

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION  
WASHINGTON, D.C. 20555-0001

June 30, 2006

**NRC REGULATORY ISSUE SUMMARY 2006-10  
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 provide licensees with the staff's expectations, schedule and enforcement policy for resolving issues related to withdrawal of the operator manual actions rulemaking and the subsequent termination of Enforcement Guidance Memorandum (EGM) 98-02<sup>1</sup>. It is expected that recipients will review the information for applicability and consider actions, as appropriate. No specific action or written response is required on the part of an addressee.

In particular, the information in this RIS should be useful to licensing and engineering staffs at currently operating reactors in achieving compliance with paragraph III.G.2 of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979." This RIS may reduce the number of exemption requests predicted by the industry in response to the withdrawal of the operator manual actions rulemaking.

**BACKGROUND INFORMATION**

In the year 2000, the NRC implemented the Reactor Oversight Process which included systematic inspections of licensees' safe shutdown capability. During these inspections, fire protection inspectors noticed that many licensees had not upgraded or replaced Thermo-Lag 330-1 fire barrier material<sup>2</sup> or had not provided the required separation distance between

**ML061650389**

---

<sup>1</sup> EGM 98-02, "Enforcement Guidance Memorandum—Disposition of Violations of Appendix R, Sections III.G and III.L Regarding Circuit Failures," (Agencywide Document Access and Management System (ADAMS) Accession No. ML003710123) was incorporated into Section 8.1.7.1 of the NRC Enforcement Manual.

<sup>2</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 92-08, "Thermo-Lag 330-1 Fire Barriers" that discussed issues with the Thermo-Lag 330-1 fire barrier material.

redundant safe shutdown trains, in order to satisfy the requirements in paragraph III.G.2 of Appendix R to 10 CFR Part 50. Some licensees compensated for the lack of or degraded fire barriers by relying on operator manual actions which had not been reviewed and approved by the NRC through the 10 CFR 50.12 exemption process. Other licensees misinterpreted paragraph III.G.1 to allow the use of operator manual actions where redundant safe shutdown trains are in the same fire area in lieu of the means specified in paragraph III.G.2.

The inspectors found that some licensees relied upon operator manual actions, instead of the options specified in paragraph III.G.2, as a permanent solution to the Thermo-Lag 330-1 fire barrier issue 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 because paragraph III.G.2 does not specifically forbid their use.

However, in 1998 the NRC issued Confirmatory Orders to some licensees to ensure that adequate progress was made towards implementing corrective actions for 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 licensees that received the Orders sent NRC letters 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. Compliance with the Orders continue to be verified through the reactor oversight process.

On November 14, 2001, the staff conducted training on this issue with the regional inspectors. In response to a verbal request from the Nuclear Energy Institute (NEI), the staff sent a copy of the lesson plan by letter dated November 29, 2001 (ADAMS Accession No. ML013370302). On January 11, 2002, NEI sent a letter to the NRC claiming the regulations do not prohibit the use of operator manual actions to achieve safe shutdown (ADAMS Accession No. ML020300069). The staff responded to NEI in a letter on May 16, 2002 (ADAMS Accession No. ML021410026). As a result of NEI's contention, 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 also reviewed the letter and concluded that the staff response did not contain new staff positions (ADAMS Accession No. ML021750218).

In 2003, the Commission determined that amending Appendix R to 10 CFR Part 50 was the most effective and efficient way to give licensees the option 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* for comment (70 FR 10901). The proposed rule would have revised paragraph III.G.2 to allow licensees to implement acceptable operator manual actions in lieu of the separation or barrier requirements after documenting that they met the regulatory acceptance criteria. Most of the comments received opposed the proposed rule. Industry stakeholders indicated that the proposed rule would probably lead to a large number of exemption requests. Consequently, the staff concluded that the rule would not achieve its objective of effectiveness and efficiency.

## SUMMARY OF THE ISSUE

On March 6, 2006, the NRC published a notice in the *Federal Register* (71 FR 11196) withdrawing the proposed rule to allow the use of operator manual actions in lieu of the methods provided in paragraph III.G.2 of Appendix R. Licensees are expected to ensure that their facility is in compliance with the licensing basis and with regulatory requirements.

### 1.0 Compliance Expectations

#### 1.1 Regulations

Paragraph III.G.2 of Appendix R does not list operator manual actions as a means of ensuring that one of the redundant trains is free of fire damage. Specifically, paragraph III.G.2 of Appendix R requires that, where cables or equipment, including associated non-safety 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, and
- (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.

Consequently, unless alternative or dedicated shutdown capability is provided or an exemption from paragraph III.G.2 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. In many cases, recent inspections found that a manual action was credited—in lieu of one of the means specified in paragraph III.G.2—to ensure a train is free of fire damage when redundant trains were in the same fire area. According to the Statements of Consideration for Appendix R, issued on November 19, 1980 (45 FR 76602), “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.”

This position has been consistent since Appendix R to 10 CFR 50.48(b) became effective on February 19, 1981. NRC letter to NEI, dated May 16, 2002, (ADAMS Accession No. ML021410026), presentations in public meetings, proposed operator manual action 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), reiterated this position.

## **Paragraph III.G.2 Operator Manual Actions in Second Train**

As discussed during a March 1, 2006, public meeting, if one of the redundant trains in the same fire area is free of fire damage by one of the specified means in paragraph III.G.2, then the use of operator manual actions, or other means necessary, to mitigate fire-induced operation or maloperation to the second train may be considered in accordance with the licensee's fire protection program and license condition since paragraph III.G.2 has been satisfied.

### **2.0 Alternatives to Paragraph III.G.2**

Those licensees required to comply with section III.G of Appendix R have other options available in lieu of complying with paragraph III.G.2.

#### **2.1 Paragraph III.G.3**

Paragraph III.G.2 allows the licensee to 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.

#### **2.2 10 CFR 50.48(c)**

Licensees may adopt the performance-based option in 10 CFR 50.48(c). Paragraph (c) allows reactor licensees to voluntarily comply with the risk-informed, performance-based fire protection approaches in National Fire Protection Association Standard 805 (NFPA 805), "Performance-Based Standard For Fire Protection For Light Water Reactor Electric Generating Plants," 2001 Edition (with limited exceptions stated in the rule language). Compliance with the performance-based option in 10 CFR 50.48(c) would minimize the need for future exemption requests with respect to operator manual actions.

As stated and referenced by the *Federal Register* (71 FR 19905) on April 18, 2006, if a licensee submitted a letter of intent by December 31, 2005, to adopt 10 CFR 50.48(c), the NRC will exercise enforcement discretion for existing noncompliance that could reasonably be corrected under 10 CFR 50.48(c). For those noncompliances identified during the licensee's transition process, this enforcement discretion policy will be in effect for up to 3 years from the date specified by the licensee in their letter of intent to adopt the requirements in 10 CFR 50.48(c), and will continue to be in place, without interruption, until the NRC acts on the licensee's amendment request to transition to 10 CFR 50.48(c). During the discretion period licensees are required to maintain their current fire protection program, including maintaining appropriate compensatory measures for identified noncompliance. In addition to the 3-year discretion period, the staff may grant additional extensions to the discretion policy time for a specific plant item(s) with adequate justification (e.g., modification can only be implemented during an outage) on a case-by-case basis.

If, after submitting the letter of intent to comply with 10 CFR 50.48(c) and before submitting the license amendment request, the licensee decides not to complete the transition to 10 CFR 50.48(c), the licensee must submit a letter stating their intent to retain their existing license basis and withdrawing their letter of intent to comply with 10 CFR 50.48(c). Following the licensee's withdrawal from the transition process, the staff, as a matter of practice, will not take enforcement action against any noncompliance that the licensee corrected during the transition process and would, on a case-by-case basis, consider refraining from taking action if

reasonable and timely corrective actions are in progress (e.g., an exemption has been submitted for NRC review). Noncompliance that the licensee has not corrected as well as noncompliance identified after the date of the above withdrawal letter, will be dispositioned in accordance with normal enforcement practices.

### **2.3 Exemptions From Paragraph III.G.2 for Plants Licensed to Operate Before January 1, 1979**

The regulations in 10 CFR Part 50.48(b) impose the requirements of paragraph III.G.2 of Appendix R on plants licensed to operate before January 1, 1979 (pre-1979 licensees). As originally issued, 10 CFR 50.48, "Fire Protection," allowed licensees to request an exemption from compliance with one or more of the provisions of Appendix R if the licensee justified the exemption on the basis that the required modifications would not enhance fire protection safety in the facility or that the modifications might be detrimental to overall facility safety.

The staff's current basis for approving an exemption is provided in 10 CFR 50.12 "Specific Exemptions." In order for the NRC to approve such an exemption request, a licensee would have to identify all relevant credited operator manual actions by fire area or fire scenario.

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 where the exemption criteria were met. These exemptions are specific to the licensee and the situation discussed in the exemption. Exemptions granted for specific conditions cannot be applied under other conditions. Although the rationale for an exemption 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 would be necessary for the second licensee.

The appropriate regulatory vehicle (in the absence of a rulemaking or plant-specific Order) to provide dispensation from compliance with fire protection requirements is the issuance of an exemption under 10 CFR Part 50.12. Inspection reports, meeting minutes, and letters from licensees are examples of documents that do not provide dispensation from compliance with applicable fire protection requirements.

For pre-1979 licensees, a staff decision in a safety evaluation report (SER) that approves the use of operator manual actions, in lieu of one of the means specified in paragraph III.G.2, does not eliminate the need for an exemption. Pre-1979 licensees who have SERs, but not a corresponding exemption, which approve manual actions should request an exemption under 10 CFR Part 50.12, citing the special circumstances of section 50.12(a)(2)(ii), citing the SER as the safety basis, and confirming that the safety basis established in the SER remains valid. The staff expects to grant the exemption on these bases without further review.

### **2.4 Plants Licensed To Operate on or After January 1, 1979**

Since plants licensed to operate on or after January 1, 1979 (post-1979 licensees), are not required to meet the requirements of paragraph III.G.2, a staff decision in an SER that approves the use of manual operator actions does not require exemption under 10 CFR 50.12. Post-1979 licensees may be requested to demonstrate, as part 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 consistent with their license.

## 2.5 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 50.73(a)(2)(ii), and the guidance in NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73."

Licensees should document missing or degraded fire barriers, including a detailed description of the affected structures, systems or components (e.g., circuits), in accordance with their corrective action program. Corrective actions for missing or degraded fire barriers should be completed in accordance with 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." Since many operator manual actions may be affected by the resolution of the circuits analysis issue, licensees should review recent NRC generic communications such as RIS 2005-30 to ensure that any corrective actions for manual actions meet licensing requirements.

## 3.0 Enforcement Guidance Memorandum EGM 98-02

Enforcement discretion guidance is currently given in EGM 98-02, Revision 2, "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.

This RIS notifies licensees that the NRC will terminate the enforcement discretion guidance in EGM 98-02 effective September 5, 2006<sup>3</sup>. The staff will issue a new EGM to revise the existing enforcement discretion guidance for noncompliance involving operator manual actions used to address fire-induced circuit failures to allow licensees 6 months from the date of *Federal Register* Notice withdrawing the proposed rulemaking to initiate corrective actions. Licensees must then fully implement the corrective actions within 3 years of the date of the *Federal Register* Notice withdrawing the proposed rulemaking. The termination will eliminate the enforcement discretion guidance originally established under EGM 98-02 for any issues related to circuits or operator manual actions. The 6-month period is intended to give licensees that have implemented operator manual actions as compensatory measures a reasonable amount of time to initiate corrective actions. For plants that are challenged with circuit issues, this discretion policy provides additional time for licensees to evaluate the benefits of NFPA 805 while they evaluate the actions needed to restore compliance in accordance with the existing requirements.

---

<sup>3</sup> *Federal Register* 71 FR 11169 dated March 6, 2006, advised licensees that the NRC plans to terminate EGM 98-02 six months from the date of the federal register notice.

## **BACKFIT DISCUSSION**

Paragraph III.G.2 of Appendix R does not list operator manual actions as a means of ensuring that one of the redundant trains is free of fire damage. This RIS discusses alternatives to paragraph III.G.2, and notifies licensees of the termination of current enforcement discretion guidance and the staff's plan to issue new enforcement discretion guidance.

The staff's positions discussed in this RIS represent longstanding interpretations of paragraph III.G.2 that have not changed since the effective date of Appendix R and, as such, would not involve backfit considerations. The position with respect to operator manual actions, used in lieu of the means prescribed in paragraph III.G.2, was previously reviewed by the Committee to Review Generic Requirements who concluded that it was not a new staff position (ADAMS Accession No. ML021750218). This RIS was also reviewed by the Office of General Counsel who has no legal objection. Accordingly, the staff's positions stated in this RIS do not constitute backfitting under 10 CFR 50.109 and no backfit analysis was performed.

Issuance of this RIS does not constitute a backfit for a pre-1979 licensee who has a SER that approved the use of operator manual actions but does not have a corresponding exemption that approved the use of operator manual actions. However, further staff action in connection with either an exemption request or as part of an enforcement action for failure to seek an exemption may represent a facility-specific backfit, depending upon the nature of the staff's action. Compliance with appropriate backfitting requirements (i.e., preparation of a documented evaluation or a backfit analysis) would be addressed as part of the staff's action.

Some licensees may have noncompliances with paragraph III.G.2 that require implementation of compensatory measures and corrective actions. Although this RIS does not require actions or written responses, these actions would be required for those licensees to achieve compliance with the regulations and license conditions.

## **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 contains information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). These information collections were approved by the Office of Management and Budget (OMB), approval number 3150-0011, which expires February 28, 2007.

### **Public Protection Notification**

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

## CONTACT

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

***/RA/***

Ho K. Nieh, Acting Director  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

Technical Contact: Alex Klein, NRR/DRA  
(301) 415-3477  
E-mail: [ark1@nrc.gov](mailto:ark1@nrc.gov)

Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.



**CONTACT**

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

***/RA/***

Ho K. Nieh, Acting Director  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

Technical Contact: Alex Klein, NRR/DRA  
(301) 415-3477  
E-mail: [ark1@nrc.gov](mailto:ark1@nrc.gov)

Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.

Distribution:  
RIS File

**ADAMS ACCESSION NUMBER: ML061650389**

OFFICE	AFPB:DRA	AFPB:DRA	Tech Editor	BC:AFPB:DRA	D:DRA	BC:ITSB:DIRS
NAME	PQualls	AKlein	PKleene	SWeerakkody	JLyons	TBoyce
DATE	03/20/2006	03/20/2006	01/10/2006	03/17/2006	03/23/2006	03/30/2006
OFFICE	BC:IRIB:DIRS	D:DORL	NRRDPR/PGCB	OGC (SBREFA)	OGC (NLO)	PMAS
NAME	RGibbs	CHaney	QNguyen	CHolzle	STreby	DMcCain
DATE	03/28/2006	03/28/2006	06/15/2006	04/06/2006, 06/26/2006	03/28/2006, 5/5/2006	04/20/2006
OFFICE	OIS	OE	LA:PGCB	PGCB:DPR	BC:PGCB:DPR	D:DPR (A)
NAME	Bshelton BSt.Mary for	JLuehman (MCN for)	CHawes	Amarkley (CJackson for)	CJackson	HNieh
DATE	04/19/2006	03/31/2006	06/20/2006	06/29/2006	06/29/2006	06/30/2006

**OFFICIAL RECORD COPY**