

June 7, 1999

FOR: The Commissioners

FROM: William D. Travers /s/  
Executive Director for Operations

SUBJECT: STATUS OF REACTOR FIRE PROTECTION PROJECTS (WITS ITEMS 199800130 AND 199900032)

**PURPOSE:**

To inform the Commission about the status of National Fire Protection Association (NFPA) Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants"; the status of the risk-informed, performance-based reactor fire protection rulemaking; and the status of the comprehensive reactor fire protection regulatory guide. In addition, this paper includes, for the Commission's information, a diagram that shows an overview of these rulemaking and guidance development activities.

**BACKGROUND:****Risk-Informed, Performance-Based Standard Development and Rulemaking**

As directed in a staff requirements memorandum (SRM) of June 30, 1998, the staff deferred development of a risk-informed, performance-based fire protection regulation and is pursuing with the NFPA the development of a risk-informed, performance-based consensus standard for reactor fire protection, NFPA 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants." In an SRM of April 1, 1999, the Commission directed the staff to begin rulemaking at the earliest reasonable date in parallel with the development of NFPA 805 (WITS Item 199900032). This paper discusses recent developments associated with these efforts, and responds to the SRM of April 1, 1999.

**Comprehensive Fire Protection Regulatory Guide**

As directed in the SRM of June 30, 1998, the staff is continuing to consolidate existing regulatory positions in a comprehensive regulatory guide (WITS Item 199800130). This paper discusses recent developments associated with the effort.

**DISCUSSION:****Risk-Informed, Performance-Based Standard Development and Rulemaking**

On November 25, 1998, the NFPA issued the first draft of NFPA 805 for public comment. The comment period closed on February 19, 1999. During the week of February 3, 1999, the NRC staff, the Nuclear Energy Institute (NEI), and NFPA briefed the Advisory Committee on Reactor Safeguards (ACRS) on the first draft of NFPA 805. In a letter to Chairman Jackson dated February 18, 1999, the ACRS offered its views on the draft standard. The ACRS stated that the draft standard is not a distinct, risk-informed, performance-based alternative to the existing NRC fire protection requirements, and is not a bold step in the direction of risk-informed, performance-based fire protection.

During the week of March 14, 1999, the NFPA Technical Committee for Nuclear Facilities (TC), which is developing NFPA 805, met to address more than 400 comments that were submitted to NFPA on the first draft of NFPA 805. NRC staff from the Office of Nuclear Reactor Regulation (NRR) and the Office of Nuclear Regulatory Research are members of the TC. At the meeting, the TC discussed the ACRS comments and the Commission's white paper on risk-informed and performance-based regulation. As a result of the discussions, the TC revised the definitions included in NFPA 805 to be consistent with those presented in the white paper and revised the fire protection program change process specified in the standard such that it is now modeled after Regulatory Guide 1.174, "An Approach For Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis."

The staff believes that NFPA 805, when completed, will provide, to the extent practicable, acceptable methods for making risk-informed, performance-based changes to existing reactor fire protection programs. Consistent with the NRC PRA Policy Statement and the Commission's white paper, the final NFPA standard will incorporate risk-informed and performance-based approaches to the extent supported by the current state of the art. Thus, the standard will provide flexibility to the licensees by allowing greater use of risk insights, engineering analysis and judgement, including the principle of defense-in-depth and the incorporation of safety margins, and performance history to make decisions regarding changes to their fire protection programs. However, because there are limitations and uncertainties associated with certain aspects of currently available fire risk assessment, fire modeling, and performance measurement techniques, the staff expects that the final NFPA standard will include some prescriptive and deterministic elements. In the future, as fire risk assessment and performance-based tools and methods are developed and mature, and additional practical experience is gained with their application, they can be incorporated into the NFPA standard or the regulatory guide that the staff issues to endorse the standard, allowing additional flexibility to reactor licensees.

During the March 1999 meeting, the TC also voted to extend the scheduled target completion date for NFPA 805 from May 2000 to November 2000. This 6-month schedule change was needed to allow additional time to (1) address the large number of public comments received on the draft standard and produce a high-quality document, (2) address the ACRS comments on the draft standard, (3) incorporate industry feedback on the application of NFPA 805 to existing plants, and (4) incorporate feedback from a pilot plant effort being sponsored by NEI to exercise portions of NFPA 805 during the summer of 1999. The staff agreed that the 6-month delay was needed to allow time for the TC to produce a quality standard that will provide an acceptable risk-informed, performance-based alternative to the existing fire protection requirements. The staff notes that NEI is continuing to fully

support the NFPA 805 effort and also agreed with the change in schedule.

Under the new schedule, the TC will complete the final draft of NFPA 805 during September 1999 and NFPA will issue the proposed standard for public comment on January 21, 2000. The comment period will end on March 31, 2000, and the TC will have until June 16, 2000, to resolve any comments. Then, NFPA will prepare the final standard for NFPA membership vote during the fall 2000 NFPA annual meeting (November 11-15, 2000). NFPA will publish and issue NFPA 805 during March 2001. At this time, the staff is expending significant resources on TC efforts to resolve the public comments and produce the final draft of the proposed standard.

NEI is currently planning its NFPA 805 pilot program and is soliciting licensee volunteers. As a minimum, the staff will monitor the pilot program activities. However, at this time, it is not clear what level of NRC staff involvement will be needed to support the pilot program or as a result of the pilot program. For example, if a pilot plant chooses to implement fire protection program changes based on the pilot activities, the changes may require Appendix R exemptions or license amendments. Such changes would require staff review and approval. Conversely, if the pilot program is simply a study to assess the types of changes that could be made using NFPA 805 techniques, without implementing the changes, plant-specific staff reviews would not be needed.

On the basis of the Commission direction provided in the SRM of June 30, 1998, NRR deferred the risk-informed, performance-based fire protection rulemaking and transferred the resources that it had planned and budgeted for the rulemaking to the development of NFPA 805. In addition, because of the deferral, NRR did not plan or budget fiscal year (FY) 1999 resources for the rulemaking. In response to the direction in the SRM of April 1, 1999, the staff assessed the relationship of the rulemaking to other ongoing and planned reactor fire protection activities (for example, the development of NFPA 805 and the development of a new regulatory guide to endorse NFPA 805), the availability of resources to work on the rulemaking and its supporting regulatory guide, and the resources needed to continue work on other high priority fire protection issues (for example, the circuit analysis issue, IPEEE reviews, the new reactor oversight and inspection program, and the new comprehensive regulatory guide for existing fire protection requirements and guidance). The staff determined that it will be most effective and efficient to begin the rulemaking after NFPA issues the final draft of NFPA 805 in September 1999. At that time, the content of the proposed NFPA 805 will be clearer and the staff can use the results of the TC's developmental work to establish the framework for the new rule. For example, the TC is developing goals, objectives, and criteria for risk-informed and performance-based reactor fire protection programs that can be translated into a new rule as appropriate. In addition, after NFPA issues the final draft of NFPA 805, the amount of staff resources needed to support the NFPA 805 effort will decrease. At that time, the staff plans to shift resources from its NFPA 805 development efforts to the rulemaking.

The staff has budgeted resources for this rulemaking activity beginning in FY 2000 (see resource section, below), and will develop a plan and schedule for the rulemaking during the first quarter of FY 2000. In its detailed plan, the staff will include one or more meetings to solicit and encourage stakeholder involvement throughout the rulemaking process. The staff estimates that it should be able to issue the new risk-informed, performance-based reactor fire protection rule about one year after NFPA 805 is finalized in November 2000. This completes the staff's efforts on WITS Item 199900032.

### **Comprehensive Fire Protection Regulatory Guide**

As discussed during the Commission briefing on February 8, 1999, the proposed comprehensive regulatory guide (RG) will consolidate existing guidance and staff positions that are now located in several regulatory documents. In addition, as appropriate, the staff will resolve conflicting guidance and will include new guidance where the existing guidance is either weak or non-existent (e.g., guidance for establishing the level and duration of interim compensatory measures). The staff will follow standard NRC processes for new guidance and will differentiate in the RG any new guidance from the existing guidance.

NEI has suggested, given the complexity of reactor fire protection and the potential for revision of existing and addition of new guidance, that the staff ensure appropriate opportunities are provided for stakeholder involvement. Additionally, NEI has noted that licensees have indicated an interest in comparing the draft RG to their existing fire protection licensing bases, since the new RG may raise regulatory and technical issues. Specifically, during public meetings on February 25 and March 25, 1999, and in a letter dated March 2, 1999, NEI requested that the NRC staff provide for stakeholder comment an early draft of the proposed RG before it publishes the proposed RG in the *Federal Register*. Other stakeholders that attended the meetings agreed with NEI's comments and proposal. The staff agrees that NEI's proposal would increase stakeholder involvement and could add value to the RG. However, it did not include this review and comment period in its original plan and schedule. Therefore, the staff plans to revise its plan and schedule for the comprehensive RG as discussed below.

Consistent with its original schedule, the staff will complete the first draft of the RG in September 1999. To accommodate NEI's request, and consistent with the approach that it is applying to encourage stakeholder involvement in the development of the new RG for alternative radiological source terms, the staff will issue this draft as an early draft. The staff plans to provide the draft during a public meeting, place it in the NRC public document room, post it on the Internet, and issue a Federal Register notice to inform all interested stakeholders of its availability. After it receives comments from all interested stakeholders, the staff will decide whether it should hold additional meetings, or possibly a workshop, with the stakeholders to address the comments. The staff will then prepare the final draft of the RG that will be issued for public comment by April 2000.

### **RESOURCES:**

NRR currently has 0.3 FTE budgeted for the comprehensive fire protection RG for FY 2000, and 1 FTE budgeted for FY 2000 and 0.5 FTE budgeted for FY 2001-2002 for the risk-informed and performance-based fire protection rulemaking. (The resources for the rulemaking include resources for the development of NFPA 805 and the associated rulemaking.) No additional resources are required to perform the work described above.

### **PLANNED STAFF ACTIONS:**

The staff requests action within 10 days. Action will not be taken until the SRM is received. This action is considered within the delegated authority of the Executive Director for Operations.

By December 31, 1999, the staff will update the status of these projects and provide its closure plan for the risk-informed, performance-based reactor fire protection rulemaking.

COORDINATION:

The Office of the General Counsel has reviewed this Commission paper and has no legal objections.

The Office of the Chief Financial Officer has reviewed this Commission paper for resource implications and has no objections.

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Attachment: As stated

Attachment

### Overview of Activities Related to Reactor Fire Protection Rulemaking and Guidance Documents

