

January 24, 2008

MEMORANDUM TO: AFPB File

FROM: Alexander Klein, Chief */RA/*  
Fire Protection Branch  
Division of Risk Assessment  
Office of Nuclear Reactor Regulation

SUBJECT: CLOSE-OUT OF NATIONAL FIRE PROTECTION ASSOCIATION  
STANDARD 805 FREQUENTLY ASKED QUESTION 06-0012, ON  
DETERMINING MANUAL ACTIONS THAT REQUIRE A CHANGE  
EVALUATION DURING TRANSITION

The Fire Protection Branch has reviewed National Fire Protection Association (NFPA) Standard 805 Frequently Asked Question (FAQ) 06-0012. The transition team at Progress Energy's Shearon Harris plant, through the Nuclear Energy Institute's NFPA 805 Task Force, proposed FAQ 06-0012, Revision 5, "Determining Manual Actions That Require a Change Evaluation During Transition."

#### BACKGROUND

The National Fire Protection Association Standard 805 (NFPA 805) transition process as currently defined in the standard and in the industry guidance documents requires that operator manual actions that are not currently allowed under the existing deterministic licensing basis must undergo a change evaluation in order to determine that the operator manual action is acceptable as an NFPA 805 recovery action. The existing guidance documents do not provide sufficient guidance to assist transitioning licensees in making this determination.

#### DISCUSSION

FAQ 06-0012, Revision 5, proposed additional guidance to be added to sections 4.3.2, Nuclear Safety Performance Criteria Transition Review and B.2.2.4, Recovery Actions of Nuclear Energy Institute document 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under Title 10 of the *Code of Federal Regulations* (10 CFR) 50.48(c)," Revision 1 (NEI 04-02) for determining which operator manual actions (recovery actions) require performance of a change evaluation as part of the National Fire Protection Association Standard 805 (NFPA 805) transition process. The FAQ provides guidance for determining if a recovery action is allowed or previously reviewed and approved by the U. S. Nuclear Regulatory Commission (NRC). The FAQ also provides references where the proposed examples have been discussed by the NRC staff in documents, meetings, or as written responses to stakeholder questions.

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The FAQ provides a flow chart to be added to NEI 04-02 to assist in the determination of the need for a change evaluation. Several figures have also been provided in the FAQ to illustrate the examples.

Examples of allowed recovery actions provided in FAQ 06-0012 are:

- Operator manual operation from the control room or emergency control station in accordance with *10 CFR 50* Appendix R Section III.G.1 (III.G.1)
- Repairs or operator manual actions credited either for transitioning to or maintaining cold shutdown equipment as discussed in Generic Letter 86-10, Enclosure 1, Interpretations of Appendix R, question 3 "Fire Damage", and question 5.3.4, "Cooldown Equipment"
- Manual operation of normally operated manual switches and valves where separation/protection is provided for redundant safe-shutdown trains in accordance with *10 CFR 50* Appendix R, Section III.G.1 or III.G.2 (or Regulatory Position C.5.b of Branch Technical Position CMEB 9.5-1 of NUREG-0800, Revision 3) as documented in May 16, 2002 letter from Hannon (NRC) to Marion (NEI)
- Operator manual actions credited for compliance with *10 CFR 50* Appendix R, Section III.G.3 (or Regulatory Position C.5.c of Branch Technical Position CMEB 9.5-1 of NUREG-0800, Revision 3) as discussed in Regulatory Guide 1.189, Revision 1, Regulatory Position 5.3.3, Operator Manual Actions
- Operation of fire-affected equipment that meet the separation requirements of *10 CFR 50*, Appendix R Section III.G.1 (or Regulatory Position C.5.b.(1) of Branch Technical Position CMEB 9.5-1 of NUREG-0800, Revision 3) as discussed in Regulatory Issue Summary (RIS) 2006-10
- Operation of fire-affected equipment that meet the separation requirements of *10 CFR 50*, Appendix R Section III.G.2 (or Regulatory Position C.5.b.(2) of Branch Technical Position CMEB 9.5-1 of NUREG-0800, Revision 3) as discussed in RIS 2006-10
- Operator manual actions to address spurious actuations that affect the credited safe shutdown success path may or may not be allowed, depending upon the effect of the fire on the safe shutdown components. (As discussed in June 9, 2006 public meeting)
- Those operator manual actions that have been previously reviewed and approved by the NRC (as documented in an approved exemption or license amendment)

The FAQ does not change the current NEI 04-02 requirement that all operator manual actions must be proven to be feasible.

#### NRC STAFF EVALUATION

The NRC has evaluated each of the examples proposed for addition to NEI 04-02, Section B.2.2.4 with respect to regulatory compliance as well as technical adequacy:

Example Bullet 1 [identified in the FAQ as Bin A] is acceptable since manual operation of equipment from the control room is the normal means of controlling plant equipment.

Operator actions from the control room are the expected means of operating equipment for areas where compliance has been demonstrated in accordance with Appendix R Sections III.G.1 and III.G.2. Operator actions from an Emergency Control Station are specifically allowed by the regulation (III.G.1). The purpose of an Emergency Control Station is to provide a location where critical plant equipment may be adequately and safely controlled to provide those functions necessary to achieve safe shutdown. Operation of post-fire safe shutdown equipment from an Emergency Control Station is therefore acceptable.

Example Bullet 2 [identified in the FAQ as Bin B] is acceptable since it refers to repairs or operator manual actions taken to address fire damage to systems and equipment required to achieve cold shutdown. NRC guidance has always, and continues to consider operator manual actions to operate systems and equipment to achieve and maintain cold shutdown acceptable.

Example Bullet 3 [identified in the FAQ as Bin C] is acceptable since it puts a bound on those manual valves and switches that can be credited. The equipment to be operated is either manual in nature so there are no electrical control cables to experience damage or the equipment only has electrical controls locally (the component is designed to be controlled from a control location outside the control room). Proper analysis must include verification that fire damage will not impact control/operation from the local control location. Operation of this equipment is no different post-fire than it is normally.

Example Bullet 4 [identified in the FAQ as Bin D] is acceptable since NRC regulations allow local, operator manual actions to operate safe shutdown equipment outside the control room in order to achieve and maintain safe shutdown for areas that meet Appendix R Section III.G.3.

Example Bullets 5 and 6 [identified in the FAQ as Bin E] are acceptable since the operator manual actions are being taken to address fire-induced damage to equipment that is above and beyond the credited safe shutdown train. In each case, one train of equipment has been protected (either by separation in a different fire area in the case of III.G.1, or by meeting the requirements of III.G.2) in accordance with the regulations.

Example Bullet 7 [identified in the FAQ as Bin G] includes a description of two scenarios; one acceptable, the other not acceptable. The first scenario included in Example 7 is acceptable since it imposes specific limitations that assure that the safe shutdown function will remain available (the credited safe shutdown train must continue to be free of fire damage), and that the time for implementing the manual action is acceptable from a safe shutdown standpoint. A feasibility evaluation will be performed to ensure that adequate time will be available to complete the manual action before a non-recoverable condition is reached.

The second scenario included in Example 7 is not acceptable since it deals with fire damage to equipment in the credited safe shutdown train. Although an operator manual action may be feasible within the required timeline, the credited safe shutdown train is not free of fire damage.

The final group of operator manual actions [identified in the FAQ as Bin F] is acceptable since it addresses Operator Manual Actions that have been reviewed and approved by the NRC in an appropriate licensing action, exemption from the regulations for Pre-1979 plants or license amendment for Post-1979 plants.

FAQ 06-0012, Revision 5 includes the proposed changes to sections 4.3.2 and B.2.2.4 of NEI 04-02. The enclosure to this memorandum contains the revision history of FAQ 06-0012.

## CONCLUSION

The staff has reviewed the proposed changes to NEI 04-02 as presented in FAQ 06-0012, Revision 5 and finds that nothing in this FAQ would prevent continued endorsement of NEI 04-02. In accordance with RIS 2007-19, the guidance in this FAQ is acceptable for use by licensees in transition. The final endorsement of this FAQ will be addressed by the next revision to Regulatory Guide 1.205, "Risk-Informed, Performance-Based Fire Protection for Existing Light Water Nuclear Power Plants."

## References:

For details regarding this FAQ, please see the following:

- FAQ 06-0012, Revision 0, Determining Manual Actions That Require a Change Evaluation During Transition (ADAMS accession number ML062860255)
- FAQ 06-0012, Revision 1(ADAMS accession number ML063170362)
- NEI Response to NRC Staff comments on FAQ 06-0012, Revision 1(ADAMS accession number ML070850658)
- FAQ 06-0012, Revision 2(ADAMS accession number ML070850610)
- NRC Staff response to FAQ 06-0012, Revision 2 (04/26/07) (ADAMS accession number ML071380186)
- FAQ 06-0012, Revision 3 (03/22/07) (ADAMS accession number ML071380229)
- FAQ 06-0012, Revision 4 (03/22/07) (ADAMS accession number ML071570260)
- NRC Staff response to FAQ 06-0012, Revision 4 (ADAMS accession number ML072820168)
- NRC Staff response to FAQ 06-0012, Revision 4 (ADAMS accession number ML072820170)
- FAQ 06-0012, Revision 5 (ADAMS accession number ML073320028)
- May 16, 2002 letter from Hannon (NRC) to Marion (NEI) (ADAMS accession number ML021410026)
- NRC Summary of June 9, 2006 Operator Manual Action Meeting (ADAMS accession number ML061950327)
- NRC Revision to Draft Responses to Letter from Engineering Planning and Management, Inc. Dated March 29, 2006 to the U. S. Nuclear Regulatory Commission Revised to Incorporate Comments from Public Meeting on June 9, 2006 (ADAMS accession number ML06190016)

- NRC Revision to Draft Responses to Letter from the Nuclear Energy Institute Dated May 3, 2006 to the U. S. Nuclear Regulatory Commission Revised to Incorporate Comments from Public Meeting on June 9, 2006 (ADAMS accession number ML061980035)
- NEI 04-02, Revision 1, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)" (ADAMS accession number ML052590476)
- NFPA 805, 2001 Edition, "Performance-Based Standard for Fire Protection for Light Water Electric Generating Plants" (available through the Public Document Room or NFPA)
- Regulatory Guide 1.205, "Risk Informed, Performance-Based Fire Protection for Existing Light Water Nuclear Power Plants" (ADAMS accession number ML061100174)
- Regulatory Issue Summary 2006-10, "Regulatory Expectations with Appendix R Paragraph III.G.2 Operator Manual Actions" (ADAMS accession number ML061650389)
- Regulatory Issue Summary 2007-19, "Process for Communicating Clarifications of Staff Positions Provided in Regulatory Guide 1.205 Concerning Issues Identified During the Pilot Application of National Fire Protection Association Standard 805" (ADAMS accession number ML071590227)

Enclosure

1. FAQ 06-0012 History

- NRC Revision to Draft Responses to Letter from the Nuclear Energy Institute Dated May 3, 2006 to the U. S. Nuclear Regulatory Commission Revised to Incorporate Comments from Public Meeting on June 9, 2006 (ADAMS accession number ML061980035)
- NEI 04-02, Revision 1, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)" (ADAMS accession number ML052590476)
- NFPA 805, 2001 Edition, "Performance-Based Standard for Fire Protection for Light Water Electric Generating Plants" (available through the Public Document Room or NFPA)
- Regulatory Guide 1.205, "Risk Informed, Performance-Based Fire Protection for Existing Light Water Nuclear Power Plants" (ADAMS accession number ML061100174)
- Regulatory Issue Summary 2006-10, Regulatory Expectations with Appendix R Paragraph III.G.2 Operator Manual Actions (ADAMS accession number ML061650389)
- Regulatory Issue Summary 2007-19, Process for Communicating Clarifications of Staff Positions Provided in Regulatory Guide 1.205 Concerning Issues Identified During the Pilot Application of National Fire Protection Association Standard 805 (ADAMS accession number ML071590227)

Enclosure

1. FAQ 06-0012 History

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## FAQ 06-0012 History

### FAQ 06-0012, Revision 0, NEI Initial Proposal, dated 8/17/06

The initial FAQ 06-0012 proposal was developed by the pilot team at Harris to provide a means of screening operator manual actions to determine which ones required a change evaluation as part of the NFPA 805 transition process. The document provided a list of references issued by the NRC related to the operator manual action issue. These references documented various NRC staff positions with regard to those operator manual actions that were allowable under the current deterministic licensing bases. The FAQ also provided proposed wording to be inserted in NEI 04-02 in Appendix B. The proposed wording provided a bulleted list of seven examples of operator manual actions that would not require a change evaluation to support transition to NFPA 805.

### FAQ 06-0012, Revision 1, dated 10/26/06

NEI revised the FAQ in order to place two figures in the proposed additions to NEI 04-02. The new figures added clarity to the conditions that are allowed under the existing deterministic rules for operator manual actions.

### NRC Staff Response to FAQ 06-0012, Revision 1, dated 3/22/07

The NRC staff provided NEI with a list of comments. The comments ranged from minor typographical errors to requests for detailed technical explanation of examples used.

### FAQ 06-0012, Revision 2, dated 3/22/07

NEI provided a table indicating the disposition of the NRC staff's comments on Revision 1. Several of the recommended wording changes were incorporated. A flow chart presented in the Shearon Harris Plant Observation Visit was also included in Revision 2 as Figure B-4, General Process to Transition Operator Manual Actions. Two more figures were added to provide visual information related to examples cited.

### NRC Staff Response to FAQ 06-0012, Revision 2, 4/26/07

The NRC staff pointed out that some of the guidance provided in the description of some of the operator manual action justifications would not meet the requirements in Appendix R Section III.G.2. Specifically, the staff noted that by the NEI wording, a spurious actuation of a motor operated valve in the credited flow path would disable the credited function while the valve was closed. A closed valve in the credited flow path does not meet III.G.2 since it would "prevent operation or cause maloperation" of the required flow path.

Enclosure

FAQ 06-0012, Revision 3, dated 3/22/07

NEI revised the guidance related to operator manual actions that affect the credited safe shutdown success path to address the staff's comment. Revision 3 added the parenthetical "(e.g. the main flowpath, as opposed to a diversionary flowpath)." Several additional editorial changes were also made.

FAQ 06-0012, Revision 4, dated 3/22/07

NEI revised the guidance in Appendix B and the flow chart presented in Figure B-4 to reflect improvements implemented in the Shearon Harris pilot plant. The text and the flow chart were revised to include "bins" for each type of operator manual action.

NRC Staff Response to FAQ 06-0012, Revision 4, dated 9/20/07

During the concurrence process to close FAQ 06-0012, it was noted that the guidance provided in the seventh example bullet included reference to a configuration that would not meet NRC requirements. Specifically, the second scenario used in example bullet 7 would allow bypass flow from the protected train to be isolated by an operator manual action. If the flow loss is such that isolation is required to "achieve and maintain hot shutdown conditions," then it would need to be protected to meet the requirements of III.G.2.

NRC Staff Response to FAQ 06-0012, Revision 4, dated 10/9/07

The NRC staff proposed words to address the issue. The description of the two scenarios included in example bullet 7 was revised to state that the first scenario was a special case of "fire affected train" and therefore was an acceptable operator manual action and the second scenario was not acceptable since it involved a flow diversion from the credited path that must be isolated.

FAQ 06-0012, Revision 5, dated 11/26/07

NEI revised the FAQ using the proposed words.