

Plant: Harris Nuclear Plant Submittal Date: 10/26/06
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805 TF FPWG RATF RIRWG BWROG PWROG

Subject:

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 5.3 and Appendix I.

Circumstances requiring guidance interpretation or new guidance:

Change Question 4.f to "potentially greater than minimal" versus "greater than minimal" in Section 5.3 and the change process sheets in Appendix I of NEI 04-02. Also factor risk decreases into the process

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

N/A

Potentially relevant existing FAQ numbers:

Related to FAQ 06-0002

Response Section:

Proposed resolution of FAQ and the basis for the proposal:

Revise NEI 04-02 Section 5.3 and Appendix I, to reflect revision.

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

See attached revision.

5.3.3 Preliminary Risk Screening

Once the definition of the change is established, a screening is then performed to identify and resolve minor changes to the fire protection program. This screening is consistent with fire protection regulatory review processes in place at nuclear plants under traditional licensing bases. This screening process is modeled after the NEI 02-03 process. This process will address most administrative changes (e.g., changes to the combustible control program, organizational changes, etc.).

The characteristics of an acceptable screening process that meets the “assessment of the acceptability of risk” requirement of Section 2.4.4 of NFPA 805 are:

- The quality of the screen is sufficient to ensure that potentially greater than minimal risk increases receive detailed risk assessments appropriate to the level of risk.
- The screening process must be documented and be available for inspection by the NRC.
- The screening process does not pose undue evaluation or maintenance burden.

If any of the above is not met, proceed to Section 5.3.4 Risk Evaluation.

Appendix I contains an example of a screening process. The screening process is divided into assessing if the change is trivial (Sections 1.a, 2.a, 3.a) and performing a risk screen in Section 4.0. The risk screen identifies and documents the factors that contribute to the risk associated with the change. In general, these factors include changes in: a) frequency of all fire scenarios which are affected by the change, b) magnitude of expected fires, c) detection capability, d) suppression capability, and e) post-fire capability of plant systems to prevent damage to the core.

The impact of the plant change on each of these factors can be evaluated (either qualitatively or quantitatively) and categorized as: “no” impact, “minimal” impact or “potentially greater than minimal” impact. The nature of the change would enable a licensee to choose among the three categories. A licensee may refer to their IPEEE, the fire protection SDP, or other documents to determine whether the change could have “minimal” or “potentially greater than minimal” impact. The licensee should document the basis for the conclusion. For those changes that do not meet the screening criteria a more detailed Risk Evaluation is required.

If a plant change could cause a “potentially greater than minimal” impact with respect to more than one of the above factors, or could result in a common cause impact on more than one of the above factors ((a) frequency of all fire scenarios which are affected by the change, b) magnitude of expected fires, c) detection capability, d) suppression capability, and e) post-fire capability of plant systems to prevent damage to the core) licensees are encouraged to perform risk assessments of the more detailed, quantitative variety.

Comment [EK1]: editorial

The preliminary risk screening and risk evaluations should also identify decreases in risk that are associated with the change. Depending upon the nature and magnitude of the decrease, consideration should be given to updating the risk model to account for the decrease.

Plant Change Evaluation Form

Page 1 of ____		
UTILITY NAME	UNIT(S)	
<input type="checkbox"/> SITE A <input type="checkbox"/> SITE B <input type="checkbox"/> SITE C	<input type="checkbox"/> Unit 1 <input type="checkbox"/> Unit 2 <input type="checkbox"/> Unit 3	
ACTIVITY TITLE/DOCUMENT/REVISION _____		
Complete each section and summarize results below.		
CONCLUSIONS		
CHANGE EVALUATION SUMMARY <input type="checkbox"/> The change is editorial or trivial in nature. (Screening per Section 1.a, 2.a, or 3.a) <input type="checkbox"/> The change affects compliance with a Fundamental Elements / Minimum Design Requirements of NFPA 805 Chapter 3 (Section 1). License Amendment Required? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> The change affects compliance with the Nuclear Safety Criteria of NFPA 805 as defined in [insert reference to the appropriate document] (Section 2). <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> The change affects compliance with the Radioactive Release Criteria of NFPA 805 as defined in [insert reference to the appropriate document] (Section 3). <input type="checkbox"/> Yes <input type="checkbox"/> No	RISK EVALUATION SUMMARY <input type="checkbox"/> The change can be evaluated using a PRELIMINARY RISK SCREEN (Section 4) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> The RISK EVALUATION demonstrates that Δ CDF/LERF are acceptable and defense-in-depth / safety margin are maintained. Therefore, the change is acceptable. <input type="checkbox"/> The RISK EVALUATION demonstrates that either the Δ CDF/LERF are unacceptable and/or defense-in-depth / safety margin are not maintained. Therefore, the change is NOT acceptable.	
SIGNOFFS		
Print Name _____	Signature _____	DATE _____
SCREEN PREPARER ¹		
Print Name _____	Signature _____	DATE _____
SCREEN REVIEWER		

CHANGE DESCRIPTION

Provide a brief description of what is being changed and why.

REFERENCES

List applicable references. Include sufficient identifying detail to facilitate independent review and retrieval.

¹ Signoffs should be consistent with the Licensee's processes. For example it may be necessary for a fire protection engineer, PRA engineer, or safe shutdown engineer to have signature authority on the Plant Change Evaluation.

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).

1. 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 2.0 and 3.0, respectively.

- Yes – Proceed to Question 1.a.
- No – Document basis and proceed to Question 2

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

- o Yes Document basis and stop.
- o No Proceed to Question 1.b.

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

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. (See Attachment 2)

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

NUCLEAR SAFETY COMPLIANCE STRATEGY 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).

2. Does the proposed change involve a **Nuclear Safety Compliance Strategy** requirement as defined in **[Insert appropriate document reference]**?
- Yes – Proceed to Question 2.a.
 - No – Document basis and proceed to Question 3.

- a. Is the change editorial or trivial in nature? (See Attachment 1)
- o Yes Document basis and stop.
 - o No Proceed to Question 2.b.

- b. Does the change meet the deterministic requirements of Chapter 4 of NFPA 805?
- o Yes Document basis and complete remaining sections.
 - o No Proceed to Question 2.c.

- c. Is the change equivalent to the NFPA 805 Chapter 4 compliance strategy as defined in **[Insert appropriate document reference]**? Ensure documentation for determination of equivalency is included and meets NEI 04-02 requirements for documentation. (See Attachment 2)
- o Yes Document basis and complete remaining sections.
 - o No Perform a Risk Evaluation.

RADIOACTIVE RELEASE 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 a **Radioactive Release** requirement as defined in [Insert appropriate document reference]?

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

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.

b. Does the change meet the requirements of the Radioactive Release criteria?

- o Yes Document conclusions and proceed to risk screening.
- o No Proceed to Question 3.c.

c. Is the change equivalent to the Radioactive Release compliance strategy as defined in [Insert appropriate document reference]? Ensure documentation for determination of equivalency is included and meets NEI 04-02 requirements for documentation. (See Attachment 2)

- o Yes Document conclusions and proceed to risk screening
- o No Perform a Risk Evaluation.

PRELIMINARY RISK SCREENING

Considering the proposed change, answer the following questions. The nature of the change should enable you to choose among the three categories. Refer to the IPEEE, a plant-specific fire PRA, or other documents to determine whether the change could have “no”, “minimal” or “potentially greater than minimal” impact. Document the basis for the conclusion. The potential for common cause effects of a given plant change on the above factors should be considered. For example, an increase in combustible loading in an area can impact all of the factors. See Attachment 3 for examples.

4.0 Can the change be evaluated using a preliminary risk screen?

a. Does the proposed change impact the FIRE FREQUENCY of any fire scenarios affected by the change?

- No Impact
- Minimal Impact
- Potentially Greater than minimal

b. Does the proposed change impact the MAGNITUDE OF THE EXPECTED FIRES for any fire scenarios affected by the change?

- No Impact
- Minimal Impact
- Potentially Greater than minimal

c. Does the proposed change impact the DETECTION CAPABILITY for any fire scenarios affected by the change?

- No Impact
- Minimal Impact
- Potentially Greater than minimal

d. Does the proposed change impact the SUPPRESSION CAPABILITY for any fire scenarios affected by the change?

- No Impact
- Minimal Impact
- Potentially Greater than minimal

e. Does the proposed change impact the POST-FIRE CAPABILITY OF PLANT SYSTEMS TO PREVENT CORE DAMAGE (including fire affected human actions) during any mode of operation for any fire scenarios affected by the change?

- No Impact
- Minimal Impact
- Potentially Greater than minimal

f. Do any of the risk screening questions have "Potentially greater than minimal" impact, then a detailed quantitative risk evaluation may be required.

- No. The Fire Protection Program Plant change meets the risk-informed acceptance criteria of NFPA 805 Section 2.4.4.
- Yes, a detailed quantitative risk evaluation is required.

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Note: Changes that clearly decrease risk should be identified during the review for potential updates to the risk model.

ATTACHMENT 3 – PRELIMINARY RISK SCREENING EXAMPLES

- Frequency of fire scenarios: A “like-kind” replacement of fire protection equipment or systems has “no” impact on fire frequencies. Installing an electrical cabinet in a switchgear room could cause “minimal” or “potentially greater than minimal” impact on the fire frequency. Changing administrative procedures to allow welding in an area where it was previously prohibited could cause a “potentially greater than minimal” increase in the frequency of fire.
- Magnitude of expected fires: Replacing a cable with one of equivalent combustible loading and type has “no” impact on the magnitude of the expected fires. Routing a new cable through a switchgear room could cause “minimal” increase in the fire magnitude. Storing a drum of oil in the emergency diesel generator room could cause a “potentially greater than minimal” increase in the magnitude of expected of fire.
- Detection capability: Changes to safe shutdown equipment generally have “no” impact on the detection capability. A decrease in the normal area occupancy level where manual suppression and automatic detection are available could cause a “minimal” decrease in the fire detection capability. A decrease in normal area occupancy level where manual suppression is available but no automatic detection is provided could cause a “potentially greater than minimal” decrease in the fire detection capability. A discovery of an NFPA code compliance issue can be evaluated and may or may not have a ‘potentially greater than minimal’ impact on risk.
- Suppression capability: Adding a few new cables to a cable tray without reducing the separation between redundant trains or adding an obstacle to a sprinkler spray-down path has “no” impact on the suppression capability. A decrease in the number of fire extinguishers available to fight fires or an equipment change that creates a minor obstruction to a suppression system spray pattern could cause “minimal” decrease in the fire suppression capability. Converting an automatic suppression system to a fixed manual fire suppression system could cause a “potentially greater than minimal” reduction in the fire suppression capability. A discovery of an NFPA code compliance issue can be evaluated and may or may not have a ‘potentially greater than minimal’ impact on risk.
- Post-fire capability of plant systems to prevent damage to the core: Replacing a component with a similar component will typically have “no” impact on plant systems’ post-fire capability to prevent damage to the core, as long as the location of the component and cable routing remain unchanged. Rerouting one cable associated with a very low risk-significant system could cause “minimal” decrease in the plant systems’ capability to prevent damage to the core. Rerouting cables of a safety-related or a risk- significant system where separation is reduced or replacing a check valve with a motor- operated valve could cause a “potentially greater than minimal” decrease in the plant systems’ capability to prevent damage to the core. (Procedural changes should also be evaluated as part of this evaluation factor.)
- Addition of minor amounts of cable to a cable tray, where margin is provided in combustible control programs (assuming no impact on the nuclear safety criteria)
- Changing a handwheel on a valve to a similar type.
- Relocating a fire extinguisher several feet due to planned modifications (as long as it is within allowable travel distances)

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- Sealing a wall penetration with an approved rated material that is commensurate with the hazard
- Changing the one type of approved fire hoses with another that is appropriate for the hazards in the area.
- Changing a fire protection feature (e.g., barrier, detection, or suppression system) in an area with no potential for impact on nuclear safety or radioactive release (e.g., warehouse or office areas)
- Changing a protective device setting on a power supply credited for post-fire nuclear safety, within the limits for acceptable coordination (as long as the setting was based on the limit and not on the setting)
- Rewiring a circuit for a component credited for ensuring nuclear safety. The rewiring does not result in any new or more likely failure modes due to fire in any plant fire area.
- Discovery of an unrated penetration in a barrier that has been previously evaluated as “adequate for the hazard” under a Generic Letter 86-10 fire area boundary evaluation. If the particular penetration is bounded by the current evaluation.