

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

February 14, 2005

**NRC REGULATORY ISSUE SUMMARY 2005-02  
CLARIFYING THE PROCESS FOR MAKING  
EMERGENCY PLAN CHANGES**

**ADDRESSEES**

All holders of operating licenses for nuclear power reactors including research and test reactors and fuel facility licensees.

**INTENT**

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to (1) clarify the meaning of "decrease in effectiveness (DIE)," as stated in 10 CFR 50.54(q), (2) clarify the process for making changes to emergency plans, and (3) provide some examples of changes that are not a DIE and some examples of a DIE of an emergency plan. No action or written response is required on the part of addressees.

**BACKGROUND INFORMATION**

The process for changing an emergency plan is addressed in 10 CFR 50.54(q). The requirements related to nuclear power plant emergency plans are set forth in the standards in 10 CFR 50.47 and the requirements of Appendix E to 10 CFR Part 50. The NRC staff issued guidance to regional staff regarding changes to licensees' emergency plans in the form of Emergency Preparedness Position (EPPOS) 4 "Emergency Plan and Implementing Procedure Changes," which was made publicly available and shared with the industry. The requirements related to research and test reactors emergency plans are set forth in the standards in 10 CFR 50.54(q) and 10 CFR Part 50, Appendix E. The requirements for fuel facilities are contained in 10 CFR Parts 40, 70, 76 and Appendix E to 10 CFR Part 50. Based upon feedback from the nuclear power industry, the research and test reactor community, and experience gained by the NRC staff as a result of reviewing emergency plan changes, the NRC staff has identified a need to further clarify the process for making changes to an emergency plan.

**ML042580404**

## **SUMMARY OF ISSUE**

Licensees revise their emergency plans for reasons such as changes related to site-specific needs, changes to the license basis, and to revised regulations and guidance. The change process is described below and in Attachment 1A, "Decrease in Effectiveness Determination," and graphically depicted in Attachment 1, "50.54(q) Flowchart." Attachment 2, "Examples of Plan Changes that do not Constitute a Decrease in Effectiveness," gives some examples of emergency plan changes that do not require prior NRC review and approval. Attachment 3, "Examples of Plan Changes that Constitute a Decrease in Effectiveness," gives some examples of emergency plan changes that require prior NRC review and approval. It should be noted that the examples in Attachments 2 and 3 are not intended to be representative of all changes that licensees may desire to implement. The information in this RIS clarifies the process for changing emergency plans thereby maintaining safety and making NRC activities and decisions more effective, efficient, and realistic.

### **Regulation**

10 CFR 50.54(q) states, in part, "The nuclear power reactor licensee may make changes to these plans without Commission approval only if the changes do not decrease the effectiveness of the plans and the plans, as changed, continue to meet the standards of 50.47(b) and the requirements of Appendix E to this part. The research reactor and/or fuel facility licensee may make changes to these plans without Commission approval only if these changes do not decrease the effectiveness of the plans and the plans, as changed, continue to meet the requirements of appendix E to this part. . . . Proposed changes that decrease the effectiveness of the approved emergency plans may not be implemented without application to and approval by the Commission."

### **Definitions**

1. Emergency preparedness (EP) requirement - a statement made in the emergency plan, which is a mandated licensing basis document or lower tier document (such as an emergency planning implementing procedure (EPIP)) that addresses how a particular regulatory requirement will be met. All EP requirements are subject to the 10 CFR 50.54(q) change process.
2. Decrease in effectiveness (DIE) - a change in an emergency preparedness requirement that results in the degradation or loss of the capability to perform a function or perform a function in a timely manner, as contained in the emergency plan.
  - a. A change in an emergency preparedness requirement based on capability, means that the emergency plan, as changed, would result in the loss or degradation of the capability to meet the regulatory requirements of an emergency plan. ("Capability" is verified through a demonstration that the function(s) can be performed). Consequently, the capability to perform a function(s) as previously stated in the emergency plan no longer exists or is degraded.

- b. A change in an emergency preparedness requirement based on timeliness means that the requirements to perform a function in a timely manner as set forth in 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50, and as defined in the licensee's emergency plan, are not met or are relaxed. This would include functions such as notification, classification, and Emergency Response Organization (ERO) augmentation.

3. Licensee's emergency plan

The licensee's emergency plan consists of:

- a. The emergency plan as originally approved by the NRC at initial licensing;
- b. Changes to the emergency plan explicitly reviewed and approved by the NRC through a Safety Evaluation Report (SER); and
- c. Changes made by the licensee without NRC review and approval after the licensee concluded the change(s) does not constitute a DIE.

**Emergency Plan Change Process**

1. Process Overview

Reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency is based on the licensee's emergency plan, and the successful implementation of the emergency plan. The body of an emergency plan contains statements that describe how a licensee will meet regulatory requirements. The emergency plan is required by Appendix E to 10 CFR Part 50. The contents of the nuclear power reactor emergency plan are established by the standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50. Subsequent changes to the emergency plan must comply with 10 CFR 50.54(q) change process. The 10 CFR 50.54(q) change process is outlined in Attachment 1 and supplemented by Attachment 1A. The licensee identifies the proposed change, determines whether the proposed change results in a DIE (i.e., loss or degraded capability to perform a function, or performing a function in a timely manner), and whether the change continues to meet the applicable regulatory standards, i.e., 10 CFR 50.47(b) for power reactors, 10 CFR 50.54(q) for research and test reactors, 10 CFR 40.31(j), 70.22(l), and 76.91 for fuel facilities and the applicable requirements of 10 CFR Part 50, Appendix E, for power reactors, research and test reactors, and fuel facilities.

## 2. Pre-application Conference

When developing a change to the emergency plan if a licensee is unsure whether the change may be determined by the NRC to represent a DIE, a pre-application conference call with the appropriate Regional and/or Headquarters staff is encouraged. This will allow for sufficient exchange of information between the licensee and NRC staff members regarding technical issues related to emergency plan changes being considered prior to the submittal. The purpose of the pre-application call is to provide clarification regarding DIE guidance or pre-approval package content.

## 3. Emergency Plan Review

Changes to an emergency plan may be based on advances in technology, new or revised rules, site-specific needs, processes, and/or guidance (such as NEI guidance endorsed by the NRC, technical specification changes, or modifications to instrumentation). Changes that have been identified by the licensee as a DIE are required to be submitted to the NRC for review and approval by the Commission. The NRC staff will review the emergency plan change against the standards, regulations, guidance documents, and the emergency plan. DIE submittals will be reviewed and approved on a case-by-case basis. A change approved at one site does not mean that the same, or similar, change is applicable to another site.

For the purposes of determining whether a change to a licensee's emergency plan constitutes a DIE, the licensee may use the last emergency plan reviewed and approved by the NRC. If the 10 CFR 50.54(q) process has been properly implemented over the years, comparing a proposed emergency plan change to either the latest emergency plan reviewed and approved by the NRC or the emergency plan as changed by the licensee should result in the same DIE determination. For example, if a licensee, over time, made a series of changes to the same specific provision of the emergency plan where each change was separately determined not to constitute a DIE, then there should be no DIE collectively. Therefore, there should be no DIE when comparing the latest emergency plan to the emergency plan reviewed and approved by the NRC. If a licensee or the NRC concludes that there is a DIE in such circumstances, there has been a violation of 10 CFR 50.54(q). However, if a licensee has determined that it needs to increase an EP requirement in order to meet the planning standards or Appendix E requirements, any subsequent change must follow the 10 CFR 50.54(q) process, using the emergency plan that reflects this increase to the EP requirement for the DIE determination.

The EP requirements are a representation of how the licensee will meet the applicable standards and requirements of the regulations. Nevertheless, whether an EP requirement change results in a DIE is not determined by assessing whether NRC regulatory requirements continue to be met after the EP requirement change. Therefore, the licensees' EP requirements should not be interpreted as exceeding the baseline standards/requirements as set forth in 10 CFR 50.47(b) and Appendix E. For the DIE determination, the change or changes should be evaluated against the capability to perform the functions and the associated time requirement of performing the function. The evaluation should document whether the capability or timeliness to perform a function is lost and/or degraded. In addition to the DIE determination, the change or changes should also be evaluated to make sure they continue to meet the standards/requirements as set forth in 10 CFR 50.47(b) and Appendix E.

The current Commission requirements for document retention in 10 CFR 50.54(q), specify that changes that do not warrant NRC approval must be retained for 3 years. Changes that decrease the effectiveness of the emergency plan must be retained until the Commission terminates the license. It may be prudent to save emergency plan change documentation to show the historical progression of changes, since the Commission, through its staff, maintains the prerogative to review, at any time, the emergency plan changes that have been made.

### **Related topics regarding emergency plan changes**

#### 1. Alternate methods for complying with the regulations

Licensees that want to use alternate methods for meeting the regulations may submit them to the NRC staff for review and approval prior to implementation. Changes to the emergency plan to use an alternative method may or may not constitute a decrease in effectiveness. Alternate methods for complying with the regulations are the licensee's proposed means for meeting the regulations. Regulatory Guide 1.101, Revision 4, "Emergency Planning and Preparedness for Nuclear Power Reactors," states: "Licensees and applicants may propose means other than those specified by the provisions of the Regulatory Position of this guide for meeting applicable regulations." Regulatory Guide 2.6, Revision 1, "Emergency Planning for Research and Test Reactors," also allows for alternate methods for complying with the Commission's regulations. Alternate methods can be proposed for fuel facilities through NUREG-1520, "Standard Review Plan for Fuel Cycle Facilities."

#### 2. Emergency action level changes

Emergency action levels (EALs) are subject to the requirements of 50.54(q). For power reactors, RIS 2003-18 "Use of NEI 99-01, 'Methodology for Development of Emergency Action Levels,' Revision 4, dated January 2003" and Supplement 1 to RIS 2003-18 dated, July 13, 2004, provide clear guidance on how changes to EALs are to be processed. For research and test reactors, NUREG-0849, "Standard Review Plan for The Review and Evaluation of Emergency Plans for Research and Test Reactors," provides guidance on EALs and changes should be made on a case-by-case basis considering the provisions of 10 CFR 50.54(q).

#### 3. Inspection activities

For power reactors, Inspection Procedure 71114.04, "Emergency Action Level and Emergency Plan Changes," is used by the regional inspectors to conduct a review of the effectiveness of the licensee's implementation of the 10 CFR 50.54(q) change process. For research and test reactors, Inspection Procedure 69011, "Class I Research and Test Reactor Emergency Preparedness," and Inspection Procedure 69001, "Class II Research and Test Reactors," are used by inspectors. For fuel facilities Inspection Procedure 88050, "Emergency Preparedness," is used by inspectors. The inspector will perform a screening review of the change against the emergency plan; however, this will not constitute approval of the plan as changed.

#### 4. Emergency plan and lower tier documents

Ordinarily, lower tier documents such as EIPs, are not considered to be part of the emergency plan. Therefore, any relocation from an emergency plan, of an EP requirement to a lower tier document, would make the portion of the lower tier document that contains the relocated EP requirement subject to the requirements of 10 CFR 50.54(q). If the licensee has incorporated the lower tier document into the emergency plan, any relocation from an emergency plan of an EP requirement to a lower tier document would not be considered a decrease in effectiveness. The location of relocated information should be administratively controlled to ensure changes to those documents are reviewed in accordance with 10 CFR 50.54(q).

#### **BACKFIT DISCUSSION**

This RIS clarifies the existing regulatory requirements licensees must follow when making changes to their emergency plans. This RIS does not impose new or modified staff requirements or uniquely prescribe a way to comply with the regulations or require any action or written response. Therefore, this RIS does not constitute a backfit under 10 CFR 50.109 and the staff did not perform a backfit analysis.

#### **FEDERAL REGISTER NOTIFICATION**

A notice of opportunity for public comment on this RIS was not published in the *Federal Register* because this RIS is informational and pertains to a staff position that does not represent a departure from current regulatory practice.

#### **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 Office of Nuclear Reactor Regulation (NRR) project manager.

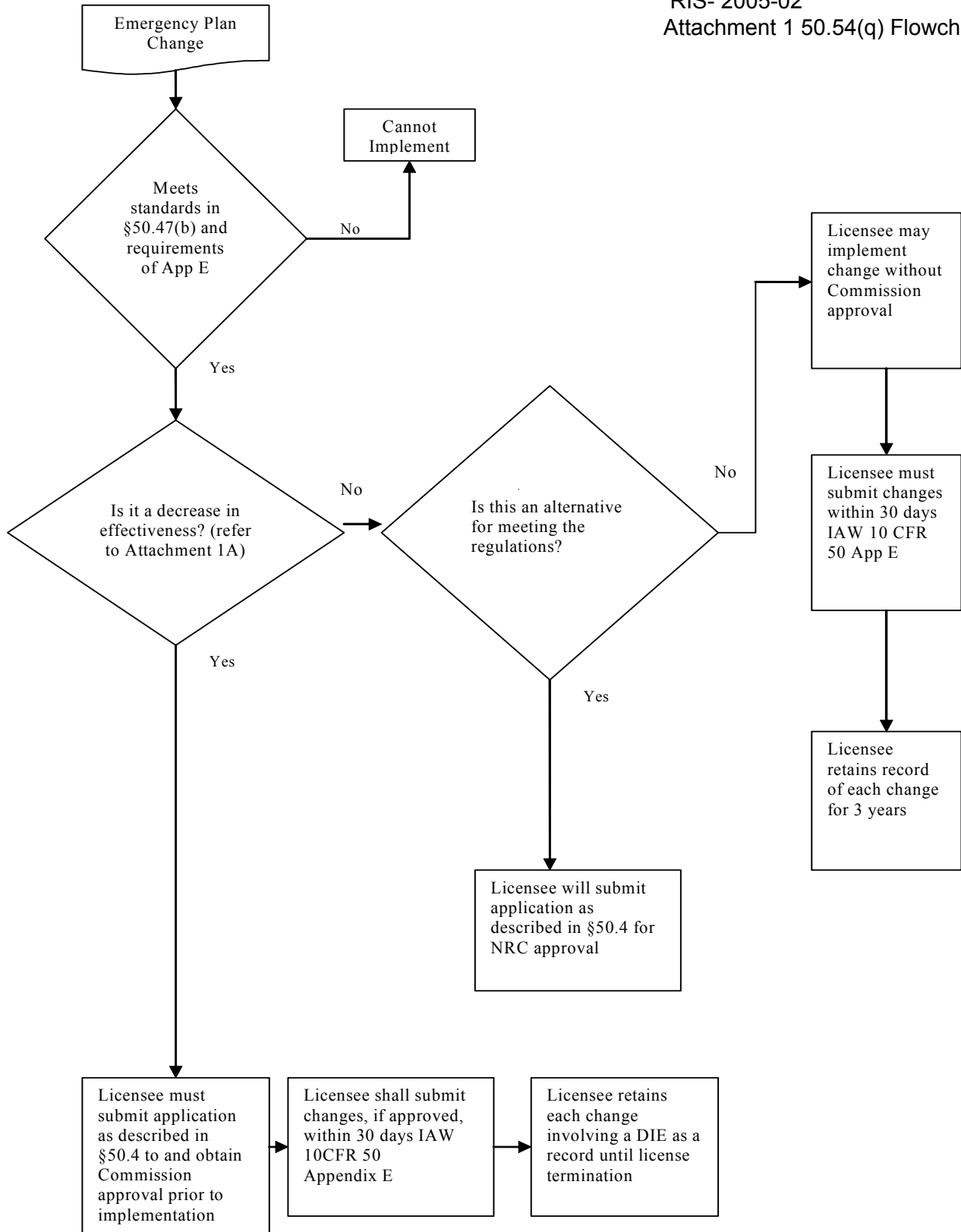
***/RA/***  
Patrick L. Hiland, Chief  
Reactor Operations Branch  
Division of Inspection Program Management  
Office of Nuclear Reactor Regulation

Attachments: Attachment 1: 50.54(q) Flowchart  
Attachment 1A: Decrease in Effectiveness Determination  
Attachment 2: Examples of Plan Changes that do not Constitute a  
Decrease in Effectiveness  
Attachment 3: Examples of Plan Changes that Constitute a Decrease in  
Effectiveness

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

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Attachment 1 50.54(q) Flowchart





**Decrease in Effectiveness Determination**

The purpose of this attachment is to determine if the proposed change would result in a decrease in effectiveness only. The determination does not replace a licensee's 50.54(q) documentation/basis for a change.

1. Has the capability to perform the function(s) been degraded or lost as a result of the change?

Yes  No (provide justification)

Justification: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Have the time requirements of all affected EP requirements been relaxed or lost as a result of the change?

Yes  No (provide justification)  N/A (provide justification)

Justification: \_\_\_\_\_

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If "Yes" is checked for either question 1 or 2, the change is a decrease in effectiveness. If the answers to questions 1 and 2 are both "No," continue to follow the 50.54(q) flowchart.

## **Examples of Plan Changes that do not Constitute a Decrease in Effectiveness**

### Note

The examples in Attachment 2 are not intended to be representative of all changes that do not require prior NRC review and approval.

- " Implementation of changes that are a result of revised regulations, guidance, standards, or other technical documents to which the licensee is committed.
- " A change that results in an equivalent capability (e.g., the use of digital chart recorders versus paper recorder).
- " Changes to Emergency Response Organization (ERO) augmentation processes are acceptable if they remain capable of ensuring augmentation of the initial response staff in accordance with facility activation requirements.
- " Changes to offsite support arrangements are acceptable if the level of offsite assistance is maintained at the current level.
- " Changes to a licensee's method for providing follow-up messages and/or changes to the content and/or frequency of the follow-up messages to offsite authorities may be acceptable. Such changes, however, are only acceptable if the messages are transmitted in an equivalent manner, contain information at a level of equal or greater specificity, and reach offsite authorities at an equal or greater frequency than before the changes were implemented.
- " Changes to communications systems and a licensee's method for offsite notification are acceptable if the licensee maintains or enhances the capability to implement offsite notifications within 15 minutes.
- " Changes that provide an alternate, equivalent means of notifying the public, consistent with FEMA or applicable guidance and approved by FEMA or the applicable offsite agency, are acceptable.

### Examples of Plan Changes that Constitute a Decreases in Effectiveness

#### Note

The examples in Attachment 3 are not intended to be representative of all changes that require prior NRC review and approval.

- " The licensee installed monitoring equipment that required local readout by a trained I&C technician using a computerlike device; however, the I&C technician was a 30-minute responder rather than an on-shift emergency response organization (ERO) member, thereby, delaying the classification of certain EALs.
- " Following an Alert declaration for a carbon dioxide discharge into the facility, the licensee implemented a series of corrective actions including the revision of the EALs pertaining to toxic gas events at several stations. These changes were primarily based on the licensee's assessment that the conditions did not meet the definition of an Alert. The licensee's change to the EALs would reduce the number of declarable events because not only was the presence of gas required but the effect on plant operations needs to be considered. (With the revised EALs, no emergency classification would have been made.) The emphasis of the EAL shifted from personnel safety to the impact on plant conditions or operations.
- " A significant deviation in the EAL scheme from the NRC-approved version. The deviation involved changes to eight EALs that decreased the effectiveness of the emergency plan in that emergency conditions that would have resulted in classification at the General Emergency, Alert, and Notification of Unusual Event levels under the prior NRC approved plan would now result in a lesser classification or no classification.
- " A licensee proposed to reduce the number of personnel on-shift with emergency preparedness responsibilities as described in the emergency plan. As a result of difficulties associated with augmenting the on-shift staff during an actual emergency, the licensee determined it needed to increase its on-shift staffing in order to ensure adequate response capability. The proposed measures to compensate for the reduction in on-shift staffing were not sufficient to ensure that the planning standard would be met. In addition, the change would result in a decrease in the effectiveness of the emergency plan due to a lack of timeliness in response and a degraded capability to respond.
- " Changes that reduce the coverage of or increase the activation time of Alert and Notification Systems without review and approval by offsite agencies and/or FEMA.
- " Equipment is removed from the Emergency Response Facility (ERF) and the plan such that the capability to communicate among the ERFs or offsite agencies is reduced or no longer exists.
- " Changes are made that reduce or eliminate the capability to notify ERO responders.
- " Procedures are revised such that a range of offsite protective actions or adequate protective actions for onsite personnel who are not members of the ERO would not be recommended or implemented.

- " Procedures are revised such that follow-up notifications do not take into account previous Protective Action Recommendations.
- " Changes are made such that personnel in the owner-controlled area are not informed of the need to evacuate or shelter.
- " Increase in augmentation response times.
- " Increase in facility activation time.
- " Removal of current emergency responders or alterations of an NRC-approved alternative.