

# POLICY ISSUE NOTATION VOTE

September 20, 2006

SECY-06-0200

FOR: The Commissioners

FROM: Luis A. Reyes  
Executive Director for Operations /RA/

SUBJECT: RESULTS OF THE REVIEW OF EMERGENCY PREPAREDNESS  
REGULATIONS AND GUIDANCE

PURPOSE:

To provide the Commission with: (1) the results of the Review of Emergency Preparedness Regulations and Guidance (EP Review) and recommendations regarding proposed enhancements to the existing emergency preparedness (EP) regulations and guidance; (2) a status update on the ongoing studies; and (3) a proposal for the staff to begin activities to develop a new voluntary performance-based EP regulatory regimen.

SUMMARY:

The staff is recommending a series of changes to the existing EP regulations and guidance based upon a systematic analysis of these issues. If the Commission agrees with the staff's recommendations, the staff will develop a rulemaking plan, regulatory analysis, and a backfit analysis (10 CFR 50.109) for each of the proposed changes. Additionally, the staff seeks Commission approval to begin activities to develop a new voluntary performance-based EP regulatory regimen that could serve as an alternative approach to existing EP regulations and guidance. Resources have been budgeted for in Fiscal Year (FY) 2007 and FY 2008; resources necessary to complete the recommended enhancements in FY 2009 and FY 2010 will be addressed through the planning, budget, and performance management (PBPM) process. Existing resources would be used to develop a proposal for the new voluntary performance-based EP regulatory regimen.

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BACKGROUND:

Following the terrorist events of September 11, 2001, the staff evaluated the EP planning basis given the resulting threat environment and concluded that the EP planning basis remains valid. However, the staff recognized that security events differ from accidental events and that the EP regulations and guidance could be enhanced. In addition, advances in communication technologies and lessons learned through EP program implementation have revealed the benefit in providing clarity and enhancements to EP regulations and guidance. On December 14, 2004, the EP staff briefed the Commission on EP program initiatives. During the briefing, the staff informed the Commission of its intent to conduct a comprehensive review of EP regulations and guidance. In response to a staff requirements memorandum (SRM) dated December 20, 2004, the staff provided the Commission with a schedule of activities for the completion of the comprehensive review on February 25, 2005. In the SRM to SECY-05-0010, "Recommended Enhancements of Emergency Preparedness and Response at Nuclear Power Plants in the Post 9/11 Environment," dated May 4, 2005, the Commission directed the staff to provide the results of the comprehensive review by September 29, 2006. The staff issued Bulletin 2005-02, "Emergency Preparedness and Response Actions for Security-Based Events," dated July 18, 2005, which integrated enhancements into emergency response to security events at power reactors. As relating to materials licensees EP, in SECY-06-0118, "Materials Licensee Emergency Preparedness," dated May 17, 2006, the staff continues to believe that EP requirements and planning bases are valid for fuel cycle, independent spent fuel storage installations, transportation, and various non-fuel cycle materials facilities. The staff has considered the technical basis of NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees," published in 1988, with the analyses that support the security assessments and conclude that the facilities/activities do not require enhanced EP at this time. No further analysis of materials licensee EP are contained in this paper.

DISCUSSION:EP Review Activities:

The EP Review results reflect: (1) the result of recent generic communications regarding the integration of EP and security; (2) outreach efforts to NRC stakeholders; and (3) a framework of potential enhancements to the EP regulations and guidance including next steps, prioritization, and resource estimates. Enclosure 1 provides a prioritization scheme towards enhancements of EP regulations and guidance.

The staff also has two ongoing studies: (1) protective action recommendations (PAR) guidance and (2) an assessment of emergency response planning and implementation in the aftermath of major natural disasters and technological accidents, which may be incorporated into future rulemaking for EP regulations and guidance.

As part of the EP review, the staff met with internal and external stakeholders including DHS management, on numerous occasions including the following:

1. Meeting with regional NRC EP inspectors in January 2005 and January 2006;
2. Public meeting with all stakeholders on August 31 and September 1, 2005;

3. Public meetings with State, local, and Tribal governments, and industry at the National Radiological Emergency Preparedness Conference on April 11-14, 2005, and March 27-30, 2006;
4. Public meeting with non-governmental organizations (NGO) on May 19, 2006;
5. Public meeting with Nuclear Energy Institute (NEI)/industry on July 19, 2006; and
6. Regional public meetings with State and local representatives and industry working groups.

Comments received as a result of the outreach meetings were grouped into the following five broad topical areas: (1) security-based emergency action levels (EAL); (2) security-based drills and exercise scenarios; (3) offsite PARs; (4) abbreviated notification to the NRC and off-site response organizations (ORO); and (5) alert and notification systems (ANS). Enclosure 3 provides a summary of the stakeholder comments. The staff will continue with the Commission's direction of conducting outreach activities to engage stakeholders in the regulatory process.

#### Results of EP Review:

The staff identified a number of potential enhancements to EP regulations and guidance. These potential changes have been separated into two categories (Enclosure 2), regulatory inclusion of security-based EP elements and other EP issues. The following is an overview of the issues that staff considered to be a high priority.

#### *Regulatory Inclusion of Security-Based EP Elements:*

In NRC Bulletin 2005-02, the staff requested information from the power reactor licensees regarding enhancements made to EP programs in response to security events. NEI subsequently submitted a White Paper for NRC endorsement entitled, "Enhancements to Emergency Preparedness Programs for Hostile Action," dated November 18, 2005, which outlined industry actions in support of these enhancements. On July 19, 2006, following the opportunity for public comment, the staff issued Regulatory Information Summary (RIS) 2006-12, entitled "Endorsement of Nuclear Energy Institute Guidance, Enhancements to Emergency Preparedness Programs for Hostile Action."

While licensees have implemented significant enhancements to their EP programs in response to the February 25, 2002, Commission Orders and various NRC generic communications, the current regulations do not encompass these elements. Therefore, the staff is proposing to revise Section IV, "Content of Emergency Plans," of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to codify the inclusion of security events. It also proposes to provide associated guidance through a revision to Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," to ensure effectiveness of command, control, and communication.

Based on results of the EP review, the staff recommends that the following security-related issues should be considered for revision:

- Emergency response organization (ERO) augmentation at an alternate facility
- Protection for on-site personnel during hostile actions
- On-shift ERO (no collateral duties)
- Licensee coordination with OROs concerning resources needed to respond to a terrorist attack
- Notification of ORO's in a timely manner of a security-based event (Abbreviated notification of OROs)

Two areas of note related to this topic are:

(1) Security-Based Drills/Exercises: Security-based events would pose unique challenges to both the licensee's ERO and OROs, and include situations not routinely practiced as part of the existing EP drill/exercise program (e.g., large fires, mass casualties, explosion damage, and the need to secure areas of the plant before mitigation efforts can proceed or the ERO is fully augmented). In its White Paper, NEI outlined a voluntary initiative leading to the incorporation of security-based scenarios during a biennial exercise to be conducted once during a 6-year cycle. The industry, in coordination with NRC staff and DHS, has completed a series of pilot drills and has developed proposed industry guidelines for the development and conduct of an integrated EP security event-based drill, which is being conducted voluntarily at each nuclear power plant site over the next 3 years.

The staff has engaged DHS to develop emergency planning exercise scenarios incorporating a wide spectrum of events and release options and emphasizing the expected interfaces and coordination between key decision makers based on realistic postulated release events. Additionally, the staff and DHS are working towards a common goal of possible options to revise applicable DHS regulations and guidance. The staff recommends expanding NRC regulations and guidance for EP drills/exercises to address the required skill sets for the EROs and OROs to meet the additional demands in security event-based drills/exercises.

(2) EALs for Security-Based Events: As part of NRC Bulletin 2005-02, the staff provided licensees with examples of acceptable modifications to the emergency classification level (ECL) definitions and security-related EALs to better focus on hostile threats themselves, rather than on changes in plant conditions resulting from a hostile act. In its White Paper, NEI subsequently proposed further refinements to the suggested changes to ECL definitions and EAL schemes. NEI has indicated to the staff its intention to incorporate these changes for security events into a forthcoming revision to NEI 99-01, "Methodology for Development of Emergency Action Levels," which will be submitted to the staff for endorsement. Even though the industry has agreed to voluntarily incorporate security-based events into its EAL scheme, the staff proposes to include this as a regulatory requirement in EP regulations.

*Other EP Issues:*

(1) Alert and Notification System (ANS), Back-up Means: Section IV.D of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(5) require nuclear power plant licensees to ensure that means to provide early notification within the plume exposure pathway emergency planning

zone (EPZ) have been established. The most common means of notifying the public is a siren system. However, not all siren systems are equipped with backup power and compensatory means are not required if sirens fail. Nevertheless, most licensees have incorporated backup capabilities in their EP plans to alert the public in the event that the primary alerting method fails.

At some sites, repeated siren failures have created a public confidence issue. The Energy Policy Act of 2005 (Public Law 109-58, August 8, 2005) mandated the following backup power requirement, "For any licensed 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, not later than 18 months after enactment of this Act, the Commission shall require that backup power to be available for the emergency notification system of the power plant, including the emergency siren warning system, if the alternating current supply within the 10-mile emergency planning zone of the power plant is lost."

From a safety perspective, the loss of power to sirens may occur concurrently with a loss-of-power event at the nuclear power plant and thus complicate efforts to implement protective actions for the public in the EPZ. The staff considered requiring back-up power to the sirens. However, the staff has subsequently decided to recommend a performance-based approach for ANSs, including amending the regulations to require a compensatory means to notify the public in the event that the primary system is unavailable. This would have the benefit of recognizing some of the more technologically advanced solutions for digital notification systems (e.g., cell phones, personal digital assistants, and smart chips in televisions/radios), consistent with proposed methodologies for a national public alert system capability, recently directed by the President (Executive Order dated June 26, 2006). While the current regulations provide adequate protection for public health and safety, the staff proposes that a requirement for compensatory means (i.e., a backup methodology, using a variety of technologies) to alert the public in the event of failure of the primary means would enhance both public safety and confidence. As noted earlier, this rulemaking, and all of the other recommended rulemakings, would require a backfit analysis.

(2) Evacuation Time Estimate (ETE) Updating: Licensees and OROs use ETEs as tools in the preplanning of effective protective action decisions. The ETE identifies potential challenges to efficient evacuation, such as traffic constraints, to allow the preplanning of mitigative measures. ETE results provide emergency planners information to support protective action decisions, including whether evacuation or sheltering in place is the better response to the emergency. Existing EP regulations are ambiguous on updating ETEs. To ensure effective protective action decisions are made, the staff is proposing changes to the regulations and guidance to require the periodic review and updating of the ETEs as well as information on how best to use ETEs. The requirements for the review and updating would be based on factors such as: (1) decennial census data; (2) EPZ population changes greater than 10 percent; and (3) major changes to evacuation route roadway networks and changes in land use.

(3) Performance-Based Emergency Operations Facility (EOF): In its SRM, dated February 23, 2005, to SECY-04-236, "Southern Nuclear Operating Company's Proposal to Establish a Common Emergency Operating Facility at its Corporate Headquarters," the Commission directed the staff to consider revising 10 CFR Part 50 to make the requirements for EOFs more performance based. This would 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 of the associated plants. To implement the Commission's directions, the staff proposes revising NRC regulations to remove the "near-site" requirement for EOFs and to replace it with performance-based requirements. Subsequently, NUREG-0696, "Functional Criteria for Emergency Response Facilities," issued February 1981, and Supplement 1 to NUREG-0737, "Clarification of TMI Action Plan Requirements," issued January 1983, would have to be revised to reflect the performance-based regulation.

(4) 10 CFR 50.54(q), Decrease in Effectiveness of Emergency Plans: The term decrease in effectiveness is not defined in 10 CFR 50.54(q); consequently, its application has varied when licensees make changes to their emergency plans, and when inspectors review licensee emergency plan changes. As a result of these emergency plan change reviews and other associated inspection activities, the staff has identified ambiguities with 10 CFR 50.54(q) which have resulted in inefficient and ineffective use of staff time and a lack of clarity regarding when a licensee should submit a plan change for NRC review. The staff proposes to: (1) require licensees to perform an analysis of the current basis when making emergency plan changes; (2) incorporate the concept of "alternative method" for compliance with regulations (i.e., those which have been used successfully before, such as revised EAL schemes); (3) provide definitions of terms; (4) add examples of acceptable changes; and (5) develop guidance regarding the establishment of a single emergency plan for multiple sites.

The staff would also develop guidance to aid NRC inspectors and provide the licensees with consistent regulatory interpretation (e.g., via issuance of generic communication documents, such as a RIS, NUREG, etc.). In addition, to increase efficiency, the staff proposes that the Commission delegate to the staff the ability to approve emergency plan changes that represent a decrease in effectiveness.

(5) Emergency Classification Timeliness: The regulations do not provide an explicit time limit for classifying emergencies. However, they do imply that classification should be made without delay. A revised regulatory framework would consistently enforce the expectation that emergency classifications should be made without delay. Accordingly, the staff is proposing regulations that would clarify the time for making notifications. This would entail the incorporation of the guidance in EPPOS-2, "Emergency Preparedness Position on Timeliness of Classification of Emergency Conditions," and NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," related to EAL timeliness (e.g., 15 minutes for EAL classification) into 10 CFR Part 50.47(b)(4) and 10 CFR Part 50, Appendix E, Section IV.D.

(6) Shift Staffing and Augmentation: The staff has had a continuing challenge in evaluating the adequacy of licensee shift staffing because of lack of clarity regarding the functional requirements for emergency response. The staff is proposing a revision to 10 CFR Part 50.47(b)(2) and Appendix E to 10 CFR Part 50, to address the emergency response functional requirements. The revision to the regulation would establish functional requirements for the emergency responders instead of focusing on specific emergency responder positions.

#### Status of Ongoing Studies:

In SECY-06-0092, "Semiannual Update on the Status of the Emergency Preparedness Activities in the Post September 11, 2001, Threat Environment," dated April 21, 2006, the staff informed the Commission of progress on the staff's evaluation of the NRC PAR guidance. At that time, the staff expected to report the conclusions of the study in this paper. However,

delays in the start of the focus group activities, resolution of a source-term issue, and the conduct of a peer review have delayed project completion. While efforts to date have not changed the staff's views as reported in SECY-06-0092, those views remain preliminary pending the results of issue resolution and the peer review. Upon completion of the study, the staff will provide its recommendations to the Commission.

In response to lessons learned from Hurricanes Katrina and Rita, the staff has contracted with Sandia National Laboratories to conduct a study, "Assessment of Emergency Response Planning and Implementation in the Aftermath of Major Natural Disasters and Technological Accidents," to analyze the mass public evacuations and emergency responder actions. If appropriate, based on the study, the staff intends to revise NUREG/CR-6863, "Development of Evacuation Time Estimate Studies for Nuclear Power Plants," and NUREG/CR-6864, "Identification and Analysis of Factors Affecting Emergency Evacuations." The lessons learned from these recent large-scale emergency response activities could provide a valuable resource for emergency planning activities.

#### Performance-Based Regulations:

The current EP regulatory regimen provides EP at a high level and the proposed enhancements would strengthen EP programs. However, as the EP program has matured and industry performance has improved, the staff recognized the benefits of a performance-based regulatory structure. Thus, the staff is proposing a new voluntary performance-based regulatory regimen. The staff has conceptualized the basis for a voluntary performance-based EP regulatory regimen (Enclosure 4). This regimen could be adopted in lieu of the existing EP regulations contained in 10 CFR Part 50. The current regimen tends to emphasize compliance with, and control over, emergency plans and facilities. The performance-based regimen would focus licensee efforts on actual performance competencies, rather than control of emergency plans and procedures. Regulatory oversight would focus on licensee performance, instead of licensee processes and procedures. Creating a performance-based EP regulatory regimen could achieve a higher level of preparedness, as the regimen would focus on results and abilities rather than on means. The performance-based regimen would provide the NRC with enhanced oversight of the actual competencies important to protection of public health and safety while allowing licensees increased flexibility. The agency would have to coordinate changes with stakeholders, including DHS.

#### COMMITMENTS:

Listed below are the actions or activities committed to by the staff in this paper.

1. The staff will continue outreach activities to engage stakeholders in the regulatory process.
2. The staff will provide its recommendations to the Commission upon completion of the PAR study.

#### RECOMMENDATIONS:

The staff recommends proceeding with the development of a rulemaking plan and proposed guidance changes for the enhancements to the EP regulations and guidance identified in

Enclosure 2. In addition, the staff recommends that the Commission delegate to the staff the ability to approve emergency plan changes that represent a decrease in effectiveness. It is expected that these enhancements will be completed over a 4-year period.

The staff recommends that the Commission grant approval for the staff to begin activities to develop a new voluntary performance-based EP regulatory regimen.

RESOURCES:

The staff estimates that the resources needed to support the planned activities identified in Enclosure 2 are 4.8 FTEs in FY 2007 and 4.9 FTEs and \$225K in FY 2008. For FY 2007, the resources are included in the budget. For FY 2008, resources budgeted are 4.4 FTE and \$225K. The staff will work these issues in accordance with the priority established in Enclosure 2 and as resources allow. Resources necessary to complete the recommended enhancements in FY 2009 and FY 2010 will be addressed through the FY 2009 and FY 2010 PBPM process. If the Commission approves the staff's recommendation to develop the new voluntary performance-based EP Regulatory regimen, the staff will develop a detailed performance-based EP regulatory regimen plan, for Commission review, utilizing existing staff resources.

COORDINATION:

The Office of the General Counsel reviewed this package and has no legal objection. The Office of the Chief Financial Officer has reviewed this Commission paper for financial implications and has no objections.

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Enclosures:

1. Priority Determination for Enhancements of Emergency Preparedness Regulations and Guidance
2. Ranking of Emergency Preparedness Issues
3. Stakeholder Input
4. A Proposal for Performance-based Emergency Preparedness Regulatory Concept

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W200500098

**ADAMS ACCESSION NUMBER: ML061910707**

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**PRIORITY DETERMINATION FOR ENHANCEMENTS  
OF EP REGULATIONS AND GUIDANCE**

The following procedure was used to calculate and rank an issue’s priority. The staff based the enhancement priorities upon two groups of goals and factors (see Tables 1 and 2, of this enclosure).

It designated the first group as “primary” goals of emergency preparedness (EP), reactor safety and physical security. The second group was designated “secondary” goals and incorporated the U.S. Nuclear Regulatory Commission’s (NRC) strategic goals of openness, effectiveness, and management. The staff also took into account a number of factors including agency interest, potential stakeholder impact, and predictability. This enclosure reflects the judgement of the staff regarding the prioritization of the proposed enhancements to the EP regulations and guidance.

- 1) For each issue choose a primary goal and a secondary goal from the Table 1, then assign the ranking points for each affected area (i.e., in terms of high, medium, and low).
- 2) Next, evaluate how the issue could be affected by the factors listed in Table 2, and, again, assign the ranking points for each affected area (i.e., in terms of high, medium, and low).
- 3) To calculate the issue’s final value, or it’s priority, start with the value selected from the primary goal. Add that to the value assigned to the selected secondary goal. Finally, add the value which was selected from the factors, with their assigned ranking values.

The sum of all derived values will determine an issue’s priority, as noted in the tables in Enclosure 2.

Table 1

EP Regulations and Guidance Enhancement Priorities						
	Primary Goal			Secondary Goal		
	EP	Interface with Safety	Interface with Security	Openness	Effectiveness	Management
High	30	30	30	8	8	8
Medium	20	20	20	4	4	4
Low	10	10	10	2	2	2
<u>High</u> : Significant enhancements to EP regulations and guidance/meet strategic goals						
<u>Medium</u> : Moderate enhancements to EP regulations and guidance/meet strategic goals						
<u>Low</u> : May enhance EP regulations and guidance/meet strategic goals						

Table 2

EP Regulations and Guidance Enhancement Priorities			
	Factors		
	Predictability	Stakeholder Impact	Agency Interest
High	8	-8	15
Medium	4	-4	0
Low	2	0	0

High: Easy to implement, significant impact on stakeholders

Medium: Challenges to implement, some impact on stakeholders.

Low: Not easy to implement, no impact on stakeholders.

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The following example will illustrate a typical calculation. Select an EP-related issue, such as 10 CFR 50.54(q) (i.e., decrease in effectiveness of emergency plans):

PRIMARY/SECONDARY GOALS:

- Primary Goal - EP (30)
- Secondary Goal - Effectiveness (8)

FACTORS:

- Predictability (4)
- Stakeholder Impact(-4)
- Agency Interest (0)

TOTAL SCORE: 38 (a High priority level)

## Ranking of Emergency Preparedness Issues

Table 1

Regulatory Inclusion of Security-Based EP elements

<b>Issue</b>	<b>Priority</b>	<b>Affected Rule</b>	<b>Associated Guidance Change</b>	<b>Interested Stakeholder</b>	<b>Link to Strategic Goal</b>
ERO augmentation at an Alternate facility	High	Appendix E	Reg. Guide (RG) 1.101	Industry, NRC	Security
Protection for Onsite Personnel	High	Appendix E	RG 1.101	Industry, NRC	Security
Onshift ERO, No Collateral Duties	High	Appendix E	RG 1.101	Industry, NRC, NEI	Security
Licensee Coordination with OROs Concerning Resources Needed to Respond to Terrorist Attack	High	Appendix E	RG 1.101	Industry, NRC, ORO, DHS	Security
Security-based Drill/Exercise	High	Appendix E	RG 1.101	Industry, NRC, NEI, ORO, NGO (public), DHS	Security
EALs for Security-Based events	High	Appendix E	RG 1.101	Industry, NRC, NEI, ORO, NGO (public)	Security
Abbreviated Notification of OROs	High	N/A, No rule change being recommended	RG 1.101	Industry, NRC, NEI, ORO, DHS	Security

The staff established the priorities for the above issues in accordance with the methodology described in Enclosure 1.

Table 2

Other EP Issues

<b>Issue</b>	<b>Priority</b>	<b>Affected Rule</b>	<b>Associated Guidance Change</b>	<b>Interested Stakeholder</b>	<b>Link to Strategic Goal</b>
Alert and Notification Systems, Back-up Means	High	50.47(b)(5)	N/A	NRC staff, NEI, OROs, NGOs (public), DHS, Industry	Safety
Evacuation Time Estimates (ETE), Updating	High	50.47(b)(10) & App. E	NUREG/CR-6863	NRC staff, NEI, OROs, NGOs (public), Industry	Safety
EOF-Performance Based	High	50.47(b)(3) & (d)(1) & App. E	NUREG-0696 & 0737	Commission, NRC staff, NEI, NGOs (public), Industry	Effectiveness
Decrease in Effectiveness of Emergency Plans	High	50.54(q)	RIS-2005-02	NRC staff, NEI, Industry	Effectiveness
Emergency Classification Timeliness	High	50.47(b)(4) App. E	EPPOS 2	NRC staff, NEI, Industry	Safety
Shift Staffing and Augmentation	High	50.47(b)(2) & App. E	NUREG-0654, 0696 Sup. 1 to 0737	NRC staff, NEI, Industry	Safety
ERO Call-Out	Medium	50.47(b)(2) & (14)	NUREG-0654, ROP	NRC staff, NEI, Industry	Safety
Corrective Action Program for EP	Medium	50.47(b)(14) & 50.54(t)	N/A	NRC staff, NEI, Industry	Safety
EP Staff Training	Medium	50.47(b)(16)	NUREG-0654 Section P	NRC staff, NEI, Industry	Effectiveness
Systematic Approach to Training (EROs)	Medium	50.47(b)(15), 50.120	NUREG-0653 Section O	NRC staff, NEI, Industry	Safety
Notification of Alert System Major Loss	Medium	50.72(b)(3)(xiii)	NUREG-1022 & RG 1.101	NRC staff, NEI, Industry	Effectiveness
Clarify "Consideration" of KI and Other PARs	Medium	50.47(b)(10)	N/A	NRC staff, NEI, Industry	Effectiveness
Joint Information Center (JIC)	Low	N/A	NUREG-0654	NRC staff, NEI, Industry	Openness
License Transfer	Low	50.8	N/A	NRC staff, NEI, Industry	Effectiveness

The staff established the priorities for the above issues in accordance with the methodology described in Enclosure 1.

## STAKEHOLDER INPUT

The U.S. Nuclear Regulatory Commission (NRC) staff addressed over 700 stakeholder comments (ADAMS Accession No. ML060450376), including comments collected during the 2005 National Radiological Emergency Preparedness (NREP) conference (ADAMS Accession No. ML0520002630). The staff also received additional stakeholder comments during the public meetings on May 19, 2006 (ADAMS Accession No. ML061460444) and the July 19, 2006 (ADAMS Accession No. ML 062090202) public meetings. The staff made a good-faith effort to address the issues, and the referenced documents at the end of this enclosure contain the staff responses to comments.

### Security-Based Emergency Action Levels (EAL):

#### Non-governmental organizations (NGO) Comments:

- Each different plant design may need to be considered for security-based EALs; a uniform approach may not be appropriate. Security-based EALs should be tailored for plant-specific design vulnerabilities. Additionally, the NRC should tailor containment failure EALs to the probabilities of these failures occurring. (Note #1)
- The effectiveness of security-based EALs for elevated spent fuel pools (SFP) is a concern, as the lack of short-lived radioisotopes released from damaged spent fuel would make a significant difference regarding potassium iodide distribution and would also make a significant difference for evacuation/sheltering decisions. (Note #1)
- For a known hijacked aircraft scenario (i.e., regarding the 30 minute criterion for declaring an Alert emergency classification level (ECL)), the size of the aircraft should be deleted from the security-based EAL because any aircraft could pose a threat to a nuclear power plant. For example, a large commercial jetliner could carry sizable amounts of jet fuel, while a smaller plane could carry explosives. (Note #1)
- When a security-based EAL declaration is made, a call should be made to mobilize buses for transportation of dependent personnel from the area of the plant. (Note #1)
- As soon as an aircraft is known to be hijacked, the Agency should be able to get all plants into a security-based EAL (because some airports are within 30 minutes of nuclear power plants). (Note #1)
- “No-fly zones” should be established around nuclear power plants. (Note #1)

#### State/Tribe/Local Comments:

- Security-based ECLs may affect the implementation of current offsite response procedures. State and local responders may be unnecessarily mobilized for security-based events that are easily dispensed by onsite security resources. (Note #2)

- The State and local governments focused on the definition used for the revised description of the ECL. They felt that the description for a notification of unusual event (NOUE) was unclear, particularly the phrase “indicate a security threat. “ They also suggested adding “credible” and “site specific” to the ECL for an NOUE and “confirmed threat” to the ECL for the ECL for an Alert. (Note #2)
- If EALs change (because of the current threat environment), NRC/Federal Emergency Management Agency (FEMA) must educate the public and State/local/tribal organizations. (Note #3)
- ECL declarations need to be coupled with additional information (e.g., basis, plant conditions). The EAL description alone may not represent the actual threat to public. (Note #2)

NEI/Industry Comments:

- The nuclear industry and NEI committed to submitting a revision to NEI 99-01 in calendar year 2007 that address revisions to EALs. (Note #2)
- NRC and Department of Homeland Security (DHS) should implement regulation in parallel and coordinate their activities. (Note #1)
- The NRC should recognize that the EAL schemes are a methodology and should be consistently applied after considering site-specific aspects. (Note #1)
- Outreach efforts should inform State and local emergency agencies that NEI-99-01 is an acceptable methodology for EAL classifications. (Note #1)
- The 30-minute EAL criteria fits with the threat criteria of other governmental agencies. (Note #1)

Security-Based Drills and Exercise Scenarios:

NGO Comments:

- Licensees should always conduct drills/exercises with a radiological release (i.e., to establish public confidence in the licensee’s ability to respond to the release, thereby ensuring the public’s health and safety). (Note #1)
- Licensees should have security-based drills on a biennial basis. Additionally, the scheduling and makeup of emergency drills based on security-related events should be site specific because of the NGO perception that some sites are more at risk than others. For example, a nuclear power plant such as Indian Point should conduct emergency drills based on security events at least biennially, since the plant operates under a more (i.e., perceived) threatening security environment. A plant with a lower security threat, such as Wolf Creek, may not need to conduct security-based drills as often. (Notes #1 and #4)

- Licensees should have to practice the “worst case” scenario (e.g., a fast-breaking security event with a release) to adequately understand available resource issues (i.e., to find out if they have the necessary resources, such as fire, police, traffic control, etc.). (Notes #1 and #4)
- All involved parties need to deal with the public perceptions. (Note #1)
- The public would like to have as much information as possible concerning EP drills and exercises. The NRC should not use an overly broad security blackout (i.e., for security-based exercises and/or EP exercises) to limit the public dissemination of drill/exercise results. Additionally, all drill/exercise participants should not be aware of drill/exercise scenarios. (Notes #1 and #4)

State/Tribe/Local Comments:

- Local law enforcement agencies may not be familiar with a site’s security plan. (Note #2)
- The security-based drills should be integrated into the licensee’s normal drill regime. (Note #2)
- Security, incident response, and consequence management should be integrated. (Note #3)
- Certain “protected” information has not been shared with States/local/tribal organizations, hampering the ability of offsite response organizations’ ability to respond. (Note #3)
- States/local/tribal organizations are seeking guidance and coordination in determining “need to know.” (Note #3)
- Licensee plans and protocols for interacting with State/local/ tribal organizations should include instructions on conducting security drills. (Note #3)

NEI/Industry Comments:

- The roles and responsibilities of the NRC/DHS should be clear, with respect to notifications; on-site protective actions; plant operations; integration of emergency response organizations, security, operations; coordination of off-site support and plant ingress; and recovery from the aftermath of a terrorist attack. (Notes #4 and #5)
- Drill and exercise participation credit should be given to licensees who conduct security-based drills with no release and no protective action recommendations (PAR). (Note #1)
- A definition of “reasonable assurance,” is needed with respect to annual reviews (i.e., specific regulatory documents, methodology, and exercise EP/security demonstration criteria). (Note #4)

- Regulations should permit a range of events in order to demonstrate a greater level of realistic preparedness and response. Over the past 25 years, the industry and its offsite counterparts have demonstrated reasonable assurance through exercises that have unrealistic radiological releases. (Note #4)
  - This has provided negative training for operators and offsite responders. It has also resulted in the public's expectation that responding to worst case accidents always occurs in 4 hours (i.e., the licensees, state and local authorities, and federal agencies). (Note #4)

#### Abbreviated Notification to NRC and Offsite Response Organizations (ORO):

##### State/Tribe/Local Comments:

- The ORO notification should precede notification of any other agency, including the NRC. Additionally, simultaneous communications (i.e., automatic notification processes) to NRC and OROs should be required in EP plans. (Note #3)
- Notification of OROs should be in conjunction with the NRC (i.e., simultaneous communications with automatic notification systems) within the 15 minute deadline. In addition, the State Police Office of Emergency Management or other local agencies could most effectively share notification alerts systems within the other state level OROs. (Note #2)
- Does the NRC have the ability to verify an abbreviated notification from a facility/licensee? (Note #2)

##### NEI/Industry Comments:

- EP plans should include provisions for sharing sensitive information, such as requiring secure phones lines in all power plants. Information sharing between Federal agencies, the licensee, and OROs must occur in a timely manner regardless of information sensitivity levels. (Note #2)
- A review of regulatory communications requiring the emergency notification systems (ENS) line and emergency response data system (ERDS) is needed. State-of-the-art secure communications systems should replace the ERDS/ENS. (Note #4)
- The ERDS/ENS systems should consider all stakeholders. (Note #4)

#### Public Alert and Notifications:

##### NGO Comments:

- The NRC should take the lead over DHS on the back-up power to sirens issue. (Note #1)

- Without back-up power for the emergency sirens and/or installation of the advanced notification technologies (but absent from homes today), how can DHS/FEMA pass emergency response responsibilities to any nuclear power reactor experiencing an event involving an electrical grid failure? (Notes #2 and #4)
- Outdoor and indoor notification systems are necessary for the alert and notification system (ANS). (Note #1)
- Drivers of people who depend on transportation should have pagers or cell phones (i.e., primarily for enhanced mobilization or readiness and not notifications). (Note #1)
- The DHS Technical Bulletin regarding outdoor warning systems is primarily considered as a guidance document rather than a regulatory requirement. (Note #1)
- How will residents know whether to evacuate or seek shelter if there is a loss in communication? (Note #1)

State/Tribe/Local comments:

- Mandated requirements for battery back-up power supplies to sirens are not necessary. The emergency alert system (i.e., an alternative method for alerting the public, using National Oceanic and Atmospheric Administration (NOAA) weather alert radios and a reverse call-out system) has satisfactorily notified the populations living in the emergency planning zones (EPZ) around their plants. (Note #2)
- The States, Tribes, local governments, and licensees are in the process of investigating the use of advanced notification technologies, such as using reverse 911 technologies, in conjunction with existing telephone land-lines. The implementation of these new technologies would not preclude the continued use of the existing siren systems. Federal agencies should know about State, tribal, local government, and licensee activities in this area. (Note #3)
- Advances in communications technology should be considered. For example, information could be shared over the Internet (on blogs or Web sites) or other Web-based systems. (Note #2)
- Community response must address all local threats and not just nuclear power plants. State and local governments should have the freedom to decide on the type of alerting systems needed for their communities that will accommodate all possible threats. (Note #3)
- Public information campaigns should be conducted that model the “learn not to burn/Anti-smoking” campaign. (Note #3)

NEI Comments:

- How does the Executive Order, "Public Alert and Warning System," dated June 26, 2006, affect the current ANS? (Note #1)
- Back-up power to sirens may not be the solution to this issue. (Note #1)

Off-Site Protective Action Recommendations (PAR):

NGO Comments:

- The NRC should incorporate analysis resulting from the mass public evacuations preceding Hurricanes Katrina and Rita into NUREG/CR-6863, "Development of Evacuation Time Estimate Studies for Nuclear Power Plants," and NUREG/CR-6864, "Identification and Analysis of Factors Affecting Emergency Evacuations." (Note #1)
- The Agency should consider studies of human behavior in radiological events (i.e., which required evacuations) and then expand upon these studies. The public and emergency workers will behave differently in a radiological emergency versus a natural disaster or other type of event. Additionally, the Agency should reevaluate evacuations and specifically consider (i.e., peer review with established critics) those for radiological events for sociological aspects (e.g., real numbers of emergency personnel responding and a percentage of shadow evacuees causing problems). (Notes #1 and #5)
- The modeling methodology in evacuation time estimates (ETE) had 16 different scenarios for Indian Point but did not include rush hour or peak traffic situations. (Note #1)
- A better estimate for the percentage of "shadow evacuations" in ETEs is needed. (Note #1)
- The Agency should explore the role played by ETE studies in its determination of "reasonable assurance" evaluations (i.e., how geography constraints or inclement weather may effect the evacuations). (Notes #1 and #5)
- More specific regulations/standards on ETEs are needed. (Notes #1 and #5)
- With increasing populations around nuclear power plants, specific criteria/requirements for sheltering are needed. (Notes #1 and #5)
- The plume may go farther than expected in an actual release. (Note #1)
- The published guidance document should more specifically address reception centers. (Notes #1 and #4)
- Emergency workers need protective clothing for emergencies. (Note #1)
- There are significant site-specific differences in sheltering (e.g., old stone houses with full basement in New England, versus single story wood frame houses with no basements in other part of the country). (Notes #1 and #4)

- There is a public perception that sheltering is a substitute for areas with longer ETEs. (Note #1)
- Surveys of emergency workers (i.e., those that may or not show up in an actual emergency, because they may return home to take care of their own families) should be anonymous. In addition, rosters of back-up emergency workers may be needed. (Notes #1 and #4)
- Sufficient supplemental gas tanker trucks should be in place for emergencies, and service stations should sign letters of agreements to remain open during in emergencies. (Note #1)
- The Agency should re-evaluate the steady-state transport plume models. (Notes #1 and #4)
- The 10-mile EPZ has been viewed as too small. The public views it as a politically arbitrary, and the “keyhole” concept exacerbates that concern. (Note #1)
- The Agency needs to reevaluate the National Academy of Science April, 2000 report, on spent fuel pool (SFP) zircaloy fires and related impacts (e.g., from potential terrorist attacks, etc.,). (Notes #1 and #4)
- Standard, multi-hazard route signs should be established so organizations/communities could share resources. (Note #1)
- Medical facilities in the areas adjacent areas of nuclear power plants would not be able to monitor and decontaminate a large number of people. Plans must be in place to set up mobile decontamination tents; and the NRC must determine that there is an adequate supply of monitors, decontamination equipment, KI, and trained personnel. (Notes #1 and #4)
- The NRC should more clearly delineate training for emergency responders, including school teachers (i.e., making specific decisions on the numbers of personnel to be trained and codifying the definition of “training”). (Note #1)
- Certain areas (such as Cape Cod) cannot be evacuated in a timely manner. Emergency plans and procedures should be adapted to the needs of such areas. (Notes #1 and #4)

State/Tribe/Local Comments:

- The NRC should get more involved with EP beyond the boundaries of its licensees because of its regulatory authority over those licensees. (Note #2)
- ETEs, the tools/methodologies to update ETEs, and keeping ETEs current remain concerns. (Notes #2 and #5)
- The NRC should develop guidance that focuses on decision making of State, local, and offsite emergency responders. (Note #2)

- The current licensing process is good in that it requires collaboration at the local level and detailed EP planning. (Note #2)
- Sheltering has been determined to be effective option in the event of a radiological event (i.e., for reducing radiation exposures). Should sheltering also be recommended for other events, such as school lockdowns (i.e., based on good intelligence of a security threat)? (Note #3)
- OROs do not have enough resources to train for sheltering. (Note #3)

NEI/Industry Comments:

- Who has regulatory authority, the NRC or DHS (i.e., in the event of an emergency)? Should one agency have overall responsibility vice having two agencies responsible for on-site and offsite actions? (Note #4)
- Definitions are needed regarding offsite protective actions and radiological releases. Clear assumptions are needed regarding evacuation, sheltering, sheltering in place, and addressing of security-based events. (Notes #4 and #5)
- The NRC should develop a clear definition of sheltering. (Notes #2 and #5)
- Evacuation may not be the optimum PAR. (Note #1)
- In order to develop protective actions to ensure the public's health, NEI/Industry is looking at margins of safety that can be explored to optimize protective actions (i.e., to identify the areas where there is the highest level of risk). (Note #1)
- Regulations should have a sound technical basis for protective strategies. (Note #1)
- Any change in public protection strategy should be conveyed to State and locals. (Note #1)

Endnotes for Stakeholder Input Section:

- (#1) Comments received during the May 19 or July 19, 2006, public meetings. Provided for the Commission's information.
- (#2) Comments received during August 31- September 1, 2005, public meeting. NRC follow-up items can be found in the "Summary and Analysis of Comments" document, (ADAMS Accession No. ML # 060450376.)
- (#3) Comments received during the April 2005 NREP conference. NRC and FEMA follow-up items can be found in "Discussion of NREP Parking Lot Items," (ADAMS Accession No. ML 0520002630.)
- (#4) Comments from electronic correspondence. Provided for the Commission's information.

(#5) Comments will be addressed when providing the results of the on-going studies.

## A PROPOSAL FOR PERFORMANCE-BASED EP REGULATORY CONCEPT

### Conceptualization of a Performance-Based EP Regulatory Regimen<sup>1</sup>

#### Introduction:

The staff of the U.S. Nuclear Regulatory Commission (NRC) has conceptualized the basis for a voluntary performance-based emergency preparedness (EP) regulatory regimen. This regimen could be adopted in lieu of the existing EP regulations contained in Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," of the *Code of Federal Regulations* (10 CFR Part 50). If the Commission approves activities to develop this concept, the staff would engage stakeholders, including the Department of Homeland Security (DHS), to develop a fully detailed proposal, inform the Commission of the proposal, and initiate subsequent development of performance-based regulations.

The current EP regulatory regimen provides EP at a high level. However, as the EP program has matured and industry performance has improved, the staff recognized the benefits of a performance-based regulatory structure. The current regimen tends to emphasize compliance with, and control over, emergency plans and facilities. The performance-based regimen would focus licensee efforts on actual performance competencies, rather than control of emergency plans and procedures. Regulatory oversight would focus on licensee performance instead of licensee processes and procedures. Creating a performance-based EP regulatory regimen could achieve a higher level of preparedness, as the regimen would focus on results and abilities rather than on means.

#### General Oversight Considerations:

The staff would design the performance-based regimen to ensure that licensee emergency response would be maintained at a high level. This performance-based regimen would also include a base level of NRC requirements for emergency plans.

The proposed performance-based regimen would not change certain areas, such as emergency planning zone size, corrective actions, the contingency for nonparticipation by offsite response organizations, and compliance with emergency action level and protective action recommendation standards. The NRC, with input from DHS, would still make a reasonable assurance determination, in accordance with the current regulations. However, the basis for the determination would include demonstrations of regulatory-required EP competencies. Biennial exercises and selected drills would be inspected to verify compliance with the new requirements.

The performance-based regimen would also be supported by a set of performance indicators that would measure emergency response performance in the period between drill/exercise inspections. The current EP-related reactor oversight process performance indicators would be a starting point for development. Under the proposed regimen, performance indicators would be required by regulation, rather than voluntary. The Agency would request stakeholder input during development of performance indicator to enhance the end product. Input to the

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<sup>1</sup> This is an internal NRC conceptual proposal, which has not been introduced, distributed, or coordinated with external stakeholders, including DHS.

performance indicators as well as implementation of corrective actions would be inspected regularly.

Example Performance-Based Regimen Elements:

- The staff would develop a set of overarching performance goals to guide the design of the performance-based regimen.
- The following are examples of performance demonstrations:
  - The on-shift emergency response organization (ERO) will perform in a facility that simulates the control room, while responding to transients specified by the scenario. It will demonstrate the numerous competencies necessary for emergency response.
  - The augmented ERO will perform in actual emergency response facilities. It will demonstrate the numerous competencies necessary for emergency response from the Technical Support Center, Emergency Operations Facility, Joint Information Center, and Operations Support Center.

Performance indicators:

The Agency would develop performance indicators, soliciting stakeholder input. The performance indicator set could include the following:

- drill and exercise performance
- ERO participation
- alert and notification system performance
- facility and equipment availability
- timeliness of team response
- demonstrated licensee success during evaluated drills and exercises

Further Development Actions:

If the Commission directs the staff to pursue the performance-based regimen, a series of developmental activities would begin. A team of EP professionals would be assembled with national laboratory assistance to further develop the concept of performance-based oversight of nuclear power plant EP programs. The team would address the following issues:

- performance standards for emergency response facilities
- development of performance indicator system

- development of performance standards to measure the adequacy of the performance demonstrations and the critique process
- development of a rulemaking plan
- development of a pilot program for implementation (with industry volunteers)
- development of inspection procedures
- development of a significance determination process for noncompliance issues
- development of a performance-based system for offsite response organizations
- development of required scenarios for each 6-year cycle