February 3, 2011

MEMORANDUM TO: AFPB Files

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

SUBJECT: CLOSE-OUT OF NATIONAL FIRE PROTECTION ASSOCIATION FREQUENTLY ASKED 07-0038 ON LESSONS LEARNED ON MULTIPLE SPURIOUS OPERATIONS

Frequently Asked Question (FAQ) 07-0038, Revision 3 was proposed by the National Fire Protection Association (NFPA) 805 transition team at the Turkey Point nuclear plant through the Nuclear Energy Institute (NEI) NFPA 805 Task Force, to clarify the guidance for addressing multiple spurious operations (MSOs) in NEI 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 2 (NEI 04-02).

Background

NEI 04-02 currently addresses multiple spurious operations in section B.2, Transition of Nuclear Safety Performance Criteria.

Based on lessons learned from pilot plant activities, NFPA 805 task force meetings, the U. S. Nuclear Regulatory Commissions' (NRC) reviews and discussions on MSOs and their treatment during transition to NFPA 805, additional guidance was required to perform an adequate review to address MSOs during NFPA 805 transition.

Industry Proposal

FAQ 07-0038, Revision 3 proposes creating a new section B.2.1.3 of NEI 04-02, adding a five (5) step process to address MSOs during transition:

CONTACT: Harold T. Barrett, NRR/DRA
(301) 415-1402

- Step 1 – Identify potential MSO combinations of concern
- Step 2 – Conduct an expert panel to assess plant specific vulnerabilities
- Step 3 – Update the fire PRA and Nuclear Safety Capability Assessment to include MSOs of concern
- Step 4 – Evaluate for NFPA 805 compliance
- Step 5 – Document results

Step 1 directs the licensee to gather the documentation from a variety of sources to be used in performing the MSO review:

- Post-fire safe shutdown analysis/nuclear safety capability assessment
- Generic lists of MSOs (e.g., from Owner's Groups and/or later versions of NEI 00-01, "Guidance for Post-Fire Safe Shutdown Circuit Analysis," if endorsed by NRC for use in assessing MSOs)
- Self assessment results (e.g., NEI 04-06, "Guidance for Self-Assessment of Circuit Failure Issues," assessments performed to address Regulatory Information Summary (RIS) 2004-03, "Risk-Informed Approach for Post-Fire Safe-Shutdown Circuit Inspections")
- PRA insights (NEI 00-01, Revision 1, Appendix F)
- Operating Experience (e.g., licensee event reports, NRC inspection findings, etc.)

Step 2 directs the licensee to conduct an expert panel in accordance with the guidance provided in Appendix F.4.2 of NEI 00-01, Revision 1. The expert panel takes into consideration all of the information gathered in Step 1 and combines this with an organized review of key plant systems and components in order to identify combinations of components that can spuriously operate due to fire-induced circuit faults and defeat the ability to achieve and maintain the nuclear safety performance criteria. The expert panel step includes proper documentation of component combinations that need to be included in the MSO analysis as well as documentation of the rationale for those component combinations that were screened out of further consideration. This step also includes documentation of the makeup and expertise of the expert panel so that it can be provided in the transition report.

Step 3 directs the licensee to update the fire PRA and the nuclear safety capability assessment to ensure that the identified MSO combinations are included in the NFPA 805 analyses. In addition to adding the components to these analyses, circuit analysis, cable routing, and fire area analysis must also be included such that fire area analyses include the impact of MSOs.

Step 4 directs the licensee to evaluate the MSO combinations for NFPA 805 compliance. The recommended process treats MSO combinations in the same manner as single spurious actuations. MSO combinations are to be evaluated for compliance to the deterministic requirements of NFPA 805 Chapter 4 and where necessary, variances from the deterministic requirements are to be created, evaluated and dispositioned in accordance with the performance-based approach being used.

Step 5 directs the licensee to document the result of the previous steps in the MSO process (identifying MSO combinations of concern, performance of one (or more) MSO expert panel(s), updating the fire PRA and NSCA with MSOs of concern, and evaluating compliance to NFPA 805).

NRC Staff Evaluation

The NRC staff (the staff) has evaluated the FAQ 07-0038, Revision 3 proposal with respect to regulatory compliance and technical adequacy. The proposed additions to NEI 04-02 are consistent with the regulation and NFPA 805 as well as the guidance provided in Regulatory Guide 1.205, Revision 1. Therefore, the staff finds the proposed changes to NEI 04-02 to be acceptable. The staff has reviewed the proposed changes to NEI 04-02 as presented in FAQ 07-0038, Revision 3 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.

References:

For details regarding this FAQ, please see the following:

1. FAQ 07-0038, dated September 20, 2007, ADAMS Accession No: ML072740262
2. NRC Staff response to FAQ 07-0038, dated October 18, 2007, ADAMS Accession No: ML073060506
3. FAQ 07-0038, Revision 1, dated September 20, 2007, ADAMS Accession No: ML082100034
4. NRC Staff response to FAQ 07-0038, Revision 1, dated September 25, 2008, ADAMS Accession No: ML073060506
5. FAQ 07-0038, Revision 2, dated June 30, 2010, ADAMS Accession No: ML101870331
6. NRC Staff response to FAQ 07-0038, Revision 2, dated November 4, 2010, ADAMS Accession No: ML103080232
7. FAQ 07-0038, Revision 3, dated November 4, 2010, ADAMS Accession No: ML103090608

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OFFICE	NRR/DRA/AFPB	NRR/DRA/AFPB
NAME	HBarrett	AKlein
DATE	01 / 27 /11	02 / 03 /11

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