

DATES: Comment period expires September 17, 2003. Comments submitted after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except for comments received on or before this date.

ADDRESSES: Submit written comments to the Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Mail Stop T6-D59, Washington, DC 20555-0001, and cite the publication date and page number of this **Federal Register** notice. Written comments may also be delivered to NRC Headquarters, 11545 Rockville Pike (Room T-6D59), Rockville, Maryland, between 7:30 a.m. and 4:15 p.m. on Federal workdays.

FOR FURTHER INFORMATION CONTACT: Mark Henry Salley at (301) 415-2840 or by e-mail to mxxs3@nrc.gov.

SUPPLEMENTARY INFORMATION:

NRC Regulatory Issue Summary 2003-XX: Risk-Informed Inspection Guidance for Post-Fire Safe-Shutdown Associated Circuit Inspections

Addressees

All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

Intent

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to inform addressees of the risk-informed technical input that will be used to develop inspection guidance used by NRC inspectors to perform future post-fire safe-shutdown associated circuit inspections.

Background Information

The regulatory requirements, guidance, and NRC staff's positions regarding post-fire safe-shutdown are contained in various NRC documents, including Title 10 of the Code of Federal Regulations, Section 50.48 (10 CFR 50.48), "Fire Protection," and 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 3. Nuclear power plants (NPPs) operating prior to January 1, 1979, were backfit to 10 CFR Part 50, Appendix R, Section III G. NPPs licensed later were evaluated against Section 9.5-1 of NUREG-0800, Standard Review Plan (SRP). Regulatory Guide 1.189, "Fire Protection," also provides regulatory guidance on post-fire safe shutdown. The extent to which these requirements or guidance are

applicable to a specific NPP depends on the plant's age, commitments made by the licensee in establishing its fire protection plan, and license conditions regarding fire protection. One objective of the fire protection requirements and guidance is to provide reasonable assurance that fire-induced failures of associated circuits that could prevent the operation or cause maloperation of equipment necessary to achieve and maintain post-fire safe shutdown will not occur. As a part of its fire protection program each licensee performs an associated circuit analysis to evaluate and protect against these failures.

Each NPP licensee has a post-fire safe-shutdown program that was reviewed and approved by the NRC either as a part of the licensee's compliance with the 10 CFR part 50, appendix R, backfit or as a part of the initial operating licensing basis reviews. Licensees are required to maintain and update this analysis as a condition of their operating license. The NRC routinely inspects the post-fire safe-shutdown program as a part of the triennial fire protection inspection of each licensee.

Summary of the Issue

Beginning in 1997, the NRC staff noticed that a series of licensee event reports (LERs) identified plant-specific problems related to potential fire-induced electrical circuit failures that could prevent operation or cause maloperation of equipment necessary to achieve and maintain hot shutdown. The staff documented these problems in Information Notice 99-17, "Problems Associated With Post-Fire Safe-Shutdown Circuit Analysis." Based on the number of similar LERs, the NRC determined the issue should be treated generically. In 1998, the NRC staff started to interact with interested stakeholders in an attempt to understand the problem and develop an effective risk-informed solution to the circuit analysis issue. Due to the number of different stakeholder interpretations of the regulations, the NRC decided to temporarily suspend the associated circuit portion of fire protection inspections. This decision is documented in an NRC memorandum from John Hannon to Gary Holahan dated November 29, 2000, (ML003773142). NRC also issued Enforcement Guidance Memorandum (EGM) 98-002, Revision 2 (ML003710123).

To address the differing interpretations of the regulations, the NRC contracted Brookhaven National Laboratory (BNL) to develop a post fire safe shutdown analysis letter report (ML023430533). This draft letter report

provided a historical look at the essential elements of a post-fire safe-shutdown circuit analysis, regulatory requirements and NRC staff positions, successful industry implementations, and guidance for risk-informing the associated circuit analysis. During this period, the Nuclear Energy Institute (NEI) performed a series of cable functionality fire tests to be used in NEI's risk-informed guidance. Revision D, the latest revision of NEI 00-01, "Guidance for Post-Fire Safe Shutdown Analysis," was issued in early 2003 (ML023010376). The results of the NEI cable functionality fire testing were reviewed by an expert panel. The purpose of this review was to develop risk insights into the phenomena of fire-induced failures of electrical cables. The Electric Power Research Institute (EPRI) coordinated this effort and issued the final report, "Spurious Actuation of Electrical Circuits Due to Cable Fires: Results of an Expert Elicitation" (Report No. 1006961, May 2002).

On February 19, 2003, the NRC conducted a facilitated, public workshop in Rockville, MD. The purpose of the workshop was to discuss, and gather stakeholder input on, proposed risk-informed post-fire safe-shutdown circuit analysis inspection guidance. Using the above-referenced documents as background, the goals of the workshop were to identify:

- (1) The most risk-significant associated circuit configurations;
- (2) other associated circuit configurations that require further research; and
- (3) low-risk-significant associated circuit configurations.

The facilitated workshop was successful in meeting these goals. A complete transcript of the meeting is available in ADAMS (ML030620006).

The staff has completed drafting the technical input that will be used to risk-inform inspector guidance for the most risk-significant associated circuit configurations (Item 1), identified other configurations that require further research (Item 2), and performed confirmatory research to verify the low-risk-significant configurations (Item 3) (ML030780326).

In summary, the risk-informed inspection guidance will concentrate on associated circuits whose failure could cause flow diversion, loss of coolant, or other scenarios that could significantly impact the ability to achieve and maintain hot shutdown. The inspectors will pay particular attention to events that occur in the first hour. Inspectors will consider credible fire scenarios that could produce a thermal insult resulting in cable damage. The initial focus of the