Scenario 3a]
- Time until the Start of Damage for Dead-Headed Centrifugal Pumps [?]"

NEI 00-01, Revision 3, has no discussion of the shorting switch analysis or how it would be applied.

- **The FICF meeting summary (attached above) indicates on page 4 that the NRC will redraft the problem statement. Is this your expectation or recollection of the commitments made?**

That was not my recollection, but I have written down some of the considerations that the NRC staff considers important.

The NRC staff is looking for a licensing footprint for the work that will be completed by November 2012. The NEI proposed wording from the previous meeting:

- “– 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.”

The NRC staff is looking for a discussion as part of a plant’s licensing basis for fire induced circuit failures that includes the following features:

1. What standard or guidance did the licensee meet? [Regulatory Guide 1.189, Revision 2; NEI 00-01, Revision 2 or 3; or other]
2. How were exceptions to the standard or guidance managed? [Evaluations or deviations, and where documented]
3. How will new information (such as new MSO scenarios or circuit fault configurations) be managed? [Operating experience, screening with expert panels]

Another point that would be relevant to a licensing basis discussion would be the treatment of III.G.3 areas. Since the discussion in NEI 00-01, Appendix G relating to III.G.3 describes the multiple spurious analyses as voluntary, it would be important to describe how the guidance for addressing multiple spurious actuations was applied to alternative and dedicated shutdown areas.

The NRC staff is committed to bringing stability to both the technical and regulatory side of the circuit failure issue. Licensees maintaining a, “single spurious” plant specific licensing basis for III.G.2 or III.G.3 areas that predates the 2001 NEI/EPRI circuit testing and the NUREG/CR-6931 (Carolfire) testing will continue to be scrutinized by the NRC for safety, and the NRC will analyze that plant specific license basis and make a determination whether enforcement or backfit in accordance with the rules is necessary. Based on the information that has been shared with the NRC staff, all licensees not implementing NFPA 805 have analyzed, evaluated the impact, and are implementing corrective actions for multiple spurious actuations in accordance with, at least, Regulatory Guide 1.189, Revision 2. A description of this analysis/evaluation should be included in each plant’s licensing basis. These actions will ensure uniformity and therefore enhance future regulatory stability.

It is mutually beneficial for the licensee to have a clear description of what each licensee believes they have done such that it can be inspected. Without such a clear description there will continue to be uncertainty regarding what a plant’s licensing basis is and repeated discussion with the inspectors over licensing basis that do not add value to the regulatory process. This is especially true since the each licensee claims to have done an analysis that is consistent with current regulatory guidance.

Such a licensing basis discussion could be provided to the NRC for review or approval, but it may not be necessary as long as the basic minimum goal of Regulatory Guide 1.189, Revision 2, and NEI 00-01, Revision 2, as they relate to circuit failure configurations is addressed.

- **The proposed meeting is 4/30/12 which is a Monday. The industry focus group is requesting another day of the week for our meeting.**

The April 30<sup>th</sup> date was a target. We can do it late April, or early May if need be. The key factor is for NRC staff and industry stakeholders to do what they can with the available information to make the most productive meeting.