

Brandon,

Do you have an update on the status of the broken up FAQ 17?

We are still awaiting the split-up version. Ray is eager to close the portion that we can close right now, but we cannot move forward without the divided version.

Thanks,

Chuck

Charles Moulton  
Fire Protection Engineer  
NRR/DRA/AFP  
Phone: 415-2751  
Mailstop: O11A11

**Mail Envelope Properties** (463A1C27.9C1 : 12 : 9706)

**Subject:** FAQ 17 status  
**Creation Date** 5/3/2007 1:30:15 PM  
**From:** Charles Moulton

**Created By:** CEM4@nrc.gov

<b>Recipients</b>	<b>Action</b>	<b>Date &amp; Time</b>
nei.org 1:30:36 PM btj (internet:btj@nei.org)	Transferred	5/3/2007
nrc.gov OWGWPO02.HQGWDO01 1:30:22 PM RHG CC (Ray Gallucci) 1:34:03 PM	Delivered  Opened	5/3/2007  5/3/2007
nrc.gov OWGWPO03.HQGWDO01 1:30:22 PM TQD1 CC (Thin Dinh) 1:56:23 PM	Delivered  Opened	5/3/2007  5/3/2007
nrc.gov TWGWPO04.HQGWDO01 1:30:22 PM SDW1 CC (Sunil Weerakkody) 7:54:49 AM	Delivered  Opened	5/3/2007  5/6/2007

<b>Post Office</b>	<b>Delivered</b>	<b>Route</b>
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OWGWPO03.HQGWDO01	5/3/2007 1:30:22 PM	nrc.gov
TWGWPO04.HQGWDO01	5/3/2007 1:30:22 PM	nrc.gov

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
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**Options**  
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**Expiration Date:** None  
**Notify Recipients:** Yes  
**Priority:** Standard

<b>ReplyRequested:</b>	No
<b>Return Notification:</b>	None
<b>Concealed Subject:</b>	No
<b>Security:</b>	Standard
<b>To Be Delivered:</b>	Immediate
<b>Status Tracking:</b>	Delivered & Opened

I will check and get back to you asap.

Brandon

-----Original Message-----

From: Charles Moulton <[CEM4@nrc.gov](mailto:CEM4@nrc.gov)>

To: JAMAR, Brandon

CC: Ray Gallucci <[RHG@nrc.gov](mailto:RHG@nrc.gov)>; Sunil Weerakkody <[SDW1@nrc.gov](mailto:SDW1@nrc.gov)>; Thinh Dinh <[TQD1@nrc.gov](mailto:TQD1@nrc.gov)>

Sent: Thu May 03 13:30:15 2007

Subject: FAQ 17 status

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We are still awaiting the split-up version. Ray is eager to close the portion that we can close right now, but we cannot move forward without the divided version.

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Chuck

Charles Moulton  
Fire Protection Engineer  
NRR/DRA/AFPB  
Phone: 415-2751  
Mailstop: O11A11

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**Mail Envelope Properties** (463A34C1.730 : 6 : 59184)

**Subject:** Re: FAQ 17 status  
**Creation Date** 5/3/2007 3:06:28 PM  
**From:** "JAMAR, Brandon" <btj@nei.org>

**Created By:** btj@nei.org

**Recipients**

nrc.gov  
TWGWPO01.HQGWDO01  
CEM4 (Charles Moulton)

**Post Office**

TWGWPO01.HQGWDO01

**Route**

nrc.gov

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
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Mime.822	3669	

**Options**

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**Priority:** Standard  
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**Concealed Subject:** No  
**Security:** Standard

**Junk Mail Handling Evaluation Results**

Message is eligible for Junk Mail handling  
This message was not classified as Junk Mail

**Junk Mail settings when this message was delivered**

Junk Mail handling disabled by User  
Junk Mail handling disabled by Administrator  
Junk List is not enabled  
Junk Mail using personal address books is not enabled  
Block List is not enabled

Please find the attached revision 5 to FAQ 06-0008 for submittal. Two versions are included showing both changes hidden and changes shown. If you have any questions please give me a call.

Thank you,

Brandon T. Jamar

Project Manager, Engineering

Nuclear Energy Institute

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nuclear. clean air energy.

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**Mail Envelope Properties** (4640613A.988 : 18 : 18824)

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**Creation Date** 5/8/2007 7:41:05 AM  
**From:** "JAMAR, Brandon" <btj@nei.org>

**Created By:** btj@nei.org

**Recipients**

nrc.gov  
TWGWPO01.HQGWDO01  
CEM4 (Charles Moulton)

nrc.gov  
OWGWPO02.HQGWDO01  
DXF1 (Daniel Frumkin)

nrc.gov  
TWGWPO04.HQGWDO01  
SDW1 (Sunil Weerakkody)

**Post Office**

TWGWPO01.HQGWDO01  
OWGWPO02.HQGWDO01  
TWGWPO04.HQGWDO01

**Route**

nrc.gov  
nrc.gov  
nrc.gov

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FAQ 06-0008 Rev 5_changes hidden.pdf		100385
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**Options**

**Expiration Date:** None  
**Priority:** Standard  
**ReplyRequested:** No  
**Return Notification:** None

**Concealed Subject:** No  
**Security:** Standard

**Junk Mail Handling Evaluation Results**

Message is eligible for Junk Mail handling  
This message was not classified as Junk Mail

**Junk Mail settings when this message was delivered**

Junk Mail handling disabled by User

Junk Mail handling disabled by Administrator

Junk List is not enabled

Junk Mail using personal address books is not enabled

Block List is not enabled

Attachment 1

FAQ Number 06-0008

FAQ Revision 5a

FAQ Title Alternative Method for Fire Protection Engineering Analyses

Plant: Harris

Date: 5/2/07

Contact: Jeff Ertman

Phone: 919-546-3681

Email: jeffrey.ertman@pgnmail.com

Distribution: *(NEI Internal Use)*

805 TF    FPWG    RATF    RIRWG    BWROG    PWROG

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**Purpose of FAQ:**

The purpose of FAQ 06-0008 is to provide a process/method for the use of fire protection engineering analyses post-transition to address NFPA 805 Chapter 3 requirements. Currently, licensees may self approve these evaluations under the existing fire protection license conditions. The process/method discussed in this FAQ will be submitted for approval as part of the transition license amendment request (LAR). The process/method to be submitted in the LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Post-transition, licensees will use this process/method to self approve acceptable fire protection engineering analyses.

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**Is this Interpretation of guidance?**    Yes / No

**Proposed new guidance not in NEI 04-02?**    Yes / No

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**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

Sections 2.3, 2.4, 4.3.1, 4.6.1, 5.3.2, Appendix H, and Appendix I of NEI 04-02 Revision 1.

**Circumstances requiring guidance interpretation or new guidance:**

Risk-informed, performance-based fire protection engineering analyses are an acceptable alternative to the deterministic approaches in NFPA 805 Chapter 4. Some sections of Chapter 3 are conditional based upon Chapter 4 requirements; therefore, risk-informed, performance-based methods are allowed for those sections under NFPA 805 / 10 CFR 50.48 (c). Risk-informed, performance-based fire protection engineering analyses may also be needed to document the acceptability of fire protection systems and features addressed in NFPA 805 Chapter 3 sections that are not conditional based upon Chapter 4 requirements. Current licensing basis allows flexibility to use performance-based technical analysis per Generic Letter 86-10. An approach using these types of analyses is needed to allow this flexibility following transition to NFPA 805.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

The fire protection program elements and minimum design requirements of NFPA 805 Chapter 3 may be subject to the performance-based methods permitted elsewhere in NFPA 805 per 10 CFR 50.48(c)(2)(vii), as long as the appropriate regulatory processes (i.e., a license amendment request) are utilized.

A process for a 10 CFR 50.48(c)(2)(vii) License Amendment Request has not yet been agreed upon.

**Potentially relevant existing FAQ numbers:**

FAQ 06-0004 includes a process for defining fire protection systems and features required to meet NFPA 805 Chapter 3 criteria.

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**Response Section:****Proposed resolution of FAQ and the basis for the proposal:**

A high-level purpose of NFPA 805, as implemented under the endorsement of 10 CFR 50.48(c), is to clarify how licensees may use the flexibility afforded by 10 CFR 50.48(c)(2)(vii) to develop a process to maintain the current flexibility available to licensees under Generic Letter (GL) 86-10 evaluations.

**BACKGROUND**

10 CFR 50.48(c) requires licensees to submit 10 CFR 50.90 license amendment requests for any changes to Chapter 3 features of NFPA 805, unless they have been previously approved by the NRC. Under the standard license condition of GL 86-10, licensees are allowed to make certain types of changes without prior NRC approval as long as the changes do not adversely affect the plant's ability to safely shutdown in the event of a fire.

To apply this process/method, licensees must send the proposed process/methods outlined in this FAQ to the NRC for approval. Then, they may use the approved processes/methods without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes. Approval of a license amendment for the use of this process would constitute a "previously approved alternative" as discussed in NFPA 805 Section 3.1.

The licensees' process/methodology must request an amendment under 10 CFR 50.90, using the flexibility available under 10 CFR 50.48(c)(2)(vii), "Performance-Based Methods", to allow 10 CFR 50.48(c) licensees to establish a process that enables them to make changes to Chapter 3 of NFPA 805, as long as those changes only affect the referenced standards and listings, such as Underwriters Laboratory, Inc. or Factory Mutual listings. Under the proposal the licensee will commit to a process to evaluate deviations from secondary codes and listings required by NFPA

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**FAQ Title Alternative Method for Fire Protection Engineering Analyses**

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805 Chapter 3. The NFPA 805 change evaluation process will be used to ensure that nuclear safety performance goals, objectives and criteria are satisfied along with defense-in-depth and safety margins, as described in 10 CFR 50.48(c)(2)(vii).

Therefore, application of this process/method requires two steps. First, the process/methods and bounds of the process must be submitted to the NRC for approval. Second, following approval by the NRC, all plant specific changes made under this license amendment will undergo the same evaluation process as part of 10 CFR 50.48(c)(2)(vii). This second step, application of the process/method, will not require NRC approval.

This process/method would not apply to NFPA 805 Chapter 3 changes that do not relate to either NFPA codes or listings or changes that are not conditional based on NFPA 805 Chapter 4. These types of changes would continue to require individual 10 CFR 50.90 license amendment requests addressing the specific deviation.

## **PROCESS**

Proposed addition to the post-NFPA transition fire protection standard license condition (Section C.3.1 of Regulatory Guide 1.205):

“Licensees may perform change evaluations for fundamental fire protection program and design elements of NFPA 805 Chapter 3 that are conditional based on NFPA 805 Chapter 4 requirements.

Licensees may also perform change evaluations for deviations from the NFPA codes and listings for rated components mentioned in NFPA 805, without a 10 CFR 50.90 submittal, as long as the specific requirement for the feature is not included in NFPA 805 Chapter 3 itself, and the NFPA 805 change process is used.”

The following provides the sections of NFPA 805 that will utilize this process/method. Sections that are addressed conditionally by Chapter 4 performance-based process are also identified for completeness.

### **Column Heading Definition:**

**Fire Protection Engineering Analysis Process Applicable:** Sections of NFPA 805 Chapter 3 containing referenced codes and listings. Note the “Applicability” would only apply to the referenced codes and listings contained within these sections, and the process could not be used to change the NFPA 805 Chapter 3 specific requirements.

**Chapter 4 Conditional Section:** These NFPA 805 Chapter 3 sections are conditional based upon NFPA 805 Chapter 4 requirements. The requested use of fire protection engineering evaluations for these sections are not limited to referenced codes and listings.

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**FAQ Title Alternative Method for Fire Protection Engineering Analyses**


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**Fire Protection Engineering Analysis and Chapter 4 Not Applicable:** These NFPA 805 Chapter 3 sections do not have NFPA 805 Chapter 4 conditions and do not have referenced codes and listings. Therefore, the process/method associated with this FAQ is not applicable and would be outside the scope of the associated LAR.

Section	Title	FP Eng. Analysis Process Applicable	Chapter 4 Conditional Section	FP Eng. Analysis Process and Chapter 4 Not Applicable
3.1	General			X
3.2	Fire Protection Plan			X
3.2.1	Intent			X
3.2.2	Management Policy Direction and Responsibility			X
3.2.3	Procedures			X
3.3	Prevention			X
3.3.1	Fire Prevention for Operational Activities	X		
3.3.2	Structural	X		
3.3.3	Interior Finishes	X		
3.3.4	Insulation Materials			X
3.3.5	Electrical			X
3.3.6	Roofs	X		
3.3.7	Bulk Flammable Gas Storage	X		
3.3.8	Bulk Storage of Flammable and Combustible Liquids	X		
3.3.9	Transformers			X
3.3.10	Hot Pipes and Surfaces			X
3.3.11	Electrical Equipment (Note 1)			X
3.3.12	Reactor Coolant Pumps (Note 1)			X
3.4	Industrial Fire Brigade			
3.4.1	On-Site Fire Fighting Capability	X		
3.4.2	Pre-Fire Plans			X

## FAQ Title Alternative Method for Fire Protection Engineering Analyses

Section	Title	FP Eng. Analysis Process Applicable	Chapter 4 Conditional Section	FP Eng. Analysis Process and Chapter 4 Not Applicable
3.4.3	Training and Drills	X		
3.4.4	Fire Fighting Equipment	X		
3.4.5	Off-Site Fire Department Interface			X
3.4.6	Communications			X
3.5	Water Supply	X		
3.6	Standpipe and Hose Stations	X		
3.7	Fire Extinguishers	X		
3.8	Fire Alarm and Detection Systems			
3.8.1	Fire Alarm	X		
3.8.2	Detection		X	
3.9	Automatic and Manual Water-Based Fire Suppression Systems		X	
3.10.	Gaseous Fire Suppression Systems		X	
3.11	Passive Fire Protection Features		X	
3.11.1	Building Separation (Note 3)			X
3.11.2	Fire Barriers		X	
3.11.3	Fire Barrier Penetrations		X	
3.11.4	Through Penetration Fire Stops (Note 2)		X	
3.11.5	Electrical Raceway Fire Barrier Systems (ERFBS)		X	

Note 1 – Separate FAQs will be used to clarify the applicability of engineering analyses to the requirements of Section 3.3.11 and 3.3.12 of NFPA 805.

Note 2 – Through penetration fire stops referenced in Section 3.11.4 of NFPA 805 are considered conditional based upon NFPA 805 Chapter 4 requirements, since they are integral to fire barriers (Section 3.11.2)

Note 3 – Section 3.11.1 of NFPA 805 contains an exception for performance-based analysis. The process in this FAQ is not applicable.

**EXAMPLE**

Section 3.6.1 of NFPA 805 requires a hose system to be installed per NFPA 14. Using this process/method, a hose system must be available and have access to “all power block buildings,” and must also be a Class III standpipe, but may deviate from other specific requirements of NFPA 14. These deviations must not contradict other text in Chapter 3 of NFPA 805. The NFPA 805 change evaluation process will be used to ensure that nuclear safety performance goals, objectives and criteria are satisfied along with defense-in-depth and safety margins, as described in 10 CFR 50.48(c)(2)(vii).

**JUSTIFICATION**

Since this process/method will be approved by the NRC as part of the 10 CFR 50.90 submittal, it will meet the legal requirement of 10 CFR 50.48(c)(2)(vii). The basis for the change evaluation to be included in the 10 CFR 50.90 submittal will be that each individual change will be evaluated against the NFPA 805 change process (NFPA 805 performance goals / objectives / criteria, defense-in-depth and safety margins evaluation), and providing this flexibility does not adversely impact the features required by Chapter 3 of NFPA 805 to ensure the NFPA 805 performance goals, performance objectives, and performance criteria are satisfied. By only allowing changes to NFPA 805 Chapter 4 conditional sections and the secondary codes and listings, the changes are bounded. All features required by Chapter 3 will continue to be required (unless specifically addressed separately from this process in an LAR). Secondary features may be changed based on an evaluation, using the required methods in a similar manner as is currently allowed under the Generic Letter 86-10 license condition, without prior NRC approval.

The method will ensure that the following requirements are met:

10 CFR 50.48(c)(2)(vii) Requirement	Method of Accomplishment
(a) The required NFPA 805 performance goals, performance objectives, and performance criteria are satisfied.	The fire protection engineering analysis process includes the assessment of impact on NFPA 805 performance goals, performance objectives, and performance criteria are satisfied. Impact will be assessed per risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section 3.2.
(b) Safety margins are maintained.	Maintaining safety margins will be ensured using the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section C.3.2.
(c) Fire protection defense-in-depth is maintained.	Maintaining fire protection defense-in-depth will be ensured using the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section C.3.2.

The LAR will contain the following information per Regulatory Guide 1.205 Section C.3.2.3:

RG 1.205 Guidance	Method of Accomplishment
(a) detailed description of the alternative risk-informed, performance-based method	<p>The process is not considered an “alternative method”. Existing risk-informed, performance-based methods will be applied, but for a limited scope of NFPA 805 Chapter 3 sections:</p> <ul style="list-style-type: none"> <li>▪ When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and</li> <li>▪ For deviations from the NFPA codes and listings for rated components mentioned in NFPA 805.</li> </ul>
(b) description of how the method will be applied, the aspects of the FPP to which it will applied, and the circumstances under which it will be applied	<p>Risk-informed, performance based fire protection engineering analyses will be allowed to be applied</p> <ul style="list-style-type: none"> <li>▪ When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and</li> <li>▪ For deviations from the NFPA codes and listings for rated components mentioned in NFPA 805</li> </ul>
(c) acceptance criteria, including risk increase acceptance criteria, that the licensee will apply when determining whether the results of an evaluation that uses this methodology meet the required NFPA 805 performance goals, performance objectives, and performance criteria	<p>Acceptance criteria for changes will use the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J (and supplemented by RG 1.205 Section 3.2).</p>
(d) for PSA-based methodologies, an explanation of how the PSA is of sufficient technical adequacy for evaluation of the changes to which it will be applied	<p>Technical adequacy of the PSA used in the risk-informed, performance-based approach will be in accordance with RG 1.205.</p>
(e) for PSA-based methodologies, a description of the peer review and how the review findings have been addressed	<p>Peer review of the PSA used in the risk-informed, performance-based approach will be in accordance with RG 1.205.</p>

**CONCLUSION**

This process/method will permit a risk-informed, performance-based approach to evaluate Fire Protection Program changes within the bounds of secondary codes and listings or changes that are conditional based on NFPA 805 Chapter 4. Following NRC approval of a 10 CFR 50.90 license amendment, this process/methodology will permit licensees to evaluate fire protection features without prior NRC approval. Other issues not involving NFPA codes or listings or changes that are not conditional based on NFPA 805 Chapter 4, would have to be submitted for NRC approval on a case by case basis.

**FAQ Number** 06-0008

**FAQ Revision** 5a

**FAQ Title** Alternative Method for Fire Protection Engineering Analyses

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

[See attached proposed revision to NEI 04-02]

Section 2.2, page 7, 3<sup>rd</sup> paragraph:

- **Performance-Based Methods, § 50.48(c)(2)(vii)** - The prohibition in Section 3.1 of NFPA 805 that does not permit the use of performance-based methods for the Chapter 3 fundamental fire protection program elements and minimum design criteria is not endorsed. The NRC takes this exception in order to provide licensees greater flexibility in meeting the fire protection program elements and minimum design requirements of Chapter 3 by the use of performance-based methods (including the use of risk-informed methods) described in the NFPA 805 standard. Licensees who wish to deviate from Chapter 3 requirements must submit a license amendment request for NRC approval.

Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.

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Section 2.3, page 9, 2<sup>nd</sup> paragraph:

“Compliance with Chapter 3 of NFPA 805 may be demonstrated by showing that the specific requirements are met either directly or by the use of alternative methods and analytical approaches. Alternative methods and analytical approaches must be accepted by the NRC in a license amendment per 10 CFR 50.48(c)(4). Contrary to Section 3.1 of NFPA 805, performance-based methods may be used. (See 10 CFR 50.48(c)(2)(vii)). Note licensees contemplating applying for permission to use an alternative method or analytical approach could pursue a generic approval process with other utilities and/or NEI. See Section 2.4 of this document.

Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.”

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Section 4.1.1, page 21, 1<sup>st</sup> paragraph:

“For areas of the fire protection program that are not in compliance with NFPA 805, Chapter 3, the licensee may utilize the alternate performance-based methods as long as the method is

approved by the NRC in a License Amendment. The NRC has taken exception to NFPA 805, Section 3.1 (See 10 CFR 50.48.c (2)(vii)).

Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.”

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Section 4.3.1, page 27, add new paragraph to this section at the end

“Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.”

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Section 4.6.1, page 34 insert new paragraph before last sentence “A sample LAR.....”

“Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.”

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Section 5.3.1, page 43

“.....Under the risk-informed, performance-based regulatory framework, Fire Protection Program changes will be made without prior NRC approval, except where required by:

- 10 CFR 50.59,
- Other regulatory processes (i.e., Technical Specifications),
- 10CFR 50.48(c) (certain changes to Chapter 3 requirements or Nuclear Safety Changes that do not meet the acceptance criteria of NFPA Section 2.4.4.)
- Changes that have been evaluated using performance-based methods other than the those acceptable to the AHJ
- Changes that have been evaluated using performance-based methods other than the approaches in NFPA 805 (i.e., fire modeling and risk evaluation)

Except as noted, in general changes that have been previously approved by the NRC or that do not deviate from a specific NFPA 805 requirement related to systems, methods, or devices need not be submitted for AHJ approval.....”

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 Section 5.3.2, page 46, starting with 7<sup>th</sup> paragraph:

“Additional consideration should be given to changes to Fundamental Program Elements and Minimum Design Requirements. 10 CFR 50.48(c)(2)(vii) allows licensees to use performance-based methods to demonstrate compliance with NFPA 805 Chapter 3 requirements. However, these alternate methods must be approved via the license amendment process (10 CFR 50.48(c)(4)).

Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.

Most changes to the Fundamental Program Elements and Minimum Design Requirements should not require a License Amendment request, since they are evaluations that demonstrate compliance with requirements of Chapter 3 of NFPA 805. Licensees can deviate from the NFPA standards referenced in NFPA 805 Chapter 3 with in the bounds discussed in Appendix L.

Examples of changes that would not require a License Amendment are:

- Replacing a fire rated component (e.g., penetration seal, door, wrap, etc.) with a different component/material having the same or greater fire rating. This does not require a license amendment because it meets the appropriate code.
- Evaluating a blocked sprinkler head(s) for adequate coverage in the area. Chapter 3 of NFPA 805 and the referenced code do not dictate where a sprinkler system should be

**Deleted:** NFPA 805 Section 1.7 Equivalency states that “Nothing in this standard is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability and safety over those prescribed by this standard. Technical documentation shall be submitted to the authority having jurisdiction to demonstrate equivalency.” Licensees can deviate from the NFPA standards referenced in NFPA 805 Chapter 3 without NRC approval if allowed by the code of record, so long as the evaluated condition is in accordance with the terms of the code of record or if the code does not dictate the specific issue (e.g., adequacy of coverage of suppression and detection systems). In addition to the performance-based methods outlined in NFPA 805, the NRC will provide guidance on Analytical methods and tools and methods acceptable for use in NFPA 805 applications in the Regulatory Guide for the adoption of 10 CFR 50.48. Therefore approval will be required for:¶

**Deleted:** out NRC approval if allowed by the code of record, so long as the evaluated condition is in accordance with the terms of the code of record (e.g., “Nothing in this standard is intended to restrict new technologies or alternate arrangements, providing the level of safety prescribed by the standard is not lowered.” – Excerpt from 1985 edition of NFPA 13) or if the code does not dictate the specific issue (e.g., adequacy of coverage of suppression and detection systems).

**Deleted:** <#>Changing the surveillance frequency of a fire protection feature or system based on NFPA standard as long as the underlying basis for the NFPA standard frequency is the same. This does not require a license amendment because the surveillance frequency would satisfy that specified in the current edition of NFPA codes for providing reasonable assurance that the system or component is maintained in an operable condition.¶

installed. Therefore the adequacy of the coverage should be evaluated with respect to the nuclear safety component(s) the sprinkler system is protecting.

- Evaluating a broken/missing hanger on a fire suppression system. The acceptability of this deviation can be evaluated to show that the support of the system is still adequate with the broken/missing hanger and is therefore equivalent to a code compliant system as allowed by the code of record.

Conversely, examples of changes that would require a License Amendment are:

- ~~Reducing the number of fire brigade members required on-site to below five.~~
- Elimination of the Fire Prevention Program at the plant

**Deleted:** <#>Revision of concentration of an agent to a value less than that required by the respective code or previously approved value.¶

NFPA 805 Section 4.1, states that, “Deterministic requirements shall be “deemed to satisfy” the performance criteria and require no further engineering analysis.” Chapter 4 of NFPA 805 provides the requirements for the baseline evaluation of the fire protection program’s ability to achieve the performance criteria outlined in Section 1.5 of NFPA 805. The ‘deemed to satisfy’ with out additional engineering analysis does not imply that a Plant Change Evaluation would not be performed. For example if a licensee was changing its current licensing basis in a fire area to a ‘deterministic method’, that change would require a ‘Plant Change Evaluation’. Note the Defense in Depth and Safety Margin portion of the “Plant Change Evaluation’ would be satisfied by the fact that a ‘deterministic’ option was chosen for compliance (See Sections 2.4.4.2 and 2.4.4.3 of NFPA 805).”

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**FIRE PROTECTION PROGRAM FUNDAMENTAL ELEMENT / MINIMUM DESIGN REQUIREMENT CHANGE QUESTIONS**

Considering the proposed change, answer the following questions, including a reference to the applicable regulatory, licensing basis, or NFPA document(s), and a brief description of why the proposed change does or does not satisfy the referenced document(s).

3. Does the proposed change involve an **NFPA 805 Chapter 3** requirement as defined in **[Insert appropriate document reference]**? For those fire protection program changes that involve a Nuclear Safety Compliance Strategy requirement or a Radioactive Release requirement, ensure the effect of the change is evaluated in Appendix I, Sections 1.0 and 2.0, respectively.

- Yes – Proceed to Question 3.a.
- No – Document basis and proceed to Question 2

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a. Is the change editorial or trivial in nature? (See Attachment 1)

- o  Yes Document basis and stop.
- o  No Proceed to Question 3.b.

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b. Does the change meet NFPA 805 Chapter 3 requirements or the previously approved alternative as defined in [Insert appropriate document reference]?

Previously approved alternatives include fire protection engineering analyses that are allowed based upon an approved license amendment described in NEI 04-02, Appendix L. (See Attachment 2)

- o  Yes Document conclusions, complete remaining sections.
- o  No License Amendment Request must be processed for NRC approval. Complete remaining sections.

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**Deleted:** Changes that deviate from the NFPA standards referenced in NFPA 805 Chapter 3 can be made without NRC approval if allowed by the code of record (so long as the evaluated condition is in accordance with the terms of the code of record) or if the code does not dictate the specific issue (e.g., adequacy of coverage of suppression and detection systems). Ensure documentation for determination of acceptability is included and meets NEI 04-02 requirements for documentation.

“Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.

The following are examples of changes that do not require NRC approval:

- Replacing a fire rated component (e.g., fire rated penetration seal, fire door, fire rated wrap, etc.) with a different component having the same or greater fire rating.
- Use of fire hoses manufactured from a different material.
- Use of a valve assembly supplied by a different manufacturer for a suppression system.
- Changes to Fire Brigade Training requirements that do not affect performance.
- Evaluating a blocked sprinkler head(s) for adequate coverage in the area. Chapter 3 of NFPA 805 and the referenced code do not dictate where a sprinkler system should be installed. Therefore the adequacy of the coverage should be evaluated with respect to the nuclear safety component(s) the sprinkler system is protecting.”

**Deleted:** In general, deviations from Chapter 3 must be submitted for NRC approval per the Rule. However, licensees can deviate from the NFPA standards referenced in Chapter 3 without NRC approval if allowed by the code of record and the changed condition is in accordance with the terms of the code of record (e.g., many earlier editions of NFPA Codes included the following statement: “Nothing in this standard is intended to restrict new technologies or alternate arrangements, providing the level of safety prescribed by the standard is not lowered.” - From 1985 edition of NFPA 13) or if the code (including NFPA 805, Chapter 3) does not dictate the specific issue (e.g., suppression system or detection system coverage).

**Deleted:** <#>Changing the surveillance frequency for a fire protection feature, as long as the new frequency is bounded by the NFPA code of record (and does not increase CDF or LERF), providing reasonable assurance that the system or component is maintained in an operable condition.¶

## Appendix L – Alternative Method for Engineering Analyses

[PLACEHOLDER FOR A DESCRIPTION OF NRC POSITION ON THIS FAQ.](#)

**Deleted:** This Appendix is based upon Frequently Asked Question 06-0008, Revision [TBD], approved by the NRC in Closure memo dated [TBD], as documented in Regulatory Issues Summary (RIS) 2007-[TBD], dated [TBD] ADAMS Accession No. [TBD].¶

### **L.1 Background**

10 CFR 50.48(c) requires licensees to submit 10 CFR 50.90 license amendment requests for any changes to Chapter 3 features of NFPA 805, unless they have been previously approved by the NRC. Under the standard license condition of GL 86-10, licensees are allowed to make certain types of changes without prior NRC approval as long as the changes do not adversely affect the plant's ability to safely shutdown in the event of a fire.

To apply this process/method, licensees must send the proposed process/methods outlined in this Appendix to the NRC for approval. Then, they may use the approved processes/methods without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes. Approval of a license amendment for the use of this process would constitute a "previously approved alternative" as discussed in NFPA 805 Section 3.1.

The licensees' process/methodology must request an amendment under 10 CFR 50.90, using the flexibility available under 10 CFR 50.48(c)(2)(vii), "Performance-Based Methods", to allow 10 CFR 50.48(c) licensees to establish a process that enables them to make changes to Chapter 3 of NFPA 805, as long as those changes only affect the referenced standards and listings, such as Underwriters Laboratory, Inc. or Factory Mutual listings. Under the proposal the licensee will commit to a process to evaluate deviations from secondary codes and listings required by NFPA 805 Chapter 3. The NFPA 805 change evaluation process will be used to ensure that nuclear safety performance goals, objectives and criteria are satisfied along with defense-in-depth and safety margins, as described in 10 CFR 50.48(c)(2)(vii).

Therefore, application of this process/method requires two steps. First, the process/methods and bounds of the process must be submitted to the NRC for approval. Second, following approval by the NRC, all plant specific changes made under this license amendment will undergo the same evaluation process as part of 10 CFR 50.48(c)(2)(vii). This second step, application of the process/method, will not require NRC approval.

This process/method would not apply to NFPA 805 Chapter 3 changes that do not relate to either NFPA codes or listings or changes that are not conditional based on NFPA 805 Chapter 4. These types of changes would continue to require individual 10 CFR 50.90 license amendment requests addressing the specific deviation.

### **L.2 Process**

Proposed addition to the post-NFPA transition fire protection standard license condition (Section C.3.1 of Regulatory Guide 1.205):

## Appendix L – Alternative Method for Engineering Analyses

“Licensees may perform change evaluations for fundamental fire protection program and design elements of NFPA 805 Chapter 3 that are conditional based on NFPA 805 Chapter 4 requirements.

Licensees may also perform change evaluations for deviations from the NFPA codes and listings for rated components mentioned in NFPA 805, without a 10 CFR 50.90 submittal, as long as the specific requirement for the feature is not included in NFPA 805 Chapter 3 itself, and the NFPA 805 change process is used.”

The following table provides the sections of NFPA 805 that will utilize this process/method. Sections that are addressed conditionally by Chapter 4 performance-based process are also identified for completeness.

### **Column Heading Definition:**

**Fire Protection Engineering Analysis Process Applicable:** Sections of NFPA 805 Chapter 3 containing referenced codes and listings. Note the “Applicability” would only apply to the referenced codes and listings contained within these sections, and the process could not be used to change the NFPA 805 Chapter 3 specific requirements.

**Chapter 4 Conditional Section:** These NFPA 805 Chapter 3 sections are conditional based upon NFPA 805 Chapter 4 requirements. The requested use of fire protection engineering evaluations for these sections are not limited to referenced codes and listings.

**Fire Protection Engineering Analysis and Chapter 4 Not Applicable:** These NFPA 805 Chapter 3 sections do not have NFPA 805 Chapter 4 conditions and do not have referenced codes and listings. Therefore, the process/method associated with this Appendix is not applicable and would be outside the scope of the associated LAR.

<b><u>Section</u></b>	<b><u>Title</u></b>	<b><u>FP Eng. Analysis Process Applicable</u></b>	<b><u>Chapter 4 Conditional Section</u></b>	<b><u>FP Eng. Analysis Process and Chapter 4 Not Applicable</u></b>
<b><u>3.1</u></b>	<b><u>General</u></b>			<b><u>X</u></b>
<b><u>3.2</u></b>	<b><u>Fire Protection Plan</u></b>			<b><u>X</u></b>
<b><u>3.2.1</u></b>	<b><u>Intent</u></b>			<b><u>X</u></b>
<b><u>3.2.2</u></b>	<b><u>Management Policy Direction and Responsibility</u></b>			<b><u>X</u></b>
<b><u>3.2.3</u></b>	<b><u>Procedures</u></b>			<b><u>X</u></b>
<b><u>3.3</u></b>	<b><u>Prevention</u></b>			<b><u>X</u></b>
<b><u>3.3.1</u></b>	<b><u>Fire Prevention for Operational Activities</u></b>	<b><u>X</u></b>		
<b><u>3.3.2</u></b>	<b><u>Structural</u></b>	<b><u>X</u></b>		
<b><u>3.3.3</u></b>	<b><u>Interior Finishes</u></b>	<b><u>X</u></b>		

## Appendix L – Alternative Method for Engineering Analyses

<u>Section</u>	<u>Title</u>	<u>FP Eng. Analysis Process Applicable</u>	<u>Chapter 4 Conditional Section</u>	<u>FP Eng. Analysis Process and Chapter 4 Not Applicable</u>
<u>3.3.4</u>	<u>Insulation Materials</u>			<u>X</u>
<u>3.3.5</u>	<u>Electrical</u>			<u>X</u>
<u>3.3.6</u>	<u>Roofs</u>	<u>X</u>		
<u>3.3.7</u>	<u>Bulk Flammable Gas Storage</u>	<u>X</u>		
<u>3.3.8</u>	<u>Bulk Storage of Flammable and Combustible Liquids</u>	<u>X</u>		
<u>3.3.9</u>	<u>Transformers</u>			<u>X</u>
<u>3.3.10</u>	<u>Hot Pipes and Surfaces</u>			<u>X</u>
<u>3.3.11</u>	<u>Electrical Equipment (Note 1)</u>			<u>X</u>
<u>3.3.12</u>	<u>Reactor Coolant Pumps (Note 1)</u>			<u>X</u>
<u>3.4</u>	<u>Industrial Fire Brigade</u>			
<u>3.4.1</u>	<u>On-Site Fire Fighting Capability</u>	<u>X</u>		
<u>3.4.2</u>	<u>Pre-Fire Plans</u>			<u>X</u>
<u>3.4.3</u>	<u>Training and Drills</u>	<u>X</u>		
<u>3.4.4</u>	<u>Fire Fighting Equipment</u>	<u>X</u>		
<u>3.4.5</u>	<u>Off-Site Fire Department Interface</u>			<u>X</u>
<u>3.4.6</u>	<u>Communications</u>			<u>X</u>
<u>3.5</u>	<u>Water Supply</u>	<u>X</u>		
<u>3.6</u>	<u>Standpipe and Hose Stations</u>	<u>X</u>		
<u>3.7</u>	<u>Fire Extinguishers</u>	<u>X</u>		
<u>3.8</u>	<u>Fire Alarm and Detection Systems</u>			
<u>3.8.1</u>	<u>Fire Alarm</u>	<u>X</u>		
<u>3.8.2</u>	<u>Detection</u>		<u>X</u>	
<u>3.9</u>	<u>Automatic and Manual Water-Based Fire Suppression Systems</u>		<u>X</u>	
<u>3.10.</u>	<u>Gaseous Fire Suppression Systems</u>		<u>X</u>	
<u>3.11</u>	<u>Passive Fire Protection Features</u>		<u>X</u>	
<u>3.11.1</u>	<u>Building Separation (Note 3)</u>			<u>X</u>
<u>3.11.2</u>	<u>Fire Barriers</u>		<u>X</u>	
<u>3.11.3</u>	<u>Fire Barrier Penetrations</u>		<u>X</u>	
<u>3.11.4</u>	<u>Through Penetration Fire Stops (Note 2)</u>		<u>X</u>	

## Appendix L – Alternative Method for Engineering Analyses

<u>Section</u>	<u>Title</u>	<u>FP Eng. Analysis Process Applicable</u>	<u>Chapter 4 Conditional Section</u>	<u>FP Eng. Analysis Process and Chapter 4 Not Applicable</u>
<u>3.11.5</u>	<u>Electrical Raceway Fire Barrier Systems (ERFBS)</u>		<u>X</u>	

Note 1 – Separate clarifications [TBD] will be used to clarify the applicability of engineering analyses to the requirements of Section 3.3.11 and 3.3.12 of NFPA 805.

Note 2 – Through penetration fire stops referenced in Section 3.11.4 of NFPA 805 are considered conditional based upon NFPA 805 Chapter 4 requirements, since they are integral to fire barriers (Section 3.11.2)

Note 3 – Section 3.11.1 of NFPA 805 contains an exception for performance-based analysis. The process in this FAQ is not applicable.

### L.3 Example

Section 3.6.1 of NFPA 805 requires a hose system to be installed per NFPA 14. Using this process/method, a hose system must be available and have access to “all power block buildings,” and must also be a Class III standpipe, but may deviate from other specific requirements of NFPA 14. These deviations must not contradict other text in Chapter 3 of NFPA 805. The NFPA 805 change evaluation process will be used to ensure that nuclear safety performance goals, objectives and criteria are satisfied along with defense-in-depth and safety margins, as described in 10 CFR 50.48(c)(2)(vii).

### L.4 Justification

Since this process/method will be approved by the NRC as part of the 10 CFR 50.90 submittal, it will meet the legal requirement of 10 CFR 50.48(c)(2)(vii). The basis for the change evaluation to be included in the 10 CFR 50.90 submittal will be that each individual change will be evaluated against the NFPA 805 change process (NFPA 805 performance goals / objectives /criteria, defense-in-depth and safety margins evaluation), and providing this flexibility does not adversely impact the features required by Chapter 3 of NFPA 805 to ensure the NFPA 805 performance goals, performance objectives, and performance criteria are satisfied. By only allowing changes to the secondary codes and listings, the changes are bounded. All features required by Chapter 3 will continue to be required (unless specifically addressed separately from this process in an LAR). Secondary features may be changed based on an evaluation, using the required methods in a similar manner that was previously allowed under the Generic Letter 86-10 license condition, without prior NRC approval.

The method will ensure that the following requirements are met:

## Appendix L – Alternative Method for Engineering Analyses

<u>10 CFR 50.48(c)(2)(vii) Requirement</u>	<u>Method of Accomplishment</u>
<u>(a) The required NFPA 805 performance goals, performance objectives, and performance criteria are satisfied.</u>	<u>The fire protection engineering analysis process includes the assessment of impact on NFPA 805 performance goals, performance objectives, and performance criteria are satisfied. Impact will be assessed per risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section 3.2.</u>
<u>(b) Safety margins are maintained.</u>	<u>Maintaining safety margins will be ensured using the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section C.3.2.</u>
<u>(c) Fire protection defense-in-depth is maintained.</u>	<u>Maintaining fire protection defense-in-depth will be ensured using the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section C.3.2.</u>

## Appendix L – Alternative Method for Engineering Analyses

The LAR will contain the following information per Regulatory Guide 1.205 Section C.3.2.3:

<u>RG 1.205 Guidance</u>	<u>Method of Accomplishment</u>
<u>(a) detailed description of the alternative risk-informed, performance-based method</u>	<p>The process is not considered an "alternative method". Existing risk-informed, performance-based methods will be applied, but for a limited scope of NFPA 805 Chapter 3 sections:</p> <ul style="list-style-type: none"> <li>▪ <u>When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and</u></li> <li>▪ <u>For deviations from the NFPA codes and listings for rated components mentioned in NFPA 805.</u></li> </ul>
<u>(b) description of how the method will be applied, the aspects of the FPP to which it will applied, and the circumstances under which it will be applied</u>	<p>Risk-informed, performance based fire protection engineering analyses will be allowed to be applied:</p> <ul style="list-style-type: none"> <li>▪ <u>When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and</u></li> <li>▪ <u>For deviations from the NFPA codes and listings for rated components mentioned in NFPA 805.</u></li> </ul>
<u>(c) acceptance criteria, including risk increase acceptance criteria, that the licensee will apply when determining whether the results of an evaluation that uses this methodology meet the required NFPA 805 performance goals, performance objectives, and performance criteria</u>	<u>Acceptance criteria for changes will use the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J (and supplemented by RG 1.205 Section 3.2).</u>
<u>(d) for PSA-based methodologies, an explanation of how the PSA is of sufficient technical adequacy for evaluation of the changes to which it will be applied</u>	<u>Technical adequacy of the PSA used in the risk-informed, performance-based approach will be in accordance with RG 1.205.</u>
<u>(e) for PSA-based methodologies, a description of the peer review and how the review findings have been addressed</u>	<u>Peer review of the PSA used in the risk-informed, performance-based approach will be in accordance with RG 1.205.</u>

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### L.5 Conclusion

This process/method will permit a risk-informed, performance-based approach to evaluate Fire Protection Program changes within the bounds of secondary codes and listings or changes that are conditional based on NFPA 805 Chapter 4. Following NRC approval of a 10 CFR 50.90 license amendment, this process/methodology will permit licensees to evaluate fire protection features without prior NRC approval. Other issues, not involving NFPA codes or listings or changes that are not conditional based on NFPA 805 Chapter 4, would have to be submitted for NRC approval on a case by case basis.

## Attachment 2

FAQ Number 06-0008

FAQ Revision 5a

FAQ Title Alternative Method for Fire Protection Engineering Analyses

Plant: Harris

Date: 5/2/07

Contact: Jeff Ertman

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805 TF    FPWG    RATF    RIRWG    BWROG    PWROG

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**Purpose of FAQ:**

The purpose of FAQ 06-0008 is to provide a process/method for the use of fire protection engineering analyses post-transition to address NFPA 805 Chapter 3 requirements. Currently, licensees may self approve these evaluations under the existing fire protection license conditions. The process/method discussed in this FAQ will be submitted for approval as part of the transition license amendment request (LAR). The process/method to be submitted in the LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Post-transition, licensees will use this process/method to self approve acceptable fire protection engineering analyses.

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**Is this Interpretation of guidance?**    Yes / No

**Proposed new guidance not in NEI 04-02?**    Yes / No

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**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

Sections 2.3, 2.4, 4.3.1, 4.6.1, 5.3.2, Appendix H, and Appendix I of NEI 04-02 Revision 1.

**Circumstances requiring guidance interpretation or new guidance:**

Risk-informed, performance-based fire protection engineering analyses are an acceptable alternative to the deterministic approaches in NFPA 805 Chapter 4. Some sections of Chapter 3 are conditional based upon Chapter 4 requirements; therefore, risk-informed, performance-based methods are allowed for those sections under NFPA 805 / 10 CFR 50.48 (c). Risk-informed, performance-based fire protection engineering analyses may also be needed to document the acceptability of fire protection systems and features addressed in NFPA 805 Chapter 3 sections that are not conditional based upon Chapter 4 requirements. Current licensing basis allows flexibility to use performance-based technical analysis per Generic Letter 86-10. An approach using these types of analyses is needed to allow this flexibility following transition to NFPA 805.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

The fire protection program elements and minimum design requirements of NFPA 805 Chapter 3 may be subject to the performance-based methods permitted elsewhere in NFPA 805 per 10 CFR 50.48(c)(2)(vii), as long as the appropriate regulatory processes (i.e., a license amendment request) are utilized.

A process for a 10 CFR 50.48(c)(2)(vii) License Amendment Request has not yet been agreed upon.

**Potentially relevant existing FAQ numbers:**

FAQ 06-0004 includes a process for defining fire protection systems and features required to meet NFPA 805 Chapter 3 criteria.

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**Response Section:****Proposed resolution of FAQ and the basis for the proposal:**

A high-level purpose of NFPA 805, as implemented under the endorsement of 10 CFR 50.48(c), is to clarify how licensees may use the flexibility afforded by 10 CFR 50.48(c)(2)(vii) to develop a process to maintain the current flexibility available to licensees under Generic Letter (GL) 86-10 evaluations.

**BACKGROUND**

10 CFR 50.48(c) requires licensees to submit 10 CFR 50.90 license amendment requests for any changes to Chapter 3 features of NFPA 805, unless they have been previously approved by the NRC. Under the standard license condition of GL 86-10, licensees are allowed to make certain types of changes without prior NRC approval as long as the changes do not adversely affect the plant's ability to safely shutdown in the event of a fire.

To apply this process/method, licensees must send the proposed process/methods outlined in this FAQ to the NRC for approval. Then, they may use the approved processes/methods without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes. Approval of a license amendment for the use of this process would constitute a "previously approved alternative" as discussed in NFPA 805 Section 3.1.

The licensees' process/methodology must request an amendment under 10 CFR 50.90, using the flexibility available under 10 CFR 50.48(c)(2)(vii), "Performance-Based Methods", to allow 10 CFR 50.48(c) licensees to establish a process that enables them to make changes to Chapter 3 of NFPA 805, as long as those changes only affect the referenced standards and listings, such as Underwriters Laboratory, Inc. or Factory Mutual listings. Under the proposal the licensee will commit to a process to evaluate deviations from secondary codes and listings required by NFPA

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**FAQ Title Alternative Method for Fire Protection Engineering Analyses**

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805 Chapter 3. The NFPA 805 change evaluation process will be used to ensure that nuclear safety performance goals, objectives and criteria are satisfied along with defense-in-depth and safety margins, as described in 10 CFR 50.48(c)(2)(vii).

Therefore, application of this process/method requires two steps. First, the process/methods and bounds of the process must be submitted to the NRC for approval. Second, following approval by the NRC, all plant specific changes made under this license amendment will undergo the same evaluation process as part of 10 CFR 50.48(c)(2)(vii). This second step, application of the process/method, will not require NRC approval.

This process/method would not apply to NFPA 805 Chapter 3 changes that do not relate to either NFPA codes or listings or changes that are not conditional based on NFPA 805 Chapter 4. These types of changes would continue to require individual 10 CFR 50.90 license amendment requests addressing the specific deviation.

## **PROCESS**

Proposed addition to the post-NFPA transition fire protection standard license condition (Section C.3.1 of Regulatory Guide 1.205):

“Licensees may perform change evaluations for fundamental fire protection program and design elements of NFPA 805 Chapter 3 that are conditional based on NFPA 805 Chapter 4 requirements.

Licensees may also perform change evaluations for deviations from the NFPA codes and listings for rated components mentioned in NFPA 805, without a 10 CFR 50.90 submittal, as long as the specific requirement for the feature is not included in NFPA 805 Chapter 3 itself, and the NFPA 805 change process is used.”

The following provides the sections of NFPA 805 that will utilize this process/method. Sections that are addressed conditionally by Chapter 4 performance-based process are also identified for completeness.

### **Column Heading Definition:**

**Fire Protection Engineering Analysis Process Applicable:** Sections of NFPA 805 Chapter 3 containing referenced codes and listings. Note the “Applicability” would only apply to the referenced codes and listings contained within these sections, and the process could not be used to change the NFPA 805 Chapter 3 specific requirements.

**Chapter 4 Conditional Section:** These NFPA 805 Chapter 3 sections are conditional based upon NFPA 805 Chapter 4 requirements. The requested use of fire protection engineering evaluations for these sections are not limited to referenced codes and listings.

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**FAQ Title Alternative Method for Fire Protection Engineering Analyses**


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**Fire Protection Engineering Analysis and Chapter 4 Not Applicable:** These NFPA 805 Chapter 3 sections do not have NFPA 805 Chapter 4 conditions and do not have referenced codes and listings. Therefore, the process/method associated with this FAQ is not applicable and would be outside the scope of the associated LAR.

Section	Title	FP Eng. Analysis Process Applicable	Chapter 4 Conditional Section	FP Eng. Analysis Process and Chapter 4 Not Applicable
3.1	General			X
3.2	Fire Protection Plan			X
3.2.1	Intent			X
3.2.2	Management Policy Direction and Responsibility			X
3.2.3	Procedures			X
3.3	Prevention			X
3.3.1	Fire Prevention for Operational Activities	X		
3.3.2	Structural	X		
3.3.3	Interior Finishes	X		
3.3.4	Insulation Materials			X
3.3.5	Electrical			X
3.3.6	Roofs	X		
3.3.7	Bulk Flammable Gas Storage	X		
3.3.8	Bulk Storage of Flammable and Combustible Liquids	X		
3.3.9	Transformers			X
3.3.10	Hot Pipes and Surfaces			X
3.3.11	Electrical Equipment (Note 1)			X
3.3.12	Reactor Coolant Pumps (Note 1)			X
3.4	Industrial Fire Brigade			
3.4.1	On-Site Fire Fighting Capability	X		
3.4.2	Pre-Fire Plans			X

## FAQ Title Alternative Method for Fire Protection Engineering Analyses

Section	Title	FP Eng. Analysis Process Applicable	Chapter 4 Conditional Section	FP Eng. Analysis Process and Chapter 4 Not Applicable
3.4.3	Training and Drills	X		
3.4.4	Fire Fighting Equipment	X		
3.4.5	Off-Site Fire Department Interface			X
3.4.6	Communications			X
3.5	Water Supply	X		
3.6	Standpipe and Hose Stations	X		
3.7	Fire Extinguishers	X		
3.8	Fire Alarm and Detection Systems			
3.8.1	Fire Alarm	X		
3.8.2	Detection		X	
3.9	Automatic and Manual Water-Based Fire Suppression Systems		X	
3.10.	Gaseous Fire Suppression Systems		X	
3.11	Passive Fire Protection Features		X	
3.11.1	Building Separation (Note 3)			X
3.11.2	Fire Barriers		X	
3.11.3	Fire Barrier Penetrations		X	
3.11.4	Through Penetration Fire Stops (Note 2)		X	
3.11.5	Electrical Raceway Fire Barrier Systems (ERFBS)		X	

Note 1 – Separate FAQs will be used to clarify the applicability of engineering analyses to the requirements of Section 3.3.11 and 3.3.12 of NFPA 805.

Note 2 – Through penetration fire stops referenced in Section 3.11.4 of NFPA 805 are considered conditional based upon NFPA 805 Chapter 4 requirements, since they are integral to fire barriers (Section 3.11.2)

Note 3 – Section 3.11.1 of NFPA 805 contains an exception for performance-based analysis. The process in this FAQ is not applicable.

**EXAMPLE**

Section 3.6.1 of NFPA 805 requires a hose system to be installed per NFPA 14. Using this process/method, a hose system must be available and have access to “all power block buildings,” and must also be a Class III standpipe, but may deviate from other specific requirements of NFPA 14. These deviations must not contradict other text in Chapter 3 of NFPA 805. The NFPA 805 change evaluation process will be used to ensure that nuclear safety performance goals, objectives and criteria are satisfied along with defense-in-depth and safety margins, as described in 10 CFR 50.48(c)(2)(vii).

**JUSTIFICATION**

Since this process/method will be approved by the NRC as part of the 10 CFR 50.90 submittal, it will meet the legal requirement of 10 CFR 50.48(c)(2)(vii). The basis for the change evaluation to be included in the 10 CFR 50.90 submittal will be that each individual change will be evaluated against the NFPA 805 change process (NFPA 805 performance goals / objectives / criteria, defense-in-depth and safety margins evaluation), and providing this flexibility does not adversely impact the features required by Chapter 3 of NFPA 805 to ensure the NFPA 805 performance goals, performance objectives, and performance criteria are satisfied. By only allowing changes to NFPA 805 Chapter 4 conditional sections and the secondary codes and listings, the changes are bounded. All features required by Chapter 3 will continue to be required (unless specifically addressed separately from this process in an LAR). Secondary features may be changed based on an evaluation, using the required methods in a similar manner as is currently allowed under the Generic Letter 86-10 license condition, without prior NRC approval.

The method will ensure that the following requirements are met:

10 CFR 50.48(c)(2)(vii) Requirement	Method of Accomplishment
(a) The required NFPA 805 performance goals, performance objectives, and performance criteria are satisfied.	The fire protection engineering analysis process includes the assessment of impact on NFPA 805 performance goals, performance objectives, and performance criteria are satisfied. Impact will be assessed per risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section 3.2.
(b) Safety margins are maintained.	Maintaining safety margins will be ensured using the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section C.3.2.
(c) Fire protection defense-in-depth is maintained.	Maintaining fire protection defense-in-depth will be ensured using the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section C.3.2.

The LAR will contain the following information per Regulatory Guide 1.205 Section C.3.2.3:

RG 1.205 Guidance	Method of Accomplishment
(a) detailed description of the alternative risk-informed, performance-based method	<p>The process is not considered an “alternative method”. Existing risk-informed, performance-based methods will be applied, but for a limited scope of NFPA 805 Chapter 3 sections:</p> <ul style="list-style-type: none"> <li>▪ When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and</li> <li>▪ For deviations from the NFPA codes and listings for rated components mentioned in NFPA 805.</li> </ul>
(b) description of how the method will be applied, the aspects of the FPP to which it will applied, and the circumstances under which it will be applied	<p>Risk-informed, performance based fire protection engineering analyses will be allowed to be applied</p> <ul style="list-style-type: none"> <li>▪ When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and</li> <li>▪ For deviations from the NFPA codes and listings for rated components mentioned in NFPA 805</li> </ul>
(c) acceptance criteria, including risk increase acceptance criteria, that the licensee will apply when determining whether the results of an evaluation that uses this methodology meet the required NFPA 805 performance goals, performance objectives, and performance criteria	<p>Acceptance criteria for changes will use the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J (and supplemented by RG 1.205 Section 3.2).</p>
(d) for PSA-based methodologies, an explanation of how the PSA is of sufficient technical adequacy for evaluation of the changes to which it will be applied	<p>Technical adequacy of the PSA used in the risk-informed, performance-based approach will be in accordance with RG 1.205.</p>
(e) for PSA-based methodologies, a description of the peer review and how the review findings have been addressed	<p>Peer review of the PSA used in the risk-informed, performance-based approach will be in accordance with RG 1.205.</p>

**CONCLUSION**

This process/method will permit a risk-informed, performance-based approach to evaluate Fire Protection Program changes within the bounds of secondary codes and listings or changes that are conditional based on NFPA 805 Chapter 4. Following NRC approval of a 10 CFR 50.90 license amendment, this process/methodology will permit licensees to evaluate fire protection features without prior NRC approval. Other issues not involving NFPA codes or listings or changes that are not conditional based on NFPA 805 Chapter 4, would have to be submitted for NRC approval on a case by case basis.

**FAQ Number** 06-0008

**FAQ Revision** 5a

**FAQ Title** Alternative Method for Fire Protection Engineering Analyses

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

[See attached proposed revision to NEI 04-02]

Section 2.2, page 7, 3<sup>rd</sup> paragraph:

- **Performance-Based Methods, § 50.48(c)(2)(vii)** - The prohibition in Section 3.1 of NFPA 805 that does not permit the use of performance-based methods for the Chapter 3 fundamental fire protection program elements and minimum design criteria is not endorsed. The NRC takes this exception in order to provide licensees greater flexibility in meeting the fire protection program elements and minimum design requirements of Chapter 3 by the use of performance-based methods (including the use of risk-informed methods) described in the NFPA 805 standard. Licensees who wish to deviate from Chapter 3 requirements must submit a license amendment request for NRC approval.

Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.

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Section 2.3, page 9, 2<sup>nd</sup> paragraph:

“Compliance with Chapter 3 of NFPA 805 may be demonstrated by showing that the specific requirements are met either directly or by the use of alternative methods and analytical approaches. Alternative methods and analytical approaches must be accepted by the NRC in a license amendment per 10 CFR 50.48(c)(4). Contrary to Section 3.1 of NFPA 805, performance-based methods may be used. (See 10 CFR 50.48(c)(2)(vii)). Note licensees contemplating applying for permission to use an alternative method or analytical approach could pursue a generic approval process with other utilities and/or NEI. See Section 2.4 of this document.

Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.”

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Section 4.1.1, page 21, 1<sup>st</sup> paragraph:

“For areas of the fire protection program that are not in compliance with NFPA 805, Chapter 3, the licensee may utilize the alternate performance-based methods as long as the method is

approved by the NRC in a License Amendment. The NRC has taken exception to NFPA 805, Section 3.1 (See 10 CFR 50.48.c (2)(vii)).

Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.”

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Section 4.3.1, page 27, add new paragraph to this section at the end

“Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.”

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Section 4.6.1, page 34 insert new paragraph before last sentence “A sample LAR.....”

“Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.”

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Section 5.3.1, page 43

“.....Under the risk-informed, performance-based regulatory framework, Fire Protection Program changes will be made without prior NRC approval, except where required by:

- 10 CFR 50.59,
- Other regulatory processes (i.e., Technical Specifications),
- 10CFR 50.48(c) (certain changes to Chapter 3 requirements or Nuclear Safety Changes that do not meet the acceptance criteria of NFPA Section 2.4.4.)
- Changes that have been evaluated using performance-based methods other than the those acceptable to the AHJ
- Changes that have been evaluated using performance-based methods other than the approaches in NFPA 805 (i.e., fire modeling and risk evaluation)

Except as noted, in general changes that have been previously approved by the NRC or that do not deviate from a specific NFPA 805 requirement related to systems, methods, or devices need not be submitted for AHJ approval.....”

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Section 5.3.2, page 46, starting with 7<sup>th</sup> paragraph:

“Additional consideration should be given to changes to Fundamental Program Elements and Minimum Design Requirements. 10 CFR 50.48(c)(2)(vii) allows licensees to use performance-based methods to demonstrate compliance with NFPA 805 Chapter 3 requirements. However, these alternate methods must be approved via the license amendment process (10 CFR 50.48(c)(4)).

Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.

Most changes to the Fundamental Program Elements and Minimum Design Requirements should not require a License Amendment request, since they are evaluations that demonstrate compliance with requirements of Chapter 3 of NFPA 805. Licensees can deviate from the NFPA standards referenced in NFPA 805 Chapter 3 within the bounds discussed in Appendix L.

Examples of changes that would not require a License Amendment are:

- Replacing a fire rated component (e.g., penetration seal, door, wrap, etc.) with a different component/material having the same or greater fire rating. This does not require a license amendment because it meets the appropriate code.
- Evaluating a blocked sprinkler head(s) for adequate coverage in the area. Chapter 3 of NFPA 805 and the referenced code do not dictate where a sprinkler system should be

installed. Therefore the adequacy of the coverage should be evaluated with respect to the nuclear safety component(s) the sprinkler system is protecting.

- Evaluating a broken/missing hanger on a fire suppression system. The acceptability of this deviation can be evaluated to show that the support of the system is still adequate with the broken/missing hanger and is therefore equivalent to a code compliant system as allowed by the code of record.

Conversely, examples of changes that would require a License Amendment are:

- Reducing the number of fire brigade members required on-site to below five.
- Elimination of the Fire Prevention Program at the plant

NFPA 805 Section 4.1, states that, “Deterministic requirements shall be “deemed to satisfy” the performance criteria and require no further engineering analysis.” Chapter 4 of NFPA 805 provides the requirements for the baseline evaluation of the fire protection program’s ability to achieve the performance criteria outlined in Section 1.5 of NFPA 805. The ‘deemed to satisfy’ with out additional engineering analysis does not imply that a Plant Change Evaluation would not be performed. For example if a licensee was changing its current licensing basis in a fire area to a ‘deterministic method’, that change would require a ‘Plant Change Evaluation’. Note the Defense in Depth and Safety Margin portion of the “Plant Change Evaluation’ would be satisfied by the fact that a ‘deterministic’ option was chosen for compliance (See Sections 2.4.4.2 and 2.4.4.3 of NFPA 805).”

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**FIRE PROTECTION PROGRAM FUNDAMENTAL ELEMENT / MINIMUM DESIGN REQUIREMENT CHANGE QUESTIONS**

Considering the proposed change, answer the following questions, including a reference to the applicable regulatory, licensing basis, or NFPA document(s), and a brief description of why the proposed change does or does not satisfy the referenced document(s).

3. Does the proposed change involve an **NFPA 805 Chapter 3** requirement as defined in **[Insert appropriate document reference]**? For those fire protection program changes that involve a Nuclear Safety Compliance Strategy requirement or a Radioactive Release requirement, ensure the effect of the change is evaluated in Appendix I, Sections 1.0 and 2.0, respectively.

- Yes – Proceed to Question 3.a.
- No – Document basis and proceed to Question 2

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a. Is the change editorial or trivial in nature? (See Attachment 1)

- o  Yes Document basis and stop.
- o  No Proceed to Question 3.b.

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b. Does the change meet NFPA 805 Chapter 3 requirements or the previously approved alternative as defined in **[Insert appropriate document reference]**?

Previously approved alternatives include fire protection engineering analyses that are allowed based upon an approved license amendment described in NEI 04-02, Appendix L. (See Attachment 2)

- o  Yes Document conclusions, complete remaining sections.
- o  No License Amendment Request must be processed for NRC approval. Complete remaining sections.

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Appendix I – Attachment 2, page I-8

“Refer to Appendix L for a process/method to be submitted in the transition LAR is to allow fire protection engineering analyses to address NFPA 805 Chapter 3 requirements:

- When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and
- For deviations from the NFPA codes and listings for rated components in NFPA 805.

Approval of a license amendment for the use of this process would constitute a “previously approved alternative” that would allow the use of this process without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes.

The following are examples of changes that do not require NRC approval:

- Replacing a fire rated component (e.g., fire rated penetration seal, fire door, fire rated wrap, etc.) with a different component having the same or greater fire rating.
  - Use of fire hoses manufactured from a different material.
  - Use of a valve assembly supplied by a different manufacturer for a suppression system.
  - Changes to Fire Brigade Training requirements that do not affect performance.
  - Evaluating a blocked sprinkler head(s) for adequate coverage in the area. Chapter 3 of NFPA 805 and the referenced code do not dictate where a sprinkler system should be installed. Therefore the adequacy of the coverage should be evaluated with respect to the nuclear safety component(s) the sprinkler system is protecting.”
-

## Appendix L – Alternative Method for Engineering Analyses

PLACEHOLDER FOR A DESCRIPTION OF NRC POSITION ON THIS FAQ.

### L.1 Background

10 CFR 50.48(c) requires licensees to submit 10 CFR 50.90 license amendment requests for any changes to Chapter 3 features of NFPA 805, unless they have been previously approved by the NRC. Under the standard license condition of GL 86-10, licensees are allowed to make certain types of changes without prior NRC approval as long as the changes do not adversely affect the plant's ability to safely shutdown in the event of a fire.

To apply this process/method, licensees must send the proposed process/methods outlined in this Appendix to the NRC for approval. Then, they may use the approved processes/methods without prior approval for specific applications, as long as the application is within the bounds of NRC approval of the proposed methods/processes. Approval of a license amendment for the use of this process would constitute a “previously approved alternative” as discussed in NFPA 805 Section 3.1.

The licensees' process/methodology must request an amendment under 10 CFR 50.90, using the flexibility available under 10 CFR 50.48(c)(2)(vii), “Performance-Based Methods”, to allow 10 CFR 50.48(c) licensees to establish a process that enables them to make changes to Chapter 3 of NFPA 805, as long as those changes only affect the referenced standards and listings, such as Underwriters Laboratory, Inc. or Factory Mutual listings. Under the proposal the licensee will commit to a process to evaluate deviations from secondary codes and listings required by NFPA 805 Chapter 3. The NFPA 805 change evaluation process will be used to ensure that nuclear safety performance goals, objectives and criteria are satisfied along with defense-in-depth and safety margins, as described in 10 CFR 50.48(c)(2)(vii).

Therefore, application of this process/method requires two steps. First, the process/methods and bounds of the process must be submitted to the NRC for approval. Second, following approval by the NRC, all plant specific changes made under this license amendment will undergo the same evaluation process as part of 10 CFR 50.48(c)(2)(vii). This second step, application of the process/method, will not require NRC approval.

This process/method would not apply to NFPA 805 Chapter 3 changes that do not relate to either NFPA codes or listings or changes that are not conditional based on NFPA 805 Chapter 4. These types of changes would continue to require individual 10 CFR 50.90 license amendment requests addressing the specific deviation.

### L.2 Process

Proposed addition to the post-NFPA transition fire protection standard license condition (Section C.3.1 of Regulatory Guide 1.205):

## Appendix L – Alternative Method for Engineering Analyses

“Licensees may perform change evaluations for fundamental fire protection program and design elements of NFPA 805 Chapter 3 that are conditional based on NFPA 805 Chapter 4 requirements.

Licensees may also perform change evaluations for deviations from the NFPA codes and listings for rated components mentioned in NFPA 805, without a 10 CFR 50.90 submittal, as long as the specific requirement for the feature is not included in NFPA 805 Chapter 3 itself, and the NFPA 805 change process is used.”

The following table provides the sections of NFPA 805 that will utilize this process/method. Sections that are addressed conditionally by Chapter 4 performance-based process are also identified for completeness.

### Column Heading Definition:

**Fire Protection Engineering Analysis Process Applicable:** Sections of NFPA 805 Chapter 3 containing referenced codes and listings. Note the “Applicability” would only apply to the referenced codes and listings contained within these sections, and the process could not be used to change the NFPA 805 Chapter 3 specific requirements.

**Chapter 4 Conditional Section:** These NFPA 805 Chapter 3 sections are conditional based upon NFPA 805 Chapter 4 requirements. The requested use of fire protection engineering evaluations for these sections are not limited to referenced codes and listings.

**Fire Protection Engineering Analysis and Chapter 4 Not Applicable:** These NFPA 805 Chapter 3 sections do not have NFPA 805 Chapter 4 conditions and do not have referenced codes and listings. Therefore, the process/method associated with this Appendix is not applicable and would be outside the scope of the associated LAR.

Section	Title	FP Eng. Analysis Process Applicable	Chapter 4 Conditional Section	FP Eng. Analysis Process and Chapter 4 Not Applicable
3.1	General			X
3.2	Fire Protection Plan			X
3.2.1	Intent			X
3.2.2	Management Policy Direction and Responsibility			X
3.2.3	Procedures			X
3.3	Prevention			X
3.3.1	Fire Prevention for Operational Activities	X		
3.3.2	Structural	X		
3.3.3	Interior Finishes	X		

## Appendix L – Alternative Method for Engineering Analyses

Section	Title	FP Eng. Analysis Process Applicable	Chapter 4 Conditional Section	FP Eng. Analysis Process and Chapter 4 Not Applicable
3.3.4	Insulation Materials			X
3.3.5	Electrical			X
3.3.6	Roofs	X		
3.3.7	Bulk Flammable Gas Storage	X		
3.3.8	Bulk Storage of Flammable and Combustible Liquids	X		
3.3.9	Transformers			X
3.3.10	Hot Pipes and Surfaces			X
3.3.11	Electrical Equipment (Note 1)			X
3.3.12	Reactor Coolant Pumps (Note 1)			X
3.4	Industrial Fire Brigade			
3.4.1	On-Site Fire Fighting Capability	X		
3.4.2	Pre-Fire Plans			X
3.4.3	Training and Drills	X		
3.4.4	Fire Fighting Equipment	X		
3.4.5	Off-Site Fire Department Interface			X
3.4.6	Communications			X
3.5	Water Supply	X		
3.6	Standpipe and Hose Stations	X		
3.7	Fire Extinguishers	X		
3.8	Fire Alarm and Detection Systems			
3.8.1	Fire Alarm	X		
3.8.2	Detection		X	
3.9	Automatic and Manual Water-Based Fire Suppression Systems		X	
3.10.	Gaseous Fire Suppression Systems		X	
3.11	Passive Fire Protection Features		X	
3.11.1	Building Separation (Note 3)			X
3.11.2	Fire Barriers		X	
3.11.3	Fire Barrier Penetrations		X	
3.11.4	Through Penetration Fire Stops (Note 2)		X	

## Appendix L – Alternative Method for Engineering Analyses

Section	Title	FP Eng. Analysis Process Applicable	Chapter 4 Conditional Section	FP Eng. Analysis Process and Chapter 4 Not Applicable
3.11.5	<b>Electrical Raceway Fire Barrier Systems (ERFBS)</b>		<b>X</b>	

Note 1 – Separate clarifications [TBD] will be used to clarify the applicability of engineering analyses to the requirements of Section 3.3.11 and 3.3.12 of NFPA 805.

Note 2 – Through penetration fire stops referenced in Section 3.11.4 of NFPA 805 are considered conditional based upon NFPA 805 Chapter 4 requirements, since they are integral to fire barriers (Section 3.11.2)

Note 3 – Section 3.11.1 of NFPA 805 contains an exception for performance-based analysis. The process in this FAQ is not applicable.

### L.3 Example

Section 3.6.1 of NFPA 805 requires a hose system to be installed per NFPA 14. Using this process/method, a hose system must be available and have access to “all power block buildings,” and must also be a Class III standpipe, but may deviate from other specific requirements of NFPA 14. These deviations must not contradict other text in Chapter 3 of NFPA 805. The NFPA 805 change evaluation process will be used to ensure that nuclear safety performance goals, objectives and criteria are satisfied along with defense-in-depth and safety margins, as described in 10 CFR 50.48(c)(2)(vii).

### L.4 Justification

Since this process/method will be approved by the NRC as part of the 10 CFR 50.90 submittal, it will meet the legal requirement of 10 CFR 50.48(c)(2)(vii). The basis for the change evaluation to be included in the 10 CFR 50.90 submittal will be that each individual change will be evaluated against the NFPA 805 change process (NFPA 805 performance goals / objectives /criteria, defense-in-depth and safety margins evaluation), and providing this flexibility does not adversely impact the features required by Chapter 3 of NFPA 805 to ensure the NFPA 805 performance goals, performance objectives, and performance criteria are satisfied. By only allowing changes to the secondary codes and listings, the changes are bounded. All features required by Chapter 3 will continue to be required (unless specifically addressed separately from this process in an LAR). Secondary features may be changed based on an evaluation, using the required methods in a similar manner that was previously allowed under the Generic Letter 86-10 license condition, without prior NRC approval.

The method will ensure that the following requirements are met:

## Appendix L – Alternative Method for Engineering Analyses

<b>10 CFR 50.48(c)(2)(vii) Requirement</b>	<b>Method of Accomplishment</b>
(a) The required NFPA 805 performance goals, performance objectives, and performance criteria are satisfied.	The fire protection engineering analysis process includes the assessment of impact on NFPA 805 performance goals, performance objectives, and performance criteria are satisfied. Impact will be assessed per risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section 3.2.
(b) Safety margins are maintained.	Maintaining safety margins will be ensured using the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section C.3.2.
(c) Fire protection defense-in-depth is maintained.	Maintaining fire protection defense-in-depth will be ensured using the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J and supplemented by RG 1.205 Section C.3.2.

## Appendix L – Alternative Method for Engineering Analyses

The LAR will contain the following information per Regulatory Guide 1.205 Section C.3.2.3:

RG 1.205 Guidance	Method of Accomplishment
(a) detailed description of the alternative risk-informed, performance-based method	The process is not considered an “alternative method”. Existing risk-informed, performance-based methods will be applied, but for a limited scope of NFPA 805 Chapter 3 sections: <ul style="list-style-type: none"> <li>▪ When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and</li> <li>▪ For deviations from the NFPA codes and listings for rated components mentioned in NFPA 805.</li> </ul>
(b) description of how the method will be applied, the aspects of the FPP to which it will applied, and the circumstances under which it will be applied	Risk-informed, performance based fire protection engineering analyses will be allowed to be applied: <ul style="list-style-type: none"> <li>▪ When the Chapter 3 requirements are conditional based upon NFPA 805 Chapter 4; and</li> <li>▪ For deviations from the NFPA codes and listings for rated components mentioned in NFPA 805.</li> </ul>
(c) acceptance criteria, including risk increase acceptance criteria, that the licensee will apply when determining whether the results of an evaluation that uses this methodology meet the required NFPA 805 performance goals, performance objectives, and performance criteria	Acceptance criteria for changes will use the risk-informed, performance-based change process in NEI 04-02 Chapter 5 and Appendices I and J (and supplemented by RG 1.205 Section 3.2).
(d) for PSA-based methodologies, an explanation of how the PSA is of sufficient technical adequacy for evaluation of the changes to which it will be applied	Technical adequacy of the PSA used in the risk-informed, performance-based approach will be in accordance with RG 1.205.
(e) for PSA-based methodologies, a description of the peer review and how the review findings have been addressed	Peer review of the PSA used in the risk-informed, performance-based approach will be in accordance with RG 1.205.

### L.5 Conclusion

This process/method will permit a risk-informed, performance-based approach to evaluate Fire Protection Program changes within the bounds of secondary codes and listings or changes that are conditional based on NFPA 805 Chapter 4. Following NRC approval of a 10 CFR 50.90 license amendment, this process/methodology will permit licensees to evaluate fire protection features without prior NRC approval. Other issues, not involving NFPA codes or listings or changes that are not conditional based on NFPA 805 Chapter 4, would have to be submitted for NRC approval on a case by case basis.

Please find the attached FAQs for submittal:

FAQ 06-0021 Rev. 1a

FAQ 06-0025 Rev. 1b

FAQ 06-0028 Rev. 1a

If you have any questions regarding this submittal please give me a call.

Thank you,

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**Subject:** FAQs: 06-0021 Rev. 1a, 06-0025 Rev. 1b, 06-0028 Rev. 1a  
**Creation Date** 5/8/2007 2:20:02 PM  
**From:** "JAMAR, Brandon" <btj@nei.org>

**Created By:** btj@nei.org

**Recipients**

nrc.gov  
TWGWPO01.HQGWDO01  
CEM4 (Charles Moulton)

nrc.gov  
TWGWPO04.HQGWDO01  
SDW1 (Sunil Weerakkody)

**Post Office**

TWGWPO01.HQGWDO01  
TWGWPO04.HQGWDO01

**Route**

nrc.gov  
nrc.gov

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	1065	5/8/2007 2:20:02 PM
TEXT.htm	6812	
Mime.822	10804	

**Options**

**Expiration Date:** None  
**Priority:** Standard  
**ReplyRequested:** No  
**Return Notification:** None

**Concealed Subject:** No  
**Security:** Standard

**Junk Mail Handling Evaluation Results**

Message is eligible for Junk Mail handling  
This message was not classified as Junk Mail

**Junk Mail settings when this message was delivered**

Junk Mail handling disabled by User  
Junk Mail handling disabled by Administrator  
Junk List is not enabled  
Junk Mail using personal address books is not enabled  
Block List is not enabled

Files attached this time.

---

From: JAMAR, Brandon  
Sent: Tuesday, May 08, 2007 2:20 PM  
To: Charles Moulton; 'Sunil Weerakkody'  
Subject: FAQs: 06-0021 Rev. 1a, 06-0025 Rev. 1b, 06-0028 Rev. 1a

Please find the attached FAQs for submittal:

FAQ 06-0021 Rev. 1a

FAQ 06-0025 Rev. 1b

FAQ 06-0028 Rev. 1a

If you have any questions regarding this submittal please give me a call.

Thank you,

Brandon T. Jamar

Project Manager, Engineering

Nuclear Energy Institute

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**Subject:** RE: FAQs: 06-0021 Rev. 1a, 06-0025 Rev. 1b, 06-0028 Rev. 1a  
**Creation Date** 5/8/2007 2:22:53 PM  
**From:** "JAMAR, Brandon" <btj@nei.org>

**Created By:** btj@nei.org

**Recipients**

nrc.gov  
TWGWPO01.HQGWDO01  
CEM4 (Charles Moulton)

nrc.gov  
TWGWPO04.HQGWDO01  
SDW1 (Sunil Weerakkody)

**Post Office**

TWGWPO01.HQGWDO01  
TWGWPO04.HQGWDO01

**Route**

nrc.gov  
nrc.gov

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	1297	5/8/2007 2:22:53 PM
TEXT.htm	8446	
FAQ 06-0028 Rev. 1a.pdf	15377	
FAQ 06-0021 Rev. 1a.pdf	14843	
FAQ 06-0025 Rev. 1b.pdf	26995	
Mime.822	92220	

**Options**

**Expiration Date:** None  
**Priority:** Standard  
**ReplyRequested:** No  
**Return Notification:** None

**Concealed Subject:** No  
**Security:** Standard

**Junk Mail Handling Evaluation Results**

Message is eligible for Junk Mail handling  
This message was not classified as Junk Mail

**Junk Mail settings when this message was delivered**

Junk Mail handling disabled by User  
Junk Mail handling disabled by Administrator

Junk List is not enabled

Junk Mail using personal address books is not enabled

Block List is not enabled

Attachment 1

FAQ Number 06-0021 FAQ Revision 1a

FAQ Title Cable Air Drops

Plant: Harris Nuclear Plan (HNP) Date: 03-27-07

Contact: Alan Holder Phone: 919-546-3372

Email: alan.holder@pgnmail.com

Distribution: *(NEI Internal Use)*

805 TF  FPWG  FPRATF

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**Purpose of FAQ:**

FAQ seeks clarification on the acceptability of cable air drops, and to include this guidance in NEI 04-02, Appendix K.

---

**Is this Interpretation of guidance? Yes / No**

**Proposed new guidance not in NEI 04-02? Yes / No**

---

**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

NEI 04-02, Section 4.3.1, Fundamental Fire Protection Program and Design Elements Transition Review, Table B-1 uses NFPA 805 Chapter 3 as part of the transition review. Specific clarification is requested for certain terms and phrases found in NFPA 805.

**Circumstances requiring guidance interpretation or new guidance:**

Clarification of NFPA-805, Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition), Chapter 3, Section 3.3.5.2, "Only metal tray and metal conduits shall be used for electrical raceways. Thin wall metallic tubing shall not be used for power, instrumentation, or control cables. Flexible metallic conduits shall only be used in short lengths to connect components."

Specifically, this FAQ asks to clarify that air drops are acceptable. Pilot Plant HNP has exposed cable drops ~ 3' in length, which represent a previously approved configuration.

FAQ Number 06-0021

FAQ Revision 1a

FAQ Title Cable Air Drops

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

NA

**Potentially relevant existing FAQ numbers:**

FAQ #06-0007

---

**Response Section:**

**Proposed resolution of FAQ and the basis for the proposal:**

This FAQ asks to clarifying that air drops are acceptable. “HNP has exposed cable drops ~3’ in length.” Cable air drops are a typical industry configuration, and typically configured as a short length of flexible metallic conduit used when connecting components, and not all components are required to be connected via flexible metallic conduits. Generally cable air drops (bare cable runs without conduit) have been allowed without prior approval, and the configuration should be permitted for short runs as determined by the fire hazards analysis.

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

As follows;

Clarification of NFPA 805 specific sections as applied under NEI 04-02, to be included in (New) Appendix K, to NEI 04-02 upon approval of specific clarification (final formatting to be provided by NEI).

Specific clarification for NFPA 805 section 3.3.5.2, from FAQ 06-0021, In addition where used “cable air drops of limited length (~3 feet), are considered acceptable.”

## Attachment 2

FAQ Number 06-0025 FAQ Revision 1b

FAQ Title Scope and Content of Pre-Fire Plans

Plant: Harris Nuclear Plan (HNP) Date: 04-16-07

Contact: Alan Holder Phone: 919-546-3372

Email: alan.holder@pgnmail.com

Distribution: *(NEI Internal Use)*

805 TF  FPWG  FPRATF

---

**Purpose of FAQ:**

FAQ seeks clarification to define the minimum acceptable scope and content for Pre-Fire Plans.

---

**Is this Interpretation of guidance? Yes / No**

**Proposed new guidance not in NEI 04-02? Yes / No**

---

**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

NEI 04-02, Section 4.3.1, Fundamental Fire Protection Program and Design Elements Transition Review, appendices to list acceptable interpretations to the NFPA 805 standard (future).

**Circumstances requiring guidance interpretation or new guidance:**

Clarification of NFPA-805, Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition), Chapter 3, Section 3.4, Industrial Fire Brigade, section 3.4.2.1, "The plans shall detail the fire area configuration and fire hazards to be encountered in the fire area, along with any nuclear safety components and fire protection systems and features that are present."

Specifically, define the minimum acceptable scope and content for Pre-Fire Plans.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

NA

**Potentially relevant existing FAQ numbers:**

FAQ #06-0007

---

**Response Section:**

**Proposed resolution of FAQ and the basis for the proposal:**

This FAQ seeks to define minimum acceptable pre-fire plan scope and content. Current guidance is found in regulatory documents such as 10CFR50, Appendix R, Section K, NUREG 0800 and the FRAQA letter (see comparison table below). This FAQ provides clarification for continued use of this scope and content through inclusion in NEI 04-02, Appendix K.

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

As follows;

Clarification of NFPA 805 specific sections as applied under NEI 04-02, to be included in (New) Appendix K, to NEI 04-02 upon approval of specific clarification (final formatting to be provided by NEI).

Specific clarification for NFPA 805 section 3.4, from FAQ 06-0025,  
As a minimum, the pre-fire plans should include a description of the following:

Define the pre-fire plans for fighting fires in all areas in which a fire could jeopardize the ability to meet the performance criteria described in Section 1.5. These pre-fire plans should designate:

- Fire hazards in each area covered by the specific pre-fire plans.
- Fire extinguishants best suited for controlling the fires associated with the fire hazards in that area and the nearest location of these extinguishants.
- Most favorable direction from which to attack a fire in each area in view of the ventilation direction, access hallways, stairs, and doors that are most likely to be free of fire, and the best station or elevation for fighting the fire. All access and egress routes that involve locked doors should be specifically identified in the pre-fire plan with the appropriate precautions and methods for access specified.
- Plant systems that should be managed to reduce the damage potential during a local fire and the location of local and remote controls for such management (e.g.,

**FAQ Title Scope and Content of Pre-Fire Plans**

---

any hydraulic or electrical systems in the zone covered by the specific pre-fire plan that could increase the hazards in the area because of overpressurization or electrical hazards).

-Vital heat-sensitive system components that need to be kept cool while fighting a local fire. Particularly hazardous combustibles that need cooling should be designated.

-Organization of fire fighting brigades and the assignment of special duties according to job title so that all fire fighting functions are covered by any complete shift personnel complement. These duties include command control of the brigade, transporting fire suppression and support equipment top the fire scenes, applying the extinguishant to the fire, communication with the control room, and coordination with outside fire departments.

Potential radiological and toxic hazards in fire zones

-Ventilation system operation that ensures desired plant air distribution when the ventilation flow is modified for fire containment or smoke clearing operation.

-Operations requiring control room and shift engineer coordination or authorization. Instructions for plant operators and general plant personnel during fire.

FAQ Title **Scope and Content of Pre-Fire Plans**

<p><b>NUREG 0800</b> Define the strategies for fighting fires in all safety-related areas and areas presenting a hazard to safety-related equipment. These strategies should designate:</p>	<p><b>10CFR50, Appendix R (III.K.12)</b> Define the strategies for fighting fires in all safety-related areas and areas presenting a hazard to safety-related equipment. These strategies should designate:</p>	<p><b>FRACQA Letter (06/20/77)</b> The strategies established for fighting fires in all safety-related areas and areas presenting a hazard to safety-related equipment. As a minimum the following subjects should be covered:</p>	<p><b>NFPA 805 (FAQ 06-0025)</b> As a minimum, the pre-fire plans should include a description of the following:</p>
<p>Fire hazards in each area covered by the specific pre-fire plans.</p>	<p>Fire hazards in each area covered by the specific pre-fire plans.</p>	<p>Identification of combustibles in each plant zone covered by the specific fire fighting procedures.</p>	
<p>Fire extinguishants best suited for controlling the fires associated with the fire hazards in that area and the nearest location of these extinguishants.</p>	<p>Fire extinguishants best suited for controlling the fires associated with the fire hazards in that area and the nearest location of these extinguishants.</p>	<p>Fire extinguishants best suited for controlling the fires associated with the combustible loadings in that zone and the nearest location of these extinguishants.</p>	<p>Available fire protection systems Fire extinguisher locations</p>
<p>Most favorable direction from which to attack a fire in each area in view of the ventilation direction, access hallways, stairs, and doors that are most likely to be free of fire, and the best station or elevation for fighting the fire. All access and egress routes that involve locked doors should be specifically identified in the procedure with the appropriate precautions and methods for access specified.</p>	<p>Most favorable direction from which to attack a fire in each area in view of the ventilation direction, access hallways, stairs, and doors that are most likely to be free of fire, and the best station or elevation for fighting the fire. All access and egress routes that involve locked doors should be specifically identified in the procedure with the appropriate precautions and methods for access specified.</p>	<p>Most favorable direction from which to attack a fire in each area, in view of the ventilation direction, access hallways, stairs and doors which are most likely to be fire-free, and the best station or elevation for fighting the fire. <i>A specific identification system shall designate all hallways, stairs, doors fire equipment and system control locations, and other items described in the fire fighting procedures. This identification should be used in the procedures and the corresponding plant items should be prominently marked so that they can be recognized in dim light.</i> All access and egress routes that involve locked doors should</p>	<p>Fire barriers Fire doors Locked doors Inaccessible or limited access areas</p>

FAQ Title Scope and Content of Pre-Fire Plans

		be specifically identified in the procedure with the appropriate precautions and methods for access specified.	
Plant systems that should be managed to reduce the damage potential during a local fire and the location of local and remote controls for such management (e.g., any hydraulic or electrical systems in the zone covered by the specific fire fighting procedure that could increase the hazards in the area because of overpressurization or electrical hazards).	Plant systems that should be managed to reduce the damage potential during a local fire and the location of local and remote controls for such management (e.g., any hydraulic or electrical systems in the zone covered by the specific fire fighting procedure that could increase the hazards in the area because of overpressurization or electrical hazards).	Designation of plant systems that should be managed to reduce the damage potential during a local fire; location of local and remote controls for such management (e.g., any hydraulic or electrical systems in the zone covered by the specific fire fighting procedure that could increase the hazards in the area because of overpressurization or electrical hazards).	Safe shutdown equipment
Vital heat-sensitive system components that need to be kept cool while fighting a local fire. Particularly hazardous combustibles that need cooling should be designated.	Vital heat-sensitive system components that need to be kept cool while fighting a local fire. Particularly hazardous combustibles that need cooling should be designated.	Designation of vital heat-sensitive system components that need to be kept cool while fighting a local fire. Critical equipment which are particularly hazardous combustible sources should be designated to receive cooling.	
Organization of fire fighting brigades and the assignment of special duties according to job title so that all fire fighting functions are covered by any complete shift personnel complement. These duties include command control of	Organization of fire fighting brigades and the assignment of special duties according to job title so that all fire fighting functions are covered by any complete shift personnel complement. These duties include command control of	Organization of fire fighting brigades and the assignment of special duties according to job title so that all fire fighting functions are covered by any complete shift personnel complement. These duties include command control of	Communication equipment

FAQ Title **Scope and Content of Pre-Fire Plans**

the brigade, transporting fire suppression and support equipment top the fire scenes, applying the extinguishant to the fire, communication with the control room, and coordination with outside fire departments.	the brigade, transporting fire suppression and support equipment top the fire scenes, applying the extinguishant to the fire, communication with the control room, and coordination with outside fire departments.	the brigade, fire hose laying, applying the extinguishant to the fire, advancing support supplies to the fire scene, communication with the control room, coordination with outside fire departments.	
Potential radiological and toxic hazards in fire zones	Potential radiological and toxic hazards in fire zones.	Identification radiological and toxic hazards in fire zones.	Radiological hazards Special hazards Pre-fire plans should detail radiologically hazardous areas and radiation protection barriers.
Ventilation system operation that ensures desired plant air distribution when the ventilation flow is modified for fire containment or smoke clearing operation.	Ventilation system operation that ensures desired plant air distribution when the ventilation flow is modified for fire containment or smoke clearing operation.	Ventilation system operation that ensures desired plant air pressure distribution when the ventilation flow is modified for fire containment or smoke clearing operations.	Ventilation capabilities Methods of smoke and heat removal should be identified for all fire areas in the pre-fire plans. These can include the use of dedicated smoke and heat removal systems or use of the structure's heating ventilating and air-conditioning (HAC) system if it can operate in the 100 percent exhaust mode.
Operations requiring control room and shift engineer coordination or authorization.	Operations requiring control room and shift engineer coordination or authorization.	Operations requiring control room and shift engineer coordination or authorization.	Areas subject to flooding Water drainage methods should be reviewed and included in the pre-fire plan for each area.
Instructions for plant operators and general plant personnel during fire.	Instructions for plant operators and general plant personnel during fire.	Instructions for plant operators and general plant personnel during fire.	

## Attachment 3

FAQ Number 06-0028 FAQ Revision 1a

FAQ Title Training Definition and Content

Plant: Harris Nuclear Plant (HNP) Date: 04-16-07

Contact: Alan Holder Phone: 919-546-3372

Email: alan.holder@pgnmail.com

Distribution: *(NEI Internal Use)*

805 TF  FPWG  FPRATF

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**Purpose of FAQ:**

Clarify expected content “familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms” regarding scope of or depth of the training.

---

**Is this Interpretation of guidance?** Yes / No

**Proposed new guidance not in NEI 04-02?** Yes / No

---

**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

NEI 04-02, Section 4.3.1, Fundamental Fire Protection Program and Design Elements Transition Review, appendices to list acceptable interpretations to the NFPA 805 standard (future).

**Circumstances requiring guidance interpretation or new guidance:**

Clarification of NFPA-805, Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition), Chapter 3, Section 3.3.1.1 General Fire Prevention Activities, “(1) Training on fire safety information for all employees and contractors including, as a minimum, familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms.”

Specifically, clarify what is “familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms” regarding scope of or depth of the training.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

NA

**Potentially relevant existing FAQ numbers:**FAQ 06-0007

---

**Response Section:****Proposed resolution of FAQ and the basis for the proposal:**

Clarify expected content “familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms” regarding scope and content the training.

This FAQ asks for clarification of what is “familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms” regarding scope of or depth of the training.” Because existing employee general access and indoctrination training is a mature program, and based on NEI 03-04, Guide for Plant Access Training, section 7.5 Fire Protection, consistent information of sufficient detail, is provided at all sites by their General Employee Training (GET) Program. The proposed interpretation contains those key elements listed in the NEI guidance.

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

As follows;

Clarification NFPA 805 specific sections as may be applied under NEI 04-02, to be included in (New) Appendix K, to NEI 04-02 upon approval of specific clarification (final formatting to be provided by NEI contract writers).

Specific clarification for NFPA 805 section 3.3.1.1, from FAQ 06-0028;

Where used in section 3.3.1.1, the term, “familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms”, should be considered to be acceptable when it includes the minimum following training objectives;

- Location and use of plant fire prevention procedures.
- Individual responsibilities regarding fire barriers such as fire dampers, doors, and seals.
- Actions an individual is required to take upon discovery of a fire.
- Individual responsibilities regarding the control of fire loading (wood, solvents, oil) and the disposal of flammable materials.
- Examples of the types of hot work requiring a permit.
- Recognition of, and response to a station fire alarm.
- Other plant specific fire prevention activities.

This familiarization may be included as part of the plant’s General Employee Training (GET) program.

Please find the attached FAQs for submittal:

FAQ 06-0019 Rev. 1

FAQ 06-0020 Rev. 1

If you have any questions regarding this submittal please give me a call.

Thank you,

Brandon T. Jamar

Project Manager, Engineering

Nuclear Energy Institute

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**Subject:** FAQs: 06-0019 Rev. 1, 06-0020 Rev. 1  
**Creation Date** 5/8/2007 2:41:47 PM  
**From:** "JAMAR, Brandon" <btj@nei.org>

**Created By:** btj@nei.org

**Recipients**

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<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
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TEXT.htm	6704	
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FAQ 06-0019 R1.pdf	15274	
Mime.822	52428	

**Options**

**Expiration Date:** None  
**Priority:** Standard  
**ReplyRequested:** No  
**Return Notification:** None

**Concealed Subject:** No  
**Security:** Standard

**Junk Mail Handling Evaluation Results**

Message is eligible for Junk Mail handling  
This message was not classified as Junk Mail

**Junk Mail settings when this message was delivered**

Junk Mail handling disabled by User  
Junk Mail handling disabled by Administrator  
Junk List is not enabled

Junk Mail using personal address books is not enabled  
Block List is not enabled

Attachment 1

FAQ Number 06-0019 FAQ Revision 1

FAQ Title Definition of "Power Block" and "Plant"

Plant: Harris Nuclear Plan (HNP) Date: 02-16-07

Contact: Alan Holder Phone: 919-546-3372

Email: alan.holder@pgnmail.com

Distribution: *(NEI Internal Use)*

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**Purpose of FAQ:**

Provide specific clarification within NEI 04-02 as to the definition of "power block" and "plant" used in NFPA 805, such that the terms are applied to Structures, Systems and Components associated with Nuclear Safety Performance Criteria.

---

Is this Interpretation of guidance? Yes / No

Proposed new guidance not in NEI 04-02? Yes / No

---

**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

NEI 04-02, Section 4.3.1, Fundamental Fire Protection Program and Design Elements Transition Review, Table B-1 uses NFPA 805 chapter 3 as part of the transition review. Specific clarification is requested for certain terms and phrases found in NFPA 805.

**Circumstances requiring guidance interpretation or new guidance:**

Clarification of NFPA-805, Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition), Chapter 3, Section 3.3.1.2 Control of Combustibles. "(1) Wood used within the power block shall be listed pressure-impregnated or coated with a listed fire-retardant application."

Specifically, the definition of "Power Block" and "Plant" and how these will be applied when reviewing Chapter 3 transition.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

NA

**Potentially relevant existing FAQ numbers:**

FAQ #06-0007

---

**Response Section:**

**Proposed resolution of FAQ and the basis for the proposal:**

This FAQ asks to define, where used in NFPA 805, Chapter 3, "power block" and "plant" are intended to mean or are equivalent to, "areas in which a fire could jeopardize the ability to meet the performance criteria described in section 1.5.1".

This is based on RIN 3150-AG48 (Statement of Considerations see SECY-04-0050 dated March 29, 2004 approved by SRM-04-0050 dated May 11, 2004), which states in part, "under NFPA 805, the 10CFR50.48(a)(2)(iii) requirement to limit fire damage to SSCs important to safety so that the capability to safely shut down the plant is ensured is satisfied by meeting the performance criteria in Section 1.5.1 of NFPA 805", the Chapter 3 applicability is limited to only these SSCs. Therefore for regulatory purposes, the "power block" and "plant" is synonymous with areas in which a fire could jeopardize the ability to meet the performance criteria described in section 1.5.1, Nuclear Safety Performance Criteria.

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

As follows;

Clarification of NFPA 805 specific sections as applied under NEI 04-02, to be included in (New) Appendix K, to NEI 04-02 upon approval of specific clarification (final formatting to be provided by NEI).

Specific clarification to NFPA Chapter 3, from FAQ 06-0019,

Where used in Chapter 3, "power block" and "plant" are equivalent to "areas in which a fire could jeopardize the ability of structures, systems and components required to meet the performance criteria described in section 1.5.1, Nuclear Safety Performance Criteria."

## Attachment 2

FAQ Number 06-0020 FAQ Revision 1

FAQ Title Identification of “applicable NFPA standards”

Plant: Harris Nuclear Plant (HNP) Date: 02-16-07

Contact: Alan Holder Phone: 919-546-3372

Email: alan.holder@pgnmail.com

Distribution: *(NEI Internal Use)*

805 TF  FPWG  FPRATF

---

**Purpose of FAQ:**

Provide specific clarification for term, applicable NFPA standards as applied under section 4.3.1 of NEI 04-02.

---

**Is this Interpretation of guidance? Yes / No**

**Proposed new guidance not in NEI 04-02? Yes / No**

---

**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

NEI 04-02, Section 4.3.1, Fundamental Fire Protection Program and Design Elements Transition Review, Table B-1 uses NFPA 805 chapter 3 as part of the transition review. Specific clarification is requested for certain terms and phrases found in NFPA 805.

**Circumstances requiring guidance interpretation or new guidance:**

Clarification of NFPA-805, Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition), Chapter 3, Section 3.3.1.2 Control of Combustibles. “(6) Controls on use and storage of flammable gases shall be in accordance with applicable NFPA standards.”

Specifically, identify “applicable NFPA standards” to be used during reviews associated with Chapter 3 transition.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

NA

**Potentially relevant existing FAQ numbers:**

FAQ 06-0007

---

**Response Section:****Proposed resolution of FAQ and the basis for the proposal:**

This FAQ asks to identify, where used in NFPA 805, Chapter 3, “applicable NFPA standards” for review of programs structures, systems, and components as may be required for Chapter 3 transition using NFPA 805. Because existing fire protection programs for facilities generally provide a listing of NFPA standards used in the development, implementation and maintenance of the fire protection program, the term, “applicable NFPA Standards”, where used in NFPA 805, Chapter 3, shall be considered to be equivalent to those NFPA standards identified in the Current License Bases (CLB) for the facility (generally found in the FSAR or approved Fire Protection Program). Because these NFPA standards have been previously approved by the staff for a given facility, this further establishes their applicability.

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

As follows;

Clarification of NFPA 805 specific sections as applied under NEI 04-02, to be included in (New) Appendix K, to NEI 04-02 upon approval of specific clarification (final formatting to be provided by NEI).

Specific clarification to NFPA 805, Chapter 3, from FAQ 06-0020,

Where used in NFPA 805, Chapter 3, the term, “applicable NFPA Standards” is considered to be equivalent to those NFPA standards identified in the current license basis (CLB) for procedures and systems in the Fire Protection Program that are transitioning to NFPA 805. New Fire Protection Systems would be subject to the most current code or standard.

Please find the attached revision to FAQ 06-0017. This FAQ has been split per NRC request.

If you have any questions please let me know.

Thanks,

Brandon T. Jamar

Project Manager, Engineering

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**Mail Envelope Properties** (4649B131.939 : 13 : 2361)

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**Creation Date** 5/15/2007 9:12:37 AM  
**From:** "JAMAR, Brandon" <btj@nei.org>

**Created By:** btj@nei.org

**Recipients**

nrc.gov  
TWGWPO01.HQGWDO01  
CEM4 (Charles Moulton)

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OWGWPO02.HQGWDO01  
RHG CC (Ray Gallucci)

nrc.gov  
TWGWPO04.HQGWDO01  
SDW1 (Sunil Weerakkody)

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TEXT.htm	6122	
FAQ 06-0017 - Rev 1.pdf	125031	
Mime.822	181541	

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**Concealed Subject:** No  
**Security:** Standard

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Block List is not enabled

Attachment 1



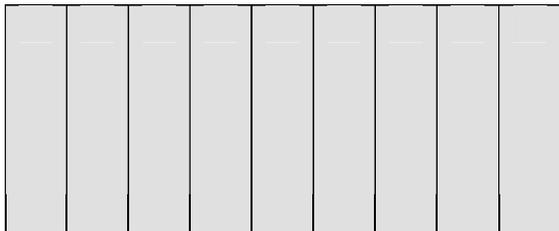
## Detail contentious points if licensee and NRC have not reached agreement

### Potentially relevant existing FAQ numbers:

This guidance is specific to the characterization of electrical cabinets for Bin 16 HEAF determination. The characterization and counting of electrical cabinets for Bin 15 determination is addressed by FAQ 06-0016.

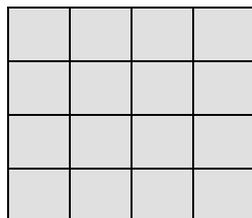
### Response Section

It is proposed that the existing guidance in NUREG/CR-6850 that recommends counting based on segments be modified. Since industry experience shows that the medium voltage switchgears are most likely to experience this event, it is proposed that each low voltage switchgear (usually referred to as load centers or unit substations) operating at 440 Vac or higher be counted as a single unit regardless of the number of vertical sections or segments. This treatment would ensure that the majority of the HEAF frequency is allocated to the medium voltage switchgears. When performing detailed fire modeling, the HEAF should be distributed by vertical section of the applicable load center.



Medium Voltage Switchgear

9 Breakers and Sections  
Count = 9 for Bin 16



Low Voltage Switchgear  $\geq 440$  Vac  
(Load Centers or Unit Substations)

16 Breakers in 4 Sections  
Count = 1 for Bin 16

**Basis:**

The existing guidance in NUREG/CR-6850 is based on industry data which has only been provided with fidelity adequate to support plant level ignition frequencies for HEAFs. Although the guidance does address the data, it leaves room for variability that can create issues with PRA quality. It is important that the ignition frequency results be of sufficient quality to support not only NFPA-805 transition but also the more broad scope of regulatory inspection and enforcement issues.

The guidance proposed will provide more consistency when determining plant specific electrical cabinet ignition frequencies while working within the bounds of the exiting data provided by the NUREG. This should facilitate the review and acceptability of the results.

Brandon,

Attached are NRC handouts for the meeting this afternoon.

Included are comments on FAQs, as well as lists of the ADAMS numbers for FAQs and FAQ related documents.

Please distribute to the 805 Task Force.

Thanks,

Chuck

Charles Moulton  
Fire Protection Engineer  
NRR/DRA/AFPB  
Phone: 415-2751  
Mailstop: O11A11

**Mail Envelope Properties** (464C75B2.14D : 12 : 9706)

**Subject:** Handouts for today's FAQ meeting  
**Creation Date** 5/17/2007 11:33:06 AM  
**From:** Charles Moulton

**Created By:** CEM4@nrc.gov

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nrc.gov TWGWPO01.HQGWDO01 11:33:07 AM	Delivered	5/17/2007
PWL CC (Paul Lain) 11:33:13 AM	Opened	5/17/2007
nrc.gov TWGWPO04.HQGWDO01 11:33:10 AM	Delivered	5/17/2007
SDW1 CC (Sunil Weerakkody)		

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<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
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FAQ Meeting Documents ADAMS Numbers.doc 8:55:40 AM	41472	5/17/2007
FAQ 06-0007, Revision 1 NRC comments.doc 8:20:04 AM	22528	5/16/2007
FAQ 06-0017, Part 1 NRC comments.doc 11:16:18 AM	34816	5/16/2007
FAQ 06-0028, Revision 1 NRC comments.doc 8:07:24 AM	25600	5/17/2007
FAQ ADAMS numbers.doc	62464	5/15/2007 3:45:28 PM

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<b>Return Notification:</b>	None
<b>Concealed Subject:</b>	No
<b>Security:</b>	Standard
<b>To Be Delivered:</b>	Immediate
<b>Status Tracking:</b>	Delivered & Opened

Attachment 1

The staff does not feel that all of their comments were addressed in the new revision.

**Staff Recommendation:**

Change the first section of the proposed addition to 04-02 (the Appendix K entry) to read:

Specific clarification to NFPA 805, section 3.4, from FAQ 06-0007:

The NFPA standards divide fire brigades into two types, based on organization and duties: "Industrial Fire Brigades" and "Industrial Fire Departments." Practically, this means that a fire fighting organization at a nuclear power plant must comply with either NFPA 600 (for an Industrial Fire Brigade) or both NFPA 1500 and NFPA 1582 (for an Industrial Fire Department)

The paragraph that begins "Reference in section..." is fine as is, except for the typo in line 4: "For exterior fire ..." should be "...fires..."

DRAFT

## Attachment 2

## **PRELIMINARY FOR DISCUSSION PURPOSES**

(The following has been extracted from “**Preliminary Team Response to FAQ 06-0017 on NUREG/CR-6850, EPRI TR-1011989**”; Draft Revision 2 – 4/26/2007; Prepared by: S. Nowlen, B. Najafi, D. Funk, F. Joglar and M. Kazarians)

### **HEAF Fires in Electrical Panels**

With respect to counting of electrical panels for the purposes of the HEAF fire events, the team disagrees with the proposed alternate counting method for load centers and low voltage switchgear. Our disagreement is based on the fact that no clear rules of application have been specified so that it may not be applied consistently by analysts. The counting approach also appears rather arbitrary. That said, the state of knowledge regarding HEAF fires continues to evolve. New insights developed since publication of the methodology do indicate that an adjustment of fire frequencies between low- and medium-voltage equipment is warranted.

The electrical power community has, over the past two years, gained significant knowledge about HEAFs. This increased awareness and knowledge base was driven by adoption of new arc flash protection requirements in NFPA 70E, *Standard for Electrical Safety Requirements for Employee Workplaces*. Discussions with experts close to the subject, including a member of the IEEE 1584 standards committee (*Guide for Performing Arc-Flash Hazards Calculations*) revealed that recorded events of HEAFs are actually dominated by incidences involving 480V gear. The experts confirm that the higher incidence of 480V events is partially attributable to the greater population of installed 480V equipment. However, other overlapping factors are also important:

- A majority of arc flash events are initiated by human error.
- Low voltage equipment is worked on/operated more frequently than medium voltage equipment.
- Workers have a more casual attitude when working on 480V gear, i.e., everyone knows that you will probably not get a second chance if you make a mistake working on medium voltage equipment but they tend to perceive 480V gear as less threatening. Additionally, it is more probable that 480V equipment will be worked “hot”; that is, worked on while the equipment is energized.
- Basic design attributes of medium voltage gear decrease the likelihood of initiating a sustained arcing fault. Key elements include insulated bus bars in lieu of open bus bar work, barrier protection, compartmentalization between phases, and increased creepage distances.
- Arcing faults do occur on 208V systems; however, sustained arcing faults at 208V are rare and difficult to reproduce.

With these observations in mind, the intent of the HEAF analysis (per Appendix M) is to capture “higher-consequence” events that may have a *substantive impact outside the cabinet of origin*. Other arc fault events (e.g., events that did not lead to an impact outside the originating panel) are already treated via the general electrical panel fire frequency and this treatment need not be adjusted. Only the “higher-consequence” events are under question here.

Another observation that is evident from the event records amassed by the IEEE standard groups is that, even though the general incidence of arc faults in low-voltage equipment

may actually be higher, the fraction of such events leading to substantive impacts outside the initiating cabinet (i.e., higher-consequence events) is actually lower than for similar incidents in medium-voltage equipment. In essence, if a sustained arc fault occurs in a 4.16 kV switchgear, the fault will very likely have an impact beyond the limits of the panel. In contrast, an arc fault in a low voltage panel is more likely to remain confined to the panel and less likely to have impact beyond the panel. This rationale is supported by standardized arc flash calculations; equivalent stand off distances are typically greater for medium voltage equipment, given normal and customary overcurrent protection.

This contention is consistent with both the broader industry experience and with the specific nuclear industry experience as cataloged in Appendix M. That is, the frequency analysis included three events in medium-voltage equipment, and only  $\frac{1}{2}$  of an event (i.e., one uncertain event) for low-voltage equipment. This assessment included consideration of whether each reported event actually had impact outside the panel of origin. There are many other low-voltage panel fire events that appear to have involved some degree of arc-flash, but that also remained confined to the panel of origin.

The team's proposed resolution to the underlying issue raised in the FAQ is to split fire ignition frequency Bin 16, HEAF, into two bins; namely, "16a – HEAF for low-voltage panels (480-1000V)" and "16b – HEAF for medium-voltage panels (greater than 1000V)." For each bin, the method of panel counting would then stand unchanged (i.e., count vertical sections). Given the split into two bins, the counting method, and hence the fire frequency apportioning process, need to be self-consistent within each of the two new bins, but there is no longer any cross-over between the low- and medium-voltage equipment. This also maintains consistency with the counting method for general thermal fires (i.e., the non-HEAF panel fires that must also be treated) which is also a highly desirable feature so that analyst need not maintain two separate population counts for the same set of fire ignition sources.

The net result is a re-partitioning of the "higher-consequence" HEAF events between low and medium-to-high voltage equipment in accordance with the event data. The revised fire frequencies for these two new bins are as follows:

16a: HEAF for Low- Voltage Panels (480 – 1000 V)

Mean = 4.8E-04

Variance = 1.4E-03

5% Lower Bound = 1.6E-05

50% (Median) = 2.0E-04

95% Upper Bound = 1.5E-03

16b: HEAF for Medium-Voltage Panels (greater than 1000 V)

Mean = 1.4E-03

Variance = 1.2E-02

5% Lower Bound = 3.8E-05

50% (Median) = 6.2E-04

95% Upper Bound = 4.1E-03

## **ADDITIONAL STAFF COMMENT**

In the course of providing the above response, the NRC staff and the RES contractors raised the related issue of whether or not motor control centers (MCCs) should be included as potential

sources of HEAFs along with the switchgear and load centers when counting sources. While not explicitly mentioned in NUREG/CR-6850, inclusion of MCCs when counting HEAF sources is explicit in the Fire Protection Significance Determination Process (Inspection Manual Chapter 609F). Consensus was reached regarding this, with the following guidance:

MCCs with molded-case circuit breakers should not be counted as HEAF sources because (1) the breakers are not used to operate equipment, but perform more like a disconnect switch; (2) the lower power potential that results from manual-only opening or closing under a "de-energized" main load condition (only the control circuit would be energized, with a very small load), and quick-trip characteristic of the molded-case circuit breaker limit the energy level of any arcing fault; and (3) motor starters have only exhibited low-energy type fires. On the other hand, *MCCs with switchgear that is used to directly operate equipment such as load centers should be counted as HEAF sources.*

DRAFT

## Attachment 3

## **FAQ Proposal**

Clarification NFPA 805 specific sections as may be applied under NEI 04-02, to be included in (New) Appendix K, to NEI 04-02 upon approval of specific clarification (final formatting to be provided by NEI contract writers).

Specific clarification for NFPA 805 section 3.3.1.1, from FAQ 06-0028;

Where used in section 3.3.1.1, the term, "familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms", should be considered to be acceptable when it includes the minimum following training objectives;

- Location and use of plant fire prevention procedures.
- Individual responsibilities regarding fire barriers such as fire dampers, doors, and seals.
- Actions an individual is required to take upon discovery of a fire.
- Individual responsibilities regarding the control of fire loading (wood, solvents, oil) and the disposal of flammable materials.
- Examples of the types of hot work requiring a permit.
- Recognition of, and response to a station fire alarm.
- Other plant specific fire prevention activities.

This familiarization may be included as part of the plant's General Employee Training (GET) program.

## **Staff Response**

The NRC has the following comments and suggestions on Revision 1a to FAQ 06-0028.

In the fourth training objective "Individual responsibilities regarding the control of fire loading (wood, solvents, oil) and the disposal of flammable materials," the term "fire loading" is unnecessarily broader than the term "transient combustibles" the NRC suggested in its 2/15/2007 response to FAQ 06-0028.

In the same sentence, the term "combustible" has been omitted.

Therefore, it is proposed that FAQ 06-0028 be revised to read:

Where used in section 3.3.1.1, the term, "familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms", should be considered to be acceptable when it includes the minimum following training objectives;

- Location and use of plant fire prevention procedures.
- Individual responsibilities regarding fire barriers such as fire dampers, doors, and seals.
- Actions an individual is required to take upon discovery of a fire.
- Individual responsibilities regarding the control of transient combustibles (wood, solvents, oil) and the disposal of flammable and combustible materials.
- Examples of the types of hot work requiring a permit.
- Recognition of, and response to a station fire alarm.
- Other plant specific fire prevention activities.

This familiarization may be included as part of the plant's General Employee Training(GET) program.

## Attachment 4

## FAQs

FAQ #	Rev.	ADAMS #
06-0001	0	ML061440419
06-0002	0	ML061440420
	1	ML063170357
	2	ML063350515
06-0003	0	ML061440422
	1	ML063170355
06-0004	0	ML061440430
06-0005	0	ML062350095
	1	ML063180544
06-0006	0	ML062350109
	1	ML063170360
	2	ML063540308
06-0007	0	ML062350121
	1	ML070030325
	2	ML070510442
06-0008	0	ML062860250
	1	ML070510499
	2	ML070800007
	3	ML071020160
	Att.	ML071020169
	4	ML071080099
	5	ML071340180
06-0011	0	ML062890271
	1	ML070510505
06-0012	0	ML062860255
	1	ML063170362
	2	ML070850610
06-0016	0	ML070030348
	1	ML071020174
06-0017	0	ML070030383
	1	ML071350432
06-0018	0	ML070030427
	1	ML071020181
06-0019	0	ML070030437
	1	ML071340184
06-0020	0	ML070030443
	1	ML071340188
06-0021	0	ML070030457
	1	ML071340192
06-0022	0	ML070030459
06-0023	0	ML070030470
06-0024	0	ML070030472
06-0025	0	ML070030476
	1	ML071340194
06-0026	0	ML070030480
06-0028	0	ML070030489
	1	ML071340195

## Attachment 5

## FAQ Meeting Notices and Summaries

Month	Doc.	ADAMS #
July	MN	ML061870560
	MS	ML062080126
August	MN	ML062200116
	MS	ML062400278
September	MN	ML062510281
	MS	ML062900031
October	MN	ML062850488
	MS	ML063350031
November	MN	ML063120170
	MS	ML063410377
December	MN	ML063390132
	MS	ML070220420
January	MN	ML070040380
	MS	ML070360630
February	MN	ML070290267
	MS	ML070640531
March	MN	ML070640417
	MS	ML071090164
April	MN	ML070920255
	MS	
May	MN	ML071220176
	MS	

Please find the attached FAQs: 06-0027 Rev. 0 and 07-0031 Rev. 0 for submittal. Please contact me if there are any issues with this transmittal.

Thank you,

Brandon

Brandon T. Jamar

Project Manager, Engineering

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**Created By:** btj@nei.org

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Junk List is not enabled

Junk Mail using personal address books is not enabled  
Block List is not enabled

Attachment 1

FAQ Number 06-0027 FAQ Revision 0

FAQ Title Clarification of NFPA 805 Section 3.7

Plant: Arkansas Nuclear One Date: May 17, 2007  
Contact: Rebecca Puckett Phone: (479) 858-4518  
Email: rpucket@entergy.com

Distribution: *(NEI Internal Use)*

805 TF  FPWG  RATF  RIRWG  BWROG  PWROG

---

**Purpose of FAQ:**

Clarify the use of the term “where provided” in Section 3.7 of NFPA 805.

---

**Is this Interpretation of guidance?**  Yes / No

**Proposed new guidance not in NEI 04-02?**  Yes / No

---

**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

NEI 04-02, Section 4.3.1, Fundamental Fire Protection Program and Design Elements Transition Review, Appendix K to list acceptable interpretations to the NFPA 805 standard (future).

**Circumstances requiring guidance interpretation or new guidance:**

Clarification of NFPA-805, Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition), Chapter 3, section 3.7, “Fire Extinguishers- where provided”.

Specifically, clarify the intent or acceptable means of applying the term “where provided” as it is applied in the standard.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

None

**Potentially relevant existing FAQ numbers:**

FAQ #06-0007

**Response Section:****Proposed resolution of FAQ and the basis for the proposal:**

NFPA 10 provides maximum travel distances for each type of portable fire extinguisher, but equipment located within plant areas create travel obstructions and radiological conditions likely prevent these code standards from being met. Both NFPA sections start off with a statement, "Where provided..." that needs clear interpretation to assure the NFPA 10 code standards are not always required and that the plant documented basis, which has been reviewed by the NRC, is acceptable without further justification.

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

Clarification NFPA 805 specific sections as may be applied under NEI 04-02, to be included in (New) Appendix K, to NEI 04-02 upon approval of specific clarification (final formatting to be provided by NEI contract writers).

Specific clarification for NFPA 805 section 3.7, from FAQ 06-0027; Where used in section 3.7, the term, "where provided", shall be those locations where portable extinguishers exist at present as part of the approved plant design, or as documented through an approved Code Compliance review document, or lacking same, as provided should be considered to be in accordance with NFPA-10, Standard for Portable Fire Extinguishers.

## Attachment 2

FAQ Number 07-0031

FAQ Revision 0

FAQ Title Clarification of Miscellaneous Ignition Source Binning Issues

Plant: Harris

Date: May 17, 2007

Contact: Dave Miskiewicz

Phone: 919.546.7588

Email: David.Miskiewicz@pgnmail.com

Distribution: *(NEI Internal Use)*

805 TF    FPWG    RATF    RIRWG    BWROG    PWROG

---

**Purpose of FAQ:**

Clarification/enhancement of Ignition Source counting guidance for miscellaneous items in NUREG/CR-6850, supporting NFPA-805 Fire PRA application.

---

**Is this Interpretation of guidance?**    Yes / No

**Proposed new guidance not in NEI 04-02?**    Yes / No

---

**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

New attachment on interpretation issues

**Circumstances requiring guidance interpretation or new guidance:**

NUREG/CR-6850, Section 6.5.6

The guidance provided in NUREG/CR-6850 for Task 6, Fire Ignition Frequency, is subject to application inconsistency in the treatment of motors/pumps (Bins 14, 21, 26).

- Bin 14 (motors)      – “... (count) greater than 5hp ...”  
                              - “...may include elevator motors, valve motors, etc.”
- Bin 21 (pumps)     – “... (do not count) below 5 hp ...”  
                              - “ ... large valves that include hydraulic fluid powered mechanisms.”
- Bin 26 (ventilation subsystems) – “... (do not count) 5 hp or less ...”

And transformers:

- Bin 23 – “... (count) essential service lighting transformers.”
  - “... count wall-mounted transformers if they do satisfy other counting criteria ...”

---

**FAQ Title Clarification of Miscellaneous Ignition Source Binning Issues**

---

- "... do not count small lighting transformers."

The diversity in wording can cause differences in how 5 hp components and how small transformers are counted.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

This topic has impact on the NFPA-805 pilots, non-pilots and other users of NUREG/CR-6850.

**Potentially relevant existing FAQ numbers:**

The characterization and counting of electrical cabinets for Bin 15 determination is addressed by FAQ 06-0016. HEAFs are addressed by FAQ-06-0017, and Main Control Boards are addressed by FAQ 06-0018.

---

**Response Section:****Proposed resolution of FAQ and the basis for the proposal:**

- |                |                                                                                            |
|----------------|--------------------------------------------------------------------------------------------|
| Bin 14, 21, 26 | - Only count sources greater than 5 hp.                                                    |
| Bin 14         | - Do not count MOV motors                                                                  |
| Bin 21         | - Count Large hydraulic actuators (> 5 hp) as pumps only if the motor is greater than 5 hp |
| Bin 23         | - Count transformers rated 45 KVa or greater                                               |

**Basis:**

The guidance proposed will provide more consistency when determining plant specific ignition frequencies while working within the bounds of the exiting data provided by the NUREG. This should facilitate the review and acceptability of the results.

The guidance for counting MOVs does not appear to be consistent with industry experience. A review of the fire events database did not identify any MOV motor fires. In addition, their inclusion would tend to dilute the fire frequency for other general motors in the plant. MOV motors typically have NEMA TENV (totally enclosed non-ventilated) enclosures and are greased lubricated. The treatment of a fire at an MOV in a fire PRA will exclusively be a non-propagating fire whose consequence would be limited to loss of only the MOV. This would generally screen on the basis of the fire frequency being equivalent to the random failure of the MOV. Therefore, it is proposed that all MOVs that involve TENV enclosures be excluded from the fire frequency counted regardless of motor rating.

FAQ Number 07-0031

FAQ Revision 0

FAQ Title Clarification of Miscellaneous Ignition Source Binning Issues

There is only one bin for in-plant transformers with no size limitations. A counting threshold such as that used for motors is needed. 45 KVa is based on typical lighting transformers identified during walkdowns. These are generally about the size of a 2 drawer file cabinet.

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

Please find FAQ 12 R3 for submittal. Two versions are attached (changes shown/hidden). If you have any problems with this transmittal please let me know.

Thank you,

Brandon T. Jamar

Project Manager, Engineering

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**Route**

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<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	1030	5/17/2007 2:47:05 PM
TEXT.htm	6016	
FAQ 06-0012 - Manual Actions - Rev 3.pdf	154440	
FAQ 06-0012 - Manual Actions - Rev 3_changes accepted.pdf	136496	
Mime.822	408680	

**Options**

**Expiration Date:** None  
**Priority:** Standard  
**ReplyRequested:** No  
**Return Notification:** None

**Concealed Subject:** No  
**Security:** Standard

**Junk Mail Handling Evaluation Results**

Message is eligible for Junk Mail handling  
This message was not classified as Junk Mail

**Junk Mail settings when this message was delivered**

Junk Mail handling disabled by User  
Junk Mail handling disabled by Administrator  
Junk List is not enabled

Junk Mail using personal address books is not enabled  
Block List is not enabled

Attachment 1

FAQ Number 06-0012 Revision 3

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FAQ Title Determining Manual Actions that Require a Change Evaluation during Transition

Plant: Harris Nuclear Plant Date: 03/22/2007  
Contact: Elizabeth Kleinsorg Phone: 704.651.5548  
Email: ekleinsorg@haifire.com

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**Purpose of FAQ:**

Operator manual actions that are either not allowed under the current regulatory framework or for which there is no previous NRC approval are not compliant with current regulations. The acceptability of the continued use of the actions that are not compliant will be evaluated using the change process. The purpose of this FAQ is to clarify the operator manual actions that will require change evaluations during the transition to NFPA 805.

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Is this Interpretation of guidance?  Yes / No

Proposed new guidance not in NEI 04-02?  Yes / No

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**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

Section B.2.2.4 Recovery Actions

**Circumstances requiring guidance interpretation or new guidance:**

Operator manual actions that are currently credited in Appendix R (NUREG 0800) analyses may be allowed under the current regulation/guidance or may have been approved via an exemption/deviation. These operator manual actions do not require a change evaluation during the transition process.

Subsequent to the submittal of FAQ 06-0001, the following documents were issued by the NRC:

- 2006-05-26 - Public Meeting Notice 20060609 on Manual Action Clarifications ML061390156
- 2006-05-26 - Draft NRC Response to 05-03-06 NEI letter - ML061440251
- 2006-05-26 - Draft NRC Response to 03-29-06 EPM letter - ML061440237

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**FAQ Title** Determining Manual Actions that Require a Change Evaluation during Transition

- 2006-06-30 - RIS 2006-10 Regulatory Expectations With Appendix R Paragraph III.G.2 Operator Manual Actions – ML061650389
- 2006-07-19 - NRC Meeting Summary of 06-09-06 OMA Meeting ML061950327
- 2006-07-19 - NRC Revision to Draft Response to EPM March 2006 letter - ML061980016
- 2006-07-19 - NRC Revision to Draft Response to NEI May 2006 letter - ML061980035

In addition the NRC letter to NEI, Use of Manual Actions to Achieve Safe Shutdown for Fire Events, dated 2002-05-16 (ML021410026) provides information not captured in the correspondence above.

These documents provide additional clarification with respect to the acceptability of existing operator manual actions.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

None.

**Potentially relevant existing FAQ numbers:**

This FAQ supersedes FAQ 06-0001.

---

**Response Section:**

**Proposed resolution of FAQ and the basis for the proposal:**

The following information will be used as input for a revision to NEI 04-02:

- Allowed Operator Manual Actions  
*“With proper analysis, manual actions are allowed for fire safe shutdown activities under the following circumstances:*
  - *operation of equipment for which cables are located in fire areas that meet Section III.G.1 of Appendix R to 10 CFR Part 50, by having redundant cables and equipment in a completely different fire area*
  - *manual operation of normally operated manual switches and valves*
  - *staff-approved deviations and exemptions for specific manual actions in lieu of meeting the criteria of Section III.G.2 of Appendix R to 10 CFR Part 50*
  - *manual operation of equipment used to meet the requirements of Section III.G.3 for Alternative or Dedicated Shutdown of Appendix R to 10 CFR Part 50, where meeting performance criteria of Section III.L is required”*

**FAQ Title** **Determining Manual Actions that Require a Change Evaluation during Transition**

(NRC Letter to NEI dated May 16, 2002, Use of Manual Actions to Achieve Safe Shutdown for Fire Events)

- Operator Manual Actions on 'Fire Affected Train'.  
*"As discussed during a March 1, 2006, public meeting, if one of the redundant trains in the same fire area is free of fire damage by one of the specified means in paragraph III.G.2, then the use of operator manual actions, or other means necessary, to mitigate fire-induced operation or maloperation to the second train may be considered in accordance with the licensee's fire protection program and license condition since paragraph III.G.2 has been satisfied."*(RIS 2006-10)

Additional clarification was provided at the June 9, 2006 Public Meeting and was summarized in a subsequent NRC Internal Memorandum (July, 19, 2006 ML061950327, ML061980016)

- Conversion of Compliance Strategy from III.G.2 to III.G.3.  
*"Paragraph III.G.2 allows the licensee to use the alternative shutdown method described in paragraph III.G.3 of Appendix R if the licensee cannot meet the requirements of paragraph III.G.2."*(RIS 2006-10)
- Exemptions from Paragraph III.G.2 for Plants Licensed to Operate Before January 1, 1979  
*"The regulations in 10 CFR Part 50.48(b) impose the requirements of paragraph III.G.2 of Appendix R on plants licensed to operate before January 1, 1979 (pre-1979 licensees). As originally issued, 10 CFR 50.48, "Fire Protection," allowed licensees to request an exemption from compliance with one or more of the provisions of Appendix R if the licensee justified the exemption on the basis that the required modifications would not enhance fire protection safety in the facility or that the modifications might be detrimental to overall facility safety.*

*The staff's current basis for approving an exemption is provided in 10 CFR 50.12 "Specific Exemptions." In order for the NRC to approve such an exemption request, a licensee would have to identify all relevant credited operator manual actions by fire area or fire scenario.*

*The NRC has reviewed and granted exemption requests for the use of operator manual actions in lieu of the separation criteria of paragraph III.G.2 where the exemption criteria were met. These exemptions are specific to the licensee and the situation discussed in the exemption. Exemptions granted for specific conditions cannot be applied under other conditions. Although the rationale for an exemption may appear to be applicable to a similar situation for a second licensee, the staff cautions that NRC review and approval by issuance of an exemption would be necessary for the second licensee.*

**FAQ Title** **Determining Manual Actions that Require a Change Evaluation during Transition**

*The appropriate regulatory vehicle (in the absence of a rulemaking or plant-specific Order) to provide dispensation from compliance with fire protection requirements is the issuance of an exemption under 10 CFR Part 50.12. Inspection reports, meeting minutes, and letters from licensees are examples of documents that do not provide dispensation from compliance with applicable fire protection requirements.*

*For pre-1979 licensees, a staff decision in a safety evaluation report (SER) that approves the use of operator manual actions, in lieu of one of the means specified in paragraph III.G.2, does not eliminate the need for an exemption. Pre-1979 licensees who have SERs, but not a corresponding exemption, which approve manual actions should request an exemption under 10 CFR Part 50.12, citing the special circumstances of section 50.12(a)(2)(ii), citing the SER as the safety basis, and confirming that the safety basis established in the SER remains valid. The staff expects to grant the exemption on these bases without further review. "(RIS 2006-10)*

- **Plants Licensed to Operate After January 1, 1979**

*"Since plants licensed to operate on or after January 1, 1979 (post-1979 licensees), are not required to meet the requirements of paragraph III.G.2, a staff decision in an SER that approves the use of manual operator actions does not require exemption under 10 CFR 50.12. Post-1979 licensees may be requested to demonstrate, as part of the NRC Reactor Oversight Process, that the use of an operator manual action would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire consistent with their license." (RIS 2006-10)*

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

Revise NEI 04-02 as shown in the attachment.

**Attachment to FAQ 06-0012 Revision 3  
Excerpt from NEI 04-02 Revision 1 with Changes Tracked**

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[Fifth paragraph on page 29 of NEI 04-02 Revision 1]

**4.3.2 Nuclear Safety Performance Criteria Transition Review**

...

Operator manual actions being transitioned to recovery actions that are not allowed under the current regulatory framework or do not have previous NRC approval should be evaluated using the change process. See Appendix B-2 of this document for additional guidance.

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Excerpt from NEI 04-02 Revision 1 with Changes Tracked

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**B.2.2.4 Recovery Actions**

Operator manual actions will be transitioned as “recovery actions” in the new NFPA 805 licensing bases. Repairs will also be transitioned as “recovery actions”.

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The following information for operator manual actions should be included in the fire area summaries (and referenced as appropriate in Table B-3 Fire Area Assessment Worksheet):

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- Whether the transitioning recovery action is allowed or was previously reviewed and approved by the NRC’s Office of Nuclear Reactor Regulation (NRR). Include reference to documentation that demonstrates prior review and approval by the NRC.
- Reference to the feasibility evaluation of the transitioning recovery action. See discussion below.
- Reference to the evaluation of additional risk associated with the use of recovery actions. See section discussion below.

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Figure B-4 depicts this general process for determining whether a transitioning operator manual action to NFPA 805 recovery action requires a change evaluation.

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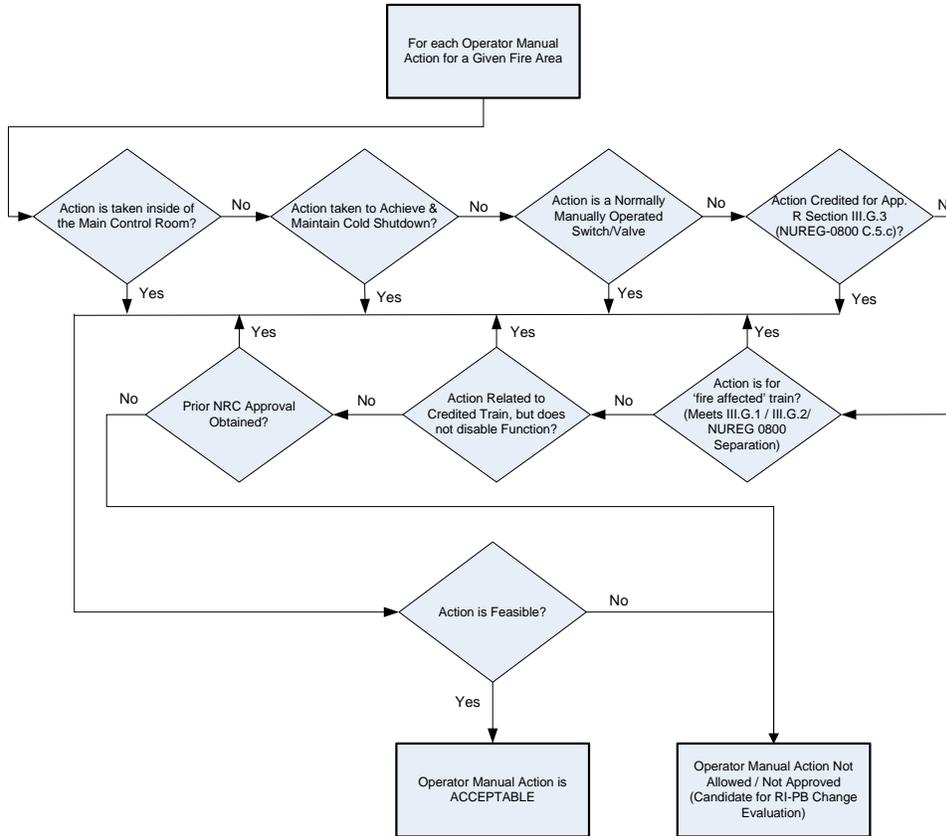


Figure B-4 General Process to Transition Operator Manual Actions

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**Determining If a Transitioning Operator Manual Action requires a Change Evaluation**

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Operator manual actions that are allowed and/or have been previously reviewed and approved by the NRC (as documented in an approved exemption/deviation/safety evaluation report) can be transitioned without the need to use the change evaluation process. Examples of allowed operator manual actions include:

- Operator manual operation from the control room or emergency control station(s)
- Repairs or operator manual actions credited either for transitioning to or maintaining cold shutdown equipment
- Manual operation of normally operated manual switches and valves where separation/protection is provided for redundant safe-shutdown trains in accordance

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**Attachment to FAQ 06-0012 Revision 3**  
**Excerpt from NEI 04-02 Revision 1 with Changes Tracked**

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with Section III.G.1 or III.G.2 of 10 CFR 50, Appendix R (or applicable sections of NUREG-0800)

NRC Letter to NEI dated May 16, 2002 states: “With proper analysis, manual actions are allowed for fire safe shutdown activities under the following circumstances:

- manual operation of normally operated manual switches and valves”
- Operator manual actions credited for compliance with Section III.G.3 of 10 CFR 50, Appendix R (or Section C.5.c of NUREG-0800).

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NRC Letter to NEI dated May 16, 2002 states: “With proper analysis, manual actions are allowed for fire safe shutdown activities under the following circumstances:

- manual operation of equipment used to meet the requirements of Section III.G.3 for Alternative or Dedicated Shutdown of Appendix R to 10 CFR Part 50, where meeting performance criteria of Section III.L is required”

RIS 2006-10 states: “Paragraph III.G.2 allows the licensee to use the alternative shutdown method described in paragraph III.G.3 of Appendix R if the licensee cannot meet the requirements of paragraph III.G.2.”

- Operation of fire affected equipment for fire areas that meet the separation requirements of Section III.G.1 of 10 CFR 50, Appendix R (or applicable sections of NUREG-0800). See Figure B-5.

NRC Letter to NEI dated May 16, 2002 states: “With proper analysis, manual actions are allowed for fire safe shutdown activities under the following circumstances:

- operation of equipment for which cables are located in fire areas that meet Section III.G.1 of Appendix R to 10 CFR Part 50, by having redundant cables and equipment in a completely different fire area”
- Operation of fire affected equipment for fire areas that meet the protection requirements of Section III.G.2 of 10 CFR 50, Appendix R (or applicable sections of NUREG-0800) for redundant trains. See Figure B-6.

RIS 2006-10 states: “As discussed during a March 1, 2006, public meeting, if one of the redundant trains in the same fire area is free of fire damage by one of the specified means in paragraph III.G.2, then the use of operator manual actions, or other means necessary, to mitigate fire-induced operation or maloperation to the second train may be considered in accordance with the licensee’s fire protection program and license condition since paragraph III.G.2 has been satisfied.”

Deleted: <#>The operator manual action is currently credited in the Alternate Shutdown Procedure. Although this manual action was NOT specifically mentioned in the SER, the licensee submittal specifically discussed the operator action. This can be considered previously approved¶  
<#>The operator manual action is currently credited in Non-Alternate Shutdown Procedure. The manual action was specifically discussed as acceptable in the SER however the NRC did not grant an exemption/deviation. This can be considered previously approved.¶  
<#>Operation of equipment for which cables and equipment for the redundant safe shutdown train are located in separate fire areas thus meeting Section III.G.1 of Appendix R to 10 CFR Part 50,¶  
<#>Manual operation of normally operated manual switches and valves where III.G.1 separation is provided for redundant safe-shutdown trains¶

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- Operator manual actions to address spurious actuations that affect the credited safe shutdown success path are allowed, as long as the spurious actuation is not directly in the protected train of the credited function (e.g., the main flowpath, as opposed to a diversionary flowpath) and the credited function does not become disabled during the time it takes to perform the operator manual action. See Figures B-7 and B-8.

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**Attachment to FAQ 06-0012 Revision 3**  
**Excerpt from NEI 04-02 Revision 1 with Changes Tracked**

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During the June 9, 2006 public meeting the following example was specifically discussed: *Two redundant trains taking suction from a common tank. Provided the manual action can be accomplished prior to the tank volume going below the minimum required volume to support the credited function the action would be allowed and therefore not require a change evaluation. (Figure B-7)*

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A second example is the credited function is to inject water to the Steam Generator (reactor) and a spurious actuation causes a diversion from the credited flow path. Provided the minimum required injection flow can be maintained and the operator action can be accomplished prior to the function being disabled. (Figure B-8)

In addition to allowed operator manual actions some manual actions may have been previously reviewed and approved by the NRC (as documented in an approved exemptions/deviations/safety evaluation reports) and can also be transitioned without the need to use the change evaluation process. Guidance for determining previous approval is discussed in Section 2.3.1 and 4.3.2 of this document and in Regulatory Guide 1.205.

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In some instances the NRC may have reviewed and approved an operator manual action in an SER without granting an exemption/deviation request. In these cases, change evaluations would not be required based on the following guidance:

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- RIS 2006-10 states: “For pre-1979 licensees, a staff decision in a safety evaluation report (SER) that approves the use of operator manual actions, in lieu of one of the means specified in paragraph III.G.2, does not eliminate the need for an exemption. Pre-1979 licensees who have SERs, but not a corresponding exemption, which approve manual actions should request an exemption under 10 CFR Part 50.12, citing the special circumstances of section 50.12(a)(2)(ii), citing the SER as the safety basis, and confirming that the safety basis established in the SER remains valid. The staff expects to grant the exemption on these bases without further review.”

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During the transition, for pre-1979 licensees who have SERs, but not a corresponding exemption, which approves operator manual actions, should verify that the basis for acceptability in the SER is still valid. If the basis for acceptability is still valid, then no change evaluation is required.

¶ Operator manual actions that have been previously reviewed and approved by the NRC (as documented in an approved SER) can be transitioned without the need to use the change evaluation process. However, licensees may consider use of the change evaluation process for previously reviewed and approved operator manual actions so that the evaluation is consistent with operator manual actions not previously reviewed and approved by the NRC.¶

- RIS 2006-10 states: “Since plants licensed to operate on or after January 1, 1979 (post-1979 licensees), are not required to meet the requirements of paragraph III.G.2, a staff decision in an SER that approves the use of manual operator actions does not require exemption under 10 CFR 50.12. Post-1979 licensees may be requested to demonstrate, as part of the NRC Reactor Oversight Process, that the use of an operator manual action would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire consistent with their license.”

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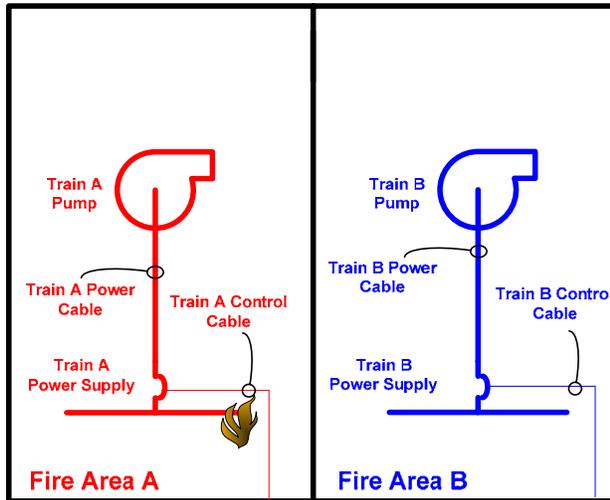
Operator manual actions that are not allowed or have not been previously reviewed and approved by the NRC should be addressed for acceptability using the change evaluation process outlined in Chapter 5.3 of this guidance. Examples of operator manual actions that are not allowed are provided in summary of the June 9, 2006 Public Meeting (ML061950327, ML061980016)

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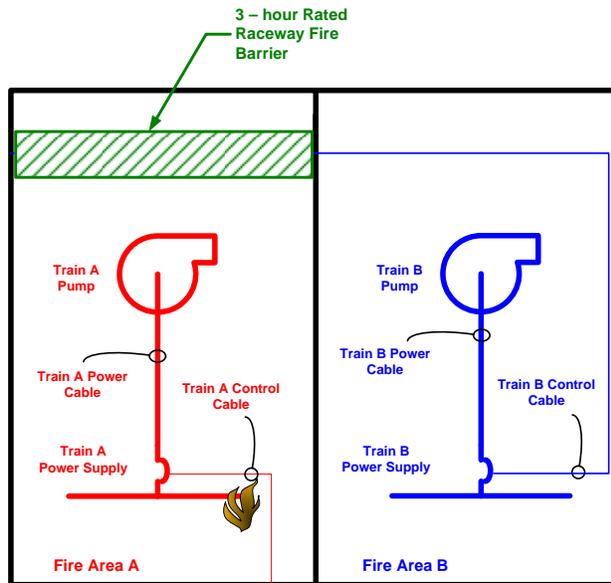


Fire Area A and B meet the separation criteria of 10 CFR 50 Appendix R Section III.G.1. A postulated fire in Fire Area A could result in the spurious starting of the Train A pump, which can be mitigated by an operator manual action to de-energize the Train A Power Supply to stop Pump A.

Figure B-5 Allowed Operator Manual Action in Fire Area Meeting 10 CFR 50, Appendix R, Section III.G.1 Separation Criteria

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Fire Area B meets the separation criteria of 10 CFR 50 Appendix R Section III.G.2.a. A postulated fire in Fire Area A could result in the spurious starting of the non-credited Train A pump, which can be mitigated by an operator manual action to de-energize the Train A Power Supply to stop Pump A. This is functionally equivalent to Case in Figure B-5.

Figure B-6 Allowed Operator Manual Action in Fire Area Meeting 10 CFR 50, Appendix R, Section III.G.2 Compliant – Operator Manual Action for Fire Affected Train

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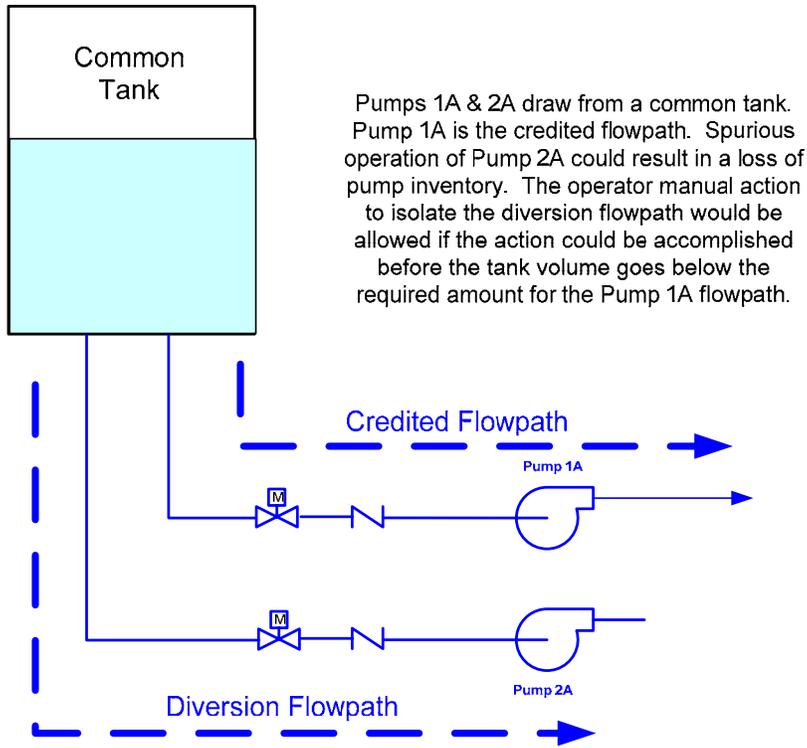


Figure B-7. Allowed Operator Manual Action – In Credited Success Path – Common Tank Suction

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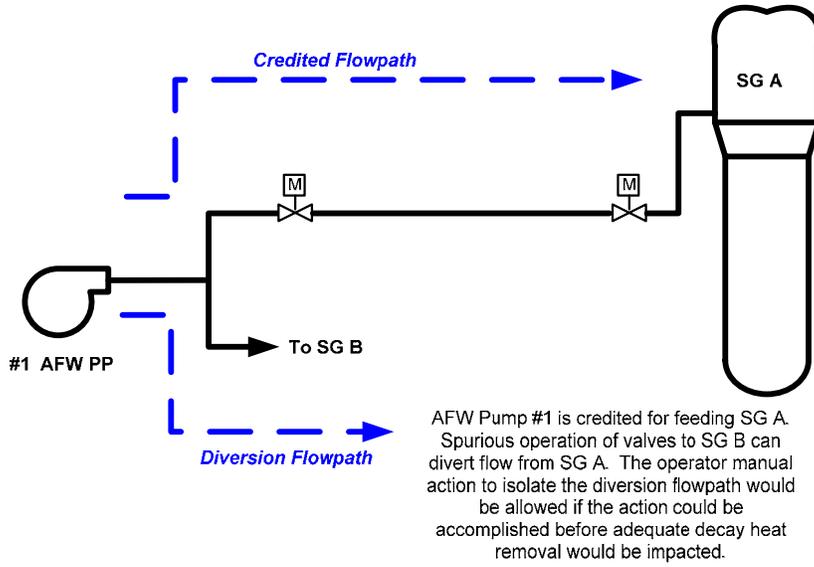


Figure B-8, Allowed Operator Manual Action – In Credited Success Path – Auxiliary Feedwater Flow Diversion

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## Attachment 2

**FAQ Number**    06-0012 Revision 3

**FAQ Title**        Determining Manual Actions that Require a Change Evaluation during Transition

Plant:    Harris Nuclear Plant

Date:    03/22/2007

Contact:    Elizabeth Kleinsorg

Phone:    704.651.5548

Email:    ekleinsorg@haifire.com

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**Purpose of FAQ:**

Operator manual actions that are either not allowed under the current regulatory framework or for which there is no previous NRC approval are not compliant with current regulations. The acceptability of the continued use of the actions that are not compliant will be evaluated using the change process. The purpose of this FAQ is to clarify the operator manual actions that will require change evaluations during the transition to NFPA 805.

---

**Is this Interpretation of guidance?**     Yes / No

**Proposed new guidance not in NEI 04-02?**  Yes / No

---

**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

Section B.2.2.4 Recovery Actions

**Circumstances requiring guidance interpretation or new guidance:**

Operator manual actions that are currently credited in Appendix R (NUREG 0800) analyses may be allowed under the current regulation/guidance or may have been approved via an exemption/deviation. These operator manual actions do not require a change evaluation during the transition process.

Subsequent to the submittal of FAQ 06-0001, the following documents were issued by the NRC:

- 2006-05-26 - Public Meeting Notice 20060609 on Manual Action Clarifications ML061390156
- 2006-05-26 - Draft NRC Response to 05-03-06 NEI letter - ML061440251
- 2006-05-26 - Draft NRC Response to 03-29-06 EPM letter - ML061440237

**FAQ Number** 06-0012 Revision 3

---

**FAQ Title** Determining Manual Actions that Require a Change Evaluation during Transition

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- 2006-06-30 - RIS 2006-10 Regulatory Expectations With Appendix R Paragraph III.G.2 Operator Manual Actions – ML061650389
- 2006-07-19 - NRC Meeting Summary of 06-09-06 OMA Meeting ML061950327
- 2006-07-19 - NRC Revision to Draft Response to EPM March 2006 letter - ML061980016
- 2006-07-19 - NRC Revision to Draft Response to NEI May 2006 letter - ML061980035

In addition the NRC letter to NEI, Use of Manual Actions to Achieve Safe Shutdown for Fire Events, dated 2002-05-16 (ML021410026) provides information not captured in the correspondence above.

These documents provide additional clarification with respect to the acceptability of existing operator manual actions.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

None.

**Potentially relevant existing FAQ numbers:**

This FAQ supersedes FAQ 06-0001.

---

**Response Section:**

**Proposed resolution of FAQ and the basis for the proposal:**

The following information will be used as input for a revision to NEI 04-02:

- Allowed Operator Manual Actions  
*“With proper analysis, manual actions are allowed for fire safe shutdown activities under the following circumstances:*
  - *operation of equipment for which cables are located in fire areas that meet Section III.G.1 of Appendix R to 10 CFR Part 50, by having redundant cables and equipment in a completely different fire area*
  - *manual operation of normally operated manual switches and valves*
  - *staff-approved deviations and exemptions for specific manual actions in lieu of meeting the criteria of Section III.G.2 of Appendix R to 10 CFR Part 50*
  - *manual operation of equipment used to meet the requirements of Section III.G.3 for Alternative or Dedicated Shutdown of Appendix R to 10 CFR Part 50, where meeting performance criteria of Section III.L is required”*

FAQ Title Determining Manual Actions that Require a Change Evaluation during Transition

---

(NRC Letter to NEI dated May 16, 2002, Use of Manual Actions to Achieve Safe Shutdown for Fire Events)

- Operator Manual Actions on 'Fire Affected Train'.  
*"As discussed during a March 1, 2006, public meeting, if one of the redundant trains in the same fire area is free of fire damage by one of the specified means in paragraph III.G.2, then the use of operator manual actions, or other means necessary, to mitigate fire-induced operation or maloperation to the second train may be considered in accordance with the licensee's fire protection program and license condition since paragraph III.G.2 has been satisfied."*(RIS 2006-10)

Additional clarification was provided at the June 9, 2006 Public Meeting and was summarized in a subsequent NRC Internal Memorandum (July, 19, 2006 ML061950327, ML061980016)

- Conversion of Compliance Strategy from III.G.2 to III.G.3.  
*"Paragraph III.G.2 allows the licensee to use the alternative shutdown method described in paragraph III.G.3 of Appendix R if the licensee cannot meet the requirements of paragraph III.G.2."*(RIS 2006-10)
- Exemptions from Paragraph III.G.2 for Plants Licensed to Operate Before January 1, 1979  
*"The regulations in 10 CFR Part 50.48(b) impose the requirements of paragraph III.G.2 of Appendix R on plants licensed to operate before January 1, 1979 (pre-1979 licensees). As originally issued, 10 CFR 50.48, "Fire Protection," allowed licensees to request an exemption from compliance with one or more of the provisions of Appendix R if the licensee justified the exemption on the basis that the required modifications would not enhance fire protection safety in the facility or that the modifications might be detrimental to overall facility safety.*

*The staff's current basis for approving an exemption is provided in 10 CFR 50.12 "Specific Exemptions." In order for the NRC to approve such an exemption request, a licensee would have to identify all relevant credited operator manual actions by fire area or fire scenario.*

*The NRC has reviewed and granted exemption requests for the use of operator manual actions in lieu of the separation criteria of paragraph III.G.2 where the exemption criteria were met. These exemptions are specific to the licensee and the situation discussed in the exemption. Exemptions granted for specific conditions cannot be applied under other conditions. Although the rationale for an exemption may appear to be applicable to a similar situation for a second licensee, the staff cautions that NRC review and approval by issuance of an exemption would be necessary for the second licensee.*

*The appropriate regulatory vehicle (in the absence of a rulemaking or plant-specific Order) to provide dispensation from compliance with fire protection requirements is the issuance of an exemption under 10 CFR Part 50.12. Inspection reports, meeting minutes, and letters from licensees are examples of documents that do not provide dispensation from compliance with applicable fire protection requirements.*

*For pre-1979 licensees, a staff decision in a safety evaluation report (SER) that approves the use of operator manual actions, in lieu of one of the means specified in paragraph III.G.2, does not eliminate the need for an exemption. Pre-1979 licensees who have SERs, but not a corresponding exemption, which approve manual actions should request an exemption under 10 CFR Part 50.12, citing the special circumstances of section 50.12(a)(2)(ii), citing the SER as the safety basis, and confirming that the safety basis established in the SER remains valid. The staff expects to grant the exemption on these bases without further review. (RIS 2006-10)*

- Plants Licensed to Operate After January 1, 1979

*“Since plants licensed to operate on or after January 1, 1979 (post-1979 licensees), are not required to meet the requirements of paragraph III.G.2, a staff decision in an SER that approves the use of manual operator actions does not require exemption under 10 CFR 50.12. Post-1979 licensees may be requested to demonstrate, as part of the NRC Reactor Oversight Process, that the use of an operator manual action would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire consistent with their license.” (RIS 2006-10)*

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

Revise NEI 04-02 as shown in the attachment.

**Attachment to FAQ 06-0012 Revision 3  
Excerpt from NEI 04-02 Revision 1 with Changes Tracked**

[Fifth paragraph on page 29 of NEI 04-02 Revision 1]

**4.3.2 Nuclear Safety Performance Criteria Transition Review**

...

Operator manual actions being transitioned to recovery actions that are not allowed under the current regulatory framework or do not have previous NRC approval should be evaluated using the change process. See Appendix B-2 of this document for additional guidance.

**Attachment to FAQ 06-0012 Revision 3  
Excerpt from NEI 04-02 Revision 1 with Changes Tracked**

***B.2.2.4 Recovery Actions***

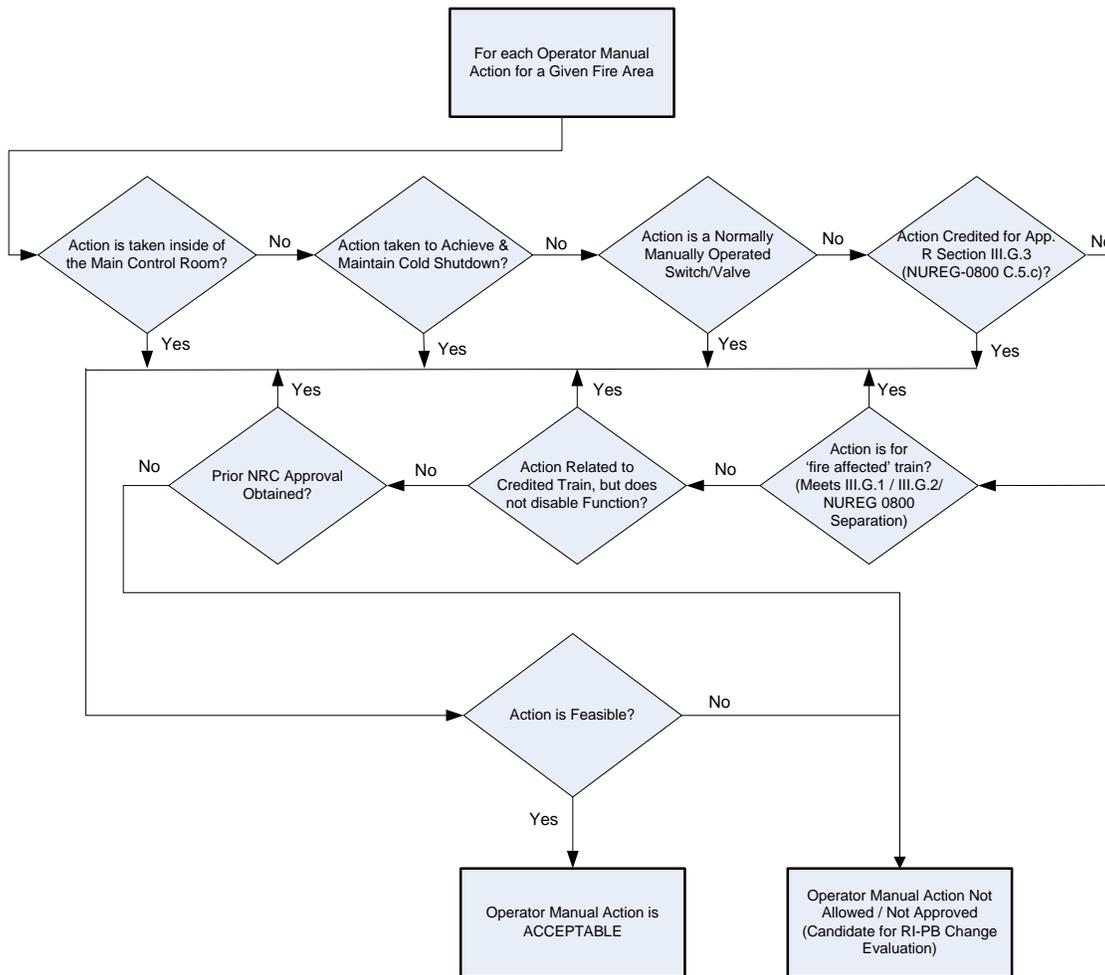
Operator manual actions will be transitioned as “recovery actions” in the new NFPA 805 licensing bases. Repairs will also be transitioned as “recovery actions”.

The following information for operator manual actions should be included in the fire area summaries (and referenced as appropriate in Table B-3 Fire Area Assessment Worksheet):

- Whether the transitioning recovery action is allowed or was previously reviewed and approved by the NRC’s Office of Nuclear Reactor Regulation (NRR). Include reference to documentation that demonstrates prior review and approval by the NRC.
- Reference to the feasibility evaluation of the transitioning recovery action. See discussion below.
- Reference to the evaluation of additional risk associated with the use of recovery actions. See section discussion below.

Figure B-4 depicts this general process for determining whether a transitioning operator manual action to NFPA 805 recovery action requires a change evaluation.

**Attachment to FAQ 06-0012 Revision 3  
Excerpt from NEI 04-02 Revision 1 with Changes Tracked**



**Figure B-4 General Process to Transition Operator Manual Actions**

***Determining If a Transitioning Operator Manual Action requires a Change Evaluation***

Operator manual actions that are allowed and/or have been previously reviewed and approved by the NRC (as documented in an approved exemption/deviation/safety evaluation report) can be transitioned without the need to use the change evaluation process. Examples of allowed operator manual actions include:

- Operator manual operation from the control room or emergency control station(s)
- Repairs or operator manual actions credited either for transitioning to or maintaining cold shutdown equipment
- Manual operation of normally operated manual switches and valves where separation/protection is provided for redundant safe-shutdown trains in accordance

**Attachment to FAQ 06-0012 Revision 3**  
**Excerpt from NEI 04-02 Revision 1 with Changes Tracked**

with Section III.G.1 or III.G.2 of 10 CFR 50, Appendix R (or applicable sections of NUREG-0800)

NRC Letter to NEI dated May 16, 2002 states: *“With proper analysis, manual actions are allowed for fire safe shutdown activities under the following circumstances:*

- *manual operation of normally operated manual switches and valves”*
- Operator manual actions credited for compliance with Section III.G.3 of 10 CFR 50, Appendix R (or Section C.5.c of NUREG-0800).

NRC Letter to NEI dated May 16, 2002 states: *“With proper analysis, manual actions are allowed for fire safe shutdown activities under the following circumstances:*

- *manual operation of equipment used to meet the requirements of Section III.G.3 for Alternative or Dedicated Shutdown of Appendix R to 10 CFR Part 50, where meeting performance criteria of Section III.L is required”*

RIS 2006-10 states: *“Paragraph III.G.2 allows the licensee to use the alternative shutdown method described in paragraph III.G.3 of Appendix R if the licensee cannot meet the requirements of paragraph III.G.2.”*

- Operation of fire affected equipment for fire areas that meet the separation requirements of Section III.G.1 of 10 CFR 50, Appendix R (or applicable sections of NUREG-0800). See Figure B-5.

NRC Letter to NEI dated May 16, 2002 states: *“With proper analysis, manual actions are allowed for fire safe shutdown activities under the following circumstances:*

- *operation of equipment for which cables are located in fire areas that meet Section III.G.1 of Appendix R to 10 CFR Part 50, by having redundant cables and equipment in a completely different fire area”*
- Operation of fire affected equipment for fire areas that meet the protection requirements of Section III.G.2 of 10 CFR 50, Appendix R (or applicable sections of NUREG-0800) for redundant trains. See Figure B-6.

RIS 2006-10 states: *“As discussed during a March 1, 2006, public meeting, if one of the redundant trains in the same fire area is free of fire damage by one of the specified means in paragraph III.G.2, then the use of operator manual actions, or other means necessary, to mitigate fire-induced operation or maloperation to the second train may be considered in accordance with the licensee’s fire protection program and license condition since paragraph III.G.2 has been satisfied.”*

- Operator manual actions to address spurious actuations that affect the credited safe shutdown success path are allowed, as long as the spurious actuation is not directly in the protected train of the credited function (e.g., the main flowpath, as opposed to a diversionary flowpath) and the credited function does not become disabled during the time it takes to perform the operator manual action. See Figures B-7 and B-8

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During the June 9, 2006 public meeting the following example was specifically discussed: *Two redundant trains taking suction from a common tank. Provided the manual action can be accomplished prior to the tank volume going below the minimum required volume to support the credited function the action would be allowed and therefore not require a change evaluation.* (Figure B-7)

A second example is the credited function is to inject water to the Steam Generator (reactor) and a spurious actuation causes a diversion from the credited flow path. Provided the minimum required injection flow can be maintained and the operator action can be accomplished prior to the function being disabled. (Figure B-8)

In addition to allowed operator manual actions some manual actions may have been previously reviewed and approved by the NRC (as documented in an approved exemptions/deviations/safety evaluation reports) and can also be transitioned without the need to use the change evaluation process. Guidance for determining previous approval is discussed in Section 2.3.1 and 4.3.2 of this document and in Regulatory Guide 1.205.

In some instances the NRC may have reviewed and approved an operator manual action in an SER without granting an exemption/deviation request. In these cases, change evaluations would not be required based on the following guidance:

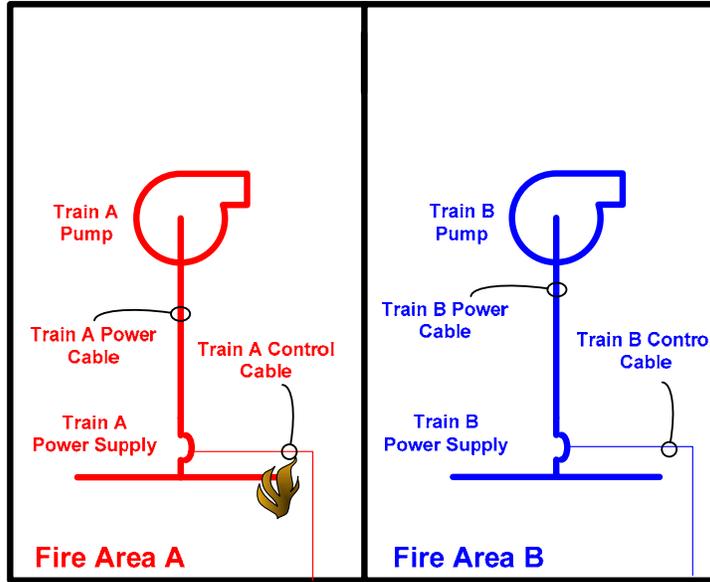
- RIS 2006-10 states: *“For pre-1979 licensees, a staff decision in a safety evaluation report (SER) that approves the use of operator manual actions, in lieu of one of the means specified in paragraph III.G.2, does not eliminate the need for an exemption. Pre-1979 licensees who have SERs, but not a corresponding exemption, which approve manual actions should request an exemption under 10 CFR Part 50.12, citing the special circumstances of section 50.12(a)(2)(ii), citing the SER as the safety basis, and confirming that the safety basis established in the SER remains valid. The staff expects to grant the exemption on these bases without further review.”*

During the transition, for pre-1979 licensees who have SERs, but not a corresponding exemption, which approves operator manual actions, should verify that the basis for acceptability in the SER is still valid. If the basis for acceptability is still valid, then no change evaluation is required.

- RIS 2006-10 states: *“Since plants licensed to operate on or after January 1, 1979 (post-1979 licensees), are not required to meet the requirements of paragraph III.G.2, a staff decision in an SER that approves the use of manual operator actions does not require exemption under 10 CFR 50.12. Post-1979 licensees may be requested to demonstrate, as part of the NRC Reactor Oversight Process, that the use of an operator manual action would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire consistent with their license.”*

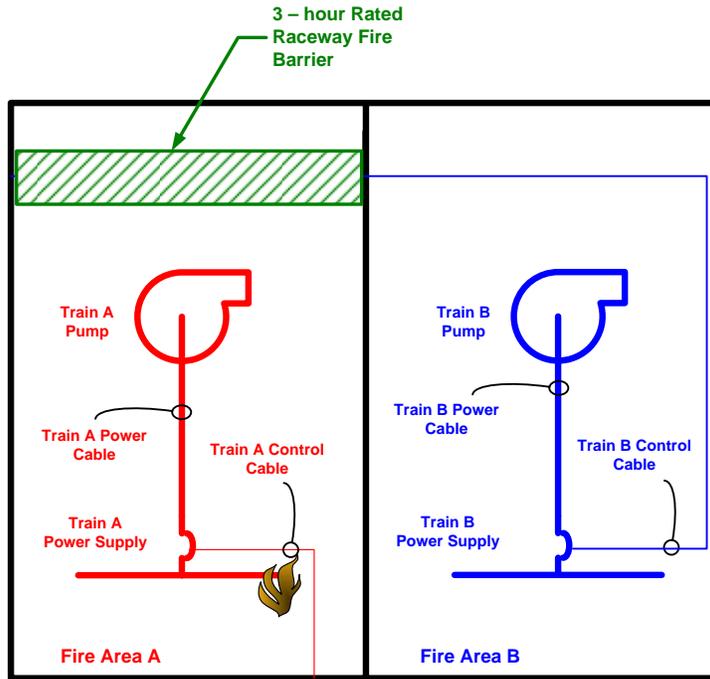
Operator manual actions that are not allowed or have not been previously reviewed and approved by the NRC should be addressed for acceptability using the change evaluation process outlined in Chapter 5.3 of this guidance. Examples of operator manual actions that are not allowed are provided in summary of the June 9, 2006 Public Meeting (ML061950327, ML061980016)

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Fire Area A and B meet the separation criteria of 10 CFR 50 Appendix R Section III.G.1. A postulated fire in Fire Area A could result in the spurious starting of the Train A pump, which can be mitigated by an operator manual action to de-energize the Train A Power Supply to stop Pump A.

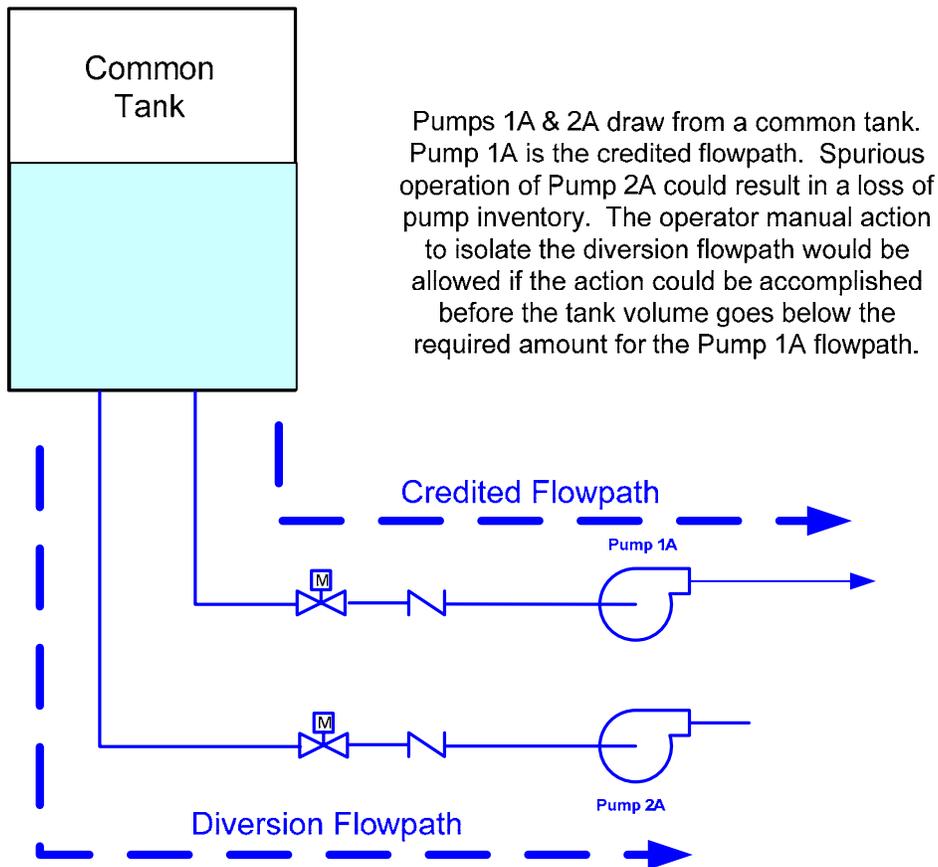
**Figure B-5 Allowed Operator Manual Action in Fire Area Meeting 10 CFR 50, Appendix R, Section III.G.1 Separation Criteria**



Fire Area B meets the separation criteria of 10 CFR 50 Appendix R Section III.G.2.a. A postulated fire in Fire Area A could result in the spurious starting of the non-credited Train A pump, which can be mitigated by an operator manual action to de-energize the Train A Power Supply to stop Pump A. This is functionally equivalent to Case in Figure B-5.

**Figure B-6 Allowed Operator Manual Action in Fire Area Meeting 10 CFR 50, Appendix R, Section III.G.2 Compliant – Operator Manual Action for Fire Affected Train**

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**Figure B-7 Allowed Operator Manual Action – In Credited Success Path – Common Tank Suction**

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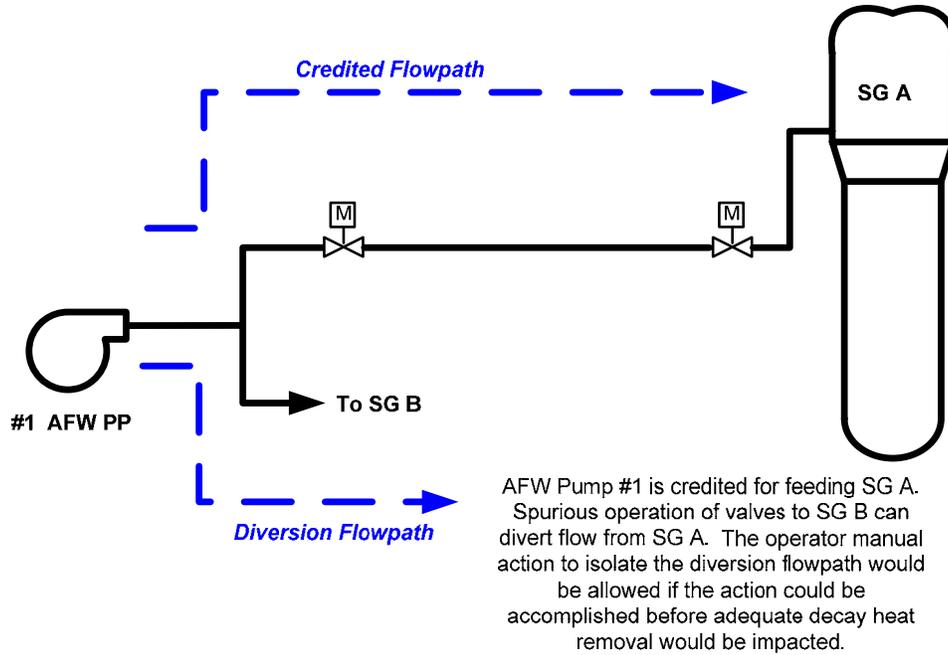


Figure B-8 Allowed Operator Manual Action – In Credited Success Path – Auxiliary Feedwater Flow Diversion

Brandon,

Unfortunately, we are having the same printer problem with this FAQ as we have all along, so I will ask you to please send the word versions of these files AND to mail hard copies of each to me (since I don't think we will be any more successful with the Word versions than we were the last time).

Thanks,

Chuck

Charles Moulton  
Fire Protection Engineer  
NRR/DRA/AFPB  
Phone: 415-2751  
Mailstop: O11A11

>>> "JAMAR, Brandon" <[btj@nei.org](mailto:btj@nei.org)> 5/17/2007 2:47 PM >>>  
Please find FAQ 12 R3 for submittal. Two versions are attached (changes shown/hidden). If you have any problems with this transmittal please let me know.

Thank you,

Brandon T. Jamar

Project Manager, Engineering

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Thanks,

Brandon T. Jamar

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Attachment 1

FAQ #	Revision		Name	Summary	Actions and Notes	Priority	Submitter		Reviewer	Status			Approval	
	Submitted	Working					Plant	Licensee Contact	NRC	NEI TF	NRC	Submittal Date	Tentative	Final
06-0001	0	0	Alternate method for Engineering Evaluations	Add in clarification that fire affected train manual actions are 'allowed' and therefore do not require evaluation.	NRC rejected the statements regarding SER approval without Exemptions  Tentatively approved.  Superceded by FAQ 06-0012.	Closed	Harris Nuclear Plant	Ertman		Submitted to NRC	Closed	4/25/2006	Closed ML06348016 9	Closed ML06348016 9
06-0002	1c	1c	NEI 04-02 Section 5.3.3 and App. I, Order of Questions for Change Analysis Screening	Change Figure 5-1, text, and Appendix I to ask the Chapter 4 questions before Chapter 3 questions.	NRC agreed in principle, however wanted wording clarified to "make clear the distinction between Chapter 3 requirements that are subject to Chapter 4 evaluations versus the Chapter 3 requirement that are independent of Chapter 4" added clarification to 'boxes' at end of Questions 1 and 2 in Change Analysis Form  NRC added 'included required recovery actions to text of 5.3.3 and added 'including Human actions' to Question 4.e of Change Analysis Form  Task Force agrees to first request. Task force is evaluating the addition of NRC rejected the statements regarding SER approval without Exemptions  Committed to revise based on RIS 2006-10 and NRC Public Meeting June 9, 2006. See RIS 2006-12 'human actions' to the risk screening questions. - tentatively approved - will resubmit 10/26/06	Closed	Harris Nuclear Plant	Ertman	Gallucci	Submitted to NRC	Closed	4/25/2006 10/26/2006	10/26/2006	Closed
06-0003	1b	1b	Change Analysis Screening	Change 'greater than minimal' to 'potentially greater than minimal'		Closed	Harris Nuclear Plant	Jeff Ertman	Gallucci	Submitted to NRC	Closed	4/25/2006 10/26/2006	10/26/2006	Closed
06-0004	0	1	Clarify NFPA 805 Chapter 4 and 3 relationship for 'required' FP systems/features	How fire protection systems and features transition is highly dependent on how they are 'required' to meet the nuclear safety criteria of Chapter 4.	Note NRC was using NEI 04-02 Revision 2H figures and not figures in FAQ 06-0004  NRC to re-review in appropriate context & provide status on 10/26/06  Received NRC comments 11/29/06. Resubmitted to NRC and returned with comments. Currently under TF review.	M	HNP	Jeff Ertman	Frumkin	TF to resubmit July 2007 in conjunction w/ B.3 tables	Comments provided on R0	5/12/2006		
06-0005	1	1	Guidance on FPP-related changes	NEI 04-02 does not provide guidance what should be considered a FPP-related change or not. Since failure to obtain NRC pre-approval for using risk reductions from a non-FPP related change would be contrary to the guidance in RG 1.205, additional guidance should be provided to clarify what is considered a FPP-related change once NFPA-805 is implemented.	FAQ has been revised.  Resubmit to NRC 11/30/06 - waiting for NRC response as of April 07	H	HNP	Ertman	Frumkin	TF waiting for NRC comments	Plan to comment	8/24/2006 11/30/2006		

06-0006	2	2	High-low pressure interface definition and NEI 00-01/NFPA 805 discrepancies	Definition of High-Low Pressure interface is not consistent between NFPA 805 and NEI 00-01. Need to provide clarification.	Received NRC comments on R1, R2 Resubmit 12/19/06 - Definition change per NRC request. Closure process has begun. Draft closure letter was commented on by TF. NRC accepted TF clarification.	M	Duke	Barrett	Dinh		Draft closure letter issued	8/24/2006 12/19/2006	1/18/2007	
06-0007	2	2	NFPA 805 Chapter 3 Requirements for Fire Brigades	Need clarification on when NFPA 600 or NFPA 1500 apply. Also clarify if requirements apply to interior structural fire fighting brigade.	FAQ to be revised to mark up NEI 04-02 to show the addition of an appendix for NFPA 805 clarifications. NRC R2 comments by May 07	M	HNP	Holder	Lain	R3 planned	Comments provided on R2	2/15/2007		
06-0008	5	5	Alternate method for Engineering Evaluations	Many Generic Letter 86-10 evaluations exist at facilities today. Transition of these existing evaluations is essential for the success of the Pilot Plants. In addition the use of engineering evaluations for Chapter 3 issues post transition needs to be clarified.	Presented 9/28/06  Comments received from NRC on 11/29/06. Clarification call scheduled. Resubmit to NRC by 02/07 R4a comments received and will incorporate NRC recommendations. R5 by early May.	H1	NEI	Ratchford	Frumkin	R6 planned	Comments provided on R5	2/15/2007 3/20/2007 3/30/2007 5/8/2007		
06-0009			NEI 04-02 Typo Corrections	Editorial changes to NEI 04-02	Projected submittal 2Q/07	L	NEI	Kleinsorg						
06-0010			Incorporate Regulatory Guide 1.205 Baseline concept into NEI 04-02	Based on changes to Regulatory Guide 1.205, NEI 04-02 needs to reflect the baseline risk	Projected submittal 3Q 2007	L	HNP	Ertman						
06-0011	1b	1b	Clarify III.G.3 Compliance Transition	Alternative Shutdown is not specifically addressed in NFPA 805.	Approved by Task Force Reviewers. Submitted to NRC 9/28/06. Under NRC review.  Comments received from NRC on 11/29/06. Need time for TF review. Rewrite w/consideration for NRC comment #2 - Resubmit Feb. '07. Possible closure by May	H	NEI	Jutras	Frumkin	TF waiting for NRC comments on R1b	Comments provided on R0	2/15/2007		
06-0012	3	3	Clarify Manual Action Transition in Appendix B	Some manual actions are either allowed by the current regulation or have been	Submitted to NRC 9/28/06. Resubmit 10/26/06 as combined with FAQ 06-0001  Comments received from NRC on 11/30/06. With TF for review. Revision by May '07. NRC comments on R2b warrant R3. Will have by May 07	H	NEI	Kleinsorg	Barbadaro	R3 submitted to NRC	Comments provided on R2b	9/28/2006 10/26/2006 3/22/07 5/17/07		
06-0013			Clarify Chapter 4 Methodology Transition Process Bases on Pilot Plant Results		Will be presented at 2006 HNP Pilot meeting. Duke to submit end of Second Quarter 2007	L	HNP	Ertman						
06-0014		0	Cumulative Risk	Regulatory Guide 1.205 requires tracking of changes to assess cumulative risk. NEI 04-02 does not provide guidance on this issue	With FPRA TF for comment - 12/14/06 FAQ by 4Q 2007	L	HNP	Miskiewicz		FPRA TF has action				

06-0015		0	Guidance on not-red determination	Process for determining if non-compliances found during the transition process are 'not red' needs to be simplified.	Sent to Task Force for review 11/30/06 With FPRA TF for review- 12/14/06 Ken Heffner to provide regulatory input to this FAQ by 12/14/06 Amir Afzali to provide PRA screening criteria for 'not red' determination by 12/14/06 Provide FAQ by 2nd week in June 2007	L	NEI	Afzali		FPRA TF has action				
06-0016	1	1	Ignition Source counting guidance for Electrical Cabinets	Clarification/enhancement of Ignition Source counting guidance for Electrical Cabinets in NUREG/CR-6850, supporting NFPA-805 Fire PRA application.	Presented at November 2006 pilot meeting Submitted to Task Force 11/30/06. Comments from Task Force to initiator by 12/14/06 Submitted to NRC 12/19/06 Preliminary verbal comments provided by NRC. Potential disagreement on the examples provided in the FAQ were discussed by Ray Gallucci of the NRC. Kiang Zee provided feedback that the examples were intended to be taken collectively and were intended to be drawn to scale.	H	HNP	Miskiewicz	Gallucci	Submitted R1 to NRC	R1 accepted. Closed	12/19/2006		
06-0017	1	1	Ignition Source counting guidance for High Energy Arcing Faults (HEAF)	Clarification/enhancement of Ignition Source counting guidance for High Energy Arcing Faults (HEAF) in NUREG/CR-6850, supporting NFPA-805 Fire PRA application.	Presented at November 2006 pilot meeting Submitted to Task Force 11/30/06. Comments from Task Force to initiator by 12/14/06 Submitted to NRC 12/19/06 Preliminary verbal comments provided by NRC. Preliminary comments indicated a recommending splitting of HEAFs into a low voltage and high voltage bins. In addition, a new frequency is being considered for bus ducts.	H	HNP	Miskiewicz	Gallucci	FAQ split into two items and resubmitted as R1 - R2 planned	Comments provided on R1	12/19/2006 05/15/2007		
06-0018	1	1	Ignition Source counting guidance for Main Control Board (MCB)	Clarification/enhancement of Ignition Source counting guidance for Main Control Board (MCB) in NUREG/CR-6850, supporting NFPA-805 Fire PRA application	Presented at November 2006 pilot meeting Submitted to Task Force 11/30/06. Comments from Task Force to initiator by 12/14/06 Submitted to NRC 12/19/06 Preliminary verbal comments provided by NRC. Preliminary comments indicated more focus on counting just "horseshoe" cabinets as MCBs.	H	HNP	Miskiewicz	Gallucci	Submitted R1 to NRC	R1 accepted. Closed	12/19/2006		
06-0019	1	1	Define "power block" and "plant"	Define where used in Chapter 3, "power block" and "plant" are intended to mean "areas in which a fire could jeopardize the ability to meet the performance criteria described in section 1.5."  3.3.1.2 Control of Combustible Materials (1)Wood used within the power block shall be listed pressure-impregnated or coated with a listed fire-retardant application. Exception: Cribbing timbers 6 in. by 6 in. (15.2 cm by 15.2 cm) or larger shall not be required to be fire-retardant treated.	Presented to Task Force 11/30/06 Comments from Task Force to initiator by 12/14/06 Submitted to NRC 12/19/06 Comments to be provided by NRC prior to Feb. 2007 meeting. TF will submit new revision by May 2007	H	HNP	Holder	Dinh	R1 submitted to NRC	Comments provided on R0	12/19/2006 5/8/2007		

06-0020	1	1	Definition of "applicable"	(6) Controls on use and storage of flammable gases shall be in accordance with applicable NFPA standards.	Presented to Task Force 11/30/06 CLOSED 5/17/07	H	HNP	Holder	Dinh	R1 submitted to NRC	Comments provided on R0	12/19/2006 5/8/2007		
06-0021	1a	1a	Clarify that air drops are acceptable.	3.3.5.2 - Only metal tray and metal conduits shall be used for electrical raceways. Thin wall metallic tubing shall not be used for power, instrumentation, or control cables. Flexible metallic conduits shall only be used in short lengths to connect components.  HNP as well as other plants have exposed cable drops ~ 3' in length.	Presented to Task Force 11/30/06 CLOSED 5/17/07	LL	HNP	Holder	Dinh	R1 submitted to NRC	Comments provided on R0	12/19/2006 5/8/2007		
06-0022	0	0a	Identify a list of typical flame propagation tests which are considered acceptable.	3.3.5.3 - Electric cable construction shall comply with a flame propagation test as acceptable to the AHJ.	Presented to Task Force 11/30/06 Comments from Task Force to initiator by 12/14/06 Submitted to NRC 12/19/06 Preliminary verbal comments provided by NRC. Additional info on applicability of test requested by NRC.	M	ANO	Puckett	Moulton	TF waiting for NRC comments	Plan to comment	12/19/2006		
06-0023	0	0	Grant exception for Diesel Generator Day Tanks located within Diesel Generator Buildings.	3.3.8 Bulk Storage of Flammable and Combustible Liquids - Bulk storage of flammable and combustible liquids shall not be permitted inside structures containing systems, equipment, or components important to nuclear safety. As a minimum, storage and use shall comply with NFPA 30, Flammable and Combustible Liquids Code.	Presented to Task Force 11/30/06  Submitted to NRC 12/19/06 NRC questioned if issue warranted a FAQ since it is part of plant systems WITHDRAWN 5/17/07	LL	HNP	Holder	Lain	WITHDRAWN 5/17/07	Proposed withdraw	12/19/2006		
06-0024	0	0	Define what "adequate clearance" is.	3.3.11 Electrical Equipment - Adequate clearance, free of combustible material, shall be maintained around energized electrical equipment.  Need to provide a clearer definition of 'adequate clearance'. Could be based on OSHA 3ft requirement.	Presented to Task Force 11/30/06  Submitted to NRC 12/19/06 Preliminary verbal comments provided by NRC.	M	HNP	Holder	Oudinot	TF reviewing NRC comments on R0	Comments provided on R0	12/19/2006		
06-0025	1b	1b	Define minimum acceptable pre-plan scope.	3.4 Industrial Fire Brigade - 3.4.2.1 - The plans shall detail the fire area configuration and fire hazards to be encountered in the fire area, along with any nuclear safety components and fire protection systems and features that are present.  Suggest define more clearly what the minimum acceptable pre-plan scope is. Consider use of existing guidance.	Presented to Task Force 11/30/06 R1b updated 4/19	M	HNP	Holder	Barbadaro	R1 submitted to NRC	Comments provided on R0	12/19/2006 5/8/2007		

06-0026	0	0	Clarify NFPA code requirements for gear maintenance	3.4.4 Fire-Fighting Equipment - Protective clothing, respiratory protective equipment, radiation monitoring equipment, personal dosimeters, and fire suppression equipment such as hoses, nozzles, fire extinguishers, and other needed equipment shall be provided for the industrial fire brigade. This equipment shall conform with the applicable NFPA standards.  Clarify that intent is for design and purchase of equipment. NFPA code requirements for gear maintenance is not applicable.	Presented to Task Force 11/30/06 Comments from Task Force to initiator by 12/14/06 Submitted to NRC 12/19/06 Preliminary verbal comments provided by NRC. WITHDRAWN 5/17/07	M	HNP	Holder	Oudinot	WITHDRAWN 5/17/07	Proposed withdraw	12/19/2006		
06-0027	0	0	Clarify the "where provided" statement.	3.7 Fire Extinguishers - Where provided, fire extinguishers of the appropriate number, size, and type shall be provided in accordance with NFPA 10, Standard for Portable Fire Extinguishers. Extinguishers shall be permitted to be positioned outside of fire areas due to radiological conditions.  Part of NFPA 10 is placement / travel distances for extinguishers. The 'where provided' statement needs clarification.	To TF by Feb 07 Not discussed on 1/18/07	M	ANO	Puckett		Submitted R0 to NRC		5/17/2007		
06-0028	1a	1a	Clarify intent of "familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms" regarding scope of or depth of the training.	3.3.1.1 General Fire Prevention Activities - (1) Training on fire safety information for all employees and contractors including, as a minimum, familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms  Clarify the intent of 'familiarization'.	Presented to Task Force 11/30/06 Comments from Task Force to initiator by 12/14/06 Submitted to NRC 12/19/06 Not discussed on 1/18/07	M	HNP	Alan Holder	Oudinot	R1 submitted to NRC	Comments provided on R0	12/19/2006 5/8/2007		
06-0029		0a	Clarify zone of influence for NUREG 6850 Task 8.	FDT spreadsheets are used to provide a zone of influence.	Submitted to the task force: 12/19/06 Discuss at January 24, 2007 FPRA meeting Not discussed on 1/18/07	L	HNP	Thompson						
07-0030			Risk of recovery actions	4.2.4 Clarification of risk impact of recovery actions	FAQ by 4Q 2007	M	HNP	Ertman						
07-0031	0	0	Misc Binning Issues	Miscellaneous ignition frequency binning issues. Questions arise during ignition frequency counting, such as: MOV motors, Hydraulic actuators for valves, Transformers	Draft to NEI TF for April 2007.	M	HNP	Miskiewicz		Submitted R0 to NRC		5/17/2007		

<b>07-0032</b>		<b>0</b>	10CFR 50.48(a) and GDC 3 clarification	Clarify that satisfying 10 cfr 50.48(c) will satisfy 10 CFR50.48(a) and GDC3	Draft to NEI TF for May 2007. FAQ submitted by June	M	HNP	Holder		TF reviewing				
<b>07-0033</b>			Review of Existing Engineering Equivalency Evaluations	Discuss how EEEE will be reviewed and summarized for transition	Draft to NEI TF for May 2007.	M	HNP	Holder		TF reviewing				
<b>07-0034</b>		<b>0</b>	Determination of non-vented Cabinets	Clarification of guidance for determining if an electrical cabinet can be dispositioned as non-vented	Draft to NEI TF for May 2007. FAQ submitted by June	M	HNP	Miskiewicz		TF reviewing				
<b>07-0035</b>			Bus Duct	Split from FAQ 06-0017 - Bus duct		M	HNP	Miskiewicz						

Please find the attached FAQs for submittal. These were revised based on last week's public meeting. Should you have any problems with this transmittal please contact me directly.

Thank you,

Brandon T. Jamar

Project Manager, Engineering

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**Subject:** NFPA 805 FAQs: 06-0007 Rev. 2; 06-0028 Rev. 2  
**Creation Date** 5/21/2007 3:19:39 PM  
**From:** "JAMAR, Brandon" <btj@nei.org>

**Created By:** btj@nei.org

**Recipients**

nrc.gov  
TWGWPO01.HQGWDO01  
CEM4 (Charles Moulton)

nrc.gov  
TWGWPO04.HQGWDO01  
SDW1 (Sunil Weerakkody)

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TWGWPO04.HQGWDO01

**Route**

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<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
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**Concealed Subject:** No  
**Security:** Standard

**Junk Mail Handling Evaluation Results**

Message is eligible for Junk Mail handling  
This message was not classified as Junk Mail

**Junk Mail settings when this message was delivered**

Junk Mail handling disabled by User  
Junk Mail handling disabled by Administrator  
Junk List is not enabled

Junk Mail using personal address books is not enabled  
Block List is not enabled

Attachment 1

FAQ Number 06-0007 FAQ Revision 2

FAQ Title NFPA 805 Section 3.4.1, Specific Clarification

Plant: Harris Date: May 21, 2007

Contact: Alan Holder Phone: 919.546.3372

Email: Alan.Holder@pgnmail.com

Distribution: *(NEI Internal Use)*

805 TF  FPWG  RATF  RIRWG  BWROG  PWROG

---

**Purpose of FAQ:**

The purpose of this FAQ is to clarify the applicable NFPA code for fire brigades and fire departments as may be used in association with NFPA 805.

---

Is this Interpretation of guidance?  Yes / No

Proposed new guidance not in NEI 04-02? Yes /  No

---

**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

NEI 04-02, Section 4.3.1, Fundamental Fire Protection Program and Design Elements Transition Review, appendices to list acceptable interpretations to the NFPA 805 standard (future).

**Circumstances requiring guidance interpretation or new guidance:**

Clarification of NFPA 805, Chapter 3 applicability requirements for fire brigades.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

NA

**Potentially relevant existing FAQ numbers:**

NA

---

**Response Section:****Proposed resolution of FAQ and the basis for the proposal:**

Clarification to questions as presented.

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

As follows;

**From NFPA-805, Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition)****3.4 Industrial Fire Brigade****3.4.1 On-Site Fire-Fighting Capability.** All of the following requirements shall apply.

- (a) A fully staffed, trained, and equipped fire-fighting force shall be available at all times to control and extinguish all fires on site. This force shall have a minimum complement of five persons on duty and shall conform with the following NFPA standards as applicable:
  - (1) NFPA 600, *Standard on Industrial Fire Brigades* (interior structural fire fighting)
  - (2) NFPA 1500, *Standard on Fire Department Occupational Safety and Health Programs*
  - (3) NFPA 1582, *Standard on Medical Requirements for Fire Fighters and Information for Fire Department Physicians*

**Clarification of NFPA 805, Chapter 3 specific sections as applied under NEI 04-02, will be included in (New) Appendix K, to NEI 04-02 upon approval of specific clarification. (final formatting to be provided by NEI contract writers). Appendix K will be prefaced with the following, which shall be applicable to all future specific clarifications unless specifically excluded.**

Appendix K, Specific Clarifications

While recognizing that Regulatory Guide 1.205, Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants, or NEI 04-02, Nuclear Energy Institute, Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c), does not provide interpretations to the standard NFPA 805, there are instances where implementation of the standard does require further specific clarification as to what is an acceptable method or process to the AHJ. These instances are collectively presented in this Appendix, and referenced to the

**FAQ Title NFPA 805 Section 3.4.1, Specific Clarification**

---

Frequently Asked Question (FAQ) in which they were originally presented during the pilot plant process and subsequent plant transitioning processes.

Specific clarification to NFPA section 3.4, from FAQ #06-0007:

The NFPA standards divide fire brigades into two types, based on organization and duties: “Industrial Fire Brigades” and “Industrial Fire Departments.” Practically, this means that a fire fighting organization at a nuclear power plant must comply with either NFPA 600 (for an Industrial Fire Brigade) or both NFPA 1500 and NFPA 1582 (for an Industrial Fire Department)

Reference in section 3.4.1(a)(1), to “(interior structural fire fighting)” indicates that for interior fire fighting, at a minimum, the licensee shall meet the requirements noted in NFPA 600, Chapter 5, *Industrial Fire Brigades That Perform Interior Structural Fire Fighting Only*. For exterior fire that could jeopardize the ability to meet the performance criteria described in NFPA 805, Section 1.5.1 the licensee shall be able to demonstrate their ability to control and extinguish those fires.

## Attachment 2

FAQ Number 06-0028 FAQ Revision 2

FAQ Title Training Definition and Content

Plant: Harris Nuclear Plant (HNP) Date: 05-21-07

Contact: Alan Holder Phone: 919-546-3372

Email: alan.holder@pgnmail.com

Distribution: *(NEI Internal Use)*

805 TF  FPWG  FPRATF

---

**Purpose of FAQ:**

Clarify expected content “familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms” regarding scope of or depth of the training.

---

**Is this Interpretation of guidance?** Yes / No

**Proposed new guidance not in NEI 04-02?** Yes / No

---

**Details:**

**NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):**

NEI 04-02, Section 4.3.1, Fundamental Fire Protection Program and Design Elements Transition Review, appendices to list acceptable interpretations to the NFPA 805 standard (future).

**Circumstances requiring guidance interpretation or new guidance:**

Clarification of NFPA-805, Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition), Chapter 3, Section 3.3.1.1 General Fire Prevention Activities, “(1) Training on fire safety information for all employees and contractors including, as a minimum, familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms.”

Specifically, clarify what is “familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms” regarding scope of or depth of the training.

**Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:**

NA

**Potentially relevant existing FAQ numbers:**FAQ 06-0007

---

**Response Section:****Proposed resolution of FAQ and the basis for the proposal:**

Clarify expected content “familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms” regarding scope and content the training. This FAQ asks for clarification of what is “familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms” regarding scope of or depth of the training.” Because existing employee general access and indoctrination training is a mature program, and based on NEI 03-04, Guide for Plant Access Training, section 7.5 Fire Protection, consistent information of sufficient detail, is provided at all sites by their General Employee Training (GET) Program. The proposed interpretation contains those key elements listed in the NEI guidance.

**If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:**

As follows;

Clarification NFPA 805 specific sections as may be applied under NEI 04-02, to be included in (New) Appendix K, to NEI 04-02 upon approval of specific clarification (final formatting to be provided by NEI contract writers).

Specific clarification for NFPA 805 section 3.3.1.1, from FAQ 06-0028;

Where used in section 3.3.1.1, the term, “familiarization with plant fire prevention procedures, fire reporting, and plant emergency alarms”, should be considered to be acceptable when it includes the minimum following training objectives;

- Location and use of plant fire prevention procedures.
- Individual responsibilities regarding fire barriers such as fire dampers, doors, and seals.
- Actions an individual is required to take upon discovery of a fire.
- Individual responsibilities regarding the control of transient combustibles (wood, solvents, oil) and the disposal of flammable and combustible materials.
- Examples of the types of hot work requiring a permit.
- Recognition of, and response to a station fire alarm.
- Other plant specific fire prevention activities.

This familiarization may be included as part of the plant’s General Employee Training (GET) program.

Note that I think that this is actually rev 3 for faq 7.

Chuck

Charles Moulton  
Fire Protection Engineer  
NRR/DRA/AFPB  
Phone: 415-2751  
Mailstop: O11A11

>>> "JAMAR, Brandon" <[btj@nei.org](mailto:btj@nei.org)> 5/21/2007 3:19 PM >>>  
Please find the attached FAQs for submittal. These were revised based on last week's public meeting. Should you have any problems with this transmittal please contact me directly.

Thank you,

Brandon T. Jamar  
Project Manager, Engineering

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**Subject:** Re: NFPA 805 FAQs: 06-0007 Rev. 2; 06-0028 Rev. 2  
**Creation Date** 5/21/2007 3:20:51 PM  
**From:** Charles Moulton

**Created By:** CEM4@nrc.gov

<b>Recipients</b>	<b>Action</b>	<b>Date &amp; Time</b>
nei.org 3:21:25 PM btj (Brandon JAMAR)	Transferred	5/21/2007

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		nei.org

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**Options**

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**Expiration Date:** None  
**Notify Recipients:** Yes  
**Priority:** Standard  
**ReplyRequested:** No  
**Return Notification:** None

**Concealed Subject:** No  
**Security:** Standard

**To Be Delivered:** Immediate  
**Status Tracking:** Delivered & Opened

You are correct - Revision 3 is the latest and should reflect this on the latest FAQ 06-0007 submittal.

-----Original Message-----

From: Charles Moulton [<mailto:CEM4@nrc.gov>]

Sent: Monday, May 21, 2007 3:21 PM

To: JAMAR, Brandon

Subject: Re: NFPA 805 FAQs: 06-0007 Rev. 2; 06-0028 Rev. 2

Note that I think that this is actually rev 3 for faq 7.

Chuck

Charles Moulton  
Fire Protection Engineer  
NRR/DRA/AFP  
Phone: 415-2751  
Mailstop: O11A11

>>> "JAMAR, Brandon" <[btj@nei.org](mailto:btj@nei.org)> 5/21/2007 3:19 PM >>>  
Please find the attached FAQs for submittal. These were revised based on last week's public meeting. Should you have any problems with this transmittal please contact me directly.

Thank you,

Brandon T. Jamar

Project Manager, Engineering

Nuclear Energy Institute

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**Creation Date** 5/21/2007 3:27:01 PM  
**From:** "JAMAR, Brandon" <btj@nei.org>

**Created By:** btj@nei.org

**Recipients**

nrc.gov  
TWGWPO01.HQGWDO01  
CEM4 (Charles Moulton)

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<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
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**Return Notification:** None

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**Junk Mail Handling Evaluation Results**

Message is eligible for Junk Mail handling  
This message was not classified as Junk Mail

**Junk Mail settings when this message was delivered**

Junk Mail handling disabled by User  
Junk Mail handling disabled by Administrator  
Junk List is not enabled  
Junk Mail using personal address books is not enabled  
Block List is not enabled

Alex/Jim:

I don't know who the prime contact now is for the FAQs from NEI (with Brandon gone), but please notify whomever that I would like the final revision to FAQ 17 on HEAFs in panels, SWGR and MCCs, as per our handout from the last meeting (with any revisions you wanted to make), by June 6th so I can issue our close-out memo and put it into concurrence while I'm on travel from June 11-15. (I'm also out next week, so June 4-8 is my "working week" for this.) Also, please notify whomever that we need the new FAQ 35, which is the second part of the old FAQ 17 on HEAFs in bus ducts and junctions. Have he/she give Thinh Dinh feedback as to scheduling the joint panel session I mentioned at the last meeting to resolve the counting aspects for duct vs. junction HEAFs (proposed date = July 13 to accommodate Steve Nowlen being here, if possible).

Ray

**Mail Envelope Properties** (4656D955.D8D : 12 : 35292)

**Subject:** Revised FAQ 17 (and new FAQ 35)  
**Creation Date** 5/25/2007 8:40:53 AM  
**From:** Ray Gallucci  
**Created By:** RHG@nrc.gov

**Recipients**

fpc.com  
david.miskiewicz CC (david.miskiewicz@fpc.com)

nei.org  
am (Alex MARION)  
jhr (jhr@nei.org)

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OWGWPO03.HQGWDO01  
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ARK1 CC (Alex Klein)  
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CEM4 CC (Charles Moulton)  
EVM CC (Edward McCann)  
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**Options**

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<b>Security:</b>	Standard

**Junk Mail Handling Evaluation Results**

Message is not eligible for Junk Mail handling  
Message is from an internal sender

**Junk Mail settings when this message was delivered**

Junk Mail handling disabled by User  
Junk Mail handling disabled by Administrator  
Junk List is not enabled  
Junk Mail using personal address books is not enabled  
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