AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

# FEDERAL REGISTER

Vol. 76 Wednesday,
No. 226 November 23, 2011

Part III

## Nuclear Regulatory Commission

10 CFR Parts 50 and 52
Enhancements to Emergency Preparedness Regulations; Final Rule

**NUCLEAR REGULATORY COMMISSION**

**10 CFR Parts 50 and 52**

**[NRC–2008–0122]**

**RIN 3150–AI10**

## Enhancements to Emergency Preparedness Regulations

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC or the Commission) is amending certain emergency preparedness (EP) requirements in its regulations that govern domestic licensing of production and utilization facilities. The final rule adds a conforming provision in the regulations that govern licenses, certifications, and approvals for new nuclear power plants. The final rule codifies certain voluntary protective measures contained in NRC Bulletin 2005–02, ''Emergency Preparedness and Response Actions for Security-Based Events,'' and generically applicable requirements similar to those previously imposed by Commission orders. In addition, the final rule amends other licensee emergency plan requirements based on a comprehensive review of the NRC's EP regulations and guidance. The requirements enhance the ability of licensees in preparing to take and taking certain EP and protective measures in the event of a radiological emergency; address, in part, security issues identified after the terrorist events of September 11, 2001; clarify regulations to effect consistent emergency plan implementation among licensees; and modify certain EP requirements to be more effective and efficient.

**DATES:** This final rule is effective on December 23, 2011.

**ADDRESSES:** You can access publicly available documents related to this document using the following methods:

- *NRC's Public Document Room (PDR):* The public may examine and have copied, for a fee, publicly available documents at the NRC's PDR, O1–F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.
- *NRC's Agencywide Documents Access and Management System (ADAMS):* Publicly available documents created or received at the NRC are available online in the NRC Library at *http://www.nrc.gov/reading-rm/adams.html.* From this page, the public can gain entry into ADAMS, which provides text and image files of the NRC's public documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's PDR reference staff at 1–(800) 397–4209, (301) 415–4737, or by email to *pdr.resource@nrc.gov.*
- *Federal Rulemaking Web Site:* Public comments and supporting materials related to this final rule can be found at *http://www.regulations.gov* by searching on Docket ID NRC–2008–0122. Address questions about NRC dockets to Carol Gallagher, *telephone:* (301) 492–3668; *email: Carol.Gallagher@nrc.gov.*

**FOR FURTHER INFORMATION CONTACT:** Robert Beall, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001; *telephone:* (301) 415–3874, *email: Robert.Beall@nrc.gov;* or Don Tailleart, Office of Nuclear Security and Incident Response, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001; *telephone:* (301) 415–2966, *email: Don.Tailleart@nrc.gov.*

**SUPPLEMENTARY INFORMATION:**

### Table of Contents

I. Background
II. Discussion
III. Public and Stakeholder Input to the Final Rule
IV. Section-by-Section Analysis
V. Implementation
VI. Guidance
VII. Criminal Penalties
VIII. Agreement State Compatibility
IX. Availability of Documents
X. Voluntary Consensus Standards
XI. Finding of No Significant Environmental Impact: Availability
XII. Paperwork Reduction Act Statement
XIII. Regulatory Analysis: Availability
XIV. Regulatory Flexibility Certification
XV. Backfit Analysis
XVI. Congressional Review Act

## I. Background

After the terrorist events of September 11, 2001, the NRC determined that it was necessary to require certain modifications of EP programs for operating power reactor licensees to ensure continued adequate protection of public health and safety. These modifications were issued to licensees by NRC Order EA–02–026, ''Order for Interim Safeguards and Security Compensatory Measures,'' (Order EA–02–026), dated February 25, 2002. Order EA–02–026 was issued to the license holders of the 104 commercial nuclear power reactors in the U.S. This order required licensees to implement interim compensatory measures (ICMs) for the post-September 11, 2001, threat environment and take actions such as:

(1) Review security and emergency plans to maximize compatibility between the plans;

(2) Assess the adequacy of staffing plans at emergency response facilities, and for licensees with an onsite emergency operations facility (EOF), identify alternative facilities capable of supporting emergency response;

(3) Develop plans, procedures and training regarding notification (including non-emergency response organization (ERO) employees), activation, and coordination between the site and offsite response organizations (OROs);

(4) Conduct a review of staffing to ensure that collateral duties are not assigned to responders that would prevent effective emergency response; and

(5) Implement site-specific emergency action levels (EALs) to provide an anticipatory response to a credible threat.

Following the issuance of Order EA–02–026, the NRC conducted inspections of licensee EP programs and held meetings with nuclear power industry representatives to discuss the inspection results and the modifications licensees had made to their EP programs.

Also following the terrorist events of September 11, 2001, the NRC evaluated the EP planning basis for nuclear power reactors given the changed threat environment. In SECY–03–0165, ''Evaluation of Nuclear Power Reactor Emergency Preparedness Planning Basis Adequacy in the Post-9/11 Threat Environment,'' issued on September 22, 2003 (not publicly available), the NRC staff reported to the Commission that the EP planning basis remained valid, including scope and timing issues. However, the NRC staff also recognized that security events differ from accident events due to the planned action to maximize damage and loss of life and that the EP response to such events also differed. The NRC staff noted several EP issues that required further action to better respond to the post-September 11, 2001, threat environment.

On December 14, 2004, the NRC staff briefed the Commission on EP program initiatives. During the briefing, the NRC staff informed the Commission of its intent to conduct a comprehensive review of EP regulations and guidance. On February 25, 2005, in response to the Commission's staff requirements memorandum (SRM), SRM–M041214B, ''Briefing on Emergency Preparedness Program Initiatives, 1 p.m., Tuesday, December 14, 2004, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (Open to Public Attendance),'' dated December

20, 2004, the NRC staff provided the Commission with a schedule of activities for the completion of the comprehensive review. The NRC staff, through SECY–05–0010, ''Recommended Enhancements of Emergency Preparedness and Response at Nuclear Power Plants in Post-9/11 Environment,'' issued on January 10, 2005 (not publicly available), requested Commission approval of the NRC staff's recommendations for enhancing, through new guidance documents, EP in the post-September 11, 2001, threat environment. In its SRM to SECY–05–0010, dated May 4, 2005 (not publicly available), the Commission directed the staff to provide the results of a comprehensive review of EP regulations and guidance. The SRM to SECY–05–0010 also approved the staff's recommendation to proceed with enhancements to address EP issues as described in SECY–05–0010. As a result, the NRC staff issued Bulletin 2005–02 (BL–05–02), ''Emergency Preparedness and Response Actions for Security-Based Events,'' dated July 18, 2005, which recommended enhancements that licensees could integrate into EP programs at power reactors. Bulletin BL–05–02 also sought to obtain information from licensees on their actions taken to implement Order EA–02–026 and to modify their EP programs to adjust to the current threat environment. Based on the results of the post-BL–05–02 inspections, meetings with members of the nuclear power industry, and licensees' responses to BL–05–02, the NRC determined that licensees were implementing strategies to satisfy Order EA–02–026 and enhance their programs to address the changed threat environment.

As directed by the Commission SRMs discussed above, the NRC staff conducted a comprehensive review of the EP regulatory structure, including reviews of regulations and guidance documents. As part of this review, the NRC staff met with internal and external stakeholders through several public meetings in 2005 and 2006 to discuss the elements of the EP review and plans to update EP regulations and guidance. Section III of this document provides a list of the public and other stakeholder meetings.

On September 20, 2006, the NRC staff provided the results of its review to the Commission in SECY–06–0200, ''Results of the Review of Emergency Preparedness Regulations and Guidance,'' dated September 20, 2006. In that paper, the NRC staff discussed the activities it had conducted to complete the review and provided its recommendation to pursue rulemaking for enhancements to the EP program. The NRC staff explained that the comprehensive review of the EP program identified several areas where the implementation of EP regulations and guidance, recent technological advances, and lessons learned from actual events, drills, and exercises had revealed to the NRC areas for potential improvement and increased clarity for the EP program. The staff divided the potential enhancements into two categories: security-based EP issues and other EP issues. The NRC staff evaluated each issue and assigned it a priority of high, medium, or low based on an analysis of the issue's relationship to reactor safety, physical security, EP, NRC strategic goals of openness and effectiveness, and stakeholder impact.

The NRC staff's outreach efforts, data gathering, research, and analysis led to the identification of 12 issues with a high priority, including six security EP issues and six non-security EP issues. In SECY–06–0200, the staff presented a framework for the potential enhancements to the EP regulations and guidance to address these issues, including steps for implementation, prioritization, and resource estimates. Based on its review, the NRC staff recommended that the Commission approve rulemaking as the most effective and efficient means to ensure that the high priority EP issues were resolved with an opportunity for participation by all interested stakeholders.

In its SRM to SECY–06–0200, dated January 8, 2007, the Commission approved the NRC staff's recommendation to pursue rulemaking and guidance changes for enhancements to the EP program. On April 17, 2007, the staff provided its rulemaking plan to the Commission. During the development of the plan, the NRC staff assessed the issues identified in SECY–06–0200 and discussed the feasibility of conducting rulemaking and updating guidance on all issues. The staff determined that the best course of action was to conduct rulemaking on the 12 issues identified in SECY–06–0200 as having a high priority, and to reassess the remaining issues at a later date. The decision to conduct rulemaking on the highest priority issues was made to allow a timelier rulemaking effort to occur and enable the staff to more completely assess the remaining lower priority issues.

Due to the similarities between two issues known in the rulemaking plan as ''collateral duties'' and ''shift staffing and augmentation,'' these issues have been partially combined in this final rule. Additionally, the Commission directed the NRC staff in SRM–M060502, ''Staff Requirements—Briefing on Status of Emergency Planning Activities, (Two sessions) 9:30 a.m. and 1 p.m., Tuesday, May 2, 2006, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (Open to public attendance),'' dated June 29, 2006, to coordinate with the Department of Homeland Security (DHS) to develop emergency planning exercise scenarios that would ensure that EP drills and exercises will be challenging and will not precondition participant responses. This direction was incorporated into the rulemaking issue regarding the conduct of hostile action drills and exercises because it was so closely related. Bulletin BL–05–02 provided a definition of ''hostile action'' for use in EP programs: ''An act toward an NPP [nuclear power plant] or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included.''

In an effort to conduct a rulemaking that would be transparent and open to stakeholder participation, the NRC engaged stakeholders through various means during the development of this rule. The NRC discussed the proposed improvements to the EP regulations and guidance at several conferences with key stakeholders present including the 2007 NRC Regulatory Information Conference (RIC) and the 2008 National Radiological Emergency Preparedness (NREP) Conference. These meetings are discussed more fully in Section III of this document.

The NRC posted draft rule language on the Federal rulemaking Web site, *http://www.regulations.gov,* on February 29, 2008, and solicited stakeholder comments. The NRC considered the comments received on the draft rule language in the process of developing the proposed rule. The NRC continued the use of public meetings as a method to foster open communication with stakeholders when it held public meetings on March 5, 2008, and on July 8, 2008. At the March 5, 2008 meeting, the NRC staff discussed the draft preliminary rule language for the rulemaking on enhancements to EP regulations and guidance and answered stakeholders' questions on the rule language. At the July 8, 2008, meeting, the NRC staff discussed the public comments on the draft preliminary rule language and answered stakeholders'

questions on how these comments may be addressed in the proposed rule.

On January 9, 2009, the NRC staff provided the proposed rule to the Commission in SECY–09–0007, ''Proposed Rule Related to Enhancements to Emergency Preparedness Regulations (10 CFR [Title 10 of the *Code of Federal Regulations*] part 50).'' In its SRM to SECY–09–0007, dated April 16, 2009, the Commission approved the publication of the proposed rule. The NRC published the proposed rule on the enhancements to EP regulations for public comment in the **Federal Register** on May 18, 2009 (74 FR 23254). Because it received several requests to lengthen the public comment period, the NRC extended the deadline for the public comment period from August 3, 2009, to October 19, 2009. During the public comment period, the NRC and the Federal Emergency Management Agency (FEMA) jointly held 11 public meetings to discuss the proposed rule and related guidance documents. The NRC received a total of 94 submittals and from these submittals, 687 individual comments were identified.

On December 8, 2009, NRC and FEMA staff briefed the Commission on the status of the EP rulemaking and comments received during the public comment period. In addition, a panel of external stakeholders briefed the Commission on their comments and views regarding the proposed rule. In SRM–M091208, ''Staff Requirements—Briefing on the Proposed Rule: Enhancements to Emergency Preparedness Regulations, 9:30 a.m., Tuesday, December 8, 2009, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (Open to Public Attendance),'' dated January 13, 2010, the Commission directed the NRC staff to continue working with FEMA in considering comments from State and local officials, and other interested stakeholders, to enhance the EP regulations and guidance. The Commission also directed the NRC staff to address the impacts of the rule and to consider providing a public draft of the rule language and guidance documents via the NRC public Web site while working with the Advisory Committee on Reactor Safeguards on the draft final rule.

On November 15, 2010, the NRC and FEMA held a public meeting to discuss the proposed implementation dates for the EP final rule. The feedback from this meeting, as well as all the previous interactions, informed the NRC's schedule for the implementation of the new EP requirements.

## II. Discussion

The final rule applies to 10 CFR part 50 licensees that are currently subject to the EP requirements. The final rule similarly applies to certain applicants for construction permits under Part 50 with respect to their discussion of preliminary plans for coping with emergencies (§ 50.34(a)(10)), operating licenses under Part 50 (§ 50.34(b)(6)(v)), early site permits under Part 52 that choose to propose either major features of an, or a complete and integrated, emergency plan (§ 52.17(b)(2)), and combined licenses under Part 52 (§ 52.79(a)(21)). A discussion of which applicants may defer compliance with the requirements of this final rule is provided in Section V of this document.

An effective EP program decreases the likelihood of an initiating event at a nuclear power reactor proceeding to a severe accident. Emergency preparedness cannot affect the probability of the initiating event, but a high level of EP increases the probability of accident mitigation if the initiating event proceeds beyond the need for initial operator actions. As a defense-in-depth measure, emergency response is not normally quantified in probabilistic risk assessments. However, the level of EP could affect the outcome of an accident in that the accident may be mitigated by the actions of the ERO or, in the worst case, consequences to the public could be reduced through the effective use of protective actions. Enhancements to the level of EP in this manner enhance protection of public health and safety through improvements in the response to unlikely initiating events that could lead to severe accidents without mitigative response.

The NRC's EP requirements are based on 16 planning standards in § 50.47(b) that apply to onsite and offsite emergency response plans. The planning standards apply to onsite and offsite plans because, in making its licensing decision, the NRC looks at the application (or the licensee's activities in the case of existing facilities), the current State and local government emergency plans, and FEMA's recommendation, which is based on the content of the State and local plans. The FEMA regulations in 44 CFR part 350 also contain these planning standards, which are used to make its recommendation on the adequacy of the plans and capability of the State and local governments to implement them; however, FEMA's regulations address only offsite (State and local government) plans. The changes to § 50.47(b) in this final rule are designed to affect the onsite plans, not the offsite plans. The changes have been written in a way that is expected to limit the chance of unintended impacts on FEMA regulations.

This final rule does not affect the findings necessary for issuance of a renewed nuclear power operating license under 10 CFR part 54. As the Commission explained in the license renewal final rule (56 FR 64943; December 13, 1991) and again in revisions to that final rule (60 FR 22461; May 8, 1995), the scope of license renewal is limited to those issues that have a specific relevance to protecting the public health and safety during the license renewal period (*i.e.,* age-related degradation). Issues relevant to current plant operations, like emergency planning, fall within the purview of the current regulatory process and continue into the extended operation period of a license renewal. See also NUREG–1412, ''Foundation for the Adequacy of the Licensing Bases,'' dated December 1991. The Commission has affirmed repeatedly that ''emergency preparedness need not be reviewed again for license renewal,'' 71 FR 74848, 74852; December 13, 2006 (referencing 56 FR at 64966). The Commission stated that ''[t]hrough its standards and required exercises, the Commission ensures that existing plans are adequate throughout the life of any plant even in the face of changing demographics and other site-related factors.'' 71 FR at 74852 (quoting 56 FR at 64966). This basic determination is reflected in the NRC's regulations at § 50.47(a), in which a new finding on emergency planning issues is not required for license renewal.

The discussion of the amendments in this final rule is divided into two sections: Section II.A for security-related EP issues and Section II.B for non-security related EP issues. The security-related issues are topics that address subjects similar to certain requirements in Order EA–02–026 and the guidance in BL–05–02. The non-security related issues are high priority items that resulted from the comprehensive review of EP regulations and guidance.

### *A. Security-Related EP Issues*

The NRC is enhancing its EP regulations by incorporating changes that clearly address EP actions for hostile action. Some of the changes are based on requirements in Order EA–02–026 that was issued to ensure adequate protection of the public health and safety and common defense and security. After the issuance of Order EA–02–026, however, the Commission took several additional steps to ensure

adequate protection of the public health and safety and common defense and security, including the issuance of Order EA–02–261, ''Access Authorization Order,'' issued January 7, 2003 (68 FR 1643; January 13, 2003); Order EA–03–039, ''Security Personnel Training and Qualification Requirements (Training) Order,'' issued April 29, 2003 (68 FR 24514; May 7, 2003); Order EA–03–086, ''Revised Design Basis Threat Order,'' issued April 29, 2003 (68 FR 24517; May 7, 2003); the Design Basis Threat (DBT) final rule (72 FR 12705; March 19, 2007); and the Power Reactor Security Requirements final rule (74 FR 13926; March 27, 2009). As a result of these adequate protection requirements, the Commission has determined that the existing regulatory structure ensures adequate protection of public health and safety and common defense and security. Therefore, the EP changes in this final rule that are based on the requirements of Order EA–02–026 are not necessary to ensure adequate protection during hostile action. These amendments are considered enhancements to the current EP regulations. However, licensees' implementation of these enhancements will result in a substantial increase in EP and the protection of public health and safety.

1. On-Shift Staffing Analysis

The NRC is concerned that on-shift ERO personnel who are assigned to emergency plan implementation functions may have numerous tasks or multiple responsibilities that would prevent timely performance of their assigned emergency plan tasks. The requirements for on-shift responsibilities are addressed in § 50.47(b)(2) and Part 50, Appendix E, Section IV.A. The former regulations did not specifically require that on-shift personnel assigned to emergency plan implementation must be able to implement the plan effectively without having competing responsibilities that could prevent them from performing their primary emergency plan tasks. The NRC regulations and guidance concerning licensee EROs are general in nature to allow some flexibility in the number of on-shift staff required for response to emergency events. This sometimes has resulted in the inadequate completion of emergency functions required during an emergency event. The NRC issued Information Notice (IN) 91–77, ''Shift Staffing at Nuclear Power Plants,'' dated November 26, 1991, to alert licensees to problems that could arise from insufficient on-shift staff for emergency response. The IN highlighted the following two events:

- A fire at one plant in April 1991 resulted in the licensee's failure to notify some key emergency response personnel (communication function). The need to staff the fire brigade and perform numerous response actions required by the event resulted in a heavy workload for the shift staff.
- A fire, loss of offsite power, and reactor trip at another plant in June 1991 resulted in difficulties in classifying the event, notifying required personnel, implementing emergency operating procedures, and staffing the fire brigade. Insufficient staff contributed to the licensee's failure to make a timely Notification of Unusual Event.

The NRC issued IN 93–81, ''Implementation of Engineering Expertise On-Shift,'' dated October 12, 1993, to alert licensees of ineffective implementation of the requirement to provide adequate engineering expertise on shift. Each nuclear power plant is required to have a shift technical advisor (STA) to provide engineering and accident assessment expertise. However, some licensees had assigned additional response duties to STAs, such as communicator or fire brigade member, which could have resulted in overburdening the control room staff during an emergency event. One licensee had assigned the STA as fire brigade leader, which could have hindered the STA from performing the primary duty of providing accident assessment and engineering expertise.

After issuance of IN 91–77, event follow-up inspections indicated that challenges involving shift staffing and task allocation continued. The NRC initiated a study in 1995 to assess the adequacy of shift staffing for emergency response. The NRC published IN 95–48, ''Results of Shift Staffing Study,'' dated October 10, 1995, which cited several observations of inadequate staffing and also concluded that there could be a large workload for radiological support personnel during emergencies. Data was collected on the adequacy of nuclear power plant staffing practices for performing response activities during two accident scenarios, which were (1) a fire leading to reactor trip with complications, and (2) either a control room fire leading to evacuation and remote shutdown or a station blackout. Items of interest included the following:

- Licensees surveyed did not use a systematic process for establishing site-specific shift staffing levels.
- Licensees surveyed frequently assigned additional plant-specific tasks that were not specified by regulation to be performed by licensed and non-licensed operators during an event.
- Five of the seven licensees surveyed used licensed personnel to staff the fire brigade.
- Procedures varied significantly concerning licensed and non-licensed personnel staffing levels, and the number of non-licensed operators used on the night-shift varied greatly.
- Radiation protection and chemistry technicians of all the licensees surveyed had a high workload during the scenarios.

Multiple NRC inspection findings also indicate the need for regulatory clarity in the assignment of multiple responsibilities to on-shift ERO personnel. For example, in February 2003, one licensee revised its emergency plan to delete one of three communicators and assigned the communicator function to the STA as an additional duty. As previously stated, the primary emergency plan duty of the STA is to provide engineering and accident assessment expertise. The NRC determined that this emergency plan change was an inappropriate reduction in on-shift staff and assessed the change as a decrease in effectiveness of the emergency plan in violation of § 50.54(q). In April 2005, another licensee revised its emergency plan to allow the assignment of the on-shift health physics technician (HP Tech.) as the interim operations support center coordinator, a 30-minute augmented ERO responder. The HP Tech. had assigned emergency plan tasks including in-plant surveys, in-plant protective actions, and rescue/first aid. The NRC determined that this emergency plan change was an inappropriate assignment of augmentation staff duties to an on-shift responder and assessed the change as a decrease in effectiveness of the emergency plan in violation of § 50.54(q).

These findings demonstrated the need for amended regulations to explicitly limit on-shift ERO response duties to ensure that these emergency responders do not become overburdened during an emergency event. Having additional duties beyond the assigned emergency plan implementation functions could result in on-shift responders being overburdened, resulting in inadequate or untimely response.

The ICMs in Order EA–02–026 addressed on-shift staff responsibilities by requiring licensees to ensure that a sufficient number of on-shift personnel are available for integrated security plan and emergency plan implementation. Prior to issuance of the order, some licensees were utilizing security

personnel to implement the emergency plan when many of these responders would likely not be available due to a hostile action.

The NRC considered several options to resolve this issue. One option was to take no action, but this alternative would not have subjected new nuclear power reactor licensees to Order EA–02–026's requirement of an assessment to ensure adequate staff for integrated security plan and emergency plan implementation. Additionally, the shift staffing study referenced in IN 95–48 found that the licensees surveyed did not use a systematic process for establishing shift staffing levels and additional tasks, not required by regulation, were assigned to the licensed and non-licensed operators. This practice, if permitted to continue, could have resulted in operators being overburdened during an emergency. A second option was to allow licensees to use a voluntary program to ensure adequate shift staffing. However, many licensees have requested NRC permission to reduce on-shift staffing levels and the NRC would have expected this practice to continue. This could have increased the risk of over-burdening on-shift responders and resulted in inadequate or untimely response. Therefore, both of these options were considered unacceptable.

In the proposed rule, the NRC would have required nuclear power plant licensees to provide a detailed analysis to show that on-shift personnel assigned emergency plan implementation functions were not assigned any responsibilities that would prevent them from performing their assigned emergency plan functions. The NRC received several comments on this proposal, questioning the need for this regulation and suggesting that the proposed rule methodology should be placed in a regulatory guide, NUREG, or some other guidance document. The NRC disagrees with these comments and believes that a regulation is necessary to ensure consistent licensee implementation of on-shift emergency response staffing that is enforceable and not merely guidance. Therefore, the NRC is amending Part 50, Appendix E, Section IV.A, to address this issue, as discussed in Section IV of this document.

In the proposed rule, the NRC asked for public comment on whether the NRC should enhance its regulations to be more explicit in the number of ERO staff necessary for response to nuclear power plant emergencies. Specifically, the NRC requested comments on a draft staffing table that provided proposed staff functions and minimum staffing levels for the on-shift and augmenting ERO. The table was a modification of the guidance found in Table B–1 of NUREG–0654/FEMA–REP–1, ''Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,'' dated November 1980, and incorporated lessons learned from years of NRC EP experience. Of the comments the NRC received, some comments supported and some opposed the inclusion of the table into regulations. The NRC acknowledges that because each site is different and site characteristics may dictate the size of the ERO staff, requiring compliance with standard staffing requirements would be an unreasonable approach to resolving this issue. For example, the NRC has approved some emergency plans with additional ERO staff due to site-specific circumstances, such as the lack of a local fire department or hospital. Therefore, the NRC is not specifying a standard ERO staffing table in its regulations.

In the proposed rule, the NRC asked for public comment on whether the NRC should add a requirement for non-power reactor licensees to perform a detailed analysis demonstrating that on-shift personnel can perform all assigned emergency plan implementation functions in a timely manner without having competing responsibilities that could prevent them from performing their emergency plan functions. The NRC received several comments that opposed a regulation imposing this requirement. The NRC agrees that this requirement is not necessary for non-power reactor licensees. Staffing at non-power reactors is generally small, which is commensurate with the need to operate the facility in a manner that is protective of public health and safety. The NRC reviews the staffing as part of initial reactor licensing. The functions of emergency staff are outlined in emergency plans and are tested through drills and exercises in accordance with NUREG–0849, ''Standard Review Plan for the Review and Evaluation of Emergency Plans for Research and Test Reactors,'' dated October 1983. Results are reviewed by the NRC during routine inspections. Therefore, the NRC has not included this requirement in the final rule.

2. Emergency Action Levels for Hostile Action

Section 50.47(b)(4) stipulates that emergency plans must include a standard emergency classification and EAL scheme. Part 50, Appendix E, Section IV.B, specifies that emergency plans shall include EALs that are to be used as criteria for determining the need for notification of State and local agencies, and participation of those agencies in emergency response. However, the former regulations did not require EALs for hostile action and did not address the issue of anticipatory response to hostile action. Although Order EA–02–026 and BL–05–02 addressed these issues, those improvements to the EAL requirements to address hostile action were only in orders and guidance. Thus, the NRC could not ensure consistent and effective implementation of these enhancements among existing and future licensees.

Order EA–02–026 required the declaration of at least a Notification of Unusual Event in response to a credible hostile action threat. In 2005, the NRC issued BL–05–02, which provided EAL enhancement examples for hostile action up to the General Emergency level. Bulletin BL–05–02 provided examples of EALs for all three EAL methodologies that could be implemented immediately without prior NRC approval (*i.e.,* NUREG–0654, NUMARC/NESP–007, ''Methodology for Development of Emergency Action Levels,'' and Nuclear Energy Institute (NEI) 99–01, ''Methodology for Development of Emergency Action Levels''). It also pointed out that because of improvements in Federal agencies' information-sharing and assessment capabilities, hostile action emergency declarations can be accomplished in a more anticipatory manner, based on a credible threat, than the current method of making declarations for accidental events. This would enable earlier implementation of emergency response actions.

Although all nuclear power reactor licensees have implemented both the credible threat EAL required by Order EA–02–026 and the EAL enhancements specified in BL–05–02, licensees were not required to maintain the enhancements identified in the bulletin. This could have resulted in inconsistent EAL implementation among licensees for response to hostile action. Also, future licensees would not have been required to include these enhancements in their emergency plans. This final rule establishes consistent EALs across the nuclear power industry for hostile action. The ICMs and BL–05–02 provided enhancements to EAL schemes that would allow event declarations to be accomplished in a more anticipatory manner. This timeliness is of the utmost importance because EALs are used as criteria for determining the need for notification and participation of State and local agencies. The NRC is

codifying these enhancements to the EAL requirements addressing hostile action by revising Part 50, Appendix E, Section IV.B, as discussed in Section IV of this document.

The NRC considered other options to attempt to resolve these issues, such as taking no action or allowing voluntary action by licensees. These options were rejected since there would have continued to be no regulatory requirement for current or future licensees to incorporate EALs for hostile action in their emergency plans, nor would there be a consistent minimum level of implementation that the NRC had determined to be adequate.

In the proposed rule, the NRC asked for public comment on whether the NRC should expand to non-power reactor licensees the requirement for power reactor licensees to have hostile action EALs. Appendix E to 10 CFR part 50 cites Regulatory Guide (RG) 2.6, ''Emergency Planning for Research and Test Reactors,'' dated March 1983, as the guidance for the acceptability of research and test reactor emergency plans. Regulatory Guide 2.6 endorses ANSI/ANS 15.16–1982, ''Emergency Planning for Research Reactors,'' as an acceptable approach to non-power reactor emergency plans. The newly updated ANSI/ANS 15.16–2008 includes hostile action EALs. The NRC has commenced the process to update RG 2.6 to endorse ANSI/ANS 15.16–2008. The NRC has also determined that further analysis and stakeholder interactions are needed prior to changing the requirements for non-power reactor licensees. Therefore, the NRC has not included a requirement in the final rule for non-power reactor licensees to have hostile action EALs.

3. Emergency Response Organization Augmentation and Alternative Facilities

Section 50.47(b)(2) and Part 50, Appendix E, Section IV.C, require licensees to have the capability to augment the on-shift staff within a short period of time after the declaration of an emergency to assist in mitigation activities. To accomplish this, ERO members typically staff an onsite Technical Support Center (TSC) that relieves the control room (CR) of emergency response duties and allows CR staff to focus on reactor safety. The ERO members also staff an onsite Operational Support Center (OSC) to provide an assembly area for damage repair teams. Lastly, ERO members staff an EOF, usually located in close proximity to the plant, to function as the center for evaluation and coordination activities related to the emergency and the focal point of information provided to Federal, State, and local authorities involved in the response.

Section 50.47(b)(8) and Part 50, Appendix E, Section IV.E, require licensees to have adequate emergency facilities and equipment to support emergency response. However, § 50.47(b)(8) and the former Part 50, Appendix E, Section IV.E, did not require licensees to identify alternative facilities to support ERO augmentation during hostile action. During hostile action, ERO members would likely not have access to the onsite emergency response facilities, or the EOF if it is located within the licensee's owner-controlled area. Nevertheless these events still warrant timely ERO augmentation so responders can travel quickly to the site once access is allowed.

Order EA–02–026 required that licensees assess the adequacy of staffing plans at emergency response facilities during hostile action, assuming the unavailability of the onsite TSC, and identify alternative facilities capable of supporting event response. These facilities would function as staging areas for augmentation staff until the site was secured, which would minimize delays in overall site response by permitting ERO assembly without exposing responders to the danger of hostile action. The NRC inspections to evaluate the effectiveness of the implementation of the ICMs revealed variations in the identification and staffing of alternative emergency response facilities.

Bulletin BL–05–02 described how alternative locations for onsite emergency response facilities support EP functions during hostile action. It stated that the ERO is expected to be staged in a manner that supports rapid response to limit or mitigate site damage or the potential for an offsite radiological release. It also pointed out that some licensees have chosen not to activate elements of the ERO during hostile action until the site was secured. However, the NRC considers it prudent, for hostile action events outside of normal working hours, to fully activate ERO members to promptly staff alternative facilities, in order to minimize delays in overall site response. Bulletin BL–05–02 conveyed that, even during normal working hours, licensees should consider deployment of onsite ERO personnel to an alternative facility near the site during hostile action.

To resolve this issue, the NRC considered taking no regulatory action or continuing the voluntary implementation currently in place as a result of BL–05–02 and the guidance endorsed by NRC Regulatory Issue Summary (RIS) 2006–12, ''Endorsement of Nuclear Energy Institute Guidance 'Enhancements to Emergency Preparedness Programs for Hostile Action,' '' dated July 19, 2006. If no action had been taken, there would have continued to be no explicit regulatory requirement regarding the actions necessary during hostile action for the ERO to staff an alternative facility. The ERO members would likely not have access to the site during hostile action, but timely augmentation would still be necessary for adequate response. Taking no regulatory action may have resulted in inconsistent implementation of ERO augmentation guidelines, and less effective overall site response. The NRC also considered using a voluntary program; however, voluntary programs, such as those developed per the NEI guidance endorsed by RIS 2006–12, would not provide a consistent, NRC-approved means for addressing needed enhancements for hostile action. The use of voluntary programs would not have ensured long-term continuity of the enhancements for both licensees and applicants. Thus, the NRC is codifying the ICM requirement and the enhancement examples described in BL–05–02 concerning ERO augmentation to alternative facilities during hostile action in Part 50, Appendix E, Section IV.E, to maximize the effectiveness of the site response. These changes are discussed in Section IV of this document.

4. Licensee Coordination With Offsite Response Organizations During Hostile Action

A unique challenge posed by hostile action at a nuclear power plant is the increased demand on local law enforcement agencies (LLEAs) that are expected to implement portions of ORO emergency plans, as well as respond to the plant. The former § 50.47(b)(1) and Appendix E to Part 50 did not explicitly require licensees to coordinate with OROs to ensure that personnel are available to carry out preplanned actions, such as traffic control and route alerting by LLEAs, during hostile action directed at the plant.

Licensees are required to identify ORO support for emergency response as well as demonstrate that various ORO capabilities exist through biennial evaluated exercises. Licensees and OROs have successfully demonstrated these capabilities for many years. However, the NRC recognized that hostile action may challenge OROs in ways unforeseen at the time the current regulations were developed. For example, local law enforcement personnel may be assigned both

evacuation plan and armed response duties during hostile action. The NRC acknowledged this challenge when it issued Order EA–02–026 and included provisions that licensees address coordination with OROs for hostile action. Specifically, the order required that licensees develop plans, procedures, and training regarding coordination between the site and OROs and directed licensees to review emergency plans to ensure sufficient numbers of personnel would be available during hostile action.

The NRC subsequently became aware through inspections and communications with licensees that ORO plans must be reviewed to ensure sufficient numbers of personnel would be available to respond during hostile action. The NRC communicated this need to licensees and OROs through RIS 2004–15, ''Emergency Preparedness Issues: Post-9/11,'' dated October 18, 2004, which provided information on EP issues based on NRC staff observations from the EP component of force-on-force (FOF) exercises and lessons learned from the telephonic walk-through drills conducted with all power reactor sites between August and October 2005. In addition, DHS initiated the Comprehensive Review Program that conducted a review of site and ORO response to hostile action at every nuclear plant site. This review often identified a gap in ORO resource planning. Based on these findings and lessons learned from hostile action pilot program drills (*see* Section II.A.6 of this document), the NRC believes there is inconsistent implementation among licensees concerning effective coordination with OROs regarding the availability of adequate resources to respond to hostile action at a nuclear power plant.

Licensees and the supporting OROs have taken various actions to respond to this issue, but criteria for determining the adequacy of the licensee and ORO actions have not been established. The NRC considered encouraging industry to develop and implement a voluntary program; however, voluntary programs do not provide a consistent, NRC-approved means for addressing the needed enhancements in the post-September 11, 2001, threat environment. A voluntary approach would not have ensured consistent industry-wide implementation of the ICM requirements and there would have been no requirement for new licensees to incorporate the changes into their emergency plans.

The NRC is amending Part 50, Appendix E, Section IV.A.7, to explicitly include hostile action at the site as one of the types of emergencies that define the State, local, and Federal agencies that licensees must identify in their emergency plan along with the assistance licensees expect from them. These changes are discussed in Section IV of this document.

5. Protection for Onsite Personnel

The former § 50.47(b)(10) and Appendix E to Part 50 did not require specific emergency plan provisions to protect onsite emergency responders and other onsite personnel in emergencies resulting from hostile action at nuclear power plants. Licensees are required to provide radiological protection for emergency workers and the public in the plume exposure pathway emergency planning zone (EPZ), including actions such as warning of an emergency, providing for evacuation and accountability of individuals, and providing for protective clothing and/or radio-protective drugs. Many of these personnel are required by the site emergency plan that the licensee must follow and maintain. The emergency plan requires responders with specific assignments to be available on-shift 24 hours a day to minimize the impact of radiological emergencies and provide for the protection of public health and safety. However, in analyses performed after the terrorist attacks of September 11, 2001, the NRC staff determined that a lack of protection for emergency responders who are expected to implement the emergency plan could result in the loss of those responders and thus an inability to effectively implement the emergency plan.

The normal response actions for personnel protection, such as site evacuation, site assembly and accountability, and activation of onsite emergency response facilities, may not be appropriate in this instance because these actions may place at risk the response personnel necessary to mitigate plant damage resulting from the hostile action. Bulletin BL–05–02 pointed out that actions different than those normally prescribed may be more appropriate during hostile action, particularly an aircraft attack. This may include actions such as evacuation of personnel from potential target buildings and accountability of personnel after the attack has concluded. Precise actions would depend on site-specific arrangements, such as the location of personnel in relation to potential targets. Procedures would need to be revised to ensure plant page announcements are timely and convey the onsite protective measures deemed appropriate.

The NRC considered other options to attempt to resolve this issue. The NRC considered taking no additional regulatory action and relying upon continuation of the voluntary initiatives currently being implemented by licensees as a result of BL–05–02. Taking no action could have resulted in the vulnerability of onsite personnel during hostile action. Action is necessary to ensure effective coordination to enable licensees to more effectively implement their pre-planned actions. Voluntary programs do not provide a consistent, NRC-approved means for addressing needed enhancements. Further, the implementation of voluntary actions would not have ensured that these measures would be incorporated into emergency plans at new sites.

The NRC is revising Appendix E by creating new Section IV.I, to require licensees to protect onsite personnel during hostile action and to ensure the continued ability of the licensee to safely shut down the reactor and perform the functions of the licensee's emergency plan, as discussed in Section IV of this document.

6. Challenging Drills and Exercises

A basic EP principle is that licensees conduct drills and exercises to develop and maintain key skills of ERO personnel. Drill and exercise programs contribute to the NRC determination of reasonable assurance that licensees can and will implement actions to protect public health and safety in the unlikely event of a radiological emergency. Implementation of the current regulations provides reasonable assurance of adequate protection of public health and safety at every nuclear plant site.

In the unlikely event that a licensee faces hostile action, the response organization will encounter challenges that differ significantly from those practiced in long-standing drill and exercise programs because these programs have not included hostile action scenarios. The former NRC regulations addressing this issue were general in nature and did not explicitly require licensees to include hostile action scenarios in drills and exercises, nor did they directly allow the NRC to require specific scenario content. The NRC is amending its regulations to do so.

Following the terrorist attacks of September 11, 2001, the NRC conducted a review of the EP planning basis in view of the changed threat environment and concluded that the EP planning basis remains valid. The NRC observed licensee performance during numerous

hostile action EP exercises and tabletop drills as well as several security FOF exercises. The NRC also discussed security-based EP issues with licensees and Federal, State, and local EP professionals and advocacy groups and issued BL–05–02 to collect information from licensees on the enhancements to drill and exercise programs to address the hostile action contingency.

Through these efforts, the NRC concluded that, although EP measures are designed to address a wide range of events, response to hostile action can present unique challenges not addressed in licensee and ORO drills and exercises, such as:

- Extensive coordination between operations, security, and EP personnel;
- Use of the alternative emergency response facilities for activation of the ERO;
- Execution of initial response actions in a hostile environment (*i.e.,* during simulated hostile action);
- The need to shelter personnel from armed attack or aircraft attack in a manner very different from that used during radiological emergencies;
- Conduct of operations and repair activities when the site conditions prevent normal access due to fire, locked doors, security measures, and areas that have not yet been secured;
- Conduct of operations and repair activities with large areas of the plant damaged or on fire;
- Rescue of, and medical attention to, significant numbers of personnel; and
- Prioritization of efforts to protect plant equipment or to secure access to plant areas for repairs.

In response to BL–05–02, all nuclear power reactor licensees stated that they would develop and implement an enhanced drill and exercise program. Program elements were captured in NEI 06–04, Rev. 1, ''Conducting a Hostile Action-Based Emergency Response Drill,'' a guidance document developed by NEI. The NRC endorsed this document for use in a pilot program in RIS 2008–08, ''Endorsement of Revision 1 to Nuclear Energy Institute Guidance Document NEI 06–04, 'Conducting a Hostile Action-Based Emergency Response Drill,' '' dated March 19, 2008. However, implementation of these enhancements was voluntary, and the NRC could not require licensees to maintain these enhancements, absent issuance of an order or a regulation.

The NRC also became aware of a related issue regarding EP exercise scenarios. The NRC inspects licensee response during these exercises and FEMA evaluates the capabilities of OROs. Licensees have performed many evaluated EP exercises and understand NRC and FEMA expectations. Licensees design scenarios in coordination with State and local agencies to demonstrate all key EP functions in a manner that facilitates evaluation. As a result, scenarios have become predictable and may precondition responders to sequential escalation of emergency classifications that always culminate in a large radiological release. Current biennial exercise scenarios do not resemble credible reactor accidents in that the timing is improbable and the intermittent containment failure typically used is unlikely. Typical scenarios used by licensees in biennial exercises involve simulated accidents, such as a loss of coolant accident or a steam generator tube rupture. However, certain predictable artifacts emerge in almost all biennial exercise scenarios, including the following:

- The ERO will not be allowed to mitigate the accident before a release occurs;
- The release will occur after a General Emergency is declared;
- The release will be terminated before the exercise ends; and
- The exercise will escalate sequentially through the emergency classes.

In short, responders may be preconditioned to accident sequences that are not likely to resemble the accidents they could realistically face.

In SRM–M060502, dated June 29, 2006, the Commission directed the NRC staff to develop exercise scenarios in conjunction with DHS, as follows:

> The staff should coordinate with DHS to develop emergency planning exercise scenarios which would help avoid anticipatory responses associated with preconditioning of participants by incorporating a wide spectrum of releases (ranging from little or no release to a large release) and events, including security-based events. These scenarios should emphasize the expected interfaces and coordination between key decision-makers based on realistic postulated events. The staff should share experiences of preconditioning or ''negative training'' with DHS.

As a result of the SRM, a joint NRC/FEMA working group was formed to review the development of emergency planning exercise scenarios. The working group was assigned the task of identifying the NRC and FEMA regulations that would require revision to enhance exercise scenarios and guidance to assist in the effective implementation of these regulations. The working group recommended several changes to the FEMA Radiological Emergency Preparedness (REP) Program Manual that comport with this final rule to address preconditioning and the incorporation of hostile action exercise scenarios.

The FEMA held focus group meetings in several FEMA regions to discuss potential policy changes to the REP Program Manual. The NRC supported these meetings to facilitate questions as they related to the EP rulemaking issue of challenging drills and exercises. For example, stakeholders voiced opinions on the requirements for the development and review of exercise scenarios, whether all emergency classification levels (ECLs) must be included in each exercise or if one or more ECLs can be skipped, how radiological release conditions and options could vary, and if a spectrum of scenarios will be varied to create more realistic and challenging exercises. Comments received from the different focus groups and stakeholders informed this rulemaking, new guidance documents associated with this rulemaking, and an update to the REP Program Manual.

A regulatory change is necessary to enhance scenario content to include hostile action scenarios and reduce preconditioning through a wide spectrum of challenges. This change will improve licensee ERO capability to protect public health and safety under all accident scenarios as well as reverse any trend toward preconditioning.

The NRC also considered not making any change to the regulations, but rejected that option because it would not adequately address the concerns previously discussed. The NRC also discussed the use of voluntary programs and although this option could be successful, the NRC could not require that changes made would be permanent and consistent across all sites.

The NRC is revising Appendix E, Section IV.F, to address these issues, as discussed in Section IV of this document.

*B. Non-Security Related EP Issues*

The remaining changes are new or amended requirements that result in a substantial increase to public health and safety because they maintain or strengthen the ability of licensees to effectively implement their emergency plans.

1. Backup Means for Alert and Notification Systems

The regulations for alert and notification system (ANS) capabilities are found in § 50.47(b)(5) and Part 50, Appendix E, Section IV.D.3, and require licensees to establish the capability to promptly alert and notify the public if there is an emergency event while meeting certain ANS design objectives.

The former regulations did not require backup power for sirens or other backup ANS alerting capabilities when a major portion of the primary alerting means is unavailable. The regulations also did not address backup notification capabilities. If a major portion of a facility's ANS is unavailable and no backup exists, then the public may not be promptly alerted of an event at the facility and the protective actions to be taken, which could affect the public's response to the event.

An ANS provides the capability to promptly alert the populace within the plume exposure pathway EPZ of a nuclear power plant in case of an emergency event and to inform the public what protective actions may need to be taken. The predominant method used around U.S. nuclear power plants for alerting the public is an ANS based on sirens to provide an acoustic warning signal. Some sites employ other means, such as tone alert radios and route alerting, as either primary or supplemental alerting methods. The public typically receives information about an event and offsite protective actions via emergency alert system (EAS) broadcasts or other means, such as mobile loudspeakers.

In several instances, nuclear power plants have lost all or a major portion of the alert function of an ANS for short time periods for various reasons, such as damage to ANS components caused by severe weather, loss of offsite alternating current (AC) power, malfunction of ANS activation equipment, or unexpected problems resulting from ANS hardware/software modifications. In other situations, the notification capability has been lost (*e.g.,* the inability to activate tone alert radios, which are used to provide both an alert signal and notification function).

The NRC has issued multiple INs to document the circumstances when ANS failures have occurred, including IN 2002–25, ''Challenges to Licensees' Ability to Provide Prompt Public Notification and Information During an Emergency Preparedness Event,'' dated August 26, 2002; IN 2005–06, ''Failure to Maintain Alert and Notification System Tone Alert Radio Capability,'' dated March 30, 2005; and IN 2006–28, ''Siren System Failures Due to Erroneous Siren System Signal,'' dated December 22, 2006. The inability to activate some tone alert radios because of a shorter tone activation signal permitted as part of EAS implementation was addressed in IN 1996–19, ''Failure of Tone Alert Radios to Activate When Receiving a Shortened Activation Signal,'' dated April 2, 1996. Without the ability to warn the population, the effectiveness of the notification element may be significantly reduced. Having a backup means in place would lessen the impact of the loss of the primary ANS.

Other events impacting ANS operability have involved the widespread loss of the electrical grid providing power to siren based systems, such as the electrical blackout in several areas of the northeastern U.S. and portions of Canada in August 2003. As discussed in RG 1.155, ''Station Blackout,'' dated August 1988, although the likelihood of failure of the onsite AC [alternating current] power system coincidental with the loss of offsite power is small, station blackout events may be substantial contributors to core damage events for some plants.

The U.S. Congress recognized that all emergency notification systems may not operate in the absence of an AC power supply and encouraged the use of newer alerting and notification technology. In U.S. House of Representatives Committee on Appropriations (House Appropriations Committee) Report 107–740, FEMA was directed to update its guidance on outdoor warning and mass notification systems and require all warning systems to be operable in the absence of an AC power supply. The House Appropriations Committee also urged FEMA to consult with other relevant agencies and revise the national standard for outdoor warning and mass notification to reflect state-of-the-art technology. Moreover, the Energy Policy Act of 2005 directed the Commission to require backup power for the emergency notification system, including siren systems, for nuclear power plants located where there is a permanent population, as determined by the 2000 decennial census, in excess of 15,000,000 within a 50 mile radius of the power plant. Therefore, it was appropriate that the NRC also considered changes to its existing regulations and guidance regarding warning systems for all nuclear power reactor licensees.

The NRC considered several options to attempt to resolve this issue, including reliance on ANS design review standards and related guidance documents to address ANS backup means. Several NRC and FEMA guidance documents, such as NUREG–0654 and FEMA–REP–10, ''Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants,'' dated November 1985, contain detailed information on ANS capabilities and design review methodology. Additional information on ANS backup capabilities will be provided in revisions or supplements to these documents. As guidance, a provision for an ANS backup means would not be considered a requirement and its applicability to existing approved ANS designs would be considered optional. As noted previously in this discussion, FEMA was also directed to update its guidance to require all warning systems to be operable in the absence of an alternating current power supply. However, guidance changes limited to backup power requirements for the alerting function would not address backup capabilities for other types of alerting devices or the ANS notification function. In summary, this option did not provide a regulatory resolution to ensure that nuclear power plant ANS designs include a backup method to the primary means for both alerting and notification, and thus the NRC considered this option to be unacceptable.

Use of a voluntary approach for ANS backup means was also considered. Some current nuclear power plant ANS designs address one or more aspects of backup ANS capabilities, such as providing backup power in the event primary power to sirens is lost, using backup route alerting when sirens are inoperable, designating multiple EAS broadcast stations to ensure that instructional messages can be transmitted, or using reverse 911 systems. A voluntary approach was considered as an option because State and local authorities can usually compensate for the temporary loss of some ANS capabilities. However, allowing licensees or applicants to voluntarily install backup ANS capabilities will not ensure that both the alerting and notification functions are addressed, or that new sites will have warning systems designed with comprehensive backup ANS capabilities. Given the importance of ANS to alert the public of an event at a facility and the protective actions to be taken, and without any voluntary industry commitment that existing or new warning systems will have a backup means available, the NRC considered a voluntary approach to be inappropriate and found this option unacceptable.

The NRC believes that nuclear power reactor licensees must be required to have backup ANS methods and therefore is amending its regulations to address backup capabilities for both the alert and notification functions. The NRC considered three alternatives for addressing this issue in rulemaking.

The first alternative would have added a regulatory requirement for ANS backup power. The most common warning system used at U.S. nuclear

power plants is based on sirens that are powered directly, or indirectly through batteries, by an AC power source. As noted previously in this discussion, the loss of power is not the only failure mode that can impact warning systems. Causes of past ANS inoperability problems have included the inability to detect siren failures, the inability to activate sirens, the failure to test and maintain personal home alerting devices, the use of telephone call-inhibiting devices, and the failure to provide and maintain distribution lists of tone alert radios. Thus, a regulatory requirement addressing only backup ANS power would not have eliminated any of these other failure modes. This approach would have prescribed one specific method as a backup means, precluding licensees (or applicants) and offsite officials from considering alternative methods, such as route alerting or newer communications technology, that may be more suitable for certain nuclear power plant sites. In summary, it would have addressed only one of several ANS failure modes (*i.e.,* loss of AC power) for one alerting method (*i.e.,* sirens). It would not have addressed backup methods for other types of alerting devices or any part of the notification process. Therefore, the NRC considered this approach to be unacceptable.

The second alternative would have required that the primary ANS be designed so no common single failure mode for the system existed; therefore, a backup system would not have been needed. This approach would have ensured that the entire ANS was designed and built to a very high level of reliability. Any equipment necessary for ANS activation and operation (*e.g.,* computers, radio transmitters and radio towers, plus the actual alerting devices and notification means) would have had redundant components and power sources as necessary to eliminate any common single failure mode, such as a widespread power outage affecting a siren based system. However, ensuring that all ANS common single failure vulnerabilities have been identified and adequately addressed would have been difficult. Even after extensive analysis and testing of a warning system, a common failure mechanism may not have become evident until the system was activated for an emergency event. For a siren based system, several additional sirens (with backup power capabilities) may have been needed to be installed to provide overlapping acoustic coverage in the event clusters of sirens fail and thus may have discouraged licensees at future nuclear power plant sites from using these systems due to the increased cost for installing additional sirens. This approach may not have been applicable to non-electronic primary warning systems based on other methods, such as route alerting. For these reasons, the NRC considered this approach to be unacceptable. Rejecting this approach does not mean that the issue of backup power for warning systems will be left unaddressed. As discussed previously, the House Committee on Appropriations directed FEMA to require all outdoor warning systems to be operable in the absence of AC power.

The third alternative was selected and revises Part 50, Appendix E, Section IV.D.3, to require a backup capability should the primary means of public alerting and notification be unavailable. These changes are discussed in Section IV of this document.

2. Emergency Declaration Timeliness

Emergency declaration is the process by which a licensee determines whether an off-normal plant condition warrants declaration as an emergency and, if so, which of the four emergency classes—Notification of Unusual Event, Alert, Site Area Emergency, or General Emergency—is to be declared. In its oversight of licensee EP programs, the NRC has observed several licensees whose responses in performing emergency declarations were inappropriately delayed. Between 2000 and 2009, the NRC identified 13 situations in which an emergency declaration was either not done or inappropriately delayed during an actual event, which resulted in findings and cited and non-cited violations. These situations may have been a result of a lack of a specific regulatory timeliness requirement.

Emergency declarations are fundamental to the licensee's EP program in that onsite and offsite emergency response activities are implemented in a staged, proportional manner, based upon the level of the declared emergency. If an emergency declaration is delayed, the subsequent emergency response actions may not be timely. Emergency response personnel, facilities, and equipment may not be in position should it become necessary to implement measures to protect public health and safety.

The NRC has issued generic communications to alert licensees of these concerns and to advise them of the NRC's expectation that emergency classifications [1] are made in a prompt manner. In 1985, the NRC published IN 85–80, ''Timely Declaration of an Emergency Class, Implementation of an Emergency Plan, and Emergency Notifications,'' to alert licensees of two instances in which declarations and/or notifications of an actual emergency condition were significantly delayed and to express the NRC expectation of timely emergency declarations. In 1995, the NRC found it necessary to publish Emergency Preparedness Position-2, ''Emergency Preparedness Position (EPPOS) on Timeliness of Classification of Emergency Conditions,'' to provide guidance to NRC staff in evaluating licensee performance in the area of timely classification. The NRC cited classification delays in actual events and exercises as the reason for issuing the guidance. The EPPOS–2 provided the NRC expectation that the classification should be made promptly following indications that conditions have reached an EAL threshold and that 15 minutes was a reasonable goal for completing the classification once indications are available to the control room operators. The NRC based that conclusion on the belief that 15 minutes is a reasonable period of time for assessing and classifying an emergency once indications are available to cognizant personnel, and that a delay in classification for up to 15 minutes would have a minimal impact upon the overall emergency response and protection of the public health and safety. The NRC noted that emergency classification schemes have reached a level of maturity in which the classification of emergencies can be accomplished in a relatively short period of time once the abnormal condition and associated plant parameters are known by cognizant licensee personnel. The EPPOS–2 stated that the 15-minute period was not to be viewed as a grace period in which a licensee could resolve a condition that had already exceeded an EAL threshold to avoid a declaration.

This 15-minute goal was not a regulatory requirement but rather a guideline for NRC staff evaluation of a licensee's performance in responding to an actual radiological emergency. This goal was subsequently incorporated as a criterion in the industry proposed and NRC-approved Reactor Oversight Process (ROP) EP Cornerstone performance indicators (PIs). Although the reported classification performance

[1] Early NRC generic communications routinely used the phrase ''emergency classification'' to denote the outcome of the process to assess, classify, and declare an emergency condition. This document uses the phrase ''emergency declaration'' in place of ''emergency classification'' except when summarizing an earlier document.

during drills and exercises remains high, there have been several instances during actual events in which classifications were inappropriately delayed. Although these actual events did not warrant public protective measures, this may not always be the case.

The NRC considered the following options for addressing this regulatory problem. The first option, take no action, was rejected because it would not address the regulatory problem. The second option, continue to rely on the industry's voluntary PI, was rejected because the existence of the PI has not prevented untimely classifications during actual emergencies. Although these occurrences were associated with Notification of Unusual Events or Alerts, the observed weaknesses could also have occurred under different circumstances in which the potential impact to the public could have been greater. The third option, issue regulatory guidance, was rejected because although regulatory guidance is an appropriate mechanism for identifying acceptable means for complying with regulatory requirements, there was no regulatory requirement that emergency declarations meet any particular timeliness criterion. The fourth option, an amendment of the regulations, is the best course of action to ensure that licensees are aware that they are responsible for completing emergency declarations in a timely manner in the event of a radiological emergency.

The NRC also considered providing either a *performance* criterion or a *capability* criterion. Similar to the notification timeliness criterion in Appendix E, Section IV.D.3., in which the NRC requires licensees to be capable of notifying responsible State and local governmental agencies within 15 minutes after declaring an emergency, the NRC opted to propose a *capability* criterion, rather than an inflexible *performance* criterion. This approach allows licensees some degree of flexibility during an actual radiological emergency in addressing extenuating circumstances that may arise when an emergency declaration may need to be delayed in the interest of performing plant operations that are more urgently needed to protect public health and safety. These delays could be found acceptable if they did not deny State and local authorities the opportunity to implement actions to protect the public health or safety under their emergency plans and the cause of the delay was not reasonably within the licensee's ability to foresee and prevent. Based upon these considerations, the NRC is amending Part 50, Appendix E, Section IV.C, to address this issue by providing a *capability* criterion. These changes are discussed in Section IV of this document.

In the proposed rule, the NRC asked for public comment on whether the NRC should add requirements for non-power reactor licensees to assess, classify, and declare an emergency condition within 15 minutes and promptly declare an emergency condition. The NRC received several comments on these issues. The NRC believes there may be a need for the NRC to be aware of security related events early on so that an assessment can be made to consider the likelihood that the event is part of a larger coordinated attack.

The NRC also believes declarations for non-security related events should be made in a timely fashion, but not necessarily with the same urgency as security related events. For example, in 2008 a tornado damaged the building that houses a non-power reactor. Assistance from the NRC, which was coordinated between NRC headquarters and NRC Region IV, could have been deployed earlier and with more detailed information if the emergency information was available to the NRC earlier.

However, the NRC has determined that further analysis and stakeholder interactions are needed prior to changing the requirements for non-power reactor licensees. Therefore, the NRC has not included requirements in the final rule for non-power reactor licensees to assess, classify, and declare an emergency condition within 15 minutes and promptly declare an emergency condition.

3. Emergency Operations Facility—Performance Based Approach

Several nuclear power reactor licensees have submitted requests for NRC approval to combine EOFs for plants they operate within a State or in multiple States into a consolidated EOF. In some instances, the consolidated EOF is located at a substantial distance from one or more of the plant sites and is no longer considered a ''near-site'' facility, as required by former §§ 50.47(b)(3), 50.47(d)(1), 50.54(gg)(1)(i), and Appendix E, Sections II.H., IV.E.8., IV.E.9.c., and IV.E.9.d. Guidance documents, including NUREG–0696, ''Functional Criteria for Emergency Response Facilities,'' dated February 1981, and NUREG–0737, ''Clarification of TMI Action Plan Requirements,'' Supplement 1, ''Requirements for Emergency Response Capabilities,'' dated January 1983, that provide criteria for establishing and locating emergency response facilities also refer to the EOF as a near-site facility. However, the regulations and guidance did not explicitly define the term ''near-site.'' This regulatory structure resulted in confusion for licensees with reasonable technical bases for moving or consolidating EOFs that would no longer be considered ''near-site'' and led to requests for exceptions to NRC guidance and exemptions from NRC regulations to move or consolidate their EOFs.

In addition, neither regulations nor guidance documents addressed the capabilities and functional requirements for a consolidated EOF, such as capabilities for handling simultaneous events at two or more sites, or having provisions for the NRC and offsite officials to relocate to a facility nearer the site if they desire. Thus, licensees have been uncertain about when they need to submit requests for exceptions or exemptions, which alternative approaches to existing EOF distance and other facility criteria may be acceptable, and what additional capabilities they need to address for a consolidated EOF. A regulatory mechanism (§ 50.54(q)) is already in place that allows licensees to make changes to their emergency plans without prior Commission approval when certain conditions are met. This mechanism could have been applied to consolidation of EOFs if clearer criteria had been established. In the absence of clear criteria, several recent licensee requests to consolidate EOFs have been evaluated by the NRC staff and reviewed by the Commission on a case-by-case basis.

Each nuclear power plant site is required to have an EOF where the licensee provides overall management of its resources in response to an emergency and coordinates emergency response activities with Federal, State, local, and Tribal agencies. The original EOF siting criteria called for the facility to be located near the nuclear power reactor site and imposed a 20-mile upper limit (later modified by the Commission to 25 miles) for the distance between the site and the EOF. This upper limit was generally considered to be the maximum distance from the nuclear power reactor site within which face-to-face communications between the licensee, offsite officials, and NRC staff could be facilitated, and which also permitted the timely briefing and debriefing of personnel going to and from the site. However, advances in computer and communication technology after the original EOF siting criteria were established now allow EOF functions to be effectively performed independent of

distance from the site. Computer based systems allow plant parameter, meteorological data, and radiological information for multiple sites to be collected, analyzed, trended, and displayed in a remotely located facility. Data and voice communications between the EOF and other onsite/offsite emergency response facilities can be addressed through a variety of independent systems, such as microwave, telephone, internet, intranet, and radio, which provide a high degree of availability and reliability.

Furthermore, nuclear utility consolidation has resulted in initiatives to standardize fleet emergency plans, use consolidated EOFs, and staff EOFs by designated corporate personnel. Standardized plans, implementing procedures, and accident assessment tools, such as a common dose projection model, allow emergency responders in a consolidated facility to effectively perform their functions for multiple sites, even if the EOF is not a near-site facility. Consolidated facilities eliminate the need to duplicate work space, displays, communication networks, and other capabilities for each site. Consolidated facilities can also be located at or near corporate offices where nuclear support personnel designated to fill EOF positions can respond more quickly.

The Commission, in the SRM to SECY–04–0236, ''Southern Nuclear Operating Company's Proposal to Establish a Common Emergency Operating Facility at Its Corporate Headquarters,'' dated February 23, 2005, directed the NRC staff to consider resolving these issues through rulemaking. In that SRM, the Commission approved the proposal for a consolidated EOF for three nuclear power reactor sites operated by Southern Nuclear Operating Company at the company's corporate headquarters. The Commission also instructed the NRC staff to consider making ''the requirements for EOFs more performance based to allow other multi-plant licensees to consolidate their EOFs, if those licensees can demonstrate their emergency response strategies will adequately cope with an emergency at any one of the associated plants.''

To address the EOF ''near-site'' and consolidation issues, the NRC considered maintaining EOF distance criteria as guidance only and to specify other EOF criteria in guidance rather than in the regulations. However, providing these criteria as guidance only would not have ensured that future applicants would follow the criteria. Thus, an EOF could have been located within 10 miles of a site with no backup facility provided, or could have been located beyond 25 miles of a site without providing a facility closer to a site for NRC site team and offsite response personnel. An EOF could have been implemented without meeting the performance based criteria. A licensee could have relocated or consolidated an existing approved facility without meeting all or some of the criteria and without prior Commission approval as long as the licensee determined that the provisions of § 50.54(q) were met. Under these circumstances, an EOF could have been implemented that may not have provided all of the capabilities that the NRC believes are necessary for such a facility to be fully effective. Therefore, the NRC determined that this option would not have been appropriate.

The NRC also considered revising the regulations (and providing associated performance based criteria) to allow an EOF to be located more than 25 miles from a nuclear power reactor site without prior Commission approval. The capability of existing EOFs located more than 25 miles from a site to function as effective emergency response facilities has been demonstrated in numerous exercises and several actual events. However, the NRC is concerned that locating an EOF beyond 25 miles from a site could adversely impact the ability of licensee and offsite responders to fulfill their responsibilities (*e.g.,* due to increased response times to a remotely located facility or less effective communications with responders at other locations). The potential adverse impacts of the EOF location must be fully considered and addressed, including consideration of the needs of offsite officials who also report to the EOF. Therefore, the NRC determined that the option to allow licensees to locate EOFs more than 25 miles from a site without prior Commission review and approval would not have been appropriate.

In summary, the NRC is amending its regulations (and associated guidance) to establish performance based criteria for all EOFs based on requirements and conditions previously imposed by the Commission on these facilities. Licensees will need to obtain prior Commission approval and provide a facility closer to the site in situations where the EOF is more than 25 miles from a site. This approach will ensure that an EOF has the capabilities necessary to be fully effective regardless of its location with respect to the nuclear power plant site, and that provisions are in place for a facility closer to the site for use by NRC site teams and offsite responders. The NRC is also amending its regulations (and guidance) to remove the references to an EOF as a ''near-site'' facility and to incorporate specific EOF distance criteria into the regulations, as discussed in Section IV of this document.

In a conforming change, the NRC is revising § 52.79(a)(17) to clarify that combined license applications need not address the requirement governing TSCs, OSCs and EOFs in § 50.34(f)(2)(xxv). Instead, the requirements in Appendix E, Section IV.E.8.a.(i) apply. That section accurately reflects the need for the combined license application to address an EOF; by contrast § 50.34(f)(2)(xxv) requires only applicants for construction permits (and not combined licenses) to address an EOF. The NRC considered, as an alternative to modifying § 52.79(a)(17), correcting § 50.34(f)(xxv) to remove the language limiting the requirement to address an EOF to construction permit applications. The NRC decided not to adopt that approach, but instead have the general requirements for EP, including Appendix E, apply to combined license applications by virtue of § 52.79(a)(21).

4. Evacuation Time Estimate Updating

The former § 50.47(b)(10) and Part 50, Appendix E, Sections II.G, III, and IV, required nuclear power plant operating license applicants to provide evacuation time estimates (ETEs) for the public located in the plume exposure pathway EPZ. These ETEs are used in the planning process to identify potential challenges to efficient evacuation, such as traffic constraints, and, in the event of an accident, to assist the onsite and offsite emergency response managers in making appropriate decisions regarding the protection of the public. The former regulations did not require any review or revision of ETEs following the initial licensing of the plant. Although some licensees do revise ETEs based on updated census data, the use of ETEs in evacuation planning is inconsistent and generally does not affect the development of public protective action strategies.

Nuclear power reactor operating license applicants are responsible for developing the ETE analysis for their respective sites. They submit the analysis to the NRC in support of their emergency plans, usually as a stand-alone document. Within the ETE analysis, there are multiple ETE values for different scenarios developed for combinations of variables and events under varying conditions. For example,

there are different ETE values based on season (summer or winter), day of the week (midweek or weekend), time of day (daytime or evening), and weather conditions (normal or adverse). Applicants include the results of the ETE analysis in the onsite emergency plan and in the emergency plan implementing procedures for protective action recommendations. The ETEs are also in the offsite emergency plans for the State and local governments within the plume exposure pathway EPZ.

In NUREG/CR–6953, Vol. 1, ''Review of NUREG–0654 Supplement 3, Criteria for Protective Action Recommendations for Severe Accidents,'' dated December 2007, the NRC presented the results of a study of its protective action recommendation guidance. The NRC concluded in the study that ETE information is important in developing public protective action strategies and should be used to identify enhancements to evacuation plans. The effectiveness of protective action recommendation strategies is sensitive to the ETE, and therefore, it is important to reduce the uncertainties associated with ETE numerical values. Improving the accuracy of ETE values helps licensees recommend and offsite officials determine the most appropriate protective action. For instance, in the study, the NRC determined that for some scenarios sheltering may be more protective than immediate evacuation if the evacuation time is longer than a few hours, depending on site-specific factors. Further, the NRC concluded that the effect of population change upon evacuation times should be understood by OROs and incorporated into offsite protective action strategies.

To address this issue, the NRC is amending the regulations to require licensees to assess changes to the EPZ population. The NRC believed that changes in infrastructure, or addition of a large subdivision to the EPZ, could also impact the ETE. The NRC consulted with Sandia National Laboratories (SNL), who are experts in emergency evacuations and have researched and developed several NRC studies related to evacuation (*e.g.,* NUREG/CR–6863, ''Development of Evacuation Time Estimates for Nuclear Power Plants,'' dated January 2005, NUREG/CR–6864, ''Identification and Analysis of Factors Affecting Emergency Evacuations,'' January 2005, and NUREG/CR–6953). Based upon their expert opinion, SNL confirmed that the major contributor to changes in ETE values is changes in population. Population changes have a direct correlation to the volume of vehicles on the roadway, which directly affects the roadway capacity. Although changes in infrastructure can impact roadway capacity, changes sufficient to impact the ETE by more than a few minutes, such as the addition of an interstate highway, take many years to plan and construct. Because population changes occur continuously, change in population is considered the more appropriate metric to monitor the potential effect on roadway capacity. Therefore, the NRC is revising the regulations to explicitly require ETE updates based on population changes that cause the ETE values within the analysis to exceed a specified threshold.

The NRC also considered using guidance as a means to solve the problem of the lack of specificity in regulations directing applicants and licensees on the periodicity for updating ETEs. Although the availability of more detailed guidance would provide applicants and licensees with the tools to better update their ETEs, this option would not have provided the regulatory means for enforcing the desired frequency of ETE updates and consistency of ETE determinations.

Therefore, the NRC is amending § 50.47(b)(10) and Part 50, Appendix E, Section IV, to require the periodic review and updating of ETEs. The NRC guidance for completing the ETE analysis and required ETE updates is contained in NUREG/CR–7002, ''Criteria for Development of Evacuation Time Estimate Studies.''

5. Amended Emergency Plan Change Process

Applicants for operating licenses under Part 50 for nuclear power reactors, research reactors, and certain fuel facilities, and early site permits (as applicable) and combined licenses under Part 52 for nuclear power plants, are required by regulation to develop emergency plans that meet the requirements of Appendix E to Part 50 and, for nuclear power reactor license applicants, the standards of § 50.47(b). After the facility license was issued, the holder of the license was required by the former § 50.54(q) to follow and maintain in effect emergency plans that met the requirements of Appendix E and, for nuclear power reactor licensees, the standards of § 50.47(b). The former § 50.54(q) also provided a process under which a licensee could make changes to its approved emergency plan without prior NRC approval provided the changes would not decrease the effectiveness of the emergency plan as approved and the plan, as modified, would continue to meet applicable regulations. However, the NRC determined that the language of the former § 50.54(q) did not clearly describe the requirements the NRC intended to impose on licensees, leading to confusion and inefficiencies in implementation.

A licensee must follow and maintain the effectiveness of its emergency plan if the NRC is to continue to find, under § 50.54(s)(2)(ii), that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. The EP regulations generally refer to the onsite emergency plan as a stand-alone document. However, an emergency plan relies upon facility capabilities, equipment, and resources that are typically outside of the control of the licensee's emergency planning organization. The NRC has identified several occurrences in which licensee personnel outside of the emergency planning group have changed the status of capabilities and resources under their cognizance without considering the impact on the effectiveness of the emergency plan or without alerting the emergency planning group.

Several enforcement actions in the past few years have been associated with EALs being rendered ineffective by configuration changes made to instruments referenced in an EAL without the change being reflected in the EAL, or without a compensatory action being put into place. Examples include modifications to installed seismic instruments that eliminated the direct readout of acceleration needed for classifying a seismic event and changes in reactor vessel level criteria (in a boiling water reactor) being made without a conforming change being made to the EAL. In another finding, concrete barriers installed in a security-initiated change blocked a site access road required by the emergency plan to be used for site evacuation. Another licensee failed to provide adequate oversight on utility (external to the plant) personnel maintaining the site's ANS, resulting in degradation of that system and subsequent enforcement actions. Based on its experience in reviewing root cause analyses and corrective actions associated with inspection findings, the NRC believes that an underlying cause of these occurrences is often that the licensees' configuration control programs did not adequately consider the impact of configuration changes on the effectiveness of their emergency plans.

The NRC determined that the phrase ''maintain in effect'' in the former § 50.54(q) was not adequately clear in conveying the NRC expectation that an effective emergency plan also requires maintaining the various capabilities and resources identified and relied on in the

plan. The phrase ''maintain in effect,'' as applied to an emergency plan in § 50.54(q), has two senses: The first is that the plans are in force; the second is that the plans can achieve the desired result of providing reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Accordingly, the NRC is amending § 50.54(q) to clarify that the regulatory intent is both senses by requiring licensees to follow and ''maintain the effectiveness'' of their approved emergency plans.

The former § 50.54(q) also provided a process under which a licensee could make changes to its approved emergency plan without prior NRC approval provided the changes did not decrease the effectiveness of the emergency plan as approved and the plan, as modified, continued to meet applicable regulations. Prior NRC approval was required for any change that decreased the effectiveness of the emergency plan. The NRC and licensees experienced significant difficulties in implementing this portion of § 50.54(q) because the former rule language did not define what constituted a decrease in effectiveness of an emergency plan nor did it identify the type of changes that would constitute a decrease in effectiveness of the plan. The lack of clear evaluation criteria resulted in regulatory inefficiencies, such as licensees submitting for review changes that did not rise to the level requiring prior NRC approval and enforcement actions due to licensees failing to submit changes that were later deemed to warrant such a review. A large fraction of the enforcement actions in the EP Cornerstone can be attributed to these findings.

The NRC attempted to resolve this issue through the publication of regulatory guidance. In 1998, the NRC issued EPPOS–4, ''Emergency Plan and Implementing Procedure Changes,'' to provide guidance to NRC inspectors regarding their review of licensees' emergency plan changes. In 2004, the NEI submitted two white papers proposing a definition of ''decrease in effectiveness'' for NRC consideration. The NRC could not reach consensus with NEI and thus, did not endorse the NEI guidance. In 2005, the NRC withdrew EPPOS–4 and issued RIS 2005–02, ''Clarifying the Process for Making Emergency Plan Changes,'' dated February 14, 2005, to (1) Clarify the meaning of ''decrease in effectiveness,'' (2) clarify the process for making changes to an emergency plan, and (3) provide some examples of changes that are not decreases in effectiveness. Although RIS 2005–02 provided useful guidance, the NRC and NEI have continued to discuss ways to improve the § 50.54(q) change process, including the use of a regulatory framework parallel to that of § 50.54(a)(3) for quality assurance programs, § 50.54(p)(2) for safeguards plans, and § 50.59, ''Changes, Tests, and Experiments.''

During the development of this rulemaking, the NRC identified a concern regarding the process to be used by the NRC for reviewing proposed emergency plan changes. The former § 50.54(q) directed the licensee to submit such changes under the provisions of § 50.4, which provides the procedures for making certain submissions to the NRC. Some confusion existed as to whether all proposed emergency plan changes submitted under § 50.4 would result in a decrease in effectiveness and whether Commission review of such submissions was necessary. The final rule specifies that the license amendment process of § 50.90 is to be used when submitting a proposed emergency plan change that the licensee has determined constitutes a reduction in effectiveness of the plan. The final rule language addresses this clarification. (*See* Section IV of this document for further discussion.)

The NRC also considered other options for addressing the § 50.54(q) problems. Using a voluntary industry initiative was rejected because the NRC and NEI had yet to agree on the best approach to resolve the problems. Issuing more regulatory guidance was rejected because that approach had been tried but had not resolved the problems. The NRC determined that an amendment to the regulations, supplemented as necessary by regulatory guidance, is the best course of action to ensure that (1) The effectiveness of the emergency plans is maintained, (2) changes to the approved emergency plan are properly evaluated, and (3) any change that reduces the effectiveness of the plan is reviewed by the NRC prior to implementation.

Accordingly, the NRC is amending § 50.54(q) to replace the existing language and is making conforming changes in Part 50, Appendix E, Section IV.B. The NRC is issuing RG 1.219, ''Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors,'' to describe a method acceptable to the NRC for demonstrating compliance with the final rule.

6. Removal of Completed One-Time Requirements

The NRC is eliminating several regulatory provisions that required holders of licenses to take certain one-time actions to improve the state of EP following the Three Mile Island incident in 1979. These actions are complete and the requirements are no longer binding on any current licensee. Corresponding requirements for license applicants are provided in §§ 50.33 and 50.34.

The requirements being removed are:

(1) Section 50.54(r), which required licensees of research or test reactors to submit emergency plans to the NRC for approval by September 7, 1982, and, for the facilities with an authorized power level of less than 2 MW thermal, by November 3, 1982. There is no longer a need for this provision because this requirement has expired. The NRC is deleting this requirement and designating the section as ''reserved.''

(2) Section 50.54(s)(1), which required nuclear power reactor licensees to submit State and local governmental emergency plans within 60 days of the November 3, 1980, effective date of the rule that added § 50.54(s)(1) to Part 50, and that date has elapsed. That portion of § 50.54(s)(1) that discussed the size of the EPZs was not identified for deletion in the proposed rule, but after further review the NRC has determined that it does not need to be retained. The size of EPZs for nuclear power reactors is addressed in other parts of the NRC's regulations. Section 50.33(g), which is applicable to the content of new Part 50 and Part 52 applications (with complete and integrated emergency plans), contains the same language regarding the size of EPZs as found in § 50.54(s)(1). Section 50.47(c)(2) also has the same language regarding the size of EPZs as §§ 50.33(g) and 50.54(s)(1). Moreover, Part 50, Appendix E, Section I, footnote 1, addresses the size of EPZs with language equivalent to §§ 50.33(g) and 50.54(s)(1). Therefore, the NRC is deleting § 50.54(s)(1) in its entirety and designating the section as ''reserved.''

(3) Section 50.54(s)(2)(i), which required that nuclear power reactor licensee, State, and local emergency response plans be implemented by April 1, 1981. There is no longer a need for this provision because this requirement has expired. The NRC is deleting § 50.54(s)(2)(i), designating the section as ''reserved.''

(4) Section 50.54(u), which required nuclear power reactor licensees to submit, within 60 days of the November 3, 1980, effective date of the rule that added § 50.54(u) to Part 50, to the NRC plans for coping with emergencies that meet the standards in § 50.47(b) and the requirements of Appendix E. There is no longer a need for this provision because this requirement has expired. The NRC is deleting this requirement

and designating the section as ''reserved.''

The NRC is eliminating these completed one-time requirements in the interest of regulatory clarity. Eliminating these requirements will not relax any currently effective regulatory requirement and will cause no regulatory burden on any current or future licensee or applicant.

## III. Public and Stakeholder Input to the Final Rule

### *A. Public and Stakeholder Meetings*

As part of its comprehensive assessment of the NRC's EP regulations and guidance and development of this rule, the NRC staff met with internal and external stakeholders, including FEMA management, on numerous occasions including the following:

1. Meetings with NRC regional EP inspectors in January 2005 and January 2006;
2. Meetings with State, local, and Tribal governments and nuclear power industry representatives at the NREP Conference on April 11–14, 2005, March 27–30, 2006, and April 7–10, 2008;
3. Public meeting with interested stakeholders on August 31 and September 1, 2005;
4. Public meeting with non-governmental organizations (NGOs) on May 19, 2006;
5. Public meeting with the NEI/nuclear power industry representatives on July 19, 2006;
6. Regional meetings with State and local representatives and nuclear power industry working groups that started in 2007;
7. NRC Regulatory Information Conference on March 16, 2007;
8. Public meeting with external stakeholders on March 5, 2008;
9. Meeting with nuclear power industry representatives at the 2008 NEI EP and Communications Forum;
10. Public meeting with external stakeholders on July 8, 2008;
11. Public meetings to discuss the proposed rule on enhancements to EP regulations and related guidance documents in June 2009 held jointly by the NRC and FEMA (a total of 11 public meetings);
12. Public meeting to discuss the proposed rule on enhancements to EP regulations and related guidance documents on September 17, 2009;
13. Commission meeting to provide an overview of comments received by the NRC and FEMA during the proposed rule public comment period and remaining milestones in the EP rulemaking process on December 8, 2009; and
14. Public meeting to discuss feedback on proposed implementation dates for the final rule on November 15, 2010.

The NRC also met routinely with representatives of FEMA to coordinate issues of mutual interest and to keep them informed of NRC EP activities. These meetings allowed NRC and FEMA to collaborate on rulemaking and guidance issues, and to ensure alignment and regulatory consistency. In addition, FEMA attended the NRC public meetings regarding the NRC's EP rulemaking, and co-hosted 11 of the public meetings with the NRC held after the issuance of the proposed rule.

### *B. Public and Stakeholder Comments Received*

At the April 11, 2005, NREP Conference, the NRC and FEMA conducted a workshop with stakeholders. The workshop covered a broad range of EP topics. Unanswered stakeholder comments and questions were recorded by NRC staff, and the NRC and FEMA responded to those questions and comments in ''Discussion of NREP 'Parking Lot' Items.''

The NRC conducted a public meeting on August 31–September 1, 2005, to obtain input regarding EP requirements and guidance for commercial nuclear power plants. The first day of meetings involved a roundtable discussion of topics related to the review of EP regulations and guidance. During the second day, the NRC staff and stakeholders addressed the ''Discussion of NREP 'Parking Lot' Items'' from the April 2005 NREP conference and other stakeholder comments and questions. The NRC requested comments in writing before the August 31–September 1, 2005, meeting and also received comments at the meeting. In addition to comments transcribed from the 2-day public meeting, the NRC accepted written comment submissions until October 31, 2005.

The NRC and FEMA responded to generic comments from the August 31–September 1, 2005, meeting and comments received thereafter in ''Summary and Analysis of Comments (Received Between August 31 and October 31, 2005).'' Site-specific comments from the public meeting were addressed in ''Summary and Analysis of Site-Specific Comments (Received Between August 31 and October 31, 2005).''

The NRC also received comments on the review of the EP regulations and guidance for nuclear power plants at public meetings with stakeholders on May 19, 2006, and July 19, 2006. The May 19, 2006, meeting was transcribed. The NRC staff informed the meeting participants that their comments would be presented to the Commission in a September 2006 SECY paper. These comments were provided to the Commission in an attachment to SECY–06–0200 and, like the stakeholder comments from 2005, were used to inform the staff's recommendations to the Commission in SECY–06–0200.

The NRC received three comment letters that focused on the draft preliminary rule language posted for comment on *http://www.regulations.gov* on February 29, 2008. One comment letter was submitted by the Commonwealth of Pennsylvania, one was submitted by NEI, and one was submitted by the Union of Concerned Scientists on behalf of several NGOs. These comments were addressed as part of the development of the proposed rule.

The proposed rule was published on May 18, 2009, and the public comment period closed on October 19, 2009. The NRC received a total of 94 submittals and from these submittals, 687 individual comments were identified. Some of the comments and the NRC's responses are discussed throughout this document. A detailed discussion of the public comments and the NRC's responses is contained in a separate document (*see* Section IX of this document). The NRC also received comments on issues that are outside the scope of this rule and on regulatory provisions that are not being revised in this rule. The NRC determined that these comments did not support changing the scope of the final rule.

### *C. Proposed Rule Specific Request for Comments*

In the proposed rule, the NRC requested comments on whether the NRC should issue regulations requiring that licensees train responders on and implement the Incident Command System (ICS) to improve the interface with OROs during an event at a nuclear power plant. Homeland Security Presidential Directive 5 (HSPD–5) requires all Federal departments and agencies to adopt the National Incident Management System (NIMS) and use it in their individual incident management programs and activities, as well as in support of all emergency response actions taken to assist State, Tribal, and local governments. Although NIMS represents a core set of doctrines, concepts, principles, terminology, and organizational processes that enables incident management, it also utilizes the ICS for command, operations, planning, logistics, and finance/administration functions to manage domestic incidents.

The NIMS/ICS are also widely used by State, tribal, and local governments, including when these entities are engaged in emergency response activities with nuclear power reactor licensees. However, licensees are not currently required to adopt NIMS/ICS, so the potential exists for confusion or miscommunication between OROs who utilize NIMS/ICS as an incident management system and the associated power reactor licensees who do not use the same system. The NRC observed some of these coordination challenges during the nuclear power industry's voluntary three year EP hostile action drill program initiative, which was conducted in response to BL–05–02 and concluded in December 2009. Ideally, both OROs and licensees should use the same or a compatible incident management system to effectively communicate with each other and improve their individual and joint response capabilities.

Nevertheless, the NRC recognizes that HSPD–5 does not require the private sector to adopt NIMS/ICS. The NRC also understands that requiring its nuclear power reactor licensees to implement NIMS/ICS would impose upon licensees a specific type of incident command structure stipulated by HSPD–5. Any future changes to HSPD–5 or NIMS/ICS could require corresponding rulemaking changes by the NRC. Moreover, if the NRC were to compel its nuclear power reactor licensees to use a specific incident management program, that program still could be different than incident management systems adopted by OROs that comply with laws promulgated by other governmental organizations. Thus, despite the NRC's efforts to promote consistency, these potentially conflicting regulatory authorities could prove to be incompatible during ICS activities at the reactor sites. For example, the incident commander during the onset of a hostile action incident at a nuclear facility will most likely be a local law enforcement officer, whose authority derives from the local or State jurisdiction and not from the NRC.

Section 50.47(b)(6) of the NRC's regulations states that ''Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.'' In this final rule, the NRC is amending Part 50, Appendix E, Section IV.A.7, to require licensees to include in their emergency plans the ''[i]dentification of, and assistance expected from, appropriate State, local, and Federal agencies with responsibilities for coping with emergencies, including hostile action at the site.'' Together, these regulations require licensees to know which OROs would respond during an emergency and how to communicate with those OROs. A licensee's use of a command structure that is compatible with the applicable OROs' command structure (*e.g.,* NIMS/ICS) would enhance communication and coordination between OROs and licensees and facilitate the licensee's compliance with the § 50.47(b)(6) standard and the requirements of Appendix E, Section IV.A.7. The NRC's regulations, as amended by this final rule, contain adequate requirements to ensure that licensee compliance with these regulations would result in effective communication between OROs and licensees during emergencies. Therefore, the NRC is not requiring that NIMS/ICS become the sole means of incident command management for licensees.

Comments received by the NRC in response to other specific requests for comments in the proposed rule are addressed in Sections II and IV of this document.

## IV. Section-by-Section Analysis

The Commission is amending portions of § 50.47, ''Emergency plans;'' § 50.54, ''Conditions of licenses;'' Part 50, Appendix E, ''Emergency Planning and Preparedness for Production and Utilization Facilities;'' and § 52.79, ''Contents of applications; technical information in final safety analysis report.''

### *1. Section 50.47 Emergency Plans*

The NRC is amending § 50.47(b)(3) to remove the reference to the EOF as a ''near-site'' facility. The final rule provides criteria in Part 50, Appendix E, Section IV.E.8, regarding EOF distance from a nuclear power reactor site and for a performance based approach for EOFs, specifying that these facilities must meet certain functional requirements rather than requiring that they be located within a certain distance of the plant. The intent of this change is discussed in the section on changes to Appendix E, Section IV.E.8. (A discussion of this issue is also provided in Section II.B.3 of this document.)

The final rule amends § 50.47(b)(10) to require licensees to review and update their ETEs periodically. Changes to Appendix E to Part 50 provide the required frequency and details of the ETE updates and submissions to the NRC. Although requirements for ETEs are found in both § 50.47(b) and in Appendix E to Part 50, the level of detail between them differs. Section 50.47(b) establishes the EP planning standards that licensees must meet, whereas Appendix E sets forth more detailed implementation requirements. (A discussion of this issue is also provided in Section II.B.4 of this document.)

This new requirement ensures that ETEs are reviewed periodically to determine whether population changes have caused significant changes in the ETE values. The NRC review of ETE updates will ensure they are performed routinely, are consistent across the industry, and are technically sound. The NRC guidance will provide more details of NRC expectations for development of an adequate ETE analysis, as well as provide NRC reviewers with guidance on the review of ETE updates. The NRC expects that the updated ETEs will be shared with OROs to be incorporated into offsite protective action strategies.

The NRC received several comments that suggested that the proposed rule language of § 50.47(b)(10) be revised to accommodate changes to ETE update criteria. Two commenters stated that the threshold for ETE updates should be based on a population sensitivity study that would assess the effect of a population change on the ETE. Two commenters argued that the ETE updates should be based on changes in population density rather than absolute population change. The NRC agrees that the ETE update criteria should be changed and should be based on the impact that a population change has on the ETE instead of a percent change in population. However, the details of the revised ETE update criteria should be included in Appendix E to Part 50 where more detailed implementation requirements are found. Two commenters argued that the proposed rule language should be revised to eliminate the requirement for submission of ETEs to the NRC for review and approval. The NRC believes that NRC review is necessary for consistent implementation, but the NRC will not approve the ETE updates. See the discussion under Appendix E to Part 50 in this section of the document for further information on this topic.

The NRC is amending § 50.47(d)(1) to remove the reference to the EOF as a ''near-site'' facility. The final rule provides criteria in Part 50, Appendix E, Section IV.E.8, regarding EOF distance from a nuclear power reactor site and for a performance based approach for EOFs, specifying that these facilities will need to meet certain functional requirements rather than requiring that they be located within a certain distance of the plant. The intent of this change is discussed in the section on changes to Appendix E, Section IV.E.8. (A

discussion of this issue is also provided in Section II.B.3 of this document.)

*2. Section 50.54 Conditions of Licenses*

The NRC is amending § 50.54(q) in its entirety. Section 50.54(q)(1) defines four terms whose meanings are limited to application within § 50.54(q) in the final rule. Section 50.54(q)(1)(i) defines a ''change'' to the emergency plan as an action that results in modification or addition to, or removal from, the licensee's emergency plan. All such changes are subject to § 50.54(q) unless another regulatory change process is controlling. For example, a plant configuration change that removes a piece of equipment identified and relied upon in the emergency plan could also be subject to the requirements of § 50.59 and a technical specification change may also be involved.

In the proposed rule, § 50.54(q)(1)(i) defined what would have constituted a change to the emergency plan. The NRC received comments that asked the NRC to remove the phrase ''resources, capabilities, and methods identified in the plan'' from the final rule language for this definition. The NRC agrees with these comments and made this change to the final rule to place emphasis on the content of the emergency plan. Although resources, capabilities, and methods are identified in the emergency plan, not all of these will necessarily be under the control of the licensee. For example, the licensee's emergency plan may identify the plans and capabilities of OROs. A change to an ORO plan is not subject to the § 50.54(q) change process, but the modifications to the licensee's emergency plan to reflect that change are subject to the § 50.54(q) change process.

The § 50.54(q)(1)(ii) definition of ''Emergency plan'' in the final rule encompasses any document that describes the programmatic methods that the licensee uses to maintain preparedness and to respond to emergencies, and to demonstrate compliance with the requirements of Appendix E, and for nuclear power reactors, the planning standards of § 50.47(b). In response to a stakeholder comment on § 50.54(q)(1)(ii) in the proposed rule, the NRC has revised this definition in the final rule by removing the proposed reference to ''emergency planning functions,'' and replacing it with ''methods for maintaining emergency preparedness and responding to emergencies.'' Sub-tier documents, such as emergency plan implementing procedures, are not ordinarily subject to the § 50.54(q) change process because these procedures generally only provide instructions in performing the programmatic methods identified and described in the emergency plan. However, if a licensee were to relocate a programmatic description to another document, that description will remain subject to the § 50.54(q) change process. For example, if a licensee were to relocate the details of its emergency classification scheme from the emergency plan to a wall chart posted in the control room, the wall chart would be subject to the § 50.54(q) change process. The definition also emphasizes, by incorporation, the role of the licensee's original emergency plan approved by the NRC in minimizing the likelihood that a series of incremental changes, many of which may not have been reviewed by the NRC, over time will constitute a reduction in effectiveness of the NRC approved emergency plan.

Section 50.54(q)(1)(iii) in the final rule defines the term ''emergency planning function'' in terms of a capability or resource necessary to prepare for and respond to a radiological emergency. During the development of the EP Cornerstone of the ROP, a group of EP subject matter experts, including NRC staff and nuclear power industry stakeholders, with input from the public, developed a series of planning standard functions that are used in determining the significance of inspection findings. These planning standard functions are paraphrases of the broadly-worded § 50.47(b) planning standards and the corresponding requirements in Appendix E to Part 50 in terms of the significant functions that need to be accomplished, or the capabilities that need to be in place, to maintain the effectiveness of a licensee's emergency plan and emergency response capability. Within the EP Cornerstone, the significance of inspection findings depends on whether the planning standards can be accomplished (*i.e.,* loss of planning standard function) or can be accomplished only in a degraded manner (*i.e.,* degraded planning standard function). The characterization of a reduction in effectiveness in the final rule capitalizes on this earlier effort in that any degradation or loss of a planning standard function is deemed to constitute a reduction in effectiveness. The NRC is using the phrase ''emergency planning function'' in lieu of ''planning standard function'' as used in the ROP to allow the definition to be applicable to licensed facilities that are subject to Appendix E, but are not subject to the planning standards of § 50.47(b). The emergency planning functions have been established in RG 1.219 along with examples of typical emergency plan changes that are expected to constitute a reduction in effectiveness and examples of changes that are not.

The emergency planning functions do not replace or supplement the regulations upon which they were based and, as such, compliance with these functions is not required. They are only used to differentiate between changes that the licensee is allowed to make without prior NRC approval and those that require prior NRC approval. The NRC did not establish these emergency planning functions in regulations because the underlying regulations already exist, and the expression of the emergency planning functions differs between nuclear power reactors, non-power reactors, and fuel facilities licensed under Part 50 or Part 52. The RG 1.219 discusses these emergency planning functions for nuclear power reactor licensees.

In response to the definition of ''emergency planning function'' in proposed § 50.54(q)(1)(iii), the NRC received a stakeholder comment that suggested that the planning standards of § 50.47(b) should be used for determining reductions in effectiveness, in lieu of the proposed emergency planning functions, since compliance is based on meeting planning standards. The NRC disagrees with this comment. The § 50.54(q) change process establishes a two factor test to establish whether the licensee has the authority to make a change without prior NRC approval. First, the plan as modified must continue to comply with the requirements of Appendix E, and for power reactors, the planning standards of § 50.47(b). Second, the licensee must establish that the change does not reduce the effectiveness of the emergency plan. These are two different prerequisites. Compliance with the requirements of Appendix E, and for power reactors, the planning standards of § 50.47(b), satisfies the first factor, but it doesn't necessarily meet the second factor.

Under § 50.47(a)(1)(i), an operating license will be issued only if the NRC finds that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. During the licensing process, the licensee or the NRC may have identified planning constraints and vulnerabilities that required the licensee to commit to site-specific capabilities and resources beyond those identified in generic regulatory guidance as meeting the requirements of Appendix E, and for

nuclear power reactor licensees, the planning standards of § 50.47(b). After receiving its license, a licensee may have identified newly developed planning or response constraints, or self-identified weaknesses in its emergency plan, and implemented corrective actions beyond that identified in its emergency plan. For example, an applicant having a site with complex meteorological regimes or complex topography may have been required to establish a more advanced emergency dose assessment capability. Because these extensions to generic guidance were found to be necessary to meet the broadly worded requirements in Appendix E, and for nuclear power reactor licensees, the planning standards of § 50.47(b), a licensee seeking to relax these requirements needs to determine that the emergency plan, as modified, can continue to be effective. This will generally require that the licensee establish that the considerations that made the site-specific requirements necessary are no longer applicable to that site, or require an alternative approach that maintains the plan's effectiveness. Thus, simply meeting the requirements of Appendix E, and for power reactors, the planning standards of § 50.47(b), is not necessarily sufficient to prevent a reduction in the plan's effectiveness. For these reasons, the requirements of Appendix E, and for power reactors, the planning standards of § 50.47(b), alone cannot be used for determining reductions in effectiveness.

Section 50.54(q)(1)(iv) in the final rule defines the term ''reduction in effectiveness'' as a change to the emergency plan that results in a reduction of the licensee's capability to perform an emergency planning function in the event of a radiological emergency. The phrase ''reduction in effectiveness'' is an evaluation concept that is used in § 50.54(q) to differentiate between changes that the licensee is allowed to make without prior NRC approval and those that require prior NRC approval. A determination that a change may result in a reduction in effectiveness does not imply that the licensee could no longer implement its plan and provide adequate measures for the protection of the public. The NRC may approve a proposed emergency plan change that the licensee determined to be a reduction in effectiveness if the NRC can find that the emergency plan, as modified, continues to meet the requirements of Appendix E, and for nuclear power reactor licensees, the planning standards of § 50.47(b), and continues to provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. ''Radiological emergency'' as used in § 50.54(q)(1)(iv) in the final rule means any condition that results in the declaration of any ECL and the implementation of the licensee's emergency plan. A nuclear power reactor licensee evaluating whether a particular emergency plan change constitutes a reduction in effectiveness is expected to consider the spectrum of accidents addressed in the planning basis described in NUREG–0654. In making this determination, licensees of non-power reactors and fuel facilities licensed under Part 50 must base their evaluations on the planning bases for their respective facilities.

In the proposed rule, § 50.54(q)(1)(iv) defined the term ''reduction in effectiveness.'' The NRC received a stakeholder comment that suggested that the definition of ''reduction in effectiveness'' should establish a threshold based on a ''significant reduction'' rather than a reduction. The comment cited, as an example, the use of ''more than a minimal increase'' in the § 50.59 change process. The NRC agrees that the § 50.59 change process does incorporate the phrase ''more than a minimal amount.'' However, this phrase is always used in conjunction with a numerical criterion (*e.g.,* § 50.59(c)(2)(i) through (iv)). With few exceptions, the planning standards of § 50.47(b) and the requirements of Appendix E do not establish numerical requirements. Other criteria in § 50.59 are related to any change (*e.g.,* § 50.59(c)(2)(v) through (vi) and (viii)). The NRC has determined that any change that reduces the effectiveness of the licensee's capability warrants prior NRC review; therefore, the NRC disagrees with the comment. The licensee is authorized to make changes without prior approval up to the point at which effectiveness is reduced. This standard is reflected in the final rule language.

Regulations in Parts 50 and 52 require applicants for licenses to develop emergency plans that meet the requirements of Appendix E, and for nuclear power reactors, § 50.47(b), as applicable, during facility licensing. A holder of a license under Part 50 or a combined license under Part 52 after the Commission makes the finding under § 52.103(g) is required by § 50.54(q)(2) in the final rule to follow and maintain the effectiveness of its emergency plan. The § 50.54(q)(2) references to Appendix E and § 50.47(b), as applicable, extend the applicability of these requirements as a condition of the facility license. The NRC expects licensees to identify conditions and situations that could reduce the effectiveness of its emergency plan, and to take corrective and/or compensatory actions to restore and maintain the requisite effectiveness.

In the proposed rule, § 50.54(q)(2) would have required licensees to follow and maintain the effectiveness of the emergency plan. The NRC received a stakeholder comment that stated that requiring a licensee to maintain an emergency plan effective under § 50.54(q)(2) is inconsistent with the NRC approving a change that reduces the effectiveness of the emergency plan as required by § 50.54(q)(4). Paragraphs (3) and (4) of § 50.54(q) address emergency plan changes that are intentional on the part of the licensee, whereas a non-compliance with § 50.54(q)(2) is generally the result of a licensee failure to follow the requirements of its emergency plan (*e.g.,* failure to notify OROs during an actual event) or failure to take action to address conditions, from whatever cause, that reduce the effectiveness of the emergency plan (*e.g.,* an offsite fire department identified and relied upon in the emergency plan is no longer available to come to the site, and the licensee hasn't taken timely corrective actions to restore the capability). The licensee's determination of a reduction in effectiveness is used only to determine whether the licensee has the authority to implement the change without prior NRC approval under § 50.54(q)(3) or must submit for prior NRC approval under § 50.54(q)(4). The NRC's approval of the proposed change establishes a new standard of effectiveness for the licensee's emergency plan. Accordingly, the NRC does not believe the final rule to be internally inconsistent.

Section 50.54(q)(3) in the final rule grants authority to the holder of a license to make changes to its emergency plan without prior NRC approval only if an analysis demonstrates that the changes do not reduce the effectiveness of the plan and the plan, as changed, continues to meet the requirements in Appendix E, and for nuclear power reactor licensees, § 50.47(b). As such, § 50.54(q)(3) provides for a two factor test to establish whether the licensee has the authority to make a change without prior NRC approval. First, the plan as modified must continue to comply with the requirements of Appendix E, and for power reactors, the planning standards of § 50.47(b). Second, the licensee must establish that the change does not reduce the effectiveness of the

emergency plan. These are two different and independent prerequisites. Compliance with the requirements of Appendix E, and for power reactors, the planning standards of § 50.47(b), addresses the first factor. The second factor addresses whether or not the change reduces the effectiveness of the emergency pan. A change that satisfies the first factor may not satisfy the second factor and vice versa. Changes that do not satisfy the first factor would require the licensee to request an exemption from the affected requirements under § 50.12. Changes that do not satisfy the second factor would require the licensee to request prior approval under § 50.54(q)(4).

The NRC expects a licensee considering a change under this section to perform an evaluation of the change to a level of rigor and thoroughness consistent with the scope of the proposed change. A licensee's analysis of the impact of a change on the effectiveness of the plan needs to consider the accidents included in the emergency planning basis, the licensing basis of the particular emergency plan, and any emergency plan elements implemented to address site-specific emergency response constraints (*e.g.,* delay in staff augmentation associated with a remote site, commitments to State or local governments, existence of significant external hazards, etc.).

Section 50.54(q)(4) in the final rule defines the process by which a licensee requests prior approval of a change to the emergency plan that the licensee has determined constitutes a reduction in effectiveness of the plan. The final rule retains the proposed requirement that a licensee pursuing these changes must apply for an amendment to its license as provided in § 50.90. A proposed emergency plan change that would reduce the effectiveness of the plan would expand the licensee's operating authority, and courts have found that Commission actions that expand licensees' authority under their licenses without formally amending the licenses constitute license amendments and should be processed through the Commission's license amendment procedures. (*See Citizens Awareness Network, Inc.* v. *NRC,* 59 F.3d 284 (1st Cir. 1995); *Sholly* v. *NRC,* 651 F.2d 780 (DC Cir. 1980) (*per curiam*), *vacated on other grounds,* 459 U.S. 1194 (1983); and *in re Three Mile Island Alert,* 771 F.2d 720, 729 (3rd Cir. 1985), *cert. denied,* 475 U.S. 1082 (1986). *See also Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), CLI–96–13, 44 NRC 315 (1996)). Therefore, a change to a licensee's emergency plan that would expand the licensee's operating authority should also be processed through the Commission's license amendment procedures.

In response to § 50.54(q)(4) in the proposed rule, the NRC received several comments questioning the NRC's conclusion that proposed changes that would reduce the effectiveness of the licensee's emergency plan would expand the licensee's operating authority. The NRC maintains that a reduction in the effectiveness of a licensee's emergency plan constitutes an expansion of the licensee's operating authority. A licensee's emergency plan is part of the licensing basis for its nuclear power plant. The plan describes how the licensee will comply with the NRC's requirements governing EP and emergency response. The NRC's regulations require that the licensee have and implement an approved emergency plan as a condition of its operating license. A change to the emergency plan constituting a reduction in effectiveness of that plan allows the licensee to disclaim responsibility for performing activities and actions (or specific portions thereof) formerly required (or prohibited) under the superseded provisions of the licensee's approved emergency plan. It allows the licensee to perform, without fear of NRC regulatory response (*e.g.,* an order, including an enforcement action), activities and actions formerly precluded. In this situation, the licensee would have the capability to operate its facility in a manner that was not previously authorized by the NRC. In other words, the licensee would have operating authority beyond what it originally had, as reflected in the approved emergency plan without the proposed change.

The NRC notes that it is not simply that the emergency plan has ''changed'' that leads to the conclusion that there is an expansion of operating authority. Otherwise, any change to the emergency plan, regardless of the effect on licensee authority to operate, would be deemed an expansion of operating authority for which NRC approval via a license amendment is required. Rather, the effect of the plan change (*i.e.,* allowing the licensee to operate in a manner with respect to radiological health and safety that it was not allowed to do under the superseded provision of the emergency plan) forms the essence of the test of ''expanded'' operating authority.[2] Thus, an emergency plan change that would reduce the effectiveness of the plan would expand the licensee's operating authority under its license.

Moreover, the Commission has determined that the NRC must approve reductions in effectiveness to ensure compliance with the requirements of Appendix E, and for nuclear power reactors, the planning standards of § 50.47(b) so that the proposed changes provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. This approval is more than a ministerial, non-discretionary act. The determination of the acceptability of the proposed reduction in effectiveness necessitates consideration and resolution of technical and regulatory issues. In some instances, the evaluation of the plan change may involve the balancing of competing regulatory objectives and policies. Thus, NRC approval of a reduction in effectiveness constitutes an exercise of agency discretion. For these reasons, under the NRC's legal precedents, NRC approval of an emergency plan change that would reduce the effectiveness of the plan would grant the licensee greater operating authority and would require a license amendment request.

Under § 50.54(q)(4), in addition to satisfying the filing requirements for a license amendment request in §§ 50.90 and 50.91, the license amendment request must include all emergency plan pages affected by the change, a forwarding letter identifying the change, the reason for the change, and the basis for concluding that the licensee's emergency plan, as revised, will continue to meet the requirements of Appendix E, and for nuclear power reactor licensees, the planning standards of § 50.47(b). The NRC will review the amendment application to make its no significant hazards consideration determination and to determine if the proposed change to the emergency plan is a reduction in effectiveness under § 50.54(q). If the proposed change does constitute a reduction in effectiveness, the NRC may issue the amendment only if it determines that the emergency plan, as modified, continues to meet the requirements in Appendix E, and for nuclear power reactors, the planning standards of § 50.47(b), and that there continues to be reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

[2] Consistent with the former § 50.54(q), § 50.54(q) in the final rule requires that only those emergency plan changes that reduce the effectiveness of the plan need prior NRC approval. Those plan changes that increase the effectiveness of the plan may expand the licensee's operating authority but would not require prior NRC approval.

Section 50.54(q)(5) in the final rule applies to all licensees subject to § 50.54(q) and requires that licensees retain a record of all changes to the emergency plan made without prior NRC approval for a period of three years from the date of change. This section also requires the licensee to submit, as specified under § 50.4, a report of each such change, including a summary description of its evaluation, within 30 days of the change being put into effect. The NRC expects that the record of changes will fully describe each change made and will include documentation of the evaluation that determined the change was not a reduction in effectiveness. The NRC will use this record of changes during inspection oversight of the licensee's implementation of § 50.54(q)(2).

In the proposed rule, § 50.54(q)(5) would have required licensees to submit a report of a change to the emergency plan made without NRC approval, 30 days after the change was made. One commenter requested that the 30-day period start when the ''change is implemented'' rather than starting when the ''change is made.'' The NRC agrees that clarification is necessary, but has decided to use the phrase ''change is put into effect,'' because it provides a more specific point in time. The change is put into effect when the modified emergency plan is available for use in the emergency response facilities. At that point, the change can affect the licensee's response to an emergency condition, whether or not all typical implementation activities, such as distribution of the updated emergency plan and ERO training, have been completed.

Section 50.54(q)(6) in the final rule requires a licensee of a nuclear power reactor to retain the emergency plan and each change for which prior NRC approval was obtained under § 50.54(q)(4) as a record until the Commission terminates the license.

The NRC is removing paragraph (r) of § 50.54. Section 50.54(r) was published as a final rule on August 19, 1980 (45 FR 55402), to require then-existing licensees authorized to possess and/or operate a research or test reactor facility to submit emergency plans complying with Appendix E to Part 50 to the NRC for approval within one year or two years, as applicable, from the effective date of the rule (November 3, 1980). (A discussion of this issue is also provided in Section II.B.6 of this document.)

The NRC is removing paragraph (s)(1) of § 50.54 to remove language addressing a one-time requirement that has now been completed. Section 50.54(s)(1) was published as a final rule on August 19, 1980 (45 FR 55402). This provision required existing nuclear power reactor licensees to submit to the NRC within 60 days after the effective date of the rule (November 3, 1980), the radiological response plans of State and local governmental entities in the U.S. that are wholly or partially within a plume exposure pathway EPZ, as well as the plans of State governments wholly or partially within an ingestion pathway EPZ. (A discussion of this issue is also provided in Section II.B.6 of this document.)

The NRC is removing paragraph (s)(2)(i) from § 50.54. Section 50.54(s)(2) was initially published as a final rule on August 19, 1980 (45 FR 55402), as a single paragraph. The rule was amended on May 29, 1981 (46 FR 28838), resulting in § 50.54(s)(2) being split into two paragraphs, §§ 50.54(s)(2)(i) and 50.54(s)(2)(ii). The rule language in § 50.54(s)(2)(i) required that the licensee, State, and local emergency plans for all operating power reactors be implemented by April 1, 1981, except as provided in Section IV.D.3. of Appendix E to Part 50. (A discussion of this issue is also provided in Section II.B.6 of this document.)

The NRC is removing paragraph (u) from § 50.54. Section 50.54(u) was published as a final rule on August 19, 1980 (45 FR 55402), to require then existing nuclear power reactor licensees to submit to the NRC plans for coping with emergencies that meet the standards in § 50.47(b) and the requirements of Appendix E to Part 50 within 60 days after the effective date of the rule (November 3, 1980). (A discussion of this issue is also provided in Section II.B.6 of this document.)

The NRC is revising paragraphs (gg)(1) and (gg)(2) of § 50.54 to replace ''DHS'' with ''FEMA.'' Although FEMA remains within DHS, the responsibility for offsite EP for nuclear power plants is with FEMA. The FEMA requested that ''FEMA'' be used rather than ''DHS'' for clarity of communication with stakeholders.

The NRC is amending § 50.54(gg)(1)(i) to remove the reference to the EOF as a ''near-site'' facility. The final rule provides criteria in Part 50, Appendix E, Section IV.E.8, regarding EOF distance from a nuclear power reactor site and for a performance based approach for EOFs, specifying that these facilities must meet certain functional requirements rather than requiring that they be located within a certain distance of the plant. The intent of this change is discussed in the section on changes to Appendix E, Section IV.E.8. (A discussion of this issue is also provided in Section II.B.3 of this document.)

3. Appendix E to Part 50, Emergency Planning and Preparedness for Production and Utilization Facilities

The NRC is amending Part 50, Appendix E, Section I, ''Introduction,'' to include a provision allowing an applicant for an early site permit under Part 52 that chooses to propose either major features of an, or a complete and integrated, emergency plan (§ 52.17(b)(2)), or a combined license under Part 52 (§ 52.79(a)(21)) whose application is docketed before December 23, 2011 to choose to defer compliance with this rule.

If the applicant chooses to defer compliance with this rule, and its early site permit or combined license is subsequently issued, then the permit holder or licensee shall request to amend its early site permit or combined license to demonstrate compliance with this rule no later than December 31, 2013. Furthermore, an applicant that defers compliance with this rule is expected to implement this rule under the same schedule as it would implement EP requirements in the absence of this rule. This means that this rule does not require any immediate implementation actions on the part of any applicant, but rather shall be implemented after receipt of a combined license, and under the licensee's schedule for completing EP-related requirements (*e.g.,* through completion of EP-related Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)).

The NRC intends, by allowing an applicant to defer compliance with this rule, to avoid unnecessary delays in making a licensing decision on an early site permit or a combined license already under consideration by the NRC, provided:

(1) The application complies with all applicable, current (prior to this rulemaking) EP regulations;

(2) The applicant, if it becomes an early site permit holder or a combined licensee, requests to amend its early site permit or combined license before December 31, 2013, to comply with the amended EP regulations in this rule; and

(3) The applicant, if it becomes an early site permit holder or a combined licensee, may not operate the facility until the NRC has approved the license amendment demonstrating compliance with this rule.

In response to a request in the proposed rule for comments on the potential impacts of a final rule on combined license and early site permit application processes and schedules, the NRC received comments that the

NRC should not require pending combined license and early site permit applicants to implement the final rule changes until after the NRC issues the license or permit. In this final rule, the NRC is offering applicants the option to defer *compliance* with the final rule. That period of compliance deferral, between December 23, 2011 and December 31, 2013, was selected specifically to apply only to those applications that have already been docketed and are nearing completion of the safety review and subsequent hearings (as applicable) prior to a licensing decision being made on the application. The NRC decided to limit the duration of that deferral as stated because future applicants and currently docketed applicants not nearing a licensing decision would have ample time to bring their applications into compliance with this final rule without the need to defer compliance. So that all combined license and early site permit applicants ultimately comply with the same regulations, an applicant whose application is docketed before December 23, 2011 that does not receive a combined license or early site permit before December 31, 2013, shall revise its combined license or early site permit application to comply with the changes in this final rule no later than December 31, 2013.

The NRC has added a new requirement in Part 50, Appendix E, Section I, to address the Tennessee Valley Authority (TVA) facility at Watts Bar. The TVA is in possession of a current construction permit for Watts Bar Nuclear Plant, Unit 2, and is treated as a current licensee for purposes of satisfying the requirements of this rule. These requirements reflect NRC support of a licensing review approach for Watts Bar Nuclear Plant, Unit 2, that employs the current licensing basis for Unit 1 as the reference basis for review and licensing of Unit 2, as stated in the SRM to SECY–07–0009, ''Possible Reactivation of Construction and Licensing Activities for the Watts Bar Nuclear Plant Unit 2,'' dated July 25, 2007.

To improve clarity in the organization of the regulations, the final rule numbers the paragraphs of Section I.

The NRC is amending paragraph H in Section II of Appendix E to remove a reference to the EOF as a ''near-site'' facility. Criteria are provided in Section IV.E.8, of Appendix E, regarding EOF distance from a nuclear power reactor site and for a performance based approach for EOFs. The criteria specify that these facilities need to meet certain functional requirements rather than requiring that they be located within a certain distance of the plant. The intent of this change is discussed in the changes to Section IV.E.8, of Appendix E. (A discussion of this issue is also provided in Section II.B.3 of this document.)

The NRC is amending several paragraphs within Section IV of Appendix E to Part 50 that apply to licensees and applicants for licenses under Part 50 or Part 52 of this chapter, as applicable. All provisions of Section IV of Appendix E to Part 50 apply to applicants for, and holders of, nuclear power reactor operating licenses under Part 50, combined licenses under Part 52, and certain early site permits under Part 52. Many of the provisions in Section IV also apply to Part 50 non-power reactor licensees. Therefore, for purposes of brevity, the initial reference to a ''licensee'' in each of the remaining paragraphs in this section indicates that that particular rule change applies to applicants for, and holders of, operating licenses under Part 50 for nuclear power reactors and non-power reactors, combined licenses under Part 52, and certain early site permits under Part 52, unless specifically stated otherwise. The initial reference to ''nuclear power reactor licensee'' in each of the remaining paragraphs in this section means applicants for, and holders of, operating licenses for nuclear power reactors under Part 50, combined licenses under Part 52, and certain early site permits under Part 52, unless specifically stated otherwise.

The NRC is amending the former first paragraph of Section IV by adding language to require nuclear power reactor licensees, but not applicants, to revise their ETEs when the U.S. Census Bureau decennial census data is available. The final rule requires that within 365 days of the later of the date of the availability of the most recent decennial census data or the effective date of this final rule, and within 365 days of the availability of subsequent decennial census data, these licensees must revise their ETE analyses using the decennial census data, and submit the analyses to the NRC under § 50.4.

The NRC will review the ETE analyses for completeness using NUREG/CR–7002, ''Criteria for Development of Evacuation Time Estimate Studies,'' the NRC guidance on ETE development issued with the final rule. The NRC received comments regarding the timeliness of submitting ETE updates for NRC review and extended the time period for ETE update submission from 180 to 365 days after a population change triggering the update or the release of census data. The NRC will not approve ETE updates but will review them for completeness. For this reason the NRC is requiring licensees to submit their ETE updates at least 180 days before they use them to form protective action recommendations and provide them to offsite authorities for use in developing offsite protective action strategies. This will allow time for NRC review after which licensees may assume that the updates are adequate and available for use.

The NUREG/CR–7002 guidance is an acceptable template to meet the requirements for ETE analysis development and nuclear power reactor licensees should use this guidance, or an appropriate alternative, when developing an ETE analysis or analysis update. The first set of 2010 census data is expected to be available in 2011. The NRC will establish a schedule for review of the updated ETEs. After the licensee submits the ETE analysis for NRC review, these ETEs will be known as the licensee's ''updated'' ETEs, as opposed to the ''approved'' ETEs, which are the ETEs approved by the NRC when it issues a license.

Thereafter, these licensees are required to annually review changes in the population of their EPZs. To complete these reviews, licensees will use data from the U.S. Census Bureau, which annually produces resident population estimates and State/local government population data, if available. These reviews must be conducted no more than 365 days apart. The licensee is required to update the ETE analysis to reflect the impact of a population change that causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected Emergency Response Planning Areas (ERPAs), or for the entire 10-mile EPZ to change by 25 percent or 30 minutes, whichever is less from the licensee's currently NRC-approved or updated ETE. An ERPA is defined as a local area within the EPZ for which emergency response information is provided; the EPZ is typically divided into ERPAs along geographic or political boundaries. The licensee is required to submit the updated ETE analysis to the NRC under the procedures of § 50.4 within 365 days of the availability of the population data used in the update and at least 180 days before using it to form protective action recommendations and providing it to State and local governmental authorities for use in developing offsite protective action strategies.

In the proposed rule, the NRC would have required an ETE analysis update when the population in the EPZ or most populous ERPA increased or decreased by more than 10 percent from the

population that formed the basis for the licensee's currently approved ETE. Several commenters disagreed with the 10 percent population change criterion being the triggering event that would require licensees to update their ETEs. Suggested alternative thresholds included various population sensitivity studies that would assess the effects of population changes on ETE values; a 25 percent change in the ETE baseline rather than a 10 percent change in the EPZ population; and population changes resulting in a change to ETE values of 25 percent or 30 minutes, whichever is less.

The final rule adopts the approach of a 25 percent or 30 minute increase in ETE values to determine when an ETE analysis update is warranted. The NRC determined that basing ETE analysis updates on a population change alone without consideration of its impact on the ETE values may not have resulted in useful ETE updates. This is because a large population change in an area where there is an established infrastructure may have no impact on ETE values, whereas a small population change in an area with limited infrastructure may impact the ETE values. The proposed requirement to update an ETE analysis based on a standard value of a 10 percent population change would have required licensees to submit updated ETEs that may have had the same time estimates as the original document and, therefore, would provide no useful updated ETE information to response agencies. An approach that considers both population change and its impact on the ETE numerical values provides assurance that updated ETE analyses are submitted only when the ETE values are impacted. This links the update to a population change that has an impact on the ETE values on a site-specific basis rather than a generic 10 percent population change that may or may not impact these values.

Therefore, nuclear power reactor licensees (but not applicants) will be required to provide an updated ETE analysis to the NRC within 365 days of (1) The later of the date of the availability of the most recent decennial census data or the effective date of this final rule, (2) the availability of subsequent decennial census data, and (3) the availability of the population data used in the update, during the years between decennial censuses, when a population increase within the EPZ causes certain ETE values to increase by 25 percent or 30 minutes, whichever is less from the licensee's currently NRC-approved or updated ETE. Licensees should perform a population sensitivity study for various population increases (*i.e.,* 10 percent, 20 percent, and 30 percent increases) to determine the population value that will cause ETE values to increase by 25 percent or 30 minutes, whichever is less. If this threshold is reached during the decennial period between censuses, the licensee must update the ETE analysis to reflect the impact of the population increase. To establish the basis for these update criteria, the NRC considered the input of ETE subject matter experts who considered the sensitivity of ETE analysis tools, uncertainty of the data used in the development of ETEs, and discussions with OROs regarding the time necessary to mobilize resources to support an evacuation. The NRC determined that an ETE increase of 30 minutes is the smallest time value that OROs would consider to potentially impact a protective action decision from shelter-in-place to evacuate or vice versa. A review of more than 30 current ETEs shows that most ETEs are longer than 4 hours. Therefore, the 30-minute increase would likely be the overriding criterion, although the 25-percent increase would be expected to apply primarily to sites with shorter ETEs. Either of these criteria would constitute a material change in ETE times and would provide an appropriate assessment of the effect of population change on the ETE on a site-specific basis.

In the proposed rule, the NRC would have required the licensee to submit an ETE update within 180 days of a population change triggering the update or the release of census data. The NRC received several stakeholder comments in opposition to the proposed 180-day requirement, some stating that the 180-day timeframe may be unrealistic. The NRC agrees that 180 days to complete ETE updates could be challenging based on the number of licensees and the limited number of commercial contractors available to complete the updates. Therefore, the NRC is extending the amount of time to complete ETE analysis updates from 180 to 365 days.

One commenter pointed out that ETEs only analyze the time required to evacuate areas within the EPZ. The commenter requested that the NRC clarify the sentence ''time required * * * for taking other protective actions'' because the only other protective action is to shelter in place and would not fall under the ETE. The NRC agrees with this comment and has removed the language ''and for taking other protective actions'' from the final rule language.

The requirement for nuclear power reactor licensees (but not applicants) to evaluate a population change impact on the ETE during the period between decennial censuses balances the burden on licensees by requiring an ETE analysis update only when a population change has a material impact on the individual ETE values. The U.S. Census Bureau currently projects population growth at approximately one percent per year in the U.S. However, certain areas experience much greater growth. The population of Maricopa County, Arizona, for example, experienced approximately 6.4 percent growth in the two year period from 2005 to 2007. The Palo Verde Nuclear Generating Station is located in Maricopa County. St. Lucie County in Florida, where the St. Lucie Nuclear Plant is located, experienced approximately 9.7 percent population growth in the same period. A nuclear plant's EPZ population may not grow at the same rate as the corresponding county(ies) population, but a review of population growth would be appropriate, as discussed in Section II.B.4 of this document.

The updated ETEs will allow for more effective development of public protective action strategies and review of evacuation planning. Sites with little population change will be minimally impacted by the requirement, while those sites with a greater rate of population change that materially impacts ETE values will be required to perform more frequent updates. Licensees should also identify potential enhancements to improve evacuation times and discuss them with OROs. (A discussion of this issue is also provided in Section II.B.4 of this document.)

The final rule also explains that a nuclear power reactor license applicant must use the most recent U.S. Census Bureau data, as of the date the applicant submits its application to the NRC, to conduct the ETE analysis for its application. Once an applicant obtains a combined license, it will need to conduct one review of any changes in the population of its EPZ at least 365 days before the licensee's scheduled fuel load. The licensee must use updated decennial census data if more recent decennial census data than that used in the licensee's application is available. If more recent decennial census data is not available, then the licensee must use annual resident population estimates from the U.S. Census Bureau and State and local government population data, if available. The licensee must update its ETE analysis if a population increase within the EPZ causes certain ETE values to increase by 25 percent or 30

minutes, whichever is less from the licensee's currently NRC-approved or updated ETE. If the 25-percent or 30-minute threshold is reached, the licensee must update the ETE analysis to reflect the impact of the population increase. The licensee must perform this review and submit the ETE update, to the extent necessary, no later than 365 days before the scheduled fuel load. After beginning operations, the licensee will need to comply with the final rule requirements, including the frequency of ETE reviews and updates, like any other operating licensee.

The NRC is revising the former first paragraph of Section IV to change the term ''radiation'' to ''radiological,'' to provide consistent use of the phrase ''radiological emergency.'' In the same paragraph, the phrase ''onsite protective actions during hostile action'' is being added as one of the elements for which emergency plans must contain information needed to demonstrate compliance. These elements correspond with the description of each part of Section IV; the requirement for onsite protective actions during hostile action is being added in new Section IV.I. The NRC is also clarifying that the requirements for the submittal of emergency response plans apply to not only applicants for nuclear power reactor operating licenses under Part 50, but also to applicants for early site permits (as applicable) and combined licenses under Part 52. This clarification was intended for, but inadvertently omitted from, a rulemaking to update Part 52 (72 FR 49517; August 28, 2007). To improve clarity in the organization of the rule, the final rule separates Section IV, as amended by the final rule, into seven paragraphs and numbers each of the paragraphs.

The final rule makes two editorial revisions to Appendix E to Part 50, Section IV.A.2. One change includes the abbreviation of emergency response organization, ''ERO,'' in paragraph 2 of Section IV.A. The second revision clarifies that paragraph 2.c. should read as follows: ''Authorities, responsibilities, and duties of an onsite emergency coordinator * * *.''

The NRC is amending Part 50, Appendix E, Section IV.A.7, to include hostile action at the site as one of the types of emergencies that define the State, local, and Federal agencies that nuclear power reactor licensees must identify in their emergency plan along with the assistance licensees expect from these agencies. The former regulations did not explicitly require the licensee to identify ORO resources for responding to the site during hostile action. Part 50, Appendix E, Section IV.A.7, in the final rule adds this requirement to ensure that the State, local, and Federal agencies needed during hostile action at the site are identified in the licensee's emergency plan. This requirement will be enforced through routine inspection and observation of emergency exercises. (A discussion of this issue is also provided in Section II.A.4 of this document.)

In the proposed rule, Part 50, Appendix E, Section IV.A.7, would have been modified to add the following: ''Nuclear power plant licensees shall ensure that offsite response organization resources (*e.g.,* local law enforcement, firefighting, medical assistance) are available to respond to an emergency including hostile action at the nuclear power plant site.'' The NRC received several comments asserting that the proposed rule language would give authority to the licensee over the OROs in order to ''ensure'' that resources would be available to respond to hostile action. The NRC agrees with the comments that determining the adequacy of ORO emergency plans is under the jurisdiction of FEMA and other State and local organizations, and the NRC did not intend to give licensees authority over OROs via this rulemaking. The NRC is revising the final rule by deleting the second sentence of Section IV.A.7, in the proposed rule, thereby clarifying the intent of the final rule.

The NRC is revising Section IV.A.7 by inserting the words ''a description of the'' immediately before ''assistance expected from, appropriate State, local, and Federal agencies'' to make this provision read consistently with the other paragraphs in Section IV.A.

Part 50, Appendix E, Section IV.A.7, also adds the definition of ''hostile action'' as an act directed toward a nuclear power plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. This definition is based on the definition of ''hostile action'' in BL–05–02. The NRC is excluding non-power reactors from the definition of ''hostile action'' at this time because a regulatory basis has not been developed to support the inclusion of non-power reactors in that definition. Further analysis and stakeholder interactions would be needed prior to including non-power reactors in the definition of ''hostile action.''

The NRC received a stakeholder comment via FEMA stating that a ''hostile action,'' as defined by the NRC, does not mention cyber attacks, which should be considered as a form of hostile action. Cyber attacks are addressed in licensees' cyber security plans consistent with § 73.54, ''Protection of digital computer and communication systems and networks,'' and associated guidance documents. The current cyber security program associates cyber attacks with ''digital computer and communication systems and networks,'' whereas the definition of hostile action is an act by individuals using physical violence that can potentially achieve an end to harm public health and safety. Even though cyber attacks can be malevolent actions against NRC licensees, its definition maintains an association with digital or analog computer and communications systems, whereas hostile actions imply physical attacks by individuals. Therefore, the definition of ''hostile action'' in Section IV.A.7 was not changed as a result of this comment.

The former Section IV.A.7 applied to non-power reactor licensees, and the NRC does not intend to change that requirement in this final rule. Non-power reactor licensees are still required to identify ORO resources that would respond to an emergency and the assistance licensees expect from these resources. However, because ''hostile action'' is defined as ''an act directed toward a nuclear power plant or its personnel,'' non-power reactor licensees are not required to identify the State, local, and Federal agencies needed during hostile action at the non-power reactor site.

The NRC is adding a new paragraph A.9 in Section IV of Appendix E to Part 50. This new paragraph will require nuclear power reactor licensees to perform a detailed analysis to show that on-shift personnel assigned emergency plan implementation functions are not assigned any responsibilities that would prevent them from performing their assigned emergency plan functions when needed. In the proposed rule, the NRC would have required licensees to ''provide'' a detailed analysis. However, the NRC did not intend for licensees to submit the detailed analysis for review or approval. Therefore, the wording in the final rule was changed to require licensees to have a detailed analysis in their emergency plans without providing it to the NRC.

The final rule does not specify, by position or function, which responsibilities must be assigned, but allows nuclear power reactor licensees the flexibility to determine the limit of assigned responsibilities for effective emergency plan implementation on a site-specific basis. This allows licensees

to take credit for new technologies that could potentially affect the number of on-shift staff that would be needed. However, licensees need to ensure that the duties assigned to on-shift staff are reasonable for one person to perform and are not so burdensome as to negatively impact emergency response. (A discussion of this issue is also provided in Section II.A.1 of this document.)

The final rule requires nuclear power reactor licensees to perform a detailed analysis, such as a job task analysis (JTA) or a time motion analysis, to demonstrate that on-shift personnel could implement the plan effectively without having competing responsibilities that could prevent them from performing their primary emergency plan tasks. The NRC expects the analysis to identify all the tasks that must be performed by available staff during an evolution such as response to an emergency. These licensees need to define the events that will be used in the detailed staffing analysis, such as postulated design basis accidents and the DBT, for which there must be emergency planning. The analysis must identify all tasks that must be completed for each analyzed event, and the responders responsible for the performance of those tasks. Licensees must then ensure that there is sufficient on-shift staff to perform all necessary tasks until augmentation staff arrives to provide assistance. Enhancing the regulations to require licensees to ensure that multiple responsibilities assigned to on-shift staff will not detract from adequate emergency plan implementation will establish a regulatory framework that more clearly codifies the NRC's shift staffing expectations for effective emergency response.

The NRC is amending Section IV.B of Appendix E to Part 50 to add a requirement that nuclear power reactor licensees must consider hostile action, which may adversely affect the plant (*e.g.,* cause personnel harm and/or equipment damage), in their EAL schemes. It will also serve to establish consistent EALs for hostile action among existing and future nuclear power reactor licensees and allow the licensees to make hostile action-related emergency declarations based on a credible threat. (A discussion of this issue is also provided in Section II.A.2 of this document.)

The former Section IV.B applied to non-power reactor licensees, and the NRC does not intend to change that requirement in this final rule. Non-power reactor licensees are still required to have EALs to initiate emergency response and protective actions. However, as discussed in Section II.A.2 of this document, the NRC is addressing through guidance the issue of hostile action EALs for non-power reactor licensees. In addition, the definition of ''hostile action'' does not include non-power reactors. Therefore, non-power reactor licensees are not required to consider hostile action in their EAL schemes at this time.

The final rule also makes changes to Appendix E to conform to changes to § 50.54(q), which address the issue described in Section II.B.5 of this document. The NRC is modifying the requirement in former paragraph (1) in Section IV.B of Appendix E to require each licensee to obtain prior NRC approval via § 50.90 if the licensee is changing its entire EAL scheme. This provision carries forward the intent of the former regulation to compel licensees to obtain NRC approval before changing EAL schemes, and sets forth the correct process to request that approval. The proposed rule would have required licensees to use § 50.4 to obtain prior NRC approval. For many of the same reasons provided earlier in Section IV of this document in the discussion of licensee use of the license amendment process to obtain prior NRC approval of changes to an emergency plan that would reduce the effectiveness of the plan under § 50.54(q), the license amendment process is the appropriate process for licensees to use to obtain prior NRC approval of EAL scheme changes.

The Commission explained in the Statement of Considerations for the 2005 final rule concerning NRC approval of licensee changes to EALs (70 FR 3591; January 26, 2005) the importance of prior NRC approval of a licensee's EAL scheme change:

> The Commission believes a licensee's proposal to convert from one EAL scheme (*e.g.,* NUREG–0654-based) to another EAL scheme (*e.g.,* NUMARC/NESP–007 or NEI–99–01 based) * * * is of sufficient significance to require prior NRC review and approval. NRC review and approval for such major changes in EAL methodology is necessary to ensure that there is reasonable assurance that the final EAL change will provide an acceptable level of safety.

As previously noted, courts have found that Commission actions that expand licensees' authority under their licenses without formally amending the licenses constitute license amendments and should be processed through the Commission's license amendment procedures. The Commission has determined that a licensee's EAL scheme change requires prior NRC approval ''to ensure that there is reasonable assurance that the final EAL change will provide an acceptable level of safety.'' These determinations require exercises of agency discretion. The staff must ensure that the licensee adopts each element of the generic EAL scheme to fit its site and facility. In addition, the licensee does not have the authority to change to a new scheme unless the NRC approves the change in advance. Under the legal precedents, NRC staff approval in these instances would grant the licensee authority beyond its current operating authority, and that approval requires a license amendment. This final rule clarifies that the process to request prior NRC approval of EAL scheme changes is the license amendment process.

The final rule provides additional flexibility by permitting licensees to use EAL schemes other than those listed in Section IV.B.2 of the proposed rule, provided that the licensee obtains prior NRC approval. The final rule corrects a misstatement in the proposed rule that the former rule required licensees to obtain prior NRC approval via § 50.4 for changes to an EAL scheme from NUREG–0654 to one based solely on NUMARC/NESP–007 or NEI 99–01. The final rule also removes the paragraph numbering in Section IV.B of the former rule. The former first paragraph of Section IV.B, as amended by this final rule, is designated as paragraph 1. As explained above, former paragraph (1) in Section IV.B has been replaced with the provision requiring licensees to obtain prior NRC approval, via a license amendment, for EAL scheme changes. The final rule deletes former paragraphs (2) and (3) of Section IV.B and replaces them with a new requirement that all EAL changes, other than EAL scheme changes, are required to be made under the amended § 50.54(q) change process, as discussed earlier in Section IV of this document. The final rule designates the provisions concerning EAL scheme changes and other EAL changes as paragraph 2. Paragraph B.2 applies to nuclear power reactor licensees and non-power reactor licensees.

The NRC is retaining the existing language of Section IV.C of Appendix E to Part 50, redesignating that language as paragraph C.1, and adding new paragraph C.2. Paragraph C.1 still applies to non-power reactor licensees, but paragraph C.2 does not, for the reasons provided in Section II.B.2 of this document. Paragraph C.2 requires that nuclear power reactor licensees, first, have and maintain the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency

action level has been exceeded and, second, promptly declare the emergency condition upon identification of the appropriate ECL. Any given emergency condition may result in the thresholds for two or more EALs being exceeded and licensees need to consider all applicable EALs and base the classification decision on that EAL resulting in the higher ECL.

In Part 50, Appendix E, Paragraph C.2 of the proposed rule, the NRC would have required that licensees and applicants had to promptly declare the emergency condition as soon as possible following a determination that an EAL has been exceeded. The NRC received a stakeholder comment that suggested that the proposed language could be interpreted as requiring declaration on the first identified EAL. Because such an interpretation was not the NRC's intent, the NRC reworded the proposed phrase ''following determination that an emergency action level has been exceeded,'' in the proposed rule to read ''following identification of the appropriate emergency classification level,'' in the final rule to clearly articulate the NRC's intent.

This new requirement emphasizes the NRC's expectations regarding the timeliness of emergency declarations while retaining sufficient operational flexibility to respond to extenuating circumstances necessary to protect public health and safety. The NRC considers the 15-minute criterion to commence when plant instrumentation, plant alarms, computer displays, or incoming verbal reports that correspond to an EAL become available to any plant operator. As used here, ''plant operator'' means any member of the plant staff, who by virtue of training and experience, is qualified to assess the indications or reports for validity and to compare the same to the EALs in the licensee's emergency classification scheme. ''Plant operators'' may be, but need not be, licensed operators or members of the ERO. ''Plant operators'' may be located in the control room or in another emergency facility in which emergency declarations are performed. The phrase ''plant operators'' does not encompass plant personnel such as chemists, radiation technicians, craft personnel, security personnel, and others whose positions require they report, rather than assess, abnormal conditions to the control room.

The 15-minute period encompasses all assessment, classification, and declaration actions associated with making an emergency declaration from the first availability of a plant indication or receipt of a report of an off-normal condition by plant operators up to and including the declaration of the emergency. Validation or confirmation of plant indications, or reports to the plant operators, is to be accomplished within the 15-minute period as part of the assessment. A small number of EAL thresholds are related to the results of analyses (*e.g.,* dose assessments, chemistry sampling) that are necessary to ascertain whether or not a numerical EAL threshold has been exceeded, rather than confirming or verifying an alarm or a received report. In these limited cases, the 15-minute declaration period starts with the availability of analysis results that show the threshold to be exceeded; this is the time that the information is available. Nonetheless, the NRC expects licensees to establish the capability to initiate and complete these analyses with a reasonable sense of urgency.

This 15-minute criterion ends as soon as the nuclear power reactor licensee determines that an EAL has been exceeded and the licensee makes the emergency declaration. The final rule requires the licensee to promptly declare the emergency condition as soon as possible following the identification of the appropriate ECL. Because the NRC requires emergency declarations to be made promptly, the final rule states that the 15-minute criterion is not to be construed as a grace period in which a licensee may attempt to restore plant conditions to avoid declaring an EAL that has already been exceeded. If the EAL threshold specifies a duration (*e.g.,* ''fire lasting for greater than 10 minutes from detection''), the licensee is expected to assess and classify the event concurrently with the specified condition duration. The licensee is then required to promptly declare the emergency condition as soon as the specified duration has been exceeded because no further assessment is necessary to make the declaration. The licensee is encouraged, but not required, to declare the emergency condition once it has been determined that the condition cannot be corrected before the specified duration is exceeded.

The final rule establishes a capability criterion, rather than an inflexible performance criterion, to allow nuclear power reactor licensees some degree of flexibility in addressing extenuating circumstances that may arise during an actual emergency. For example, an emergency declaration may need to be delayed in the interest of performing plant operations that are urgently needed to protect public health and safety. These delays could be found acceptable if they did not deny State and local authorities the opportunity to implement actions to protect the public health or safety under their emergency plans and the cause of the delay was not reasonably within the licensee's ability to foresee and prevent.

In the proposed rule, the NRC would have established a 15-minute criterion for the declaration of an emergency condition. The NRC received several stakeholder comments that questioned the magnitude of the numeric criterion. Other comments suggested a less restrictive one-hour criterion for events classified as Notification of Unusual Events in light of the reduced consequences to the public of these events. In developing this rule, the NRC objective was to codify the 15-minute timeliness goal that had been the expected performance level after the publishing of the EPPOS–2 guidance and which had been incorporated into the ROP. The NRC believes that 15 minutes is an appropriate timeliness capability criterion based on the following rationale. The declaration of a General Emergency requires the nuclear power reactor licensee to provide a recommendation for public protective actions to State and local governments. These protective actions can be more effective in reducing the radiological consequences of the emergency on the public if the action is implemented in a timely manner, preferably before the onset of a major release of radioactive materials. The steps that need to be taken by offsite officials to consider the licensee's recommendation and to decide upon and implement an action cannot start until the licensee has classified and declared the emergency and provided the appropriate recommendation. As such, time is of the essence. The planning basis for emergency planning for nuclear power plants provided in NUREG–0654 addresses a spectrum of accidents. The NUREG–0654 planning basis provides that the onset of the release to the environment following the onset of the event may range from 0.5 hours to one day. Part 50, Appendix E, Section IV.D.3, as amended by the final rule, requires the licensee to have the capability to notify the State and local officials within 15 minutes after declaring an emergency and that the alert and notification system be capable of alerting the public and initiating notification of the public within about 15 minutes. The 15-minute timeliness expectation for emergency declarations now being codified is consistent with these current regulatory requirements and the EP planning basis.

Although the NRC recognizes that protective actions are not necessary at the lower ECLs and the lower ECL events have lesser potential

consequences on the public, the NRC believes that a single timeliness criterion for all four ECLs is necessary. The NRC notes that the ECL, be it a Notification of Unusual Event or a higher ECL, cannot be known until the classification is completed and the declaration is made. This argues against the use of different timeliness criteria for Notification of Unusual Events and higher ECLs because emergency events may not proceed step-wise through the four ECLs.

Further, the actions to assess, classify, and declare an emergency, and the resources needed to accomplish those actions (*e.g.,* ''capability''), do not differ by ECL. Although there are more EAL thresholds to consider during a Notification of Unusual Event than there are at the higher ECLs, this is balanced by increasing demands on the on-shift staff (*i.e.,* to perform assessments, corrective actions, and mitigative actions needed to address the degraded plant condition) associated with the higher ECLs. The conditions (such as insufficient staffing, procedures, and training) that reduce a nuclear power reactor licensee's capability for declaring a Notification of Unusual Event within 15 minutes have a similar effect on the licensee's capability for declaring higher ECLs. Also, the licensee's performance in declaring Notification of Unusual Events is a viable predictor of licensee performance at the less frequently declared higher ECLs. These performance deficiencies might not be identified and corrected if the NRC were to establish one hour for declaring Notification of Unusual Events and 15 minutes for the higher classification level emergencies. Therefore, the NRC has decided to retain the single timeliness criterion in the final rule for all ECLs.

The NRC is amending Section IV.D.1 of Appendix E to remove footnote 1. This footnote is unnecessary because the term ''EPZ'' is already addressed in Section I of Appendix E. This change will also make the numbering of footnotes sequentially consistent throughout Appendix E.

The NRC is amending Section IV.D.3 of Appendix E to require that the public alert and notification system required by this section additionally has backup methods for both the alert and notification functions without specifying which backup measures should be used. This approach allows flexibility in the selection of the method best suited for each nuclear power reactor site and also allows the use of newer technologies or other alternative methods. The availability of backup ANS methods enhances the public's ability to be promptly alerted of an event at a facility and of possible protective actions. (A discussion of this issue is also provided in Section II.B.1 of this document.)

Former Section IV.D.3 of Appendix E acknowledged that, for the events more likely to warrant use of the alert and notification capability, State and local officials will have substantial time available to make a judgment regarding activation of the warning system to alert and notify the public. Accordingly, the final rule will not impose specific time requirements for using a backup method. The alerting function may involve one or more methods that are already used as a backup means at several sites, such as multiple, independent siren activation points in conjunction with siren backup power, route alerting, reverse call-out systems or newer technologies, such as intelligent notification and communication systems for notifying targeted populations. The notification function may involve the designation of multiple EAS broadcast stations or use of weather alert radios or newer technologies, such as advanced messaging systems. The NRC and FEMA are providing guidance, issued contemporaneously with this final rule, for determining the acceptability of the backup methods based on the alerting and notification capabilities of the methods selected, administrative provisions for implementing and maintaining backup methods, identification of resources to implement backup methods, and periodic demonstration of the backup methods. Guidance is also being provided to nuclear power reactor licensees and offsite officials regarding the need to ensure that the backup methods can alert and notify the public in the entire plume exposure pathway EPZ, that the personnel and resources required to implement the backup methods will be available during any type of emergency (including hostile action), and that designated personnel know how to implement backup methods.

The backup method of alerting and notification must be capable of providing warning signals and instructional messages to the population in the entire plume exposure pathway EPZ when the primary ANS is unavailable during an emergency (*i.e.,* the primary ANS cannot alert or notify all or portions of the plume exposure pathway EPZ population). The backup means may be designed so that it can be implemented using a phased approach in which the populations most at risk are alerted and notified first, followed by alerting and notification of people in less immediately affected areas. The backup method may have the additional capability of being employed only in the specific areas impacted when a portion of the primary ANS, such as a single siren or sirens within a community, fails and the extent of the affected area and population can be determined.

The new requirement for a backup method applies to both the alerting function and notification function of the FEMA approved ANS. However, the NRC recognizes that some backup methods are not capable of meeting the timeframes that are part of the primary ANS design objectives. The intent of the final rule is not to have a duplicate primary ANS, but to have a means of backup alerting and notification in place so the public can be alerted in sufficient time to allow offsite officials to consider a range of protective actions for the public to take in the event of a severe accident with potential offsite radiological consequences. The NRC and FEMA are providing guidance to clarify the design objectives and other criteria for ANS backup methods.

For nuclear power plant sites with no backup measures currently in place, backup provisions must be identified, incorporated into the site's ANS design, and submitted for FEMA approval as specified in FEMA–REP–10. For nuclear power plant sites that already have provisions for ANS backup means in FEMA approved ANS designs, licensees and offsite officials will need to confirm that the backup methods meet the final rule requirements and submit revised ANS designs for FEMA approval if changes were deemed necessary. New Section IV.D.4 in Appendix E to Part 50 sets forth the deadlines for these implementation phases. Section V of this document provides further explanation of the deadlines.

Additional changes to Appendix E, Section IV.D.3 are being made to more clearly distinguish between the alerting and notification functions of the ANS (including clarification of how the 15-minute design objective applies to these functions), to use consistent terminology when referring to the officials responsible for ANS activation, and to update language regarding demonstration of ANS capabilities and correction of deficiencies. The final rule adds a reference to the alerting function in Section IV.D.3 to clearly indicate that the requirements for the primary and backup ANS apply to both the alerting and notification functions. The wording of the primary ANS design objective is revised to clarify that the 15-minute criterion applies to the completion of the initial alerting and start of the initial notification of the public. This

clarification was made because the NRC, consistent with the 1990 Seabrook decision (*Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB–935, 32 NRC 57, 68 (1990), has determined that notification of the public need not be completed within 15 minutes but that initiation of the notification process must begin within 15 minutes). The phrase ''appropriate governmental authorities'' replaces the phrase ''State and local officials'' when referring to ANS activation to encompass site-specific variations in the assignment of the responsibility for this function according to each offsite emergency plan and established ANS activation protocols. This responsibility may be assigned to a single State or local organization, or to multiple organizations among various State, county, local, and other governmental agencies. The use of ''appropriate governmental authorities'' addresses all of these variations. The former Section IV.D.3 referred to the February 1, 1982, date for then existing nuclear power reactor licensees to have demonstrated ANS capabilities for their sites. The NRC is removing the reference to the February 1, 1982, date and requiring that ANS capabilities to alert the public and provide instructions promptly must be demonstrated before exceeding 5 percent rated thermal power of the first reactor at each site, consistent with the requirements of § 50.47(d). It is also important that licensees promptly correct deficiencies found during initial ANS installation and testing, as well as deficiencies identified thereafter, as required by § 50.54(s)(2). However, the requirement for correction of ANS deficiencies is clearly stated in § 50.54(s)(2)(ii) and does not need to be repeated in Part 50, Appendix E, Section IV.D.3.

In the proposed rule, the NRC would have required licensees to identify and demonstrate that governmental authorities had the administrative and physical means for providing a backup method of public ANS. The NRC received several stakeholder comments that noted that governmental authorities are generally responsible for ANS activation and implementing any backup public ANS, and that the licensee has no control over the resources necessary to implement the backup capability. The NRC agrees that licensees generally secure the support of governmental authorities to maintain reasonable assurance that the offsite portions of the emergency plan can and will be implemented. In response to these comments, and to improve regulatory clarity and structure, the final rule modifies the proposed rule language for the backup capability to reflect this division of ANS responsibilities.

Note that no changes are being made to the basic requirement in § 50.47(b)(5) for nuclear power reactor licensees or applicants to ensure that the means to provide early notification and clear instruction (*i.e.,* alerting and notification) to the populace in the plume exposure pathway EPZ have been established. It is not necessary to address backup methods in § 50.47(b)(5) because the current provision establishes the overall requirement for alerting and notification.

Based on a comment received on the proposed rule, Part 50, Appendix E, Section IV.E.5 is revised to replace the reference to ''physicians'' with the term ''medical service providers'' because licensees typically make arrangements for medical services with medical service providers rather than individual physicians. The phrase ''and other medical personnel'' is deleted because it is now redundant to the reference to ''medical service providers.'' The NRC also revised Section IV.E.5 of Appendix E to change the term ''radiation'' to ''radiological'' to provide consistent use of the phrase ''radiological emergency.''

The final rule redesignates the former language of Appendix E, Section IV.E.8 as Section IV.E.8.a; and adds new Sections IV.E.8.b, IV.E.8.c, IV.E.8.d, and IV.E.8.e.

Section IV.E.8.a in the final rule removes the reference to the EOF as a ''near-site'' facility and adds the requirement that nuclear power reactor licensees must provide an OSC. In a conforming change, the final rule revises § 52.79(a)(17) to clarify that combined license applications are not subject to the TMI action requirements in § 50.34(f)(2)(xxv), which address the need for an onsite TSC, an onsite OSC, and an EOF. Instead, the requirements governing the need for such facilities in Part 50, Appendix E, Section IV.E.8.a(i) will apply to combined license applications. (A discussion of this issue is also provided in Section II.B.3 of this document.)

Section IV.E.8.b incorporates EOF distance criteria currently found in NRC guidance and specifies that an EOF must be located within 10 to 25 miles of each nuclear power reactor site that the facility serves or, if the EOF is located less than 10 miles from a nuclear power reactor site, then a backup facility must be provided within 10 to 25 miles of a site. The distance between the EOF and a site will be determined by the straight line distance from the site's TSC to the EOF, which is consistent with the approach described in NUREG–0696, Table 2, ''Relation of EOF Location to Habitability Criteria,'' dated February 1981. An EOF located more than 25 miles from the site must not adversely impact the ability of licensee and offsite responders to fulfill their responsibilities, and provisions for locating NRC and offsite responders closer to the nuclear power reactor site must be made so they can interact face-to-face with personnel going to and leaving the site for briefings and debriefings. During an event, NRC and offsite agency staff may wish to relocate from a remotely located EOF to another facility closer to the nuclear power plant site. Suitable space near the site must be available so NRC and offsite agency staff could coordinate their actions efficiently, communicate with responders in other onsite and offsite emergency response facilities, and interface directly with responders at the site as needed. This space will allow NRC site team and offsite response personnel, including Federal, State, and local responders, to conduct briefings and debriefings with emergency response personnel entering and leaving the site, communicate with responders at other emergency response facilities, maintain awareness of conditions at the site, and share information with other emergency response organizations via electronic means, such as computer links, the internet, or facsimile transmission.

The proposed rule language in Section IV.E.8.b of Appendix E would have obviated the need for licensees to obtain approval at either the NRC staff or Commission level to locate an EOF or consolidate EOFs more than 25 miles from a site if the EOF met certain performance based requirements and provided for NRC site team and offsite agency responders closer to the site. However, offsite agencies and the NRC's Advisory Committee on Reactor Safeguards (ACRS) expressed concerns about forgoing the requirement for a licensee to obtain NRC approval to locate an EOF beyond 25 miles. The NRC believes it is important for a licensee or an applicant to consult with offsite agencies that send representatives to the EOF prior to locating or consolidating such facilities. This consultation is particularly important when a licensee or applicant intends to use an EOF located more than 25 miles from a site to ensure that response times to the facility would be acceptable to offsite responders, adequate communications with offsite

responders at other locations would be available, and the EOF location would not raise any jurisdictional concerns (*e.g.,* when the EOF is located in a different State than a nuclear power plant). Therefore, the NRC is retaining the requirement for a licensee or applicant to obtain Commission approval to locate an EOF more than 25 miles from the nuclear power plant site(s) it serves and modified the rule language in Section IV.E.8.b accordingly.

A licensee will need prior Commission approval through a license amendment to locate an EOF beyond the 25-mile limit. Similar to approving EAL scheme changes and emergency plan changes that would reduce the effectiveness of the plan, determining whether a licensee's proposed EOF meets the regulatory criteria can require an exercise of agency discretion. Approval in these instances would grant the licensee authority beyond its current operating authority, and that approval requires a license amendment. Consistent with previous Commission approvals of EOFs beyond the 25-mile limit, these license amendments must be approved by the Commission and not the NRC staff.

Section IV.E.8.c in the final rule provides performance based criteria applicable to all EOFs. The functions that an EOF must address include the capability to obtain and display plant data and radiological information for each reactor unit or plant that the facility serves. In some cases, an EOF may serve units or plants involving more than one type of reactor technology, such as pressurized water reactors and boiling water reactors, or more than one design of the same reactor type. The EOF staff must be capable of understanding conditions for each type of reactor and translating technical information into a useful form for offsite officials and media relations staff. A co-located or consolidated facility must also be capable of supporting effective response to events at more than one site simultaneously, because widespread events affecting multiple sites can and have occurred, such as the electrical blackout in several areas of the northeastern U.S. and portions of Canada in August 2003. The ability to simultaneously display information for multiple plants will also enhance effective response to events occurring at more than one site.

Section IV.E.8.d in the final rule requires nuclear power reactor licensees to identify an alternative facility (or facilities) that would be accessible even if the site is under threat of or experiencing hostile action, to function as staging areas for augmentation of ERO staff during hostile action to minimize delays in emergency response and provide for a swift coordinated augmented response. To accomplish this, the alternative facility is required to have the following characteristics: the capability for communication with the EOF, control room, and plant security; the capability to notify offsite agencies; and the capability for engineering assessment activities, including damage control team planning and preparation. These capabilities will ensure that the ERO is aware of conditions at the site and is prepared to re-enter the site when it is deemed accessible. This will enable rapid staffing of onsite emergency response facilities and implementation of mitigation actions when ERO personnel enter the protected area. However, alternative facilities are not required to reproduce the full documentation present at primary emergency response facilities.

In the proposed rule, the NRC would have required nuclear power plant licensees and applicants under Part 50 and Part 52 to identify an alternative facility (or facilities) to function as staging areas for augmentation of ERO staff during hostile action. The NRC received several stakeholder comments that stated that the proposed rule was not consistent with the wording of Attachment 5 to BL–05–02. One commenter indicated that the use of the parenthetical phrase ''(or facilities)'' can be interpreted in two ways. If licensees use multiple locations to function as the alternative facility, then this phrase could mean that either all the locations will have the characteristics of the alternative facility or that these locations will collectively have those characteristics. To clarify this provision, the NRC changed the language of the final rule to explicitly state that the alternative facility (or facilities) must collectively have the necessary characteristics.

The same commenter also stated that the proposed rule would require the alternative facility to have the capability to perform offsite notifications whereas the wording of BL–05–02 states that one of the alternative facility characteristics is the capability to notify offsite response organizations if the EOF is not performing this action. The commenter argued that the final rule should have the same wording as contained in BL–05–02. The NRC disagrees with this comment. The intent of BL–05–02 was to provide a backup capability to perform offsite notifications if the other licensee emergency response facilities were not available due to a hostile action. In the event of a hostile action, there is no guarantee that the EOF would be available to perform this action. Therefore, the NRC has determined that the capability to perform offsite notifications is a necessary characteristic of alternative facilities. Licensees have the option to use the EOF as their alternative facility if it is located outside the owner-controlled area and is within about 30 miles of the site. If the EOF is not the designated alternative facility, then the alternative facility must also have the capability to perform offsite notifications, though not necessarily with the identical equipment utilized in other emergency response facilities.

The commenter also pointed out that the final rule should have the same wording as BL–05–02, which states that ''it is appropriate for alternative facilities to have general plant drawings, procedures, phones, and (ideally) computer links to the site.'' Another commenter recommended an increased implementation period for this part of the rule since licensee facilities do not meet the proposed requirements for the availability of computer links and would need to make facility changes under the site modification process. The NRC agrees in part with these comments. Bulletin BL–05–02 does direct licensees to equip alternative facilities as stated. However, the NRC has determined that, since the alternative facility (or facilities) must have the capability to communicate with the EOF, control room, and site security, to perform offsite notifications, and to conduct engineering assessment activities, including damage control team planning and preparation, licensees should have flexibility in meeting these requirements based on site-specific characteristics. Also, the NRC did not intend for licensees to perform major facility modifications or construct new facilities to meet the new requirement. The NRC intends for licensees to use existing facilities that are a safe distance from the plant. Therefore, the NRC will not codify the equipment that must be present in the alternative facility (or facilities) but rather will allow licensees to achieve the required capabilities of the alternative facility (or facilities) in the most appropriate manner for their site.

In the proposed rule, the NRC would have required the alternative facility (or facilities) to collectively exhibit certain characteristics, one of which was ''accessibility even if the site is under threat of a, or during an actual, hostile action.'' The ACRS Plant Operations and Fire Protection Subcommittee questioned whether the NRC intended for this provision to require that if

multiple facilities are utilized as the alternative facility, then each of the facilities must be accessible during hostile action or the threat thereof. Because the purpose of this provision is to require nuclear power reactor licensees to have an alternative facility (or facilities), each of which would be accessible under the threat of a, or during an actual, hostile action, the NRC changed the language of the final rule to clarify this characteristic of the alternative facility (or facilities). (A discussion of this issue is also provided in Section II.A.3 of this document.)

The NRC is also adding new Section IV.E.8.e to permit a nuclear power reactor licensee that, on the day the final rule becomes effective, has an existing approved EOF that does not meet the distance criteria for a primary or backup EOF, or does not have provisions for a facility closer to the site if the EOF is located more than 25 miles from a nuclear power reactor site, to not be subject to the requirements of Section IV.E.8.b. These licensees have already received approval from the Commission for variances from existing requirements (and guidance) regarding EOF locations, backup EOF facilities, or other EOF characteristics. The rule language was revised in the final rule to clarify that exceptions to the requirements of Section IV.E.8.b apply only to existing EOFs. If a licensee relocates its EOF or consolidates EOFs after the effective date of the final rule, then the requirements of this section will apply to the relocated or consolidated facility. (Also refer to the discussion of this issue in Section II.B.3 of this document.)

The NRC is amending Sections IV.E.9.c and IV.E.9.d to remove references to the EOF as a ''near-site'' facility. Criteria are provided in Section IV.E.8 of Appendix E, regarding EOF distance from a nuclear power reactor site and for a performance based approach for EOFs. The criteria specify that these facilities need to meet certain functional requirements rather than requiring that they be located within a certain distance of the plant. The intent of this change is discussed in the changes to Section IV.E.8 of Appendix E. (A discussion of this issue is also provided in Section II.B.3 of this document.)

The NRC is revising paragraph F.1.a of Section IV to remove the word ''radiation'' because the advent of hostile action scenarios renders usage of the word as too limiting in describing potential emergencies. This change provides consistent use of the term ''emergency plan.'' The NRC is also revising paragraph F.1.b to change the term ''radiation'' to ''radiological,'' to provide consistent use of the phrase ''radiological emergency.''

The final rule revises Section IV.F.2 to replace ''public notification system'' with ''public alert and notification system.'' In the proposed rule, Section IV.F.2 referred to the ANS as the ''public notification system'' and other sections of the rule referred to the ANS as the ''public alert and notification system.'' The NRC received a comment identifying this inconsistency. ''Public notification system'' has been changed in the final rule to the ''public alert and notification system'' for clarity and consistency with the usage elsewhere.

The NRC is adding a new requirement to Section IV.F.2.a to require nuclear power reactor licensees to submit, for NRC review and verification, scenarios for full participation exercises required by Appendix E, Section IV.F.2.a. This requirement enables the NRC to ensure that licensees implement in their exercise scenarios the new requirements of Sections IV.F.2.i and IV.F.2.j of Appendix E, including hostile action and a variety of challenges to reduce preconditioning of responders.

The NRC is revising paragraphs F.2.a.(ii) and F.2.a.(iii) of Appendix E, Section IV to replace ''DHS'' with ''FEMA.'' Although FEMA remains within DHS, the responsibility for offsite EP for nuclear power plants is with FEMA. The FEMA requested that ''FEMA'' be used rather than ''DHS'' for clarity of communication with stakeholders. In addition, in the first sentence of paragraph F.2.a.(iii), the NRC is changing the word ''licensee'' to ''license'' to correct a typographical error.

The NRC is revising Section IV.F.2.b to require nuclear power reactor licensees to submit scenarios for their onsite biennial exercises under 10 CFR 50.4. This requirement enables the NRC to verify that licensees implement in their exercise scenarios the requirements of Appendix E, Sections IV.F.2.i and IV.F.2.j, including hostile action and a variety of challenges to reduce preconditioning of responders. The NRC received comments regarding the timeliness of scenario reviews and has included language in the rule to specify that licensees must submit scenarios to the NRC at least 60 days before the start of the biennial exercise. The NRC will not approve scenarios, but will comment if concerns are noted. The NRC will provide any comments to the licensee no later than 30 days before the exercise begins. The NRC is also inserting the word ''subsequent'' in paragraph F.2.b of Section IV to distinguish between the requirements of paragraphs F.2.a and F.2.b. The NRC is also adding wording in paragraphs F.2.a and F.2.b to distinguish between the requirements of paragraphs F.2.a and F.2.b regarding the type of exercises for which scenarios are to be submitted. (A discussion of this issue is also provided in Section II.A.6 of this document.)

The former Section IV.F.2.b required that licensees ensure that adequate emergency response capabilities are maintained to address several principal emergency response functional areas. The NRC is expanding the list of principal functional areas of emergency response in paragraph F.2.b to include event classification, notification of offsite authorities, assessment of the impact of onsite and offsite radiological releases, and development of protective action recommendations. These additional functional areas are associated with the planning standards in § 50.47(b) that have a significant impact on determining the licensee's ability to implement adequate measures to protect public health and safety during a radiological emergency (*i.e.,* § 50.47(b)(4) regarding event classification, § 50.47(b)(5) regarding notification of offsite authorities, § 50.47(b)(9) regarding assessment of radiological releases, and § 50.47(b)(10) regarding protective actions).

Additionally, the NRC is clarifying the intent of the principal functional areas by replacing the term ''corrective actions'' with the term ''mitigative action implementation'' in Section IV.F.2.b. The term ''corrective actions'' is generally associated with a process (*e.g.,* the Corrective Action Program) to address identified plant problems. However, this process is not normally used during the active response to an emergency. ''Mitigative action implementation'' is a more accurate description of the principal functional area that is to be demonstrated in exercises and drills. This term is not the same as ''plant system repair,'' another principal functional area, because ''mitigative action implementation'' may involve equipment, procedures, and strategies developed under § 50.54(hh), the use of fire truck pumping capacity to inject water, or some ad hoc action. ''Mitigative action implementation'' communicates the expectation for a much more rapid response process than is communicated by ''corrective actions'' as that term is commonly used within the commercial nuclear power industry.

The NRC is amending the last sentence of Section IV.F.2.b to add ''in all participating facilities'' after ''operating staff'' to clarify that the operating staff from all facilities need not participate in the drill. The NRC is

also changing ''the drills could focus on onsite training objectives'' to ''the drills may focus on the onsite exercise training objectives'' to make the permissive intent of the regulatory language more explicit.

The NRC is amending the third sentence of Section IV.F.2.c by correcting grammar without changing the substance or intent of the provision. The word ''and'' is being removed from the end of Section IV.F.2.c.(1) and (2), and a semicolon replaces the period at the end of Section IV.F.2.c.(3), for the same reason. The NRC is also adding Section IV.F.2.c.(4) and (5) to clarify requirements for nuclear power reactor licensees at co-located sites to conduct hostile action exercises. The NRC received a comment regarding this issue and modified the proposed rule to direct that hostile action exercises be rotated between the licensees. This change flows logically from the new requirement to conduct hostile action exercises. Specific provisions for the conduct of exercises at co-located sites have been previously promulgated to clarify requirements for ORO participation (70 FR 3591). This action was appropriate because the same OROs support the emergency plans of both licensees at a co-located site. This final rule in Section IV.F.2.c.(5) requires that licensees at a co-located site rotate participation with OROs in hostile action exercises in a manner similar to other exercise participation to ensure that all licensees participate with OROs on a periodic basis. However, Section IV.F.2.c.(4) requires that licensees not participating with OROs conduct at least the onsite portion of hostile action exercises in each exercise cycle in order to ensure the maintenance of key skills.

The NRC is amending Section IV.F.2.d to reflect exercise cycle requirements for States with respect to ingestion pathway and hostile action exercises. The proposed rule included a case-by-case assessment for scheduling of hostile action exercises in States with multiple nuclear power reactors. However, in public meetings stakeholders commented that case-by-case assessments would create regulatory uncertainty. The final rule addresses exercises in States with multiple nuclear power reactor plume exposure pathway EPZs by providing that States should periodically participate in full or partial participation hostile action exercises and should rotate State participation among the licensees.

Part 50, Appendix E, Section IV.F.2.d of the former rule provided that States should fully participate in the ingestion pathway portion of exercises at least once every six years. As explained below regarding changes to Section IV.F.2.j, the NRC is requiring exercise cycles to be eight years long. A logical extension of establishing an eight-year exercise cycle is to eliminate the minimum frequency element in Section IV.F.2.d and state that States should fully participate in the ingestion pathway portion of exercises every cycle.

The NRC is amending Section IV.F.2.f to add a second situation when remedial exercises are required. The final rule explains that remedial exercises will be required if the emergency plan is not satisfactorily tested during the biennial exercise, such that the NRC, in consultation with FEMA, cannot find reasonable assurance that adequate protective measures can be taken in response to an emergency or determine that key ERO skills had been maintained. This change demonstrates the NRC's intent to invoke this requirement for exercises where the scope of the exercise is not sufficient to demonstrate the maintenance of key ERO skills. In the past, some exercises have not provided such a demonstration due to the use of simplistic scenarios. The final rule change is intended to prevent this trend in the future.

The key skills necessary to implement the emergency plan vary among ERO members, emergency response facilities, and licensees. In general, key skills include the ability to implement emergency response procedures specific to the duties of the ERO member. Key skills include specific response capabilities that may be assigned in a site-specific manner such as:

- Timely classification of events;
- Timely notification of offsite authorities;
- Assessment of radiological releases onsite and offsite;
- Development of protective action recommendations;
- Dissemination of information to the public via media channels;
- Engineering assessment, repair plan development, and repair of critical equipment under emergency conditions;
- Mitigative action implementation;
- Protection of workers during emergency response, including medical care;
- Response to operational transients while implementing the emergency plan; and
- Coordination with offsite response organizations.

In the proposed rule, the NRC provided a list of key skills licensees' emergency responders would have needed to implement emergency response procedures. The NRC received a comment that argued that the list of skills needs to be more specific. The NRC does not agree with this comment because the skills listed are more specific than previous requirements, are elaborated upon in guidance, and in some cases have been defined through the EP performance indicator program, as described in NEI 99–02, ''Regulatory Assessment Performance Indicator Guideline,'' Rev. 6, dated October 2009.

The NRC is also revising Section IV.F.2.g to require licensees to correct any weaknesses or deficiencies identified during exercises, drills, or training. This change explicitly states the regulatory intent that licensees must formally critique performance opportunities that develop, maintain, or demonstrate key skills in exercises, drills, and training, and correct any weaknesses or deficiencies identified in a critique. The term ''performance opportunity'' is used to indicate actual experiential events where proficiency in key skills is demonstrated. Classroom training may not provide an actual performance enhancing experience but rather offer instruction, while tabletop drills and operator requalification drills may offer actual performance opportunities.

The NRC is revising Section IV.F.2.h in the final rule to correct the reference to the section of Part 50 that pertains to situations in which State and local governments refuse to participate in emergency planning activities. The reference was changed to § 50.47(c)(1).

The NRC is adding new Section IV.F.2.i to Appendix E to require all nuclear power reactor licensees to include hostile action in biennial evaluated exercises. The final rule also ensures that scenarios will be sufficiently varied by requiring the use of a wide spectrum of radiological releases and events, to properly train responders to respond to events more realistic than those currently used in training, and to avoid preconditioning the responders to success with inappropriate anticipatory responses. Licensees are also required to emphasize coordination in their drills and exercises among onsite and offsite response organizations to strengthen the capabilities of the OROs to adequately respond to an emergency at the plant that requires offsite response. (A discussion of this issue is also provided in Section II.A.6 of this document.)

The NRC is adding new Section IV.F.2.j to Appendix E to require that nuclear power reactor licensees conduct exercises that provide ERO members the opportunity to demonstrate proficiency in the key skills necessary to implement the principal emergency response

functional areas identified in Section IV.F.2.b. Each exercise will also be required to provide ERO members the opportunity to demonstrate key skills specific to the emergency response duties in each emergency response facility. During each exercise cycle, licensees will be required to vary the content of exercise scenarios to provide ERO members the opportunity to demonstrate proficiency in the key skills necessary to respond to several specific scenario elements, including hostile action directed at the plant site; no radiological release or an unplanned minimal radiological release that does not require public protective actions; an initial classification of or rapid escalation to a Site Area Emergency or General Emergency; implementation of strategies, procedures, and guidance developed under § 50.54(hh)(2); and integration of offsite resources with onsite response. The final rule identifies the exercise cycle as eight calendar years, which must begin in the year of the licensee's first hostile action exercise. This amendment prescribes the minimum exercise scenario elements necessary for licensees to meet NRC expectations for challenging and varied scenario content in biennial exercises.

The NRC received comments regarding the proposed requirement that the first exercise in the new cycle must include hostile action. In States with multiple nuclear power reactor sites, this would require several such exercises in succession, increasing the burden on State emergency management agencies to support these exercises and perhaps reducing the benefit of preparedness efforts. The implementation period for this provision of the final rule was modified to allow current licensees until December 31, 2015, to conduct a hostile action exercise. The final rule clarifies the expectation that States should fully participate in a hostile action exercise by December 31, 2015, and that State full participation should be rotated among licensees in States with more than one nuclear power reactor plume exposure pathway EPZ.

The NRC believes that, in the current threat environment, nuclear power reactors may be a target for hostile action. Although such an attack is unlikely, EP is a defense-in-depth measure and NRC rules require preparedness for unlikely accidents and events. The final rule requires that hostile action response be integrated formally into the EP program through the inspection of biennial exercises performed early in the first exercise cycle and periodically thereafter.

The proposed rule would have identified the exercise cycle as six years. The proposed rule additionally would have specified a minimum frequency for hostile action scenarios. However, the NRC received numerous comments that the cycle should be changed to eight years and that a minimum frequency for hostile action scenarios should be eliminated to allow more flexibility in meeting the new requirements as well as preserving the variability of scenario challenges. Additionally, the commenters stated that the new requirements for scenario content coupled with the existing requirements would degrade the ability to vary scenario content. The NRC agrees with these comments and has changed the proposed rule to establish an eight-year exercise cycle without a minimum frequency for hostile action scenarios. This change enhances the ability of licensees to vary exercise scenario content in line with the numerous comments received on this issue.

Section IV.F.2.j in the final rule requires that nuclear power reactor licensees maintain a record of exercises that documents the contents of scenario elements used for each exercise during an exercise cycle to comply with the requirements of paragraph F.2.j. The documentation should include, but not be limited to, the following items for each scenario: sequence and timeline of events; extent of ERO participation and objectives to be demonstrated; opportunities for ERO demonstration of classification, notification, and development of protective action recommendations; expected radiological release conditions and demonstration of dose assessment, including dose projection results; and expected onsite/offsite radiological survey activities and results.

In the proposed rule, Section IV.F.2.j referenced § 50.54(hh) in the scenario elements for the exercise cycle. The NRC received one comment that suggested that the NRC delete the reference to § 50.54(hh) in Section IV.F.2.j and that hostile action drills be evaluated and incorporated into the NRC's triennial FOF drills. The NRC does not agree with this comment. The NRC added the use of mitigation equipment and procedures required by § 50.54(hh)(2) and response to hostile action in the final rule because they are important elements of nuclear plant defense-in-depth. Including the use of § 50.54(hh)(2) equipment in FOF drills would be inappropriate because the ERO, not security responders, would use the equipment. Additionally, the NRC has previously determined that combining EP and FOF drills would be extremely complicated due to differences in scope of the two evolutions and the introduction of safeguards information issues. Further, the exercises are easily separated and performance addressed individually because the response is essentially serial. The aftermath of a security response can be simulated effectively in EP exercises. This has been demonstrated during the hostile action drill pilot program.

The NRC received a comment that proposed Section IV.F.2.j could be interpreted as requiring an aircraft response in every hostile action exercise because proposed Section IV.F.2.j referenced § 50.54(hh). Section 50.54(hh)(1) requires certain actions to be taken in response to an aircraft threat. Section 50.54(hh)(2) requires the development of strategies, procedures, and guidance for response to loss of large areas of the plant due to fire or explosion. The NRC intended to require the demonstration of strategies, procedures, and guidance developed under § 50.54(hh)(2) as these elements could be used in response to many accident scenarios, as well as in the aftermath of hostile action, increasing the variability of scenarios. Implementation guidance accompanying this final rule recommends that licensees demonstrate their response to an aircraft threat under § 50.54(hh)(1) during an exercise cycle, but not necessarily during a biennial exercise. Section IV.F.2.j was clarified to require demonstration of § 50.54(hh)(2) capabilities in a biennial exercise during each exercise cycle.

The NRC is adding new Section IV.I to Appendix E that requires nuclear power reactor licensees to provide an expanded range of protective measures for onsite personnel that are appropriate for protection against hostile action. These measures will be site-specific and consider issues such as the location of workers in relation to potential targets, which will dictate if sheltering and/or evacuation are appropriate to adequately protect the workers. Also, these measures are prudent to protect personnel necessary to safely shut down the reactor and emergency responders who are necessary to implement the licensee's emergency plan. By specifying these measures for personnel designated to carry out site emergency actions, other onsite workers will also be protected because the onsite protective measures that were deemed appropriate to protect against hostile action would be provided via plant page announcements or at the direction of site security personnel to the site as a whole and would not be directed to any

particular group of workers. The new requirement does not direct any specific actions, but will allow licensees flexibility to determine the most effective protective measures for onsite personnel protection on a site-specific basis. It also will allow licensees to take advantage of new technologies or other innovations that can further enhance the protection of workers. (A discussion of this issue is also provided in Section II.A.5 of this document.)

## V. Implementation

This final rule becomes effective December 23, 2011. Licensees will be permitted to defer implementation of the final rule until June 20, 2012, except for the following rule changes:

(1) The new requirements under § 50.54(q) (amended emergency plan change process). Submittal of proposed emergency plan changes for prior NRC approval made after February 21, 2012 must conform with the new requirements under § 50.54(q)(4). Submittal of emergency plan change documentation made after February 21, 2012 must conform with the new requirements under § 50.54(q)(5). The implementation period for these requirements was revised from 30 days after publication of the final rule in the **Federal Register** in the proposed rule to 90 days after publication of the final rule in the **Federal Register** based on comments that 30 days after publication may not be sufficient time for licensees to update their site programs and procedures to address the amended emergency plan change process requirements. The NRC believes that a 90-day time frame after publication is reasonable for this activity, and the final rule reflects this adjustment to the implementation schedule;

(2) The new requirements under Part 50, Appendix E, Section IV.1–7 (evacuation time estimate updates), which each applicable licensee is required to implement within 365 days of the later of the date of availability of the most recent decennial census data from the U.S. Census Bureau or December 23, 2011;

(3) The new requirements under Part 50, Appendix E, Section IV.A.7 (licensee coordination with OROs), which each applicable licensee is required to implement no later than June 23, 2014. The implementation period for this requirement was revised from 180 days after publication of the final rule in the **Federal Register** in the proposed rule to 30 months after the effective date of the final rule based on comments that 180 days may not be sufficient time to obtain new or update existing arrangements involving offsite resources that support onsite and offsite response activities. The NRC believes that a 30-month time frame is more reasonable for this activity, and the final rule reflects this adjustment to the implementation schedule;

(4) The new requirements under Part 50, Appendix E, Section IV.A.9 (on-shift staffing analysis), which each applicable licensee must implement no later than December 24, 2012. The implementation period for this requirement was revised from 180 days after publication of the final rule in the **Federal Register** in the proposed rule to 365 days after the effective date of the final rule based on comments that 180 days may not be sufficient time to perform the on-shift staffing analysis. However, licensees are expected to take interim compensatory measures to address any staffing shortfalls identified in the staffing analysis within 30 days of when the results of the staffing analysis are available, and then implement long-term corrective actions within 24 months of performing the staffing analysis;

(5) The new requirements under Part 50, Appendix E, Section IV.D.3 (backup means for alert and notification systems). Where FEMA has approved a nuclear power reactor site ANS design report including the backup ANS capability, this rule provision must be implemented by December 24, 2012. Where the ANS design report does not include backup ANS means or is in need of revision to ensure adequate backup ANS capability, a revision of the ANS design report must be submitted to FEMA for review by June 24, 2013 and the FEMA-approved backup ANS means must be implemented within 365 days after FEMA approval. However, the total time period to implement a FEMA-approved backup ANS means shall not exceed June 22, 2015;

(6) The new requirements under Part 50, Appendix E, Section IV.E.8.d (emergency response organization augmentation at alternative facility), which each applicable licensee is required to implement no later than December 23, 2014, with the exception of the capability for staging emergency response organization personnel at an alternative facility (or facilities) and the capability for communications with the EOF, control room, and plant security, which must be implemented no later than June 20, 2012; and

(7) The new requirements under Part 50, Appendix E, Section IV.F.2 (challenging drills and exercises). Each applicable licensee is required to conduct a hostile action exercise for each of its sites no later than December 31, 2015. The first eight-year exercise cycle for a site will begin in the calendar year of the first hostile action exercise. For a site licensed under Part 52, the first eight-year exercise cycle begins in the calendar year of the initial exercise required by Section IV.F.2.a. All of the new requirements in Section IV.F.2 that must be completed in an exercise cycle must be implemented no later than the first eight-year exercise cycle for each site. The remaining new requirements in Section IV.F.2 are effective on December 23, 2011.

Certain applicants for an early site permit under Part 52, or a combined license under Part 52, can defer compliance with this final rule. Such an applicant can defer compliance if its application complies with all applicable, current (prior to this rulemaking) EP regulations, and the applicant, if it becomes an early site permit holder or a combined licensee, requests to amend its early site permit or combined license before December 31, 2013, to comply with the amended EP regulations in this final rule. The applicant, if it becomes a combined licensee, may not operate the facility until the NRC has approved the license amendment demonstrating compliance with this rule. If the applicant does not receive a combined license or early site permit before December 31, 2013, the applicant shall revise its combined license or early site permit application to comply with those changes no later than December 31, 2013.

In the proposed rule, the NRC also requested input on the implementation schedule for each element of the proposed rule for current licensees. The NRC received a number of comments on the appropriateness of the proposed implementation schedule, including whether arbitrary implementation deadlines were needed or if schedules should be site-specific to allow licensees to budget resources and properly coordinate EP program changes with OROs. The NRC believes that a single fixed implementation schedule is warranted to avoid wide variations among licensees in implementing the new requirements, to ensure that new requirements with long lead times, such as those involving biennial exercises, are addressed in a timely manner, and to avoid potential problems for offsite agencies that support multiple sites.

## VI. Guidance

The NRC revised existing guidance and provided new guidance for the new requirements in this final rule. This guidance is intended to provide an acceptable method of how licensees and applicants can meet the requirements of the final rule. The NRC will publish

**Federal Register** notices announcing the availability of the revised and new guidance documents. The documents will be available at *http://www.regulations.gov* by searching on Docket ID NRC–2008–0122.

## VII. Criminal Penalties

Section 223 of the Atomic Energy Act of 1954, as amended (AEA), provides for criminal sanctions for willful violation of, attempted violation of, or conspiracy to violate, any regulation issued under Sections 161b, 161i, or 161o of the AEA. For the purposes of Section 223 of the AEA, the Commission is amending 10 CFR Parts 50 and 52 and Appendix E to Part 50 under Sections 161b, 161i, and 161o of the AEA.

## VIII. Agreement State Compatibility

Under the Policy Statement on Adequacy and Compatibility of Agreement States Programs, approved by the Commission on June 20, 1997, and published in the **Federal Register** (62 FR 46517; September 3, 1997), this rule is classified as compatibility ''NRC.'' Compatibility is not required for Category ''NRC'' regulations. The NRC program elements in this category are those that relate directly to areas of regulation reserved to the NRC by the AEA or the provisions of this chapter. Although an Agreement State may not adopt program elements reserved to the NRC, it may wish to inform its licensees of certain requirements by a mechanism that is consistent with the particular State's administrative procedure laws. Category ''NRC'' regulations do not confer regulatory authority on the State.

## IX. Availability of Documents

The NRC is making the documents identified below available to interested persons through one or more of the methods provided in the **ADDRESSES** section of this document, as indicated.

| Document | PDR | Web | NRC library (ADAMS) |
|---|---|---|---|
| NRC Order EA–02–026, ''Order for Interim Safeguards and Security Compensatory Measures,'' issued February 25, 2002 | X | | ML020510635 |
| SRM–M041214B– ''Briefing on Emergency Preparedness Program Initiatives, 1 p.m., Tuesday, December 14, 2004, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (Open to Public Attendance),'' dated December 20, 2004 | X | | ML043550354 |
| Bulletin 2005–02 (BL–05–02), ''Emergency Preparedness and Response Actions for Security-Based Events,'' dated July 18, 2005 | X | | ML051990027 |
| SECY–06–0200, ''Results of the Review of Emergency Preparedness Regulations and Guidance,'' dated September 20, 2006 | X | | ML061910707 |
| SRM to SECY–06–0200, ''Results of the Review of Emergency Preparedness Regulations and Guidance'' dated January 8, 2007 | X | | ML070080411 |
| Memorandum to the Commission, ''Rulemaking Plan for Enhancements to Emergency Preparedness Regulations and Guidance,'' dated April 17, 2007 | X | | ML070440148 |
| SRM–M060502, ''Staff Requirements—Briefing on Status of Emergency Planning Activities, (Two sessions) 9:30 a.m. and 1 p.m., Tuesday, May 2, 2006, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (Open to public attendance)'' dated June 29, 2006 | X | | ML061810014 |
| ''Summary of March 5, 2008 Meeting to Discuss Emergency Preparedness Draft Preliminary Rule Language,'' dated April 3, 2008 | X | X | ML080940227 |
| Draft Preliminary Rule Language, Emergency Preparedness Rulemaking, February, 2008 | X | X | ML080370069 |
| ''Summary of July 8, 2008 Meeting to Discuss Comments on Emergency Preparedness Draft Preliminary Rule Language,'' dated August 6, 2008 | X | X | ML082180005 |
| Order EA–02–261, ''Access Authorization Order,'' issued January 7, 2003 (68 FR 1643; January 13, 2003) | X | | ML030060360 |
| Order EA–03–039, ''Security Personnel Training and Qualification Requirements (Training) Order,'' issued April 29, 2003 (68 FR 24514; May 7, 2003) | X | | ML030910625 |
| Order EA–03–086, ''Revised Design Basis Threat Order,'' issued April 29, 2003 (68 FR 24517; May 7, 2003) | X | | ML030740002 |
| **Federal Register** Notice—Final Rule to Amend 10 CFR 73.1: Design Basis Threat (72 FR 12705; March 19, 2007) | X | | ML070520692 |
| Information Notice (IN) 91–77, ''Shift Staffing at Nuclear Power Plants,'' dated November 26, 1991 | X | | Non-Publicly Available |
| IN 93–81, ''Implementation of Engineering Expertise On-Shift,'' dated October 12, 1993 | X | | ML031070314 |
| IN 95–48, ''Results of Shift Staffing Study,'' dated October 10, 1995 | X | | ML031060170 |
| NUREG–0654/FEMA–REP–1, ''Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,'' dated November 1980 | X | | ML040420012 |
| NUREG–0849, ''Standard Review Plan for the Review and Evaluation of Emergency Plans for Research and Test Reactors,'' dated October 1983 | X | | ML062190191 |
| NUMARC/NESP–007, Revision 2, ''Methodology for Development of Emergency Action Levels,'' dated January 1992 | X | | ML041120174 |
| NEI 99–01, Revision 5, ''Methodology for Development of Emergency Action Level,'' dated September 2007 | X | | ML073330643 |
| Regulatory Guide 2.6, ''Emergency Planning for Research and Test Reactors,'' dated March 1983 | X | | ML003740234 |
| Regulatory Issue Summary 2006–12, ''Endorsement of Nuclear Energy Institute Guidance 'Enhancements to Emergency Preparedness Programs for Hostile Action,' '' dated July 19, 2006 | X | | ML072670421 |
| Regulatory Issue Summary 2004–15, ''Emergency Preparedness Issues: Post-9/11,'' dated October 18, 2004 | X | | Non-Publicly Available |

| Document | PDR | Web | NRC library (ADAMS) |
|---|---|---|---|
| NEI 06–04, ''Conducting a Hostile Action-Based Emergency Response Drill,'' Rev. 1, dated October 30, 2007 | X | | ML073100460 |
| RIS 2008–08, ''Endorsement of Revision 1 to Nuclear Energy Institute Guidance Document NEI 06–04, 'Conducting a Hostile Action-Based Emergency Response Drill,'' dated March 19, 2008 | X | | ML080110116 |
| IN 2002–25, ''Challenges to Licensees' Ability to Provide Prompt Public Notification and Information During an Emergency Preparedness Event,'' dated August 26, 2002 | X | | ML022380474 |
| IN 2005–06, ''Failure to Maintain Alert and Notification System Tone Alert Radio Capability,'' dated March 30, 2005 | X | | ML050680335 |
| IN 2006–28, ''Siren System Failures Due to Erroneous Siren System Signal,'' dated December 22, 2006 | X | | ML062790341 |
| IN 1996–19, ''Failure of Tone Alert Radios to Activate When Receiving a Shortened Activation Signal,'' dated April 2, 1996 | X | | ML031060187 |
| Regulatory Guide (RG) 1.155, ''Station Blackout,'' issued August 1988 | X | | ML003740034 |
| FEMA–REP–10, ''Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants,'' dated November 1985 | | *www.fema.gov* | |
| IN 85–80, ''Timely Declaration of an Emergency Class, Implementation of an Emergency Plan, and Emergency Notifications,'' dated October 15, 1985 | X | | ML031180307 |
| Emergency Preparedness Position (EPPOS)–2, ''Emergency Preparedness Position (EPPOS) on Timeliness of Classification of Emergency Conditions,'' dated August 1, 1995 | X | | ML023040462 |
| NUREG/CR–6953 Vol. 1, ''Review of NUREG–0654 Supplement 3, Criteria for Protective Action Recommendations for Severe Accidents,'' dated December 2007 | X | | ML080360602 |
| NUREG/CR–6863, ''Development of Evacuation Time Estimates for Nuclear Power Plants,'' dated January 2005 | X | | ML050250240 |
| NUREG/CR–6864, ''Identification and Analysis of Factors Affecting Emergency Evacuations,'' dated January 2005 | X | | ML050250245 |
| NUREG/CR–7002, ''Criteria for Development of Evacuation Time Estimate Studies,'' dated November 2011 | X | | ML113010515 |
| EPPOS–4, ''Emergency Plan and Implementing Procedure Changes,'' dated November 19, 1998 | X | | ML023040483 |
| Withdrawal of Emergency Preparedness Position (EPPOS) 4, ''Emergency Plan and Implementing Procedure Changes,'' dated November 19, 1998 | X | | ML050800537 |
| RIS 2005–02, ''Clarifying the Process for Making Emergency Plan Changes,'' dated February 14, 2005 | X | | ML042580404 |
| ''Discussion of NREP 'Parking Lot' Items,'' dated August 11, 2005 | X | | ML052000263 |
| Transcripts for August 31, 2005 and September 1, 2005 Portion of the Emergency Preparedness Public Meeting | X | | ML052620366 |
| ''Summary and Analysis of Comments (Received Between August 31 and October 31, 2005),'' dated February 28, 2006 | X | | ML060450376 |
| ''Summary and Analysis of Site-Specific Comments (Received Between August 31 and October 31, 2005),'' dated March 31, 2006 | X | | ML060860401 |
| Transcript of Public Meeting for Follow Up Discussions of Selected Topics for the Review of Emergency Preparedness Regulations and Guidance for Commercial Nuclear Power Plants, held May 19, 2006 | | | ML061590186 |
| NUREG–0696, ''Functional Criteria for Emergency Response Facilities,'' dated February 1981 | X | | ML051390358 |
| SRM to SECY–04–0236, ''Southern Nuclear Operating Company's Proposal to Establish a Common Emergency Operating Facility at Its Corporate Headquarters,'' dated February 23, 2005 | X | | ML050550131 |
| NUREG–0737, ''Clarification of TMI Action Plan Requirements,'' Supplement 1, ''Requirements for Emergency Response Capabilities,'' dated January 1983 | X | | ML051390367 |
| NEI 99–02, ''Regulatory Assessment Performance Indicator Guideline,'' Rev. 6, dated October 2009 | X | | ML092931123 |
| Comments submitted by Nuclear Energy Institute on EP draft preliminary rule language (Letter identifier for comments: NEI1–X) | X | X | ML081690809 |
| Comments submitted by Union of Concerned Scientists on EP draft preliminary rule language (Letter identifier for comments: NGO1–X) | X | X | ML081840067 |
| Comments submitted by PA Bureau of Radiation Protection on EP draft preliminary rule language (Letter identifier for comments: SPA1–X) | X | X | ML081690778 |
| EP final rule Regulatory Analysis and Backfit Analysis | X | X | ML112971541 |
| EP final rule Environmental Assessment | X | X | ML102150163 |
| EP Paperwork Burden Analysis | X | X | ML112971537 |
| NRC comment responses for EP draft preliminary rule language | X | X | ML091180198 |
| Summary and Analysis of Public Comments on Proposed Rule Language | X | X | ML112971546 |
| Summary of September 17, 2009, Meeting to Discuss the Proposed Rule on Enhancements to Emergency Preparedness Regulations and Related Guidance Documents (October 16, 2009) | X | X | ML092881256 |
| SRM to SECY–07–0009, ''Possible Reactivation of Construction and Licensing Activities for the Watts Bar Nuclear Plant Unit 2,'' dated July 25, 2007 | X | X | ML072060688 |
| SECY–09–0007, ''Proposed Rule Related to Enhancements to Emergency Preparedness Regulations (10 CFR part 50),'' dated January 9, 2009 | X | X | ML082890481 |
| SRM to SECY–09–0007, ''Proposed Rule Related to Enhancements to Emergency Preparedness Regulations (10 CFR part 50),'' dated April 16, 2009 | X | | ML091060206 |

| Document | PDR | Web | NRC library (ADAMS) |
|---|---|---|---|
| SRM–M091208, ''Staff Requirements—Briefing on the Proposed Rule: Enhancements to Emergency Preparedness Regulations, 9:30 a.m., Tuesday, December 8, 2009, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (Open to Public Attendance),'' dated January 13, 2010 | X | | ML100130067 |
| Information from November 15, 2010 Public Meeting to Discuss the Proposed Implementation Dates of the Emergency Preparedness Final Rule | X | X | ML102770561 |

## X. Voluntary Consensus Standards

The National Technology Transfer and Advancement Act of 1995, Public Law 104–113, requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless using such a standard is inconsistent with applicable law or is otherwise impractical. The NRC is not aware of any voluntary consensus standard that could be used instead of the proposed Government-unique standards. The NRC will consider using a voluntary consensus standard if an appropriate standard is identified.

## XI. Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required.

The NRC requested public comments on any environmental justice considerations that may be related to this rule and no comments were received. The NRC also requested the views of the States on the environmental assessment for this rule and no comments were received.

## XII. Paperwork Reduction Act Statement

This final rule contains new or amended information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). These requirements were approved by the Office of Management and Budget (OMB), Approval Number 3150–0011.

The burden to the public for these information collections is estimated to average 123 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments on any aspect of these information collections, including suggestions for reducing the burden, to the Information Services Branch (T–5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, or by Internet electronic mail to *INFOCOLLECTS.Resource@NRC.GOV;* and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB–10202, (3150–0011), Office of Management and Budget, Washington, DC 20503.

*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.

## XIII. Regulatory Analysis: Availability

The Commission has prepared a regulatory analysis on this regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. Availability of the regulatory analysis is indicated in Section IX of this document.

## XIV. Regulatory Flexibility Certification

Under the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. This rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of ''small entities'' set forth in the Regulatory Flexibility Act or the size standards established by the NRC (10 CFR 2.810).

## XV. Backfit Analysis

As required by 10 CFR 50.109, the Commission has completed a backfit analysis for the final rule. The Commission finds that the backfits contained in the final rule, when considered in the aggregate, will constitute a substantial increase in EP and are justified in view of this increased protection of the public health and safety. Availability of the backfit analysis is indicated in Section IX of this document.

## XVI. Congressional Review Act

Under the Congressional Review Act of 1996, the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs of the OMB.

## List of Subjects

*10 CFR Part 50*

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

*10 CFR Part 52*

Administrative practice and procedure, Antitrust, Backfitting, Combined license, Early site permit, Emergency planning, Fees, Inspection, Limited work authorization, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Reporting and recordkeeping requirements, Standard design, Standard design certification.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR part 50 and part 52.

## PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

■ 1. The authority citation for part 50 continues to read as follows:

**Authority:** Secs. 102, 103, 104, 105, 161, 182, 183, 186, 189, 68 Stat. 936, 937, 938, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); sec. 1704, 112 Stat. 2750 (44 U.S.C. 3504 note); Energy Policy Act of 2005, Pub. L. No. 109–58, 119 Stat. 194 (2005). Section 50.7 also issued under Pub. L. 95–601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5841). Section 50.10 also issued under secs. 101, 185, 68 Stat. 955, as

amended (42 U.S.C. 2131, 2235); sec. 102, Pub. L. 91–190, 83 Stat. 853 (42 U.S.C. 4332).

Sections 50.13, 50.54(dd), and 50.103 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138).

Sections 50.23, 50.35, 50.55, and 50.56 also issued under sec. 185, 68 Stat. 955 (42 U.S.C. 2235). Sections 50.33a, 50.55a and Appendix Q also issued under sec. 102, Pub. L. 91–190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.34 and 50.54 also issued under sec. 204, 88 Stat. 1245 (42 U.S.C. 5844). Sections 50.58, 50.91, and 50.92 also issued under Pub. L. 97–415, 96 Stat. 2073 (42 U.S.C. 2239). Section 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Sections 50.80–50.81 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Appendix F also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

■ 2. In § 50.47, revise paragraphs (b)(3), (b)(10), and (d)(1) to read as follows:

**§ 50.47 Emergency plans.**

* * * * *

(b) * * *

(3) Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

* * * * *

(10) A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Evacuation time estimates have been developed by applicants and licensees. Licensees shall update the evacuation time estimates on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

* * * * *

(d) * * *

(1) Arrangements for requesting and effectively using offsite assistance on site have been made, arrangements to accommodate State and local staff at the licensee's Emergency Operations Facility have been made, and other organizations capable of augmenting the planned onsite response have been identified.

* * * * *

■ 3. In § 50.54:

■ a. Revise paragraph (q), the introductory text of paragraph (gg)(1), and paragraphs (gg)(1)(i) and (gg)(2); and

■ b. Remove and reserve paragraphs (r), (s)(1), (s)(2)(i), and (u).

The revisions read as follows:

**§ 50.54 Conditions of licenses.**

* * * * *

(q) *Emergency plans.*

(1) Definitions for the purpose of this section:

(i) *Change* means an action that results in modification or addition to, or removal from, the licensee's emergency plan. All such changes are subject to the provisions of this section except where the applicable regulations establish specific criteria for accomplishing a particular change.

(ii) *Emergency plan* means the document(s), prepared and maintained by the licensee, that identify and describe the licensee's methods for maintaining emergency preparedness and responding to emergencies. An emergency plan includes the plan as originally approved by the NRC and all subsequent changes made by the licensee with, and without, prior NRC review and approval under paragraph (q) of this section.

(iii) *Emergency planning function* means a capability or resource necessary to prepare for and respond to a radiological emergency, as set forth in the elements of section IV. of appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b).

(iv) *Reduction in effectiveness* means a change in an emergency plan that results in reducing the licensee's capability to perform an emergency planning function in the event of a radiological emergency.

(2) A holder of a license under this part, or a combined license under part 52 of this chapter after the Commission makes the finding under § 52.103(g) of this chapter, shall follow and maintain the effectiveness of an emergency plan that meets the requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b).

(3) The licensee may make changes to its emergency plan without NRC approval only if the licensee performs and retains an analysis demonstrating that the changes do not reduce the effectiveness of the plan and the plan, as changed, continues to meet the requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b).

(4) The changes to a licensee's emergency plan that reduce the effectiveness of the plan as defined in paragraph (q)(1)(iv) of this section may not be implemented without prior approval by the NRC. A licensee desiring to make such a change after February 21, 2012 shall submit an application for an amendment to its license. In addition to the filing requirements of §§ 50.90 and 50.91, the request must include all emergency plan pages affected by that change and must be accompanied by a forwarding letter identifying the change, the reason for the change, and the basis for concluding that the licensee's emergency plan, as revised, will continue to meet the requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b).

(5) The licensee shall retain a record of each change to the emergency plan made without prior NRC approval for a period of three years from the date of the change and shall submit, as specified in § 50.4, a report of each such change made after February 21, 2012, including a summary of its analysis, within 30 days after the change is put in effect.

(6) The nuclear power reactor licensee shall retain the emergency plan and each change for which prior NRC approval was obtained pursuant to paragraph (q)(4) of this section as a record until the Commission terminates the license for the nuclear power reactor.

(r) [Reserved]

(s)(1) [Reserved]

(2)(i) [Reserved]

* * * * *

(u) [Reserved]

* * * * *

(gg)(1) Notwithstanding 10 CFR 52.103, if, following the conduct of the exercise required by paragraph IV.f.2.a of appendix E to part 50 of this chapter, FEMA identifies one or more deficiencies in the state of offsite emergency preparedness, the holder of a combined license under 10 CFR part 52 may operate at up to 5 percent of rated thermal power only if the Commission finds that the state of onsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. The NRC will base this finding on its assessment of the applicant's onsite emergency plans against the pertinent standards in § 50.47 and appendix E to this part. Review of the applicant's emergency plans will include the following standards with offsite aspects:

(i) Arrangements for requesting and effectively using offsite assistance onsite have been made, arrangements to accommodate State and local staff at the licensee's Emergency Operations Facility have been made, and other organizations capable of augmenting the

planned onsite response have been identified.

* * * * *

(2) The condition in this paragraph, regarding operation at up to 5 percent power, ceases to apply 30 days after FEMA informs the NRC that the offsite deficiencies have been corrected, unless the NRC notifies the combined license holder before the expiration of the 30-day period that the Commission finds under paragraphs (s)(2) and (3) of this section that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

* * * * *

■ 4. In Appendix E to 10 CFR part 50:
■ a. Revise Section I;
■ b. In Section II, revise paragraph H; and
■ c. Revise Section IV.

The revisions read as follows:

## Appendix E to Part 50—Emergency Planning and Preparedness for Production and Utilization Facilities

* * * * *

### I. Introduction

1. Each applicant for a construction permit is required by § 50.34(a) to include in the preliminary safety analysis report a discussion of preliminary plans for coping with emergencies. Each applicant for an operating license is required by § 50.34(b) to include in the final safety analysis report plans for coping with emergencies. Each applicant for a combined license under subpart C of part 52 of this chapter is required by § 52.79 of this chapter to include in the application plans for coping with emergencies. Each applicant for an early site permit under subpart A of part 52 of this chapter may submit plans for coping with emergencies under § 52.17 of this chapter.

2. This appendix establishes minimum requirements for emergency plans for use in attaining an acceptable state of emergency preparedness. These plans shall be described generally in the preliminary safety analysis report for a construction permit and submitted as part of the final safety analysis report for an operating license. These plans, or major features thereof, may be submitted as part of the site safety analysis report for an early site permit.

3. The potential radiological hazards to the public associated with the operation of research and test reactors and fuel facilities licensed under 10 CFR parts 50 and 70 involve considerations different than those associated with nuclear power reactors. Consequently, the size of Emergency Planning Zones[1] (EPZs) for facilities other than power reactors and the degree to which compliance with the requirements of this section and sections II, III, IV, and V of this appendix as necessary will be determined on a case-by-case basis.[2]

4. Notwithstanding the above paragraphs, in the case of an operating license authorizing only fuel loading and/or low power operations up to 5 percent of rated power, no NRC or FEMA review, findings, or determinations concerning the state of offsite emergency preparedness or the adequacy of and the capability to implement State and local offsite emergency plans, as defined in this Appendix, are required prior to the issuance of such a license.

5. Each applicant for a combined license or early site permit under part 52 of this chapter whose application is docketed before December 23, 2011 may defer compliance with any change to emergency preparedness regulations under the final rule issued November 23, 2011. If that applicant chooses to defer compliance, it shall subsequently request to amend the combined license or early site permit to comply with those changes no later than December 31, 2013. An applicant that does not receive a combined license or early site permit before December 31, 2013, shall revise its combined license or early site permit application to comply with those changes no later than December 31, 2013. Notwithstanding any Commission finding under 10 CFR 52.103(g) regarding the combined license holder's facility, the combined license holder may not operate the facility until the NRC has approved the license amendment demonstrating compliance with the final rule.

6. The Tennessee Valley Authority Watts Bar Nuclear Plant, Unit 2, holding a construction permit under the provisions of part 50 of this chapter, shall meet the requirements of the final rule issued November 23, 2011 as applicable to operating nuclear power reactor licensees.

### II. The Preliminary Safety Analysis Report

* * * * *

H. A preliminary analysis reflecting the need to include facilities, systems, and methods for identifying the degree of seriousness and potential scope of radiological consequences of emergency situations within and outside the site boundary, including capabilities for dose projection using real-time meteorological information and for dispatch of radiological monitoring teams within the EPZs; and a preliminary analysis reflecting the role of the onsite technical support center and the emergency operations facility in assessing information, recommending protective action, and disseminating information to the public.

* * * * *

### IV. Content of Emergency Plans

1. The applicant's emergency plans shall contain, but not necessarily be limited to, information needed to demonstrate compliance with the elements set forth below, *i.e.,* organization for coping with radiological emergencies, assessment actions, activation of emergency organization, notification procedures, emergency facilities and equipment, training, maintaining emergency preparedness, recovery, and onsite protective actions during hostile action. In addition, the emergency response plans submitted by an applicant for a nuclear power reactor operating license under this part, or for an early site permit (as applicable) or combined license under 10 CFR part 52, shall contain information needed to demonstrate compliance with the standards described in § 50.47(b), and they will be evaluated against those standards.

2. This nuclear power reactor license applicant shall also provide an analysis of the time required to evacuate various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations, using the most recent U.S. Census Bureau data as of the date the applicant submits its application to the NRC.

3. Nuclear power reactor licensees shall use NRC approved evacuation time estimates (ETEs) and updates to the ETEs in the formulation of protective action recommendations and shall provide the ETEs and ETE updates to State and local governmental authorities for use in developing offsite protective action strategies.

4. Within 365 days of the later of the date of the availability of the most recent decennial census data from the U.S. Census Bureau or December 23, 2011, nuclear power reactor licensees shall develop an ETE analysis using this decennial data and submit it under § 50.4 to the NRC. These licensees shall submit this ETE analysis to the NRC at least 180 days before using it to form protective action recommendations and providing it to State and local governmental authorities for use in developing offsite protective action strategies.

5. During the years between decennial censuses, nuclear power reactor licensees shall estimate EPZ permanent resident population changes once a year, but no later than 365 days from the date of the previous estimate, using the most recent U.S. Census Bureau annual resident population estimate and State/local government population data, if available. These licensees shall maintain these estimates so that they are available for NRC inspection during the period between decennial censuses and shall submit these estimates to the NRC with any updated ETE analysis.

6. If at any time during the decennial period, the EPZ permanent resident population increases such that it causes the

[1] EPZs for power reactors are discussed in NUREG–0396; EPA 520/1–78–016, ''Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants,'' December 1978. The size of the EPZs for a nuclear power plant shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries. The size of the EPZs also may be determined on a case-by-case basis for gas-cooled nuclear reactors and for reactors with an authorized power level less than 250 MW thermal. Generally, the plume exposure pathway EPZ for nuclear power plants with an authorized power level greater than 250 MW thermal shall consist of an area about 10 miles (16 km) in radius and the ingestion pathway EPZ shall consist of an area about 50 miles (80 km) in radius.

[2] Regulatory Guide 2.6 will be used as guidance for the acceptability of research and test reactor emergency response plans.

longest ETE value for the 2-mile zone or 5-mile zone, including all affected Emergency Response Planning Areas, or for the entire 10-mile EPZ to increase by 25 percent or 30 minutes, whichever is less, from the nuclear power reactor licensee's currently NRC approved or updated ETE, the licensee shall update the ETE analysis to reflect the impact of that population increase. The licensee shall submit the updated ETE analysis to the NRC under § 50.4 no later than 365 days after the licensee's determination that the criteria for updating the ETE have been met and at least 180 days before using it to form protective action recommendations and providing it to State and local governmental authorities for use in developing offsite protective action strategies.

7. After an applicant for a combined license under part 52 of this chapter receives its license, the licensee shall conduct at least one review of any changes in the population of its EPZ at least 365 days prior to its scheduled fuel load. The licensee shall estimate EPZ permanent resident population changes using the most recent U.S. Census Bureau annual resident population estimate and State/local government population data, if available. If the EPZ permanent resident population increases such that it causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected Emergency Response Planning Areas, or for the entire 10-mile EPZ, to increase by 25 percent or 30 minutes, whichever is less, from the licensee's currently approved ETE, the licensee shall update the ETE analysis to reflect the impact of that population increase. The licensee shall submit the updated ETE analysis to the NRC for review under § 50.4 of this chapter no later than 365 days before the licensee's scheduled fuel load.

*A. Organization*

The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization and the means for notification of such individuals in the event of an emergency. Specifically, the following shall be included:

1. A description of the normal plant operating organization.

2. A description of the onsite emergency response organization (ERO) with a detailed discussion of:

a. Authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency;

b. Plant staff emergency assignments;

c. Authorities, responsibilities, and duties of an onsite emergency coordinator who shall be in charge of the exchange of information with offsite authorities responsible for coordinating and implementing offsite emergency measures.

3. A description, by position and function to be performed, of the licensee's headquarters personnel who will be sent to the plant site to augment the onsite emergency organization.

4. Identification, by position and function to be performed, of persons within the licensee organization who will be responsible for making offsite dose projections, and a description of how these projections will be made and the results transmitted to State and local authorities, NRC, and other appropriate governmental entities.

5. Identification, by position and function to be performed, of other employees of the licensee with special qualifications for coping with emergency conditions that may arise. Other persons with special qualifications, such as consultants, who are not employees of the licensee and who may be called upon for assistance for emergencies shall also be identified. The special qualifications of these persons shall be described.

6. A description of the local offsite services to be provided in support of the licensee's emergency organization.

7. By June 23, 2014, identification of, and a description of the assistance expected from, appropriate State, local, and Federal agencies with responsibilities for coping with emergencies, including hostile action at the site. For purposes of this appendix, ''hostile action'' is defined as an act directed toward a nuclear power plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force.

8. Identification of the State and/or local officials responsible for planning for, ordering, and controlling appropriate protective actions, including evacuations when necessary.

9. By December 24, 2012, for nuclear power reactor licensees, a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan.

*B. Assessment Actions*

1. The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring. By June 20, 2012, for nuclear power reactor licensees, these action levels must include hostile action that may adversely affect the nuclear power plant. The initial emergency action levels shall be discussed and agreed on by the applicant or licensee and state and local governmental authorities, and approved by the NRC. Thereafter, emergency action levels shall be reviewed with the State and local governmental authorities on an annual basis.

2. A licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change. Licensees shall follow the change process in § 50.54(q) for all other emergency action level changes.

*C. Activation of Emergency Organization*

1. The entire spectrum of emergency conditions that involve the alerting or activating of progressively larger segments of the total emergency organization shall be described. The communication steps to be taken to alert or activate emergency personnel under each class of emergency shall be described. Emergency action levels (based not only on onsite and offsite radiation monitoring information but also on readings from a number of sensors that indicate a potential emergency, such as the pressure in containment and the response of the Emergency Core Cooling System) for notification of offsite agencies shall be described. The existence, but not the details, of a message authentication scheme shall be noted for such agencies. The emergency classes defined shall include: (1) Notification of unusual events, (2) alert, (3) site area emergency, and (4) general emergency. These classes are further discussed in NUREG–0654/FEMA–REP–1.

2. By June 20, 2012, nuclear power reactor licensees shall establish and maintain the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and shall promptly declare the emergency condition as soon as possible following identification of the appropriate emergency classification level. Licensees shall not construe these criteria as a grace period to attempt to restore plant conditions to avoid declaring an emergency action due to an emergency action level that has been exceeded. Licensees shall not construe these criteria as preventing implementation of response actions deemed by the licensee to be necessary to protect public health and safety provided that any delay in declaration does not deny the State and local authorities the opportunity to implement measures necessary to protect the public health and safety.

*D. Notification Procedures*

1. Administrative and physical means for notifying local, State, and Federal officials and agencies and agreements reached with these officials and agencies for the prompt notification of the public and for public evacuation or other protective measures, should they become necessary, shall be described. This description shall include identification of the appropriate officials, by title and agency, of the State and local government agencies within the EPZs.

2. Provisions shall be described for yearly dissemination to the public within the plume exposure pathway EPZ of basic emergency planning information, such as the methods and times required for public notification and the protective actions planned if an accident occurs, general information as to the nature and effects of radiation, and a listing of local broadcast stations that will be used for dissemination of information during an

emergency. Signs or other measures shall also be used to disseminate to any transient population within the plume exposure pathway EPZ appropriate information that would be helpful if an accident occurs.

3. A licensee shall have the capability to notify responsible State and local governmental agencies within 15 minutes after declaring an emergency. The licensee shall demonstrate that the appropriate governmental authorities have the capability to make a public alerting and notification decision promptly on being informed by the licensee of an emergency condition. Prior to initial operation greater than 5 percent of rated thermal power of the first reactor at a site, each nuclear power reactor licensee shall demonstrate that administrative and physical means have been established for alerting and providing prompt instructions to the public within the plume exposure pathway EPZ. The design objective of the prompt public alert and notification system shall be to have the capability to essentially complete the initial alerting and initiate notification of the public within the plume exposure pathway EPZ within about 15 minutes. The use of this alerting and notification capability will range from immediate alerting and notification of the public (within 15 minutes of the time that State and local officials are notified that a situation exists requiring urgent action) to the more likely events where there is substantial time available for the appropriate governmental authorities to make a judgment whether or not to activate the public alert and notification system. The alerting and notification capability shall additionally include administrative and physical means for a backup method of public alerting and notification capable of being used in the event the primary method of alerting and notification is unavailable during an emergency to alert or notify all or portions of the plume exposure pathway EPZ population. The backup method shall have the capability to alert and notify the public within the plume exposure pathway EPZ, but does not need to meet the 15-minute design objective for the primary prompt public alert and notification system. When there is a decision to activate the alert and notification system, the appropriate governmental authorities will determine whether to activate the entire alert and notification system simultaneously or in a graduated or staged manner. The responsibility for activating such a public alert and notification system shall remain with the appropriate governmental authorities.

4. If FEMA has approved a nuclear power reactor site's alert and notification design report, including the backup alert and notification capability, as of December 23, 2011, then the backup alert and notification capability requirements in Section IV.D.3 must be implemented by December 24, 2012. If the alert and notification design report does not include a backup alert and notification capability or needs revision to ensure adequate backup alert and notification capability, then a revision of the alert and notification design report must be submitted to FEMA for review by June 24, 2013, and the FEMA-approved backup alert and notification means must be implemented within 365 days after FEMA approval. However, the total time period to implement a FEMA-approved backup alert and notification means must not exceed June 22, 2015.

*E. Emergency Facilities and Equipment*

Adequate provisions shall be made and described for emergency facilities and equipment, including:

1. Equipment at the site for personnel monitoring;

2. Equipment for determining the magnitude of and for continuously assessing the impact of the release of radioactive materials to the environment;

3. Facilities and supplies at the site for decontamination of onsite individuals;

4. Facilities and medical supplies at the site for appropriate emergency first aid treatment;

5. Arrangements for medical service providers qualified to handle radiological emergencies onsite;

6. Arrangements for transportation of contaminated injured individuals from the site to specifically identified treatment facilities outside the site boundary;

7. Arrangements for treatment of individuals injured in support of licensed activities on the site at treatment facilities outside the site boundary;

8.a. (i) A licensee onsite technical support center and an emergency operations facility from which effective direction can be given and effective control can be exercised during an emergency;

(ii) For nuclear power reactor licensees, a licensee onsite operational support center;

b. For a nuclear power reactor licensee's emergency operations facility required by paragraph 8.a of this section, either a facility located between 10 miles and 25 miles of the nuclear power reactor site(s), or a primary facility located less than 10 miles from the nuclear power reactor site(s) and a backup facility located between 10 miles and 25 miles of the nuclear power reactor site(s). An emergency operations facility may serve more than one nuclear power reactor site. A licensee desiring to locate an emergency operations facility more than 25 miles from a nuclear power reactor site shall request prior Commission approval by submitting an application for an amendment to its license. For an emergency operations facility located more than 25 miles from a nuclear power reactor site, provisions must be made for locating NRC and offsite responders closer to the nuclear power reactor site so that NRC and offsite responders can interact face-to-face with emergency response personnel entering and leaving the nuclear power reactor site. Provisions for locating NRC and offsite responders closer to a nuclear power reactor site that is more than 25 miles from the emergency operations facility must include the following:

(1) Space for members of an NRC site team and Federal, State, and local responders;

(2) Additional space for conducting briefings with emergency response personnel;

(3) Communication with other licensee and offsite emergency response facilities;

(4) Access to plant data and radiological information; and

(5) Access to copying equipment and office supplies;

c. By June 20, 2012, for a nuclear power reactor licensee's emergency operations facility required by paragraph 8.a of this section, a facility having the following capabilities:

(1) The capability for obtaining and displaying plant data and radiological information for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves;

(2) The capability to analyze plant technical information and provide technical briefings on event conditions and prognosis to licensee and offsite response organizations for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves; and

(3) The capability to support response to events occurring simultaneously at more than one nuclear power reactor site if the emergency operations facility serves more than one site; and

d. For nuclear power reactor licensees, an alternative facility (or facilities) that would be accessible even if the site is under threat of or experiencing hostile action, to function as a staging area for augmentation of emergency response staff and collectively having the following characteristics: the capability for communication with the emergency operations facility, control room, and plant security; the capability to perform offsite notifications; and the capability for engineering assessment activities, including damage control team planning and preparation, for use when onsite emergency facilities cannot be safely accessed during hostile action. The requirements in this paragraph 8.d must be implemented no later than December 23, 2014, with the exception of the capability for staging emergency response organization personnel at the alternative facility (or facilities) and the capability for communications with the emergency operations facility, control room, and plant security, which must be implemented no later than June 20, 2012.

e. A licensee shall not be subject to the requirements of paragraph 8.b of this section for an existing emergency operations facility approved as of December 23, 2011;

9. At least one onsite and one offsite communications system; each system shall have a backup power source. All communication plans shall have arrangements for emergencies, including titles and alternates for those in charge at both ends of the communication links and the primary and backup means of communication. Where consistent with the function of the governmental agency, these arrangements will include:

a. Provision for communications with contiguous State/local governments within the plume exposure pathway EPZ. Such communications shall be tested monthly.

b. Provision for communications with Federal emergency response organizations. Such communications systems shall be tested annually.

c. Provision for communications among the nuclear power reactor control room, the

onsite technical support center, and the emergency operations facility; and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams. Such communications systems shall be tested annually.

d. Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility. Such communications shall be tested monthly.

*F. Training*

1. The program to provide for: (a) The training of employees and exercising, by periodic drills, of emergency plans to ensure that employees of the licensee are familiar with their specific emergency response duties, and (b) The participation in the training and drills by other persons whose assistance may be needed in the event of a radiological emergency shall be described. This shall include a description of specialized initial training and periodic retraining programs to be provided to each of the following categories of emergency personnel:

i. Directors and/or coordinators of the plant emergency organization;

ii. Personnel responsible for accident assessment, including control room shift personnel;

iii Radiological monitoring teams;

iv. Fire control teams (fire brigades);

v. Repair and damage control teams;

vi. First aid and rescue teams;

vii. Medical support personnel;

viii. Licensee's headquarters support personnel;

ix. Security personnel.

In addition, a radiological orientation training program shall be made available to local services personnel; *e.g.,* local emergency services/Civil Defense, local law enforcement personnel, local news media persons.

2. The plan shall describe provisions for the conduct of emergency preparedness exercises as follows: Exercises shall test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, test the public alert and notification system, and ensure that emergency organization personnel are familiar with their duties.[3]

a. A full participation[4] exercise which tests as much of the licensee, State, and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located. Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in a full participation exercise required by this paragraph 2.a.

(i) For an operating license issued under this part, this exercise must be conducted within two years before the issuance of the first operating license for full power (one authorizing operation above 5 percent of rated power) of the first reactor and shall include participation by each State and local government within the plume exposure pathway EPZ and each state within the ingestion exposure pathway EPZ. If the full participation exercise is conducted more than 1 year prior to issuance of an operating licensee for full power, an exercise which tests the licensee's onsite emergency plans must be conducted within one year before issuance of an operating license for full power. This exercise need not have State or local government participation.

(ii) For a combined license issued under part 52 of this chapter, this exercise must be conducted within two years of the scheduled date for initial loading of fuel. If the first full participation exercise is conducted more than one year before the scheduled date for initial loading of fuel, an exercise which tests the licensee's onsite emergency plans must be conducted within one year before the scheduled date for initial loading of fuel. This exercise need not have State or local government participation. If FEMA identifies one or more deficiencies in the state of offsite emergency preparedness as the result of the first full participation exercise, or if the Commission finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the provisions of § 50.54(gg) apply.

(iii) For a combined license issued under part 52 of this chapter, if the applicant currently has an operating reactor at the site, an exercise, either full or partial participation,[5] shall be conducted for each subsequent reactor constructed on the site. This exercise may be incorporated in the exercise requirements of Sections IV.F.2.b. and c. in this appendix. If FEMA identifies one or more deficiencies in the state of offsite emergency preparedness as the result of this exercise for the new reactor, or if the Commission finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency, the provisions of § 50.54(gg) apply.

b. Each licensee at each site shall conduct a subsequent exercise of its onsite emergency plan every 2 years. Nuclear power reactor licensees shall submit exercise scenarios under § 50.4 at least 60 days before use in an exercise required by this paragraph 2.b. The exercise may be included in the full participation biennial exercise required by paragraph 2.c. of this section. In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident assessment, event classification, notification of offsite authorities, assessment of the onsite and offsite impact of radiological releases, protective action recommendation development, protective action decision making, plant system repair and mitigative action implementation. During these drills, activation of all of the licensee's emergency response facilities (Technical Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF)) would not be necessary, licensees would have the opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff in all participating facilities would have the opportunity to resolve problems (success paths) rather than have controllers intervene, and the drills may focus on the onsite exercise training objectives.

c. Offsite plans for each site shall be exercised biennially with full participation by each offsite authority having a role under the radiological response plan. Where the offsite authority has a role under a radiological response plan for more than one site, it shall fully participate in one exercise every two years and shall, at least, partially participate in other offsite plan exercises in this period. If two different licensees each have licensed facilities located either on the same site or on adjacent, contiguous sites, and share most of the elements defining co-located licensees,[6] then each licensee shall:

(1) Conduct an exercise biennially of its onsite emergency plan;

(2) Participate quadrennially in an offsite biennial full or partial participation exercise;

(3) Conduct emergency preparedness activities and interactions in the years between its participation in the offsite full or partial participation exercise with offsite authorities, to test and maintain interface among the affected State and local authorities and the licensee. Co-located licensees shall also participate in emergency preparedness

[3] Use of site specific simulators or computers is acceptable for any exercise.

[4] Full participation when used in conjunction with emergency preparedness exercises for a particular site means appropriate offsite local and State authorities and licensee personnel physically and actively take part in testing their integrated capability to adequately assess and respond to an accident at a commercial nuclear power plant. Full participation includes testing major observable portions of the onsite and offsite emergency plans and mobilization of State, local and licensee personnel and other resources in sufficient numbers to verify the capability to respond to the accident scenario.

[5] Partial participation when used in conjunction with emergency preparedness exercises for a particular site means appropriate offsite authorities shall actively take part in the exercise sufficient to test direction and control functions; *i.e.,* (a) protective action decision making related to emergency action levels, and (b) communication capabilities among affected State and local authorities and the licensee.

[6] Co-located licensees are two different licensees whose licensed facilities are located either on the same site or on adjacent, contiguous sites, and that share most of the following emergency planning and siting elements:

a. Plume exposure and ingestion emergency planning zones;

b. Offsite governmental authorities;

c. Offsite emergency response organizations;

d. Public notification system; and/or

e. Emergency facilities.

activities and interaction with offsite authorities for the period between exercises;

(4) Conduct a hostile action exercise of its onsite emergency plan in each exercise cycle; and

(5) Participate in an offsite biennial full or partial participation hostile action exercise in alternating exercise cycles.

d. Each State with responsibility for nuclear power reactor emergency preparedness should fully participate in the ingestion pathway portion of exercises at least once every exercise cycle. In States with more than one nuclear power reactor plume exposure pathway EPZ, the State should rotate this participation from site to site. Each State with responsibility for nuclear power reactor emergency preparedness should fully participate in a hostile action exercise at least once every cycle and should fully participate in one hostile action exercise by December 31, 2015. States with more than one nuclear power reactor plume exposure pathway EPZ should rotate this participation from site to site.

e. Licensees shall enable any State or local government located within the plume exposure pathway EPZ to participate in the licensee's drills when requested by such State or local government.

f. Remedial exercises will be required if the emergency plan is not satisfactorily tested during the biennial exercise, such that NRC, in consultation with FEMA, cannot (1) find reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency or (2) determine that the Emergency Response Organization (ERO) has maintained key skills specific to emergency response. The extent of State and local participation in remedial exercises must be sufficient to show that appropriate corrective measures have been taken regarding the elements of the plan not properly tested in the previous exercises.

g. All exercises, drills, and training that provide performance opportunities to develop, maintain, or demonstrate key skills must provide for formal critiques in order to identify weak or deficient areas that need correction. Any weaknesses or deficiencies that are identified in a critique of exercises, drills, or training must be corrected.

h. The participation of State and local governments in an emergency exercise is not required to the extent that the applicant has identified those governments as refusing to participate further in emergency planning activities, pursuant to § 50.47(c)(1). In such cases, an exercise shall be held with the applicant or licensee and such governmental entities as elect to participate in the emergency planning process.

i. Licensees shall use drill and exercise scenarios that provide reasonable assurance that anticipatory responses will not result from preconditioning of participants. Such scenarios for nuclear power reactor licensees must include a wide spectrum of radiological releases and events, including hostile action. Exercise and drill scenarios as appropriate must emphasize coordination among onsite and offsite response organizations.

j. The exercises conducted under paragraph 2 of this section by nuclear power reactor licensees must provide the opportunity for the ERO to demonstrate proficiency in the key skills necessary to implement the principal functional areas of emergency response identified in paragraph 2.b of this section. Each exercise must provide the opportunity for the ERO to demonstrate key skills specific to emergency response duties in the control room, TSC, OSC, EOF, and joint information center. Additionally, in each eight calendar year exercise cycle, nuclear power reactor licensees shall vary the content of scenarios during exercises conducted under paragraph 2 of this section to provide the opportunity for the ERO to demonstrate proficiency in the key skills necessary to respond to the following scenario elements: hostile action directed at the plant site, no radiological release or an unplanned minimal radiological release that does not require public protective actions, an initial classification of or rapid escalation to a Site Area Emergency or General Emergency, implementation of strategies, procedures, and guidance developed under § 50.54(hh)(2), and integration of offsite resources with onsite response. The licensee shall maintain a record of exercises conducted during each eight year exercise cycle that documents the content of scenarios used to comply with the requirements of this paragraph. Each licensee shall conduct a hostile action exercise for each of its sites no later than December 31, 2015. The first eight-year exercise cycle for a site will begin in the calendar year in which the first hostile action exercise is conducted. For a site licensed under Part 52, the first eight-year exercise cycle begins in the calendar year of the initial exercise required by Section IV.F.2.a.

*G. Maintaining Emergency Preparedness*

Provisions to be employed to ensure that the emergency plan, its implementing procedures, and emergency equipment and supplies are maintained up to date shall be described.

*H. Recovery*

Criteria to be used to determine when, following an accident, reentry of the facility would be appropriate or when operation could be resumed shall be described.

*I. Onsite Protective Actions During Hostile Action*

By June 20, 2012, for nuclear power reactor licensees, a range of protective actions to protect onsite personnel during hostile action must be developed to ensure the continued ability of the licensee to safely shut down the reactor and perform the functions of the licensee's emergency plan.

## PART 52—LICENSES, CERTIFICATIONS, AND APPROVALS FOR NUCLEAR POWER PLANTS

■ 5. The authority citation for part 52 continues to read as follows:

**Authority:** Secs. 103, 104, 161, 182, 183, 186, 189, 68 Stat. 936, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2133, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, 202, 206, 88 Stat. 1242, 1244, 1246, as amended (42 U.S.C. 5841, 5842, 5846); sec. 1704, 112 Stat. 2750 (44 U.S.C. 3504 note); Energy Policy Act of 2005, Pub. L. No. 109–58, 119 Stat. 594 (2005), secs. 147 and 149 of the Atomic Energy Act.

■ 6. In § 52.79, paragraph (a)(17) is revised to read as follows:

### § 52.79 Contents of applications; technical information in final safety analysis report.

(a) * * *

(17) The information with respect to compliance with technically relevant positions of the Three Mile Island requirements in § 50.34(f) of this chapter, with the exception of § 50.34(f)(1)(xii), (f)(2)(ix), (f)(2)(xxv), and (f)(3)(v);

* * * * *

Dated at Rockville, Maryland, this 10th day of November 2011.

For the Nuclear Regulatory Commission.

**Annette Vietti-Cook,**

*Secretary of the Commission.*

[FR Doc. 2011–29735 Filed 11–22–11; 8:45 am]

BILLING CODE 7590–01–P