

## RULEMAKING ISSUE (Notation Vote)

December 22, 2004

SECY-04-0233

FOR: The Commissioners

FROM: Luis A. Reyes  
Executive Director for Operations /RA/

SUBJECT: PROPOSED RULEMAKING—POST-FIRE OPERATOR MANUAL ACTIONS (RIN 3150  
AH-54)

### PURPOSE:

To obtain Commission approval to publish the proposed rule, including the issue of the need for an interim enforcement discretion policy and make available the draft regulatory guide and other supporting documents for public comment.

### BACKGROUND:

In SECY-03-0100, "Rulemaking Plan on Post-Fire Operator Manual Actions," dated June 17, 2003, the staff recommended revising the existing fire protection regulation in paragraph III.G.2 of Appendix R to 10 CFR Part 50 to include operator manual actions. These actions are needed to ensure that a redundant train of systems necessary to achieve and maintain hot shutdown conditions located within the same area outside the primary containment is free of fire damage. In an SRM dated September 12, 2003, the Commission approved the staff's recommendation to revise the fire protection program requirements in Appendix R and the associated guidance. The Commission also approved the staff's plan to develop an interim enforcement policy to deal with compliance issues until the guidance and final rule are implemented.

CONTACT: David Diec, NRR/DRIP  
301-415-2834

DISCUSSION:

10 CFR Part 50.48, "Fire protection," requires operating power plants to have a fire protection plan that satisfies Criterion 3 of Appendix A to 10 CFR Part 50. Criterion 3 requires structures, systems, and components important to safety be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions. The specific fire protection requirements for safe shutdown capability are further discussed in paragraph G of Section III of Appendix R to 10 CFR Part 50. The more specific 10 CFR Part 50.48 and Appendix R requirements were added following a significant fire that occurred in 1975 at the Browns Ferry nuclear power plant. The fire damaged electrical cables for control, instrumentation, and power cables for redundant trains of equipment necessary for safe shutdown.

In response to the fire, an NRC investigation found serious design inadequacies in fire protection at Browns Ferry. The investigators specifically noted that the independence of redundant equipment at Browns Ferry was negated by lack of adequate separation between cables for redundant trains of safety equipment. The investigators subsequently recommended that a suitable combination of electrical isolation, physical distance, fire barriers, and sprinkler systems should be used to maintain the independence of redundant safety equipment. In response to these recommendations, the NRC worked with reactor licensees for several years to identify and implement necessary plant fire protection improvements.

In 1980, NRC promulgated 10 CFR 50.48 to establish fire protection requirements. Appendix R to 10 CFR Part 50 included paragraph III.G, fire protection of safe shutdown capability. The requirements for separation of cables and equipment associated with redundant safe shutdown trains were promulgated in paragraph III.G.2.

Paragraph III.G.2 of Appendix R requires that cables and equipment of redundant trains of safety systems in the same fire area be separated by either:

- a. a 3-hour fire barrier, or
- b. a horizontal distance of more than 20 feet with no intervening combustibles in conjunction with fire detection and automatic fire suppression, or
- c. a 1-hour fire barrier combined with fire detection and automatic fire suppression.

Appendix R applies to only those licensees who received operating licenses before January 1, 1979. Plants licensed after January 1, 1979, are not required to meet Appendix R. These plants were licensed to meet Branch Technical Position CMEB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants," that contains criteria similar to the Appendix R requirements. Specific licensing basis information for these plants is usually contained in license conditions issued at time of licensing.

Because the Appendix R rule was to apply to facilities which were already built, the NRC was aware that compliance with various parts of the requirement might be difficult at some facilities. Accordingly, the NRC included a provision which allowed licensees to submit alternative acceptable methods for protecting redundant equipment for NRC review and approval. During the implementation of the Appendix R requirements, the NRC reviewed and approved a large number of exemptions for 60 licensees who proposed alternative acceptable methods of compliance in various areas for protecting redundant equipment.

In the early 1990s, generic problems arose with Thermolag<sup>1</sup> fire barriers, which many licensees were using to comply with paragraph III.G.2 of Appendix R. Licensees were ultimately required to replace Thermolag material with other fire barriers. Several years later, fire protection inspectors began to notice that many licensees had not upgraded or replaced Thermolag fire barrier material (or had not otherwise provided the required separation distance between redundant safety trains) used to satisfy the paragraph III.G.2 criteria. Some licensees compensated by relying on operator manual actions which had not been reviewed and approved by the NRC via the exemption process. Operator manual actions are not an alternative specified in paragraph III.G.2 of Appendix R. However, they may be a means of achieving safe shutdown in an event of a fire under certain conditions.

In 2002, the NRC met with nuclear industry licensees and informed them that the use of unapproved manual actions was not in compliance with paragraph III.G.2. During a meeting on June 20, 2002, the Nuclear Energy Institute (NEI) stated that there was widespread use of operator manual actions throughout the industry based on industry understanding of past practice and existing NRC guidance. The industry also stated that licensees' use of unapproved manual actions had become prevalent even before the concerns with Thermolag material surfaced. Shortly thereafter, the NRC developed criteria for inspectors to use in evaluating the acceptability of operator manual actions pending the final rulemaking. The criteria were based on the past practice and experience of NRC inspectors performing review of operator manual actions used to comply with Appendix R, paragraph III.G.3, on alternate shutdown. Licensees were familiar with these criteria through their interactions with the NRC inspection process. These criteria were issued in the revision to Inspection Procedure 71111.05, "Fire Protection," in March 2003. While unapproved manual actions are still violations, actions meeting the interim criteria are viewed to have relatively low safety significance and can be dealt with under the current enforcement discretion policy.

#### Stakeholder Feedback on Staff Published Interim Acceptance Criteria

The staff published a *Federal Register* notice (68 FR 66501), dated November 26, 2003, that requested comments on acceptance criteria for operator manual actions to be considered for use in the development of the interim enforcement policy for certain violations of fire protection program requirements.

The staff received more than 460 comments from stakeholders. NEI and several other industry stakeholders objected to a provision in the notice that fire detection and automatic fire suppression systems must be installed in the area where the fire occurs in order to credit operator manual actions as a means of complying with paragraph III.G.2. NEI and a number of industry representatives requested that "... acceptance criteria should state NRC's current expectations for feasibility of all manual actions. This maintains the maximum consistency with existing NRC guidance, and avoids the creation of a separate set of standards only applicable to III.G.2 manual actions."

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<sup>1</sup>Thermolag is a brand-name for a particular type of material used to construct fire barriers typically for protecting electrical conduits and cable trays. In the early 1990's, issues arose regarding the testing and qualification process used for this material. It was determined that barriers made of this material would not provide protection for the required periods of time.

Nearly all of the remaining comments, including those from public interest groups such as the Union of Concerned Scientists (UCS) and the Nuclear Information and Resource Service (NIRS), firmly objected to the proposed addition of operator manual actions as a means of compliance with paragraph III.G.2. These public interest groups indicated that the NRC should enforce regulations promulgated after the Browns Ferry fire to minimize the chances of recurrence. They believed the proposed rule would reward licensees who do not meet the current safety regulations and punish those who have spent resources to comply with the regulations. These objections were confirmed at a public meeting on June 23, 2004.

In addition, on December 7, 2004, the staff received a letter from NEI responding to the staff's draft rule language that was placed on the NRC external web site in October 2004. In the letter, NEI indicated that staff added additional criteria, which would result in significant expense for plant changes, or exemption requests, with no significant safety improvement. NEI requested that proposed rule language be revised before it is published in the *Federal Register* for public comment. The staff intends to respond to the NEI letter as part of the staff review and disposition of public comments during the proposed rule process. The NEI letter is included for Commission information (Attachment 5).

#### Proposed Rule

The proposed rule would revise existing fire protection program requirements in paragraph III.G.2 of Appendix R to 10 CFR Part 50 to allow licensees to implement acceptable operator manual actions combined with detection and suppression capability, as an acceptable method for ensuring the capability of a licensee to bring a reactor to, and maintain it in, a safe hot shutdown condition. Detection and suppression requirements, along with the criteria for feasible and reliable operator manual actions, were included to maintain the overall defense-in-depth approach. The staff's justification is discussed in detail in Section III.C of the attached draft *Federal Register* notice (Attachment 1).

Another key feature of the proposed rule is a time margin concept. The basic idea is to identify a realistic time margin for fire-related local operator manual actions that would ensure that the actions would be successful. The time margin ensures not only that operator manual actions are feasible (can be performed in the time available), but also reliable (yield the same or compatible results in different experiments or statistical trials or is dependably repeatable). Section III.B of the attached draft *Federal Register* notice discusses the time margin concept.

The interactions between operators performing manual actions to respond to an in-plant fire and the types of actions taken by plant responders during a fire as a result of a security event were considered during the development of this rule. However, given that physical security overarches many aspects of plant operations, it was determined that security considerations should be considered in a broader context. As discussed in a Memorandum from the EDO to the Commissioners, "Status of Staff Activities on a Proposed Rule for a Risk-Informed Redefinition of the Large Break Loss-Of-Coolant-Accident," dated October 22, 2004, the staff is evaluating the merits of a more global approach to establishing safety-security interface regulatory requirements. In a November 19, 2004, letter to the Chairman dealing with this rulemaking, the ACRS concurred on this approach.

The proposed rule solicits stakeholder comments regarding application of operator manual actions acceptance criteria being applied to paragraphs III.G.1 and III.G.3. Information on potential regulatory impacts that might arise if the criteria were applied to these paragraphs is also solicited. The staff also solicits comments on how best to define an appropriate time margin safety factor that would ensure a low probability of failure for the operator manual actions. In addition, comments are sought on the application of a fixed versus an automatic fire suppression system in the fire area.

### Enforcement Considerations

In SECY-03-0100, "Rulemaking Plan on Post-Fire Operator Manual Actions," dated June 17, 2003, the staff recommended development of an interim enforcement policy relying on preliminary acceptance criteria for manual actions. The staff proposed this strategy based on a belief that interim acceptance criteria could be developed that would be consistent with the manual actions acceptance criteria in the final rule. The Commission had previously approved a similar enforcement discretion policy related to a fitness-for-duty proposed rulemaking. In an SRM dated September 12, 2003, the Commission approved the staff's recommendation.

In March 1998, the staff issued EGM 98-02, "Enforcement Guidance Memorandum - Disposition of Violations of Appendix R, Sections III.G and III.L Regarding Circuit Failures," that provides enforcement guidance for issues related to fire-induced circuit failures, which encompasses the vast majority of manual actions as compensatory measures to satisfy the regulatory requirements. This EGM was developed based on an apparent widespread misunderstanding of the requirements on the part of licensees and remains in effect until December 31, 2005. The EGM provides guidance for disposition of noncompliances involving fire-induced circuit failures, which could prevent operation or cause maloperation of equipment needed to achieve and maintain post-fire safe shutdown. Among the enforcement conditions, discretion will be given for cases where licensees do not dispute that a violation of regulatory requirements has occurred with respect to a nonconformance and that licensees take prompt compensatory actions and also take corrective action within a reasonable time. The expectations of this EGM have been incorporated into the current NRC Enforcement Manual. In addition, the Office of Nuclear Reactor Regulation issued a revised Inspection Procedure (IP)71111.05 in March 2003 incorporating interim operator manual actions acceptance criteria. The inspection procedure provides guidance to assess and ensure that plant specific operator manual actions meet the interim acceptance criteria and that corrective actions taken by the plants will achieve and maintain safe shutdown condition.

On November 26, 2003, the staff published a *Federal Register* notice soliciting public comments on specific acceptance criteria for operator manual actions to be considered for use in developing an interim enforcement discretion policy for post-fire operator manual actions. In addition, as part of the proposed rule development, the staff has had numerous interactions with industry and public stakeholders to discuss rule requirements and the more developed operator manual actions acceptance criteria. Based on these meetings and comments in response to the November 26, 2003, *Federal Register* notice, the staff realizes that the proposed rule's acceptance criteria and detection and suppression requirements are still evolving, such that the new interim enforcement guidance developed in conjunction with the proposed rule may not be consistent with the requirements eventually specified in the final rule.

The current applications of EGM 98-02 and IP 71111.05 are effective to ensure and maintain the overall plant safety by licensees through the use of adequate and appropriate compensatory measures in the form of operator manual actions implemented in accordance with the licensee's Fire Protection Program. Manual actions that fail to meet the criteria in the inspection procedure are not considered to be feasible or to be adequate compensatory measures. Such manual actions will result in the non-compliance being entered into the enforcement process.

The new interim enforcement policy for the post-fire operator manual actions would utilize a disputed set of acceptance criteria and trigger additional reviews (by licensees and inspectors) of past findings, with the prospect of a third review being necessary upon issuance of the final rule. Issuing such enforcement discretion policy at this time could also have the unintended consequence of preempting the rulemaking process without a clear safety benefit.

Based on the above, the staff proposes to continue using the current enforcement discretion policy of EGM 98-02 and the guidance provided in IP 71111.05 and that a revision or additional policy to include specific operator manual actions acceptance criteria is not needed.

#### Implementation Plan

To fully implement the Commission-approved final rule, the staff will revise IP 71111.05 to ensure that inspection criteria are consistent with the final rule, finalize supporting regulatory guides, and conduct fire protection inspection training. NRC fire protection inspectors would conduct inspections and verify that the licensees' documented manual actions met the NRC fire protection regulation through the existing triennial inspection process. The licensees would be required to retain the fire protection plan and each change to the plan as a record in accordance with 10 CFR 50.48.

#### Contents of the Proposed-Rulemaking Package

This rulemaking package provides a comprehensive set of documents for Commission consideration. It consists of the proposed rule, the regulatory analysis (Attachment 2), the draft regulatory guide (draft Regulatory Guide (DG)-1136, "Guidance for Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire") (Attachment 3), and the information collection supporting statement (Attachment 4).

#### ACRS and CRGR Reviews

The staff provided a draft proposed rule package to the Advisory Committee on Reactor Safeguards (ACRS) and Committee to Review Generic Requirements (CRGR) for consideration. On November 19, 2004, the ACRS recommended in its letter to the Chairman that the proposed rule be published for public comments. The CRGR agreed to defer review of the documents until the final rule stages.

RESOURCES:

The resource requirements of 1.0 FTE for NRR, 0.2 FTE for RES, 0.2 FTE for OGC for FY 2005, and 0.5 FTE for NRR for FY 2006 have been budgeted for a completion of the final rule.

RECOMMENDATIONS:

That the Commission:

1. *Approve* the proposed rule for publication.
2. *Approve* the staff's recommendation to terminate development of an additional interim enforcement policy with specific acceptance criteria.
3. *Certify* that this rule, if promulgated, will not have a negative economic impact on a substantial number of small entities. This action is needed to satisfy the requirements of the Regulatory Flexibility Act, 5 U.S.C. 605(b).
4. Note:
  - a. The following documents will be published in the *Federal Register* with a 75-day public comment period:
    - Proposed Rule, including the Environmental Assessment
    - Notice of Availability in *Federal Register* of (a) Regulatory Analysis and (b) Draft Regulatory Guide
    - OMB clearance package, and
    - NEI letter dated December 7, 2004
  - b. The Chief Counsel for Advocacy of the Small Business Administration will be informed of the certification regarding economic impact on small entities and the basis for it, as required by the Regulatory Flexibility Act.
  - c. Copies of the *Federal Register* notice of proposed rulemaking will be distributed to all affected Commission licensees.
  - d. A OMB supporting statement was prepared and the change in reports and records indicated a net reduction of 745 hours annually.
  - e. A public announcement will be issued.
  - f. Appropriate Congressional Committees will be informed.

COORDINATION:

The Office of the General Counsel has no legal objection to this paper. The Office of the Chief Financial Officer has reviewed this Commission paper for resource implications and has no objections. The CRGR has waived its review of this proposed rule and will review the final rule. The ACRS has no objection to the publication of the proposed rule.

The rule contains changes in information collection requirements that must be submitted to the Office of Management and Budget (OMB) no later than the date the proposed rule is forwarded to the Federal Register for publication.

**/RA Ellis W. Merschoff Acting For/**

Luis A. Reyes  
Executive Director  
for Operations

- Attachments:
1. Federal Register Notice
  2. Regulatory Analysis
  3. Regulatory Guide (DG-1136, Guidance for Demonstrating the Feasibility and Reliability of Operator Manual Actions In Response to Fire)
  4. OMB Supporting Statement
  5. NEI letter dated December 7, 2004

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