

**DRAFT RIS 2006-XX  
For Information Only**

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION  
WASHINGTON, D.C. 20555-0001

**DRAFT**

**NRC REGULATORY ISSUE SUMMARY 2006-XX  
REGULATORY EXPECTATIONS WITH APPENDIX R PARAGRAPH  
III.G.2 OPERATOR MANUAL ACTIONS**

**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 reiterate the staff's compliance expectations with respect to the use of operator manual actions under paragraph III.G.2 of Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," to Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," discuss means to achieve compliance with paragraph III.G.2, respond to industry's contentions regarding backfit of operator manual actions under paragraph III.G.2, advise licensees of the date the staff is terminating the guidance in Enforcement Guide Memorandum (EGM) 98-02, "Enforcement Guidance Memorandum—Disposition of Violations of Appendix R, Sections III.G and III.L Regarding Circuit Failures," issued March 1998, and discuss exemption requests, compensatory measures and corrective actions as they pertain to operator manual actions. EGM 98-02 was later revised on February 2, 2000, (ADAMS Accession No. ML003710123) and then incorporated into the NRC Enforcement Manual in section 8.1.7.1. No action or written response is required.

**BACKGROUND INFORMATION**

In 2000, the NRC started the Reactor Oversight Process that included systematic inspections of safe-shutdown capability for every licensee. During these inspections, fire protection inspectors began to notice that many licensees had not upgraded or replaced Thermo-Lag 330-1 fire

barrier material<sup>1</sup>, or had not otherwise provided the required separation distance between redundant safe shutdown trains, used to satisfy the requirements in paragraph III.G.2 of Appendix R to 10 CFR Part 50. Some licensees compensated by relying on operator manual actions which were not reviewed and approved by the NRC through 10 CFR 50.12 exemption process. Other licensees misinterpreted paragraph III.G.1 to use operator manual actions for situations where redundant safe shutdown trains are in the same fire area.

The inspectors found that some licensees relied upon operator manual actions as a permanent solution to the Thermo-Lag 330-1 fire barrier resolution issue, instead of the options provided in the regulations, without seeking prior staff approval. Some licensees claimed that paragraph III.G.1 allowed the use of operator manual actions when redundant trains are in the same fire area and others claimed that operator manual actions are allowed in paragraph III.G.2 because paragraph III.G.2 does not specifically disallow their use.

On November 14, 2001, the staff conducted training on this issue with the regional inspectors. The Nuclear Energy Institute (NEI) requested a copy of the lesson plan by letter dated November 29, 2001 (ADAMS Accession No. ML0133703020). Consequently, on January 11, 2002, NEI sent a letter to the NRC claiming that the lesson plan was guidance which constituted a backfit (ADAMS Accession No. ML020300069). The staff responded to NEI in a letter on May 16, 2002 (ADAMS Accession No. ML021410026). As a result of the backfit claim by NEI, the Office of the General Counsel reviewed the staff response to NEI and had no legal objection to the staff position. The Committee To Review Generic Requirements (CRGR) also reviewed the letter and concluded that the staff response did not contain new staff positions (ADAMS Accession No. ML021750218). After reviewing the staff response, industry told the staff that a large number of exemptions would have to be submitted to comply with existing regulations.

In 2003, the Commission determined that amending Appendix R to 10 CFR Part 50 would be the most effective and efficient way to provide an option for licensees to utilize acceptable operator manual actions in lieu of the separation or barrier requirements in paragraph III.G.2 of Appendix R. On March 7, 2005, the NRC published the proposed rule in the *Federal Register* (70 FR 10901) that would have revised paragraph III.G.2 of Appendix R to 10 CFR Part 50 to allow licensees to implement acceptable operator manual actions after documenting that they met the regulatory acceptance criteria. Subsequent to the *Federal Register* publication, the staff received public comments concerning the proposed rule. Most public stakeholders opposed the proposed rule. Industry stakeholders indicated that a large number of exemption requests would be expected with the proposed rule. Based on stakeholder comments, it became apparent to the staff that the proposed rule would not achieve its desired objective of effectiveness and efficiency by reducing the number of exemption requests and licensee resources expended.

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<sup>1</sup> During the 1980s, many licensees used Thermo-Lag 330-1 as a fire barrier material to satisfy the requirements of Appendix R, paragraph III.G. In December 1992, the staff issued Generic Letter (GL) 92-08, "Thermo-Lag 330-1 Fire Barriers," that discussed issues with the Thermo-Lag 330-1 fire barrier material.

## SUMMARY OF THE ISSUE

On [insert 2006 FRN date], the NRC published a notification in the *Federal Register* (xx FR xxxxx) withdrawing the proposed rule that would have revised paragraph III.G.2 of Appendix R to 10 CFR Part 50 to allow the use of operator manual actions. Licensees are expected to ensure that their facility is in compliance with their licensing basis and with regulatory requirements.

### Compliance Expectations - Regulations

Paragraph III.G.2 of Appendix R requires that, where cables or equipment, including associated nonsafety circuits that could prevent operation or cause maloperation as a result of hot shorts, open circuits, or shorts to ground, of redundant trains of systems necessary to achieve and maintain hot-shutdown conditions are located within the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:

- (a) separation of cables and equipment by a fire barrier having a 3-hour rating
- (b) separation of cables and equipment by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards and with fire detectors and an automatic fire suppression system in the fire area
- (c) enclosure of cables and equipment in a fire barrier having a 1-hour rating and with fire detectors and an automatic fire suppression system in the fire area

Paragraph III.G.2 of Appendix R requires one of three means of ensuring that one of the redundant trains in the same fire area is free of fire damage.

Consequently, unless alternative or dedicated shutdown capability is provided or an exemption from Paragraph III.G is granted, circuits which could cause maloperation or prevent operation of redundant trains for post-fire safe shutdown, and are located in the same fire area, must be protected in accordance with paragraph III.G.2 without the use of operator manual actions. When redundant safe shutdown trains are in the same fire area and a fire could cause maloperation or prevent operation of these trains, paragraph III.G.2 requires protection to ensure that a train is free of fire damage. In many cases, recent inspections have found that a manual action was credited to ensure a train is free of fire damage when redundant trains were in the same fire area. The manual action was taken in a different fire area because fire damage could have caused maloperation or prevented operation of the redundant train. The Statements of Consideration for Appendix R, issued on November 19, 1980 (45 FR 76602), state, "Because it is not possible to predict the specific conditions under which fires may occur and propagate, the design basis protective features are specified rather than the design basis fire. Three different means for protecting the safe shutdown capability outside of containment are acceptable." An operator manual action to compensate for a circuit that is not free of fire damage is not one of the specified means allowed by paragraph III.G.2.

Since 2002, the NRC has reiterated its position in correspondence (e.g., see letter to NEI dated May 16, 2002, ADAMS Accession No. ML021410026), public meetings, proposed operator manual actions rulemaking documents, and generic communications, such as RIS 2005-30, "Clarification of Post-Fire Safe-Shutdown Circuit Regulatory Requirements," dated December 20, 2005, (ADAMS Accession No. ML053360069) and draft Generic Letter 2006-xx, "Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations."

Licensees are referred to RIS 2005-30 for a discussion on paragraph III.G.1 requirements and the term, "emergency control station." RIS 2005-30 makes clear that licensees may not credit an operator manual action at an emergency control station as protection of redundant safe shutdown trains, when the redundant safe shutdown trains are in the same fire area.

In summary, under the current Appendix R regulations, operator manual actions may not be credited to claim that a paragraph III.G.2 fire area (i.e., redundant trains are located in the same fire area) provides paragraph III.G.1 protection. When redundant trains are located in the same fire area and an alternative or dedicated shutdown capability, in accordance with paragraph III.G.3, is not provided, the protection required by paragraph III.G.2, including fire detectors and automatic fire suppression (where noted), must be provided.

### **Compliance Expectations - Confirmatory Order Modifying License**

In 1998, the NRC issued a Confirmatory Order Modifying License (Order) to licensees who were not making adequate progress towards correcting issues identified with Thermo-Lag 330-1 fire barriers. Each Order was effective immediately upon issuance and became part of the operating license for each plant involved. These Orders remain in effect unless the Director,

Office of Nuclear Reactor Regulation, relaxes or rescinds, in writing, any provisions of an Order upon a showing by the licensee of good cause. Between 1998 and 2001, the NRC received letters from licensees, to whom the agency had issued Orders, indicating completion of the ordered Thermo-Lag corrective actions. To date, none of the Orders issued for Thermo-Lag fire barriers have been relaxed or rescinded. Therefore, each Order continues to remain in effect and modify the operating license.

### **Achieving Compliance**

In lieu of complying with the requirements of paragraph III.G.2, licensees have other options available to achieve compliance with the regulations.

### **Achieving Compliance - Paragraph III.G.3**

Paragraph III.G.2 also states the following:

Except as provided for in paragraph G.3 of this section, where cables or equipment, including associated non-safety circuits that could prevent operation or cause maloperation due to hot shorts, open circuits, or shorts to ground, of redundant trains of systems necessary to achieve and maintain hot shutdown

conditions are located within the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided.

Therefore, the licensee may use the alternative shutdown method described in paragraph III.G.3 of Appendix R if the licensee cannot meet the requirements of paragraph III.G.2.

### **Achieving Compliance - 10 CFR 50.48(c)**

Licensees may opt to adopt the performance-based option in 10 CFR 50.48(c). As discussed below, some licensees may pursue an exemption to the regulation or an amendment to their license. However, the staff notes that in Staff Requirements Memorandum, "Staff Requirements—SECY-04-0233—Proposed Rulemaking—Post-Fire Operator Manual Actions (RIN-3150-AH-54)," dated January 18, 2005, the Commission emphasized that, although the exemption process is available for cases that can be justified under 10 CFR 50.12, the performance-based option in 10 CFR 50.48(c) is the preferred option to compliance and would be more desirable in minimizing the need for future exemption requests for addressing operator manual actions. Therefore, of the several means available to licensees for achieving compliance, the exemption option is one that the Commission considers as the least preferred.

### **Achieving Compliance - Exemptions from Paragraph III.G.2**

The regulations at 10 CFR 50.48(b) backfit the requirements of paragraph III.G.2 of Appendix R to plants licensed to operate prior to January 1, 1979. Similar guidance was incorporated into Section 9.5-1 of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," for plants licensed after January 1, 1979. Post-1979 licensees incorporated their fire protection program implementation requirements into their operating license as a license condition. As originally issued, 10 CFR 50.48, "Fire Protection," allowed licensees to make a request for exemption from a requirement to comply with one or more of the provisions of Appendix R, if such exemption were based on an assertion by the licensee that such required modifications would not enhance fire protection safety in the facility or that such modifications might be detrimental to overall facility safety. This statement provided in the original rule defines the meaning of "underlying purpose of the rule," as specified in 10 CFR 50.12(a)2.ii below. The current basis for the staff considering an exemption is provided in 10 CFR 50.12, "Specific Exemptions."

Section 50.12(a) of Title 10 of the *Code of Federal Regulations* states the following:

The Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of the regulations of this part, which are—

- (1) Authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security.

- (2) The Commission will not consider granting an exemption unless special circumstances are present. Special circumstances are present whenever—
  - (i) Application of the regulation in the particular circumstances conflicts with other rules or requirements of the Commission; or
  - (ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule; or
  - (iii) Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated...

The staff notes that substituting an operator manual action for a required rated fire barrier does not appear to meet the requirements of paragraphs (i) and (iii) of the above exemption criteria. To meet the criteria of paragraph (iii), a licensee would need to demonstrate that application of the rule would not serve the underlying purpose of the rule or is not needed for that purpose. Since the rule did not include manual actions as an option, and after a review of many of the manual actions identified during recent inspections, the staff anticipates that relatively few exemption requests from pre-1979 licensees will meet the requirements of paragraph (a)2.ii of 10 CFR 50.12.

With respect to existing, approved exemptions, the NRC has reviewed and granted exemption requests for the use of operator manual actions in lieu of the separation criteria of paragraph III.G.2. These exemptions are specific to the licensee and the situation discussed in the exemption. Although the rationale underlying an exemption request to a specific licensee may appear to be applicable to a similar situation for a second licensee, the staff cautions that NRC review and approval by issuance of an exemption is necessary for the second licensee.

Some licensees questioned whether existing exemptions would have to be resubmitted as a result of the NRC position that an operator manual action is not an acceptable means for satisfying the requirements of paragraph III.G.2. A licensee with an approved exemption would not be required to resubmit its plant-specific exemption request, provided that the exemption remains unchanged.

### **Achieving Compliance - Plants Licensed to Operate on or After January 1, 1979**

Plants licensed to operate on or after January 1, 1979, (post-1979 licensees) who use operator manual actions without NRC approval may or may not be in compliance with applicable fire protection requirements. Compliance depends on the specific licensing commitments (usually specified in license conditions for these licensees), the change control process, and how the change was justified and analyzed to demonstrate that the operator manual actions are feasible and reliable and thus do not adversely affect the ability to achieve or maintain safe shutdown. However, post-1979 licensees who do not seek prior NRC approval do so at their own risk and

may be requested to demonstrate, during the conduct of the NRC reactor oversight process, that the use of an operator manual action would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

### **Achieving Compliance - Compensatory Measures and Corrective Actions**

Compensatory measures for missing or degraded fire barriers should be implemented, as required, in accordance with the licensees' approved fire protection program. Licensees are also referred to RIS 2005-07, "Compensatory Measures to Satisfy the Fire Protection Program Requirements," dated April 19, 2005. Licensees should also report, as appropriate, missing or degraded fire barriers in accordance with the requirements of 10 CFR 50.72(b)(3)(ii) and 10 CFR 50.73(a)(2)(ii).

Licensees should document missing or degraded fire barriers in accordance with their corrective action program. Corrective actions for missing or degraded fire barriers should be completed within the guidance provided by RIS 2005-20, "Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," and its attachment. The staff has noted that licensees have been aware that a manual action used in lieu of a fire barrier is a violation of licensing requirements since at least the time of the public meeting in June 2002. The staff has also noted that some manual actions were added by licensees who did not address the Thermo-Lag 330 issue in accordance with their correspondence with the staff concerning Thermo-Lag resolution. The staff therefore considers that these long-term noncompliance issues should be rapidly resolved in accordance with the guidance above.

Since many operator manual actions may be affected by the resolution of the circuits analysis issue, licensees should review recent NRC generic communications to ensure that any corrective actions taken for manual actions meet licensing requirements.

### **Enforcement Guidance Memorandum EGM 98-02**

Enforcement discretion guidance, as applicable, is currently contained in Enforcement Guidance Memorandum (EGM) 98-02, "Enforcement Guidance Memorandum—Disposition of Violations of Appendix R, Sections III.G and III.L Regarding Circuit Failures" for cases where licensees take prompt compensatory actions and corrective actions. This guidance has been incorporated into section 8.1.7.1 of the Enforcement Manual.

Licensees with existing unapproved operator manual actions that met the requirements of the proposed rule would not have taken corrective actions, expecting the approved final rule to bring them into compliance. The withdrawal of the operator manual actions rulemaking would require some licensees to take corrective actions other than what a final rule would have allowed.

This RIS notifies licensees that the NRC will terminate the enforcement discretion guidance in EGM 98-02 effective **[insert date 6 months from the date of the FRN withdrawing the rulemaking]**. This will eliminate the enforcement discretion guidance under EGM 98-02 for any

issues related to circuits or operator manual actions. The six-month period is intended to provide a reasonable amount of time for those licensees that have implemented feasible and reliable operator manual actions as compensatory measures to take corrective actions.

### **BACKFIT DISCUSSION**

This RIS requires no action or written response and is, therefore, not a backfit under 10 CFR 50.109, "Backfitting." Consequently, the NRC staff did not perform a backfit analysis.

### **FEDERAL REGISTER NOTIFICATION**

A notice of opportunity for public comment was not published in the *Federal Register* because this RIS is informational.

### **SMALL BUSINESS REGULATORY ENFORCEMENT FAIRNESS ACT OF 1996**

The NRC has determined that this action is not subject to the Small Business Regulatory Enforcement Fairness Act of 1996.

### **PAPERWORK REDUCTION ACT STATEMENT**

This RIS does not contain information collections and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).



## CONTACT

Please direct any questions about this matter to the technical contact listed below or to the appropriate NRR project manager.

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