December 31, 2007

MEMORANDUM TO: Chairman Klein
Commissioner Jaczko
Commissioner Lyons

FROM: Luis A. Reyes ***/RA Martin J. Virgilio for/***
Executive Director for Operations

SUBJECT: STATUS OF ACTIONS TO RESOLVE POTENTIAL SAFETY CONCERNS FROM MULTIPLE FIRE-INDUCED SPURIOUS EQUIPMENT OPERATIONS

The purpose of this memorandum is to inform the Commission of the NRC staff's progress regarding resolving the multiple fire-induced spurious equipment operations issue. In Staff Requirements Memorandum (SRM) SECY-06-0196, "Issuance of Generic Letter 2006-XX, 'Post-Fire Safe-Shutdown Circuits Analysis Spurious Actuations,'" dated December 15, 2006, the Commission did not approve the issuance of a generic letter at that time. The Commission also stated that the proposed generic letter needed more specificity and clarity regarding the Nuclear Regulatory Commission's (NRC) expectations. The SRM directed the staff to: (1) examine licensee analysis methods in this area, including those using system or functional scenario development approaches, and using the normal public regulatory process to enable stakeholder engagement, develop or endorse guidelines that provide a clearly defined method of compliance for licensees who do not choose to utilize the risk-informed approach contained in Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.48, *Fire Protection*, Paragraph (c), *National Fire Protection Association Standard (NFPA) 805*; and (2) continue to encourage licensees to transition to 10 CFR 50.48(c) and NFPA 805, *Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants.*

The NRC staff began meeting with stakeholders regarding this issue following the issuance of SRM SECY-06-0196. To bring additional management attention to resolving fire protection regulatory issues and to assure predictable and efficient implementation of the risk-informed and performance-based fire protection regulations in 10 CFR 50.48(c), the Executive Director for Operations created a Fire Protection Steering Committee (FPSC) in the Fall of 2007. The FPSC is chaired by the Associate Director for Engineering and Safety Systems (ADES) in the Office of Nuclear Reactor Regulation (NRR) and includes senior managers from the Office of Nuclear Regulatory Research, the Office of Enforcement, NRR and Region III. The FPSC interfaces with

CONTACT: Daniel Frumkin, NRR/DRA
(301) 415-2280

industry representatives on plans for implementing the risk-informed performance-based fire protection regulations. The FPSC also assures effective interoffice coordination in the resolution of fire protection regulatory issues, including multiple fire-induced spurious equipment operations.

Status of Staff Activities – Multiple Fire-Induced Spurious Equipment Operations

The FPSC and NRC staff have engaged industry and other stakeholders in public meetings to examine analysis methods in this area. The staff and licensee representatives have held six public meetings in 2007: February 16th (Agencywide Document Management and Access System (ADAMS) Accession No. ML073520135), April 24th (ML073520144), June 29th (ML073520157), September 6th (ML073520170), October 17th (ML073520175), and December 5th (ML073520179). The accession numbers provided are packages that include meeting announcements, agendas and meeting summaries. The meetings discussed industry proposals for technical methods to resolve the multiple fire-induced spurious equipment operations caused by hot shorts, open circuits, and shorts to ground (circuit faults) that affect the plant's ability to safely shutdown.

Industry is developing an analysis method for resolution of the circuit faults issue that involves an industry-wide owner's group assessment as well as plant-specific review for identification of candidate multiple circuit faults of concern and specific strategies for analysis and resolution of those concerns. One resolution methodology included in the industry approach involves performance of a limited "focused-scope" fire probabilistic risk analysis and using risk thresholds for determination of the need for corrective action for situations that do not conform to 10 CFR 50.48(b) and Section III.G.2 of 10 CFR Part 50, Appendix R *Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979*.

Based on the discussions and presentations during public meetings, the staff believes that there are many positive attributes of the industry analysis method. However, the staff has concluded that while use of the focused scope risk analysis resolution methodology may form the basis for an exemption request, it does not establish compliance with the NRC regulations. These and other concerns have been addressed in correspondence between NRR's ADES and the Nuclear Energy Institute's Executive Director for Nuclear Operations and Engineering in March (ML070750153), May (ML071590386, ML071590389, and ML071590391), and June (ML071760199) 2007.

The NRC staff is also concerned that the industry proposal is limited to those areas of the plant addressed by 10 CFR Part 50, Appendix R, Section III.G.2 and does not address those areas of the plant that depend on alternative or dedicated safe shutdown capability pursuant to 10 CFR Part 50, Appendix R, Section III.G.3. Further, should industry's proposed focused scope risk analysis resolution methodology be endorsed by the NRC, this may result in some level of reduction in licensee commitments to transition to 10 CFR 50.48(c) and NFPA 805. Although some plants may choose to withdraw their letters of intent to adopt 10 CFR 50.48(c) and NFPA 805, the NRC staff anticipates that the plants with significant inspection findings, open items or licensee identified issues will still continue to transition to NFPA 805.

Industry representatives have indicated that the detailed written analysis method will be submitted in late December 2007 or January 2008. Once submitted, the staff will evaluate the industry method in more detail.

During the most recent public meeting, the NRC staff discussed a conceptual approach that built upon the industry method, but would not depend on risk analysis for compliance with 10 CFR 50.48(b). Following industry submission of its proposal the NRC staff anticipates further discussion with industry on various alternatives during the next public FPSC meeting. Nevertheless, the staff anticipates that a final approach for resolution of multiple fire-induced spurious equipment operations will be provided to the Commission by November 12, 2008.

NRC staff continues to inspect circuit faults that could adversely affect a plant's ability to safely shutdown due to fire. The inspection procedure identifies potential circuit vulnerabilities that are likely based on the results of cable fire tests. While the licensee is required to take appropriate compensatory and corrective actions addressing circuit fault violations, those violations currently receive enforcement discretion pursuant to Enforcement Guidance Memorandum 98-002, Revision 2, Disposition of Violations of Appendix R, Sections III.G, [*Fire Protection of Safe Shutdown Capability*] and III.L [*Alternative and Dedicated Shutdown Capability*] Regarding Circuit Failures. Once a closure path is developed for this issue, as directed in the SRM to SECY-06-0196, the staff intends to sunset this enforcement discretion on a schedule similar to the schedule for plants that adopt 10 CFR 50.48(c) and NFPA 805.

Status of Staff Activities – Transition to 10 CFR 50.48(c) and NFPA 805

The FPSC and staff are continuing to work with industry to provide clear guidance resulting in a predictable and efficient licensing process for the units that will transition to 10CFR50.48(c). Since 2006 no additional licensed units, beyond the 42 already committed, have identified that they will adopt 10 CFR 50.48(c). The NRC staff is:

- Continuing regular interactions with the two pilot plants and holding public meetings to develop clear and high quality guidance for transitioning to 10 CFR 50.48(c), including the staff's review of licensee developed guidance to assure its acceptability. The staff is also continuing to interact with industry on the peer review guidance for fire probabilistic risk assessment.

- Working with industry to clarify expectations using the frequently asked question process, and publishing these expectations publicly in ADAMS.

- Developing NRC inspection procedures for use during the transition process and following transition.

- Working to ensure NRC review resources are available, and that the enforcement discretion policy is applied in a consistent manner.

- Planning to issue expectations regarding The American Nuclear Society Fire Probabilistic Risk Assessment Methodology that was published on November 20, 2007, to support plants adopting 10 CFR 50.48(c).

It is the NRC staff's expectation that plants that transition to NFPA 805 will improve the clarity of their fire protection licensing basis and have a better focused fire safety program. The staff will continue to update the Commission through periodic briefings with your staff on activities of the FPSC toward resolution of the circuit faults issue and transition to 10 CFR 50.48(c) and NFPA 805.

cc: SECY
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OFFICE	AFPB/NRR	QTE	BC/AFPB/NRR	D/OE
NAME	DFrumkin (AKlein for)	HChang	AKlein	SMagruder
DATE	12/19/2007	12/19/2007	12/19/2007	12/20/2007
OFFICE	D/DRA/NRR	ADES/NRR	D/NRR	EDO
NAME	MCunningham	JGrobe	JDyer (JWiggins for)	LReyes MVirgilio for
DATE	12/19/2007	12/20/2007	12/21/2007	12/31/2007

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