

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

RIN 3150–A110

[NRC-2008-0122]

Enhancements to Emergency Preparedness Regulations

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Proposed rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC or Commission) is proposing to amend certain emergency preparedness (EP) requirements in its regulations that govern domestic licensing of production and utilization facilities. The proposed amendments would codify certain voluntary protective measures contained in NRC Bulletin 2005-02, “Emergency Preparedness and Response Actions for Security Based Events,” and other generically applicable requirements similar to those previously imposed by Commission orders. They would also amend other licensee emergency plan requirements based on a comprehensive review of the NRC’s EP regulations and guidance. The proposed requirements would enhance the ability of licensee’s in preparing to take and taking certain emergency preparedness 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:** Submit comments on the rule by **[INSERT DATE 75 DAYS AFTER PUBLICATION IN THE *FEDERAL REGISTER*]**. Submit comments on the information collection aspects of this rule by **[INSERT DATE 30 DAYS AFTER PUBLICATION IN THE *FEDERAL REGISTER*]**.

Comments received after the above dates will be considered if it is practical to do so, but

assurance of consideration cannot be given to comments received after these dates.

**ADDRESSES:** You may submit comments by any one of the following methods. Comments submitted in writing or in electronic form will be made available for public inspection. Because your comments will not be edited to remove any identifying or contact information, the NRC cautions you against including any information in your submission that you do not want to be publicly disclosed.

**Federal e-Rulemaking Portal:** Go to <http://www.regulations.gov> and search for documents filed under Docket ID [NRC-2008-0122]. Address questions about NRC dockets to Carol Gallagher, telephone (301) 415-5905; e-mail [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov).

**Mail comments to:** Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, ATTN: Rulemakings and Adjudications Staff.

**E-mail comments to:** [Rulemaking.Comments@nrc.gov](mailto:Rulemaking.Comments@nrc.gov). If you do not receive a reply e-mail confirming that we have received your comments, contact us directly at (301) 415-1966.

**Fax comments to:** Secretary, U.S. Nuclear Regulatory Commission at (301) 492-3446.

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, Public File Area O1F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland.

**NRC's Agencywide Documents Access and Management System (ADAMS):** Publicly available documents created or received at the NRC are available electronically at the NRC's Electronic Reading Room 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 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, or (301) 415-4737, or by e-mail to [PDR.Resource@nrc.gov](mailto:PDR.Resource@nrc.gov).

**FOR FURTHER INFORMATION CONTACT:** Lauren Quiñones, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-2007, email [Lauren.Quinones@nrc.gov](mailto:Lauren.Quinones@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](mailto:Don.Tailleart@nrc.gov).

**SUPPLEMENTARY INFORMATION:**

- I. Background
- II. Discussion
- III. Public Input to the Proposed Rule
- IV. Specific Request for Comments
- V. Section-by-Section Analysis
- VI. Guidance
- VII. Criminal Penalties
- VIII. Agreement State Compatibility
- IX. Availability of Documents
- X. Plain Language
- XI. Voluntary Consensus Standards
- XII. Finding of No Significant Environmental Impact: Availability
- XIII. Paperwork Reduction Act Statement
- XIV. Regulatory Analysis: Availability

XV. Regulatory Flexibility Certification

XVI. Backfit Analysis

### 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 United States. 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, 1:00 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 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. 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 the Supplementary Information of this document provides a list of the public 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". 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: hostile action-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 via a memorandum. 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 would allow a more timely rulemaking effort to occur and would 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 proposed rule. The NRC is considering non-rulemaking options for some of the elements of shift staffing and is also requesting stakeholder comments in Section V of this document. 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 1:00 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 were challenging and did 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.

In an effort to conduct a rulemaking that is transparent and open to stakeholder participation, the NRC engaged stakeholders through various means during the development of this proposed rule. The NRC discussed the proposed improvements to the EP regulations and guidance at several conferences with key stakeholders present including the 2007 Regulatory Information Conference and the 2008 National Radiological Emergency Preparedness Conference. These meetings are discussed more fully in Section III of this document. The NRC posted draft rule language on the e-rulemaking website, <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. This is discussed further in Section IV below. 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 emergency preparedness 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.

## II. Discussion

The proposed amendments would require 10 CFR Part 50 licensees that are currently subject to the EP requirements, and applicants for operating licenses under Part 50 or combined licenses under Part 52 that would be subject to the proposed EP requirements to ensure that their EP programs meet the amended EP requirements. The proposed amendments would similarly apply to applicants for construction permits under Part 50 with respect to their discussion of preliminary plans for coping with emergencies (§ 50.34(a)(10)), and to applicants for 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)).

The 16 planning standards in § 50.47(b) apply to both 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 the Federal Emergency Management Agency's (FEMA) recommendation, which is based on the content of the State and local plans. FEMA's regulations in 44 CFR Part 350 also contain these 16 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 that are proposed by the NRC in this rulemaking are designed to affect the onsite plans, not the offsite plans. The proposed changes have been written in a way that is expected to limit the chance of unintended impacts on FEMA regulations.

An effective EP program decreases the likelihood of an initiating event at a nuclear power reactor proceeding to a severe accident. EP 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 does 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 are 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 discussion of the proposed amendments 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 Issues

The NRC is proposing amendments to enhance its EP regulations by clearly addressing EP actions for a hostile action event. Some of these proposed 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 (January 13, 2003; 68 FR 1643); Order EA-03-039, "Security Personnel Training and Qualification Requirements (Training) Order," issued April 29, 2003 (May 7, 2003; 68 FR 24514); Order EA-03-086, "Revised Design Basis Threat Order," issued April 29, 2003 (May 7, 2003; 68 FR 24517); and the Design Basis Threat (DBT) final rule (March 19, 2007; 72 FR 12705). As a result of these adequate protection requirements, the Commission has determined that the proposed EP changes that are based on the requirements of Order EA-02-026 would no longer be necessary

to ensure adequate protection during a hostile action event. Therefore, because the existing regulatory structure ensures adequate protection of the public health and safety and common defense and security, the NRC has determined that, in the current threat environment, the following proposed amendments would not be necessary to ensure adequate protection during a hostile action event. These amendments are considered enhancements to the current EP regulations. However, these enhancements would result in a substantial increase in emergency preparedness and the protection of public health and safety.

#### 1. *On-Shift Multiple Responsibilities*

The NRC is concerned that on-shift ERO personnel who are assigned to emergency plan implementation functions may have multiple responsibilities that would prevent timely performance of their assigned emergency plan tasks. The current requirements for on-shift responsibilities are addressed in § 50.47(b)(2) and Part 50, Appendix E, Section IV.A. These regulations do not state 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. 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) on shift 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 result in overburdening the control room staff during an emergency event. One licensee had assigned the STA as fire brigade leader which could hinder 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. Assigning additional duties, such as fire brigade member 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 subject 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 could result 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 expects this practice to continue. This could increase the risk of over-burdening on-shift responders and result in inadequate or untimely response. Therefore, both of these options were considered unacceptable. Instead, the NRC is proposing to revise Part 50, Appendix E, Section IV.A. to address this issue, as discussed in Section V of this document.

## *2. Emergency Action Levels for Hostile Action Events*

Section 50.47(b)(4) currently stipulates that emergency plans must include a standard emergency classification and action level scheme. Part 50, Appendix E, Section IV.B., currently 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, current NRC regulations do not require EALs for hostile action events and do not address the issue of anticipatory response to hostile action events. Although Order EA-02-026 and BL-05-02 addressed these issues, those improvements to the EAL requirements to address hostile action events are only in orders and guidance. Thus, the NRC cannot ensure consistent and effective implementation of these enhancements among existing and future licensees.

Order EA-02-026 required the declaration of at least an 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 events up to the General Emergency level. 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/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," 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 licensees have implemented both the credible threat EAL required by Order EA-02-026 and the EAL enhancements specified in BL-05-02, there is no requirement to

maintain the enhancements identified in the bulletin. This could result in inconsistent EAL implementation among licensees for response to hostile action events. Also, future licensees would not be required to include these enhancements in their emergency plans. This rulemaking would serve to establish consistent EALs across the nuclear power industry for hostile action events. The ICMs and BL-05-02 provided enhancements to EAL schemes which would allow event declarations to be accomplished in a more anticipatory manner. This 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 believes that these enhancements to the EAL requirements addressing hostile action events should be codified by revising Part 50, Appendix E, Section IV.B., as discussed in Section V 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 continue to be no regulatory requirement for current or future licensees to incorporate EALs for hostile action events in their emergency plans, nor would there be a consistent minimum level of implementation that the NRC had determined to be adequate.

### *3. Emergency Response Organization (ERO) Augmentation and Alternative Facilities*

Licensees are required by current § 50.47(b)(8) and Part 50, Appendix E, Section IV.E. 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) which relieves the Control Room (CR) of emergency response duties and allows CR staff to focus on reactor safety. 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.

However, the current regulations at § 50.47(b)(8) and Part 50, Appendix E, Section IV.E. do not require licensees to identify alternative facilities to support ERO augmentation during hostile action events. During a hostile action event, 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.

Order EA-02-026 required that licensees assess the adequacy of staffing plans at emergency response facilities during a hostile action event, 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. NRC inspections to evaluate the effectiveness of the implementation of the ICMs revealed variations in the identification and staffing of alternative emergency response facilities.

BL-05-02 described how alternative locations for onsite emergency response facilities support EP functions during a hostile action event. 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 a hostile action event until the site was secured. However, the NRC considers it prudent to fully activate ERO members for off-normal working hour hostile action events to promptly staff alternative facilities, in order to minimize delays in overall site response. Even during normal working hours, licensees should consider deployment of onsite ERO personnel to an alternative facility near the site during a hostile action event.

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 were taken, there would continue to be no explicit regulatory requirement regarding the actions necessary during hostile action events for the ERO to staff an alternative facility. ERO members would likely not have access to the site during a hostile action event, but timely augmentation would still be necessary for adequate response. Taking no regulatory action may result 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 endorse by RIS 2006-12, do not provide a consistent, NRC-approved means for addressing needed enhancements for hostile action events. The use of voluntary programs does not ensure long-term continuity of the enhancements for both licensees and applicants. Thus, the NRC believes that the ICM requirement and the enhancement examples described in BL-05-02 concerning ERO augmentation to alternative facilities during hostile action events should be codified in Part 50, Appendix E, Section IV.E. to maximize the effectiveness of the site response. These proposed changes are discussed in Section V of this document.

#### *4. Licensee Coordination with Offsite Response Organizations during Hostile Action Events*

The NRC believes that a unique challenge posed by a hostile action event 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. Current regulations at § 50.47(b)(1) and Appendix E to Part 50 do 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 a hostile action event 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 events 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 a hostile action event. The NRC acknowledged this challenge when it issued Order EA-02-026 and included provisions that licensees address coordination with OROs for hostile action events. 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 in a hostile action event.

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 a hostile action event. 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 to ensure that adequate resources are available to respond to a hostile action event 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. The NRC believes that a voluntary approach would not ensure consistent industry-wide implementation of the ICM requirements and there would be no requirement for new licensees to incorporate the changes into their emergency plans.

The NRC is proposing to revise Part 50, Appendix E, Section IV.A.7. to require licensees to ensure that ORO personnel assigned emergency plan implementation duties would be available to do so during hostile action events. These proposed changes are discussed in Section V of this document.

##### *5. Protection for Onsite Personnel*

Existing NRC regulations at § 50.47(b)(10) and Appendix E to Part 50 do not currently require specific emergency plan provisions to protect onsite emergency responders, and other onsite personnel, in emergencies resulting from hostile action events 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. BL-05-02 pointed out that actions different than those normally prescribed may be more appropriate during a 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. The NRC believes that taking no action could result in the vulnerability of onsite personnel during a hostile action event. 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 does not ensure that these measures would be incorporated into emergency plans at new sites.

The NRC is proposing to revise Appendix E by creating a new Section I. to address this issue, as discussed in Section V 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 a hostile action event, 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 event scenarios. The current NRC regulations are general in nature and do not explicitly require licensees to include hostile action event scenarios in drills and exercises, nor do they directly allow the NRC to require specific scenario content. The NRC believes that its regulations should be revised 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 hostile-action EP tabletop drills at four sites, a drill at one site, and an exercise at one site, as well as several security FOF exercise evaluations. 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;
- 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 plant licensees stated that they would develop and implement an enhanced drill and exercise program. Program elements are captured in a guidance document developed by NEI, NEI 06-04, Rev. 1, "Conducting a Hostile Action-Based Emergency Response Drill." 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 is voluntary, and the NRC cannot require licensees to maintain these enhancements, absent issuance of an order.

Issuance of orders is resource intensive and an inefficient approach to address a generic problem.

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 and guidance that would require revision to enhance exercise scenarios. The working group recommended several changes to the FEMA Radiological Emergency Preparedness (REP) Program Manual that comport with proposed changes to NRC regulations to address preconditioning and the incorporation of hostile action exercise scenarios.

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 may relate 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 several different focus groups will inform the update to the REP Program Manual. The NRC also considered stakeholder views as they relate to this proposed rule and enhancements to EP guidance, although some comments were received after the deadline to be considered in this proposed rule.

The NRC believes that a regulatory change would be necessary to enhance scenario content to include hostile action scenarios and reduce preconditioning through a wide spectrum of challenges. This change would 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 ensure correction of the issues discussed above. 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 proposing to revise Appendix E, Section IV.F. to address these issues, as discussed in Section V of this document.

## B. Non-Security Related Issues

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

### 1. *Backup Means for Alert and Notification Systems*

The current 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. Existing NRC regulations do 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 do 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 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. IN 1996-19, "Failure of Tone Alert Radios to Activate When Receiving a Shortened Activation Signal," dated April 2, 1996, addressed the inability to activate some tone alert radios because of a shorter tone activation signal permitted as part of EAS implementation. 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 United States and portions of Canada in August 2003. As discussed in Regulatory Guide (RG) 1.155, "Station Blackout," (August 1988), although the likelihood of failure of the onsite AC 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 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 is appropriate that the NRC also consider 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, FEMA-REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants," dated November 1985, and FEMA Guidance Memorandum AN-1, "FEMA Action to Qualify Alert and Notification Systems Against NUREG-0654/FEMA-REP-1 and FEMA-REP-10," dated April 21, 1987, contain detailed information on ANS capabilities and design review methodology.

Additional information on ANS backup capabilities could be provided in revisions 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 does 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, or designating multiple EAS broadcast stations to ensure that instructional messages can be transmitted. A voluntary approach may be appropriate 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 should be required to have backup ANS methods and therefore is proposing rulemaking to address backup capabilities for

both the alert and notification functions. Three variations for addressing this issue in rulemaking were considered.

The first variation would add 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 eliminate any of these other failure modes. This approach would prescribe 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 address only one of several ANS failure modes (i.e., loss of AC power) for one alerting method (i.e., sirens). It would not address 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 variation would require that the primary ANS be designed so there would be no common single failure mode for the system; therefore, a backup system would not be needed. This approach would ensure that the entire ANS is 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 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 be difficult. Even after extensive analysis and testing of a warning system, a common failure mechanism may not become evident until the system is to be activated for an emergency event. For a siren-based system, several additional sirens (with backup power capabilities) may need to be installed to provide overlapping acoustic coverage in the event clusters of sirens fail and thus may discourage licensees at future nuclear power plant sites from using these systems due to the increased cost for installing additional sirens. This approach may not be 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 has directed FEMA to require all outdoor warning systems to be operable in the absence of AC power.

The third variation was selected for rulemaking and would revise Part 50, Appendix E, Section IV.D.3 to require backup measures that would be implemented when the primary means of alerting and notification are unavailable. These proposed changes are discussed in Section V of this document.

## *2. Emergency Classification Timeliness*

In its oversight of licensee EP programs, the NRC has occasionally observed a lack of urgency by a few licensees in performing emergency classifications. This situation may be a result of a lack of a specific regulatory timeliness requirement. Emergency classification 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 – notice of unusual event, alert, site area emergency, or general emergency – is to be declared.

These classifications 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 classification 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 would be 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 (EPPOS)-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. 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 would be 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. 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 was rather a guideline for 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 during drills and exercises remains high, there have been a few instances, during actual events, in which classifications were inappropriately delayed. Although these few 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 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 broadly worded regulatory requirements, there is currently no regulatory requirement, broad or otherwise, that emergency classifications meet any particular timeliness criterion. The NRC believes that the fourth option, an amendment of the regulations, would be the best course of action to ensure that licensees are able to complete emergency classifications in a timely manner in the event of a radiological emergency. Placing a classification timeliness criterion into the regulations would clearly establish the NRC's expectations, as well as provide a regulatory framework to consistently enforce these

expectations. The NRC considered amending § 50.47(b)(4), Part 50, Appendix E, Section IV.B., IV.C., or IV.D., or a combination of all of them. The NRC opted not to amend § 50.47(b)(4) because it is applicable to both onsite and offsite emergency plans, whereas Appendix E is applicable to an applicant or licensee - the entity responsible for making emergency classifications.

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 would allow licensees some degree of flexibility during an actual radiological emergency in addressing extenuating circumstances that may arise when an emergency classification 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 would 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 proposing to revise Part 50, Appendix E, Section IV.C. to address this issue by providing a capability criterion. These proposed changes are discussed in Section V of this document.

### 3. *Emergency Operations Facility – Performance-Based Approach*

Several nuclear power plant 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 current §§ 50.34(f)(2)(xxv), 50.47(b)(3), 50.47(d)(1), 50.54(gg)(1)(i), and Appendix E, Sections IV.E.8.,

IV.E.9.c., and IV.E.9.d. Guidance documents, including NUREG-0696, "Functional Criteria for Emergency Response Facilities," and NUREG-0737, "Clarification of TMI Action Plan Requirements," Supplement 1, "Requirements for Emergency Response Capabilities," 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 do not explicitly define the term "near-site." This regulatory structure has 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 current regulations nor guidance documents address 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 be applied to consolidation of EOFs if clearer criteria were 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 revising the regulations (and associated guidance) such that the consolidation of EOFs for multiple sites, as well as situations when a licensee proposes to locate an EOF for a single site or different licensees propose to share an EOF that is separately staffed and operated by each licensee, where the EOF is located more than 25 miles from at least one of the nuclear power reactor sites, could be implemented without prior NRC approval. However, the benefits of locating an EOF for a single site or co-locating an EOF for different licensees at a remote location are not evident in terms of increasing staffing flexibility and standardizing emergency response. Although a co-located EOF would have some of the same characteristics as a consolidated facility in terms of equipment, displays, and other types of resources, each licensee would staff and operate the co-located facility according to a plant-specific emergency plan and set of implementing procedures. In this sense, a co-located EOF is more like a single-site facility. Offsite officials that respond to the facility would not benefit from dealing with a standardized licensee emergency response staffing organization or response methodology for multiple sites. The remote siting of an EOF for a single site or as a co-located facility would be more appropriately addressed as a request for an exception to NRC guidance or an exemption from NRC regulations and considered on a case-by-case basis. Therefore, the NRC determined that this option would not be appropriate.

Another option considered would be to maintain EOF distance criteria as guidance only and to specify consolidated EOF criteria in guidance rather than in the regulations. However, providing these criteria as guidance only would not ensure that future applicants would follow the criteria. Thus, an EOF could be located within 10 miles of a site with no backup facility provided, or could be located beyond 25 miles of a site without prior NRC approval. A consolidated EOF could be implemented without meeting the proposed performance-based criteria. A licensee could relocate or consolidate an existing approved facility without meeting all or some of the criteria and without prior NRC approval as long as the licensee determined that the provisions of § 50.54(q) were met. Under these circumstances, an EOF could be implemented that may not provide 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 be appropriate.

Therefore, the NRC is proposing changes to NRC regulations (and associated guidance) so the criteria for consolidated EOFs would reflect a performance-based approach. The NRC is also proposing revisions to 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 V of this document.

In a conforming change, § 52.79(a)(17) would be revised to make clear 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 E.8.a(i) would apply. That section would accurately reflect the need for the combined license application to address an EOF; by contrast § 50.34(f)(2)(xxv) only requires 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 propose 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 current EP regulations at § 50.47(b)(10) and Part 50, Appendix E, Sections II.G., III., and IV. require 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 current regulations do 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 they currently do not affect the development of public protective action strategies.

Nuclear power plant 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. Applicants include the results of the ETE analysis in the onsite emergency plan, typically 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. The NRC has traditionally taken the lead in reviewing the ETE analyses with the assistance of a traffic expert contractor, especially for contested licensing cases involving ETE contentions.

In NUREG/CR-6953, Vol. 1, "Review of NUREG-0654 Supplement 3, Criteria for Protective Action Recommendations for Severe Accidents," 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 improvements 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 ETEs. Improving the accuracy and quality of ETE values would help 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 protective action strategies.

To address this issue, the NRC considered amending the current regulations to require licensees to assess changes to the EPZ infrastructure and 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 drafted several NRC studies related to evacuation (e.g., NUREG/CR-6863, "Development of Evacuation Time Estimates for Nuclear Power Plants," NUREG/CR-6864, "Identification and Analysis of Factors Affecting Emergency Evacuations," and NUREG/CR-6953). Based upon their expert opinion, SNL confirmed that the major contributor to changes in ETE is changes in population. Although changes in infrastructure can impact the ETE, population is the more important factor.

The planning and budget cycle for infrastructure projects is measured in years, as indicated in GAO-03-764T, "Testimony Before the Subcommittee on Transportation, Treasury and Independent Agencies, Committee on Appropriations, House of Representatives, 'Federal Aid Highways: Cost and Oversight of Major Highway and Bridge Projects - Issues and Options.'" Within the years it takes to plan, budget, and construct highway infrastructure, the opportunity exists to include such improvements in the ETE as planned or constructed, based on the timing of the infrastructure, whereas significant population changes can occur over shorter periods of

time. Therefore, with population changes as the major contributor and infrastructure changes as an enveloped contributor, the NRC determined that simplifying the regulations to explicitly require assessment of ETEs based on population changes was adequate for updates to ETEs. In the case of an infrastructure change due to a catastrophic event, the NRC already has regulations in place to ensure that licensees consult with OROs to consider the impact of offsite events on evacuation routes and ETEs.

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 provide the regulatory means for enforcing the desired frequency of ETE updates and consistency of ETE determinations.

The NRC is proposing to amend § 50.47(b)(10) and Part 50, Appendix E, Section IV. to require the periodic review of ETEs. The NRC considered codifying that all population changes result in updates to ETEs, but determined that population changes of less than 10 percent would not significantly impact the ETE. The basis for establishing a requirement to update ETEs when the population has changed by at least 10 percent is derived from the U.S. Department of Transportation “Highway Capacity Manual” (HCM), which contains analysis techniques for determining the capacity of a roadway, (i.e., Level of Service (LOS)). The analysis applies a series of curves called the “Speed Flow Curves and LOS for Basic Freeway Segments” to roadways and determines the LOS for a given traffic volume. The analysis shows that traffic volume is a direct indicator of the population involved in an evacuation given the roadway system in the area of concern. The HCM analysis shows that an increase in 10 percent of vehicles on roadways that are near capacity (such as would be the case in an evacuation) likely creates a decrease of one level of roadway service (i.e., from Level D to Level E). This decrease in roadway service results in slower moving traffic and longer ETEs. The decrease in

LOS is not apparent for a vehicle, or population, increase of less than 10 percent.

Additionally, the NRC believes that the 10 percent threshold would balance potential inadequacies and burdens. Based on the HCM analysis, SNL research, and NRC experience, not requiring licensees to assess their ETEs until the population changes by more than 15 percent or 20 percent would allow too large a population change before assessing the impact on ETEs, thereby potentially reducing the effectiveness of the ETEs. At the same time, requiring an assessment of licensee ETEs for a change in population of less than 10 percent would require licensees to make assessments when the change in population would not likely have a meaningful impact on the ETEs. Thus the NRC believes that a population change of 10 percent is the adequate threshold for requiring an assessment of licensees' ETEs.

#### *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 current Appendix E to Part 50 and, for nuclear power reactor license applicants, the standards of current § 50.47(b). After the facility license is issued, the holder of the license is required by current § 50.54(q) to follow and maintain in effect emergency plans which meet the requirements of current Appendix E and, for nuclear power reactor licensees, the standards of current § 50.47(b). Current § 50.54(q) also provides a process under which a licensee may make changes to its approved emergency plans without prior NRC approval provided the changes would not decrease the effectiveness of the emergency plans as approved and the plans, as modified, would continue to meet applicable regulations. However, the NRC has determined that the language of the current § 50.54(q) does 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 in effect its emergency plan if the NRC is to continue to find that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency as stipulated by § 50.54(s)(2)(ii). The EP regulations generally refer to the onsite emergency plan as a stand-alone document. However, emergency plans rely 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 the 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 may not adequately consider the impact of configuration changes on the effectiveness of the emergency plan.

The NRC has determined that the phrase “maintain in effect” in the current § 50.54(q) is not adequately clear in conveying the NRC expectation that an effective emergency plan also requires maintaining the various capabilities and resources relied on in the plan. The phrase “maintain in effect,” as applied to emergency plans in current § 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 proposing to amend current § 50.54(q) to clarify that the regulatory intent is the latter sense by requiring licensees to follow and “maintain the effectiveness” of their approved emergency plans.

Current § 50.54(q) also provides a process under which a licensee may 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. Prior NRC approval is required for any change that could decrease the effectiveness of the emergency plan. The NRC and licensees have experienced significant difficulties in implementing this portion of current § 50.54(q) because the current rule language does not define what constitutes a decrease in effectiveness of an emergency plan nor does it identify the type of changes that would constitute a decrease in effectiveness of the plan. The lack of clear evaluation criteria has resulted in regulatory inefficiencies, such as licensees submitting for review changes that do 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 are attributable to these findings.

The NRC has 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 emergency plans, and (3) provide some examples of changes that are not decreases in effectiveness. Although RIS 2005-02 provides 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.”

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 have yet to agree on the best approach to resolve the problems. Issuing more regulatory guidance was rejected because that approach has been tried but has not resolved the problems. The NRC believes that an amendment to the regulations, supplemented as necessary by regulatory guidance, would be the best course of action and would ensure that (1) the effectiveness of the emergency plans would be maintained, (2) changes to the approved emergency plan would be properly evaluated, and (3) any change that reduces the effectiveness of the plan would be reviewed by the NRC prior to implementation. The NRC proposes to issue regulatory guidance concurrently with the implementation of the amended rule language and would consider stakeholder-developed and -proposed guidance as an alternative to NRC-developed guidance.

The NRC is proposing to amend current § 50.54(q) to replace the existing language. Conforming changes have been proposed in Part 50, Appendix E, Section IV.B. The NRC also believes that the proposed rule changes would promote consistent and predictable

implementation and enforcement, while minimizing inefficient and ineffective use of licensee and NRC staff resources.

#### 6. *Removal of Completed One-Time Requirements*

The NRC is proposing to eliminate 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 proposed to be removed are:

(1) Section 50.54(r), which requires 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 proposes to delete this requirement and designate the section as “reserved.”

(2) Section 50.54(s)(1), which requires nuclear power plant 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. However, that portion of § 50.54(s)(1) that discusses the size of the EPZs would be retained. There is no longer a need for this provision because this requirement has expired. However, the rule language regarding EPZ size and footnotes 1 and 2 regarding those EPZs remain applicable. The NRC proposes to delete the obsolete text while retaining the current language regarding EPZs and footnotes 1 and 2.

(3) Section 50.54(s)(2)(i), which requires the nuclear power plant 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 proposes to delete the current

§ 50.54(s)(2)(i), designating the section as “reserved.”

(4) Section 50.54(u), which requires 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 proposes to delete this requirement and designate the section as “reserved.”

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

### **III. Public Input to the Proposed Rule.**

#### **A. Public Meetings**

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

1. Meeting with NRC regional EP inspectors in January 2005 and January 2006;
2. Public meeting with interested stakeholders on August 31 and September 1, 2005;
3. Public meetings with State, local, and Tribal governments and nuclear power industry representatives at the National Radiological Emergency Preparedness (NREP) Conference on April 11-14, 2005, March 27-30, 2006 and April 7-10, 2008;

4. Regulatory Information Conference on March 16, 2007;
5. Public meeting with non-governmental organizations (NGOs) on May 19, 2006;
6. Public meeting with the NEI/nuclear power industry representatives on July 19, 2006;
7. Regional public meetings with State and local representatives and nuclear power industry working groups;
8. Public meeting with external stakeholders on March 5, 2008;
9. Meeting with nuclear power industry representatives at the 2008 NEI Communications Forum; and
10. Public meeting with external stakeholders on July 8, 2008.

The NRC also met routinely with representatives of FEMA to coordinate issues of mutual interests 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.

**B. Public 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 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 State of Pennsylvania, one was submitted by NEI, and one was submitted by the Union of Concerned Scientists on behalf of several NGOs. A detailed discussion of the public comments and the Commission's responses is contained in a separate document (see Section IX, "Availability of Documents," of this document). The NRC also received comments on

issues that are outside the scope of this proposed rule and on regulatory provisions that are not proposed to be revised in this proposed rule. The NRC determined that these comments did not support changing the scope of the proposed rule.

#### **IV. Specific Request for Comments**

In addition to the general invitation to submit comments on the proposed rule, the NRC also requests comments on the following questions:

1. *Inclusion of National Incident Management System/Incident Command System in EP programs.* The NRC is considering the need to integrate the National Incident Management System (NIMS) and more specifically, the Incident Command System (ICS), into licensee EP programs. On February 28, 2003, President Bush issued Homeland Security Presidential Directive-5 (HSPD-5), which directed DHS to develop and administer a NIMS. NIMS/ICS provides a consistent nationwide template to enable all government, private-sector, and NGOs to work together during domestic incidents. HSPD-5 requires Federal departments and agencies to make the adoption of NIMS by State and local organizations a condition for Federal preparedness assistance. Non-government entities, such as nuclear power plant licensees, are not required to adopt NIMS. More information about NIMS and ICS may be found at <http://www.fema.gov/emergency/nims/index.shtm>.

The NRC has observed coordination challenges during hostile action drills and observed discussions in some of the focus groups discussing the FEMA REP Program Manual with respect to the use of the ICS between onsite and offsite responders. It is likely that these issues will be addressed through lessons learned in drills and other training, but consistency across all nuclear plant sites may be an issue. The NRC is seeking comments on whether the NRC should issue regulations requiring that licensees train responders and implement the ICS to improve interface with offsite response organizations.

2. *Shift staffing and augmentation.* Licensees are required by current § 50.47(b)(2) and

Appendix E to Part 50 to maintain an ERO comprising both an on-shift emergency organization and an organization capable of augmenting the shift in a timely manner. However, the regulations state that this shift staffing for emergency response must be “adequate” without providing a definition of “adequate” and are silent with regard to what constitutes a timely augmentation. NUREG-0654 defines the measure of adequacy and divides the ERO augmentation into 30-minute and 60-minute responders. However, the guidance is not succinct, resulting in inconsistencies in ERO shift staffing and augmentation strategies among nuclear power reactor licensees.

In SECY-06-0200, the NRC staff identified shift staffing as an area of concern, noting the challenge in evaluating the adequacy of licensee shift staffing because of the lack of clarity regarding the functional requirements for emergency response. To address this issue, the NRC considered a revision to its regulations to establish functional requirements for the emergency responders instead of focusing on specific emergency responder positions. The NRC also realized that the functional requirements may be dependant upon site- and scenario-specific parameters. Consequently, the NRC attempted to design a performance-based system for identifying shift staffing needs and intended to include it in the development of a broader EP performance-based regulatory regimen. As a result, the shift staffing element was no longer considered in this rulemaking effort.

However, some stakeholders continue to express concern regarding emergency response organization staffing. The NRC recognizes that there is merit in enhancing the regulations to provide clear direction regarding adequate staffing, such as achieving regulatory stability through industry consistency and accommodating technological advancements. Toward that end, the NRC requests comments on whether the NRC should enhance its current regulations to be more explicit in the number of ERO staff necessary for nuclear power plant emergencies. When responding to this question, please consider the following draft staffing

table. The table provides proposed staff functions and minimum staffing levels for the on-shift and augmenting emergency response organization. The table modifies the original guidance of NUREG-0654, Table B-1 with lessons learned from several years of EP program inspections by the NRC.

<b><u>On Shift</u><sup>1</sup></b>	<b><u>Augment w/in 60-min</u><sup>1</sup></b>	<b><u>Augment w/in 90-min</u><sup>1, 2</sup></b>
<p><b><u>Emergency Director (1)</u></b> <b><u>(Shift Manager)</u></b></p> <ul style="list-style-type: none"> <li>• Responsible for overall ERO Command &amp; Control until relieved.</li> <li>• Responsible for approving event classifications and PARs until relieved.</li> </ul>	<p><b><u>Emergency Director (1) (TSC)</u></b></p> <ul style="list-style-type: none"> <li>• Responsible for overall ERO Command &amp; Control until relieved.</li> <li>• Responsible for approving event classifications and PARs until relieved.</li> </ul>	<p><b><u>Emergency Director (1) (EOF)</u></b></p> <ul style="list-style-type: none"> <li>• Responsible for overall ERO Command &amp; Control.</li> <li>• Responsible for approving PARs.</li> </ul>
<p><b><u>Communicator (1)</u></b></p> <ul style="list-style-type: none"> <li>• Responsible for communicating event classifications and PARs to offsite agencies, including the NRC.</li> </ul>	<p><b><u>Communicator (1) (TSC) [In addition to the one already on-shift]</u></b></p> <ul style="list-style-type: none"> <li>• Assume responsibility for either ORO or NRC communications from on-shift Communicator.</li> </ul>	<p><b><u>Communicator (1) (EOF)</u></b></p> <ul style="list-style-type: none"> <li>• Assumes responsibility for communicating PARs, as well as plant updates, to the NRC (HPN).</li> </ul>

<b><u>On Shift</u><sup>1</sup></b>	<b><u>Augment w/in 60-min</u><sup>1</sup></b>	<b><u>Augment w/in 90-min</u><sup>1, 2</sup></b>
<p><u>Qualified Health Physics Personnel (2)</u><sup>3</sup></p> <ul style="list-style-type: none"> <li>Responsible for providing Health Physics coverage to the on-shift staff.</li> </ul>	<p><u>Site Radiation Protection Coordinator (SRPC) (TSC) (1)</u></p> <ul style="list-style-type: none"> <li>Responsible for evaluating and assessing plant and offsite data in the development of onsite protective actions and offsite PARs.</li> <li>Responsible for recommending onsite and offsite PARs to the Emergency Director.</li> <li>Responsible for all Radiation Protection activities, including Field Team direction.</li> </ul>	<p><u>Site Radiation Protection Director (SRPD) (EOF) (1)</u></p> <ul style="list-style-type: none"> <li>Responsible for evaluating and assessing plant and offsite data in the development of offsite PARs.</li> <li>Responsible for recommending offsite PARs to the Emergency Director.</li> <li>Responsible for Field Team direction.</li> </ul>
<p><u>Dose Projections (1)</u></p> <ul style="list-style-type: none"> <li>Responsible for providing dose projections to the Emergency Director for PAR determinations, until relieved.</li> </ul>	<p><u>Additional Qualified Health Physics Technicians [In addition to the personnel already on-shift] (OSC)</u></p> <ul style="list-style-type: none"> <li>(4) Responsible for providing Health Physics coverage for OSC personnel in the plant.</li> <li>(2) Responsible for plant surveys.</li> <li>(1) Responsible for controlling dosimetry issuance and maintaining plant access control for radiologically controlled areas.</li> </ul>	<p><u>Additional Qualified Health Physics Technicians [In addition to the personnel already on-site] (OSC)</u></p> <ul style="list-style-type: none"> <li>(2) Responsible for providing health physics support for the emergency response organization..</li> </ul>

<b><u>On Shift</u></b> <sup>1</sup>	<b><u>Augment w/in 60-min</u></b> <sup>1</sup>	<b><u>Augment w/in 90-min</u></b> <sup>1, 2</sup>
<p><u>EAL/PAR classifications (1)</u><sup>4</sup></p> <ul style="list-style-type: none"> <li>Responsible for evaluating plant conditions and dose projections and recommending event classifications and PARs to the Emergency Director, until relieved.</li> </ul>	<p><u>Dose Projections (1) (TSC)</u></p> <ul style="list-style-type: none"> <li>Responsible for providing dose projections to the SRPC for PAR determinations.</li> </ul>	<p><u>Dose Projections (1) (EOF)</u></p> <ul style="list-style-type: none"> <li>Responsible for providing dose projections to the SRPD for PAR determinations.</li> </ul>
<p><u>Core/Thermal Hydraulics Eng (1)</u><sup>4</sup></p> <ul style="list-style-type: none"> <li>Responsible for evaluating reactor conditions and providing input to the Emergency Director until relieved.</li> </ul>	<p><u>Event Classifications (1) (TSC)</u></p> <ul style="list-style-type: none"> <li>Responsible for evaluating plant conditions and recommending event classifications to the Emergency Director.</li> </ul>	<p><u>Off-Site Field Team B</u></p> <ul style="list-style-type: none"> <li>(1) Qualified Radiation Monitor responsible for assessing environ radiation/contamination and providing input to SRPC. Also responsible for providing Health Physics coverage for team.</li> <li>(1) Driver responsible for transportation.</li> </ul>

<u>On Shift</u> <sup>1</sup>	<u>Augment w/in 60-min</u> <sup>1</sup>	<u>Augment w/in 90-min</u> <sup>1, 2</sup>
<p data-bbox="188 352 542 420"><u>Fire Brigade as Defined by Tech Specs</u></p> <p data-bbox="188 457 467 588">The Fire Brigade is controlled by the site-specific Technical Specifications.</p>	<p data-bbox="583 352 984 420"><u>Core/Thermal Hydraulics/PRA Engineer (TSC) (1)</u></p> <ul data-bbox="623 457 984 827" style="list-style-type: none"> <li data-bbox="623 457 984 621">• Responsible for evaluating reactor conditions and providing input to the Emergency Director.</li> <li data-bbox="623 659 984 827">• Responsible for evaluating plant system status and providing PRA input to the Emergency Director.</li> </ul>	<p data-bbox="1021 352 1292 386"><u>OSC Supervisors (4)</u></p> <ul data-bbox="1062 424 1438 1071" style="list-style-type: none"> <li data-bbox="1062 424 1438 554">• (1) Electrical: Responsible for supervising OSC activities related to electrical equipment.</li> <li data-bbox="1062 592 1438 760">• (1) Mechanical: Responsible for supervising OSC activities related to mechanical equipment.</li> <li data-bbox="1062 798 1438 903">• (1) I&amp;C: Responsible for supervising OSC activities related to IC equipment.</li> <li data-bbox="1062 940 1438 1071">• (1) HP: Responsible for supervising OSC activities related to radiation protection.</li> </ul>

<b><u>On Shift</u></b> <sup>1</sup>	<b><u>Augment w/in 60-min</u></b> <sup>1</sup>	<b><u>Augment w/in 90-min</u></b> <sup>1, 2</sup>
<p><u>Ops Crew as Defined by Tech Specs</u></p> <p>Number of Operators on-shift is controlled by the site-specific Technical Specifications.</p>	<p><u>Maintenance (OSC) (1 electrician, 1 mechanic; 1 IC)</u></p> <ul style="list-style-type: none"> <li>• (1) Electrician: Responsible for providing electrical support for ECCS equipment, event mitigation, and equipment repair.</li> <li>• (1) Mechanic: Responsible for providing mechanical support for ECCS equipment, event mitigation, and equipment repair.</li> <li>• (1) I&amp;C Technician: Responsible for providing assist with logic manipulation, for providing I&amp;C support for event mitigation and equipment repair, and for support of digital I&amp;C if applicable.</li> </ul>	<p><u>IT Lead (TSC) (1)</u></p> <ul style="list-style-type: none"> <li>• For sites with digital I&amp;C: Responsible for assisting in ensuring that the digital I&amp;C equipment operates properly.</li> </ul>
	<p><u>On-Site Field Team (1 qualified radiation monitor and 1 driver)</u></p> <ul style="list-style-type: none"> <li>• (1) Radiation Monitor responsible for assessing environ radiation/contamination and providing input to SRPC. Also responsible for providing Health Physics coverage for team.</li> <li>• (1) Driver responsible for transportation.</li> </ul>	<p><u>Joint Information Center Manager (JIC):</u></p> <ul style="list-style-type: none"> <li>• (1) Responsible for managing and coordinating media information related to the event.</li> </ul>

<u>On Shift</u> <sup>1</sup>	<u>Augment w/in 60-min</u> <sup>1</sup>	<u>Augment w/in 90-min</u> <sup>1, 2</sup>
	<p data-bbox="586 352 867 384"><u>Off-Site Field Team A</u></p> <ul data-bbox="623 428 974 827" style="list-style-type: none"> <li data-bbox="623 428 974 716">• (1) Qualified Radiation Monitor responsible for assessing environmental radiation/contamination and providing input to SRPC. Also responsible for providing Health Physics coverage for team.</li> <li data-bbox="623 764 974 827">• (1) Driver responsible for transportation.</li> </ul>	
	<p data-bbox="586 867 808 898"><u>TSC Engineering</u></p> <ul data-bbox="623 942 982 1444" style="list-style-type: none"> <li data-bbox="623 942 982 1136">• (1) Electrical/I&amp;C: Responsible for providing engineering coverage for the ERO related to electrical or I&amp;C equipment.</li> <li data-bbox="623 1184 982 1444">1. (1) Mechanical: Responsible for providing engineering coverage for the ERO related to mechanical equipment.</li> </ul>	
	<p data-bbox="586 1486 914 1518"><u>Lead OSC Supervisor (1)</u></p> <ul data-bbox="623 1562 954 1654" style="list-style-type: none"> <li data-bbox="623 1562 954 1654">• Responsible for OSC activities as directed by Emergency Director.</li> </ul>	

<u>On Shift</u> <sup>1</sup>	<u>Augment w/in 60-min</u> <sup>1</sup>	<u>Augment w/in 90-min</u> <sup>1, 2</sup>
	<u>Security Supervisor (TSC) (1)</u> <ul style="list-style-type: none"> <li>• Responsible for coordinating security-related activities and information with the Emergency Director.</li> </ul>	

Notes:

1. No collateral duties are assigned to an individual that are beyond the capability of that individual to perform at any given time.
2. Specified TSC/OSC personnel must be performing their required functions within 60 (90) minutes of an Alert or higher event classification. Specified EOF/JIC personnel must be performing their required functions within 90 minutes of a Site Area Emergency or higher event classification.
3. Two qualified Health Physics personnel for a single unit site, or one per unit for a multi-unit site.
4. Could be the STA if justification for collateral duties supports additional responsibilities.

3. *Expanding to non-power reactor licensees a requirement for detailed analyses demonstrating timely performance of emergency response functions by on-shift personnel.* The NRC is proposing to require nuclear power reactor licensees to demonstrate through detailed analyses that on-shift personnel can perform all assigned emergency plan implementation functions without having competing responsibilities that could prevent them from performing their emergency plan functions. The NRC is seeking comments on whether it is necessary to add a requirement for non-power reactor licensees (i.e., research and test reactor licensees) to include in their emergency plans detailed analyses 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.

4. *Expanding to non-power reactor licensees a requirement for the capability to assess, classify, and declare an emergency condition within 15 minutes.* The NRC proposes to require nuclear power reactor licensees to establish and maintain the capability to assess, classify, and declare an emergency condition promptly within 15 minutes after the availability of indications to plant operators that an EAL has been, or may be, exceeded. The NRC is considering whether it is necessary to add the 15-minute criterion for non-power reactor licensees. The NRC is seeking comments on whether to issue regulations requiring that non-power reactor licensees establish and maintain the capability to assess, classify, and declare an emergency condition promptly within 15 minutes after the availability of indications to reactor operators that an EAL has been, or may be, exceeded.

5. *Expanding to non-power reactor licensees a requirement for hostile action event EALs.* The NRC is proposing that EALs for nuclear power plants must address hostile action events. The proposed rule regarding EALs would not apply to non-power reactors because the EALs for these reactors are generally based on projected or actual offsite dose and not an initiating event. However, hostile action directed toward a non-power reactor is an initiating

event that could conceivably cause an offsite dose. The NRC is seeking comments on whether the NRC should issue regulations requiring that non-power reactor licensees include hostile action event EALs in their emergency plans.

6. *Effective date.* As proposed, the effective date of this rule would be 30 days after publication of the final rule in the *Federal Register*, with an option for a licensee or applicant to defer implementation until 180 days after publication of the final rule in the *Federal Register* (with certain exceptions). The NRC is concerned that combined license (COL) and early site permit (ESP) applicants would need to submit timely revisions to docketed applications, to avoid schedule impacts to application reviews, in order to comply with the proposed amendments should they become final before the staff's licensing review is complete. The NRC is seeking comments on how COL and ESP applicants would implement this rule as proposed, including any impacts to the process and schedule for the applicant to submit and the NRC to review those revisions to COL or ESP applications.

7. *Implementation Schedule.* As proposed, each element of the proposed rule would be implemented on a schedule that may vary from approximately 30 days to 3 years. The wide variance in the proposed implementation schedule is a result of the varying degree of difficulty and scheduling problems for some elements including the need for analysis, development of processes, procurement of equipment/facilities, and/or coordination with offsite response organizations. The NRC is concerned that the proposed implementation schedule may not be appropriate for some offsite response organizations and licensees. The NRC is seeking comments regarding the appropriateness of the proposed implementation schedule.

## **V. Section-by-Section Analysis**

The Commission is proposing to amend 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.”

*Section 50.47 Emergency plans*

The NRC is proposing to amend § 50.47(b)(3) to remove the reference to the EOF as a “near-site” facility. Criteria would be provided 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 consolidated EOFs, specifying that these facilities would 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 proposed changes to Appendix E, Section IV.E.8.

The NRC is proposing to amend § 50.47(b)(10) to require licensees to review and update their ETEs periodically and submit them to the NRC for review and approval. Proposed changes to Appendix E to Part 50 would provide the required frequency and details of the ETE updates and submissions. Although requirements for ETEs are found in both § 50.47(b) and in Appendix E to Part 50, the level of detail between them greatly differs. Section 50.47(b) establishes the EP planning standards that licensees must meet, whereas Appendix E sets forth more detailed implementation requirements.

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

The NRC is proposing to amend § 50.47(d)(1) to remove the reference to the EOF as a

“near-site” facility. Criteria would be provided 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 consolidated EOFs, specifying that these facilities would 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 proposed changes to Appendix E, Section IV.E.8.

#### *Section 50.54 Conditions of licenses*

The NRC proposes to revise the current § 50.54(q) in its entirety. Proposed § 50.54(q)(1) would define four terms whose meanings would be limited to application within the proposed § 50.54(q). Proposed § 50.54(q)(1)(i) would define a “change” to the emergency plan as an action that results in modification or addition to, or removal from, the licensee's emergency plan or the resources, capabilities, and methods identified in the emergency plan. Thus, a change to the emergency plan would not be limited to revisions to the document labeled “emergency plan.” For example, a proposed plant configuration change that removes a seismic instrument relied upon in the emergency plan as an EAL threshold would be encompassed by this definition. The last sentence in this definition calls attention to the possibility that other regulatory change processes may be applicable. In the example above, the plant configuration change would likely be subject to the requirements of § 50.59 and a technical specification change may also be involved.

The proposed § 50.54(q)(1)(ii) definition of “Emergency plan” would encompass any document that describes the programmatic methods that the licensee uses to maintain and perform emergency planning functions and to demonstrate compliance with the requirements of current Appendix E, and for nuclear power reactors, the planning standards of current § 50.47(b). Under the proposed § 50.54(q), sub-tier documents, such as emergency plan implementing procedures, would not ordinarily be 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. This would be consistent with the current § 50.54(q) requirements. However, if a license were to relocate a programmatic description to another document, that description would remain subject to the proposed § 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 proposed § 50.54(q) change process. The definition would also emphasize, 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 over time will constitute a reduction in effectiveness of the original approved emergency plan.

Proposed § 50.54(q)(1)(iii) would define the term "emergency planning function" in terms of a capability or resource necessary to prepare for and respond to a radiological emergency. The specific emergency planning functions would be established in regulatory guidance and would be developed by paraphrasing the applicable broadly-worded regulatory requirements of Appendix E and, for nuclear power reactor licensees, the planning standards of § 50.47(b) to a series of functions that the NRC considers essential to complying with those requirements. The emergency planning functions would not replace or supplement the regulations upon which they would be based and as such, compliance with these provisions would not be required. They would be only used to differentiate between changes that the licensee would be allowed to make without prior NRC approval and those that would require prior NRC approval. The NRC would not establish these emergency planning functions in regulations because the underlying regulations already exist, and the expression of the emergency planning functions would differ between nuclear power reactors, non-power reactors, and fuel facilities licensed under Parts 50 or 52.

Proposed § 50.54(q)(1)(iv) would define 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" would be an evaluation concept that would be used in proposed § 50.54(q) to differentiate between changes that the licensee would be allowed to make without prior NRC approval and those that would 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. "Radiological emergency" as used in the proposed § 50.54(q)(1)(iv), would mean any condition that would result in the declaration of any emergency classification level and the implementation of the licensee's emergency plan. A nuclear power reactor licensee evaluating whether a particular emergency plan change would constitute a reduction in effectiveness would be 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 would base their evaluations on the planning bases for their respective facilities.

Current 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) would be required by proposed § 50.54(q)(2) to follow and maintain the effectiveness of its emergency plan, as originally approved. The proposed § 50.54(q)(2) references to Appendix E and § 50.47(b), as applicable, would extend the applicability of these requirements as a condition of the facility license (as does the language in current § 50.54(q)). The NRC would expect licensees to identify conditions and situations which could reduce the effectiveness of its emergency plan, and to take corrective and/or compensatory actions to restore and maintain the

requisite effectiveness.

Proposed § 50.54(q)(3) would grant 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). The reference to Appendix E and § 50.47(b), as applicable, in this paragraph, would serve to exclude any change for which the licensee must request an exemption from requirements under § 50.12.

The NRC would expect 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 would need 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.).

Proposed § 50.54(q)(4) would define the process by which a licensee would request prior approval of a change to the emergency plan that the licensee has determined constitutes a reduction in effectiveness of the plan. Licensees pursuing these changes would be required to apply for an amendment to the license as provided in § 50.90. Expressly providing that licensees would use § 50.90 to seek NRC approval of a proposed change that would reduce the effectiveness of an emergency plan would clarify the process to be used for these proposals. In addition to satisfying the filing requirements for a license amendment request in § 50.90 and § 50.91, the proposed § 50.54(q)(4) request would 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 would review the amendment application to make its no significant hazards consideration determination and to determine if 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).

Proposed § 50.54(q)(5) would apply to all licensees subject to § 50.54(q) and require that licensees retain a record of all changes to the emergency plans made without prior NRC approval for a period of three years from the date of change. The section would also require the licensee to submit, as specified under § 50.4, a report of each such change, including its evaluation, within 30 days of the change. The NRC expects that the record of changes would include documentation of the evaluation that determined the change not to be a reduction in effectiveness. The NRC would use this record of changes during inspection oversight of the licensee's implementation of proposed § 50.54(q)(2).

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

The NRC proposes to remove paragraph (r) of § 50.54. The current § 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.

The NRC proposes to amend § 50.54 by revising current § 50.54(s)(1) to remove language addressing a one-time requirement that has now been completed. The current § 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 (November 3, 1980) of the rule, the radiological response plans of State and local governmental entities in the United States 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. The current § 50.54(s)(1) continued to further establish the size of the two EPZs.

The NRC proposes to remove paragraph (s)(2)(i) from § 50.54. The current § 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 what is the current § 50.54(s)(2)(i) requires 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.

The NRC proposes to remove paragraph (u) from § 50.54. The current § 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 (November 3, 1980) of the rule.

The NRC is proposing to amend § 50.54(gg)(1)(i) to remove the reference to the EOF as a “near-site” facility. Criteria would be provided 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 consolidated EOFs, specifying that these facilities would 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 proposed changes to Appendix E, Section IV.E.8.

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

The NRC is proposing to amend several paragraphs within Section IV. of Appendix E to Part 50 that would apply to licensees and applicants for licenses under Part 50 or Part 52 of this chapter, as applicable. The NRC would amend the first paragraph of Section IV. by adding language to require nuclear power reactor licensees and license applicants to revise their ETEs when the decennial census data is available. The proposed regulation would require that within 180 days of the issuance of the 2010 decennial census data (expected to be available in 2011), ETE revisions be submitted to the NRC under § 50.4 for review and approval. The NRC would establish a schedule for review and approval of the updated ETEs. Thereafter, nuclear power reactor licensees and license applicants would be required to review changes in the population of their EPZ and most populous Emergency Response Planning Area (ERPA). ERPAs are local areas, typically defined by geographic or political boundaries that are used to communicate protective actions to members of the public in familiar geographic terms. Also, when the new population, including permanent residents and transient populations, in either of the EPZ or ERPA would be less than 90 percent or greater than 110 percent of the population that formed the basis for the currently approved ETE, the licensee or applicant would be required to update the ETE to reflect the impact of this population change. The licensee or applicant would be required to submit the updated ETE to the NRC under the procedures of § 50.4 within 180 days of the availability of the population data used in the update.

The NRC proposes to require licensees and applicants to review changes in the population of the EPZ and the most populous ERPA because population density in an EPZ is generally not homogeneous and EPZ evacuation times are significantly influenced by the ERPA with the largest population. The NRC considered requiring review of all ERPAs or the review of individual counties and States in addition to the whole EPZ. Review of the ERPA with the

largest population was considered to be a reasonable balance between the burden on licensees and applicants and the need to ensure that the ETE is accurate because the ERPA with the largest population is generally the one with the most impact on evacuation times.

The proposed requirement for nuclear power reactor licensees to evaluate a population change impact on the ETE during the period between decennial censuses would balance the burden on licensees and the expected rates of change among the relevant populations. The U.S. Census Bureau currently projects population growth at approximately one percent per year in the United States. 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 review would consist of analysis of population growth based on either U.S. Census Bureau data (e.g., Subcounty Population Datasets for population estimates) or State/local government estimates and would examine the whole EPZ as well as the most populous emergency planning area within the EPZ. If an ETE revision were necessary, it would be submitted to the NRC under the provisions of § 50.4 for review and approval. The NRC would review the ETEs to ensure they were consistent with NRC guidance on the development of ETEs that would be expected to be issued with the final rule.

The updated ETEs would allow for more effective development of public protective action strategies and review of evacuation planning. Sites with little population change would be minimally impacted by the proposed requirement, while those sites with a greater rate of population change would be required to perform more frequent updates. Licensees would also

be expected to identify and analyze potential enhancements to improve evacuation times and document whether implementation was appropriate.

The NRC is also proposing to revise the first paragraph of Section IV. to change the term “radiation” to “radiological,” to provide consistent use of the phrase “radiological emergency.” It is also clarifying in this paragraph that the requirements for the submittal of emergency response plans apply to not only applicants for nuclear power reactor operating license applicants 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, dated August 28, 2007).

The NRC is proposing to make two editorial revisions to Appendix E to Part 50, Section IV.A.2. One change would be to include the abbreviation of emergency response organization, “ERO,” in paragraph 2 of Section IV.A. The second revision would clarify that paragraph 2.c. should read as follows: “Authorities, responsibilities, and duties of an onsite emergency coordinator....”

The NRC is proposing to amend Part 50, Appendix E, Section IV.A.7., to require licensees to confirm that ORO resources, such as local law enforcement, firefighting, and medical services, are available to respond to an emergency, including a hostile action event, at the plant site. Currently, the regulations do not explicitly require the licensee to take action to ensure that OROs are capable of adequately responding to the site during a hostile action event.

This new requirement would require licensee coordination with the OROs to ensure that licensees and OROs are able to effectively implement their pre-planned actions for any contingency, including hostile action events as required by Order EA-02-026. This requirement would be enforced through routine inspection and observation of emergency exercises.

The proposed requirement would also contain a new footnote, which would define “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.

The NRC is proposing to add a new paragraph A.9. in Section IV. of Appendix E to Part 50. This new paragraph would require all nuclear power plant licensees under this part and Part 52 to provide 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. This proposed amendment would constitute a new requirement. The proposed rule would not specify, by position or function, which responsibilities must be assigned, but would allow licensees the flexibility to determine the limit of assigned responsibilities for effective emergency plan implementation on a site-specific basis. This would allow licensees to take credit for new technologies that could potentially affect the number of on-shift staff that would be needed. However, licensees would need to ensure that the duties assigned to on-shift staff were reasonable for one person to perform and would not be so burdensome as to negatively impact emergency response.

The licensees would have to perform a job task analysis (JTA) and/or a time motion study 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 would expect the JTA to identify all the tasks which must be performed by available staff during an evolution such as response to an emergency.

Licensees would first need to identify the spectrum of accidents defined in their licensing bases (i.e., design basis accidents (DBAs), as well as the DBT, as applicable), for which there must be emergency planning. The JTA would identify all tasks which must be completed for each DBA and the DBT, as applicable, and the responders responsible for the performance of those tasks. Then licensees would ensure that there would be 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 would not detract from adequate emergency plan implementation would establish a regulatory framework that more clearly codifies the NRC's shift staffing expectations for effective emergency response.

The NRC proposes to amend Section IV.B. of Appendix E to Part 50 to add a requirement that nuclear power reactor licensees and license applicants would take hostile action events, which may adversely affect the plant (e.g., cause personnel harm and/or equipment damage), into account in their EAL schemes. It would also serve to establish consistent EALs for hostile action events among existing and future nuclear power reactor licensees and allow the licensees to make hostile action emergency declarations based on a credible future threat.

The proposed language would also make changes to conform to proposed changes to § 50.54(q), which address the issue described in Section II.B.5 of this document. The current requirement in paragraph (1) in Section IV.B. of Appendix E that licensees obtain prior NRC approval via § 50.4 for changes to an EAL scheme from NUREG-0654 to one based on NUMARC/NESP-007 or NEI-99-01 would be retained but the paragraph numbering would be removed. Paragraphs (2) and (3) would be deleted and replaced with a new requirement that all other EAL changes would be required to be made under the proposed amended § 50.54(q) change process, as discussed earlier in Section V of this document. The two remaining paragraphs in this section would be designated B.1. and B.2.

The NRC proposes to retain the existing language of Section IV.C. of Appendix E to Part 50, redesignate that language as paragraph C.1., and add a new paragraph C.2. The proposed paragraph C.2., which would address the issue of emergency classification timeliness, would require that all nuclear power plant licensees and applicants under this part and Part 52

have and maintain the capability to promptly 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, or may be, exceeded. The NRC believes that the amended language would emphasize the NRC's expectations regarding emergency classification timeliness while retaining sufficient operational flexibility to respond to extenuating circumstances necessary to protect public health and safety. The NRC would consider the 15-minute criterion to commence when plant instrumentation, plant alarms, computer displays, or incoming verbal reports become available to cognizant personnel within the control room, or in another emergency facility in which emergency classifications are performed.

This classification period would end as soon as the licensee determines that an EAL has been, or would be, exceeded and that an emergency declaration is made. If the EAL threshold specifies a duration (e.g., "fire lasting for greater than 10 minutes from detection"), the NRC would expect the licensee to perform assessment and classification efforts concurrently with the specified condition duration. The licensee would be expected to declare the emergency condition promptly as soon as the specified duration has been exceeded, or after it has been determined that the condition cannot be corrected before the duration has been exceeded, whichever occurs first. Because the NRC would expect emergency classifications to be made promptly, the proposed 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.

The NRC is proposing a capability criterion, rather than an inflexible performance criterion, to allow licensees some degree of flexibility in addressing extenuating circumstances that may arise during an actual emergency. For example, an emergency classification may need to be delayed in the interest of performing plant operations that are urgently needed to protect public health and safety. These delays would 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.

The NRC is proposing to add language to Section IV.D.3. of Appendix E to require licensees and applicants to have backup ANS methods for both the alert and notification functions without specifying which backup measures should be used. This approach would allow flexibility in the selection of the method best suited for each site and would also allow the use of newer technologies or other alternative methods. Available backup ANS methods would enhance the public's ability to be promptly alerted of an event at a facility and of possible protective actions.

Section IV.D.3. of Appendix E currently acknowledges that, for the events more likely to warrant use of the 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 proposed amendment would not impose specific time requirements for using a backup method. The alerting function could 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 could involve the designation of multiple EAS broadcast stations or use of weather alert radios or newer technologies, such as advanced messaging systems. Guidance would be provided 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 would also be provided to licensees and offsite officials regarding the need to ensure that the

backup methods could alert and notify the public in the entire plume exposure pathway EPZ, that the personnel and resources required to implement the backup methods would be available during any type of emergency (including hostile action events), and that designated personnel know how to implement backup methods.

The NRC recognizes some backup methods would not be capable of meeting the timeframes that are part of the primary ANS design objectives. The intent of the proposed amendment would not be to have a duplicate primary ANS, but to have a means of backup alerting and notification in place so the public could 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. 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 would be acceptable for backup methods. Guidance would be provided 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 would need to be identified, incorporated into the site's ANS design, and submitted for FEMA approval as specified in FEMA-REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants." For nuclear power plant sites that already have provisions for ANS backup means in FEMA-approved ANS designs, licensees and offsite officials would need to confirm that the backup methods meet the proposed requirements and submit revised ANS designs for FEMA approval if changes were deemed necessary. Timeframes for submitting and approving ANS designs, along with implementation of the backup methods, could vary considerably depending on the level of ANS backup measures already in place. Therefore, backup methods must be ready for demonstration no later than its first biennial exercise conducted more than one year after the effective date of the rule, which would result in a maximum of approximately 3 years for implementation across the industry.

Additional changes to Appendix E, Section IV.D.3. are being proposed to update language regarding demonstration of ANS capabilities and correction of deficiencies that still refer to the February 1, 1982, date for compliance to ensure applicability to any new reactors. Instead, 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 current and proposed § 50.54(s)(2). However, the requirement for correction of ANS deficiencies is clearly stated in current and proposed § 50.54(s)(2)(ii) and does not need to be repeated in Part 50, Appendix E, Section IV.D.3.

The NRC is also proposing to add language to Section IV.D.3. of Appendix E to require all licensees under this part and Part 52 to implement the requirements under proposed Part 50, Appendix E, Section IV.D.3 no later than its first biennial exercise conducted more than one year after the effective date of the rule.

Note that no changes are proposed to the basic requirement in § 50.47(b)(5) for nuclear power plant licensees or applicants to ensure that the means to provide early notification and clear instruction 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 notification.

The NRC is also proposing to revise Section IV.E.5. of Appendix E to change the term “radiation” to “radiological,” to provide consistent use of the phrase “radiological emergency;” and the existing language of Appendix E, Section IV.E.8. to redesignate the revised language as Section IV.E.8.a.; and add new Sections IV.E.8.b., E.8.c, E.8.d., and E.8.e.

Proposed Section IV.E.8.a. would remove the reference to the EOF as a “near-site” facility and add the requirement that all nuclear power plant licensees and applicants under this

part and Part 52 must provide an OSC. In a conforming change, § 52.79(a)(17) would be revised to make it clear that combined license applications would not be subject to the TMI action requirements in § 50.34(f)(2)(xxv), which address the need for an onsite TSC, an onsite OSC, and for an EOF. Instead, the requirements governing the need for such facilities in Part 50, Appendix E, Section E.8.a(i) would apply to combined license applications.

Proposed Section IV.E.8.b. would incorporate EOF distance criteria currently found in NRC guidance and specify 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 the 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 would be determined by the straight-line distance from the site's TSC to the EOF, which would be consistent with the approach described in NUREG-0696, Table 2, "Relation of EOF Location to Habitability Criteria." An exception to the 25-mile limit would be made for a consolidated EOF as long as provisions for locating NRC and offsite responders closer to that nuclear power reactor site are 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 consolidated EOF to another facility closer to the nuclear power plant site. Suitable space near the site would 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.

Proposed Section IV.E.8.c. would provide performance-based criteria applicable to consolidated EOFs. The additional functions that a consolidated EOF would have to address include the capability to obtain and display plant data and radiological information for each plant that the facility serves. A consolidated facility would also need to be capable of effectively responding 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 would also enhance effective response to events occurring at more than one site. In some cases, a consolidated EOF could serve 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 would need to be capable of understanding plant conditions for each type of reactor and translating technical information into a useful form for offsite officials and media relations staff.

By codifying EOF distance requirements in Section IV.E.8.b. of Appendix E and providing specific criteria for consolidated EOFs in Section IV.E.8.c., the proposed language would obviate the need for licensees to seek NRC approval at either the staff or Commission level to consolidate EOFs meeting certain performance-based requirements. Licensees could then implement a consolidated facility as part of their emergency response plans under the provisions of § 50.54(q) without prior NRC approval. The proposed language would also address Commission direction provided in the SRM to SECY-04-0236, as discussed in Section II.B.3. of this document.

During exercises and actual events, the consolidated EOFs that have been previously approved by the NRC have functioned as effective emergency response facilities and demonstrated that a near-site consolidated EOF is not necessary to adequately protect public health and safety. Situations in which a licensee proposes to locate an EOF for a single site, or different licensees propose to share an EOF that is separately staffed and operated by each licensee (i.e., a co-located EOF), more than 25 miles from the site(s) would continue to require prior NRC approval. Additional criteria regarding EOF habitability, size, staffing, and other characteristics would remain as guidance.

Although not included in the proposed rule language of Sections IV.E.8.b. or E.8.c. as a requirement, the NRC believes it is important for licensees or applicants to consult with offsite agencies that send representatives to the EOF prior to relocating or consolidating such facilities. This contact is particularly important when a licensee or applicant intends to use a consolidated facility 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 there would be no jurisdictional concerns with the EOF location (e.g., when the EOF is located in a different State than the nuclear power plant).

Proposed Section IV.E.8.d. would require all nuclear power plant licensees and applicants under this part and Part 52, to identify alternative facilities to function as staging areas for augmentation of ERO staff during hostile action events to minimize delays in emergency response and provide for a swift coordinated augmented response. This alternative facility would be required to have the capability to provide for, and the ERO that operates from it would be capable of, offsite notifications, accident analysis, damage mitigation, and engineering assessment activities, including response team planning and preparation. The alternative facility should be equipped with the minimum essential communications and response equipment to ensure that the ERO is aware of conditions at the site and prepared to return when personnel are allowed to re-enter the site. This would enable rapid staffing of onsite emergency response facilities and implementation of mitigation actions when ERO personnel enter the protected area.

The NRC also proposes to add a new Section IV.E.8.e. to permit an existing nuclear power reactor licensee, that, on the day the final rule becomes effective, has an approved EOF that serves only one nuclear power reactor site, but is located more than 25 miles from that 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 to have an EOF more than 25 miles from that nuclear power reactor site.

The NRC is proposing to amend Sections IV.E.9.c. and E.9.d. to remove references to the EOF as a “near-site” facility. Criteria would be 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 consolidated EOFs. The criteria would specify that these facilities would 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 proposed changes to Section IV.E.8 of Appendix E.

The NRC is proposing to revise paragraph F.1.(a) of Section IV. to remove the word “radiation” because the advent of hostile action-based scenarios renders usage of the word as too limiting in describing potential emergencies. This change would provide consistent use of the term “emergency plan.” The NRC is also proposing to revise paragraph F.1.(b) to change the term “radiation” to “radiological,” to provide consistent use of the phrase “radiological emergency.”

The NRC proposes to add a new requirement to Section IV.F.2.a. to require licensees to submit, for NRC review and approval, exercises scenarios for full participation exercises required by current Appendix E, Section IV.F.2.a. This proposed requirement would enable the NRC to ensure that licensee exercise scenarios implement the proposed requirements of Sections IV.F.2.i. and IV.F.2.j. of Appendix E, including hostile action events and a variety of challenges to reduce preconditioning of respondents. The NRC also proposes to insert the word “initial” in paragraph F.2.a. to distinguish between the requirements of paragraphs F.2.a. and F.2.b.

The NRC is proposing to revise 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 nuclear plant EP is with FEMA. FEMA has requested that “FEMA” be used rather than “DHS” for clarity of communication with stakeholders.

The NRC proposes to add a new requirement to Section IV.F.2.b. to require licensees to submit, for NRC review and approval, scenarios for their onsite biennial exercises. This proposed requirement would enable the NRC to ensure licensee exercise scenarios implement the proposed requirements of Appendix E, Sections IV.F.2.i. and IV.F.2.j., including hostile action events and a variety of challenges to reduce preconditioning of respondents. The NRC also proposes to insert the word “subsequent” in paragraph F.2.b. to distinguish between the requirements of paragraphs F.2.a. and F.2.b.

The NRC proposes to amend 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 also proposes to change “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 proposing to amend Section IV.F.2.f. to add a second situation when remedial exercises would be required. The proposed amendment would explain that remedial exercises would be required if the emergency plan is not satisfactorily tested during the biennial exercise, such that the NRC, in consultation with FEMA, could not find reasonable assurance that adequate protective measures could be taken in response to an emergency or determine that key ERO skills had been maintained. This change would demonstrate 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 proposed rule change is intended to prevent this trend in the future.

The NRC also proposes to revise Section IV.F.2.g. to require licensees to correct any weaknesses or deficiencies identified during training evolutions, exercises, or drills. This change

would explicitly state the regulatory intent that training evolutions, drills, and exercises are included in the requirement for critique and correction of weaknesses or deficiencies.

The NRC is proposing to add a new Section IV.F.2.i. to Appendix E to require all nuclear power plant licensees under this part and Part 52 to include hostile action events in biennial evaluated exercises. The proposed rule would also ensure that scenarios would be sufficiently varied by requiring the use of a wide spectrum of radiological releases and events, to properly train responders in response to more realistic events than currently used in training and avoid preconditioning the responders to success with inappropriate anticipatory responses. Licensees would also be 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 would require offsite response.

The NRC is proposing to add a new Section IV.F.2.j. to Appendix E, to provide the exercise scenario elements that all nuclear power plant licensees under this part and Part 52 would be required to include in each of their exercise planning cycles, including hostile action directed at the plant site; in-plant repairs that, if properly implemented, would mitigate core damage or mitigate/prevent containment failure when the plant is not fully secured from hostile action; no radiological release or a minimal radiological release that does not require public protective actions; an initial classification of or rapid escalation to a Site Area or General Emergency; implementation of mitigative strategies to respond to the loss of large areas of the plant under § 50.54(hh); and other elements that vary exercise challenges and avoid participant preconditioning or anticipatory responses. This proposed amendment would prescribe the minimum exercise scenario elements necessary for licensees to meet NRC expectations for challenging and varied scenario content in biennial exercises.

The NRC is proposing to add a new Section IV.F.2.k. to Appendix E, to require all licensees under this part to implement the requirements under proposed Part 50, Appendix E,

Section IV.F.2. no later than its first biennial exercise conducted more than one year after the final rule is published in the Federal Register.

The NRC proposes to add a new Section IV.I. to Appendix E that would require all nuclear power plant licensees under this part and Part 52 to provide an expanded range of protective measures for all onsite personnel that would be appropriate for protection against a hostile action event. These measures would be site-specific and consider issues such as the location of workers in relation to potential targets, which would dictate if sheltering and/or evacuation would be appropriate to adequately protect the workers. The new requirement would not direct any specific actions but would allow licensees flexibility to determine the most effective protective measures for onsite personnel protection on a site-specific basis. It also would allow licensees to take advantage of new technologies or other innovations that could further enhance the protection of workers.

If this proposed rule becomes final, the NRC proposes to make it effective 30 days after publication of the final rule in the Federal Register. Licensees and applicants, as applicable, would be permitted to defer implementation of the final rule until 180 days after publication of the final rule in the Federal Register, except for the following proposed rule changes:

(1) The requirements under proposed § 50.54(q) (emergency plan change process), which would become effective 30 days after publication of the final rule in the Federal Register;

(2) The requirements under proposed Part 50, Appendix E, Section IV.F.2. (challenging drills and exercises), which each applicable licensee would be required to implement no later than its first biennial exercise conducted more than one year after the effective date of the rule. Also, the implementation schedule for the proposed changes in Appendix E, Section IV.F.2. would allow licensees to complete biennial exercises that would already be in the planning process when the final rule becomes effective, without having to consider the new requirements of the final rule. This schedule also would have the general effect of allowing exercises which

meet the new requirements to be conducted over a two-year period, following the effective date of the final rule, thereby allowing licensees and the NRC to gain experience during initial implementation. Consideration will be given to States with multiple reactor sites for the implementation schedule of the exercise requirement under Appendix E, Section IV.F.2.; and

(3) The requirements under proposed Part 50, Appendix E, Section IV.D.3. (backup means for alert and notification systems), which each applicable licensee would be required to implement no later than its first biennial exercise conducted more than one year after the effective date of the rule. The implementation schedule for the proposed changes in Appendix E, Section IV.D.3 would provide licensees a maximum of approximately 3 years for implementation across the industry.

## **VI. Guidance**

The NRC proposes to revise existing guidance and provide new guidance for the new requirements in this proposed rule. This guidance is intended to provide an acceptable method of how licensees and applicants can meet the requirements of the proposed rule. Final guidance would be published concurrently with publication of the final rule.

## **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 proposing to amend 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 following methods, as indicated.

*Public Document Room (PDR).* The NRC Public Document Room is located at 11555 Rockville Pike, Rockville, Maryland 20852.

*Regulations.gov (Web).* These documents may be viewed and downloaded electronically through the Federal eRulemaking Portal <http://www.regulations.gov>, Docket number NRC-2008-0122.

*NRC’s Electronic Reading Room (ERR).* The NRC’s public electronic reading room is located at [www.nrc.gov/reading-rm.html](http://www.nrc.gov/reading-rm.html).

Document	PDR	Web	ERR (ADAMS)
----------	-----	-----	-------------

<b>Document</b>	<b>PDR</b>	<b>Web</b>	<b>ERR (ADAMS)</b>
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, 1:00 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) 9:30A.M. and 1:00 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

<b>Document</b>	<b>PDR</b>	<b>Web</b>	<b>ERR (ADAMS)</b>
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 (January 13, 2003; 68 FR 1643)	X		ML030060360
Order EA-03-039, "Security Personnel Training and Qualification Requirements (Training) Order," issued April 29, 2003 (May 7, 2003; 68 FR 24514)	X		ML030910625
Order EA-03-086, "Revised Design Basis Threat Order," issued April 29, 2003 (May 7, 2003; 68 FR 24517)	X		ML030740002
Federal Register Notice – Final Rule to Amend 10 CFR 73.1: Design Basis Threat (March 19, 2007; 72 FR 12705)	X		ML070520692
Information Notice (IN) 91-77, "Shift Staffing at Nuclear Power Plants," dated November 26, 1991	X		ML031190405
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

<b>Document</b>	<b>PDR</b>	<b>Web</b>	<b>ERR (ADAMS)</b>
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 Issue Summary 2004-15, "Emergency Preparedness Issues: Post-9/11," dated October 18, 2004	X		Non-Publicly Available
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

<b>Document</b>	<b>PDR</b>	<b>Web</b>	<b>ERR (ADAMS)</b>
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
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
"Summary of the Public Meeting to Discuss Selected Topics for the Review of Emergency Preparedness Regulations and Guidance for Commercial Nuclear Power Plants," dated September 27, 2005	X		ML052650446
"Discussion of NREP 'Parking Lot' Items," dated August 11, 2005	X		ML052000263

<b>Document</b>	<b>PDR</b>	<b>Web</b>	<b>ERR (ADAMS)</b>
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
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

<b>Document</b>	<b>PDR</b>	<b>Web</b>	<b>ERR (ADAMS)</b>
Comments submitted by PA Bureau of Radiation Protection on EP draft preliminary rule language (Letter identifier for comments: SPA1 - X)	X	X	ML081690778
EP proposed rule Regulatory Analysis and Backfit Analysis	X	X	ML082750457
EP proposed rule Environmental Assessment	X	X	ML082750448
EP Paperwork Burden Analysis	X	X	ML082750453
NRC comment responses for EP draft preliminary rule language	X	X	ML082890476

#### **X. Plain Language.**

The Presidential memorandum "Plain Language in Government Writing" published on June 10, 1998 (63 FR 31883), directed that the Government's documents be in clear and accessible language. The NRC requests comments on the proposed rule specifically with respect to the clarity and effectiveness of the language used. Comments should be sent to the NRC as explained in the ADDRESSES heading of this document.

#### **XI. Voluntary Consensus Standards.**

The National Technology Transfer and Advancement Act of 1995, Pub. L. 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.

**XII. 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, "National Environmental Policy Act; Regulations Implementing Section 102(2)," of 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required.

The determination of this environmental assessment is that there will be no significant offsite impact to the public from this action. However, the general public should note that the NRC is seeking public participation and the environmental assessment is available as indicated in Section IX of this document. Comments on any aspect of the environmental assessment may be submitted to the NRC as indicated under the ADDRESSES heading of this document.

The NRC has sent a copy of the environmental assessment and this proposed rule to every State Liaison Officer and requested their comments on the environmental assessment.

**XIII. Paperwork Reduction Act Statement.**

The proposed 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*). This rule has been submitted to the Office of Management and Budget for review and approval of the information collection requirements.

*Type of submission, new or revision:* Revision

*The title of the information collection:* 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities."

*The form number if applicable:* Not applicable

*How often the collection is required:* One-time, on occasion and annually

*Who will be required or asked to report:* Operating nuclear power reactors

*An estimate of the number of annual responses: 987*

*The estimated number of annual respondents: 97*

*An estimate of the total number of hours needed annually to complete the requirement or request: 177,242 hours*

**Abstract:** The U.S. Nuclear Regulatory Commission (NRC) regulations in 10 CFR 50.34, 50.47, 50.54, and 10 CFR Part 50, Appendix E prescribe requirements for emergency preparedness plans and coordination in protecting nuclear power reactors, non-power reactors, and the surrounding community against consequences resulting from accidents and sabotage. The proposed rule contains reporting and recordkeeping requirements, including those for third parties, which are necessary to help ensure that an adequate level of emergency preparedness is attained by nuclear power reactor licensees, non-power reactors, and the surrounding community. This revision addresses changes in information collections contained in the proposed rule, “Emergency Preparedness Rulemaking.” Specifically, the draft proposed rule results in changes to information collection requirements in § 50.47, § 50.54, and 10 CFR Part 50, Appendix E.

The NRC is seeking public comment on the potential impact of the information collections contained in this proposed rule and on the following issues:

1. Is the proposed information collection necessary for the proper performance of the functions of the NRC, including whether the information will have practical utility?
2. Estimate of burden?
3. Is there a way to enhance the quality, utility, and clarity of the information to be collected?

4. How can the burden of the information collection be minimized, including the use of automated collection techniques?

A copy of the OMB clearance package may be viewed free of charge at the NRC Public Document Room, One White Flint North, 11555 Rockville Pike, Room O-1F21, Rockville, MD 20852. The OMB clearance package and rule are available at the NRC worldwide Web site: <http://www.nrc.gov/public-involve/doc-comment/omb/index.html> for 60 days after the signature date of this notice.

Send comments on any aspect of these proposed information collections, including suggestions for reducing the burden and on the above issues, by **[INSERT DATE 30 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]** to the Records and FOIA/Privacy Services Branch (T-5F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [INFOCOLLECTS.RESOURCE@NRC.GOV](mailto: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. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given to comments received after this date. You may also e-mail comments to [Nathan\\_J.\\_Frey@omb.eop.gov](mailto:Nathan_J._Frey@omb.eop.gov) or comment by telephone at (202) 395-7345.

### **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.

#### **XIV. Regulatory Analysis: Availability.**

The Commission has prepared a draft regulatory analysis on this proposed regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The Commission requests public comments on the draft regulatory analysis. Availability of the regulatory analysis is indicated in Section IX of this document. Comments on the draft analysis may be submitted to the NRC as indicated under the ADDRESSES heading.

#### **XV. Regulatory Flexibility Certification.**

Under the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule would not, if promulgated, have a significant economic impact on a substantial number of small entities. This proposed 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).

#### **XVI. Backfit Analysis.**

As required by 10 CFR 50.109, the Commission has completed a backfit analysis for the proposed rule. The Commission finds that the backfits contained in the proposed rule, when considered in the aggregate, would constitute a substantial increase in emergency preparedness and would be 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.

List of Subjects in 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.

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. 553, the NRC is proposing to adopt the following amendments to 10 CFR Part 50.

#### 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. 594 (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 and 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. Section 50.47 is amended by revising 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 and must be updated on a periodic basis. Evacuation time estimates and updates must be submitted by applicants and licensees to the NRC for review and approval. 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. Section 50.54 is amended as follows:
  - a. Revise paragraphs (q), (s)(1), and (gg)(1)(i);
  - b. Remove and reserve paragraphs (r), (s)(2)(i), and (u)

**§ 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 or the resources, capabilities, and methods identified in the 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 and performing emergency planning functions. An emergency plan includes the plans as originally approved by the NRC and all subsequent changes made by the licensee with, and without, prior NRC review and approval under § 50.54(q).

(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 reactors, 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 which meet 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 can demonstrate through analysis 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 plans as defined in § 50.54(q)(1)(iv) may not be implemented without prior approval by the NRC. A licensee desiring to make such a change 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, including its analysis, within 30 days after the change is made.

(6) The nuclear power reactor licensee shall retain the emergency plan and each change for which prior NRC approval was obtained pursuant to § 50.54(q)(4) as a record until the Commission terminates the license for the nuclear power reactor.

\* \* \* \* \*

(r) Reserved

\* \* \* \* \*

(s)(1) Generally, the plume exposure pathway EPZ for nuclear power reactors 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. The exact size and configuration of the EPZs for a

particular nuclear power reactor 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. The plans for the ingestion pathway EPZ shall focus on such actions as are appropriate to protect the food ingestion pathway.

\* \* \* \* \*

(2)(i) Reserved.

\* \* \* \* \*

(u) Reserved.

\* \* \* \* \*

(gg)(1) \* \* \*

(i) 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.

\* \* \* \* \*

4. In Appendix E to Part 50, Section IV. is amended as follows:

a. Revise the introductory text to the section, paragraphs A., A.2.c., A.7., B.1., B.2., C.1., C.2.,D.3., E.5., E.8., E.9.c., E.9.d.,F.1., F.2.a., F.2.a(ii), F.2.a(iii), F.2.b., F.2.f., F.2.g.; and

b. Add new paragraphs A.9., F.2.i., F.2.j., F.2.k.and l., a new footnote 3 to paragraph IV.A.7., designate existing footnotes 2 and 3 as footnotes 4 and 5, and renumber the subsequent footnotes in Section IV as footnote 6 and 7.

**Appendix E to Part 50 – Emergency Planning and Preparedness for Production and Utilization Facilities**

\* \* \* \* \*

IV. Content of Emergency Plans

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 action, activation of emergency organization, notification procedures, emergency facilities and equipment, training, maintaining emergency preparedness, and recovery. 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. The applicant shall also provide an analysis of the time required to evacuate and for taking other protective actions for various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations. Evacuation time estimates (ETEs) and updates to the ETEs must be provided to State and local governmental authorities for use in developing protective action strategies. Within 180 days of issuance of the decennial census data by the U.S. Census Bureau, nuclear power reactor licensees and license applicants shall develop an ETE and submit it to the NRC for review and approval under § 50.4. If at any time during the decennial period, the population of either the EPZ or the most populous Emergency Response Planning Area increases or decreases by more than 10 percent from the population that formed the basis for the licensee's currently approved ETE, the ETE must be updated to reflect the impact of that population change. This updated ETE must be submitted to the NRC for review and approval under § 50.4 no later than

180 days after issuance of the U.S. Census Bureau's Subcounty Population Datasets or other government population growth estimate upon which the updated ETE is based.

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:

\* \* \* \* \*

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

\* \* \* \* \*

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.

\* \* \* \* \*

7. Identification of, and assistance expected from, appropriate State, local, and Federal agencies with responsibilities for coping with emergencies. 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 a hostile action<sup>3</sup> event at the nuclear power plant site.

\* \* \* \* \*

9. All nuclear power plant licensees under this part and Part 52 must provide a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation

---

<sup>3</sup> A hostile action is 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.

functions are not assigned any 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. These action levels must include hostile action events that may adversely affect the nuclear power plant. These 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 revision to an emergency action level scheme must be submitted as specified in § 50.4 for NRC approval before implementation if the licensee is changing from an emergency action level scheme based upon NUREG-0654 to another emergency action level scheme based upon NUMARC/NESP-007 or NEI-99-01. The licensee shall follow the change process in § 50.54(q) for all other emergency action level changes.

\* \* \* \* \*

---

This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force.

### 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. All nuclear power plant licensees and applicants under this part and Part 52 shall establish and maintain the capability to assess, classify, and declare an emergency condition promptly within 15 minutes after the availability of indications to plant operators that an emergency action level has been, or may be, exceeded. This 15-minute criterion must not be construed as a grace period to attempt to restore plant conditions to avoid declaring an emergency action due to an EAL that has been exceeded. This 15-minute criterion must not be construed as preventing implementation of response actions deemed by the licensee to be necessary to protect health and safety provided that any delay in classification does not deny the State and local authorities the opportunity to implement measures necessary to protect the public health and safety.

## D. Notification Procedures

\* \* \* \* \*

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 State/local officials have the capability to make a public 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 notification system shall be to have the capability to essentially complete the initial notification of the public within the plume exposure pathway EPZ within about 15 minutes. The use of this notification capability will range from immediate 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 State and local governmental officials to make a judgment whether or not to activate the public notification system. The licensee shall identify and demonstrate that the State or local officials have both the administrative and physical means for a backup method of public notification capable of being used in the event the primary method is unavailable. The backup method does not need to meet the 15-minute design objective for the primary prompt public notification system. When there is a decision to activate the notification system, the State and local officials will determine whether to activate the entire notification system simultaneously or in a graduated or staged manner. The responsibility for activating such a public notification system shall remain with the appropriate governmental authorities.

A licensee under this part or Part 52 shall implement the requirements under Part 50, Appendix E, Section IV.D.3 no later than the first biennial exercise conducted at the site more than one year after [EFFECTIVE DATE OF RULE].

E. Emergency Facilities and Equipment

\* \* \* \* \*

5. Arrangements for the services of physicians and other medical personnel qualified to handle radiological emergencies on-site;

\* \* \* \* \*

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 all nuclear power plant licensees and applicants under this part and Part 52, a licensee onsite operational support center;

b. For the 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 that serves multiple nuclear power reactor sites operated by the same licensee may be located more than 25 miles from one or more of the nuclear power reactor sites as long as provisions are made for locating NRC and offsite responders closer to each nuclear power reactor site that is more than 25 miles from the emergency operations facility so that NRC and offsite responders could interact face-to-face with emergency response personnel entering and leaving the nuclear power reactor site;

c. For the emergency operations facility permitted by paragraph 8.b of this section that serves multiple nuclear power reactor sites operated by the same licensee, a facility having the

following capabilities: 1) the capability for obtaining and displaying plant data and radiological information for each nuclear power reactor site, 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 nuclear power reactor site, and 3) the capability to support response to events occurring simultaneously at more than one nuclear power reactor site;

d. For all nuclear power plant licensees and applicants under this part and Part 52, an alternate facility (or facilities) capable of performing the following functions: staging of onsite responders, offsite notifications, and repair team preparation, for use when onsite emergency facilities cannot be safely accessed during a hostile action event;

e. A licensee with an emergency operations facility that serves only one nuclear power reactor site and is located more than 25 miles from that nuclear power reactor site on [INSERT THE EFFECTIVE DATE OF THE FINAL RULE] shall not be subject to the requirements of paragraph 8.b of this section;

9. \* \* \*  
\* \* \* \* \*

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:

\* \* \* \* \*

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 notification system, and ensure that emergency organization personnel are familiar with their duties<sup>4</sup>.

---

<sup>4</sup> Use of site specific simulators or computers is acceptable for any exercise.

a. An initial full participation<sup>5</sup> 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 plant licensees shall submit exercise scenarios under § 50.4 for prior NRC review and approval.

\* \* \* \* \*

(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 licensee 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<sup>6</sup>, shall be conducted for each subsequent reactor constructed on the site. This exercise may be

---

5 "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.

6 Partial participation when we 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

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 plant licensees shall submit exercise scenarios under § 50.4 for prior NRC review and approval. 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, protective action decision making, and plant system repair and corrective actions. 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.

\*

\*

\*

\*

\*

---

making related to emergency action levels, and (b) communication capabilities among affected State and local authorities and the licensee.

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 be taken in response to an emergency or 2) determine that key ERO skills have been maintained. 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 training, including exercises, shall provide for formal critiques in order to identify weak or deficient areas that need correction. Any weaknesses or deficiencies that are identified during training evolutions, exercises, or drills must be corrected.

\* \* \* \* \*

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 all nuclear power plant licensees under this part and Part 52 must include a wide spectrum of radiological releases and events, including hostile action events. 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 all nuclear power plant licensees under this part and Part 52 must use scenarios with the following elements in each exercise planning cycle: (1) hostile action directed at the plant site, (2) in-plant repairs that, if properly implemented, mitigate core damage or mitigate/prevent containment failure when the plant is not fully secured from hostile action, (3) no radiological release or a minimal radiological release that does not require public protective actions, (4) an initial classification of or rapid escalation to a Site Area or General Emergency, (5) implementation of mitigative strategies to

respond to the loss of large areas of the plant under § 50.54(hh), and (6) other elements that vary exercise challenges and avoid participant preconditioning or anticipatory responses.

k. A licensee under this part or Part 52 shall implement the requirements under Part 50, Appendix E, Section IV.F.2. no later than its first biennial exercise conducted at the site more than one year after the [EFFECTIVE DATE OF THE RULE].

\* \* \* \* \*

I. Onsite Protective Actions During Hostile Action Events

For all nuclear power plant licensees under this part and Part 52, a range of protective actions to protect onsite personnel during hostile action events must be developed.

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, as amended, 1244, 1246, as amended (42 U.S.C. 5841, 5842, 5846); sec. 1704, 112 Stat. 2750 (44 U.S.C. 3504 note).

6. Section 52.79 is amended by revising paragraph (a)(17) 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 \_\_\_\_ day of \_\_\_\_\_, 2009.

For the Nuclear Regulatory Commission.

Annette Vietti-Cook,  
Secretary of the Commission.